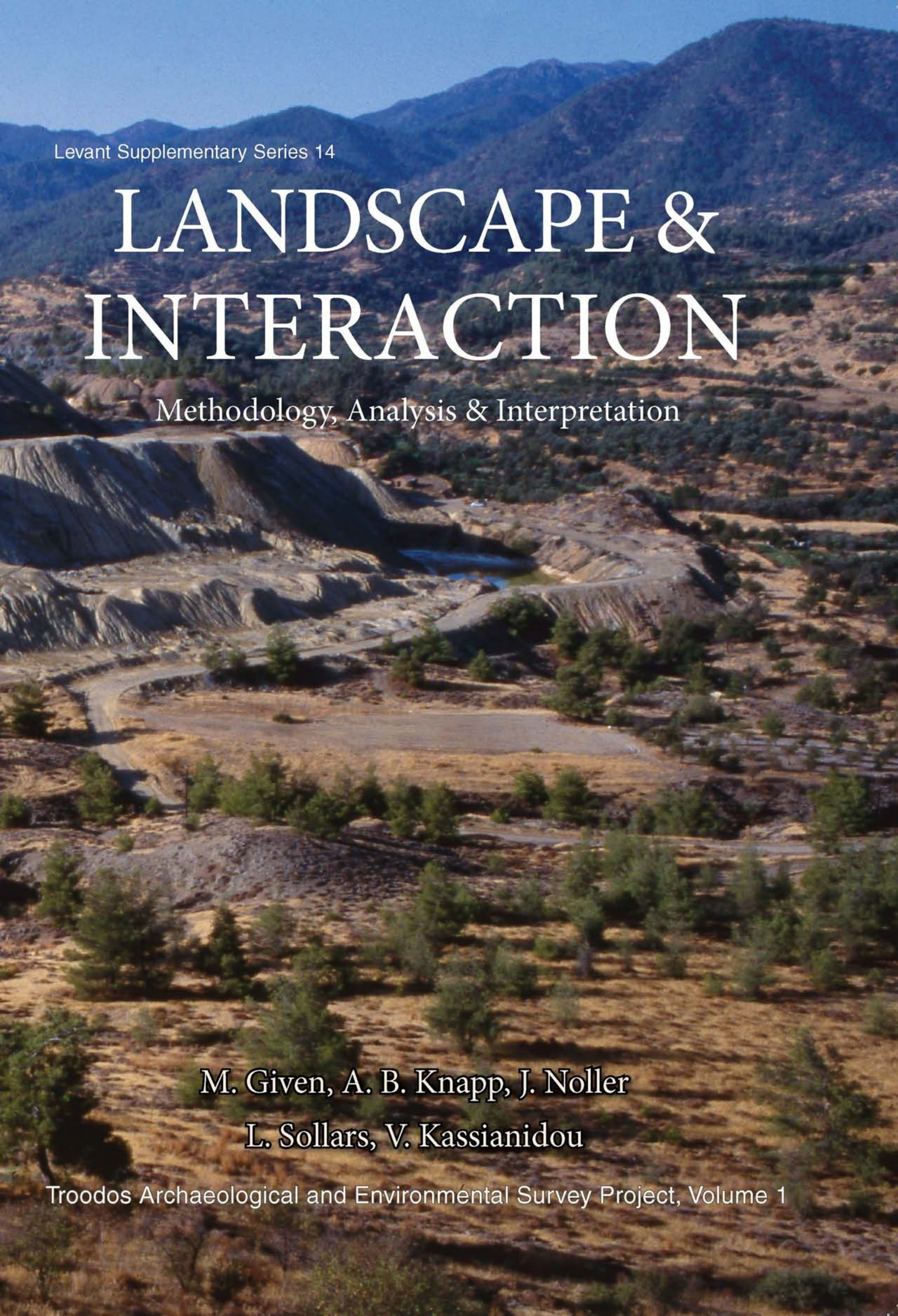


Levant Supplementary Series 14

LANDSCAPE & INTERACTION

Methodology, Analysis & Interpretation

M. Given, A. B. Knapp, J. Noller
L. Sollars, V. Kassianidou

Troodos Archaeological and Environmental Survey Project, Volume 1

LEVANT SUPPLEMENTARY SERIES
VOLUME 14

LANDSCAPE AND INTERACTION
The Troodos Archaeological and Environmental Survey Project, Cyprus

VOLUME 1
Methodology, Analysis and Interpretation

By
Michael Given, A. Bernard Knapp, Jay Noller, Luke Sollars and Vasiliki Kassianidou

with contributions by

Hugh Corley, Ian Evans, Sevina Floridou, Ruth Smadar Gabrieli, Myrto Georgakopoulou, Erin Gibson, Marios Hadjianastasis, Mara T. Horowitz, Jean Humbert, Tracy Ireland, Sarah Janes, Sturt W. Manning, Carole McCartney, Emmanuel Moutafov, Maria Ntinou, Chris Parks, Danielle A. Parks†, Robert Schon, Charlotte Schriwer, Neil Urwin, Joanita Vroom and Kristina Winther-Jacobsen

OXBOW BOOKS
Oxford and Oakville

Published jointly by
the Council for British Research in the Levant
and
Oxbow Books, Oxford, UK

© Council for British Research in the Levant, Oxbow Books and the authors, 2013
CBRL Honorary Editor: Thomas F. Tartaron

ISBN 978-1-78297-187-0

Front cover: Memi modern mine and Roman smelting site of Ayia Marina *Mavrovouni*, looking south into the Troodos Mountains (Chris Parks)

This book is available direct from:

Oxbow Books, Oxford, UK
(Phone: 01865-241249; Fax: 01865-794449)

and

The David Brown Book Company
PO Box 511, Oakville, CT 06779, USA
(Phone: 860-945-9329; Fax: 860-945-9468)

or from our website

www.oxbowbooks.com

A CIP record for this book is available from the British Library

Printed and bound in Great Britain by
Short Run Press, Exeter

To the people of the Survey Area, past and present

Abstract

The fieldwalkers and specialists of the Troodos Archaeological and Environmental Survey Project investigated a wide variety of physical and cultural landscapes on the northern edge of the Troodos Mountains in central Cyprus over six field seasons. These landscapes range from the cultivated Mesaoria Plain in the north to the forested Troodos Mountains in the south, and from the rich and fertile Karkotis Valley in the west to the drier and narrower Lagoudhera Valley in the east. Across this physical topography lie the cultural landscapes of food and fibre production, natural resource extraction, water conveyance and industry, ritual and burial, and the structures associated with villages, farms and copper mines.

Our regional perspective and time span of at least 12,000 years mean that the research issues are inevitably wide-ranging. At the core is the complex and dynamic relationship between people and their landscape, as it was played out in resource extraction, communication, settlement, social organisation, and the manipulation of soils, plants and water. This conceptual focus opens out onto a wide range of case studies, both chronologically and thematically.

Volume 1 of this publication contains a full explanation of the project's research context, research philosophy and methodology, and detailed analyses of the archaeology, material culture, architecture and environmental record of the Survey Area as a whole. This is followed by a series of period-specific analyses (Prehistoric, Iron Age, Hellenistic–Roman and Byzantine–Modern), and a conclusion which addresses our primary research goals and offers an evaluation of the project.

Volume 2 presents the results of our fieldwork and research, area by area. The analysis of this material is organised geographically, thematically and chronologically, and focuses on explicit research questions: the volume is data-rich but not merely descriptive. The emphasis throughout is on the integration of the work of our field teams and interdisciplinary specialists: this integration began in the field and was carried through the analysis and into the publication.

Our findings cover all periods from the Aceramic Neolithic to the present day. In the Aceramic Neolithic there was seasonal exploitation of the plains for cereal cultivation. We have established a pattern of substantial valley settlements and smaller foothill agricultural sites from the Late Chalcolithic to early in the Late Bronze Age. Particularly important are two Early Bronze Age settlements in the Karkotis Valley, clearly exploiting the copper mines of Skouriotissa and the rich and well-watered alluvial soils of the valley. Our most notable finds from the Iron Age to Classical period consist of two Archaic rural sanctuaries and several cemeteries.

In the Late Roman period we have an industrial landscape centred on the massive-scale production of copper at Skouriotissa, with intensive cultivation in the valley and a network of farmsteads further afield to support it. There is also a separate mining and agricultural system to the south-east, as well as isolated sites in the mountains producing timber, charcoal and other forest products. After an apparent gap in the Byzantine period, we have a system of Medieval estates, intense cultivation in the fertile Karkotis Valley in the Medieval and Ottoman periods, and a complex of small settlements, churches and paths in the mountains. Our work in the modern period has focused on the history and archaeology of mining and agriculture, and includes a substantial series of interviews with local villagers.

Contents

Preface and Acknowledgements ix
List of Colour Plates xi
List of Figures xiii
List of Tables xv
List of Contributors xvii

1 Introduction: The TAESP Landscape in Context 1
1.1 Overview and Research Aims 1
1.2 Environmental Context 3
1.3 Archaeological and Historical Context 4
1.4 Research and Fieldwork Philosophy 9
1.5 How to Use this Book 14

2 Methodology and Analytical Procedures 16
2.1 Introduction 16
2.2 The Survey Area and Sampling Strategies 18
2.3 Fieldwalking and Artefact Collection 20
2.4 Geomorphology 27
2.5 Pottery Analysis 29
2.6 Lithics Analysis 31
2.7 Working and Living IT in the Landscape 32
2.8 Seeding Experiments 35
2.9 Ploughsoil Experiments 39
2.10 Analysis of Pottery and Tile Distribution 41
2.11 Botany and Geobotany 44
2.12 Archaeometallurgy 46
2.13 Absolute Dating of Charcoal Samples from the Slag Heaps 48
2.14 The Recent Past: Architecture, Irrigation, Interviews and Documents 54

3 The Material Culture of the TAESP Landscape 57
3.1 Prehistoric Pottery 57
3.2 Iron Age Pottery 62
3.3 Hellenistic–Roman Pottery 63
3.4 Medieval–Modern Utility Wares 69
3.5 Medieval–Modern Fine Wares 74
3.6 Pottery Catalogue 80
3.7 Special Finds Analysis and Catalogue 190
3.8 Lithics Analysis 200
3.9 Archaeometallurgical Finds and Analytical Results 237
3.10 Charcoal Analysis 253
3.11 Architecture in the Landscape 261
3.12 The Archaeology of Water: Pre-industrial Water Networks 277
3.13 Movement in the TAESP landscape 286

4 The Environmental Record of the TAESP Landscape....296
4.1 Introduction....296
4.2 Physiography....297
4.3 Geology and Tectonism....298
4.4 Palaeoenvironment....299
4.5 Geomorphology....302
4.6 Geoarchaeology....305
4.7 Spatial Distribution of Old Olive Trees....311
4.8 Modelling Fuel Resources for Past Smelting Operations....314

5 Prehistory and History in the TAESP Landscape....321
5.1 Prehistoric Landscapes....321
5.2 Iron Age and Classical Landscapes....326
5.3 Hellenistic and Roman Landscapes....328
5.4 Byzantine–Modern Landscapes....334

6 Conclusions: Interactions in the Cypriot Landscape....343
6.1 The Material Culture of Survey....343
6.2 Human Practice and Experience....344
6.3 Movement and Interaction....346
6.4 People and Environment....348
6.5 Evaluation and Conclusion....350

Appendix: Pottery Chronotypes....353

Bibliography....371

Index....395

Colour Plates....399

Preface and Acknowledgements

We are pleased to acknowledge the many funding bodies who have made the project possible: Arts and Humanities Research Council; British Academy; Council for British Research in the Levant; Institute for Aegean Prehistory; Carnegie Trust for the Universities of Scotland; Mediterranean Archaeological Trust; Oregon State University; University of Glasgow; University of Cyprus; Society for the Promotion of Roman Studies; American Schools of Oriental Research. Of these, we would particularly like to emphasise our thanks to the Arts and Humanities Research Council for their major grant which funded most of the project, and to the Institute for Aegean Prehistory for recognizing the importance of funding the publication as well as fieldwork phase of archaeological research. The Carnegie Trust for the Universities of Scotland generously contributed to the cost of the colour illustrations.

We are most grateful to the successive directors and staff of the Department of Antiquities of the Republic of Cyprus, who have given us permission to carry out our survey and supported us in many other ways, particularly Sophocles Hadjisavvas and Pavlos Flourentzos. Giorgos Georgiou, the Nicosia District Archaeological Officer, also supported us both academically and logistically. We have also received support from the Geological Survey Department and its director George Petrides, the Department of Forests, particularly Alex Christodoulou, and the Department of Lands and Surveys.

We would also like to thank the Cyprus American Archaeological Research Institute in Nicosia for their invaluable logistical, academic and moral support over the years, especially Robert Merrillees, Thomas W. Davis, Vathoulla Moustoukki and Diana Constantinides. Hellenic Copper Mines Ltd and its CEO Constantinos Xydas supported our work at the Skouriotissa mine in many ways. The United Nations helped us when we were working adjacent to and within the Buffer Zone, and we wish to thank Madeline Garlick, Lt-Col. Daniel Montalvo, Lt-Col. Eduardo Pablo Nieto, and Martin Rodriguez. Thanks also to Astra Rental Cars and its manager Christos Contos for their support of our project.

We are especially grateful to the people of the Survey Area for their welcome, friendship and support. In particular we would like to thank the village councils of Katydhata, Phlasou and Tembria and their presidents for the use of their schools as our headquarters and accommodation, as well as helping us in countless other ways: Pantelis Andreou Iakovou of Katydhata; Antonis Nikolaides of Phlasou; and Georghios Irodotou and Georghios Papacharalambous, successive presidents of Tembria village council. We also received much logistical help, local knowledge and friendship from Eleni Papapetrou and Jean Humbert in Phlasou, Yiannos Hadjidemetriou in Phlasou, and Niovi Loizidou and Skevi Loizidou in Katydhata.

Our understanding of the TAESP landscape has benefitted enormously from the knowledge, perception and experience of many of its inhabitants. We wish to give our warmest thanks to all those who have shared their understanding with us, particular those we formally interviewed: Costas Ioannou (Ayia Marina); Antonis Antoniou, Sotiris Antoniou, Christothea Antoniou, Christostomos Georghiou (Ayios Theodhoros); Stelios Alexandrou, Machi Antoniou, Takis Michail, Aphrodite Mylona, Mrs Aristodemos Mylona (Evrykhou); Kostas Benaki, Dimos Iakovou, Iakovos Kinighopoulos, Papa Christos Michaelides (Galata); Nikos Skhizas (Kalliana); Pantelis Andreou Iakovou, Antigone Ioannidou, Lella Ioannidou, Papa Georghios Ioanna (Katydhata); Petros Efthimiades, Papa Omiros Iereidis, Elli Kyriakou Portari (Linou); Anthoulla Christophi, Michalis Christophi, Christos Daniel Ioannou, Charalambos Katsavras, Panayiotis Alexandrou Loppas, Sophia Moudourou, Koullis Patsalidis, A. Sykopetritis, Theodoulos Theodoulos, Vasiliki Theodoulou (Nikitari); Antonakis Nicolaides, Evroulla Hadjidimitriou, Solonas Hadjidimitriou, Maritsa Marathefti Ieropoulou (Phlasou); Eleftheria Solomou Kyvernitou, Papa Christos Michaelides (Sina Oros); Polikseni Achilleos, Andreas Kyriakou Dhimiotis, Georghios Irodhotou, Panayiotis Panayidis, Georghios Papacharalambous, Christos Papanikolaou, Michalis Christodoulou Ppandjaris, Yiannis Sykopetritis (Tembria); Maroulla Savva (Vyzakia); Andreas Achilles Kissopodas, Papa Dhimosthenis Milidhoni (Xyliatos).

Several other people have helped us with our research and analysis. Giorgos Georgiou (Department of Antiquities) kindly gave Vasiliki Kassianidou access to the slag he excavated in Katydhata (Volume 2, Chapter 3.12). Louise Steel (University of Lampeter) gave us some very valuable advice on the analysis of our Iron Age pottery (Volume 1, Chapter 3.6). John Gordon-Smith prepared the pottery thin sections and carried out the petrographic analysis of them (Volume 1, Chapter 3.3).

Mara T. Horowitz would like to thank Joanna Smith, Celia Bergoffen, Jenny Webb, David Frankel, Maria Iacovou, Robert Merrillees, and Louise Steel for their consultations and opinions on the study of the prehistoric pottery (Volume 1, Chapter 3.1). Sturt W. Manning thanks the Oxford and Waikato radiocarbon laboratories, and especially Thomas Higham, Christopher Bronk Ramsey, Alan Hogg and Fiona Petchey, for their work and results, and Jennifer Watkins for her work on the dendrochronological samples; the *Pinus brutia* sampling near Mitsero was undertaken in 2007 by Sturt W. Manning, Tomasz Wazny, Jennifer Watkins and Brita Lorentzen (Volume 1, Chapter 2.13). Angus Graham would like to thank Alistair J. Manning, Head of the Atmospheric Dispersion Group at the UK Meteorological Office, for discussions of the atmospheric dispersion of industrial pollution (Volume 2, Chapter 4.8).

We also benefitted from a range of visiting specialists who willingly shared their knowledge and expertise: Patricia C. Anderson, Irene Klaver, Marcos Llobera, Stelios Stylianou and Peter van Dommelen. We are grateful to Sophia Kalopissi-Verti for the photograph of the Asinou hunting dogs fresco (Volume 2, Pl. 5.13). Angela Golden carried out much of the processing of the photographs for publication. Lorraine McEwan (University of Glasgow) prepared the plates for the pottery and special finds catalogues.

This publication has been greatly improved by the detailed and constructive comments and suggestions made by Thomas Tartaron and William Caraher; we are very grateful to them both.

At its core, TAESP consists of the hard work, friendly collaboration and commitment of the fieldwork and research team. Our heartfelt thanks go to all of them:

Co-directors
Michael Given, Vasiliki Kassianidou, A. Bernard Knapp, Jay Noller

Cook
Annie Evans

Fieldwalkers
Melios Agathangelou, Charlotte Wisbeth Anderson, Georgia Apostolou, Lori Arquilla, Robin Bhattal, Rosey Blackwell, Julie Candy, Erinna Christou, Matthew Conroy, Maria Dikomitou, Tasha Ferguson, Amanda Gow, Jessica Harrington, Marianna Ktori, Michael Malamos, Cara McAllister, Muriel McDonald, Lyndsay McGill, Rebekah Merriman, Angela Michael, Mark Monaghan, Jennifer Piro, Marina Protopapa, Sophie Pullar, Alyson Robertson, Jackaline Robertson, Caroline Sauvage, Efthymios Shaftacolas, Joe Somerville, Chris Timmer, Caroline Torres, Thomas Tselios, Emilia Vassiliou

Geomorphological Interns
Paula Barry, Brian Blankespoor, Adina Gleeson, Genaro Keehn, Abel Lufafa, Megan Manago, Colin Robins, Mitzy Schramke, Sheila Slevin

Non-Fieldwork Contributors
Sturt W. Manning, Emmanuel Moutafov, Maria Ntinou, Danielle A. Parks

Specialists
Iain Banks, Hugh Corley, Ian Evans, Sevina Floridou, Ruth Smadar Gabrieli, Myrto Georgakopoulou, Erin Gibson, Marios Hadjianastasis, Mara T. Horowitz, Jean Humbert, Tracy Ireland, Sarah Janes, Carole McCartney, Chris Parks, Paul Pelosi, Helen Saunders, Robert Schon, Charlotte Schriwer, Luke Sollars, Gary Tompsett, Neil Urwin, Joanita Vroom, Kristina Winther-Jacobsen

Team Leaders
Alexis Boutin, Stephen Digney, Erin Gibson, Angus Graham, Heather James

List of Colour Plates

Plate 1.1. TAESP's process of interpretation and reflection
Plate 2.1. Map of Survey Area, with Intensive Survey Zones, Extensive Transects, Survey Units and outline of the original 2000/2001 Survey Area
Plate 3.1. Map of the Survey Area, with Special Interest Areas and Places of Special Interest mentioned in Chapter 3
Plate 3.2. Thin sections of a pithos, tile and transport amphorae
Plate 3.3. Map of Survey Area showing the distribution of local amphora types AmSk01–03 and Mav01–03
Plate 3.4. Tile distribution across the Survey Area, classified by fabric
Plate 3.5. Pottery catalogue: TCP002–138
Plate 3.6. Pottery catalogue: TCP140–323
Plate 3.7. Pottery catalogue: TCP325–710
Plate 3.8. Watermills and arable land in the Survey Area
Plate 3.9. Plans of weirs in the Karkotis Valley
Plate 4.1. Geological map of the Survey Area draped over a hillshaded relief map
Plate 4.2. Landform map of the mountainous area, with the Karkotis Valley on the left and Lagoudhera Valley on the right
Plate 4.3. Landform map of the Lagoudhera Valley
Plate 4.4. Landform map of the Karkotis Valley
Plate 4.5. Landform map of the plains
Plate 5.1. Survey Area with distribution of Hellenistic–Roman Table Wares
Plate 5.2. Survey Area with distribution of slag and Hellenistic–Roman pottery
Plate 5.3. Map of Kato Koutraphas and its surrounding area, showing the ages and types of soil relating to the land uses referred to in the 1512 enquiry

List of Figures

Fig. 1.1. Map of Cyprus, showing Survey Area and sites mentioned in the text
Fig. 1.2. Map of north-west Cyprus, showing Survey Area and neighbouring sites
Fig. 1.3. Team West in July 2001
Fig. 1.4. Geomorphological Intern Abel Lufafa and team leader Angus Graham in the lab at Katydhata, 2003
Fig. 2.1. Recording a lime kiln on Koronia hill (BU0141), looking south across the plains to the northern face of the Troodos Mountains
Fig. 2.2. Geobotanist Neil Urwin with his display of plants during team training in 2001
Fig. 2.3. Fieldwalking in Koutraphas area, November 2003
Fig. 2.4. Recording forms for Survey Unit SU1041 (left) and its corresponding Geomorphological Unit GU1040
Fig. 2.5. Kristina Winther-Jacobsen at work in the artefact lab, Katydhata School
Fig. 2.6. Data entry, digitization and discussion in full swing in the Katydhata computer room, 8 July 2003
Fig. 2.7. Robert Schon making sherds for seeding experiments
Fig. 2.8. Yogurt pot sherds for seeding experiments, divided into rims and body sherds
Fig. 2.9. Marked 'seed' sherd in situ, as seen by the fieldwalker
Fig. 2.10. Seeding experiments: recovery rates based on visibility, independent of background confusion
Fig. 2.11. Seeding experiments: analysis of effects of background confusion in high visibility fields
Fig. 2.12. Seeding experiments: recovery of sherds and tiles based on artefact size
Fig. 2.13. Seeding experiments: recovery of all ceramics based on artefact size
Fig. 2.14. Seeding experiments: comparison of teams in XU0123–XU0426, showing percentage recovered by each team
Fig. 2.15. Seeding experiments: comparison of teams in XU0123–XU0426, showing percentage recovered by each team; corrected for time
Fig. 2.16. Ploughzone experiment: percentages of tiles on the surface of total planted in Andros and Church Fields
Fig. 2.17. Cumulative frequency of numbers of sherds in each batch for the entire survey (SU pottery only)
Fig. 2.18. Plot of recovered percentage of seeded artefacts versus the difficulty of seeing them, as quantified by the D index for Experimental Survey Units
Fig. 2.19. Calibrated calendar age distributions for the individual radiocarbon dates on the TAESP samples
Fig. 2.20. Bayesian fixed-Sequence (dendro-wiggle-match) analysis for the tree-ring sample sequences in Table 2.14
Fig. 2.21. The modelled 1σ (68.2%) most likely calendar placements of each of the TAESP dendrochronological radiocarbon wiggle-match samples
Fig. 2.22. The modelled age estimate for the Last Preserved Tree Ring for sample TAE-2B
Fig. 2.23. The modelled age estimate for the Last Preserved Tree Ring for sample TAE-4A
Fig. 2.24. The modelled age estimate for the Last Preserved Tree Ring for sample TAE-4B
Fig. 2.25. The modelled age estimate for the bark (so age of death or cutting date) for sample TAE-5B
Fig. 3.1. Comparison of Cypriot and imported red slipped Table Wares during the Roman period
Fig. 3.2. Development of Cypriot Medieval–Modern utility wares
Fig. 3.3. Distribution of locally made and imported glazed diagnostic fragments by phase
Fig. 3.4. Chipped stone from Nikitari *Kambos tou Lemonari* (TP095) and Xyliatos *Athassi* (SU1699)
Fig. 3.5. Ground stone from Nikitari *Kambos tou Lemonari* (TP095)
Fig. 3.6. Chipped stone from Phlasou *Koutroullis* (TS06; TP135) and Katydhata *Laonarka* (TS09; SU1060)
Fig. 3.7. Ground stone from Phlasou *Koutroullis* (TS06)
Fig. 3.8. Probable Chalcolithic bottle-shaped pestle, re-used as a pounder (TCL192)
Fig. 3.9. Perforated hammer (TCL150) from Katydhata *Laonarka* (SU1305; TS09)
Fig. 3.10. Roman-period chipped stone
Fig. 3.11. Roman-period chipped stone from Ayia Marina *Vrysi* (TP096)
Fig. 3.12. Roman-period ground stone
Fig. 3.13. Medieval–Modern *dhoukani* flakes and patches
Fig. 3.14. Fragment of Phorades-type slag from SU2914
Fig. 3.15. Lower surface of slag cake from Politiko *Phorades*
Fig. 3.16. Slag fragments from excavations of Bronze Age tombs in Katydhata
Fig. 3.17. Complete slag cake (c. 40 cm across) from Ayia Marina *Mavrovouni* slag heap (TP006)
Fig. 3.18. Complete slag cake (c. 50 cm across) from Skouriotissa *Vouppes* slag heap (TP007)
Fig. 3.19. Skouriotissa *Vouppes* (TP007): detail of slag heap section AU01
Fig. 3.20. Mortar stone and mining pick from Skouriotissa
Fig. 3.21. Copper content in slags of the Roman period analysed by TAESP and SCSP
Fig. 3.22. Skouriotissa *Vouppes* (TP007): section of slag heap AU01
Fig. 3.23. Slagged stone once forming part of the furnace structure
Fig. 3.24. Thick piece of slagged furnace wall

Fig. 3.25. Fragment of possible furnace rim
Fig. 3.26. Reflected light microphotograph of AMT30
Fig. 3.27. Reflected light microphotograph of AMT32
Fig. 3.28. Reflected light microphotograph of AMT38
Fig. 3.29. Reflected light microphotograph of AMT40
Fig. 3.30. Reflected light microphotograph of AMT50
Fig. 3.31. Reflected light microphotograph of AMT55
Fig. 3.32. Reflected light microphotograph of sample AMT1
Fig. 3.33. Manganese content in slags of the Roman period analysed by TAESP and SCSP
Fig. 3.34. Selected plant taxa identified in wood charcoal samples
Fig. 3.35. Charcoal assemblages of Skouriotissa and Ayia Marina *Mavrovouni* slag heaps during the Late Roman period
Fig. 3.36. Plant formations in the TAESP metallurgical activity area during the Late Roman period
Fig. 3.37. Kato Koutraphas *Mandres*: interior wall showing stone foundation with chinking, mudbrick superstructure and mud plaster finishing (BU0020)
Fig. 3.38. Asinou village: roof made of earth, spiny burnet and wooden beams (BU0047, TP081)
Fig. 3.39. Tile and brick kiln, Ayios Theodhoros (TP019): floor with vents leading from the firing chamber
Fig. 3.40. Mill at Vyzakia *Muttokambos* (BU0109): leat and five-tiered penstock
Fig. 3.41. Mylos tou Molou, Phlasou (BU0076): south wall of leat and penstock, with millhouse visible to the right
Fig. 3.42. Molos watermill, Phlasou (BU0076): cross and inscription
Fig. 3.43. Linou *Kapati* (BU0002): leat and plastered chute of watermill
Fig. 3.44. Linou *Kokkinorotsos* (BU0004): tiered penstock with remains of plaster
Fig. 3.45. Evrykhou *Kares* (BU0045): Ottoman and British colonial bridge (south face)
Fig. 3.46. Shaban Bey watermill, Phlasou (BU0075): arched aqueduct, penstock and millhouse
Fig. 3.47. Church of Ayios Loukas (BU0089): west end
Fig. 3.48. Church of Ayios Loukas (BU0089): millstone cut in half and incorporated into south wall
Fig. 3.49. Kalliana *Tsappa* (BU0092): east facade of khan
Fig. 3.50. Ayios Theodhoros *Karterouni* (BU0129)
Fig. 3.51. Mills, weirs and principal water channels in the Karkotis Valley
Fig. 3.52. Separation node (*koftousa*) dividing into three channels (*gronthi*) at Tembria (BU0065)
Fig. 3.53. *Gronthos* (sluice gate with fist-sized opening) at Kalliana (BU0068)
Fig. 3.54. Leat and penstock of Miltis mill in Kalliana, with sluice gate in the foreground (BU0060)
Fig. 3.55. *Koftousa* (water separator) at Phlasou (BU0149), looking north
Fig. 3.56. Deimma Asprallou *Linopsa* (BU0105) looking south
Fig. 3.57. Hourglass of the Ioannides family in Katydhata
Fig. 3.58. Path running along the base of mountain to the south-east of Asinou Church
Fig. 3.59. Map of the Survey Area
Fig. 3.60. The Karkotis Valley, looking north-east
Fig. 3.61. Asinou Valley, looking north-north-west towards Nikitari village from Stavros church (TP033)
Fig. 3.62. Western and central Cyprus, with roads, milestones and places mentioned in the text
Fig. 3.63. Path between Mandres and Ayios Theodhoros
Fig. 3.64. Cross-section of British colonial road in the Mandres Intensive Survey Zone
Fig. 3.65. Colonial bridge (constructed 1900) over the Atsas River and steep river bank
Fig. 3.66. Colonial bridge over the Elaia River (BU0114)
Fig. 4.1. Map of central Cyprus physiographic provinces, distinguished on the basis of their geology, landforms, and drainage characteristics
Fig. 4.2. Chart of palaeoclimate interpolated from European and Eastern Mediterranean records for the past 6000 years for the Survey Area
Fig. 4.3. Map of ranks of terraces in the middle Karkotis Valley
Fig. 4.4. Phlasou *Langouphes* (TP246): three photographs of the outcrop with accompanying interpretations of the stratigraphy
Fig. 4.5. East-west-oriented cross-section of eastern side of the Karkotis valley floor
Fig. 4.6. Model cross-section drawn to explain the stratigraphic section of TP246 Phlasou *Langouphes*
Fig. 4.7. Olive tree 600 m south of Xyliatos *Ayios Kyriakos* (TS10)
Fig. 4.8. Scatter plot showing minimum ages of olive trees
Fig. 4.9. Scatter plot showing maximum ages of olive trees
Fig. 4.10. Cross-sections of olive trunks illustrating increasing internal hollowing
Fig. 4.11. Fuel harvest area for servicing copper smelting at Skouriotissa
Fig. 5.1. Katydhata *Laonarka* (TS09) in the foreground, looking south-east across the Karkotis River's alluvial terraces
Fig. 5.2. Location of the Cypro-Archaic sanctuary of Katydhata *Pano Limna* (TS15), looking north-east to Skouriotissa mine
Fig. 5.3. Ayia Marina *Mavrovouni* (TS02) looking south-west towards Alestos mine
Fig. 5.4. Proportional distribution of pottery by function at Mavrovouni (TS02) and Litharkies (TS05)
Fig. 5.5. Looking north-east across the well-watered Karkotis Valley to Katydhata village and Skouriotissa mine
Fig. 5.6. The Medieval village of Aspri
Fig. 5.7. Probable location of the Medieval estate at Kato Koutraphas
Fig. 5.8. View from Ayios Epiphanios looking east to Katydhata and Linou
Fig. 6.1. Skouriotissa *Vouppes* slag heap (TP007.AU01)
Fig. 6.2. Ayios Yeoryios church (BU0088; visible top centre) overlooking the Karkotis Valley
Fig. 6.3. Track entering the Ottoman–Modern satellite settlement of Kato Koutraphas *Mandres* (TS07)
Fig. 6.4. Water outflow from Mylos tou Stylli (BU0049)
Fig. 6.5. Creating memories and significant places in the TAESP landscape: planting the Cypriot flag; 20 fieldwalkers in an olive tree

List of Tables

Table 1.1. Breakdown of TAESP team by gender
Table 2.1. TAESP acronyms, with the section in this volume where each is explained
Table 2.2. Intensive Survey Zones: Survey Units, Geomorphological Units, POSIs and Building Units
Table 2.3. Brief field description of bedrock/substrate units of the Survey Area
Table 2.4. Brief field descriptions of indicators of soil change in the Survey Area
Table 2.5. Distribution and basic statistics of Geomorphological Units by environmental zone
Table 2.6. Geological age division names and codes used in the geomorphological studies and maps
Table 2.7. Brief field descriptions of how to recognize the Morphostratigraphic Units of the Survey Area
Table 2.8. Pottery functions
Table 2.9. Pottery periods
Table 2.10. Experimental Survey Units, ground visibility, background confusion, and team recovery rates
Table 2.11. Seeding experiments: sherds found in the four fields walked by all teams
Table 2.12. Ploughzone experiment: percentages of tiles on surface and buried in ploughsoil
Table 2.13. Ploughzone experiment: recovery of whole and fragmented tiles, divided by ploughing episode
Table 2.14. Skouriotissa *Vouppes* (TP007): the four charcoal samples that received dendrochronological examination
Table 2.15. Skouriotissa *Vouppes* (TP007): radiocarbon measurements for charcoal samples from slag heap
Table 3.1. Prehistoric pottery wares, periods and dates
Table 3.2. Problems of diagnosing Iron Age pottery in the Survey Area: chronotypes divided by decoration compared to sherds divided by function
Table 3.3. Hellenistic–Roman pottery: functional distribution
Table 3.4. Comparison of Late Roman amphora data from TAESP and SCSP
Table 3.5. Medieval–Modern pottery groups
Table 3.6. Distribution of lithic finds from site assemblages found in Intensive Survey Zones
Table 3.7. Distribution of major artefact categories for early prehistoric entities
Table 3.8. Raw material utilization for early prehistoric entities
Table 3.9. Nikitari *Kambos tou Lemonari* (TP095): average dimensions of major classes for early prehistoric tools
Table 3.10. Nikitari *Kambos tou Lemonari* (TP095): technical attributes for early prehistoric tools
Table 3.11. Chipped stone tool classes for early prehistoric entities
Table 3.12. Ground stone tool classes for early prehistoric entities
Table 3.13. Phlasou *Koutroullis* (TS06): sample counts and percentages of major chipped stone categories
Table 3.14. Phlasou *Koutroullis* (TS06): raw material counts and percentages of local material
Table 3.15. Phlasou *Koutroullis* (TS06): average tool class dimensions
Table 3.16. Phlasou *Koutroullis* (TS06): technical attributes for tools
Table 3.17. Phlasou *Koutroullis* (TS06): tool class distribution
Table 3.18. Phlasou *Koutroullis* (TS06): ground stone tool types
Table 3.19. Protohistoric Bronze Age sample counts and percentages of major chipped stone categories
Table 3.20. Raw material utilization for Protohistoric Bronze Age sites
Table 3.21. Technical attributes for Protohistoric Bronze Age tools
Table 3.22. Distribution of chipped stone tool classes for Protohistoric Bronze Age sites
Table 3.23. Average dimensions of the different tool classes for the Protohistoric Bronze Age
Table 3.24. Ground stone tool types from Protohistoric Bronze Age sites
Table 3.25. Chipped stone artefact category counts and percentages for Roman-period localities
Table 3.26. Technical attributes for a sample of Roman-period tools and blanks
Table 3.27. Raw material counts and percentages for Roman-period sites
Table 3.28. Tool class counts for Roman-period localities
Table 3.29. Average dimensions for individual tool classes from Roman-period localities
Table 3.30. Ground stone types for Roman-period localities
Table 3.31. Medieval–Modern chipped stone category counts and percentages
Table 3.32. Raw material counts and percentages for Medieval–Modern period sites
Table 3.33. Relative percentages of raw material utilization for *dhoukani* versus other flake tools in Medieval–Modern assemblages
Table 3.34. Tool class counts for Medieval–Modern period localities
Table 3.35. Average dimensions for samples of individual tool classes for Medieval–Modern localities
Table 3.36. Technical attributes for a sample of Medieval–Modern period tools and blanks
Table 3.37. Ground stone types for Medieval–Modern localities
Table 3.38. Summary of the results from the analyses of reference materials using (P)ED-XRF
Table 3.39. Chemical composition of TCA002

Table 3.40. Skouriotissa *Vouppes* (TP007.AU01): chemical composition of slag samples
Table 3.41. Skouriotissa *Vouppes* (TP007.AU05): chemical composition of slag samples
Table 3.42. Skouriotissa *Vouppes* (TP007. AU14): chemical composition of slag samples
Table 3.43. Ayia Marina *Mavrovouni* (TP006): chemical composition of slag samples
Table 3.44. Skouriotissa *Kitromilia* (TP172): chemical composition of slag samples
Table 3.45. Selection of individual slag phases analyses on the EDS-SEM (weight %)
Table 3.46. Slag heaps at Skouriotissa (TP007; TP172) and Ayia Marina *Mavrovouni* (TP006): distribution and frequency of identified taxa from charcoal analysis
Table 3.47. Plant taxa used for fuel at the metallurgical sites on the northern Troodos foothills
Table 3.48. Estimate of charcoal and coppice land required for copper production in Cyprus
Table 3.49. Calculation of the volume of earth required for making mudbricks for a village of 100 houses
Table 3.50. Watermills of the Survey Area
Table 3.51. Documented weirs in the Karkotis Valley
Table 3.52. Water rights in the Karkotis Valley
Table 4.1. Distribution of landform groups by environmental zone
Table 4.2. Correlation matrix of landform connectedness
Table 4.3. Distribution of villages and settlement by environmental zones and geomorphic setting
Table 4.4. Distribution and basic statistics of Morphostratigraphic Units by environmental zone
Table 4.5. Taxa frequencies of charcoal samples from the slag heap at Skouriotissa *Vouppes* (TP007)
Table 4.6. Differing estimates for the proportions of copper to fuel to slag in the smelting process
Table 4.7. Revised estimates for the proportions of copper to fuel to slag in the smelting process
Table 4.8. Survey of tree density and wood biomass in the Karkotis Valley watershed and on the Troodos slopes at Asinou
Table 4.9. Estimates of forest area required to service copper smelting at Skouriotissa on an 80-year regrowth cycle at different stocking rates
Table 5.1. Pottery periods used for the Iron Age
Table 5.2. Proportional distribution of Hellenistic–Roman Table Wares
Table 5.3. Land use in the estate of Koutraphas in 1512

List of Contributors

Iain Banks (University of Glasgow)
Alexis Boutin (Sonoma State University)
Hugh Corley (English Heritage)
Stephen Digney
Ian Evans (University of Newcastle, NSW)
Sevina Floridou
Ruth Smadar Gabrieli (University of Western Australia and University of Sydney)
Myrto Georgakopoulou (British School at Athens)
Erin Gibson (University of Northern British Columbia)
Michael Given (University of Glasgow)
Angus Graham (University College London)
Marios Hadjianastasis (University of Birmingham)
Mara T. Horowitz (Alalakh Excavations)
Jean Humbert
Tracy Ireland (University of Canberra)
Sarah Janes (University of Glasgow)
Vasiliki Kassianidou (University of Cyprus)
A. Bernard Knapp (University of Glasgow)
Abel Lufafa
Sturt W. Manning (Cornell University)
Carole McCartney (University of Cyprus)
Emmanuel Moutafov (Institute for Advanced Study, Berlin)
Jay Noller (Oregon State University)
Maria Ntinou (Hellenic Open University)
Chris Parks (Indiana University)
Danielle A. Parks†
Colin Robins (Claremont McKenna, Pitzer, and Scripps Colleges)
Robert Schon (University of Arizona)
Charlotte Schriwer (National University of Singapore)
Sheila Slevin
Luke Sollars (University of Glasgow)
Gary Tompsett
Neil Urwin
Joanita Vroom (Leiden University)
Kristina Winther-Jacobsen (University of Copenhagen)

1. Introduction: The TAESP Landscape in Context

Michael Given, A. Bernard Knapp, Jay Noller and Luke Sollars

1.1 Overview and Research Aims

These two volumes present the data, results, analyses and interpretations of the Troodos Archaeological and Environmental Survey Project (TAESP), a major 5-year landscape project that was carried out along the northern edge of the Troodos Mountains in Cyprus (Fig. 1.1). Unlike many such projects, we do not present our results by providing long descriptions of sites and artefacts, followed by a series of discrete specialist reports. Instead, our work is intended at every stage to be integrated, interpretative and focused on specific research questions. This applies not just to the final publication but to the fieldwork and analyses that preceded it.

Given this approach, and our rigorous field methodology, we have been able to address a broad range of significant research issues. Some of these derive from the interests of

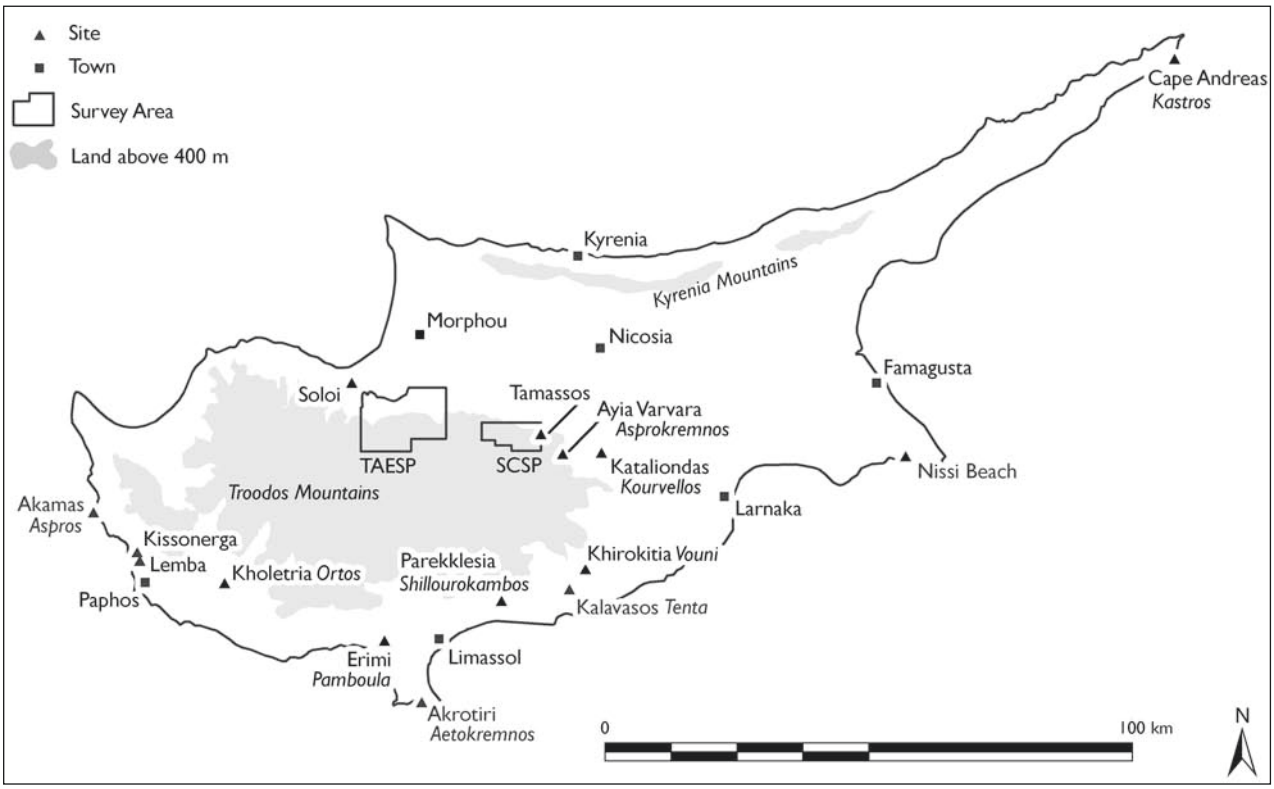


Fig. 1.1. Map of Cyprus, showing Survey Area and sites mentioned in the text (Luke Sollars)

our research team, while others have been inspired by our discoveries and discussions in the field. Highlights include: social and economic systems that combined industrial-scale copper mining with highly organised agricultural production; complex systems of seasonal movement and agricultural activity; patterns of interaction that connected supposedly remote mountains with the fertile valleys and coastal plains; and many more.

Volume 1 presents this introduction (Chapter 1), our methodology (2), a range of analytical and thematic discussions of the archaeology and material culture (3) and environment (4) of our Survey Area, followed by synthetic interpretations and conclusions organised by period (5). Chapter 6 consists of a broader thematic interpretation of the TAESP landscape and a self-evaluation of our work. Volume 2 presents the fieldwork and research results. The specialist analysis is integrated into the discussion throughout, and the volume is organised according to geographical area: the Plains (Volume 2, Chapter 2); the Karkotis Valley (3); the Lagoudhera Valley (4); and the Mountains (5). The conclusion (6) gives brief chronological summaries, with cross-references to more detailed discussions in both volumes.

The directors of TAESP are: Michael Given (University of Glasgow), A. Bernard Knapp (University of Glasgow), Vasiliki Kassianidou (University of Cyprus) and Jay Noller (Oregon State University). Given also served as field director and publication coordinator, and at the publication stage Luke Sollars joined the four directors to make up the editorial team and principal authors of these two volumes. All four directors had worked together on the Sydney Cyprus Survey Project (Given and Knapp 2003); thus we were able to incorporate and develop much of our methodology from that project. Inevitably, our research questions, theoretical frameworks and field approaches were stimulated by the directors' and key specialists' particular research interests: these included social landscapes, connectivity, the relationship between copper production and agriculture, and the integration of archaeological and geomorphological approaches.

TAESP's main academic base was the University of Glasgow, and its home in Cyprus moved round the villages of Linou, Tembria, Phlasou and Katydhata. We held a pilot season in 2000, then three large-scale field seasons in the summers of 2001–2003, each with some 40 participants, 3–4 field teams and a host of specialist activities. A short field season took place in November 2003, and study seasons in 2004 and 2005; the period between 2005 and 2012 was spent in analysis and writing.

Our principal funder was the UK Arts and Humanities Research Council, with significant extra support from the British Academy, Council for British Research in the Levant and the Institute for Aegean Prehistory. They and all our other funders and supporters are formally thanked in the Acknowledgments in this volume. Our electronic data have been archived with the Archaeology Data Service (TAESPdata 2007), from where they can be downloaded. They can also be queried online in both database and GIS interfaces via an online article (Given *et al.* 2007). The project's paper archive is held in the School of Humanities, University of Glasgow.

The original aims of the project, as used in grant applications from 2000 onwards, were as follows:

1 What can landscape factors (settlement patterns, site hierarchies, land use patterns) tell us about social and economic organisation (households, communities, regions)?
2 What alignments of environmental factors – e.g. physical landforms, biota, surface water – are associated with different types of social organisation? On what spatial and temporal scales?
3 What long-term impacts do changes in land use and land cover have on social structures and settlement patterns? How persistent and on what scales are the impacts of mining, pastoralism, agriculture, forestry and other human industries?
4 What can we learn about the nature and development of resource exploitation, in particular agriculture and copper production? How do these relate to socio-economic structures or to technological development, and how do they change through time?
5 What impacts do imperialism and other forms of external political or economic domination have on the landscape? How does the landscape, in turn, impact on imperial power and local resistance?
6 How does the physical and human landscape influence communications with other parts of the island, in terms of trade, travel and the export of natural resources?

Even if survey directors 'begin to understand at the end of a project how they should have been working at the beginning' (Barker 1991, 7), our methods and results have indeed allowed us address all six of these questions at a significant level. This is demonstrated in the conclusion to this volume (Chapter 6), and those research questions inform our analysis throughout both volumes. Our period-specific research questions inevitably changed, depending on what we found. In particular, although we failed to find any substantive evidence for Bronze Age copper production, we were able to identify (for example) Late Epipalaeolithic summer activities and a Roman knapping industry, neither of which we had expected. We evaluate the success of the project in answering these questions in Chapter 6.5.

There were only two major changes of direction during the course of the project. One consisted of the formal recognition of the importance of the geomorphological and environmental aspects of our research in 2001, when we changed our name from the Troodos Archaeological Survey Project to the Troodos Archaeological and Environmental Survey Project. The other was the successive enlarging of our Survey Area, in response to the challenge to carry out regional, not local, survey; this is explained in full in Chapter 2.2.

The rest of this chapter discusses the environmental (Chapter 1.2) and archaeological and historical context (1.3) to our work, particularly the research context across Cyprus and previous work carried out in the Survey Area. We then discuss the research philosophy that underpins our research strategy, project design, fieldwork methods and publication strategy (1.4). The last section is an essential guide on 'How to use this book', ranging from explanations of our GIS maps to recommendations about how to reference specific chapters (1.5).

1.2 Environmental Context

The nature of our research questions requires a full engagement with the Cypriot environment, and with the diverse scholarship on it. Early studies on the environment of Cyprus predate modern sciences (e.g. Strabo in AD 23). Many of them focus on the extraction of natural resources and the underlying reasons for its geology, especially the ophiolite rocks, copper and chromite deposits and the story behind the rise of the Troodos Mountains in their eastern Mediterranean setting. Afforestation and development of a sustainable forest, improvements in agro-ecosystems and soil erosion mitigation, and water storage and conveyance systems are the prime foci of environment-related studies to date. Until the 1980s, geology and botany concentrated on the central Troodos Mountains.

Geomorphology

At the time our fieldwork began, modern geomorphological understanding of Cyprus was limited to a few documented studies, much of which involved our own, recently completed work on the Sydney Cyprus Survey Project (Given and Knapp 2003) and the Troodos-Mesaoria Geomorphological Project (Noller and Wells 2004). In the interim between then and now, a large number of geomorphologically related studies have been carried out across the island. These focus on neotectonics, Quaternary geology, coastal geomorphology and geoarchaeology (reviewed in Noller 2010). Such studies formed a major platform for TAESP co-Director Jay Noller's pan-Cypriot geomorphological mapping and dating study for the Cyprus Geological Survey Department (2005–2010). In this section, we review some highlights in the development of geomorphological thinking on Cyprus, with emphasis on its relationship to the present study (for a more detailed study of the geomorphology and geoarchaeology of Cyprus, see Noller 2010). Most studies of Cyprus view the island as geomorphological zones in parallel with geological zones. De Vaumas (1959) created the first known geomorphological map of Cyprus, which shows two major geomorphic zones: the Kyrenia Range and the Troodos. The Mesaoria plain between them is not separated as a geomorphological entity. With focus on hydrology, topography and landform relationships, Thrower (1960) uses an area-class representation of similar geomorphological features in his map: landforms are represented as plains, hillslopes and mountains, much like this report's presentation. Thoughts about the evolution of hillslopes in semi-arid regions stem from the study of Everard (1963) in the Nicosia District, which also brought attention to the important role of carbonate-rich subsoil horizons in the geologically recent landscape evolution of Cyprus. Our understanding of the northern piedmont (plains) of the Troodos and the role of large fluvial fan deposition is built on the mapping of Ducloz (1965), who named the Fanglomerate Group that underlies most of the Mesaoria.

Nearly all of the Quaternary geology and geomorphology studies carried out since the 1980s were conducted to help the large foreign archaeological community working on Cyprus to understand its palaeoenvironments. The work of Gomez *et al.* (1987) formed a watershed event in geoarchaeological studies on Cyprus; their work on fluvial terraces and the Vasilikos Valley was a significant advance on the seminal regional study of Vita-Finzi (1969). More recently, geomorphological and geoarchaeological work has flourished on the island with numerous studies (e.g. Deckers 2005; Devillers 2005).

Environmental Setting

The Survey Area overlies an important environmental gradient that is representative of much of the Troodos and, by furthest extension, of similar geo-ecological regions of Asia Minor and the northern Levant. Our study looks at the human footprint and its half-life on a matrix of rocks and landforms from mantle to supracrustal, from crystalline to biological, and from durable to malleable. In what has long been characterised as a human-wasted landscape (e.g. Hutchins 1909), we consider the remnants of past peoples on this landscape.

At the outset of this project, we did not know how suitable the geomorphological context was for interpreting the cultural material record in the highly varied topography of this circum-montane environment. Unlike the Eastern Korinthia Archaeological Survey, our sister study in Greece (Tartaron *et al.* 2006), where the geomorphologists had a year's head start to scout out the survey's landscape, the timetable for TASP (later TAESP) demanded a different approach. We already knew from experience with SCSP that we wanted a more thorough and live integration of archaeological and geomorphological survey. Accordingly we devised an approach and methodology to do so. As discussed in Chapter 2.2, our study boundaries moved in accordance with our expanded notions of what this Survey Area could deliver to our research questions. We did not venture far from the central geo-ecological nexus that makes this study important: a metal-rich mother lode with adjoining agricultural, forest and marine resources. The only flaw in our boundary is that it stops short of the marine environment, the result of the current political reality of the UN Buffer Zone across Cyprus. In fact, just north of our

current boundary on the north side of the Skouriotissa mine are mapped marine terraces (Noller 2010), which would have added an altogether different surface process and context for the geomorphologists' field and rational kits.

The Survey Area is situated in a bellwether location for climate change. Because the Karkotis River taps into the highest mountain and drains down its shadowed side, it ought to be the first to feel the effects of *changes in the direction* of climate change. For example, with the oncoming of the Little Ice Age (LIA) (see Chapter 4.4), the Karkotis ought to have responded to the appearance of a summer snow pack on the northern slopes of Mount Olympus. With the waning and cessation of the LIA more than a century later, the nature and timing of the peak discharge of the Karkotis may have decreased and shifted in season. Thus we hoped to find information, for example, on the irrigation scheme of the Karkotis, to resolve a fine-scale reading of palaeo-discharge data, and thereby infer fine-scale climate.

The response of vegetation to change, due to climate, land use, pestilence or disease, was another environmental research question to which we sought to provide some measure of answer. We approached this via Ottoman archival study, geobotany, charcoal assays, soil analyses and the archaeology of agricultural features and artefacts. For Cyprus, beyond a century back we have only limited indications of the island's vegetation community (Burnet 2004; Noller 2010), of agricultural prosperity and failures, of forest harvest and general ecological community composition and dynamics. Any additional insights would have significant impact on our understanding of the ecology of Cyprus.

Finally, we sought to address the long posited hypothesis of human begets deforestation begets soil degradation. Soils in regions with Mediterranean climates have been recognized as severely susceptible to erosion at least since the landmark study of Langbein and Schumm (1958). Their data suggested that sediment loss and surface runoff peaked in areas with mean annual precipitation of 250–300 mm/yr and mean annual temperatures of >10°C (like our Survey Area), because the relationship between precipitation, runoff and sediment yield is heavily controlled by local land cover (vegetation) and land use (management). When environment is held constant, increasing vegetation cover exponentially decreases sediment loss (from most protective to least): Heavy Forest > Open Forest > Terraces > Agriculture > Bare lands (Kosmas *et al.* 1997; Lüken and Krone 1989).

In Greece, van Andel *et al.* (1990) interpreted the temporal nature of the stratigraphy to indicate that a major phase of soil erosion occurred 500–1000 years after the introduction of farming at any particular location. In addition, they attributed the complexity of subsequent erosion/deposition cycles to regional variations in land use patterns. Similar sequences from around Cyprus and the eastern Mediterranean (e.g. Noller and Wells 2004) attest to the regional and temporal breadth of the problems associated with soil erosion. We see this project as a step towards reconstructing soil erosion history in light of human modification of the landscape.

1.3 Archaeological and Historical Context

Understanding the academic, regional and prehistoric/historical context of our research is an essential first step towards a full engagement with our research questions. In this section we assess the state of the research in Cyprus and more widely, explain the prehistoric and historical background in Cyprus and the eastern Mediterranean, summarise the archaeological work previously done in and around our Survey Area and, where appropriate, refer to relevant historical documents (Fig. 1.2). The section is organised according to our four main analytical periods: Prehistoric; Iron Age–Classical; Hellenistic–Roman; and Byzantine–Modern (see Table 2.9 for a detailed list of chronological periods with abbreviations and date ranges).

Prehistoric

In this section, the work of TAESP is situated briefly within the wider prehistoric context of Cyprus and the eastern Mediterranean, in order to consider how the physical landscape and natural resources of this area are interlinked with its human inhabitants through time. Prior to our fieldwork, the prehistory of the Survey Area was confined largely to the Karkotis Valley, for example to early excavation of Prehistoric Bronze Age (PreBA) tombs around Katydhata (Markides 1916) and Linou (Flourentzos 1989). Early observations of ancient slag heaps and other archaeometallurgical remains around Skouriotissa were produced by mining engineers and prospectors from the 1930s through the 1950s (e.g. Bruce *et al.* 1937; Lavender 1962).

Our knowledge of Cypriot prehistory – from the island's earliest exploitation to the establishment of Neolithic farming communities – has expanded exponentially over the past decade (summarised fully in Knapp 2010). Excavations at Late Epipalaeolithic Akrotiri *Aetokremnos* (Simmons 1999), along with newly surveyed and excavated sites at Ayia Varvara *Asprokremnos*, Nissi Beach and Akamas *Aspros* (Ammerman 2010; Ammerman *et al.* 2006; 2007; Manning *et al.* 2010; McCartney *et al.* 2007; 2009), suggest that fisher-foragers and very early agriculturalists had found their way to Cyprus at various times between the late 11th and early 9th millennia Cal BC. The Early Aceramic Neolithic (EAN) sites of Parekklesia *Shillourokambos* and Kissonerga *Mylouthkia*, and the earliest levels at Kalavasos *Tenta*, are now dated to the late 9th–early 8th millennia Cal BC; they reveal agricultural economies nearly contemporary with the earliest in western Asia, and are close in time to the earliest permanent settlement of Cyprus (Guilaine and Briois 2006; Guilaine and Le Brun 2003; Peltenburg and Wasse 2004).

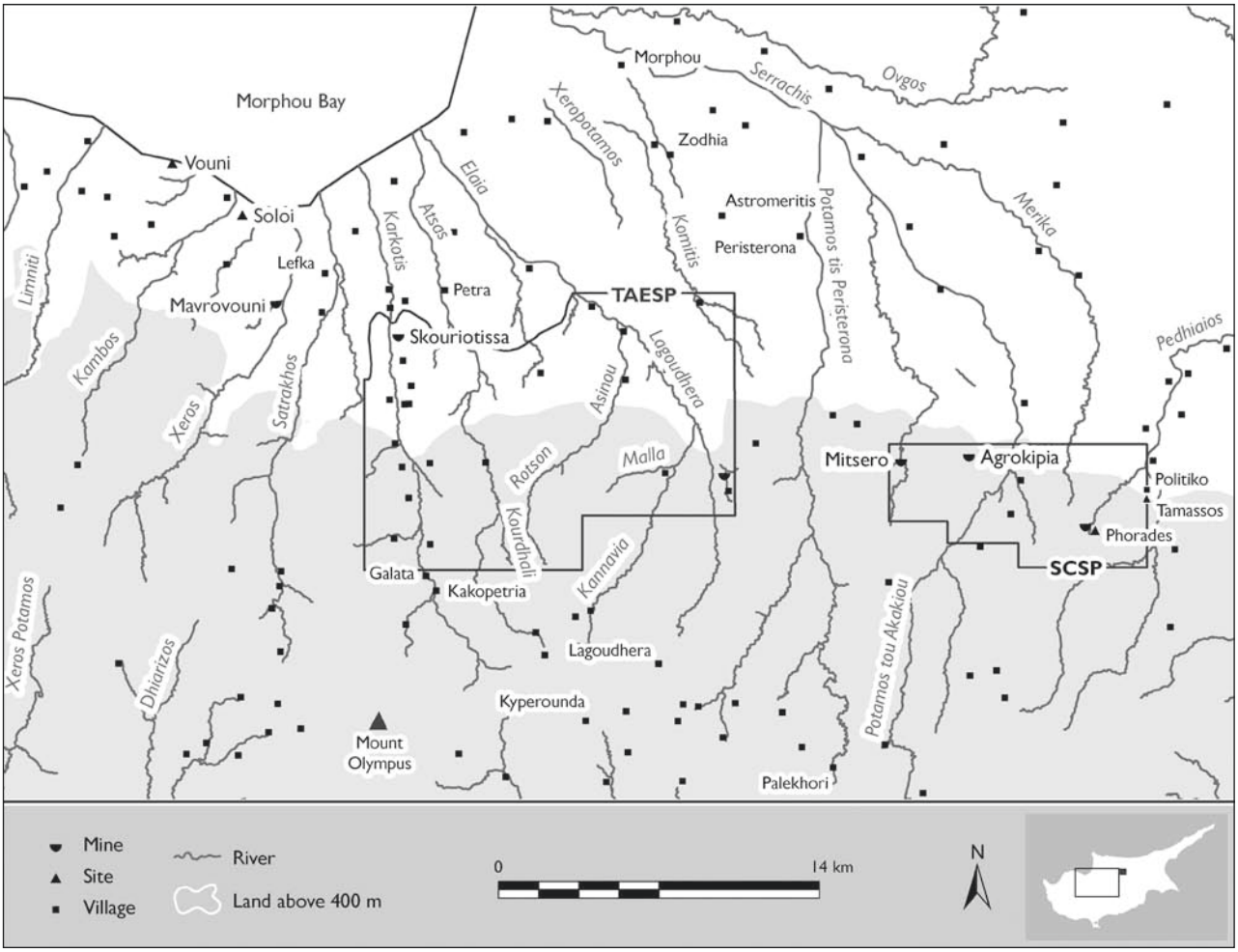


Fig. 1.2. Map of north-west Cyprus, showing Survey Area and neighbouring sites (Luke Sollars)

Within the TAESP area, chipped stone material from Nikitari *Kambos tou Lemonari* (TP095) and across the Koutraphas plateau more broadly may be either Early Aceramic Neolithic or possibly Late Epipalaeolithic in date. In either case, its existence is crucially important because such inland sites are exceedingly rare in the Cypriot archaeological record (Manning *et al.* 2010; McCartney *et al.* 2007; 2009). There are no sites in the TAESP area that can be specifically linked to the Late Aceramic Neolithic, or Khirokitia Culture (c. 7000/6500–5500 Cal BC). Elsewhere on the island, the archaeological record of this period reveals a series of villages (e.g. Khirokitia *Vouni*, Kalavasos *Tenta*) where people lived all year-round, as well as smaller, seasonally-occupied or specialist sites (e.g. Cape Andreas *Kastros*, Kholetria *Ortos*, Kataliondas *Kourvellos*). Most known sites are distributed along the northern or eastern coasts, and in areas where the lowlands (agriculture) and uplands (hunting) meet, a pattern typical for broad-spectrum subsistence economies (Le Brun 2001; Wasse 2007, 60–63).

The subsequent Ceramic Neolithic, or Sotira Culture (c. 5500–3900 Cal BC), also absent from the TAESP material record, witnessed the first appearance of pottery in the archaeological record. Ceramic Neolithic sites are spread widely over the island, along the north and south-east coasts, in the western part of the Mesaoria, and in the southern chalklands (Peltenburg 1978). The people of the Ceramic Neolithic were farmers, herders and hunters, dependent primarily on deer, followed by sheep/goat and pig.

During the Chalcolithic period, or Erimi Culture (c. 3900–2700/2600 BC), there was a major expansion of settlement on Cyprus (Held 1992). Site location became much more diverse, and the most important excavated settlements – Erimi *Pamboula*, Lemba *Lakkous* and Kissonerga *Mosphilia* – were all exceptionally long-lived. During this period, cold-hammered copper objects appear for the first time on Cyprus (Kassianidou and Knapp 2005), and in that light we note two sherds of Chalcolithic pottery found near Memi (SU1626), a key source of copper ores in this area. A handful of other, quite worn Chalcolithic sherds – Red-on-White, Red Monochrome – were recovered from Survey Units in the Mandroudhes and Atsas areas, on the plains.

Overall, the Chalcolithic way of life remained rural, parochial and self-sufficient, factors that would have inhibited the emergence of hierarchical social relationships. During both the Middle and Late Chalcolithic (c. 2700/2600–2500

BC), however, various new material and spatial elements may point to structural changes in society (Peltenburg *et al.* 1998): highly elaborate burials, intensified agricultural production, perhaps centralised storage, standardized pottery (Monochrome) and increasing external contacts. From the key transitional period we term the Prehistoric Bronze Age, or PreBA (Late Chalcolithic–Philia phase–Early Cypriot), evidence collected by TAESP at Phlasou *Koutroullis* (TS06) suggests a small rural settlement, an important one inasmuch as it would be the first site of this period known from the north central and north-west Troodos. There we recovered a distinctive corpus of Red-on-White and Red Monochrome pottery, a notable collection of chipped stone and ground stone artefacts (the nature of which hints at possible links to the mining and production of copper), and a few pieces of picrolite. There was also a clear Chalcolithic–ProBA presence in the north-east of the Atsas area, round the recently abandoned settlement of Lemonas, evident in a light scatter of pottery and chipped stone in more or less equal densities.

During the second half of the third millennium BC, material, cultural and social factors became increasingly more complex in a completely transformed set of political and economic circumstances. PreBA settlements expanded into areas previously unoccupied, and most areas of the island had become inhabited. On the coasts and plains, sites typically lent themselves to the use of intensified plough agriculture, while those in the Troodos foothills were ideally situated to tap into the copper deposits of the Lower Pillow Lavas. The people of PreBA Cyprus (c. 2500–1650 BC) seem to have been economically conservative, like their Neolithic and Chalcolithic predecessors, and relied on a mixed agro-pastoral economy. At the same time, however, some key changes become evident in the archaeological record (Knapp 2008, 68–102): sub-rectangular architecture; introduction of the plough and equids and the re-introduction of cattle to the island; several distinctive pottery wares (especially Red Polished); a variety of mould-cast copper tools, weapons and ornaments; wider use of spindle whorls and loom weights as well as 'gaming stones'. A TAESP team recovered a fragment of one such gaming stone, a senet board, near the site of Nikitari *Petrera* (TP242). We also collected chipped stone, ground stone and a coarse fabric pottery within and around Petrera, all of which suggests an activity area rather than a permanent settlement.

Although the TAESP area, and in particular parts of the lower Karkotis Valley, has long been associated with a Bronze Age human presence, much of the evidence was mortuary in nature or else presumed on the basis of later evidence for copper mining. One of our main aims therefore was to determine the location of any settlement(s) associated with the mortuary deposits, and additionally to determine the level of copper production at Skouriotissa, ideally to situate early evidence for copper mining in the context of a highly productive, agricultural landscape. The only substantive result was to identify the locality at Laonarka as one part of a settlement and mortuary complex just east of the modern village of Katydhata. At Skouriotissa, the evidence for Bronze Age exploitation is ephemeral and anecdotal (see Volume 2, Chapter 3.12), and any evidence of Bronze Age production was almost certainly situated on Phoukasa hill, now completely removed by modern, opencast mining operations. Through transect survey, TAESP has only been able to identify small traces of a Bronze Age presence in the area around Skouriotissa, to the west of the main (Roman-period) slag heap. To this may be added a handful of ProBA sherds, most likely tomb material, from Laonarka.

To the east of the Karkotis River valley, however, in the plains, TAESP recovered evidence for a Bronze Age settlement at Kato Koutraphas *Mandroudhes* (TP239), on a very ancient landscape where the fluvial plain meets the Troodos Mountains. A large number of PreBA Red Polished and pithos sherds were collected at Mandroudhes, along with 25 ground stone tools, most of which would have been used for processing cereals. The ProBA1 pottery (White Slip, Plain White Handmade ware, and distinctive pithoi) collected at Mandroudhes suggests that a small settlement also existed here during that period.

The people of Cyprus's Protohistoric Bronze Age (ProBA; c. 1650–1100 BC) retained the agro-pastoral base that had crystallised during the PreBA, but their activities became increasingly industrial in nature, town-centred, and oriented to the wider Mediterranean and Levantine worlds. As was the case with the PreBA, several striking changes that appear in the archaeological record of the ProBA (Knapp 2008, 134–249) indicate that Cypriot society was no longer egalitarian, isolated or village-oriented but rather socially stratified, internationally oriented and town-centred (Keswani 1996; Webb 2005). The commercially successful exploitation, production and trade of Cyprus's copper resources, together with the generation of agricultural surpluses, suggest that political authority had become centralised (Knapp 2008, 324–41; Peltenburg 1996). Eventually, the intensified production and trade of copper made Cyprus the key purveyor of this metal throughout the Mediterranean region, if not the Levant and parts of the Near East – a situation that continued for some two thousand years, until the fall of the Roman Empire.

Iron Age and Classical

The most significant political structure from the Cypro-Geometric III period onwards is the system of autonomous city-kingdoms that emerged in their characteristic form no later than the 8th century BC (Rupp 1998; cf. Iacovou 2002, 83–85; 2008). The city-kingdom of Soloi lay 8 km from the north-west corner of our Survey Area, easily accessible down the Karkotis Valley and along the coastal plain. Our whole Survey Area can only have been within its territory, or at least under its influence.

There are tombs at Soloi from the Cypro-Geometric III period (e.g. des Gagniers *et al.* 1967, 50–54). Excavations

show that in spite of the Hellenizing foundation myth reflected in Plutarch (*Solon* 26: 1–4), there was clearly an Archaic town there before Solon's supposed visit in 560 BC which resulted in the move from mountainous Aipeia to the current site. This town was substantial, and judging at least by the tombs was of some prosperity. In the Cypro-Classical I period it seems to have been destroyed and rebuilt on a new plan (des Gagniers *et al.* 1967, 54–55). There are scanty remains of a Classical-period temple on the Acropolis (Gjerstad *et al.* 1937, 412–15). The mountain top palace of Vouni, 4 km to the west, demonstrates how important the display of wealth and power was to the elite of these city-kingdoms (Gjerstad *et al.* 1937). The economic and social relations that underpinned this wealth and power have been almost entirely neglected in Iron Age research; one of TAESP's primary aims for the Iron Age is to redress this.

The production of copper in the Cypro-Geometric and Cypro-Archaic period was clearly very significant for the neighbouring city-kingdom of Tamassos, as demonstrated by the Sydney Cyprus Survey Project (Given and Smith 2003, 273). The same can be presumed to have been the case here, because of the huge ore reserves of Skouriotissa, but unfortunately modern mining operations have destroyed any relevant remains.

We have rather better evidence for the sacred landscape, in the form of rural sanctuaries with simple temenos walls and dedications of terracotta figurines (Volume 2, Chapters 2.4, 3.11). These are well-known across Cyprus (e.g. Buchholz 1991; Ulbrich 2008; Wright 1992), although more needs to be done on their role in the social landscape, and in particular their connection with valuable resources such as arable land and copper ore (Given and Smith 2003, 275–76). One of our sanctuaries was originally investigated by Max Ohnefalsch-Richter in 1882 (Ohnefalsch-Richter 1893; see Volume 2, Chapter 3.11). There are further examples close to the north-west (Loulloupis 1989) and south (Karageorghis 1977) of our Survey Area.

Hellenistic–Roman

Thanks to documentary sources, the history of Cyprus in the Hellenistic and Roman period is, in general terms, reasonably well understood (Anastassiades 2003; Mitford 1980b, 1289–308). After the demise of the independent city-kingdoms in 312 BC and the ongoing wars of Alexander's successors, Cyprus was annexed by Ptolemy I in 294 BC. In economic terms it was closely controlled, with Egyptian officials managing state monopolies over natural resources, including copper mining (Michaelides 1996, 140–41). Cyprus was annexed by the Roman Republic in 58 BC, but it was held by Cleopatra between 47 and 31 BC, and in 22 BC it became a senatorial province of the Roman Empire.

The Roman economy was largely based on the exploitation and export of natural resources, which tended to support the development of coastal cities at the expense of those of the interior (Michaelides 1996). It is hardly surprising, then, that Soloi's combination of coastal location, plentiful arable land and unsurpassed copper ore resources made it particularly prosperous. Much of our archaeological knowledge of Roman Cyprus is based on the excavations of the main cities, and Soloi is no exception. The wealth of the city and its benefactors is shown in a theatre seating c. 3500 people, dating to the end of the 2nd or beginning of the 3rd century AD (Gjerstad *et al.* 1937, 548–82); a paved and colonnaded street of the 2nd century AD (Mitford 1980b, 1327–28); and a series of five temples ranging from the 1st century BC to the 3rd century AD, abandoned in the 330s and dedicated to Aphrodite, Isis and Serapis (Gjerstad *et al.* 1937, 416–547). This picture is supplemented by a very useful range of documentary references for civic officials, a water supply delivered by channel and aqueduct from the upper reaches of the Kambos River, flax production, and of course copper production (Mitford 1980b, 1327–28).

TAESP aims to provide both landscape context and social analysis to complement and transcend this traditional scholarship, particularly by examining an area that must have provided much of Soloi's wealth through copper production and agriculture. As we shall see, however, there is little evidence for the local consumption and display of that wealth.

Copper production is clearly one of the key issues to understanding our area in particular and Roman Cyprus in general. There are some useful historical documents: Phlasou, in the Karkotis Valley, appears in an inscription found 'in the fields near Skouriotissa', referring to public copper mines (Markides 1915, 17; Mitford 1950, 13; 1980b, 1327). This is complemented by a series of rich descriptions from the Roman doctor Galen, who visited in AD 166 to collect medical minerals (Kassianidou 2000, 747–48, 752–53; Chapter 5.3). The mines were under the control of the Ptolemies, passing to the Roman state, and there are references to the state officials who controlled particular mining areas, including that of Soloi (Kassianidou 2000, 750–51). Assessing the impact of this centralised control on the productive – and social – landscape was one of TAESP's main research aims for this period.

In spite of the massive slag heaps of the Roman period, the considerable scholarly literature on ancient copper mining in Cyprus mainly concerns prehistoric periods, and mainly considers workshops and sanctuaries, rather than the mines and smelting operations (Kassianidou 2000, 745). One important exception is the publication of the extensive discoveries of the 1920s miners at Skouriotissa, including adits and galleries, tools, baskets, ropes, associated structures, an amphora dump, and what seems to be the main entrance to the galleries (Bruce *et al.* 1937; see Volume 2, Chapter 3.12). Another exception is the Sydney Cyprus Survey Project, where archaeometallurgist and TAESP co-director Vasiliki Kassianidou developed a methodology for sampling and analysing sections of slag heaps, thus giving more precision to the chronology and

technological developments. This approach was combined with careful documentation of other mining features such as adits, and an analysis of the social organisation of copper production across the landscape (Kassianidou 2003a). TAESP continues and builds upon these methods and analyses.

Soloi's main arable land presumably lay on the coastal plain and farther north-east on the plain of Morphou. Parts of our Survey Area, however, are both well watered and fertile, and allow us to address the organisation of agriculture in the Hellenistic and Roman periods. The system of dispersed farmsteads in the Late Roman period is well-known across Cyprus (Rautman 2000; Swiny and Mavromatis 2000), and TAESP aimed to relate this phenomenon to the organisation of the productive and social landscape more widely, particularly the relationship between agricultural activity and copper production.

For any historic period archaeological project, pottery clearly provides a rich source of information about the landscapes and societies under consideration. Survey material, however, needs a critical analysis of the context and function of surface assemblages before we can use them as evidence for past human activities and social relationships. This involves examining factors such as geomorphological and human post-depositional processes, patterns of production and discard, and the project's sampling and collection strategies. This aspect of TAESP's research is supported by full-scale geomorphological analysis (Chapter 2.4) and by a major research project by our pottery specialist, Kristina Winther-Jacobsen (2010). Other research issues specific to the Hellenistic–Roman periods, such as the problem of identifying Early Roman pottery, are discussed in Chapter 3.3.

Other than the discoveries of 20th-century miners at the Skouriotissa mine noted above, most of the earlier archaeological work carried out in our Survey Area consists of the excavation of tombs. The extensive Hellenistic–Roman cemetery between Katydhata and Linou was partially excavated by Max Ohnefalsch-Richter in the 1880s and 1890s (Myres and Ohnefalsch-Richter 1899, 4; Ohnefalsch-Richter 1893, 407–408, pl. LXV), and a further nine looted Roman tombs between Katydhata and Skouriotissa were excavated by Markides in the early 20th century (Markides 1916, 4; Vessberg and Westholm 1956, 22). Two rich tombs near Evrykhou excavated more recently by the Department of Antiquities are currently being published (see also Jacobsen 2007). Our aim was to combine this material with our own documentation of tombs and tomb material to carry out a more contextual analysis of the mortuary landscape of the Hellenistic–Roman periods (Volume 1, Chapter 5.3; Volume 2, Chapter 3.14).

Byzantine–Modern

The historical archaeology of the post-Roman period in Cyprus, and most of the Mediterranean, is still in its infancy. The Medieval sugar industry on Cyprus has received considerable attention (Luttrell 1996; Solomidou-Ieronymidou 1998; von Wartburg 2001a), and in the last decade or so there have been various new projects and publications setting out to develop historical archaeologies of the Ottoman and Modern periods in the Eastern Mediterranean (e.g. Baram 2009; Diacopoulos 2004; Given 2000; Rizopoulou-Egoumenidou 2009). Much of the impetus for this development came from the discovery of rich assemblages of surface material from these periods by survey projects (e.g. Athanassopoulos 2010; Given and Gregory 2003; Walker 2008), while subsequent projects have specifically focused on post-Roman periods (e.g. Lécuyer *et al.* 2002; Walker *et al.* 2007). TAESP is intended to build on this by developing a contextual landscape archaeology of the post-Roman periods, with an appropriate theoretical framework and close interdisciplinary integration (Chapter 5.4).

It was also our intention to challenge some assumptions in the historical and archaeological scholarship of these periods. One example is the assumption that traditional chronological divisions, such as the beginning of the Frankish Lusignan dynasty in 1192, or the Ottoman conquest in 1571, necessarily marked fundamental cultural change. Just from looking at pottery, it is clear that there was considerable continuity in coarse wares from the Byzantine to the Frankish period (Gabrieli 2007, 402), and that the supposedly Ottoman fashion for long-necked jugs for drinking diluted yoghurt and fruit juices appears to have reached Cyprus well before 1571 (Gabrieli 2004, 298). Similarly, much of the scholarly literature reveals a simplistic opposition of Franks and Greeks, or Greeks and Turks. Much more helpful than this exaggeration of the vertical differences between ethno-religious groups is an awareness of the blurred boundaries between such groups (e.g. Given 2005a; Schriwer 2002; Weyl Carr 1998, 2005), and an analysis of the horizontal differences between economic and political classes (Given and Hadjianastasis 2010, 38–39).

One specific aspect of these periods that has been greatly neglected is the pottery, especially the ubiquitous utility wares. The longevity of forms, fabrics and decoration poses some major chronological challenges, particularly with unstratified survey material. Gabrieli's (2007, 2008) analyses of stratified material from Fabrika Hill in Kato Paphos have made a very substantial contribution to developing a chronology for the utility wares of these periods; this directly feeds into her work for TAESP (Chapter 3.4). Based on a more secure chronology, in combination with the better known glazed and painted wares, it is now possible to use pottery to discuss interaction between different regions of Cyprus and elsewhere in the East Mediterranean (e.g. Gabrieli *et al.* 2007; see also Chapter 3.5).

Individual periods within this long time span also have their own specific challenges and research issues that contextualise TAESP's work. The Arab raids of the 7th century are conventionally seen as marking the beginning

of a long 'dark age' of depopulation and isolation (e.g. Rautman 2000, 328). Certainly, public buildings and private residences were burnt at Soloi in the second Arab raid of 653 (Feissel 1987, 380–81; Papageorgiou 2001, 18–19). And, from at least the 7th century there is a substantial archaeological lacuna, in spite of substantial documentary evidence for the continuing occupation of the island under a Byzantine/Arab condominium, and then from 965 the Byzantines alone. This Byzantine 'problem' seems to stem mainly from our inability to distinguish utility pottery of the 8th–11th centuries from that which comes before and after it, accompanied perhaps by the use of organic materials for containers which do not survive in the archaeological record (Gregory 2003).

More recent work, particularly on the rich stratified assemblages at Fabrika (Paphos), is extending pottery chronology into the 8th century (Gabrieli *et al.* 2007). It is clear that pottery as a source of information is both more limited and more complex than a direct proxy for population, reflecting, for example, changes in consumption patterns and connectivity that were going on in this period across the eastern Mediterranean (Pettegrew 2010). We hoped that TAESP would provide material to address this very significant archaeological challenge, although it is clear that much work still needs to be done (Chapter 5.4).

Cyprus under the control of the Frankish Lusignan dynasty (1192–1489) and the Venetian state (1489–1571) provides a major contrast in terms of historical documentation and archaeological material, but the last still needs substantial work and development. One of the key issues for understanding rural Cyprus in this period is the control of agricultural production in the form of large estates, both private and royal. Large-scale sugar plantations and mills are well documented and researched in the south and south-west of the island, and there are references to more in the Lefka area, immediately north-west of our Survey Area, during the 15th century (von Wartburg 2000, 389).

Several estates are documented in our Survey Area: Phlasou in the Karkotis Valley, variously a private and royal estate, and known from the 13th to 16th centuries (Volume 2, Chapter 3.8); Agroladhou, an estate of the Grand Commandery in the late 15th century (Volume 2, Chapter 3.3); and Koutraphas, acquired by the Crown in 1501 and subject of an invaluable survey in 1512 (Grivaud 1998, 370–71; Chapter 5.4). The monastic estate at Asinou is mainly known for the 12th- and 14th-century frescoes of its church (Frigeriou-Zeniou 1997), but it is of interest and importance for a much wider range of issues, particularly concerning agricultural production and the organisation and perception of its landscape (Volume 2, Chapter 5.5).

Relatively few projects have combined these sorts of sources with survey material to carry out a contextual landscape analysis (Given and Knapp 2003; Lécuyer *et al.* 2002; Walker *et al.* 2007). TAESP's aim in the Medieval and later periods is to address issues of agricultural production, domination and resistance, and social relations, in the context of the entire physical and human landscape of our Survey Area and beyond.

As we have seen, the Ottoman conquest of 1570–71 did not bring immediate and all-encompassing social change. Agricultural production was still organised in terms of large estates and, unlike much of the Ottoman empire, the *timar* holders (officials who were granted estates) were not rotated to other parts of the empire but tended to stay in place. This encouraged the development of an Ottoman-Cypriot landowning elite with very specific attachment to place (Given and Hadjianastasis 2010). Feudal estates grew into villages of free tenant farmers, who had elaborate systems of movement and interaction across the landscape, which can be seen archaeologically in the use of structures such as seasonal settlements, field shelters, goatfolds and watermills (Given 2000).

A striking development in the Ottoman period was the growth of large-scale commercialised production in the 18th and 19th century, particularly of cotton (Hadjikyriacou 2011). This is seen particularly clearly in the Karkotis Valley: in 1855 Albert Gaudry located Cyprus' best cotton production 'autour de Solia et d'Evricou', precisely in our Survey Area (Gaudry 1855). Eighteenth-century travellers such as Alexander Drummond also attest to the richness of the Karkotis Valley, particularly its water supply (Cobham 1908, 296; see Volume 2, Chapter 3.1).

As in earlier periods, our integrated landscape approach is very appropriate to investigating the impact of British colonialism on local populations and culture, between 1878 and 1960. New colonial structures were imposed on the landscape, such as forest boundaries and roads that by-passed villages, and new forms of resistance can be seen in that landscape (Given 2002, 2004a). The archaeology of the 19th and 20th centuries is still very much in its infancy, however, just as is the case elsewhere in the eastern Mediterranean (Diacopoulos 2004). There has been some very valuable work on areas such as vernacular architecture (Ionas 1988), folk art (Rizopoulou-Egoumenidou and Seretis 2000), pottery (London 2000), tanning (Rizopoulou-Egoumenidou 2009) and threshing floors (Whittaker 2000). TAESP's aim, as in every period, was to build on these disparate studies and integrate architecture, material culture and oral history within their landscape context (Chapters 3.11, 5.4).

1.4 Research and Fieldwork Philosophy

A complex interdisciplinary project requires more than an explicit and careful methodology to ensure the successful achievement of its research aims. In this section we explain the research and fieldwork philosophy that underpins both the methodology explained in Chapter 2 and our interpretation that appears throughout both volumes. This section was written after the project, so is inevitably affected by hindsight and, perhaps, an element of wishful thinking. But we do believe the following is firmly based on our deliberate reflection during both the fieldwork and

research phases of the project about what we valued and why we worked in a particular way.

We begin with the importance of interpreting the landscape, and then discuss our engagement with the landscape and construction of knowledge about it. Three approaches were particularly important to our interpretative project: flattening the hierarchy of interpreters; integrating the knowledge and insights of our different disciplinary specialists; and reflecting on our fieldwork and research to allow an interpretation that was sensitive and responsive to the landscape.

Interpreting the Landscape

Intensive survey as practised in the Mediterranean and elsewhere still shows strong evidence of its processualist roots (Given *et al.* 2007, section 2). The number crunching of large amounts of statistical, coded data is a key part of the analysis, and the focus on the human-environment relationship often merges into a thinly disguised environmental determinism. This is exacerbated by the simplistic 'A/Not-A logic' (Gero 1996, 270) of databases and GIS, which often reduces the complexity of human behaviour and decision-making to tables of numbers or dots on the map (Cherry 2003, 147). These factors make it all too easy to project simplistic ecological relations or modern commercial formulae onto a very different and complex past (Gaffney and van Leusen 1995; Given 2004b).

We have only seen the very beginnings of a post-processual archaeological methodology, most visibly applied to the excavation component of the Çatalhöyük project (Hodder 1999; 2000; Hodder and Cessford 2004). In archaeological survey, techniques may have improved dramatically over the last 30 years (Mattingly 2000), but there has been little corresponding advance in the interpretation of survey data. Even the phenomenological movement in landscape archaeology has had a minimal impact on intensive archaeological survey. This is very evident in the 2008 *Handbook of Landscape Archaeology*, where the chapter on survey gives a careful overview of practical issues of sampling, landscape formation, recording and modelling (Richards 2008), and is therefore totally at odds with other papers in the volume on postprocessual approaches to landscape such as 'Hidden landscapes of the body' (Gamble 2008) and 'Archaeology, landscape, and dwelling' (Thomas 2008).

One problem is that survey projects, including ours, often focus on the relationship between people and their environment. This is clearly a valuable research area, and is a very appropriate goal for projects that produce data expressed in quantified, GIS-based artefact distribution maps, settlement hierarchies, maps of exploited resources and communications routes. Such analyses are the bread and butter of survey projects throughout the Mediterranean and beyond. The problem is that such an approach tends to obscure the lived experiences of real individuals and social groups, which perhaps seem more immediate when excavating a house or grave than when applying a broad-brush GIS analysis to several hundred square kilometres.

So what about the idiosyncratic meanings of specific localities, the associations built up by families and communities with their homes, settlements, fields and other meaningful places, the narratives of landscape and environment that structured people's lives in the past (Bradley 2000, 2005; Meskell 2000)? Phenomenological approaches in British prehistory have attempted to reconstruct people's experiences at particular monuments, rock reliefs or 'sites' (e.g. Tilley 2008). Can we use survey data, with all the coded fields and arrays of numbers, to probe these much more difficult – and interesting – questions of the human meaning of the landscape, in all its variety and complexity?

Our answer, of course, is that we can; this is the fundamental aim of TAESP and lies at the heart of our research philosophy. As soon as we go beyond the simplistic and reductive processualist analysis, however, we face some major interpretative challenges. Where do our knowledge and understanding of past landscapes and societies actually come from? Are they just a projection of our own landscape experiences and social relations onto the past? To what extent is our fieldwork strategy implicated in this set of interpretative practices? The first step, in the course of our project as well as in this section, is to address these issues explicitly; from there we can move towards strategies for engaging with and interpreting the otherness of past landscapes.

Constructing Knowledge of the Landscape

One of the key aspects of the Çatalhöyük interpretative method is the dispersal of the notion of 'site' into a web of meanings and associations held by a wide range of groups and individuals in the past and the present (Bartu 2000; Hodder 2000, 10). Their research project therefore focuses on 'simultaneous (re)workings of these multiple sites and shifting contexts' (Bartu 2000, 102). Right at the beginning of TAESP, we had already rejected the essentialist notion of the 'site' (Chapter 2.3). We focused instead on landscape, interaction, networks and associations, which we investigated through a real engagement with tangible places, materials, people, soils and plants (Forbes 2007b, 46).

In all of this, the key is to understand the role of the researcher in building up our representation of the past. A scatter of artefacts on the surface is itself an artefact of our archaeological practices of defining, sampling and classifying; that is how past human activities are redeposited into our own society today (Barrowman 2003, 100). There is a close connection between our knowledge of the past and our sense of place based on physically being there in the landscape (Forbes 2007b, 38). This means that we inhabit the landscape – in a very different way from local people, present and past, of course, but still in a way vital for a relevant and responsive construction of local pasts.

On a very basic level, the GPS trails showing where our Geomorphological Interns (and, by extension, our field teams) have been is a graphic demonstration of our engagement with the landscape. Another might be the 15,573 person-meals which we ate over the course of the project, plus another 4000 or so 'second breakfasts' eaten on the edge of the Survey Unit – beside a ruined monastery, on a mountain ridge or in the shade of an olive tree. In Lucas's (2001, 16–17) sense, we were not mere observers; we were *encountering* the landscape and the physical, tangible traces of its past. That encounter is just as important an ingredient of this publication as are the database and distribution maps.

On a daily basis, then, we created our own landscapes by means of appropriation, naming, daily practice and stories. This particularly applied to the field teams, with their complex networks of team leaders, Geomorphological Interns, Greek-speakers, first-aiders and visiting specialists. They became intimately involved in their landscapes, so much so that we all referred to the 'Team East area', for example, rather than the 'Lagoudhera Valley'. These networks played a major role in our experience of the landscape, and underlie many of our readings. Add to that the conflicting concerns of groups such as villagers, the Forestry Department, visiting archaeologists, the Greek Cypriot National Guard, farmers, United Nations troops, weekend commuters, local amateur historians, the police, and the Department of Antiquities, and it becomes clear that local knowledge of the landscape and vested interests in it are infinitely more dispersed than a range of attitudes to a single Neolithic 'site'.

There are many different ways of encountering landscapes and translating them into archaeological knowledge. The hierarchical nature of traditional fieldwork, where directors appropriate the knowledge produced by their teams and lay sole claim to truth and authority, suppresses the alternative interpretations and reduces the complex network of the landscape to a single strand (Hodder 2003, 62; Lucas 2001, 12). Masculinist fieldwork traditions and the A/Not-A logic of many databases and GIS systems can work against the acceptance of ambiguity or continuity between categories; they certainly disallow experiential accounts of our engagement with the landscape (Gero 1996, 275).

How true is this of TAESP? We address the issue of hierarchy below, but at this point it is worth doing a basic gender analysis of the project, based on externally defined gender designations (Table 1.1). The boys with their toys are very clear in the IT/geophysics/cartography category. All five artefact specialists are women – a long-standing pattern in archaeological fieldwork (Gero 1983, 51). Team leaders and Geomorphological Interns, the key people in our fieldwork practice, are relatively balanced. 78% of our fieldwalkers were women, a figure not all that different from the 66% of women students in the Department of Archaeology at the University of Glasgow at the time, where two-thirds of them came from.

Table 1.1. Breakdown of TAESP team by gender

Role	Female	Male
Archaeometallurgist	2	1
Architectural historian	3	1
Artefact specialist	5	0
Botany, history, seeding experiments	0	3
Co-director	1	3
Cook	1	0
Fieldwalker	25	7
Geomorphological Intern	5	3
IT/geophysics/cartography	0	5
Photography/illustration	0	2
Team leader	3	2
TOTALS	45	27

Whether these various imbalances affect our interpretation depends on our actual practice in the field and in the analysis, interpretation and writing up. Have we escaped a patriarchal, top-down hierarchy of interpretation, which forecloses our engagement with the past rather than stimulating it? Have we managed to transcend the reduction of past human lives to the pigeonholes of categories, forms and database fields?

We have used three main approaches to address these issues: flattening the hierarchy of interpretation; genuinely integrating our interdisciplinary research, based on learning each other's disciplinary languages and listening to each other in the field, lab and writing up; and a reflexive approach where we consciously draw our landscape experience and alternative views into the analysis of data. We discuss these in turn.

Flattening the Hierarchy

In terms of TAESP's organisation and data collection, there was of course a hierarchy. Most obvious was the structure of fieldwalkers, team leaders and directors, though we hoped that a relatively informal atmosphere and shared accommodation encouraged good communication at all levels. Our plethora of forms and the 'paperchase' whereby field information was entered into the database, checked and filed is reminiscent of the 'inscription of surveillance in modern record keeping' (Lucas 2001, 9). Our 'boys with their toys' (see above) argue in Chapter 2.7 that control of the record is important for ensuring that it is a comprehensive and accurate representation of our data collection, and so can properly inform our understanding of the landscape. This may indeed be a very 'male' conception of knowledge production (Gero 1996, 265; Lucas 2001, 9), but in this particular aspect of our project we would argue that it is both necessary and justifiable. But we hoped that this would not be incompatible with a flattening of a different hierarchy, that of interpretation and authority.

Fig. 1.3. Team West in July 2001. From left to right: Alexis Boutin, Mitzy Schramke (Geomorphological Intern), Jessica Harrington, Efthymios Shaftacolas, Heather James (Team Leader) and Paul Pelosi (hidden) (Chris Parks)

The core principle in our attempts to distribute the interpretation of the TAESP landscape was that of dialogue (Joyce 2002, 8–10). The field teams were strongly encouraged to make preliminary interpretations in the field through discussion amongst themselves (Fig. 1.3). The main outlets for this were the narrative field notebook (Hodder 1999, 95; Berggren and Hodder 2003, 430) and the daily meetings of the entire TAESP team, where fieldwalkers as well as team leaders reported in turn to the whole group. As we argue above, the interpretation of the landscape requires being in the landscape: however many visits the co-directors made, the teams were always the ones with the experience of immersion in what became 'their' landscapes.

An example of this was when Team East collectively thought hard about the relationship between their different mining areas, communications and the control of the workforce. As a result of this they decided to disregard the Field Manual and define two hills with significant views but no archaeological features or artefacts as POSIs. This has turned out to be very important for our understanding of the organisation of Roman copper mining, and that decision has become sedimented into our final report (Volume 2, Chapter 4.8).

The key people here are the team leaders. Their role involved not just directing the fieldwork and recording, but designing the methodology and carrying out the interpretation. This ranged from leading discussions in the field, to their daily, weekly and seasonal reports, and ultimately to this final publication. This particularly applies to those who worked across all three main field seasons: Alexis Boutin, Erin Gibson and Angus Graham. Their work is recognized by their being first authors of the major fieldwork chapters in Volume 2. Their role has been crucial to the success of the project, not just because of their skill and experience but also because of their continual immersion in and engagement with the landscape, which is greater than anything that a project director could achieve.

Integrating the Disciplines

The integration of different disciplinary approaches is a key area of contemporary research in the humanities and social sciences. The important word here is 'integration', often a failing in multidisciplinary survey projects (Tartaron *et al.* 2006, 463). For us, the key has been for different disciplinary specialists to work together in the field and lab and learn each other's language: it is in our daily practice and dialogue that we try to be interdisciplinary. The most powerful arena for interdisciplinary collaboration is at the 'critical moment of primary data collection' (Tartaron *et al.* 2006, 513) – in our case not so much 'at the trowel's edge' (Hodder 2000, 7) as 'in the Survey Unit' or, literally, 'in the field'.

Daily visits to the teams in the field were a vital part of the project, not just by the co-directors (Given and Noller visited most teams on most days) but by the full range of field and lab specialists (Butzer 2005, 1774; Hodder 1999, 96). This allowed the team's preliminary interpretation to incorporate a range of disciplinary observations and analyses, and contributed to their ongoing training. The

Fig. 1.4. Geomorphological Intern Abel Lufafa and team leader Angus Graham in the lab at Katydhata, 2003 (Marios Hadjianastasis)

collaboration went in both directions: teams had a system of notification which they could use, for example, to call out the botanist to examine a clearly ancient olive tree, or the lithics specialist to see a potential jasper quarry or a group of saddle querns too large to take home. The meetings of the entire TAESP team at 4 pm every workday were also crucial in maintaining communication between field teams, specialists and directors, allowing us to develop our interdisciplinary interpretation.

This integration worked particularly well in the relationship between the geomorphology and the archaeology. Noller, our geomorphologist and co-director, was fully involved in the design and implementation of archaeological fieldwork, greatly to its benefit. As with the Eastern Korinthia Archaeological Survey where Noller was simultaneously making similar advances (Tartaron *et al.* 2006, 468, 513), the closest collaboration was between the archaeological team leader and the Geomorphological Intern. This interchange took place daily in the field and the lab (Fig. 1.4). It found formal expression in the end of season reports and is a crucial component of our interpretations in Volume 2.

Interdisciplinary listening and learning in the field are useless unless the results appear in the publication. A succession of chapters or fascicules, each written by a different specialist, may be multidisciplinary, but is certainly not interdisciplinary. Neither is a monologue written by a single 'director-archaeologist-bricoleur' who writes up the site based on (usually) his DIY knowledge of all specialisms (Hodder 1999, 57). The interpretations in our landscape volume are multi-authored at every stage in their development, from the original discussions and field reports right through to this final publication. The list of 20 co-authors of the chapter on the Karkotis Valley (Volume 2, Chapter 3) is both a fair recognition of their work and a measure of the breadth and interdisciplinary integration of their interpretation.

There are undoubtedly challenges in integrating a fieldwork publication in this way, not least because of the pressures from academic institutions for individuals to have their 'own' publications. But without it, we reduce the complexity and dynamism of past landscapes and communities to a row of modern academic pigeonholes.

Reflecting on the Fieldwork

One way of challenging the implicit processes that create archaeological knowledge is by reflecting on them explicitly and critically during the fieldwork and analysis stages of the project, and then building these reflections into subsequent fieldwork and interpretation (Berggren and Hodder 2003, 427; Gero 1996, 257–58). At a general level, this highlights the human agency that created the archaeological knowledge presented in these two volumes, rather than hiding it under a depersonalized image of archaeological 'facts' as seen in a trench photo or an artefact distribution map (Gero 1996, 259). The story about the team and their encounter with the past in the prologue to the Sydney Cyprus Survey Project uses the medium of fiction to fulfil the same function (Given and Seretis 2003).

More specifically, an explicit and systematic system of reflection and feedback helps a project to be sensitive to the context of its fieldwork and the problems and issues raised by the preliminary analysis (Hodder 2000, 3). In line with our policy of flattening the interpretative hierarchy, it also provides a formal structure for listening to all participants and incorporating their views. All projects think about their progress and preliminary results in an informal way, and try to respond to them in their ongoing work. We tried to make our reflexive and interpretative process an explicit and organised research structure, which we display graphically in Plate 1.1.

As explained above, the interpretation was an iterative process starting with the discussions of team leaders, Geomorphological Interns and their entire teams in the field. It developed through discussion with specialists and co-directors, and at this stage directly influenced choices about future work, for example, declaring a 'Special Interest Area', doing another transect, or just moving on. Further interpretation was based on preliminary artefact distribution maps, which were produced by the IT team and taken back into the field. Ongoing experiences in the field led to further discussion, which influenced not just decisions about where to work but about interpretation and even methodology. One example of the last was our experiments in clearing circles in Survey Units with very poor ground visibility resulting from the presence of pine needles or stubble from cereal crops. Our decision to enlarge the Survey Area was based on our ongoing reading and research, combined with reflection on our first season's work (Chapter 2.2). The advantages of an improved methodology, of course, have to be set against the need to keep it consistent across the entire project.

These interpretations become sedimented in the daily, weekly and end-of-season reports, but are challenged after data entry and ongoing GIS analysis. Our seeding experiments (Chapter 2.8) and ploughsoil experiments (2.9) were explicitly designed to contribute to this system of interpretative feedback. These challenges and re-workings continued throughout the period of analysis and writing up, particularly by making all analyses and draft texts available to the entire publication team on TAESP's private webspace. They are now re-sedimented in these two volumes. Experiences, ideas and material continue to change, and we fully hope and expect that this interpretative process of the TAESP data will continue; our online database and GIS will enable this in a very literal sense (Given *et al.* 2007; TAESPdata 2007). Like monuments and landscapes, field projects have a continuing biography that puts the intentions of their creators into a broader chronological and academic perspective.

1.5 How to Use this Book

This section is intended to help readers use the TAESP monograph more effectively, efficiently and, ideally, even enjoyably. The first step is to understand that while it comprises two volumes this is, in fact, a single book; the two parts operate as a closely integrated whole. Here we offer advice on how best to navigate through it – how to follow a particular theme or research interest. We also introduce some practical suggestions that will help the reader approach the information on the page, introducing them to TAESP's specialist languages, the maps and abbreviations. And finally, we suggest a format for citing this wide-ranging, closely integrated work.

Pathways

Approaches to the book will vary: the reader's interests and requirements will affect their approach to it. If, for example, someone is interested in Hellenistic–Roman pottery, the most obvious place to start might be in Volume 1, Chapter 3, where they will find descriptions and discussions of material culture as well as the pottery catalogue. They might also find Appendix 2 in that volume useful (chronotypes and the rationale behind this flexible method of categorisation). From there the reader might choose to turn to Volume 2 for further information on the part of the TAESP landscape from which the pottery was recovered, or to Volume 1, Chapter 2 to assess our survey methods or to understand the pottery analysis, or Chapter 5 for a discussion of Hellenistic–Roman landscapes.

A period specialist, on the other hand, might go straight to Volume 1, Chapter 5 (period analyses). Anyone interested in a particular part of the landscape would go first to the relevant chapters in Volume 2 before following strands out to relevant studies of artefacts (Volume 1, Chapter 3) or the environment (Volume 1, Chapter 4). The permutations are endless so, rather than jumping straight in, readers should take a moment to consider what they want from this publication before starting to read it. One key issue, whatever the reader's interests, is that the material in this publication derives from the team's specific field practices, decision-making and interpretation: the methodology section (Volume 1, Chapter 2) is therefore critically important.

Maps

Processed data appear in this publication in tables, graphs and, perhaps most often, in analytical maps. The maps are a key element of TAESP's presentation and adhere to Tufte's principles of graphical excellence (1983, 51). They are thoughtfully designed to present a large number of complex ideas efficiently and clearly in the shortest possible time using the minimum amount of space and ink.

Each map is located within the Survey Area or Intensive Survey Zone by a simple thumbnail map. For the main data presentation we have made extensive use of multiple frames, allowing us to increase the data density without increasing the space we take to do it. Small multiples

(Tufte 1983, 170) allow us to present several localized distributions at a large scale without resorting to cluttered maps (e.g. Volume 2, Figures 2.33 and 5.19). Multiple frames at a slightly smaller scale, in conjunction with thumbnail locator maps, enable us to compare widely separated data without losing their spatial relationship (e.g. Volume 2, Figure 5.37). By displaying resistivity results beside a location map of the surveyed area we are able to present them at a readable scale, while displaying their spatial relationship and avoiding any confusion between them and the landscape information on the map (e.g. Volume 2, Figure 4.41).

Other arrangements are also used, but our overriding intention is that the maps should, in conjunction with the text, present our data clearly and accessibly. We have taken measures to ensure that they are accessible, and that their form does not obscure their function. We adopted a simple, uniform schema throughout the two volumes based on that used in TAESP's *Internet Archaeology* article (Given *et al.* 2007). This ensures that symbols and colour schemes are consistent throughout the publication and will soon become familiar to the reader. Where distributions are displayed, whether as graded areas or pie charts, three distinct colour ramps are used: shades of purple for pottery; shades of green for geomorphology; and shades of blue for lithics.

It should be noted that where pie charts or graded circles are used on the maps they are intended to display relative densities, and to give an indication of the numbers of artefacts involved. Despite having been precisely produced in the GIS using accurate numbers from the database, their format does not allow the reader to extract precise values. Indeed, in areas of high density, overlapping circles or pie charts often obscure some data (e.g. Plate 3.4). The overall patterns of relative densities, however, remain clear. Raw data are available in the online TAESP database (TAESPdata 2007).

Language

In common with other projects TAESP developed a specialised language that grew out of the myriad definitions, terms and abbreviations that were generated by our fieldwork. To help readers in their early encounters with our work the main terms used are listed in Volume 1, Table 2.1. Detailed explanations of many of the terms we use are included throughout Volume 1, Chapter 2 in the explanations of our methods and procedures.

Referencing

These volumes are the result of a vast collaboration of some 35 team members: the project directors, specialists, team leaders, Geomorphological Interns and other contributors. Such is the integration of their work that it is difficult to pinpoint precisely what was written by whom, and in Volume 2 contributors are listed at the beginning of each chapter with their specialism. We suggest that references are made by chapter using the list of contributors, e.g. '(Boutin *et al.* 2013)':

Boutin, Alexis, Michael Given, Iain Banks, Stephen Digney, Ian Evans, Sevina Floridou, Ruth Smadar Gabrieli, Marios Hadjianastasis, Mara T. Horowitz, Tracy Ireland, Sarah Janes, Vasiliki Kassianidou, A. Bernard Knapp, Carole McCartney, Jay Noller, Maria Ntinou, Charlotte Schriwer, Sheila Slevin, Neil Urwin, Joanita Vroom, and Kristina Winther-Jacobsen
2013 The Karkotis Valley. In M. Given, A.B. Knapp, J. Noller, L. Sollars and V. Kassianidou (eds), *Landscape and Interaction: Troodos Archaeological and Environmental Survey Project, Cyprus*. Volume 2: 51–153. Levant Supplementary Series 15. London: Council for British Research in the Levant.

2. Methodology and Analytical Procedures

2.1 Introduction

Michael Given

The reliability of our interpretations of the TAESP landscape depends on fieldwork methods and analytical procedures that are appropriate, carefully designed and consistently applied. In this chapter we give a careful account of our methodology at every level of the project, so that readers can make an informed judgment about our results and interpretation.

The research philosophy underlying these methods is discussed in Chapter 1.4. Fundamental is our firm belief in the value of intensive, systematic and continuous (or 'siteless') survey, for the interpretation of past landscapes, social organisation, human activities and human experience. Our aim has been to investigate traces of human activity at every level, from manuring scatters to architecture. By doing this, we consider that we have achieved a much fuller and more nuanced analysis of human activity and of the relationship between people and their environment.

We reject the notion that this should be termed 'myopia' (Blanton 2001; cf. Tartaron 2008, 89–92). Instead we see it as an ability to work at different scales and piece together many different types of data and analysis. Such an approach is far more productive than restricting analysis to the large obtrusive settlements that represent a fraction of past human society and interaction. If intensive transect survey is 'the world as seen through prison bars' (Kowalewski 2008, 250), then settlement pattern analysis is the world as seen through pinholes.

We would also argue that intensive survey need not necessarily result in 'localism' (Blanton 2001, 628). Our Survey Area of 164 km^2 intersects mountains, plains and the valleys that connect them (Fig. 2.1; Chapter 2.3). The human interactions and geomorphological relationships we investigate spin off from the Survey Area to its regional context. Again, our research is multi-scalar (Kantner 2008, 43–44): we use the facility of our GIS and data management system (Chapter 2.7) to zoom from artefact and Survey Unit through Intensive Survey Zone and Survey Area to the north Troodos and the eastern Mediterranean. The northern Troodos forms a particularly important level of analysis, as we can make explicit comparisons with the research and fieldwork that we and others have carried out in the region (e.g. Given 2000; Given and Knapp 2003; Keswani and Knapp 2003; Knapp and Kassianidou 2008; Noller and Wells 2004). These multi-scalar analyses and regional comparisons (Alcock and Cherry 2004, 8) form a particularly important principle in our period analyses in Chapter 5.

Another principle that underlies much of our methodology is that it should be systematic and consistent.

Fig. 2.1. Recording a lime kiln on Koronia hill (BU0141), looking south across the plains to the northern face of the Troodos Mountains (Michael Given)

Fig. 2.2. Geobotanist Neil Urwin with his display of plants during team training in 2001 (Marios Hadjianastasis)

Indeed, thanks to our relational and multi-level database (Chapter 2.7), our field and laboratory methodology comprises a single system, even if it is a complex and many-facetted one. Consistency was a key goal. The main way of achieving this was through full team training, starting with two full days of field training at the beginning of each season, followed up by focused sessions by each of the specialists (Fig. 2.2). In addition, a detailed field manual was continually consulted in the field (Given *et al.* 2003b). Given and Noller visited each team in the field almost daily, often accompanied by one or more specialists, and the database manager kept close control of data collection and data entry procedures.

It is vital that the methodology of any systematic and intensive survey project be transparent and fully documented, so that readers can judge the reliability and relevance of its results, and exploit them for their own purposes (Mattingly 2000, 5; Tartaron *et al.* 2006, 516). Full documentation of our methodology is the central aim of this chapter. That said, intensive survey methodology using continuous transects and 'Places of Special Interest'

Table 2.1. TAESP acronyms, with the section in this volume where each is explained

Acronym	Explanation	Section
AU01	Archaeometallurgical POSI Unit	2.12
BU0001	Building Unit	2.14
GI	Geomorphological Intern	2.4
GU0001	Geomorphology Unit	2.4
IP0001	Image Print (field map based on georegistered aerial photo)	2.7
ISZ	Intensive Survey Zone	2.2
MU0001	Morphostratigraphic Unit	2.4
NU01	Geobotany Unit	2.11
POSI	Place of Special Interest; ID numbers prefixed 'TP'	2.3
PU01	POSI Unit (sequential system)	2.3
PUE0N0	POSI Unit (coordinate system: E2N5, E3N5, etc.)	2.3
SE01	Structural Element (for architectural analysis)	2.14
SIA	Special Interest Area; ID numbers prefixed 'TS'	2.3
SU0001	Survey Unit	2.3
TCA001	TAESP Catalogue: Archaeometallurgy	2.12, 3.9
TCL001	TAESP Catalogue: Lithics	2.6, 3.8
TCP001	TAESP Catalogue: Pottery	2.5, 3.6
TCS001	TAESP Catalogue: Special Finds	3.7
TIA001	TAESP Inventory: Archaeometallurgy	2.12, 3.9
TIL001	TAESP Inventory: Lithics	2.6
TIP001	TAESP Inventory: Pottery	2.5
TIS001	TAESP Inventory: Special Finds	3.7
TM001	TAESP Sample	2.4, 2.12
TN001	TAESP Geobotany transect or block	2.11
TP001	TAESP Place of Special Interest	2.3
TS01	TAESP Special Interest Area	2.3
TT	TAESP Transect, e.g. TT3880000N (east–west); TT497000E	2.3
XU	Experimental Unit, with details of seeded sherds	2.8
XSU	Experimental Survey Unit, with details of sherds recovered by teams	2.8

(or their equivalent) is now a widespread and familiar technique, at least within the Mediterranean (Tartaron *et al.* 2006, 464). Our own version of it is directly based on that of our early field survey, the Sydney Cyprus Survey Project, and has much in common with the closely related Eastern Korinthia Archaeological Survey. The methodology of both projects has been explained and published in detail (Meyer *et al.* 2003a; Tartaron *et al.* 2006), and we refer to them as appropriate.

Issues such as POSI definition, walker spacing and the use of pro formas no longer need lengthy justification, as long as our procedures are clear. In this chapter we include detailed discussion only where we have developed new approaches because of problems specific to our Survey Area and research questions (e.g. Chapter 2.10). Unlike the early wave of Mediterranean survey projects, our emphasis is on the interpretation of the landscape, not on the development of methodology (Given *et al.* 2007, section 2).

During the course of the project we aimed to integrate the collection, analysis and interpretation of some 23 different types of data, from pottery inclusions to bedrock and from dendrochronology to oral history interviews. This inevitably leads to a highly complex data structure, with a host of technical terms and acronyms. We have made both the structure and the acronyms as clear and consistent as possible (Chapter 2.7), and to aid the reader we summarise our main abbreviations and data collection units in Table 2.1.

The content of this chapter on our methodology is most usefully summarised in the table of contents at the beginning of the volume. It proceeds from generalities, such as terminology and the definition of the Survey Area, to the core methodologies of fieldwalking, geomorphological mapping and artefact analysis, to the specific procedures used by our specialists in archaeometallurgy, geobotany, architecture and oral history.

2.2 The Survey Area and Sampling Strategies

Michael Given and Jay Noller

The location of the TAESP Survey Area was intended to complement that of our previous project, the Sydney Cyprus Survey Project (SCSP), which was in the same northern Troodos region 20 km to the east (Given and Knapp 2003). Like SCSP, it includes the copper-rich Pillow Lava zone, and forms a reasonable cross-section of mountains, valleys and plains. Unlike SCSP, it incorporates the largest and most productive copper mine in Cyprus, both in the Roman period and in the early 20th century, and the Karkotis Valley, nourished by arguably the most powerful river on the island and unusually green and lush for Cyprus. In spite of this, it was almost totally untouched in archaeological terms, apart from the excavation of some Bronze Age and Roman tombs (Chapter 1.3).

Once our general location was established, we had to decide on the size of the Survey Area and define its boundaries. The boundaries between groups of people and between different ways of interacting with the environment are constantly changing, as is now well recognized (Kantner 2008, 42). In spite of the importance of Skouriotissa mine or the medieval estates of the Karkotis Valley, our research questions were not based round a single prehistoric or historical issue, nor did they revolve around a clear topographical entity. This is not uncommon for multi-period survey projects (e.g. Cavanagh *et al.* 2002, 15). Our diverse research issues were, in geo-ecological terms, very dispersed (Chapter 1.1); investigating this dispersal and the way patterns change over time was in itself one of our research aims.

Our initial Survey Area of 69 km^2, then, was intended to incorporate a sufficient range of topography and known cultural material to answer our range of research questions. It had geometric boundaries, apart from the northern boundary which followed the southern limit of the United Nations Buffer Zone, and was in two discontinuous sections with a 2 km gap between them (Plate 2.1). We felt that this division supported our wide range of research questions, particularly as our aim was regional analysis rather than mere local description.

During the first full field season in June/July 2001, we grew increasingly uneasy about the small size of the Survey Area. Many of our specialists considered that their work needed broader scope to be regional and analytical, and felt that they needed to include, for example, mountain settlements and communication routes to the south of the Survey Area. In particular, our geomorphological analysis was based on investigating entire watersheds or geomorphologically distinct sub-watersheds (catchments). A watershed is bounded by drainage divides – the critical landscape separator that represents the boundary between domains of surface particle movement (including artefacts), which in this area of Cyprus is the overland flow of water. We drew Intensive Survey Zone boundaries with attention to drainage divides, which were at the scale of our Survey Units. Our own hydrological map produced in 2001 matches that of the recent Cyprus hydrology map (GSD 2008), and demonstrates the alignment of our Intensive Survey Zone within a distinct catchment or watershed.

For these reasons, we decided to increase drastically the size of our Survey Area from 69 km^2 to 182 km^2. This carried a range of advantages. The variety and range of the cultural and environmental topography was now much greater, and therefore more representative of the wider region. In particular, the mountain region now played a key role in our analysis, unlike many Mediterranean survey projects (Blanton 2001, 629). Our specialists were also much happier that they could incorporate material from the mountains and the upper Karkotis Valley, while our geomorphological analysis could address entire drainages and natural resources beyond those of the Pillow Lava terrain.

Table 2.2. Intensive Survey Zones (ISZ): numbers and square area of Survey Units (SU) and Geomorphological Units (GU); numbers of POSIs and Building Units (BU). Letters after ISZs indicate environmental zones of mountains (M), valleys (V) and plains (P)

ISZ	Area	SUs	SU area	GUs	GU area	POSIs	BUs
Karkotis (V)	9.2	337	0.32	274	0.97	59	32
Atsas (P)	4.1	90	0.13	61	0.53	16	3
Mandres (P)	3.3	90	0.11	65	0.45	10	43
Asinou (M)	6.7	175	0.14	162	0.51	51	4
Koutraphas (P)	4.0	94	0.16	52	0.54	4	0
Lagoudhera (M, V)	5.0	221	0.12	231	0.70	80	1
Outside ISZs (M, V, P)	–	113	0.06	116	0.20	36	83
TOTALS	**32.3**	**1120**	**1.04**	**961**	**3.90**	**256**	**169**

We made this decision in November 2001, two months after the appearance of Blanton's much-cited critique of the 'myopia' of Mediterranean survey (2001). Although we fully agreed with his call for analysis that was truly regional, the underlying reason for increasing the size of the Survey Area was our growing confidence in our sampling techniques and in the ability of our methodology to sample and analyse this larger area. It had become clear that achieving a statistically significant sample when covering the ground with the intensity necessary for detecting a full range of material and distributional data was both unattainable and pointless. As we explain below, the reliability of our sampling methods derives from a nesting set of investigative areas, particularly the 'Intensive Survey Zone', and on a wide variety of investigative methods of which fieldwalking is only one.

After the 2002 season we reduced the size of the Survey Area slightly to exclude some of the mountain area which was difficult to access and was similar enough to the rest that it gave only diminishing returns in terms of answering our research questions. During 2003 we made a small encroachment across our northern boundary when we received permission to work in part of the United Nations Buffer Zone (Volume 2, Chapter 2.3).

With these changes taken into account, the Survey Area's final coverage is 164 km^2. Its northern boundary remains the edge of the Buffer Zone, apart from that one extension. In the south it reaches into the mountains, extending farther south in the western area to include more of the Karkotis Valley and the upper reaches of the Asinou Valley. The east and west boundaries were arbitrary north–south lines intended to include the Karkotis and Lagoudhera drainages, while the north-east corner was important for providing a reasonable coverage of the Plains.

Our main strategy for dealing with a radically increased Survey Area was the development of Intensive Survey Zones (ISZ) within it (Plate 2.1). In these ISZs, we carried out transect survey and all its associated methods of intensive survey. By the end of the fieldwork we had six such Intensive Zones with a combined area of 32 km^2, which comes to 19.4% of the Survey Area. The principle is very similar to that of the Pylos Regional Archaeological Project: their c. 100 km^2 Survey Area was sampled by carrying out intensive survey within ten distinct zones totalling 40 km^2 and reflecting the geographical and geological variation of the Survey Area (Davis 2004, 26, 28).

This combination of a larger Survey Area and defined Intensive Survey Zones also gave us greater flexibility in managing our fieldwork strategy. Clearly, sampling needs to be consistent, and it is undesirable to change methodology throughout the project (Hodder 2000, 6). This needs to be balanced with proper flexibility, so that the project can meet changed circumstances and unexpected findings. After the 2002 season, for example, we removed the Ayios Theodhoros Intensive Survey Zone, as it was too similar to the Asinou Intensive Survey Zone, and the area had poor ground visibility and extensive disturbance from bulldozing in the creation of terraced orchards. On the other hand, we were able to add Atsas, as it was very different from the others, and provided excellent contrast with the neighbouring Karkotis Valley. We applied the same flexibility at the level of transects and block surveys (Chapter 2.3), again without violating the essential consistency of our field methods.

Overall, we carried out Survey Units across 3% of the Intensive Survey Zones, and Geomorphological Units across 12% of them (Table 2.2). Added to this is the work on POSIs, specialist work on topics as varied as buildings, olive trees and copper sources, and the knowledge built up by our teams as they crossed and re-crossed their field areas. The Geomorphological Units covered a wider area than the Survey Units (Table 2.2). This is because they provided context for the Survey Units, and so normally extended beyond them on all or most sides; when the area is homogeneous it is also quicker to do a larger area. One result of this is that Geomorphological Interns regularly roved ahead and to each side of the team, and so with good communications were able to act in effect as archaeological scouts.

Transect survey and its associated methods, then, provided a meaningful sample and interpretation of the Intensive Survey Zones. As they were purposively chosen, however, they did not automatically provide a sample of

the Survey Area as a whole. What if there were unknown anomalies that we missed entirely in the Intensive Survey Zones? To address this issue we developed an extensive survey methodology that we carried out systematically across the Survey Area but outside the Intensive Survey Zones. These were formally called 'Extensive Transects', though we normally referred to them by the name of the team dedicated to their survey in 2003, 'Team X'.

Combining intensive with extensive survey, although not perhaps in accord with the idealism of the 'new wave' of intensive surveys in the 1980s and 1990s, is a pragmatic way of combining an intensive survey methodology with a large area and ambitious research questions. The Eastern Korinthia Archaeological Survey, for example, walked and recorded their 'Extensive Discovery Units' systematically, although fieldwalkers were placed at greater intervals and the teams were smaller than in their standard intensive 'Discovery Units' (Tartaron *et al.* 2006, 474–75). We decided that we would use exactly the same methodology within the Extensive Transect Survey Units, including 5-m spacing between fieldwalkers, so that they were directly comparable with those in the Intensive Survey Zones (Chapter 2.3), but that we would space them farther apart for quicker movement and thus wider coverage across the landscape.

We laid out 23 transects on a grid across those parts of the Survey Area that did not lie in Intensive Survey Zones. Transects were 1 km long and 2 km apart; the transects in the northernmost east–west line were oriented north–south; those in the next line to the south were oriented east–west; and so on (Plate 2.1). We walked three in the 2002 season to trial our methodology, and Team X walked the remaining 20 in 2003.

The ideal situation was for the team to walk a 100 m-long Survey Unit, followed by a 100 m-long walk-through (without survey), then another Survey Unit, and so on to the end of the 1 km-long transect. The walk-throughs allowed the team to note anything of interest and record any POSIs using the normal recording forms, while the Survey Units gave artefact samples and density figures that were directly comparable to those from the Intensive Survey Units. In practice, this ideal situation was seldom possible, and teams had to shorten Survey Units and extend walk-throughs because of geomorphological variation, poor ground visibility, or difficult access. Some transects in particularly difficult areas consisted only of one or two Survey Units. Transects were never abandoned or moved, however. Team X valiantly climbed mountains and scaled bulldozed terraces, and even walked through the middle of Evrykhou village, combining archaeological and architectural description with some very informative oral history (Volume 2, Chapter 3.15).

The results of our survey of the extensive transects are incorporated into the regional chapters of Volume 2 as appropriate, to give context to the Intensive Survey Zones. This was particularly valuable with the Karkotis Valley, for example (Chapter 3.15, 'The Karkotis Valley in Context'), where the high ridges provided a considerable contrast to the valley floor that our intensive survey focused on, while nuancing our understanding of the valley itself by recording a series of paths running through a 'garden landscape' on the hillslopes and investigating the role of Evrykhou village in the valley more widely. The results of the extensive survey are also referred to in Volume 1, Chapters 5 and 6 when appropriate, and the data can be examined and queried using our online GIS and database (Given *et al.* 2007).

2.3 Fieldwalking and Artefact Collection

Michael Given, Jay Noller, Carole McCartney and Kristina Winther-Jacobsen

This section on our field methods is intended as a post-project explanation to help readers to interpret our results. The actual instructions in full detail, which were followed by the field teams, can be read in our field manual (Given *et al.* 2003b). Many of our procedures were taken over directly from the Sydney Cyprus Survey Project (SCSP); where appropriate we summarise them here and refer the reader to that project's publication, where they are fully explained (Given *et al.* 2003c).

The responsibility for following the methodology and making decisions in the field lay with the Team Leader and the Geomorphological Intern. We achieved reasonable consistency between teams and across field seasons by having Team Leader and Geomorphological Intern training at the beginning of the season (before team training), informal discussion most afternoons about the day's fieldwork, and by regular visits to the teams in the field by Given and Noller. This group of committed, energetic and skilled fieldworkers was key to TAESP's success.

Continuous Survey

TAESP subscribes in general terms to the school of archaeological survey usually described as 'siteless' (Kantner 2008, 45; Richards 2008, 552), although we prefer the term 'continuous survey' (Given *et al.* 2007, section 2). In other words, the core of our methodology consists of continuous transects of contiguous Survey Units that plot variation in artefact density, function and date across the entire landscape, rather than restricting our analysis to specific 'sites' or 'dots on the map'.

The primary reason for favouring continuous survey is the light it casts on past human activity and relationships with the environment. As discussed in Chapter 1.4, we see the landscape as an infinitely complex network of intersecting human activities and physical processes, which transcends any pattern of exclusive dots. Only continuous survey can begin to address the breadth and complexity of this network. It is certainly true that this requires substantial intellectual effort in relating artefact patterns to human behaviour (Kantner 2008, 46). But it is precisely this act

of interpretation that makes survey archaeology such a challenging and valuable mode of research.

At a more practical level, the nature of the surface material often demands continuous survey. The Akamas peninsula in western Cyprus is an excellent example where a site-based approach would be futile. The Danish Akamas Project's field survey found that it was usually impossible to distinguish 'sites' in the 'background scatter' (Hayes 1995, 173). Indeed, the 'seemingly interminable scatter of sherds' covered an area some 12 × 3 km (179). We had similar experiences on the fluvial plains of the Sydney Cyprus Survey Project, and found continuous survey transects an excellent way of investigating the cultural and post-depositional factors that produce these broad scatters (Given *et al.* 2003a, 309–10).

There were, of course, specific features such as structures and agricultural installations that had to be recorded individually, and some clearly bounded artefact scatters which were close to the traditional archaeological definition of a 'site'. We term these 'Places of Special Interest', and recorded them whenever beneficial. One of the great benefits of a flexible and pragmatic approach to intensive survey is the ability to balance continuous and feature-based analysis so that their respective strengths complement each other (Bevan and Conolly 2002–2004, 128–32; Tartaron 2003, 31–32; Tartaron *et al.* 2006, 503).

Transects and Block Survey

The core of our survey methodology consisted of Survey Units laid out in transects, rather than large continuous blocks. In this we differed from projects such as the Mallakastra and Durrës Regional Archaeological Projects (Davis 2004, 26–27) and the 'hyper-intensive' urban survey of the Sikyon Survey Project (Lolos *et al.* 2007). Sampling by means of transects gave us an overview of a much wider area, and allows us to compare and contrast artefact distribution patterns in different topographical and cultural zones. In this our transects resembled the Wadi Faynan Landscape Survey's 'line-walking', though ours were normally 25 m wide rather than 2 m (Barker *et al.* 2000, 31). Only when the density and interest of the material required it did we carry out block survey in very specific and focused areas (Special Interest Areas; see below).

Our transects were laid out to cross the drainages more or less at right angles, giving us a topographical cross-section. Transect ID numbers consisted of the prefix TT ('TAESP Transect'), then the UTM grid line, then E for a north–south transect (e.g. TT497000E) or N for an east–west transect (e.g. TT3880000N). They consisted of a single line of Survey Units, giving a width of 25 m (with five walkers) or 20 m (with four walkers); we considered that the double width of SCSP's transects (Given *et al.* 2003c, 32) gave us little extra information for the extra time required. Where an agricultural field or other coherent Geomorphological Unit extended up to 25 m beyond the edge of the Survey Unit, we incorporated it into that Survey Unit (SCSP's 'souvlaki' method: Given *et al.* 2003c, 32–34).

Fig. 2.3. Fieldwalking in Koutraphas area, November 2003 (SU3049). Looking north towards Koronia Hill. (Michael Given)

Many areas where we worked consisted of an extensive patchwork of small agricultural fields, many of them with very poor ground visibility. To combat this problem teams could move their Survey Unit sideways as long as part of it still lay within the original 25-m strip straddling the transect line (or 20-m strip, if only four walkers). In the central part of the Karkotis Valley, where these visibility problems were extreme, we exceptionally increased this so that teams could move up to 50 m to the side of the transect line. All Survey Units were drawn onto the 'Image Print', a print-out of the rectified aerial photograph with UTM grid lines (Chapter 2.7).

Where there was a considerable spread of material that was clearly of interest and required wider survey than a single transect, we designated it a 'Special Interest Area' and carried out block survey across it. These areas of contiguous Survey Units gave us a much more detailed understanding of variations in the density, function and date of the artefacts, especially when combined with other analytical methods such as geomorphological mapping and POSI recording (Given *et al.* 2003c, 35–36). Each Special Interest Area received a village and locality name and an identification number (prefixed 'TS' for TAESP Special Interest Area). This allowed us to analyse a very broad and rather shapeless spread of pottery at Phlasou *Dodekaskala*, for example, which turned out to be part of a wide expanse of Roman estate-based cultivation and the halo of Medieval–Modern Phlasou (Volume 2, Chapter 3.6). That interpretation would not have been possible based on transects every 500 m. Boundaries were kept informal and flexible: as with POSIs (see below), Special Interest Area status was assigned for management reasons, and carried no cultural connotations.

Geomorphological Units

Our geomorphological study may be termed 'hierarchical' since it served as a means to capture earth system variability

Table 2.3. Brief field description of bedrock/substrate units of the Survey Area

Abbrev-iation	Bedrock / Substrate Unit	Description
Bo	Ophiolite rocks	Generically the rocks belonging to the Troodos Ophiolite.
Bog	Basal Group	Complex rock types, visibly crystalline. Formed beneath the Sheeted Dyke Complex, and thus present in the central Troodos.
Bop	Pillow basalt	A basaltic rock that was extruded below the sea floor. As the basalt erupts it forms long tubes, which cooled and hardened on the outside allowing hot lava to continue flowing on the inside. These tubes flow out over each other to form the primary sea floor basalts at mid-ocean ridges. When the pillow lavas are brought above ocean level and exposed via erosion they typically are observed to be round pillow-shaped units in cross-section, hence the term Pillow Lavas. The Pillow Lavas on Cyprus are subdivided into the Upper and Lower Pillow Lavas, the former hosting the copper and gold ore bodies at the top of the Ophiolite below the sedimentary rocks.
Bod	Sheeted Dykes	A sequence of planar layers of igneous rock that were intruded into older (Lower Pillow Lava) rocks. Generally dykes are intrusions emplaced at high angles or vertically, while the term sill is reserved for horizontal intrusions.
Bu	Sedimentary rock	Generically the sedimentary rocks of the Circum-Troodos sedimentary succession.
Buc	Chert	A siliceous sedimentary rock, formed on the sea floor, that rings when hammer struck; does not fizz. Has been extensively utilized for lithic tool manufacture.
Bug	Conglomerate	A consolidated sedimentary rock made up of gravel in a finer grained matrix.
Bul	Limestone	A sedimentary rock comprised dominantly of calcium carbonate; should fizz when tested with hydrochloric acid. In comparison with a chalk or marl, limestone is hard and should ring when struck with a hammer.
Bum	Marl	A soft, earthy, fine-textured limestone that may include up to 50% non-calcareous clay. Will effervesce (fizz) when tested with dilute hydrochloric acid.
Bus	Sandstone	Sedimentary rock composed of particles 1/16 to 2 mm in diameter. Individual sand grains are generally visible to the naked eye and are rough and abrasive when rubbed between the fingers; sand is cemented into rock.
Buk	Unknown	Identifiable as a rock but either not belonging to one of the classes above or of indecipherable origin.

at all scales relevant to the project, from island-wide to an individual stratigraphic layer in a stream bank. At the island scale, we compiled existing data on the environmental factors. At the time of our survey even the Cypriot government lacked a digitized database of their topographic, geological and other environmental map data. At the outcrop, we collected samples within the framework of the smallest archaeological recording unit, the POSI. For the entirety of the Survey Area, we collected point data that informed our analyses and modelling of satellite imagery. Although open to data collection and analysis at both ends of this spectrum, we focused our efforts on the scales most relevant to the actual fieldwalking and inspection: the Geomorphological Unit.

Geomorphological Units were mapped along with the archaeological Survey Units, the latter nested within the former. For each Geomorphological Unit (GU) we recorded information relevant to unit-specific scale – the bedrock/substrate and morphostratigraphic classes. These landscape classes spatially overlap yet are unique, and are of considerably larger extent across the Survey Area than any one Geomorphological Unit. Unlike classical geomorphological mapping, we limited GU boundaries, and consideration of their characteristics, to the immediate area of the Survey Unit transect, at the scale of about 1:500.

To cover the geomorphology at the scale of the Survey Area, we mapped the greater landforms and surficial geology at scales of 1:5000 and 1:50,000. The latter were compiled into the island-wide geomorphology and Quaternary (surficial) geology map of Cyprus by the Geological Survey Department (Noller 2010). The surficial geology maps are used extensively in the maps of both volumes of TAESP.

Bedrock/Substrate Units

Throughout the course of study, the geomorphologists were called upon to identify rocks of all sizes and in many places, from small pebbles to entire mountainsides. The description of the geological setting in Chapter 4.3 provides little information on how our knowledge of the bedrock, or substrate as we sometimes call it, was actualized. We kept a reference collection of rocks and soils in the common room for team members to use as a training device and comparator for any chance 'odd' sample they might collect in the field. In the field, we kept the geology simple and reproducible. Bedrock is the hard, consolidated rock underlying the sediment cover. Typically it rings if struck by a hammer (Table 2.3). Two general types of bedrock are recognized in TAESP: hard rocks that ring sharply, namely

Table 2.4. Brief field descriptions of indicators of soil change in the Survey Area

Symbol	*Description*
Stability	
Stable	A Horizon intact
Unstab	A Horizon removed from >30% area
Erode	A Horizon gone and sub-A horizon exposed
Strip	All surface soil and sediment stripped away
Erosion	
Non	Surface has no evidence of erosion (other than rain splash) or deposition
Sheet	Surface has evidence of sheet and/or rill erosion. Rills are less than 50 cm deep. Rain splash erosion is severe. Area will likely include *incise* erosion features as well, but are subordinate to the smaller erosive features.
Incise	Surface is characterized by actively incising gullies and channels. Gullies are >50 cm and <10 m deep. Area will likely include *sheet* erosion features as well, but they are subordinate to the larger erosive features.
Mix	Area has marked variability in erosion characteristics, e.g., *non* and *incise* are in equal proportions.
Dep	Area is receiving deposition of sediment.
Till	Tilled earth; evident furrows or other forms of cultivation
Push	Anthropogenically eroded by blade, scraping or other method of pushing or extracting earth materials away from area
Soil Carbonate	
Ka	Absent
K1	A light dusting of $CaCO_3$
K2	Continuous clast coatings (gravel); few to common nodules (non gravelly)
K3	Continuity of fabric high in $CaCO_3$
K46	Partly or entirely cemented
Ku	Undifferentiated
Soil	
Sa	Absent (bare, tilled, etc.)
Sl	Lichens
Sm	Moss
Sh	Herbs, grammae and other plants
Sx	Mix (combination of Sl, Sm and/or Sh)
So	Other

the Troodos Ophiolite; and soft rocks that typically 'thud' when struck (apart from limestone and chert, which because of their cemented nature ring with hammer strike), namely the Circum-Troodos sedimentary succession.

Locally, it is necessary to differentiate the earth materials at the surface from those that lie deeper, and not all deeper materials are bedrock. These deeper materials could be river sediments or landslide deposits, which we describe below as surficial or geological materials formed during the past 2 million years or so (i.e. the Quaternary Period of geological time). For this purpose we use the term substrate to denote relative stratigraphic position but not competency, hardness, age or any other metrics by which we differentiate earth materials.

Indicators of Soil Change

Our project geomorphologists, known as Geomorphological Interns or GIs, focused most of their efforts on documenting the soil surface using a standard rubric, with the intent for these data to be analysed for indications of stability and nature of the context for artefacts. These categories of indicators of soil change are listed and briefly described in Table 2.4. These data were important in the Team Leader's decision whether or not to survey each potential SU. The GI would have informed them of the GU's data on soil change, e.g. whether the potential Survey Unit had (recently) been buried with imported soil.

We expect soil profiles to conform to the concept of a 'natural' morphology consisting of organic topsoil (A horizon) with iron-, clay- and (calcium) carbonate-accumulations in the subsoil (B horizon). Where disturbed by humans we expect to see a change in the soil characteristics from our concept of a natural soil. Three classes of indicators of soil change were applied during the survey, based on the amount of A horizon present (stability), amount of soil displacement (erosion), and degree of subsoil mixed up to the surface (soil carbonate).

Stability of the landscape, particularly important for the assessment of the surficial archaeological record, is characterized in terms of the degree of preservation of the surface soil horizons that presumably were there at the time of the deposition of the artefacts. We focus on the observable surface of the soil, which is the top of the soil A horizon, and the areal extent to which soil A horizon qualities are still present. This schema does not allow for the case where the A horizon is eroded prior to the deposition of artefacts. The reference time frame is the year AD 2000, unless otherwise noted.

Table 2.5. Distribution and basic statistics of Geomorphological Units by environmental zone

Environmental zone	No. of GUs	Total area of GUs (ha)	Average GU area (ha)	Min GU area (ha)	Max GU area (ha)
Plains	209	155.8	0.75	0.025	4.36
Valleys	409	127.5	0.31	0.001	3.20
Mountains	289	88.7	0.31	0.010	3.56
Overall	*907*	*372*	*0.41*	*0.001*	*4.36*

The extent to which the Geomorphological Unit is actively being affected by erosional processes is assessed by the category of erosion (Table 2.4). Erosion is the process by which surface materials (artefacts, organic matter, soil, sediment, rock) are dislodged, transported and removed through the agency of water moving across the surface. Water flows as sheets or is otherwise concentrated in (with increasing size and discharge) rills, gullies, streams and rivers. This category focuses on the process of surface deflation (erosion) or inflation (deposition), and is distinguished by categories of natural or cultural origin. Erosion by impact of raindrops (rain-splash) is included here. This information has been crucial for all of our interpretation of human activity in the landscape. The Atsas Valley, for example, in spite of being apparently very dissected, turned out to have an almost entirely stable surface during the Holocene, apart from the incised gullies. This meant that we could reliably characterize the Roman-period landscape of isolated farmsteads and small settlements with little or no activity in between them, in striking contrast to the Karkotis Valley (Volume 2, Chapter 2.5–2.7)

Soils on Cyprus are dominantly calcareous, developing carbonate-rich horizons that increase in degree of development with age. We used the morphological stages of soil carbonate according to the comparator chart of Birkeland *et al.* (1991). Because we did not excavate in the GUs, we relied on soil colour and the maximum observed thickness of carbonate coatings on rocks. GUs in which the carbonate morphology is fairly obvious are soils that have been stripped of their topsoil to lay bare the subsoil. Stability of such GUs typically class as 'erode' or 'strip'. GUs with stable, non-eroded surfaces typically were classed as 'absent' for soil carbonate, unless an animal burrow or existing excavation revealed the subsoil nature.

An additional characterization of the soil surface, particularly in the non-tilled areas, is soil biological (microphytic) crust or 'soil cover', which develops on undisturbed surfaces and is thought to progress in development as a function of age under various conditions. Soil cover is ground-covering, low-lying biota, including algae, lichens, bryophytes and fungi, that are inextricably attached to the soil, forming a millimetre to centimetre thick crust that detaches with ease from the underlying soil. The crust is coherent enough that it does not fully crumble away after extraction from the surface. The type of crust and percentage of cover were noted (Table 2.4).

Basic soil profile characterization was conducted on a representative hand sample of each Geomorphological Unit. Properties described included soil colour by field moisture content (Munsell soil colour; e.g. 10YR 6/4) and soil texture (fine earth and stony earth particle size distributions according to the US Department of Agriculture standard). These variables of the GU were selected for the purposes of determining the level of background confusion (how obvious the material record was in the field at the time of fieldwalking), the context and conditions that allowed for preservation of the artefacts since coming to rest in the Survey Unit, the relative importance of the geomorphological filter on the Survey Unit record, and the time elapsed between the natural surface creation and the time at which any one artefact came to be in that unit. In other words, it gave a measure of context and residence time for the artefactual record.

We note that our Geomorphological Units are apportioned in the ratio of 2:4:3, with respect to the three environmental zones of mountains, valleys and plains (Table 2.5). The same applies to our Survey Units. Given that each of the GUs was not of identical dimension, due to the rules of our methodology, it may be more useful to compare these three areas based on total and mean unit area walked and observed by our GIs. By these measures, the total footprint of the area examined by the GIs was about 372 ha, or nearly 4 km^2, with an average GU of 0.41 ha (with a range of 0.001–4.36 ha) (Table 2.5.).

For GU1040, which appears in Fig. 2.4, the GI (Adina Gleeson) entered the following ancillary observations:

> GU1040 (SU1041) IP0254 Field covered in straw stubble to the SW of GU1039. SU clipped the NW corner of this GU. Very similar to GU1039? Again poor visibility. To the SW of this GU is another terrace in straw stubble (1/2 m higher) and the south (1 m higher) a terrace overgrown in weeds and wild grains. 4 GPS points on periphery 1040A,B, C & D) and area at eastern end of transect 1040T. Our transect then passes the terrace riser (~7 m) and irrigation canal (runs NE/SW) to the west of GU1039 & 1040. It is overgrown with weeds and scrub and a row of old olive trees.

As the 'feelers' for the survey team, the GI is here focusing on rather specific locational information and potential suitability of the next several Survey Units within the transect. The GI's Image Print is cross-referenced to these

Fig. 2.4. Recording forms for Survey Unit SU1041 (left) and its corresponding Geomorphological Unit GU1040, recorded on 18 July 2002. Sheets also contained fields for transect/Special Interest Area, team members, and names and dates for recording, data entry and audit. IP = Image Print. Survey Unit recorder: Paul Pelosi. Geomorphological Intern: Adina Gleeson

Survey Unit No: SU 1041			
GU No: 1040			
IP No: 0252			
Easting: 489485			
Northing: 3882500			
Elevation: 230			
Ground Visibility (%): 30			
Background Confusion: 0 (1) 2 3			
	Count	*Coll*	*Bags*
Pottery	106		
Tile			
Pottery & Tile		42	1
Chipped Stone			
Ground Stone			
Glass			
Slag	6	1	1
Furnace Mat.			
Metal			
Cartridges	3		
Other			
Comment			

Geomorph Unit	GU 1040
POSI Number	—
Easting	489500
Northing	3882480
Elevation	229 m
IP No.	IP 0254
Substratum	Bop
Morphostrat	Hht
Erosion	till
Stability	Stable
Soil Colour	10YR 4/3
Soil Texture	Sil gr 20 %
Soil Carbonate	K2
Soil Cover	Shg 70 %
Slope	10
Aspect	NW
Land use	Gr
Feature (Retaining)	wte

field notes. By mid-morning the GI will have roamed and described several Geomorphological Units, which might themselves contain more than one Survey Unit. On this note, we see reference to 'SU clipped the NW corner of this GU', a documentation of the attention our teams paid to the actual alignment of fieldwalkers to make a Survey Unit fit within the bounds of a Geomorphological Unit. Such statements are commonplace in our records.

Survey Units

Within Survey Units fieldwalkers walked 5 m apart, scanning the ground 2.5 m on each side of them. They counted all artefacts in the categories shown in the recording form in Fig. 2.4, normally using a clicker for counting the sherds.

Our representative pottery collection strategy was based on SCSP (Meyer *et al.* 2003c, 49–50), and corresponds to the 'ChronoType collection system' used by SCSP and subsequently by the Eastern Korinthia Archaeological Survey (Tartaron *et al.* 2006, 476–81). A consistent methodology was maintained for the duration of the project. Each fieldwalker collected a representative sample of sherds and tile fragments by bagging only one of each significantly different piece that he or she counted. Differences recognized in the field were related to thickness, fabric, surface treatment and body part. With five fieldwalkers, a particularly common pottery type should be represented by as many as five rims, five body sherds, five bases and five handles in each Survey Unit. Teams were briefly trained to recognize these differences, but in practice fieldwalkers would often collect everything from a given Survey Unit and sort the material in situ under the supervision of the team leaders or other experienced team members during the first weeks.

Over the course of the project we counted 99,697 sherds and tile fragments, and collected and analysed 30,721 of them. This comes to a 31% sample, giving a compromise between a sample too low to be representative and one too high to be manageable or efficient. For comparison, the Eastern Korinthia Archaeological Survey using the same system collected 26.2% of all artefacts counted (Tartaron *et al.* 2006, 479), a very similar percentage.

Lithic artefacts representing both chipped and ground stone technologies were collected from all Survey Units where they were present. All chipped stone artefacts were recorded on Survey Unit forms and collected in the field for processing in the lab. Concentrations of over 50 artefacts were designated as POSIs (see below), and the lithics specialist and survey team members subsequently collected representative samples. Ground stone artefacts similarly were recorded on Survey Unit forms and collected for processing in the lab. Large objects were not collected but were photographed and noted in the survey notebooks. As with chipped stone, large concentrations of ground stone were designated as POSIs, and once again

the lithics specialist and survey team members collected representative samples.

Each individual fieldwalker also recorded the ground visibility of the 5-m strip they walked, in other words the percentage (to the nearest 10%) of the ground surface which could be seen through the vegetation. Similarly, they recorded the background confusion, an estimate of the extent to which materials such as stones and bark resemble potsherds, according to the following scale:

> How often do you bend down to pick up a sherd and find that it's a leaf or stone?
> 0 Not at all
> 1 Occasionally
> 2 Often/frequently
> 3 All the time (so much that you give up bending down)

When background confusion was high, fieldwalkers tended to confuse the stones or bark with sherds. This meant they stopped bending down to pick them up, and so missed actual sherds. As we discovered on SCSP, high background confusion therefore causes an artificial drop in the sherd count, and surprisingly has a greater effect than poor ground visibility (Meyer *et al.* 2003c, 54). These issues were analysed in our seeding experiments (Chapter 2.8), giving us the data with which to decide whether and how to take them into account in our pottery density analysis (Chapter 2.10).

At the end of the Survey Unit the totals for counted and collected artefacts were entered onto the recording form, along with basic locational information and the average ratings for ground visibility and background confusion (Fig. 2.4). In addition, a team member wrote up more general comments in the notebook, to complement the Survey Unit form, to give information about the condition of the team, to note the time taken to survey the unit and to encourage the team to think about the interpretation of the landscape they were working in. For SU1041, which appears in Fig. 2.4, the notebook entry is as follows:

> SU1041, 18/7/02, TT3882500E, 7 mins, CLT [Caroline Torres]. Another harvested hay field = very low visibility. Even though visibility is relatively low in both these fields the team is still finding a decent amount of pottery.

We also experimented with different methods in the mountains, because of the particularly poor ground visibility due to pine needles. In 2001 we used rakes to clear circles of 2 m in diameter every 20 m down the centre of the Survey Unit, partly inspired by the point sampling of the Riu Mannu Survey Project in Sardinia (Van de Velde 2001). In the end the results (7 sherds in 107 circles) did not justify continuing this method (see Volume 2, Chapter 5.1 for more discussion of the methodological challenges of carrying out intensive survey in mountain regions). Thick stubble and straw on the grain fields of the Mandres and Koutraphas Intensive Survey Zones produced a similar visibility problem. We solved this more successfully by holding an additional small-scale field season in November 2003, after the fields had been ploughed.

Places of Special Interest

TAESP defined 'Places of Special Interest' (POSIs) as any location where there was good reason, whether cultural or natural, for carrying out more detailed recording than at the Survey Unit level. In this we follow the Pylos Regional Archaeological Project (Davis *et al.* 1997, 401) and SCSP (Given *et al.* 2003c, 34–35), and differ from the Eastern Korinthia Archaeological Project's cultural definition, giving their term 'Localized Cultural Anomaly' (LOCA) (Tartaron *et al.* 2006, 485–86). Our POSIs include not just sherd scatters and structures but an old olive tree (TP084), a useful soil section (TP089), and a military foxhole originally thought to be a tomb (TP040). Because our analysis derives from the interpretation of continuous artefact densities and their relationship with specifically relevant POSIs, it makes no difference that some POSIs are not cultural.

In the spirit of continuous survey (see above), we tried to carry out as much analysis as possible through Survey Units. Breaking off the transect survey and using gridded collection instead gives separate analyses which are not directly comparable, thus creating an arteficial division between the POSI and its immediate context. For this reason we did comparatively little POSI gridding, considering it preferable to have a continuous sherd distribution showing a broad range of human activities, rather than an abrupt and arbitrary change in method on the edge of the site. At the Roman mining settlement of Ayia Marina *Mavrovouni*, for example, we used normal (if small) Survey Units even in the densest of pottery scatters. This allowed us to interpret the variation in material across a Roman-period settlement and copper production area some 750 m across, with interesting conclusions concerning the relationship between settlement, copper production, agriculture and pollution (Volume 2, Chapter 4.6).

In practice, most of our 256 POSIs tended to be features such as mining adits, structures, platforms and tombs. We carried out formal collection grids, circles or organic units over seven substantial pottery scatters, mainly where the surface was well preserved, such as at the Archaic sanctuary and Roman settlement of Katydhata *Pano Limna* (Volume 2, Chapter 3.11). We also did a further eight systematic collections across ruined structures, slag heaps, etc., plus numerous small collections to sample specific features. But our fundamental analytical method for investigating surface artefact scatters consistently remained continuous survey in the form of the Survey Unit.

When the survey teams discovered something of interest and designated it a POSI, they recorded it immediately using a standard form which, like all our forms, corresponded directly to the POSI database table for ease of data entry (Chapter 2.7). This included information on its context, the nature of the material culture, a measured sketch and photographs. The geomorphological context was recorded by means of a Geomorphological Unit form. All POSIs are given an identification number (prefixed TP for 'TAESP POSI') and the standard Cypriot village and locality names.

After discussion with the relevant project directors and specialists, often including a field visit, the team carried out further fieldwork if it was decided appropriate. In the few cases where more intensive systematic collection was desirable, we used fixed grids, grids of circles, or else organic units which fitted with the shape of a structure, feature or landform. Each collection unit was termed a POSI Unit, with identification numbers prefixed 'PU'. We considered the ground visibility of each POSI Unit to be 100% and the background confusion to be zero, as the field teams cleared vegetation off the unit and carefully examined each potential sherd on hands and knees. In addition, we used a range of other disciplinary methods, depending on the nature of the POSI. These included geomorphological mapping and lichen dating (Chapter 2.4), standing building survey, topographic mapping and detailed photography. The details of these widespread methods are explained in our field manual (Given *et al.* 2003b, 13–14) and in the SCSP publication (Given *et al.* 2003c, 34–35).

2.4 Geomorphology

Jay Noller

Geomorphological study relied on State Factor Theory (Amundsen and Jenny 1991) in that the imprint of humans on the earth can be assessed if we identify settings where the natural environmental factors of climate, biology, topography, geology and time vary little or may be independently constrained. Soils, the earth interface that humans interact with daily, constitute the key context (Amundsen and Jenny 1991; Mandel and Bettis 2001; Wells 2001). Principles applied to the analysis and interpretations of our geomorphological and geological field data concern the following: (1) successions of layers of sediments and their boundaries; (2) landforms and deposits; (3) alterations of 1 and 2; and (4) the flow of water and mass across the landscape. Most relevant to our work are the principles and methods of geological mapping (Compton 1962), fluvial stratigraphy (Miall 1996), allostratigraphy (Salvador 1994), soil stratigraphy (Birkeland 1984), geomorphology (Ritter 1985), climate change in geomorphic systems (Bull 1991), geoarchaeology (Brown 1997; Rapp and Hill 1998; Stein and Farrand 2001; Wells 2001) and archaeological stratigraphy (Harris 1989; Mandel and Bettis 2001).

Archaeological stratigraphy, particularly the ordering of contexts with the Harris Matrix (Harris 1989), has many parallels to allostratigraphic techniques used by geologists at least since the 1950s in studies of surficial geological phenomena. Even though these parallels exist in our descriptions and analyses of strata, we still must keep a separate accounting of each type of stratigraphy, including allostratigraphy, soil stratigraphy, chronostratigraphy, biostratigraphy and archaeological stratigraphy. As shown in other regional works (e.g. Wilkinson 2005), such multi-strata study is needed to reconcile natural and anthropological contexts, layers of information, and transformations thereof. Our descriptions of sections in road-cuts and stream banks followed this approach of keeping separate unit labels and hierarchies for the different stratigraphies. Although initially considered a separate unit of description (the Lithostratigraphic Unit, or LU) we opted instead for the POSI as the holder of this information. For broader, areal contexts we employed allostratigraphy with the Morphostratigraphic Unit as the smallest divisible unit of description and holder of information.

Morphostratigraphic Units

We differentiate the ancient geological past, represented by bedrock, from the earth materials that people modified or have come in contact with, which are represented by surficial deposits and/or landforms (including erosionally-sculpted bedrock). Morphostratigraphic Units (MUs) form our basic geomorphological mapping unit; they are comprised of a landform and its underlying earth materials. This is a map unit that is recognizable in aerial or satellite imagery and in the field, has an extent appropriate to the scale of our investigations, and has internal variability which is described, encoded and related in another manner (stratigraphic description, soil description and their analyses). The Morphostratigraphic Units are classified by age (Table 2.6) and by their earth-surface process of origin, of which in the Survey Area we recognize fluvial, gravitational, residual and anthropogenic. We further recognize subclasses of these by landform or by internal character, such as material size and organization of particles (Table 2.7). These Morphostratigraphic Units were mapped across the entire Survey Area and are presented in the project geodatabase and in an overview (Plate 4.1). In Volume 2, details of the surficial geology and geomorphology (e.g. geomorphological maps), as well as interpretations of landscape evolution, are provided in descriptions of the environmental setting of each of the major Intensive Survey Zones.

Table 2.6. Geological age division names and codes used in the geomorphological studies and maps (after Noller 2010).

Map code	Age name	Age range (1000 yrs BP)
A	Anthropocene (Historic)	0–2
H	Holocene	0–10
Pl	Late Pleistocene	10–125
PH	Late Pleistocene-Holocene	0–125
Pm	Middle Pleistocene	125–700
Ql	Late Quaternary	10–700
Pe	Early Pleistocene	700–2588
P	Pleistocene	10–2588
Q	Quaternary	0–2588
pQ	Pre-Quaternary	2588+

Table 2.7. Brief field descriptions of how to recognize the Morphostratigraphic Units of the Survey Area

Symbol	*Morphostratigraphic Unit*	*Description*
Fluvial Landforms		
Qfg	Gully	A small, generally steep-sided valley that has cut into sediment or soil cover in a landscape. Gullies are usually greater than 0.5 m deep and may be more than 10 m across. Gullies may be straight, but generally have greater sinuosity than rills. 1st and 2nd order refer to their respective position on the landscape; 1st order are at the beginning of a drainage network, with higher orders further downstream.
Qfr	River bed or channel	Confined area in which water flows at medium to high stages in a river. Generally box- to half-circle-shaped in cross-section with irregular topography both along the base and walls of the channel. Can also be thought of as the area below the floodplain where water is concentrated.
Qft	Thalweg	The flow line of maximum velocity in a river/stream channel.
Qfc	Palaeochannel	An abandoned river/stream channel.
Qal	Floodplain	Relatively planar surface adjacent to a river that floods during high-water stages.
Qat	Terrace	Alluvial terrace is an abandoned floodplain. A relatively flat surface (aka tread) (with gentle slopes parallel to the flood plain slope) located outside of the area of high water flooding, but where the river once flowed during high-water events. Floodplains become terraces when rivers incise and leave a floodplain elevationally above the high-water levels. Terraces can be of erosional or depositional origin. Also used for former seashores in the term marine terrace.
Qaf	Fan	A broad constructional surface of alluvium with a fan-like shape, having an apex fed by a single stream/river.
Fluvial Depositional Units		
Qa	Alluvium	Sediment deposited by flowing water either in a channel or on a broad plain. Alluvial refers to the process of transporting and depositing alluvium (synonym: fluvial).
Qap	Pediment	A broad constructional surface with alluvial deposit only as thick as parent river channel is deep. Underlain by strath (abrasion or cut) surface on underlying material (typically bedrock).
Qag	Gravel	Accumulation of rock fragments coarser than sand (>2 mm diameter). Material generally consists of granules (2–4 mm diameter), pebbles (4–64 mm diameter), cobbles (64–256 mm), and boulders (>256 mm).
Qas	Sand	Sedimentary particles 1/16 to 2 mm in diameter. Individual sand grains are generally visible to the naked eye and are rough and abrasive when rubbed between the fingers.
Qai	Silt	Sedimentary particles 1/256 to 1/16 mm in diameter. Individual particles are difficult or impossible to see with the naked eye. Silt will feel gritty when wetted and rubbed against teeth or between fingernails but will feel soft when rubbed between finger and thumb.
Gravitational Landforms		
Qcl	Landslide	A mass movement feature on a hillslope consisting of a mass of earth that has 'failed' or moved downslope under the influence of gravity.
Gravitational Depositional Units		
Qc	Colluvium	Sediment deposited by gravity and/or sheets of surface water (other than channelized flow – see alluvium); present on hillslopes.
Qcm	Mudflows/Debris flows	A deposit resulting from the hyper-concentrated flow of water and sediment.
Anthropogenic Landforms and Depositional Units		
Mhh	Highway or road fill	Earth material used in the construction of a road or highway.
Hhm	Mine tailings	Spoils and crushed ore rock in mining area.
Hhq	Quarries	Excavations related to the extraction of earth materials.
Hhl	Landfill & 'moved' material	Earth moved in the course of human activities, including heaps, field piles, etc.
Hhf	Fill/trapped sediments	Deposits of natural and/or cultural processes behind embankments of natural or cultural construction.
Hht	Anthropogenic terraces	Constructed treads on hillslopes.
Hhw	Anthropogenic walls	Dry-stack, concrete and other constructions of vertical or near-vertical walls/embankments that act

Lichenometry

Lichenometry, the study of lichen ecology and growth habit (Noller and Locke 2000), was applied in our study to estimate exposure ages of rock surfaces and to correlate architectural stones within and among various buildings. This dating and correlative method is based on the slow, steady growth of circular-form lichens that colonize fresh rock faces. The diameters of the largest individuals are measured, tabulated, and then compared to a calibration curve to estimate age. The method dates the time of stabilization of the fresh rock face, as may form in a rockslide, or during glacial abrasion. Lichenometry is applicable to rock surfaces dating as far back as the Neolithic period, with the best resolution so far on Cyprus to be within the past 0 to 500 years (Noller 2010). We found that even the best taxon in Cyprus (*Rhizocarpon*

geographicum tinei) has lichen growth rates that are variable depending on aspect, competition, and substrate lithology.

We apply the approach and method of Bull (2000) to the study of lichens on rocks, be they in architecture or rubble piles. We used a digital micrometer that reads to 0.1 +/- 0.05 mm in the measurement of the maximum diameter of circular to nearly circular lichens. The largest one to three lichens were measured on each rock surface, and every accessible surface of a rock was so measured. Measurements were recorded as to lichen species and position in the structure or pile. The lichen diameter data were plotted in histograms, of frequency (number of counts) per measured interval for each lichen species. Lichens of similar species were measured on stone surfaces of known age to develop calibration curves to then estimate exposure duration of rock surfaces. This technique was particularly productive at the Asinou monastery buildings (Volume 2, Chapter 5.5) and the Medieval settlement of Aspri (Volume 2, Chapter 5.9).

2.5 Pottery Analysis

Kristina Winther-Jacobsen

The general aim of the pottery analysis (Fig. 2.5) was to reduce the ceramic material to a set of representative types in order to date and identify human activity and land use. The strategy for the processing of the pottery was essentially derived from that developed by SCSP (Meyer *et al.* 2003a, 50), but the sorting of the pottery was refined. Instead of the traditional separation of Cypriot pottery into fine, plain, and coarse wares developed by Gjerstad (Gjerstad 1948, 48–91), pottery was sorted according to a functional typology. The bulk of survey material is an enormous amount of what is traditionally called 'non-diagnostic' plain and coarse ware body sherds, a poorly known group of pottery. Describing the coarseness of the fabric is not meaningful culturally as the fabric is only related to the function of the pottery in a very general sense. Decorated Archaic and Late Roman Table Wares, for example, are traditionally defined as fine wares, but the fabrics are in fact different degrees of coarse ware. Sorting the pottery according to function served the general aim of TAESP to identify land use and land use changes (see also Winther-Jacobsen 2010, 65–70).

Three utility groups remain unchanged (Table 2.8): architectural, personal objects and unknown (Meyer *et al.* 2003a, table 3.7). Three new utility groups were added: cooking ware, transport and lighting, all three groups with specific functions and identifiable from body sherds, at least during the Hellenistic and Roman period. Functionally lamps belong in several of the utility groups, and in order not to compromise the typology a separate category (lighting) was created for them. Fine ware was renamed Table Ware. As mentioned above the term 'fine ware' is not related directly to the function, which would be Table Ware even when appearing in non-domestic contexts such as tombs. Slipped, painted, glazed and very thin-walled vessels were categorised as Table Wares, but unfortunately no arbitrary definition was formulated. No vessels recognisable as ceremonial or symbolic were collected during the survey.

All fragments of pottery recognizable as vessels reflect some kind of utility, and any sherd that does not belong in any of the above-mentioned utility groups is registered as 'utility ware'. This group is defined by the absence of decoration, by the clay and by the form, and is divided into two categories: Light and Heavy Utility. Pithoi were incorporated into the Heavy Utility group. Apart from the very large, coarse thick-walled pithoi it is difficult to distinguish between pithoi and other large storage vessels, and in any case the function of both types is storage. The distinction between sherds of Light and Heavy Utility is arbitrary: a fixed wall thickness of 8 mm. This is a non-historical criterion selected to enable the consistent

Fig. 2.5. Kristina Winther-Jacobsen at work in the artefact lab, Katydhata School (Danielle Parks)

Table 2.8. Pottery functions

Code	Descriptor	Function
AR	Architectural	Domestic and public architecture
CW	Cooking Ware	Domestic and public cooking
HU	Heavy Utility	Domestic and public storage, pithoi, light and heavy industry
LI	Lighting	Lighting
LU	Light Utility	Domestic dining, kitchen, light industry
PO	Personal Object	Personal objects
TR	Transport	Transport
TW	Table Ware	Domestic, public and ritual dining
UN	Unknown	Unknown
UT	Utility	Domestic dining, kitchen, domestic and public storage, pithoi, light and heavy industry

incorporation of useful data from the large numbers of otherwise 'unidentifiable' sherds. Utility wares are likely to be produced locally because of their low status as the main production and storage vessels. Because of their local character, these wares can be expected to reflect regional changes more intensely than any other type of pottery. They represent an important body of information when examining changes in the patterns of land use over a period of time.

Pottery technology changed a great deal during its 7000 years of history on Cyprus, and a rigid functional typology does not work for all periods. A 'softening' of the typology was unavoidable in order not to compromise the utility of the system when dealing with the prehistoric and post-Roman periods. Utility wares dated from the post-Roman period were not divided into Light and Heavy Utility wares but categorised as General Utility.

Part of the aim of the pottery processing was to reduce subjectivity without compromising the meaningfulness of the system. In the case of the more narrowly defined utility groups (CW, L, PO, TR and TW), there is a certain overlap with the more broadly defined utility groups (HU and LU). Unidentified body sherds of transport amphorae would go in the Heavy Utility group, while unidentified sherds of CW, L, PO, TR and TW would go in the Light Utility group because of the thickness of the wall. This does not compromise the quantifiable value of the system, as cooking ware belongs in the kitchen and amphorae are a type of storage vessels.

We maintained the SCSP system of assigning chronotypes (Meyer *et al.* 2003b, 14–16). This system was designed to systematise the uncertainty of sherd collection and diagnosis within a flexible system. The aim was to identify and quantify the chronological components of a given Survey Unit and to analyse their function. The system enabled specialists to process a large volume of sherds assigning each to a category (chronotype) based on its type, period and function. Using these three elements allowed the chronotypes to range from the specific to the broad within three wide categories: internationally recognized types such as African Red Slip Hayes form 45, abbreviated ARS45; generic chronotypes such as LUHis (Light Utility ware from the Historical period); and chronotypes endemic to the region such as Mav01-HR (Mavrovouni transport amphora type 1 from the Hellenistic to Roman period). Within the generic types different vessels were assigned a unique chronotype such as CWPR01 (Cooking Ware Pot Rim Type 1) in order to map the spatial distribution of specific types of vessels, even though they were not internationally recognized or necessarily endemic to the region. The standardisation enforced by this method of pottery categorisation meant that it was possible to produce meaningful interpretations of all the data collected.

In the *Populus* volume on ploughsoil assemblages, three articles (Malone and Stoddart 2000; Patterson 2000; Hayes 2000) discussed some of the fundamental problems faced by pottery studies in current Mediterranean survey: the poor understanding of types; the lack of excavated and published contexts; and the lack of human resources. Imported pottery in the TAESP Survey Area is relatively rare, and for the historical periods we were unable to work within a regionally established chronological framework, since few excavations in the area have been published (Chapter 1.3). Imported pottery is relatively rare and the petrographic analyses demonstrated how very different local pottery types were made from clay deposits of analogous mineral composition over very long periods of time. Hence we had limited success in distinguishing distinctive period-specific local fabrics.

Consequently, the TAESP chronology includes a few finds dated closely by stratified parallels within and beyond the island, and a large group of finds of a much coarser chronological resolution. In order to be faithful to both of these groups and not to overstretch the evidence, the chronology includes overlapping periods, some narrow such as Late Hellenistic and others broad such as Historical Antiquity (Table 2.9). This system allowed us to generate general period maps, e.g. Hellenistic–Roman, as well as more narrowly focused maps for the closer study of chronological trends within these periods.

Of the 30,721 sherds collected and analysed, we inventoried a selection of 771 particularly representative, unusual or well-preserved pieces. This involved a full description and illustration of each (ID numbers are prefixed TIP for 'TAESP Inventory Pottery'). Of these we publish 712 in the pottery catalogue in Chapter 3.6 (ID numbers prefixed TCP for 'TAESP Catalogue Pottery'). We have included a good number of artefacts in the inventory for functional reasons, even if the chronology is based on their distribution within the Survey Area. When certain types of vessels are found repeatedly with the same types of well-dated pottery there is a high probability of chronological correlation. Of course this does not mean that the vessels share the same range of date. Some vessel forms are short-lived, while others continue to be produced over centuries. A similar approach was applied to date fabric groups by the Sphakia Survey in Crete (Moody *et al.* 2003, 51–54; see also Vroom 2003, 84–85).

For individual chronotypes the chronological diagnosis is mainly based on the co-occurrence with securely dated types, rather than the proportional occurrence of individual chronotypes in the Survey Units. The occurrence of more than one fragment of the same narrowly defined chronotype in the same Survey Unit is not very common within the Survey Area. This situation is similar to that in Central Boeotia, where imports and excavated reference points are lacking and where thousands of sherds fall into recognisable classes, although the exact date-span remains elusive (Hayes 2000, 106).

Table 2.9. Pottery periods

Code	Period	Period Span
PH	Prehistoric	before 750 BC
CHAL	Chalcolithic	3900–2600 BC
LChPh	Late Chalcolithic/Philia	2700–2500 BC
BA	Bronze Age	2600–1050 BC
PeB	Prehistoric Bronze Age	2700–1650 BC
PoB	Protohistoric Bronze Age	1650–1050 BC
PoBAR	Late Bronze Age to Archaic	1600–475 BC
GA	Cypro-Geometric to Archaic	1050–475 BC
GAC	Cypro-Geometric to Classical	1050–312 BC
AR	Cypro-Archaic	750–475 BC
AC	Cypro-Archaic to Classical	750–312 BC
HA	Historical Antiquity (Archaic to Late Roman)	750 BC–AD 650
CL	Cypro-Classical	475–312 BC
CLH	Classical to Hellenistic	475–31 BC
HEL	Hellenistic	312–31 BC
LH	Late Hellenistic	150–31 BC
HR	Hellenistic to Roman	312 BC–AD 650
HER	Hellenistic to Early Roman	312 BC–AD 200
LHER	Late Hellenistic to Early Roman	200 BC–AD 200
ER	Early Roman	31 BC–AD 200
ROM	Early to Late Roman	31 BC–AD 650
MR	Mid Roman	3rd–4th c. AD
LR	Late Roman	AD 400–650/800?
RM	Roman to Modern	31 BC– Present
HIS	Historical (Archaic to Modern)	750 BC– Present
BYZ	Byzantine	AD 650–1191
MEDUI	Medieval utility period I	Late 12th–late 14th/early 15th c. AD
MED	Medieval	AD 1191–1571
MEDOTT	Medieval to Ottoman	AD 1191–1878
MM	Medieval to Modern	AD 1191– Present
MEDB	Byzantine to Medieval	AD 12th–13th c.
MEDF	Medieval-Frankish	AD 14th–15th c.
MEDUII	Medieval utility period II	AD 15th–mid 16th c.
MEDUIII	Medieval utility period III	15th c.–end 20th c.
OTT	Ottoman	AD 1571–1878
OTTMODI	Ottoman to Modern I	AD 1571–begin 20th c.
MEDVOTT	Medieval-Venetian to Early Ottoman	AD 16th–17th c.
OTTMODII	Ottoman to Modern II	AD 18th–mid 20th c.
MOD	Modern	AD 1878– Present
UN	Unknown	unknown

2.6 Lithics Analysis

Carole McCartney

All lithic artefacts were recorded on the Lithic Finds form, generating the basic database information. The first level of information covered basic numeric information for each group of similar lithics documented for every Survey Unit, including the number of artefacts recorded, boxed and inventoried.

A second level focused on recording basic typological information. A primary lithic category designation distinguished between ground and chipped stone artefacts, and sub-divided chipped stone artefacts into general production categories, namely cores, blanks, debris and tools. Class divisions were then used to group ground stone into broad functional divisions for grinding and cutting tools, vessels, weights, manufacturing debris, and diagnostic raw materials such as picrolite. The cores and core trimming elements were sub-divided at the class level and cores recorded according to primary blank type. Chipped stone tools were divided into conventional classes, for example backed pieces, burins or scrapers. Artefact type divisions were then assigned for each class division, using conventional terms in the archaeological literature.

A third level of recording on the Lithic Finds form included primary attribute information encompassing raw material, condition, possible heat alteration and re-utilization. A sample of artefacts representing each type was selected for more intensive attribute level recording and assigned an individual inventory number.

Of the 1506 lithics collected and analysed, we inventoried 513, with a full description and illustration of each (ID numbers are prefixed TIL for 'TAESP Inventory Lithics'). These are discussed in the lithics Analysis in Chapter

3.8 (ID numbers prefixed TCL for 'TAESP Catalogue Lithics'). Two Lithics Inventory Forms were used, each designed to record significant attributes for the major stone technologies documented by ground and chipped stone artefacts. Both forms focus on recording detailed information relevant to the interpretation of the *chaînes opératoires* employed in their production and patterns of use. The underlying objective was to address technical and stylistic lithic variability and the particular manner in which stone technologies were employed in the TAESP Survey Area through time. Representative artefacts were illustrated at the inventory level for publication.

2.7 Working and Living IT in the Landscape

Hugh Corley, Luke Sollars and Jay Noller

Providing access to a wide variety of data in different formats to all team members, regardless of their level of computer literacy, was essential to the interdisciplinary goals of TAESP. A relational database and a Geographic Information System (GIS) formed the basis for the project's digital storage and analysis. It was important that as much of the collected data as possible was compatible with this system and that all project members, with the minimum of training, had access to all the information stored. To this end the database and GIS sat within a user-friendly file structure with clear naming conventions that, with only one major revision, remained in place throughout the project.

This file structure was duplicated on the TAESP FTP (file transfer protocol) site, giving project members easy access to the project archive across the internet. More recently, during the publication process, TAESP moved into a virtual research environment, but the FTP site provided our globally dispersed team the necessary access to data to produce much of this volume. This arrangement and our guidance facilitated greater use of the IT systems to confirm, question, reconsider and further develop an understanding of the TAESP dataset, and so to a considerable degree enabled our higher-level analysis.

Early in the preliminary season we established TAESP's five-tiered data structure to reflect the interdisciplinary nature of the project and to incorporate records from the diversity of specialists involved. Only when the data structure was in place and manifested in the paper recording forms did we begin work on a relational computer database (TAESP*Data*). The structure provided a framework within which the project's survey, storage and analytical strategies could develop, and the data collected could be managed.

- **Reconnaissance** level recorded a broad picture of a surveyed area
- **Survey** level required detailed collection of data in the field
- **Finds** level recorded an initial identification and description of collected artefacts
- **Inventory** level required the detailed recording of selected items from finds level
- **Ancillary** level incorporated methods of recording such as photography, drawing or sampling that could be used at any of the other levels

This structure gave us control over our data, presenting a clear picture of what had been collected, enabling us to integrate and interpret them with the greatest possible efficiency.

From this structure the paper recording forms were developed by the database manager, in consultation with project specialists and survey personnel. These not only provided the most economical, practical and effective method of recording data in the field, but also served to refine further the data structure by adding detail specific to particular types of Survey Unit or class of artefact. Some two dozen were designed, based in part on earlier forms used by the Sydney Cyprus Survey Project (Given and Knapp 2003), and developed through field trials in the preliminary season. We experimented, in our final season, with green forms. These, while still seeming uncomfortably bright, were considerably easier to read and complete in the dazzle of bright sunlight than their white counterparts.

As TAESP developed and improved its techniques, the flexibility of the system allowed room to evolve and to reflect changing perspectives and priorities. Soil profiling units and forms, for example, were conceived and designed, before being abandoned; Building Units (BU) were refined to record individual Structural Elements (SE); and new Survey Unit definitions (XU, XSU) were introduced in the final field season to accommodate our seeding and survey experiments. By balancing rigidity and flexibility we prevented the structure from dictating which data were to be collected, without losing control over the dataset.

Building on the firm paper foundation it was a relatively simple task to produce a database that would efficiently store and serve to manipulate the prodigious amounts of wide-ranging data produced by field workers during the life of the project. Taking the data structure as its model also meant that the database worked efficiently for the project, rather than the technology dictating the project's research or survey and recording strategies. It was initially constructed in FileMaker Pro5 to facilitate access by both PC and Macintosh users, but was subsequently rebuilt in Microsoft Access 2000 due to the ubiquity of that software, its efficient integration with the GIS (Geographical Information System) software, and the small number of Mac users working on the project.

It was always intended that there should be free access to the database, and indeed to all of TAESP's data, for all project members. This was not just to share the burden of data entry, but much more importantly to share the data stored in the database, and to promote the interdisciplinary communication that was such an important element of TAESP. A number of tactics were employed to encourage project members to engage with the database. On-screen

forms, for example, mimicked as closely as possible the paper recording forms used in the field, despite the complexity of the database's underlying structure. Thus the need for interpretation or the possibility of confusion was reduced as data were converted from written to digital form.

Through formal training and informal talks fieldworkers were introduced to the idea of databases and basic querying, and were encouraged to interrogate the database. While in no way comprehensive, the increased awareness engendered by this familiarity had a favourable impact on the sophistication of questions posed and the care with which the data were entered. A feedback form built into the database and accessible from each one of the data entry screens further encouraged project members' engagement with the database, as well as improving lines of communication and the structure and functionality of the database itself. Users could highlight any problems they encountered or make specific requests for improvements that they felt might make the database run more smoothly. Formalising the system and incorporating it into the database in this way facilitated dialogue and kept all relevant details in one place.

Uniformity of data within the database was vital to its smooth and efficient operation; multiple spellings of specific terms – medieval and mediaeval for example – would make meaningful searches a challenge. To ensure uniformity in TAESP*Data* many common terms were codified and selected from drop-down menus or check boxes. The development of these codes had the added advantage of further familiarising project specialists with the data structure and recording policies, as well as resulting in changes to the structure and policies. The confidence that these codes and formal auditing gave us in our data meant that they could be interrogated and analysed with confidence.

TAESP always considered the effective analysis and presentation of archaeological data to be far more important than ostentatious displays of technology's capabilities; it was not difficult to resist the temptation to use software simply to produce surface gloss that obscured the underlying information. After some inevitable experimentation in the early days of the project we established our software's capabilities and settled on a largely vector-focussed analytical approach. The scale of our data collection regime was too broad to provide sufficient resolution for raster-based analysis; Survey Units (SU) were up to 25 m × 100 m and geomorphological units (GU) were even larger. Where we carried out intensive collection, for example at Kato Koutraphas *Mandroudhes* (TP239) and Katydhata *Pano Limna* (TP119), we were able to create some raster-based maps, but more advanced raster and spatial analysis were not required to address our main research aims.

By the time TAESP began work in the field in 2000, a reliable GIS software package had become as essential a tool for the survey archaeologist as a sturdy pair of boots or a compass. In common with most projects at the time we chose *ESRI ArcView* 3.2 – it had been on the market for nearly a decade and had become the trusted old boots of archaeological GIS. During the first full field season (2001) the TAESP GIS was developed using this software and data were manually imported from the FileMaker Pro5 database. By the 2002 season this process was smoother and more automated – the database had been rebuilt in Microsoft Access 2000 and the GIS had been migrated to *ArcGIS* 8. The advanced features required by Jay Noller to assist in geomorphological analysis were the driving force behind the GIS migration, but the developments benefited the whole project. The new package was similar enough to *ArcView* 3.2 to provide a familiar package of tools that minimised time taken for retraining, and at the same time provided greater sophistication to apply to a wider scope for analyses of the archaeological data.

All members of the team were encouraged to use the GIS, which was available on most of the laptops during the season, and all fieldwalkers were trained in its operation, enabling them to digitise and correctly document data they had recorded in the field. Daily digitization of field data was done in two stages as it was essential to maintain the integrity of the relationship between the geomorphological units and their related Survey Units. Although not strictly adhered to because of the challenges in field recording, the Geomorphological Units were, ideally, digitised first and the Survey Units then digitised within them. Where confusion or discrepancies occurred the team leader and the Geomorphological Intern would intervene together to ensure that the units were correctly positioned. These data were later audited for spatial and record accuracy, and to eliminate spurious data from beyond TAESP's area of investigation. The vast majority of our digitising was based on field drawings made against a background of vertical photographs from a 1963 aerial survey, GPS coordinates captured in the field, and much discussion and negotiation on the accuracy of the recorded data.

We carried out our own orthorectification of aerial photography using *IMAGINE* 8 as software and the 1:50,000 British topographic maps (UTM 36N, ED50 projection) of Cyprus for control points. At the time of the fieldwork detailed satellite imagery, such as *QuickBird*, was not as yet available and the paucity of detailed topographic maps on the north slope of Troodos made control points difficult. Further compounding this issue were the various map projections of the available datasets, particularly the cadastral and topographic maps. The government agency with whom we worked had yet to settle on a map projection; some were using UTM36N ED50, whereas others were using unprojected datasets. In 2001 we decided that all GPS and GIS work was to be performed in UTM 36N WGS84, a globally available and metric projection. Late in our fieldwork this turned out to become the official projection of the Cypriot government. Also, at this time the exact locations and elevations of control points were state secrets and we thus had to survey in our own. Using dozens of epochs of GPS traverses on the maze of roads and trails, with our own ground control point (a Garmin GPS

fixed to the top of the Tembria School flagpole) for post-processing of all survey party GPS data, we constructed a surveying model with which to orthorectify the aerial photography. In low-lying areas of good control points, we were able to achieve very low errors measured in tens of centimetres, whereas in the mountains these images suffered from high errors measured in tens of metres. In 2009, with orthorectified 2003 *Quickbird* satellite imagery sourced by the Cypriot government in hand, we realigned all 1963 imagery, then the GUs followed by SUs. From this realignment, we produced our final tabulations of areas of all map units.

As the primary aid in geographic data collection the vertical aerial photographs were not without their attendant problems. As snapshots, taken in 1963, of a constantly changing landscape, they frequently, and inevitably, did not reflect the current situation on the ground. They were often of little use over much of the Asinou Valley Intensive Survey Zone, for example, where densely forested slopes presented uniform and uninformative blocks on the photographs.

Team X's work provided a different challenge: it was not always practical to rectify aerial photographs for all of their widely dispersed transects. In these instances the team relied on GPS points taken at the vertices of the units, which were digitised into the GIS and visually confirmed to the best of our ability against the digital elevation model for accuracy. All of the geospatial survey data were audited at the end of each field season to ensure that they were recorded correctly with the appropriate supplementary commentary.

After an initial bedding-in period the database and GIS managers turned to the construction of analytical maps. These maps fulfilled two important roles. First, they allowed a strategic analysis of data during the field season, facilitating discussion of theories constructed during data collection. Secondly, and just as essential, they helped to maintain morale by showing the teams the results of their work and its importance to our analysis. These preliminary maps were also invaluable in producing end of season reports and helping to shape our overall analysis. Once fieldwork was completed we were able to produce clear and concise maps that effectively communicate the results of our work to their intended audience (Given *et al.* 2007). Working closely with the project specialists we encouraged the same exploration of the geospatial data as was achieved during the field seasons to compile a thorough list of maps required for analysis based upon a complete, stable and audited dataset.

It became clear over the first field season (2001) that a computer network was essential for a project employing digital storage and analysis techniques to the extent that TAESP was. A network was successfully constructed in 2002 and was used during each subsequent field season. A portable server ran constantly, connected to an external hard drive, serving data to a network of up to 20 workstations. The core equipment – a 20-port HP Ethernet switch, a dedicated laptop as Windows Server 2000, ethernet cards (now largely superfluous), external hard drives and Cat-5 cabling – were acquired by the project, but most workstations were provided on an *ad hoc* basis as project members connected their own laptops to the network. The electrical requirements of such a network, augmented by an army of ten fans needed to keep the working environment bearable, inevitably put unreasonable demands on aging wiring and fuse boxes, but thanks to a robust backup system no data were lost or damaged due to power failures, or other disruptions, over the entire course of the project.

Thus by exploiting the goodwill and cooperation of project members and nurturing a surprisingly even tempered electrical supply it was relatively cheap and easy to set up and maintain a tangled web of power and networking cables around the dusty abandoned classroom that served as TAESP's nerve centre (Fig. 2.6). The network streamlined our data entry, management, manipulation, integration, sharing analysis and back up by allowing project members to work at multiple work stations creating and using data that were stored on a single, central drive. One key advantage of the network was the seamless sharing of information between the database and the GIS, enabling almost instantaneous mapping of results.

The rapid advance of technology during TAESP's life required a number of decisions that affected not just our technical capabilities but also the uniformity and stability of our dataset. The GIS software, for example, was updated throughout the project, keeping abreast of developments and arriving at *ArcGIS* 9.1 by 2004 and 9.2 at the time of writing. The database, on the other hand, having been transferred from *Filemaker* to *Access*, remained with *Access 2000* throughout the project, providing a solid base for the dataset by developing its sophistication and improved analyses within a single release of the software.

Similarly, hardware changed dramatically over the project. In 2000 there was one digital camera on the project,

Fig. 2.6. Data entry, digitization and discussion in full swing in the Katydhata computer room, 8 July 2003 (Chris Parks)

but by 2004 hardly anyone, except Chris Parks (the project photographer), was still using traditional film. Each season project members would arrive with cameras that took higher quality images, using more pixels and creating larger files; personal GPS units began to appear with ever greater accuracy and functionality; and laptops became faster and smaller while holding larger and larger volumes of data. We recall being in awe as Jay Noller proudly proclaimed that he had space for a terabyte of data on his desk – two external hard drives and his laptop – nearly all of which he had managed to fill. While the rapid improvements in technology, and falling prices mean that this would now provoke little comment, it was quite an impressive claim in 2003, when only the computing community spoke of data at such a scale. Local area networks are now far more feasible than when we first built ours in the field in 2002. In fact, our network and our use of an FTP site would no doubt appear antiquated to projects today, which are as likely as not to work within a virtual research environment and (although this is in its infancy) to employ a direct wireless connection from their field hardware to the internet and their home university network.

One disadvantage of this constant change was the impact it had on the uniformity of our data. As newer, sometimes better, methods of data capture became available it was important not to become overwhelmed by the new toys, but to retain a firm grip on the dataset and to ensure that all its elements remained compatible and comparable despite better images, more accurate positioning and rectification for example. TAESP's digital archive is as much a record of technological change as it is of archaeology. The basic tool for data collection – the archaeologists recording what they saw and counted in the field – remained constant throughout the project. Despite any misgivings, our dataset is complete and available for further analysis through our publication in *Internet Archaeology* (Given *et al.* 2007) and the Archaeological Data Service (ADS), where our full project archive has been deposited. Whether subsequent researchers take a geospatial, statistical or any other approach, we hope that the organisation and archiving of our data with comprehensive metadata eases their access to our dataset, promoting ongoing discussion and reinterpretation of our results.

Good data management is at the core of any successful 21st century project. Convincing reluctant specialists that free text may not be the best way to convey their information to the rest of the team can be a struggle, but we believe it is worthwhile. There is often a reluctance to submit to the strictures of computer hardware and software, but the technology behind the data structure should never supersede the importance of the individual or the data. When an effective data structure is developed, it is more than simply a technical description of how we wished to organise the data: it reflects how we work and think. Even at an early stage of the project, defining what we wanted to do with the data shaped the types of questions we would be able to address. The data structure is more than a bridge between the human and the computer: it is a statement of purpose.

2.8 Seeding Experiments

Robert Schon

In order to assess our performance in artefact recovery, we conducted a series of 'seeding' experiments (Meyer and Schon 2003; Schon 2002; Tartaron *et al.* 2006; Wandsnider and Camilli 1992). The specific goals of TAESP's seeding experiments were: 1) to help us understand the biases in artefact recovery created by variable visibility and background disturbance; 2) to gauge the variable recovery rates of pottery sherds of different sizes; and 3) to measure the consistency between teams in recovering artefacts. The results of these experiments were factored into our procedures for analysing pottery and tile densities, as discussed in Chapter 2.10. Reflexive studies such as these are still rare in archaeological survey, despite the readily apparent benefits they offer to our understanding of the biases inherent in the archaeological document. Our experiments on Cyprus were initially inspired by Wandsnider and Camilli's work in the American West (1992); see also Banning *et al.* (2006, 2011) for subsequent experimental work on the question of survey reliability.

Procedure

Two thousand, one hundred and twelve ceramic sherds, consisting of 1760 yogurt bowl fragments and 352 pieces of roof tile, were prepared as 'seeds' (Fig. 2.7). They were

Fig. 2.7. Robert Schon making sherds for seeding experiments (Chris Parks)

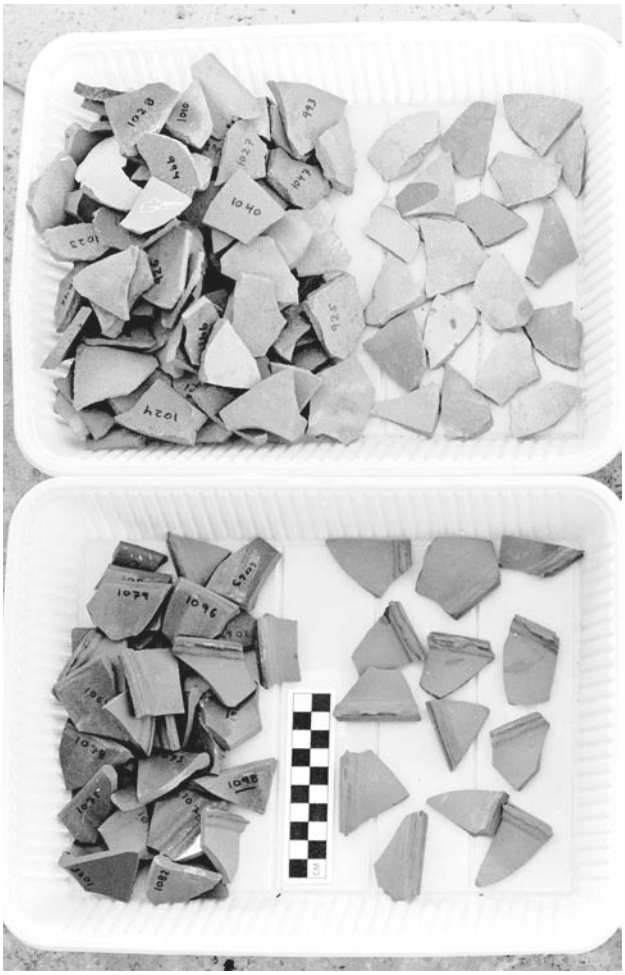


Fig. 2.8. Yogurt pot sherds for seeding experiments, divided into rims and body sherds (Chris Parks)

Fig. 2.9. Marked 'seed' sherd in situ, as seen by the fieldwalker (Chris Parks)

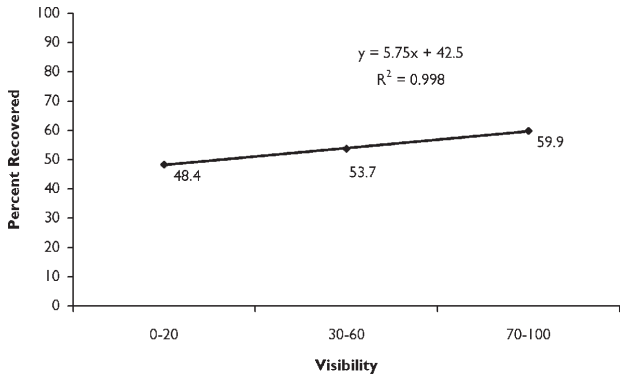


Fig. 2.10. Seeding experiments: recovery rates based on visibility, independent of background confusion

measured, numbered, photographed and coated with a viscous dirt/water solution in order to mimic the appearance of ancient ceramic artefacts. We assembled the sherds into equivalent sets of 48, with the same number of each type and size category in every set (Fig. 2.8). We then systematically placed them in fields throughout the Survey Area.

We seeded fields with a range of ground visibility and background confusion values. These experimental Units ('XU') coincided with regular Survey Units ('SU'), and thus each team walked the XU using the regular Survey Unit procedures, with one exception: rather than collecting a sample they collected all the experimental sherds they encountered (Fig. 2.9). The serial number of each recovered sherd was then recorded on an Experimental Survey Unit form (XSU), which listed other relevant data pertaining to the team and field under investigation.

Although limits in time and resources prohibited us from seeding the full range of possible surface conditions for each team as we had initially planned, we did manage to conduct 38 experimental runs, the results of which help us to assess our discovery methods (Table 2.10).

The Effect of Visibility

Figure 2.10 displays recovery rates of seeded pottery under poor, moderate and high visibility conditions (independent of background confusion). The slope of the recovery line is not very steep, indicating that differential visibility is not a major source of bias in artefact recovery. An r^2 value of 0.998 indicates that the relationship of visibility to artefact recovery is a linear one, but the range of recovery rates does not conform to what we expected. Recovery rates in some poor visibility fields were higher than expected, while those in some high visibility fields were much lower. The small sample of fields we were able to seed, combined with the imbalance in background disturbance among the different visibility signatures, may account for the flatter gradient. On the other hand, the average recovery rate (56.25%) falls within expectations and is quite close to the results of similar seeding experiments conducted by the Sydney Cyprus Survey Project and the Eastern Korinthia Archaeological Survey (Meyer and Schon 2003; Tartaron *et al.* 2006, 494).

Table 2.10. Experimental Survey Units, ground visibility, background confusion, and team recovery rates

Team	XU	Ground visibility (%)	Background confusion (0–3)	Sherds sown	Sherds recovered	Recovery rate (%)
East	1	100	1	48	36	75%
East	2	100	1	48	16	33%
East	3	90	1	48	12	25%
East	4	90	1	48	37	77%
East	5	60	1	96	40	41%
East	6	10	1	48	17	35%
East	7	90	0	48	26	54%
East	8	20	2	48	30	63%
East	9	100	1	96	68	71%
West	10	70	0	48	21	44%
West	11	70	0	48	29	60%
West	12	60	0	144	60	42%
West	13	60	0	144	60	42%
West	14	20	1	48	24	50%
West	15	50	0	48	24	50%
West	16	10	1	48	19	40%
West	17	90	2	48	28	58%
Central	18	90	2	96	47	49%
Central	19	100	2	48	29	60%
Central	20	100	2	48	21	44%
Central	21	100	1	48	32	67%
Central	22	100	1	48	28	58%
Central	123	60	1	48	26	54%
Central	124	60	1	48	33	69%
Central	125	60	1	48	33	69%
Central	126	40	0	48	21	44%
West	223	70	1	48	27	56%
West	224	80	1	48	31	65%
West	225	70	1	48	35	73%
West	226	40	1	48	31	65%
East	323	70	1	48	37	77%
East	324	70	0	48	32	67%
East	325	70	1	48	36	75%
East	326	20	1	48	26	54%
Team X	423	60	1	48	21	44%
Team X	424	80	0	48	30	63%
Team X	425	70	1	48	32	67%
Team X	426	30	0	48	34	71%

Background Disturbance

Figure 2.11 compares the effect of differential background disturbance in high visibility fields. The data suggest that high background disturbance can reduce recovery by 5–6% in high visibility fields. As with visibility, the biasing effect of background disturbance is less pronounced among TAESP teams than those of other survey projects where similar experiments were conducted (Schon 2002). These discrepancies may be due to the experimental methods, sample size or ground conditions. Future experiments with more test-runs in a greater number of fields with differential surface conditions should be able to clarify some of this uncertainty.

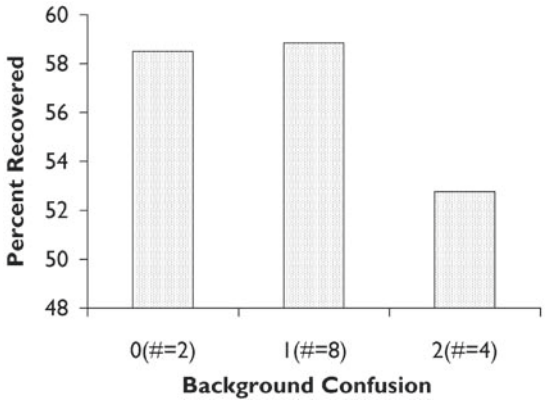


Fig. 2.11. Seeding experiments: analysis of effects of background confusion in high visibility fields

Artefact Size

Artefact size is clearly an influence in recovery. As we expected, few of the smaller artefacts were recovered, while a vast majority of large sherds and tile fragments were found by our fieldwalkers. Figure 2.12 and Fig. 2.13 indicate the recovery rates of sherds and tiles based on their longest dimension. Initially, recovery increases in a linear manner as artefact size increases. At a certain point improvements in recovery taper off as the recovery of all artefacts greater than 70 mm in maximum dimension hovers between 70 and 80%. These results closely resemble those from similar experiments conducted elsewhere (Schon 2002). With a high sample of over 2100 artefacts employed in the experiments, we can be confident of the validity of these results.

When considered in conjunction with the fact that most large artefacts recovered on survey are coarse wares and tile fragments, and most of the smaller artefacts are fine wares, these patterns have important analytical ramifications. This observation, combined with the 'size effect' (Baker 1978; Baker and Schiffer 1975), suggests that fine wares (which tend to break up into smaller pieces) are severely under-represented in our samples while larger ceramics and tiles are adequately recovered.

Team Variability

Upon first glance, all teams were very close in their recovery rates. No single team dominated any aspect of the seeding experiments. In four of the fields walked by all the teams there was only a 9% difference between the 1st and 4th places. Table 2.11 below breaks down the comparison test field by field.

One factor that varied significantly was the time it took to complete each Survey Unit. To test for the influence of time, recovery rates were corrected so that each team's score reflects how much they would have found had all teams spent the same amount of time (computed as the average of all times per field) searching for artefacts (Fig. 2.15). No single team was best in all situations. Understandably, teams did best in field types that they were most accustomed to encountering. The team that found the most in high visibility fields did not find as much under poor visibility conditions. The same may be said for background disturbance. For example, Team Central, accustomed to working in areas of high background disturbance, recovered higher than expected quantities of sherds in test fields with high background disturbance. Team X typically found fewer sherds than teams West or East (Fig. 2.14–Fig. 2.15), but also worked the fastest. When recovery rates were compensated for time, their corrected results were the highest, suggesting a superior level of overall efficiency.

The ways in which the results of these experiments were factored into our procedures for analysing pottery and tile densities are discussed below in Chapter 2.10.

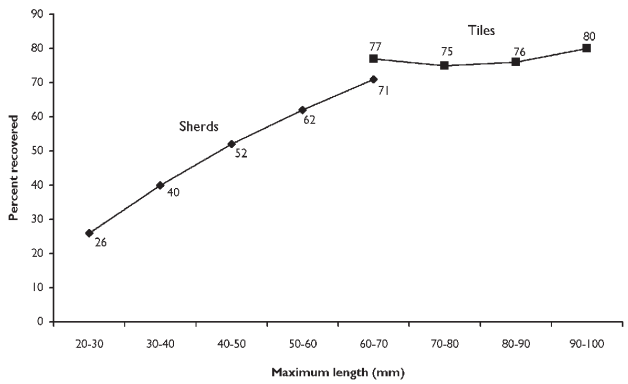


Fig. 2.12. Seeding experiments: recovery of sherds and tiles based on artefact size

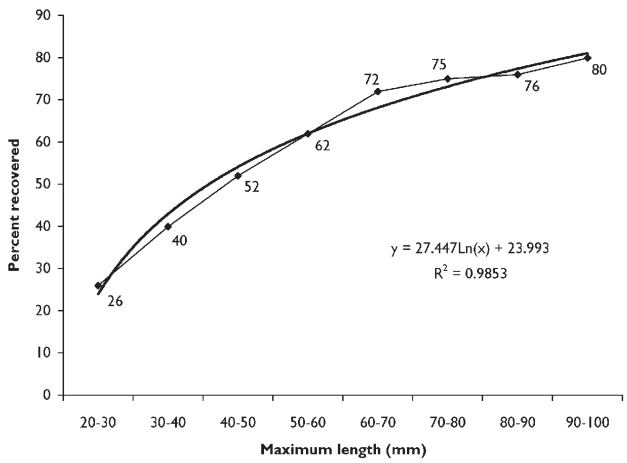


Fig. 2.13. Seeding experiments: recovery of all ceramics based on artefact size

Table 2.11. Seeding experiments: sherds found (out of 48 per field) in the four fields walked by all teams

Team	XU0023	XU0024	XU0025	XU0026	Total (out of 192)	Recovery rate
Central	26	33	33	21	113	59%
West	27	31	35	31	124	65%
East	37	32	36	26	131	68%
X	21	30	32	34	117	61%

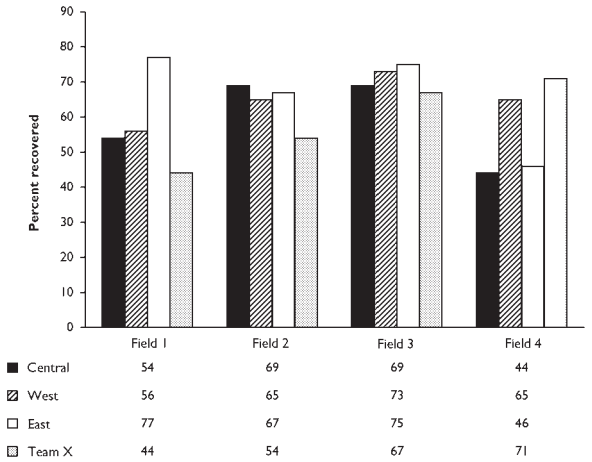


Fig. 2.14. Seeding experiments: comparison of teams in XU0123–XU0426, showing percentage recovered by each team

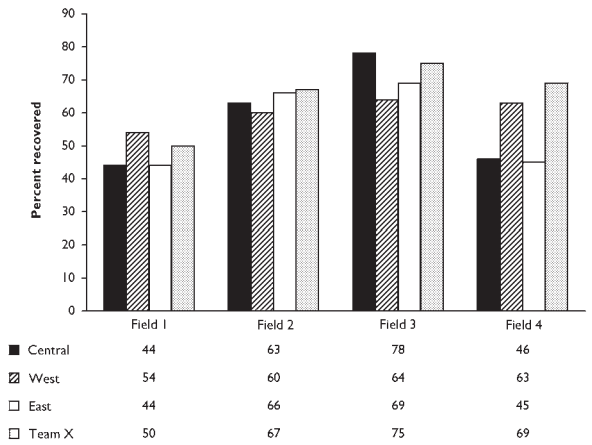


Fig. 2.15. Seeding experiments: comparison of teams in XU0123–XU0426, showing percentage recovered by each team; corrected for time

2.9 Ploughsoil Experiments

Erin Gibson

Systematic survey is based on the premise that what is present on the surface of a given terrain is a sample of a larger whole moving within the ploughzone (Ammerman 1985). This relationship is seldom straightforward (Yorston *et al.* 1990). TAESP established a ploughzone experiment with the aim of understanding how ploughing influences pottery distributions within a given space. Understanding the complex processes acting on a sherd within the ploughzone was especially important to interpreting pottery distributions in areas of intensive cultivation such as the Karkotis, Lagoudhera, Mandres and Koutraphas Intensive Survey Zones.

The initial focus of the experiment was to explore the effects of ploughing on the lateral (horizontal) movement of sherds across the ground surface. When it became clear that this was impossible without a total station to record the location of our experimental tiles precisely, our aims shifted towards looking at general trends of lateral and vertical (presence/absence) movement of tiles.

The experiment took place in two olive fields in the Karkotis Intensive Survey Zone between July 2000 and August 2002. 'Andros Field' was flat and measured 75 × 23 m, and the adjacent 'Church Field' had a slight slope and measured 40 × 21 m. The ground visibility within both fields was fair, as they had been recently ploughed. Commercial tiles cut into 4 × 4 cm squares and incised with numbers were 'planted' just beneath the soil surface along grid lines established within each field. Andros Field was planted with 125 tiles at 1 m intervals, and the Church Field with 332 tiles at 50 cm intervals. The ploughing and watering activity within these fields was observed and recorded by Jean Humbert and Eleni Papapetrou, two local residents who worked closely with TAESP.

Andros Field was ploughed in March 2001, April 2002 and August 2002. The field was surveyed four times, following each ploughing session and once in July 2001 during our field season. The Church Field was ploughed in November 2000, March 2001, November 2001, March 2002 and July 2002. All surveys except for the one in July 2001 took place within one week of a ploughing episode. Watering of the field took place alongside ploughing in November 2000 and November 2001.

Ploughzone

As explained above, the primary aim of this experiment was to explore the vertical movement of sherds within the ploughsoil. Whole, broken and fragmentary remains of tiles were surveyed over the two-year period. The results from this survey are shown in the tables and graphs below. It should be noted that broken tiles and fragments of tile were combined under the category 'Fragment'. Some fragments had numbers still preserved, while others had been separated from their numbered portion and could not be traced to their original 'planted' context.

There is a stark contrast between the number of fragmentary tiles in the Andros Field (an average of 3.5 per count, with a total of 7) versus the Church Field (average 36.5, total 73). It appears that the degree of fragmentation was influenced by the number of ploughing episodes, as the Andros Field was ploughed three times and the Church Field five times (Table 2.13). Overall, the fragmentation is not a primary concern of this experiment, as it is never possible to determine how broken a given pot or tile is when it enters into the ploughsoil. What is important is that we are able to record a sample of it as it moves through the ploughzone.

The number of tiles present on the ground surface and the percentage of whole tiles sharply decline following the initial two ploughing sessions. For example, between March 2001 and April 2002 the number of tiles on the surface (of the total planted) in Andros Field drops strikingly from 22%

Table 2.12. Ploughzone experiment: percentages of tiles on surface and buried in ploughsoil (percentages rounded to one decimal place)

Church Field (total planted: 332)				Andros Field (total planted: 125)		
Total recovered	% recovered	% below surface	Ploughing episode	Total recovered	% recovered	% below surface
62	19%	81%	1	27	22%	78%
42	13%	87%	2	6	5%	95%
33	10%	90%	3	16	13%	87%
54	16%	83%	4			
43	13%	87%	5			

Table 2.13. Ploughzone experiment: recovery of whole and fragmented tiles, divided by ploughing episode

Church Field (total planted: 332)					Andros Field (total planted: 125)			
Whole tiles recovered	Fragments recovered	Total recovered	% whole tiles	Ploughing episode	Whole tiles recovered	Fragments recovered	Total recovered	% whole tiles
54	8	62	87%	1	26	1	27	96%
27	15	42	64%	2	3	3	6	50%
22	11	33	67%	3	13	3	16	81%
31	23	54	57%	4				
27	16	43	63%	5				

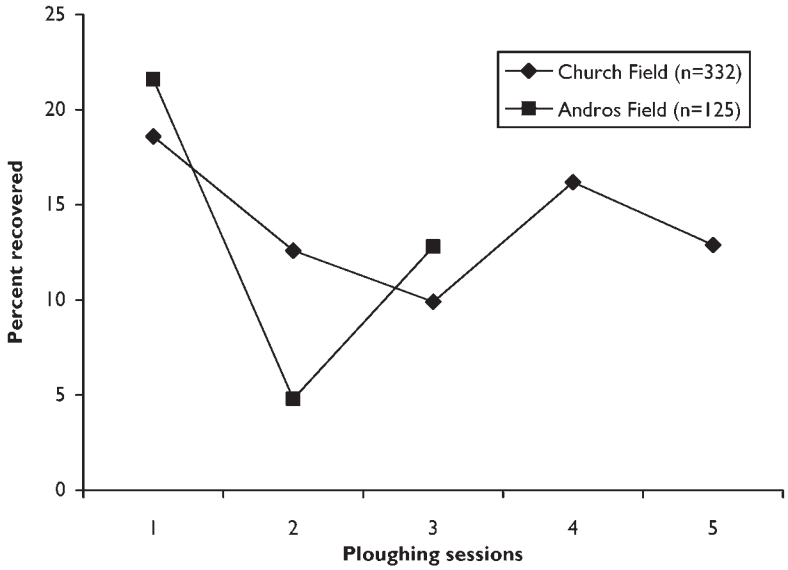


Fig. 2.16. Ploughzone experiment: percentages of tiles on the surface of total planted in Andros and Church Fields

(26 whole) to 5% (3 whole) (Tables 2.12–2.13). Ploughing took place in March 2001 and then not again until April 2002 – just before the field was surveyed. Those tiles recorded on the ground surface following the ploughing in March likely stayed on the surface until the next ploughing session in April. Over time it is likely that the number of tiles visible on the ground surface would stabilise as it did in the Church Field, where the number of tiles present on the ground surface drops suddenly from 19 to 13 after the first ploughing episode then to 10 after the third plough then levelling off to between 16 and 13 in the fourth and fifth ploughing episodes (Fig. 2.16).

One surprising feature of this experiment was the length of time that some tiles remained on the surface. One tile

(No. 60) remained in the same position in Andros Field for 17 months through two ploughing sessions. Similarly, of the 332 tiles planted in the Church Field, there were 15 cases where tiles were exposed throughout two consecutive ploughing sessions between three and eight months apart. There were 23 cases throughout the experiment where tiles were exposed twice and one case where a tile was exposed three different times. While the material on the surface represents a buried assemblage, it seems that once a tile moves to the surface it is more likely to stay there.

It is unlikely that tile shape had any influence on the behaviour of this test assemblage. Experiments conducted at the Butzer Ancient Farm using four different sherd shapes showed little evidence that shape had any influence on how material moves within the ploughzone (Reynolds 1988, 15). The re-exposure of tiles may be related to ploughing techniques used on these fields. The percentage of tiles and tile fragments buried in the ploughsoil at any given time ranged between 81% and 90% in the Church Field and between 78% and 95% in Andros Field.

Had a mouldboard been used to plough the fields it is possible that soil would invert between 140º and 180º each episode, thus increasing the potential for the repeated exposure of tiles on the soil surface (Nicholson 1980; Taylor 2000, 16–18). The Andros Field and the Church Field were both used to cultivate olives. Root depths in orchards such as these are shallow, and therefore it is more likely that discs, harrows or chisels were used to till the soil.

Experiments by Wijdenes *et al.* (1997) that investigate the effects of chisel ploughing on the vertical movement of rock fragments in dry Mediterranean soils may help to explain the presence of tiles on the surface of the Andros and Church Field. Their research demonstrated the strong tendency for larger rock fragments to accumulate on the surface, while the finer fragments had accumulated in the bottom-tilled layers of soil. If we use these experiments as a guide, then the presence of tiles on the surface of the Andros and Church is not surprising; other large rock fragments should accompany these tiles.

Tile Distribution

Tiles were exposed along the long axis of the Andros Field. These results are consistent with the direction of ploughing where the only conceivable method of ploughing this long thin field was along its long axis. It appears, however, that ploughing techniques had an inconsistent impact on tile preservation. In the Andros Field fragmentary and broken tiles were concentrated in the northern and southernmost parts of the field – possibly where the plough and tractor turned and tiles were trampled by the tractor tyres. Surprisingly, this was not the case in the smaller and narrower Church Field, where fragments and broken tiles were evenly distributed. It is unlikely that the fields' slight slope to the west influenced the distribution of broken and fragmentary tiles within the short duration of this experiment.

Together ploughing, rainfall and irrigation influenced the distribution of tiles in the Church Field. Small channels formed through watering of the field in November 2000 and November 2001 caused tiles to cluster in later ploughing sessions. For example, in November 2001 the field was irrigated, creating small rills and streamlets that exposed tiles. In the following March these rills were ploughed under but tiles continued to cluster in these same areas. It is unlikely that the water moved tiles; instead it was the soil that moved. Allen (1991, 44–45) discusses how the overland flow of water from irrigation and rain-splash fractionates smaller, less dense soil particles from larger, denser particles. The net effect is related to the intensity of the overland flow. Surface water removed silt and fine sand from the soil, thus reducing the soil depth and influencing the distribution of tiles. The spring plough was not effective enough to redistribute the soil. It is possible that the overland flow of water influenced some areas of the field more than others, depending on variables such as the location and duration of irrigation episodes and the degree of shelter from olive tree canopies.

Conclusions

It became evident from this experiment that attempts to investigate lateral and vertical displacement of test sherds from lines of reference requires far more energy and resources than TAESP was able to commit. Nevertheless, the results of these early experiments set the stage for future experiments in surveying methodology, while offering insight into the forces acting on sherds surveyed in the Survey Area. This includes the effect of irrigation (and, by extension, rilled runoff from a heavy rainfall) on sherd distributions and the surprising length of time a sherd can remain on the ground surface through several ploughing episodes.

Survey techniques and methodologies play an enormous role in how the material remains of the past are interpreted and how the landscape is constructed and perceived through time. It is for this reason that ploughzone experiments are necessary on a regional scale, to determine how local vegetation, soils and cultural processes influence the nature and visibility of material culture.

2.10 Analysis of Pottery and Tile Distribution

Hugh Corley, Michael Given, Jay Noller, Robert Schon and Luke Sollars

The main aim of our analysis is to map sherd distribution across the Survey Area as precisely as possible, taking into account the various factors that might distort the size and nature of our collection. These include our sampling procedures and various external factors that can obscure sherds on the ground. To do this required Survey Unit-scale seeding experiments in a variety of Intensive Survey Zones,

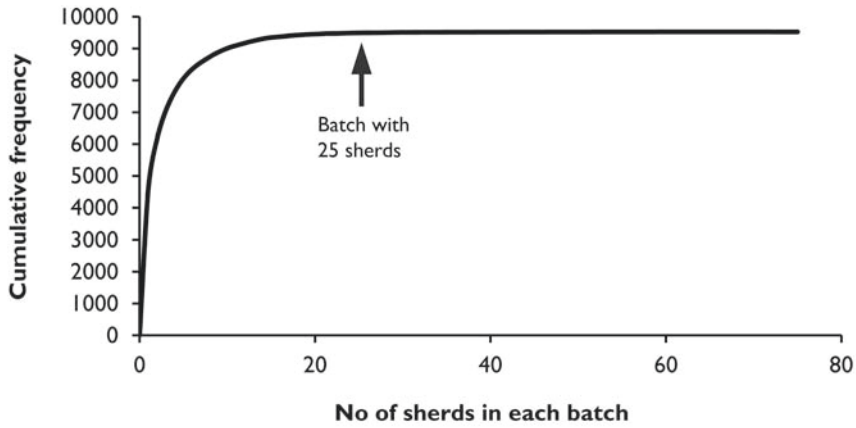


Fig. 2.17. Cumulative frequency of numbers of sherds in each batch for the entire survey (SU pottery only). Total number of sherds is 9527. The arrow indicates the position of the maximum number of sherds representing one chronotype (CTmax).

which were directed by Robert Schon in 2003 (Chapter 2.8), followed by analysis and testing of the results, and incorporating the most influential factors into the pottery density maps that form the core of this book. This section gives an account of the experiments and our subsequent analysis, as well as explaining our techniques for analysing pottery distribution.

In every Survey Unit (SU), the teams counted the total number of sherds that they saw, and collected a representative sample. In every case, they also recorded the ground visibility and background confusion, two variables that we felt had a major effect on sherd recovery rates (see Chapter 2.8). Because each Survey Unit was drawn on the image print and digitised into the GIS, we also have the means to calculate sherd density per unit area.

For every SU, therefore, we have the following relevant variables:

- Sherds counted
- Sherds collected, analysed and assigned to specific chronotypes, periods, functions, etc.
- Ground visibility (%)
- Background confusion (0 = negligible; 3 = considerable)
- Surface area (three-dimensional)

Projecting from Pottery Collected to Pottery Counted

During the project 99,697 sherds were counted by the teams in Survey Units, and as a result of our representative collection procedures 30,721 were collected and analysed. This represents a very substantial sample of 30.8%, which was made in a reasonably representative fashion. Technically, the representativeness of the sample is limited because the maximum number of sherds of the same chronotype collected from a single Survey Unit is 25 (CTmax): five body sherds, five rims, five bases, five handles, and five lids, i.e. one of each is picked up by every fieldwalker within that one Survey Unit. If the team consisted only of four fieldwalkers, the maximum for any one chronotype would be 20 (CTmax = 20). The frequency (and probability) of that occurrence would have to be investigated retrospectively, that is after the results are complete.

In Fig. 2.17, we graph the frequency of different sizes of batches from our Survey Units (a batch being a group of essentially identical sherds from a Survey Unit). The graph is in the form of a cumulative frequency trend. The number of sherds per batch is arranged ordinally along the x, or horizontal, axis. The sum of all observations of same or smaller batch size is then shown as the value on the y axis, and this represents the cumulative frequency for that batch size. For example for all batches with 25 (CTmax) or fewer sherds in them we see the corresponding cumulative frequency to be 9493. By this stage of the trend line it is reaching an asymptote (flat line) for batches beyond the size of 25 sherds. The general trend of the graph shows that there is no abrupt change in the teams' collection strategy when they reached 25 or 30 identical sherds in a single Survey Unit. Batches with over 25 sherds are less frequent (n = 34). The smooth, continuous line strongly demonstrates our teams' uniformity in all years across all Intensive Survey Zones. If this curve showed a disjointed or stepped trend, that would indicate the differences amongst teams and or survey years, if team behaviour changed depending on the number of sherds encountered within a Survey Unit. This statistically meaningful result shows that we held no bias towards higher artefact counts and that our computed sherd densities at low values (e.g. one) are significant indeed. We can therefore take our 30% sample as being sufficiently representative to allow us to project proportionally from the sherds of a particular period collected to the total sherds counted.

Reappraising the Experimental Data

Some regional surveys have applied a correction factor to accommodate for probabilistic loss of sherds from total Survey Unit counts, including those of our own recent work (Meyer *et al.* 2003c). This section addresses the basis on

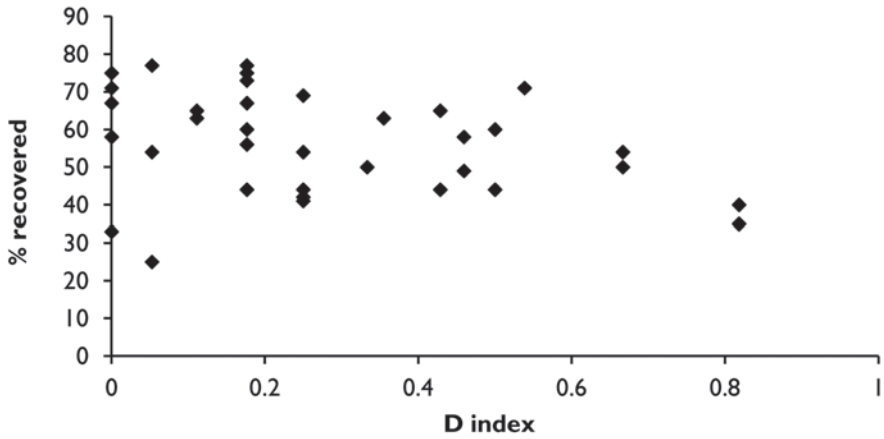


Fig. 2.18. Plot of recovered percentage of seeded artefacts versus the difficulty of seeing them, as quantified by the D index for Experimental Survey Units

which we decided not to apply such a factor to our sherd density values. We investigated the use of several 'flavours' of index values based on the two most obvious indicators of Survey Unit status collected in the field, Background Confusion (BC) and Visibility (V) data, and related this index to sherd recovery rates from the Experimental Survey Units (Chapter 2.8). This index, which we label D for difficulty of seeing the sherds on the ground, is set up so that fields with excellent visibility (V = 100%) and no background confusion (BC = 0) produce a D index value of 0 (i.e. zero or no difficulty in seeing the sherds). Those fields with zero visibility (V = 0%) and high background confusion (BC = 3) yield a D index of 1.0. We hypothesized that recovery of sherds (recovery percentage) inversely correlates with the difficulty of seeing sherds, i.e. where D = zero we should have nearly 100% recovery, ranging down to a D index value of 0 and nearly zero % recovery.

Computation of the D index value involves normalization of the BC data to a range of decimal values similar to those (percentages) for V data. Before computing this we had to establish first the range of permissible BC values, based on experimental study (Chapter 2.8). Second, we had to establish what range of decimal values was similar to those (percentages) for the V data. According to the results of the seeding experiments shown in Fig. 2.10, the percentage recovered was nearly identical for fields rated with background confusion of zero or one. From this we take BC = 0 = 1. The D index is computed as

$$D = \mathrm{ABS}\left[\frac{(V-B)}{(V+B)}\right].$$

In this formula, ABS is the absolute number operand, V is the percentage visibility, expressed as a decimal value, and B is the value for background:

$$B = \frac{(n-BC)}{n},$$

where $\boldsymbol{n}$ = number of classes of background confusion and BC = Background Confusion class number.

We computed D index values for the experimental plots, which yield far less than the hypothesized results (Fig. 2.18). What is apparent from this graph is that we have poor correlation between the difficulty of seeing sherds to our recovery of sherds. For plots that ideally would have the highest recovery percentages (D = 0), we see a range of recovery values from 33% to 75%. This range essentially encompasses the range for all higher D index values. For the plots with the greatest difficulty for observation during survey (D = 0.83), the recovery was just under 40%, yet above that of the lowest recovery for one of our 'best' plots. There is no significant correlation between the recovery and the D index. If we were to drape a line over the maximum recovery for any given D index value, we would observe a trend resembling that which we had hypothesized for the ideal case. Unfortunately, we do not have a satisfactory explanation for the significantly large variability for recovery given any measure of the background confusion and visibility. Even when analysed on their own, which was unnecessary because this index carries forward their individual directions of change by virtue of their difference divided by their sum, these two categories of field observations failed to yield significant results when compared with recovery percentage.

It is apparent that under ideal field conditions the recovery of artefacts from Survey Units is not at all related to visibility and background confusion (Figure 2.18). Hence, it would be imprudent to use either of these factors in scaling the data to estimates of 'true' sherd distribution in the TAESP Survey Units. Based on this finding, we decided against the use of such factor in the treatment of the survey data. Interestingly, we are not the only survey projects to have come to the conclusions that there is no direct relationship between low visibility and artefact recovery rates (Bevan and Conolly 2002–2004, 127–28; Richards 2008, 553; Thompson 2004, 77).

Analytical Procedures

TAESP survey methods count all pottery in a Survey Unit, but only collect a representative proportion for analysis. Once analysed, the collected proportion can be fed into calculations that combine with the raw counts recorded in the field to produce an estimated density of sherds of any specified criteria in a Survey Unit (SU).

CS = Number of sherds collected from an SU
AS = Number of analysed sherds of a specific criterion from an SU
NS = Total number of sherds counted in an SU
ES = Estimated number of sherds of a specific criterion in an SU
ES = (AS/CS) × NS

For example, if 100 sherds (NS) were counted in SU9999, 16 (CS) of which were collected, and four of these 16 were identified as Roman (AS), then the estimated count (EC) of Roman sherds in SU9999 is: (4/16) × 100 = 25. The flexibility of the TAESP's chronotype system allows this calculation to be repeated for any criteria by which the pottery is grouped.

In order to produce a rather more meaningful sherd density value, the estimated sherd count is divided by the surface area of the Survey Unit. This value is derived from the outlines of Survey Units digitised in the GIS. This measurement treats the Survey Units as if they are flat, but many are on relatively steep slopes. This had to be taken into account to produce a credible value for the pottery density on a three-dimensional surface.

By dividing the estimated number of sherds (ES) by the three-dimensional area (derived with Pythagoras' theorem) we could calculate an estimated sherd density (ED) for any specific criterion of pottery in the Survey Unit.

Slope = Average slope of Geomorphological Unit in which SU was situated
A2 = Two-dimensional, or flat, area of SU measured by GIS
A3 = Three-dimensional, or calculated, area of SU
A3 = A2/cos Slope
ED = The Estimated Density sherds of a specific criterion in an SU
ED = ES/A3

For example, if the GIS measured the surface area of SU9999 as 50 m^2, and if SU9999 lay within GU9999 with an average slope of 10º, then the estimated density (ED) of Roman sherds in SU9999 is: 25/(50/cos10) = 25/(50/0.9063) = 0.45 sherds/m^2.

Artefact densities are presented on most maps per 100 m^2 (100 square metres, or the equivalent of a 10 m × 10 m grid). While numbers often remain small, this multiplication at least reduces the number of decimal places a reader will have to assimilate. So, in our example, the Roman sherds in SU9999 would be presented as 45 sherds/100 m^2.

This relatively simple process takes the raw counts of the archaeologists in the field and converts them to a form which ensures that results from across the project's Survey Area are directly comparable for analysis and comprehensive presentation on maps such as those in both volumes of this monograph.

2.11 Botany and Geobotany

Neil Urwin

The geobotanical component of TAESP comprised three distinct areas of investigation: the botanical analysis of POSIs and SIAs; the spatial distribution of old olive trees; and modelling fuel sources for past smelting operations.

Botanical Analysis of POSIs and SIAs

The first area of geobotanical investigation was the analysis of material from Places of Special Interest (POSIs) and Special Interest Areas (SIAs; see Chapter 2.3 for definitions), to determine whether botanical indicators of past site disturbance existed at the species or plant community level. Where statistical analysis shows significant clustering of sample units (indicating the presence of botanical indicators for the site), it may be possible to carry out remote sensing and thematic mapping of indicator signatures over an extended and unsurveyed area to show new areas of potential interest.

The theory and practice of geobotany and the use of botanical indicators were examined in detail in the final publication of the Sydney Cyprus Survey Project (SCSP), and the reader is directed there for fuller discussion (Urwin 2003a). The investigation and findings related to its application to environmental conditions on the northern foot slopes of the Troodos mountains and edges of the Mesaoria Plain is also applicable to the TAESP Survey Area. In essence, there were two objectives: to investigate whether botanical indicators exist; and to investigate site prediction using remote sensing of the vegetation indicators. The first steps included site selection, botanical data collection from sampling units (or quadrats) across the site, and statistical analysis of those data.

The botanical sampling strategies and data collection focused on the establishment of transects consisting of a series of quadrats across areas of archaeological interest, sampling the vegetation both in and adjacent to the area of interest. In each quadrat, we recorded the percentage ground cover of every plant species found. Quadrats (ID numbers prefixed 'NU'), were 10 m × 10 m, and were arranged in transects or blocks (ID numbers prefixed 'TN'). In the SCSP publication we proposed a set of criteria for the successful application of the investigative technique (Urwin 2003b, 300–301). In applying these to the TAESP Survey Area, one criterion in particular ruled out the use of the technique for most POSIs and SIAs. This was the requirement that

> the vegetation should be natural, in that present human cultural practices affecting plant growth are minimized… The finding from this survey was that the vegetation should be a perennial

> woody shrubland or grassy heath without significant tree cover: that is, a batha or garrigue form. (Urwin 2003b, 301)

The TAESP Survey Area, especially the Karkotis and Xyliatos valleys, is extensively settled and farmed. Apart from the forest stands on the northern footslopes of the Troodos, very little naturally vegetated land exists. Of the 256 POSIs and 21 SIAs identified by the survey teams, only five were sufficiently vegetated to allow the technique to be applied. These were TP035, TP078, TP202, TP216, and TS010.

Botanical data (the percentage ground cover of each of the species) from the quadrats over each area of interest were initially screened via an ordination analysis (after Goodall 1954). The most readily applicable ordination strategy is Principle Components Analysis (PCA), because it extracts the maximum amount of variance from an already grouped data set, and can also successfully operate on a small data set, provided it is free of outliers. In PCA, the scores (called 'eigenvalues') from a resemblance matrix of all variables are extracted in descending order of magnitude, in such a way that the corresponding PCA components represent successively greater to lesser amounts of variation in the matrix. Hence the first few PCA components (usually two, so that the results can be depicted as a two-dimensional scatter plot) will represent the largest percentage of the total variation.

The initial screening by PCA showed that the species and vegetation communities growing in quadrats located over TP035 (Bronze Age graves at Katydhata *Laonarka*) were not significantly different from the control vegetation communities in quadrats adjacent to it. Additionally, the PCA analysis of transects at TS010 (mining adits in a gully to the east of Memi mine) and at TP078 (a collapsed field shelter at Ayia Marina *Sykia tou Kaiserili* on a hillside north-west of the Xyliatos slag heap) showed variation over the spatial extent of the transect only as a result of changes in the amount of bare soil or rock in the quadrats. When these variables were excluded from the analysis, there was no statistically significant difference between the vegetation communities in quadrats crossing the feature of interest (the POSI) and those of adjoining control areas that could not be explained by readily observable, environmental factors.

The ordination analysis of vegetation growing on, and surrounding, TP202 and TP216, a Roman farmstead and settlement in the Atsas Valley, showed significant differences on- and off-site. In order to confirm these differences, vegetation data from quadrats over these sites were analysed further using a hierarchical cluster analysis. The hierarchical analysis is based on the principle that at each stage of clustering the variance within clusters is minimized with respect to the variance between clusters (Ludwig and Reynolds 1988). In this way it encompasses the duality of 'homogeneity within clusters and heterogeneity between clusters' (Brooks and Johannis 1990).

The hierarchical cluster analysis confirmed that the vegetation growing over TP202 and TP216 was statistically distinct and thereby formed indicators of these particular sites. The next step was to test these indicators over a wider unsurveyed area to see whether other sites could be predicted by these indicators. The vegetation arrays growing on TP202 and TP216 were used to establish 'light signatures' for the sites (the combination of blue, green, red and near infra-red light wavelengths characteristic of that particular defined area). An extrapolation of those signatures was then undertaken with satellite imagery to identify the spatial distributions of any other areas with the same light signature via the technique of 'supervised classification' of the imagery.

These classifications were undertaken using *ERDAS Imagine* 8.5 and the 'mindist' classifying strategy. 'Mindist' does not rely on measures of covariance between adjoining pixels (the fundamental data blocks of the satellite image), and therefore does not require a statistically significant number of sample areas for its training signatures. Instead it compares the mean light signatures of adjacent pixels (with +/- standard deviation) and therefore does not require a large number of pixels for each reference signature. This was an essential feature for this exercise where light signatures for the vegetation over areas of archaeological interest only comprised a small number of pixels. The resulting distribution of areas with similar light signatures to the vegetation indicator areas was displayed along with the distribution of all POSI sites in that location. The results are presented in Volume 2, Chapter 2.7, and discussed more broadly in Volume 1, Chapter 4.8.

Spatial Distribution of Old Olive Trees

The second area of geobotanical investigation aimed to provide additional insights into the diachronic settlement pattern and agricultural land uses of the Karkotis Valley by examining the spatial distribution of olive trees of various age groupings. Holmboe (1914, 234–35), Meikle (1977, 1094–96) and Christodoulou (1959, 171) refer to the great ages attained by olive trees in Cyprus, and Hadjisavvas (1992), Makhzoumi (1997) and Christodoulou (1959, 170–72) have examined the long history of olive use in the region.

The first step here was to develop a field methodology for determining the ages of standing olive trees. This involved the collection of structural and dendrochronological data from standing and cut trees, records of plantings from oral history or parish records, and provenance of planting information (where it existed) for individual trees. The combination of these data enabled the development of an empirical correlation between the age and morphology of trees (typified by trunk girth and hollowing) for this locality. A full explanation of this field technique is provided in Chapter 4.7.

Using this age estimation technique, a total of 182 trees, representing planting times ranging from the late 14th to the late 18th century AD, were identified and mapped. Their spatial distribution over the landscape of the Karkotis Valley suggests the foci of olive cultivation activity in various

periods and provides landscape and land use linkages across the valley. The results are discussed in Chapter 4.7.

Modelling Fuel Resources for Past Smelting Operations

The third area of investigation involved the delineation of speculative areas of fuel resource for past smelting operations at Skouriotissa, using the GIS and spatial modelling. This investigation was able to build upon anthracological data from samples collected from the Skouriotissa slag heap by the archaeometallurgical team. A total of 78 charcoal samples from this site were identified and three were radiocarbon dated.

The species identification of the charcoal samples showed a significant preponderance of *Pinus brutia* (Cyprus pine), reflecting the ready availability of this species along the foothills of the Troodos and the edges of the Mesaoria Plain. This result is in line with the data from the small Bronze Age smelting site at Politiko *Phorades*, where *Pinus* taxa (all *P. brutia* where identified) made up 90% of the charcoal samples collected (Ntinou, in Knapp *et al.* n.d.). This site is also near the Troodos foothills where pine predominates. The results contrast with data from the Iron Age copper mines of Ayia Varvara *Almyras* and the furnaces of the South Mathiatis mine, where olive wood (*Olea europaea*) has been identified as the primary fuel source (Fasnacht *et al.* 1996, 110; Fasnacht and Georgiou 2006, 207–208).

Skouriotissa was selected as a site for the spatial analysis of potential fuel species because, due to the length of time over which the site operated, the smelting operations would have made huge demands on the fuel resources of the surrounding landscape. Additionally, previous studies have documented the magnitude and scale of the smelting activities at Skouriotissa – making calculations of the rates of resource use possible.

The areas and timber yields of typical *P. brutia* forest and woodland were modelled over the duration of the Skouriotissa smelting operations using *ArcGIS* 9.1 software, in order to examine the limits of sustainability of the fuel supply. Although *Pinus brutia* appears to be the staple fuel resource over the whole period of operation at Skouriotissa, with radiocarbon ages ranging from the late 3rd century AD to the middle or end of the 7th century AD, a number of other species have been identified which either supplemented the supply of *P. brutia* charcoal or, from time to time, replaced it as local pine stocks were replenishing. The spatial distributions of these species were also modelled and linked, where data were available, to their radiocarbon dates. The results are discussed in Chapter 4.8.

Land Cover Mapping

An essential prerequisite for all three investigations was the development of a land cover/land use map for the TAESP Survey Area. This was needed to provide a context for the botanical analysis of archaeological sites and features. It was also needed to delineate the present spatial distribution of forest communities that might have provided fuel for copper smelting and, working back from this, to develop land cover maps of the past.

The land cover map was based upon an *ASTER* multispectral scene using bands 1, 2 and 3N. The digital scene was acquired from EOS/NASA already georectified to WGS84 datum. A subset of the scene, covering the TAESP Survey Area, was further rectified using several hundred ground control points. This ensured that the image was accurate to the scale of the field survey and could be used in conjunction with locations plotted by GPS. Extensive field data collection was undertaken to provide ground truthing. Characteristic land cover classes were recorded in the field with GPS locations so that they could be accurately located on the satellite image.

The satellite imagery provided the basis for coarse thematic mapping in uninhabited areas, where the major categories were forest (>20% pine density), three categories of batha (with decreasing levels of pine emerging above the surrounding vegetation) and cereals. In inhabited areas, aerial photography allowed the interpretation of categories of fruit trees/olives, crops, grain, grass/gorse and villages.

Since the survey spanned 2000–2005, the software applications for satellite imagery interpretation underwent a generational change during the course of the project. Initial work commenced using *Idrisi* 2 for imagery interpretation and *ArcView* 3.2 for GIS mapping, but were superseded by *ERDAS Imagine* 8.5 and *ArcGIS* 8.7, respectively. The base projection for this map was the satellite image that had been georeferenced to the original topographic map sheets for the project area.

2.12 Archaeometallurgy

Vasiliki Kassianidou

To record and analyse the very significant archaeometallurgical remains in the Survey Area, including over one million tons of ancient slag, we improved and adjusted the methods used in the Sydney Cyprus Survey Project (SCSP) (Kassianidou 2003a). The fieldwork was undertaken by the author, with the assistance of Myrto Georgakopoulou and Thomas Tselios. In addition we spent considerable time and effort at the beginning of each season in explaining to fieldwalkers the different stages of copper production and showing them our reference collection of local rocks and minerals, including those used as fluxes and ores, different types of slag and remains of the smelting installations. All this information was included in the field manual used by the teams.

Recording of Archaeometallurgical Sites

We recorded two main types of archaeometallurgical POSIs: the remains of mines, in the form of adits and/or

shafts from which the ore was extracted; and the remains of smelting workshops which currently are identifiable solely by the often enormous slag heaps, which represent large-scale production over a considerable period of time. As in SCSP, very little has survived in our area of what in antiquity must have been extensive copper mines. All three ore deposits that fall within the Survey Area were eventually exploited by the opencast method in the second half of the 20th century AD. As a result the vast majority of adits have been destroyed. (In Cyprus ancient mines seem to have consisted mainly of such horizontal or gently sloping passages driven from the surface to an ore body, rather than a system of vertical shafts connected with underground galleries.) In the case of the Skouriotissa mine, which in the 1920s was exploited as an underground mine, the ancient galleries encountered by modern miners were recorded in plans and sections subsequently published by Bruce (Bruce *et al.* 1937; see Chapter 3.9), the resident director of the Cyprus Mining Corporation. Galleries are still visible on the section of the Phoukasa opencast, but since the mine at Skouriotissa was in operation during the period of our fieldwork we did not have access to them and could not record them in any way.

We recorded clusters of adits in the vicinity of the Memi opencast mine (Volume 2, Chapter 4.5) and in the vicinity of the Alestos opencast mine (Chapter 4.3), using drawings, photographs, measurements and descriptions. In the absence of artefacts such as pottery, mining tools or remains of tool marks, it is generally extremely difficult to date such structures. And since modern mining companies prospected ore deposits by sinking exploratory adits, the possibility that some of these are modern rather than ancient must always be considered. Nevertheless, we have good reasons to believe that both clusters were ancient, although there is no way of knowing to which period they date.

Because slag heaps were formed over several centuries (though perhaps with gaps in between), they are stratified and can be approached like any geological or archaeological section (Bachmann 1982b, 6). Although such an approach has been adopted in other mining areas, SCSP was the first to apply this method in Cyprus (Kassianidou 2003a). In order to reveal the stratigraphy, a section has first to be cleaned, but this is no simple task when one has to deal with slag heaps that often stand several metres high. Fortunately, the fact that these were economic deposits in themselves (slag is an excellent material for road metal), means that sections have been created accidentally by the bulldozers quarrying the slag. We sought such sections to record the stratigraphy systematically.

Each slag heap was defined as a POSI, while different sections within the slag heap were defined as Archaeometallurgical Units (AUs). Where it was possible to do, the sections were cleaned back, photographed and then drawn using the photograph as a base. We then described each of the stratified layers in detail. We were careful to note the size of the slag fragments: different layers consisted of different sizes, as if someone had gone through the effort of sorting them. The fact that some of these layers, even those dating to the Late Roman period, consisted of slag crushed to a very small size, raises some questions. Why did they go through this chore that clearly was time and energy consuming? The limited content of copper in the slag (commonly below 1%) suggests they did not do so in order to extract trapped metal from the slag matrix. Instead it may have been done as a measure of waste management, namely in the effort to create more stable heaps (see Chapter 3.9). The inclination of the layers also is important as it is indicative of the dumping episodes and the possible location of the now destroyed smelting furnaces. All this information was carefully entered in the project's database, from which it is easily accessible.

The slag heap of Skouriotissa, which even after extensive quarrying is several hundred metres long and more than 30 m high, created particular challenges. Gary Tompsett, a professional topographer, used a total station to create a topographic map, and we used metric photography to record the two largest sections (TP007.AU01 and AU05). We placed a number of targets on the sections and recorded their exact positions with the total station. We then took a photograph from a carefully measured location where the line of sight was perpendicular to the face of the slag heap both horizontally and vertically. This allowed us to rectify the image and use it as an accurate background for creating the section drawings.

We then collected samples from each Archaeometallurgical Unit. It is unusual to find pottery in slag heaps, particularly diagnostic pottery, so it was a welcome surprise when we found large numbers of well-preserved sherds in the layers at Skouriotissa, apparently because in those areas the slag heap covered the remains of a residential area. For a more secure date, and for the sections where pottery was not found, charcoal was collected for radiocarbon dating. The cost of such analyses meant that only a limited number of charcoal samples could be dated; these samples were chosen carefully to represent different phases of use in each slag heap.

Charcoal was also collected for a systematic anthracological analysis, undertaken by Maria Ntinou (Chapter 3.10). This study is particularly important as it reveals the plant species preferred for use as fuel in the smelting furnaces. Furthermore, in an effort to recreate the vegetation around the mines and smelting workshops, we collected samples from layers rich in organic remains.

Samples of slag, furnace material and ores or fluxes were collected from each of the layers that could be reached from the base or the top of the slag heap. This material forms a valuable reference collection for the ancient Cypriot copper industry. The material collected was classified according to type (e.g. tap slag, furnace slag, Phorades-type slag) and according to size (small/under 5 cm; medium/5–10 cm; large/over 10 cm). Some of the collected slag samples were selected for chemical and microscopic analysis. An effort was made to choose samples from different layers of the same section, as well as samples from more than one AU

Table 2.14. Skouriotissa Vouppes *(TP007): the four charcoal samples that received dendrochronological examination. The tree-ring information is read as: 1 unmeasured partial initial ring + x measured rings + 1 unmeasured partial last or last extant ring. The overall tree-ring series measured is expressed in terms of relative tree-rings or relative years as 1001–xxxx. vv: unknown additional number of exterior rings missing from the extant sample. B: bark present. TM = sample; TP = POSI; AU = Archaeometallurgical Unit; Y = Layer; A = Find*

ID	Provenance	Species	Initial ring		Measured rings		Last ring	Tree-ring series
TAE-2B (TM119)	TP007.AU01.Y27.A002	*Pinus* sp.	1	+	22	+	1vv	1001–1023vv
TAE-4A (TM122)	TP007.AU03.Y20.A002	*Pinus* sp.	1	+	21	+	1vv	1001–1022vv
TAE-4B (TM122)	TP007.AU03.Y20.A002	Diffuse porous wood, possibly poplar	1	+	22	+	1vv	1001–1023vv
TAE-5B (TM125)	TP007.AU05.Y29.A002	*Pinus* sp.	1	+	85	+	1B	1001–1086B

of the same slag heap. The comparison of these results with chronological information enabled us to consider possible technological and organisational changes, while examination of different slag heaps allowed us to compare the ore and flux deposits used in these workshops.

In the Survey Units, the teams collected diagnostic metal objects, slag, ores and fluxes, and counted all non-diagnostic material. This information was recorded on field sheets, entered into the database, and exported to the GIS for spatial analysis. The finds brought back to the field house were examined and classified in a fashion similar to the material collected from the slag heaps. This gave us important information on the distribution of archaeometallurgical activity throughout the entire Survey Area, as well as in specific SIAs and POSIs.

Scientific Analysis of the Finds

Scientific analysis (phase, micro and compositional analysis) of the slag from all POSIs was undertaken by Myrto Georgakopoulou and was done at the laboratories of the Institute of Archaeology, University College London. The samples were described in detail and then sectioned with a diamond saw. The slice was set in epoxy resin and polished according to standard metallographic methods. Polished sections were subsequently studied under a reflected light microscope, as well as a Scanning Electron Microscope equipped with an Energy Dispersive Spectrometer. The micro-analyser enabled the determination of the chemical composition of the various mineral phases, as well as that of the metallic inclusions within these samples.

Powders were also prepared from the same samples in order to ascertain their bulk chemical composition. This was achieved with the help of an X-Ray Fluorescence spectrometer, an instrument typically used for the analysis of such siliceous material, as it does not require the sample to be brought into solution. The results of the analysis are presented in Chapter 3.9, and are discussed further under the relevant POSIs in Volume 2.

2.13 Absolute Dating of Charcoal Samples from the Slag Heaps

Sturt W. Manning

We recovered a number of charcoal samples from the Skouriotissa and Mavrovouni slag heaps, with the aim of obtaining dating evidence for the find contexts. Two types of samples were recovered: 1) a number of small pieces of charcoal with very few or no visible tree-rings; and 2) four samples which were noted as having 20+ visible tree-rings. The former were suitable only for basic radiocarbon dating; the latter were subjected to dendrochronological examination with a view to attempting dendro-radiocarbon-wiggle-match analyses which we hoped might produce more precise dating results.

Direct dendrochronological dating even for the one sample with a good sequence (TAE-5B, with 85 measured tree-rings), is not possible at present because there is no relevant pine or conifer tree-ring chronology for its time period – 4th to 5th centuries AD – in Cyprus or the east Mediterranean. In one case (TAE-5B), the sample preserved bark; thus the date calculated for the bark offers a cutting date (or age of death) for the sample and so the likely date of human use of the sample within very narrow limits. All the other samples set *terminus post quem* ranges for the time of their use by humans.

The four samples receiving dendrochronological examination are detailed in Table 2.14. These samples were then physically divided into sub-samples of tree-rings (using a steel blade under a binocular microscope) for radiocarbon wiggle-match analysis (Galimberti *et al.* 2004; Bronk Ramsey *et al.* 2001). All the charcoal samples (the tree-ring sub-elements for the wiggle-matching and the other samples measured as single samples) for radiocarbon dating and the dates measured for them are set out in Table 2.15.

The calibrated calendar age ranges for each of the radiocarbon measurements in isolation are listed at 1σ (68.2% confidence) and 2σ (95.4% confidence) in Table

Table 2.15. Skouriotissa Vouppes (TP007): radiocarbon measurements for charcoal samples from slag heap. The radiocarbon ages reported are uncalibrated in radiocarbon years BP (i.e. AD 1950), employing the half-life of 5568 years following Stuiver and Polach (1977). Isotopic fractionation has been corrected for using the measured $\delta^{13}C$ values quoted (relative to VPDB). For details of the chemical pre-treatment, target preparation and AMS measurement for the OxA data, see Bronk Ramsey et al. (2002, 1–4; 2004). The Wk samples, also AMS measurements, were washed in hot HCl, and rinsed and treated with multiple hot NaOH washes; the NaOH insoluble fraction was treated with hot HCl, filtered, rinsed and dried. The calibrated calendar years age ranges are the inclusive ranges for the 1σ (68.2% confidence) and 2σ (95.4% confidence) ranges in whole integers taken from the 'Table View' display of OxCal 4.1.3 (Bronk Ramsey 1995, 2001, 2009) with curve resolution set at 5 employing IntCal04 (Reimer et al. 2004). TM = sample, TP = POSI, AU = Archaeometallurgical Units, Y = Layer, A = Finds

Sample	Provenance	Oxford/ Waikato ID	Sample	$\delta^{13}C$ ‰	^{14}C Age yrs BP	Calibrated Age Range AD	
						1SD	2SD
TM119	TP007.AU03.Y20.A002	OxA-16813	Pinus sp. TAE-2B Rings 1001–1010	-21.6±0.3	1792±28	140–317	133–326
TM119	TP007.AU03.Y20.A002	OxA-16814	Pinus sp. TAE-2B Rings 1011–1021	-22.9±0.3	1761±27	238–327	175–382
TM122	TP007.AU03.Y20.A002	OxA-16815	Pinus sp. TAE-4A Rings 1001–1010	-22.7±0.3	1496±27	549–600	467–640
TM122	TP007.AU03.Y20.A002	OxA-16816	Pinus sp. TAE-4A Rings 1001–1010	-23.1±0.3	1537±29	437–571	432–592
TM122	TP007.AU03.Y20.A002	OxA-16817	Pinus sp. TAE -4A Rings 1012–1021	-23.0±0.3	1459±28	584–637	557–648
TM122	TP007.AU03.Y20.A002	OxA-16818	Charcoal, diffuse porous. TAE-4B Rings 1001–1010	-23.5±0.3	1462±26	580–634	557–646
TM122	TP007.AU03.Y20.A002	OxA-16819	Charcoal, diffuse porous. TAE-4B Rings 1011–1022	-23.8±0.3	1421±27	612–650	584–660
TM125	TP007.AU05.Y29.A002	OxA-16820	Pinus sp. TAE-5B Rings 1001–1011	-23.8±0.3	1692±27	265–399	257–416
TM125	TP007.AU05.Y29.A002	OxA-16821	Pinus sp. TAE-5B Rings 1014–1025	-24.0±0.3	1717±27	259–381	250–396
TM125	TP007.AU05.Y29.A002	OxA-16822	Pinus sp. TAE-5B Rings 1027–1037	-23.9±0.3	1639±27	357–505	339–533
TM125	TP007.AU05.Y29.A002	OxA-16823	Pinus sp. TAE-5B Rings 1039–1049	-23.5±0.3	1711±27	260–385	255–400
TM125	TP007.AU05.Y29.A002	OxA-16824	Pinus sp. TAE-5B Rings 1050–1064	-23.5±0.3	1667±28	346–417	259–431
TM125	TP007.AU05.Y29.A002	OxA-16825	Pinus sp. TAE-5B Rings 1076–1085	-23.2±0.3	1662±28	348–420	259–505
TM135	TP172.AU01.Y20	Wk-25877	Charcoal	-23.3±0.2	1469±30	569–623	546–645
TM118	TP006.AU03.Layer 14	Wk-25878	Charcoal	-23.0±0.2	1603±30	416–533	400–540
TM121	TP007.AU01.Layer 39	Wk-25879	Charcoal	-23.0±0.2	1764±30	234–331	140–381
TM126	TP007.AU05.Layer 39	Wk-25880	Charcoal	-21.8±0.2	1572±30	435–536	419–554
TM133	TP007.AU14.Y23.A002	Wk-26026	Charcoal	-21.3±0.2	1619±30	399–532	359–539
TM128	TP007.AU07.Y05.A001	Wk-26027	Charcoal	-23.2±0.2	1445±30	596–645	564–653

2.15 and are shown in Fig. 2.19. The samples all lie, broadly, in the Mid to Late Roman period, from (at 2σ) the 2nd through the 7th centuries AD.

The four dendrochronological samples (TAE-2B, TAE-4A, TAE-4B, TAE-5B) can yield more precise calendar age estimates for the last preserved ring (and in one case the bark and so the date of cutting/use), by wiggle-matching the dendrochronologically fixed time series of radiocarbon data from each of the samples against the radiocarbon calibration curve. This is accomplished using the Bayesian

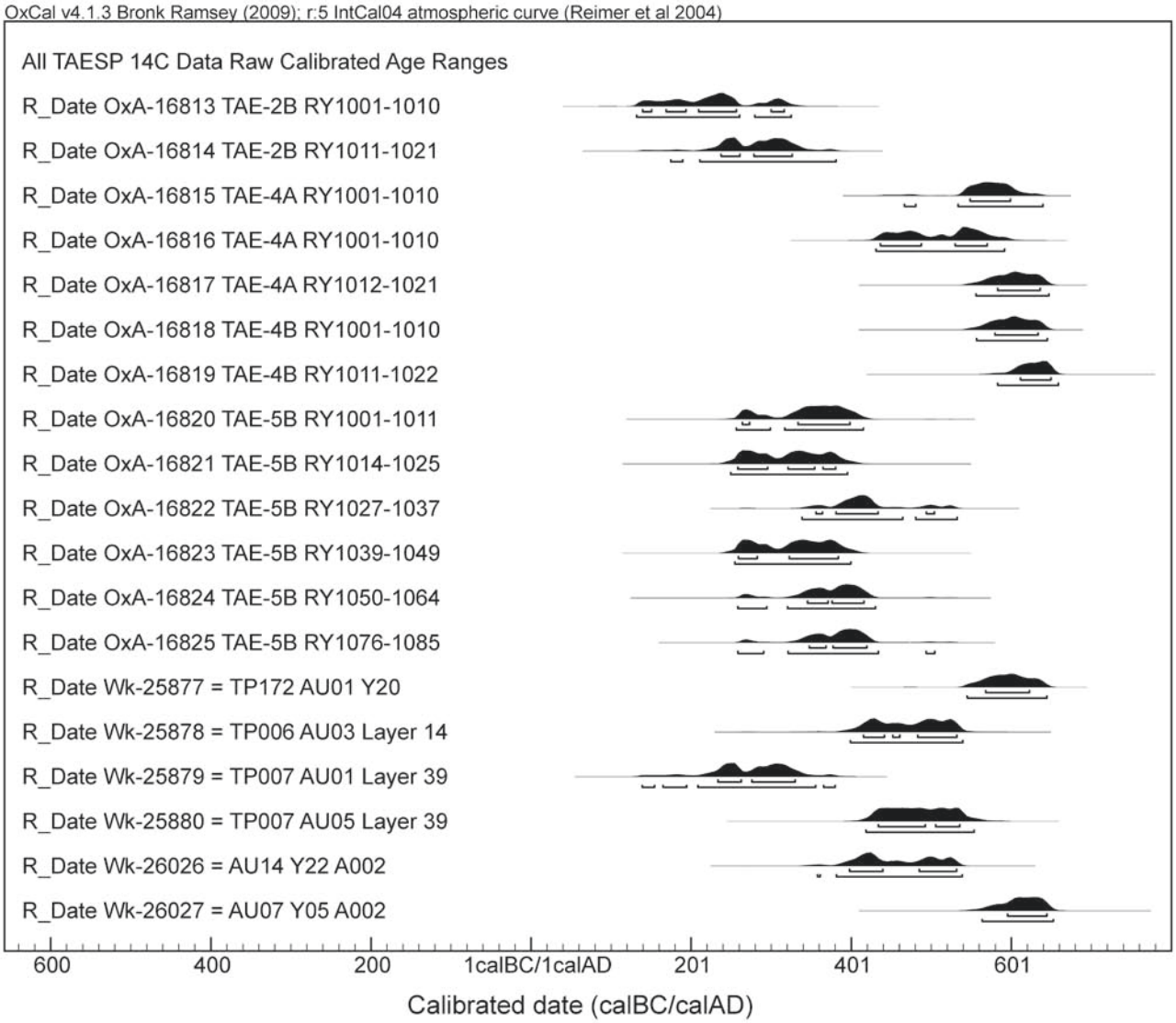


Fig. 2.19. Calibrated calendar age distributions for the individual radiocarbon dates on the TAESP samples (Table 2.15). The upper and lower lines under each histogram show the 1σ (68.2% confidence) and 2σ (95.4% confidence) age ranges respectively. Data from OxCal 4.1.3 with curve resolution set as 5 (Bronk Ramsey 1995, 2001, 2009) and IntCal04 (Reimer et al. 2004)

analytical framework in OxCal (Bronk Ramsey 1995, 2001, 2009), whereby the prior information (the dendro sequence) and the radiocarbon dating probabilities for each measured sample are combined to yield a best placement against the radiocarbon calibration curve. The analysis is shown for all the dendrochronological samples in Fig. 2.20, with the placements for the samples at 1σ confidence shown against the IntCal04 radiocarbon calibration curve in Fig. 2.21. The calculated age ranges for the last preserved tree ring for each of the dendrochronological samples (TAE-2B, TAE-4A, TAE-4B) or for the bark/cutting date (for TAE-5B) are shown in Fig. 2.22–Fig. 2.25.

Thus we have the following dating outcomes from the dendrochronological radiocarbon wiggle-match analysis:

- The last preserved tree-ring of TAE-2B sets a *terminus post quem* of AD 223–347 (main 94.1% range) at 2σ confidence (1σ ranges of AD 242–72 (49.8%) and AD 315–33 (18.4%))
- The last preserved tree-ring of TAE-4A sets a *terminus post quem* of AD 558–620 at 2σ confidence (1σ range of AD 571–611)
- The last preserved tree-ring of TAE-4B set a *terminus post quem* of AD 599–662 at 2σ confidence (1σ range of AD 618–52)
- The bark on sample TAE-5B sets a specific age of death (and probably the cutting date by human hands) of AD 395–436 at 2σ confidence (1σ range of AD 406–26). This age range should offer a date within zero to a very few years for the human use of this timber in slag-producing activities.

Only the date calculated for the bark on sample TAE-5B is not a *terminus post quem* estimate. The cutting dates for the other samples missing exterior tree-rings are more recent. The question of interest is by how much? Clearly

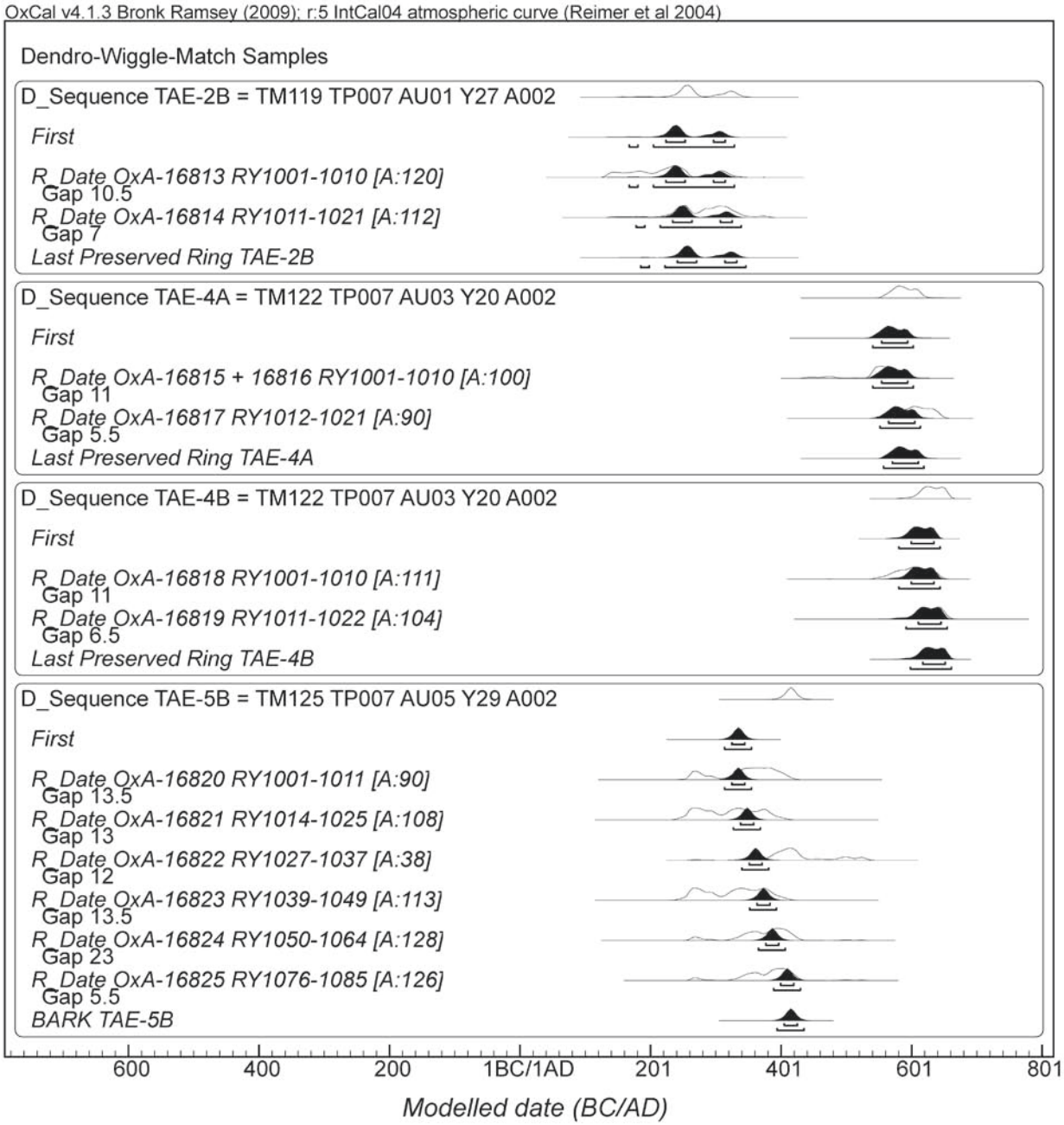


Fig. 2.20. Bayesian fixed-Sequence (dendro-wiggle-match) analysis for the tree-ring sample sequences in Table 2.14. Note: for TAE-4A there were two measurements of rings 1001–1010 (OxA-16815 and OxA-16816); since these two data are consistent with the hypothesis of representing estimates of the same age within 95% confidence limits (χ^2 test with df1 yields T=1.1 <3.8 following Ward and Wilson 1978), these have been combined in the analysis above as 1515±20 BP. The hollow (outline) distributions show the calibrated ages for each individual sample on its own (see Fig. 2.19). The solid black distributions within these show the calculated ranges applying the Bayesian model based on the known tree-ring (calendar year) intervals between the samples (for each of the dendro sequences: TAE-2B, TAE-4A, TAE-4B, TAE-5B). The horizontal lines under each distribution indicate the 1σ and 2σ confidence, calibrated calendar age ranges using IntCal04 (Reimer et al. 2004) and OxCal (Bronk Ramsey 1995, 2001, 2009) version 4.1.3 with curve resolution set at 5. Each run of such an analysis produces very slightly different results; a typical outcome is shown. The OxCal agreement index values for each of the samples are given inside the square brackets. This is a calculation of the overlap of the individual calibrated distributions in isolation (hollow histogram) versus the distributions after Bayesian modelling (solid histogram). If the overlap falls below a value of 60, it is approximately equivalent to a combination of normal distributions failing a χ^2 test at the 95% confidence level. All agreement index values surpass an approximate minimum 95% confidence threshold except for OxA-16822 (from TAE-5B), which is a slight outlier. Including or excluding this one date makes little difference to the calculated outcome for the date of the bark on TAE-5B: (i) bark calculated age with OxA-16822: 1σ AD 406–26, and 2σ AD 395–436; (ii) bark calculated date without OxA-16822: 1σ AD 404–29, and 2σ AD 365–77 (3.7%), AD 384–437 (91.7%)

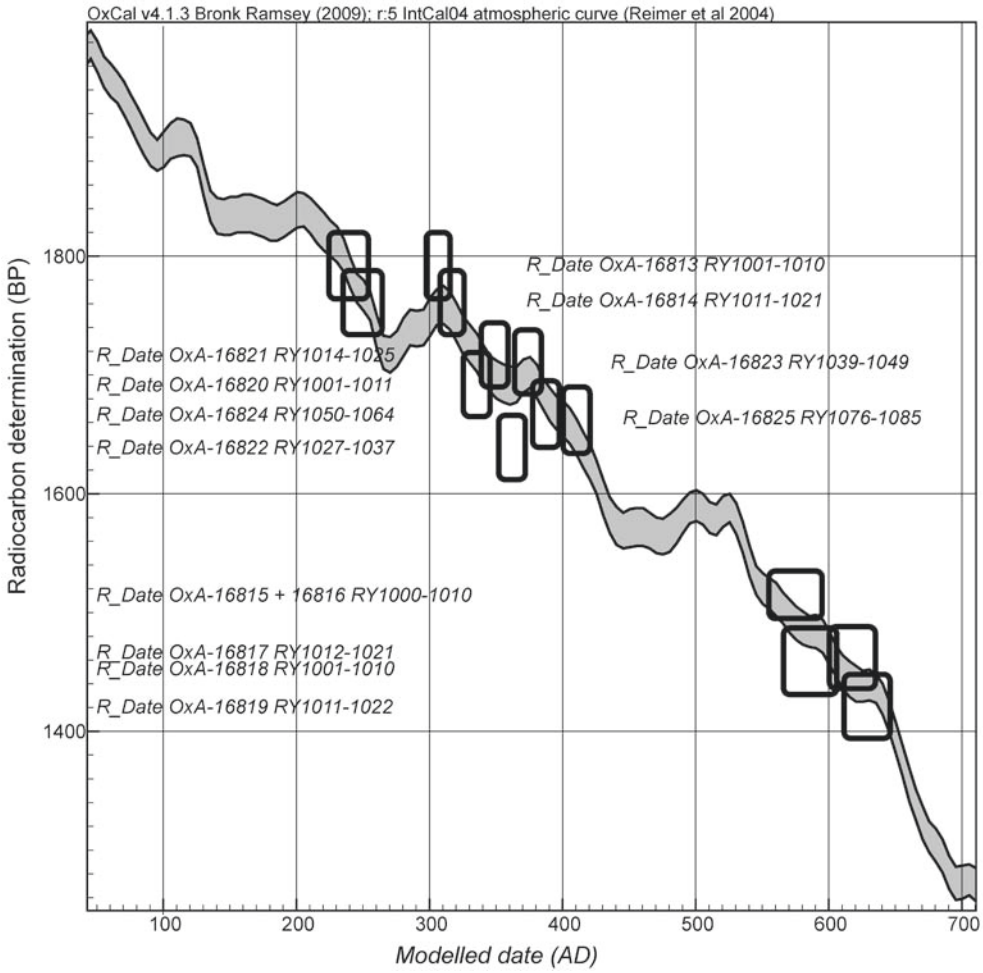


Fig. 2.21. The modelled 1σ (68.2%) most likely calendar placements of each of the TAESP dendrochronological radiocarbon wiggle-match samples as determined in the analysis shown in Fig. 2.20 are shown (hollow boxes indicating 1σ range placements – see Fig. 2.20) against the IntCal04 radiocarbon calibration curve (Reimer et al. 2004). Only OxA-16822 is a slight outlier, as discussed in the caption to Fig. 2.20. Note: OxA-16813 and OxA-16814 could fit in either of two positions (mid-3rd century AD or early 4th century AD): see Fig. 2.22 for the two choices at 1σ for the placement of the last preserved tree-ring from this sample

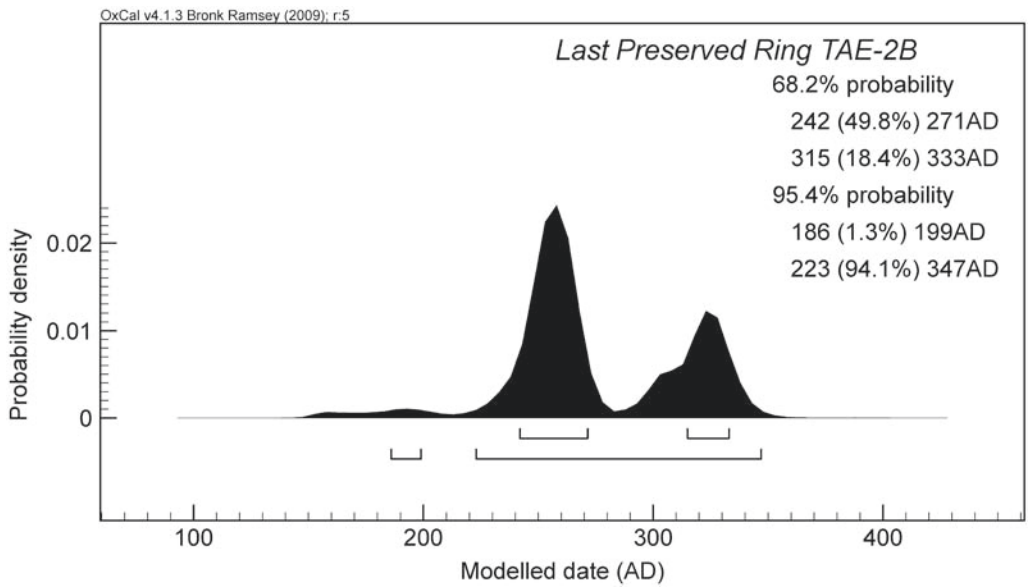


Fig. 2.22. The modelled age estimate for the Last Preserved Tree Ring for sample TAE-2B from Fig. 2.20

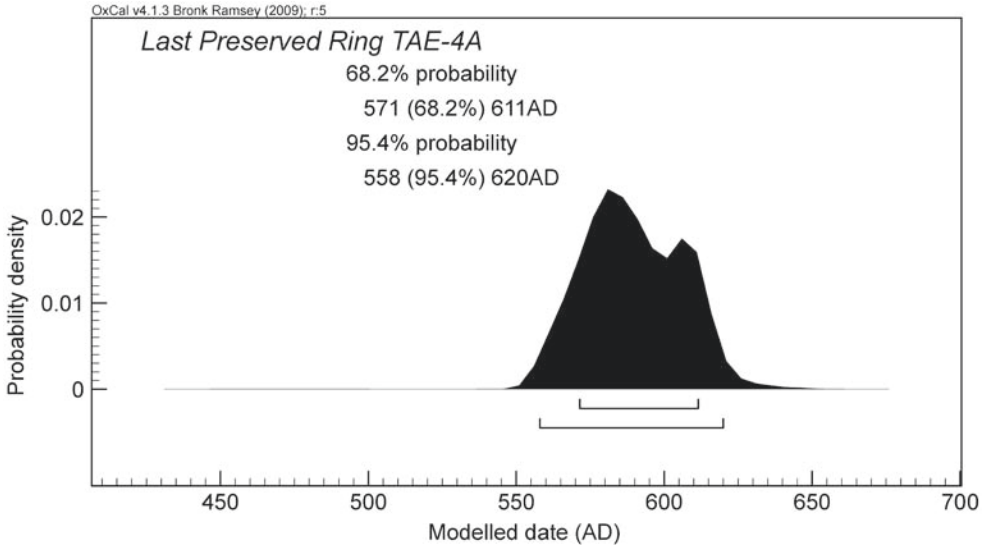


Fig. 2.23. The modelled age estimate for the Last Preserved Tree Ring for sample TAE-4A from Fig. 2.20

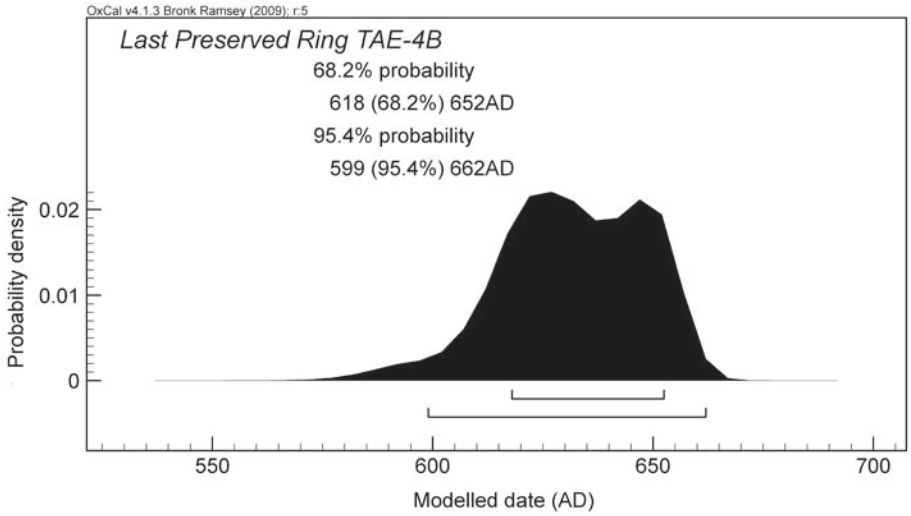


Fig. 2.24. The modelled age estimate for the Last Preserved Tree Ring for sample TAE-4B from Fig. 2.20

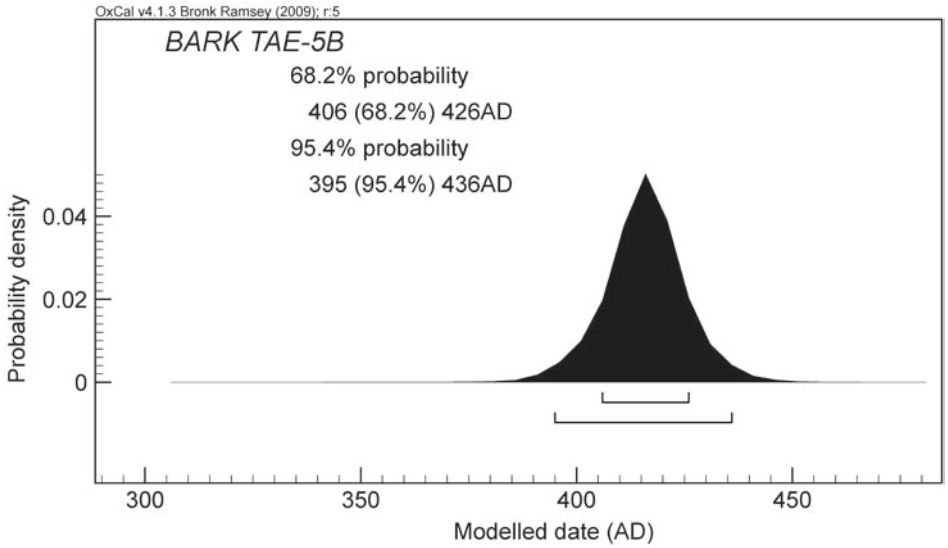


Fig. 2.25. The modelled age estimate for the bark (so age of death or cutting date) for sample TAE-5B from Fig. 2.20. This should give an age very close to the time of human use of the sample

the dates as a group cannot represent a short human use horizon. The bark date lies in the early 5th century AD, whereas other *terminus post quem* data require a cutting/use date in the 6th or 7th centuries AD: hence at a minimum more than two centuries of human activity are indicated.

The likely pine species – *Pinus brutia* – found in the lower foothills of north-west Cyprus today in the general vicinity of the mining regions, and also in the Roman to Late Roman periods (see Chapter 3.10), is not a particularly long-lived species. A sampling of what appeared to be some of the oldest specimens in the forested hills west of the ancient to 20th-century mines at Mitsero in Cyprus in 2007 (CMH-1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 15, 17) yielded an oldest tree age of 223 years and an average age among the apparently oldest trees of the area of 152 years (range 102–223 years, median 147 years, n = 14). Trees used for fuel in industrial activity cannot always have been the oldest in a regional population – thus an average age for random trees used for fuel will be less than the oldest trees in a population as estimated above. Nor will the samples always be from inner tree-rings. Indeed, since over 50% of the wood in a round cross-section tree lies in the outermost 30% of the tree-rings, then on a random basis and assuming an average total tree age of around 150 years, it is likely that the gaps between the dated tree-rings and the bark for at least half the *terminus post quem* data will be less than 50 years. For a tree of just 80 years of age, for example, over half of the wood is less than 25 years from the bark.

The similar spread of ages for the last preserved tree-rings in the dendro samples, and for the six other radiocarbon dates on individual samples (Wk-25877, Wk-25878, Wk-25879, Wk-25880, Wk-26026, Wk-26027: see Fig. 2.19 and Table 2.15), further suggests that we can consider the date ranges found to be representative. Hence, even allowing for up to a 50-year *terminus post quem* factor (probably overgenerous on average), this indicates that the dates for the industrial activity attested by the samples most likely range from no later than the late 3rd century AD (but possibly they do not begin until the earlier to mid-4th century AD) and continue through to the middle or even to the end of the 7th century AD, a period of three and a half to four centuries. An episode of specific activity is attested in AD 395–436 and most likely AD 406–26.

2.14 The Recent Past: Architecture, Irrigation, Interviews and Documents

Ian Evans, Sevina Floridou, Tracy Ireland and Marios Hadjianastasis

TAESP was fully committed to an interdisciplinary investigation of recent historical periods, up to and including the 20th century. The main components consisted of architectural analysis, an investigation of the irrigation system of the Karkotis Valley, oral history interviews and documentary research. The results of the architectural analysis are presented in Chapter 3.11, and that of the irrigation system in Chapter 3.12. In addition, the interpretation of all of this material is integrated into the broader discussion of the TAESP landscape in Volume 2, and in the discussion of specific periods in Volume 1, Chapter 5.

Architectural Analysis

One component of TAESP's architectural analysis investigated the construction techniques and materials of 19th- and 20th-century village and rural architecture; this was carried out by Ian Evans. Structures for investigation were identified using cadastral maps, reconnaissance and by following up reports from the archaeological and geomorphological field teams. These included grain mills, lime kilns and village houses. Details were recorded by GPS, photography, measurement, drawing and physical examination. Because of their vital role in the life of the people of the Survey Area, and of the economy of the region, detailed drawings of the various mills located were also produced.

Studies of village housing consisted of an examination of the nature of cultural, environmental and social conditions prevailing at the time of construction. The materials used in these structures were also examined and efforts made to determine their origin and the effects of their usage on the landscape. Research established that the construction of a village of mudbrick houses had a significant impact on the landscape of the selected site. Fieldwork was supplemented by documentary research conducted in the library at CAARI (Nicosia) and photographs and other collections held in archives and museums, principally in Nicosia.

Another aspect of TAESP's architectural analysis involved the recording and structural analysis of recent historical architectural and other built evidence within the broader context of the landscape survey. This worked was carried out by Tracy Ireland, with assistance from team members. We worked hard to combine these data with information gained from historical research, interviews and oral histories, analysis of ceramics and chipped stone, geomorphological and botanical analysis, in line with the interdisciplinary methods used for TAESP as a whole.

Architectural remains in the landscape were located and recorded as 'Building Units' (BUs) in the project database. The Building Units described the nature of the extant built fabric, the context of the item, other Building Units or features related to the built item and any oral or historical information relevant to the item. Building Unit database forms were supported by more detailed written reports, sketch plans and measured drawings, depending on the complexity and context of the built item.

Two abandoned villages were selected for more detailed analysis and study of their built fabric (as described further below). These were Kato Koutraphas *Mandres*, which we

interpreted as a satellite settlement for intensive agricultural production (Volume 2, Chapter 2.10), and Asinou village, which was a small, recently abandoned village in proximity to the World Heritage listed Asinou church (Volume 2, Chapter 5.5). The aim of this more detailed built fabric analysis was to provide a richer understanding of the relationship between the extant built elements, to describe and categorise their construction styles and to elucidate their history of use, re-use and adaptation. Particular attention was therefore paid to the styles and techniques of construction of the built units, and the nature and diversity of building materials used.

At Mandres and Asinou each Building Unit was then further divided into 'Structural Elements'. The relationship between, or 'superposition' of, each of the structural elements that made up a Building Unit was recorded to determine phases of construction, re-use and adaptation. The Structural Elements were given sequential numbers and described in a new database table. Following Davies and Buckley (1987, 7), Structural Elements were defined as the component parts of a structure, such as walls, beams, lintels and so on. Structural Element numbers were also attributed to infill, repair or alterations to the building. Davies' method is particularly appropriate for identifying phases in the life of a structure and for the analysis of vernacular architectural forms, where stylistic or technological changes in construction are not useful determinants for dating change to buildings. The limitation of this form of analysis is that the time depth between separate construction events is not readily indicated. In the case of Mandres and Asinou, complexity of changes to the built unit, and in the use and re-use of structural elements, was generally assumed to represent longer periods of use and occupation of a structure. Structures that show less evidence of change and alteration were generally assumed to have had fewer occupation phases and to have been abandoned after a shorter period of time.

As well as the detailed analysis of the fabric of the two abandoned villages, the built fabric analysis was also applied to the built evidence of the rural environment, such as rural estates, villages and settlements (including features such as threshing floors and ovens), churches and shrines, agricultural shelters, goatfolds, bridges and roads and, significantly, to the remains of the extensive system of watermills and water channels identified in the landscape. We recorded the remains of all 24 watermills in the TAESP area, and examined, recorded and analysed two relatively intact examples in more detail. These were the Mylos tou Stylli mill in Evrykhou (BU0049; Volume 2, Chapter 3.4) and the Lachistos Mill (BU0070; Volume 2, Chapter 3.3). An overview of the watermill analysis is provided in Volume 1, Chapter 3.11.

The other classes of Building Units we recorded more selectively. The aims of this selection were to give us a representative sample of the built heritage of the Survey Area, to follow up specific research interests of the project (e.g. bridges and goatfolds), and to document particular areas in more detail, particularly the Intensive Survey Zones.

Irrigation System Survey

An important source of information for the investigation of the irrigation system, carried out by Sevina Floridou, was the topographical cadastral maps at the scales of 1:5000 and 1:2500, as well as Kitchener's one inch to a mile map of the area (1885) and aerial photographs from the 1960s. We conducted a series of non-systematic interviews, mostly of village officials, mayors, landowners, ex-mayors and water officials, as well as residents with a deep knowledge of their area, and recorded a range of oral accounts of water-sharing, land ownership and water myths particular to the area. We made on-site recordings of characteristic water distributors and mills, along with a range of measured drawings and sketches of mills.

We did not make systematic cross-sections of the canals and valley profiles or estimate the volume of cisterns, channels or weirs, which would have been beyond the resources of the project. We did, however, consult historical quantitative studies and comparative analyses from other areas (Braemer 1988; Gaudry 1855). Our documentation focused on the architectural topography, the linkage between constructions such as mills, penstocks and leats (water channels supplying the mills) and the landscape created by the diverted water routes.

The canals as seen today are but one part of a long and evolving history of the irrigation system. It is difficult to distinguish modifications made, i.e. which are original channels, which have been altered and to what extent, especially so in the cases where these have been cemented. The 1926 cadastral maps we used did not indicate any changes to the canal system, such as new or abandoned branches, but rather provided what appears to be a model of the optimum functioning system at that particular time, possibly including some recently abandoned channels. The irrigation system as well as the river extends all the way to the lowland area of Pendayia, but Turkish control of the area north of Skouriotissa limited further investigation north of the demarcation line. To the north, the TAESP boundary of the survey area coincided with the demarcation line, while to the south we extended our research slightly to the south of the survey area to include some mills, channels and weirs that were pertinent to the study.

Oral and Documentary History

The project set out to record the memories and experiences of members of communities in the area, with a series of interviews conducted by Marios Hadjianastasis. Although there was no specific focus, the general aim was to gather information on a range of issues relevant to the project's research questions:

- rural life and practices
- labour and practice in the area's mines

- population movement
- specific trades, such as building and carpentry
- political activity and trade unions
- local custom and practice
- local myths, legends and folklore in general

The interviewees were found in a number of ways. Often our field teams took the details of people they met while fieldwalking and passed them on to Hadjianastasis to follow up. More often, Hadjianastasis adopted a more direct approach by going to a village and starting the search from the coffee house, still a key focus of village social life in Cyprus. There he would explain the project's activity and aims to some of the locals and ask if anyone could provide further information. He was often directed to speak to elderly members of the community, or people who had experience in certain trades, but also to the village priests who sometimes seemed to be considered the communities' gatekeepers of village and regional history. Although most interviews were recorded with a digital recorder, some were put down in writing.

The interviewees were in the majority of a rural/working class. The area has a very strong mining past and many of the interviewees were directly or indirectly associated with the mines. The age of most interviewees meant that many were steeped in the labour movements of the 1940s and 1950s, with some being notable union leaders. There were also connections with the EOKA movement and the anti-colonial struggle. In all 30 people were interviewed. Most of them were men, which reflects the cultural prominence of men as community spokespeople.

The interviewees were informed of the purpose of the interview, and they were told that the information they disclosed would be used in a publication, albeit under a pseudonym due to the political sensitivity of some of the information. It is worth noting that none of the interviewees requested anonymity. Pseudonyms used in this publication consist of village abbreviation and number, e.g. AT1 for an interviewee from Ayios Theodhoros. The other abbreviations are Ev for Evrykhou, Ka for Katydhata, Li for Linou, Ni for Nikitari, Ph for Phlasou, Te for Tembria, Vy for Vyzakia, and Xy for Xyliatos. Recordings and transcripts are held in the TAESP archives in the School of Humanities, University of Glasgow.

The cultural understanding required by the interview process meant a personal bond between the interviewer and the interviewee; indeed it clearly assumed the character of paternal/maternal advice directly offered to the interviewer. This meant that using release/consent forms would have been out of place, since it would introduce an apparently official and bureaucratic element and so compromise this relationship. Indeed Hadjianastasis felt deeply touched by the interviewees' welcome, and their willingness to open their homes and their hearts to him has created personal bonds.

Hadjianastasis generally asked neutral questions in an attempt to draw out accounts and memories that reflected the interviewees' own opinions, rather than making suggestions. Where recordings are available, it is crucial to note the tone of the interviewee's speech to decode attitude.

3. The Material Culture of the TAESP Landscape

This chapter contains specialist analyses of a wide range of material culture from the TAESP landscape: pottery, consisting of analysis by period (Chapter 3.1–3.5), followed by a detailed catalogue (3.6); special finds analysis and catalogue (3.7); lithics (3.8); archaeometallurgical finds, including chemical and microscopic analysis of a large number of slag fragments (3.9); species analysis of the charcoal found in the slag heaps (3.10); architecture (3.11); Medieval–Modern water networks (3.12); and the material culture of movement across the TAESP landscape (3.13). While these can be read as stand-alone sections, they rely heavily on the methodology presented in Chapter 2 and the contextual landscape analysis carried out in Volume 2.

3.1 Prehistoric Pottery

Mara T. Horowitz

The TAESP landscape contained a wide range of prehistoric and protohistoric pottery. This section presents the wares recovered as well as certain issues associated with their classification. Table 3.1 shows the traditional pottery phases next to the date ranges, wares, periods and locations in the Survey Area. See Chapter 3.6 for the pottery catalogue (numbers prefixed 'TCP' for 'TAESP Catalogue Pottery'), and Plate 3.1 for a map of locations mentioned in the text. No Neolithic pottery was identified in the Survey Area; the earliest ceramic material is dated to the Chalcolithic. Pottery dating to the Late Chalcolithic, Philia, and Early Bronze III/Middle Bronze I through Late Bronze IIC periods was also recovered, with gaps in Early Cypriot I–II and Late Cypriot III.

Chalcolithic

The earliest pottery recovered in the Survey Area belongs to the Chalcolithic period. The wares common to Chalcolithic Cyprus are Red-on-White ware and Red Monochrome (Baird 1991, 21; Peltenburg 1991, 9–10).

Table 3.1. Prehistoric pottery wares, periods and dates

Periods (TAESP)	Period (traditional)	Calendar Dates	Wares Recovered	TAESP Locations
Neolithic	Neolithic	c. 8200–3900 BC		
Chalcolithic (Chal)	Entire Chalcolithic	c. 3900–2600 BC	Red-on-White, Red Monochrome	Memi, Mandroudhes, Lemonas, Koutroullis
Late Chalcolithic (LChal)	Late Chalcolithic only	c. 3100–2600 BC	Red-on-White, Red Monochrome	Mandroudhes, Lemonas Koutroullis
Late Chalcolithic/ Philia (LChPh)	Late Chalcolithic/ Philia	c. 2700–2500 BC	R/B Stroke-Burnished, Red Monochrome, Philia, RP/RM Hybrid	Mandroudhes, Lemonas Koutroullis
Prehistoric Bronze Age (PreBA)	Early Cypriot	c. 2500–1950 BC	Red Polished III	Laonarka, Mandroudhes, Lemonas
	Middle Cypriot	c. 1950–1650 BC	Red Polished III, Red Polished IV	Laonarka, Mandroudhes
Protohistoric Bronze Age (ProBA)	Late Cypriot	c. 1650–1050 BC	White Slip, Base Ring, Pithos, Red/White Lustrous	Laonarka, Mandroudhes, Lemonas

The most obvious difference between these two wares is the surface treatment. Red Monochrome ware has a watery red slip, while Red-on-White has a thick whitish slip with red paint over it. Sometimes the red paint covers the whole vessel, in which case the white slip is called an 'underslip'. Vessels are thick-walled, handmade and have a limited range of simple shapes.

Two sherds of Chalcolithic pottery were recovered by TAESP in the vicinity of Memi (SU1626). One of these (TCP273) was Red-on-White, the other (TCP272) a form of Red Monochrome. The fabrics were soft, poorly sorted and had thick slips over bumpy surfaces. The Red-on-White sherd came from an open vessel, cream-slipped and burnished, with a broad swipe of washy red paint across the interior; the fabric was powdery-brown. The Red Monochrome sherd came from a closed vessel. It had a red, brick-like fabric and dark red burnished slip. Because we are dealing with only two sherds, it is only possible to comment on the potential importance of the Chalcolithic ware recovered near the Memi mine, which represents a good source of copper ores.

Red Monochrome and Red-on-White wares also occurred in low densities at Lemonas and Mandroudhes, but since these areas seemed to present a great deal of pottery moved by erosion, the original locus of Chalcolithic activity in these areas cannot be determined. Unlike Memi, these localities also contained sherds of Red Polished Ware from the Early–Middle Cypriot periods, as well as material that may be transitional between the Chalcolithic and Bronze Ages, as discussed below.

Late Chalcolithic–Transitional/Philia

This period is poorly known archaeologically and still forms the subject of some debate. Different parts of Cyprus present different sequences of change in material culture from the end of the Chalcolithic into the 'Philia' phase and on into the Early Cypriot period. Much of the knowledge about Philia-phase pottery comes from tombs excavated some time before the present. Recent and current fieldwork is beginning to shed more light on this problematic transitional period (e.g. Peltenburg 2006; Webb *et al.* 2009). At some sites, such as Marki *Alonia* on the north-east fringe of the Troodos, Philia ware seems to appear fully formed without any developmental phases or Late Chalcolithic pottery; Marki, however, was newly founded in the Philia phase (Frankel and Webb 2006, 306). Other sites such as Sotira *Kaminoudhia* on the south coast seem to be purely Prehistoric Bronze Age (PreBA), although Late Chalcolithic and Philia Wares occur there in tombs as well as disturbed contexts (Swiny *et al.* 2003, 205).

The site of Phlasou *Koutroullis*, newly identified by TAESP, dates to this key transitional phase in Cypriot prehistory. The surface assemblage collected there reveals a complex mix of Philia-phase Red Polished Ware and older (Chalcolithic) traditions of pottery-making. It was difficult to classify much of this material because many pieces showed features of both Late Chalcolithic and PreBA 'Philia' traditions. Pottery of this hybrid type also occurred at Lemonas and Mandroudhes in low densities. A new period designation was created to deal with this uncertainty – Late Chalcolithic-Philia (LChPh) – and to prevent possible misrepresentation of the dating of Koutroullis, pending further study or excavation of the site.

The classification and nomenclature of Late Chalcolithic pottery is constantly undergoing reconsideration (Baird 1991, 21; Peltenburg 1991, 9–10). Late Chalcolithic pottery has been classified variously at different sites around Cyprus, with Red Monochrome (RM) and Red-and-Black Stroke-Burnished Ware (RBSB) among the most common designations. Since the full classification of Koutroullis pottery will have to await excavation at the site, all of its traditional Chalcolithic ware is here referred to as RM for simplicity's sake. It is likely that some of the material could be RBSB, having a particularly brick-like, strongly red-pink, hard-fired fabric. The clearest contrast among Koutroullis sherds, however, was not between potential RM and RBSB, but between the Chalcolithic wares and those of the Philia phase.

The floruit of the ware known as Red Polished-Philia, the predecessor of the PreBA Red Polished wares that dominated the island's assemblages for nearly a thousand years, occurred between about 2600–2400 BC (Frankel and Webb 1999, 14–20). This ware is marked by the selective use of clays for different vessel types (Barlow 1991, 53–55), a range of new shapes such as the beak-spouted pitcher, and innovative forming methods such as the 'plug-through' technique of handle attachment, where a hole was punched in the vessel wall and the bottom of the handle inserted through the wall before being smoothed over (Frankel and Webb 1999, 14–20).

The pottery from Koutroullis presented challenges to classification. Both the RM and RP-Philia wares are red slipped and burnished, and with a survey assemblage it is difficult to identify complete vessel shapes for comparison. Although superficially similar, under closer inspection the sherds from Koutroullis began to fall into two groups. The RM ware was distinct from the RP-Philia in that the same fabric was used to make a wide range of vessels, from large jars and cooking pots to small polished bowls (TCP643). In Red Polished ware generally, small fine vessels such as juglets are most commonly made from a tan or cream coloured, finely levigated calcareous fabric, rather than the grittier red clays used to make larger bowls and jars (Barlow 1991, 53–55).

The levigation and processing of the clay body in the two wares also differed. RM fabric was only moderately sorted and still contained a range of small-to-medium size stony and clay matrix inclusions, giving a brick-like effect, and also a quantity of straw or chaff (1 cm or more in length). This organic material was clearly rolled into the clay prior to forming the vessels. This is distinct from chaff impressions on the surface of a vessel, which are common

enough in RP ware. The amount of straw/chaff in the RM fabric usually increased along with the size of the vessel. The RM ware was hard-fired and the organics in contact with the surface were burnt out, leaving frequent cavities in the carefully polished vessel surfaces.

Several sherds of what appeared to be Chalcolithic Red-on-White ware were found at Koutroullis, although due to their soft firing they were very worn and small. They typically have a soft, chunky brownish fabric, with the cream coloured underslip and faint traces of the washy red colour over the top (TCP378). It was impossible to determine the precise period of the Chalcolithic to which these pieces belong.

A number of distinctive Philia sherds were recovered at Koutroullis (TCP295, TCP649, TCP655). Their fabric is soft-to-medium fired, either orange-tan or light tan-cream with a slight greying at the core in some places. Levigation is improved from the RM but small inclusions and clay matrix nodules still occur. The fabric is speckled with tiny fragments of what appears to be ash or charcoal. The surface was coated with a thick, cherry-red slip that was deliberately stroke burnished.

Several smaller vessels, probably also RP-Philia, had abundant small rounded white lime chunks in a soft tan fabric (TCP336). Unfortunately their finish was largely worn off, with only traces of a reddish slip remaining. These sherds featured the plug-through handle technique typical of the RP ware horizon.

A few sherds also exhibited a stamped decoration, consisting of tiny holes in rows or groups, or applied decoration such as chevrons (TCP377, TCP648). These sherds were soft, very worn and largely lacking their finish (a burnished slip), but had a chunky ferrous fabric with relatively little organic material. Their exact classification remains problematic.

A number of very large jar fragments were recovered at Koutroullis. These had a fabric similar to that of the RM ware, but with more abundant chaff and rounded stony inclusions. Some were classic hole-mouth shapes of the Chalcolithic tradition (TCP330–31). The large vessel size (estimated to be at least 1 m tall), however, and the presence of rudimentary necks with flared rim connect some of these jars (TCP644, TCP652) to known examples of RP ware (Hennessy *et al.* 1988; Frankel and Webb 2000; Swiny *et al.* 2003, 189–90). The surfaces were either lightly slipped or streaky burnished, or both. Firing tended to turn the vessels a deep mottled brownish-red on the surface, usually with burnt black cores from the organic inclusions. Even these large jars were surprisingly hard-fired. One large fragment from a 3–4 cm thick vessel wall had sheared apart parallel to the surface, revealing an entire head of grain (TCP328).

The dating and sequence of the Koutroullis pottery present a problem. There were no examples of diagnostics (such as characteristic incised and lime-filled motifs) that might have indicated the presence of RP I–II ware and the continuation of the site into the Early Cypriot I–II periods. Since the typology of the Late Chalcolithic and transitional Philia pottery is still not clearly established, the assemblage could be summarised two ways: either there is a very short time spread represented and the two wares were contemporary along with the experimental interactions between the two, or a longer sequence is present with the RM material being earlier and the RP-Philia ware later, leaving a phase in the middle for the more experimental or transitional pieces. Until the site is excavated, this issue remains unresolved.

Early–Middle Cypriot Bronze Age (PreBA)

Cypriot Red Polished Ware, predominant in the PreBA, has a wide range of vessel forms and an even wider range of decorations. Lime-filled incisions and moulded shapes are among the most common, while applied figures and painted motifs are also known. As mentioned in the previous section, Red Polished Ware has several principal fabrics that are readily distinguishable. A fine tan-white calcareous clay was commonly used for smaller decorative vessels, and a gritty red-brown fabric with reasonably good sorting was used for bowls, larger vessels and storage jars. Experiments have shown that the two fabrics were also mixed specifically for the production of medium-sized jars and pitchers (Barlow 1991, 53–55).

Red Polished Ware was originally divided into four ideally chronological types (I–IV) but more recent studies have revealed a range of geographical as well as chronological and technological differences (Weisman 1994). In classifying the TAESP material, all of which consisted of surface sherds, it was usually only possible to assign the most basic chronotypes. Sherds were designated 'Red Polished' (RP), 'Black Polished' (BP) or 'Drab Polished Blue Core' (DP), with a breakdown by grade (fine, average, heavy/coarse) and fabric. Particular diagnostics occasionally allowed the designation RP III to be assigned. No diagnostics of RP I or RP II were recovered. Other designations, such as RP-Mottled Ware, were not used because we aimed to keep the classifications as simple as possible.

Red Polished Ware was common in the Survey Area, with the largest concentrations coming from Survey Units throughout the lower Karkotis Valley and particularly around the locality of Katydhata *Laonarka*. There were also scatters at Lemonas in the Atsas Valley and at Mandroudhes. The sherds from the Laonarka Survey Units were consistent with those published by Åström (1989) from Menelaos Markides' excavations in that locality between 1910 and 1920. Finds published from the Markides tombs included extremely well-made Red Polished fine ware such as black-topped bowls, incised juglets, beak-spouted pitchers, large platter-bowls, and a few Black Polished small vessels. There were also large storage jars, coarse ware and cooking vessels in some of the tombs, making it difficult to distinguish between tomb and settlement assemblages in surface collection (Boutin *et al.* 2003).

The only types not found in the tombs were lightly fired coarse ware trays and emplacements commonly seen in PreBA villages sites (e.g. Frankel and Webb 2000), and mudbricks that may have been partly fired either intentionally or accidentally. The presence of these types in surface collections are therefore the best identifiers of the loci of PreBA settlements, but unfortunately there were no clear loci of such material identified in the Survey Area.

All types known from the Markides tombs, especially the fine incised RP ware, were present in the surface collections from Laonarka and around the vicinity of modern Katydhata village; elsewhere in the landscape such fine ware incised pieces were rare, and more utilitarian RP material predominated. At Laonarka, the fine ware fabric of RP (incised and Black-Topped varieties) is very well processed calcareous clay, with no visible inclusions other than occasional tiny specks of carbon mixed in. The slip is thick and burnished to a very high lustre. Surface colour can be red, orange, brown or black, or sometimes a combination of these. A smudging technique was apparently used on the rim of small fine bowls to produce a red body with black rim and interior (TCP123). When the surface is black, the fabric is usually fired to a medium-gray. With a red surface, the fabric is cream or buff. The most common shapes of this fine ware are the small rounded bowl (TCP114) and the gourd-juglet with elaborate incised lime-filled motifs (TCP076). Sherds of these shapes can be distinguished based on whether the interior is finished.

In the Survey Area, the common Middle Cypriot RP with medium-hard, reddish, variably gritty fabric was identified in many Survey Units across the lower Karkotis Valley and into the neighbouring drainages. Finds included a range of bowls, from small to very large, as well as jugs, jars, tripod stands, cookware, ladles, and even a few very worn possible figurines or figural decorations from vessels or terracotta models (TCP068, TCP073, TCP086, TCP099, TCP121, TCP128). Given the wide scatter of utilitarian RP across the area, it is possible that settlement was dispersed in this area or that it frequently shifted location during the PreBA; in any case, erosion and anthropogenic change both spread this type of ceramic material well beyond the actual settlements.

The Survey Area did not yield any definite examples of White Painted II–IV Ware, a Middle Cypriot staple, particularly within tombs. This ware is generally made of a calcareous clay, not hard-fired, and with irregular or no burnishing. These features may have resulted in the poor preservation of surface sherds, and the fabrics are not so distinctive that a small sherd with no surface could be differentiated from other white wares, particularly of the Bronze and earlier Iron Age. It is worth noting that the excavated Laonarka tombs (Åström 1989) also showed a very low number of White Painted II–V vessels, suggesting that these wares were simply far more rare in the Karkotis Valley than they were in the contemporary Mesaoria and sites in the north-eastern Troodos, where they often form the bulk of tomb assemblages.

Late Red Polished Ware variants such as Drab Polished Ware were very rare in the Survey Area. Several very worn sherds might have been Drab Polished or Proto-Base Ring Ware (TCP392). Red and Black Slip handmade and wheelmade wares of the Middle Cypriot III and Late Cypriot I periods (ProBA 1) were difficult to separate from other worn slipped wares dating to as late as the Cypro-Archaic II (TCP394). The sandy, medium-hard fabric and relatively thick body wall occur all across this considerable historical spectrum of slipped wares. With surface sherds, vital clues such as rim shape and handle attachment are not available to help with dating. Thus the Red/Black Handmade and Wheelmade wares of the Middle Cypriot III and Late Cypriot I periods may be under-represented.

Late Cypriot Bronze Age (ProBA)

The ceramics of this period are mostly distinct from the PreBA and include the first Cypriot wheelmade wares, as well as a new form of very large plainware jar (pithos) and several types of hard-fired handmade fine wares that were frequently exported from Cyprus (particularly White Slip, Base Ring and Monochrome Ware).

The ProBA period was sparsely but clearly represented in the Survey Area. Several of the ProBA wares, however, are difficult or impossible to distinguish from later wares when they occur in worn surface assemblages, as discussed below. This problem has likely contributed to the apparently limited presence of ProBA pottery in the Survey Area.

White Slip Ware (WS) is a hallmark of the ProBA period. The fabric of this thin, handmade fine ware is heavily tempered ferrous clay, densely packed and hard-fired. The thick white slip is achieved by a combination of clay and mineral salts, thoroughly burnished for high density and hard finish. This highly marketable innovation of ProBA Cyprus can be found all across the ancient Levant and is particularly useful for relative dating due to its apparently uniform evolution of decorative techniques (Eriksson 2001). Three main phases are distinguished: ProtoWS, WS 1 and WS 2. In the survey collection, even a very worn sherd of WS can be identified by the existence of a thin-walled sherd of dark red, purplish or black sandy fabric with an eggshell-like surface.

Small amounts of White Slip Ware were recovered in three localities: Laonarka, Lemonas and Mandroudhes. The sherds from Mandroudhes were identifiable as PWS (TCP485, TCP706) by their red fabric and decorative motifs, which agreed with the Early LC I date of the pithos sherds found there (see below). The site has a strong Late Cypriot I component, including the very beginning of that phase and possibly the end of Middle Cypriot III (i.e. ProBA 1), but not the Late Cypriot II (ProBA 2). Sites of the earliest LC I are rare and the Mandroudhes sherds come from a discrete space within the greater surveyed area, which may indicate a locus of settlement. The WS ware from Laonarka, in contrast, consisted mainly of small bowl fragments scattered across the landscape; these could

not be typed definitively into ProtoWS, WS 1 or WS 2. Based on fabric and fragmentary motifs, these pieces seem to represent both WS 1 and WS 2 (TCP045, TCP224, TCP226). White Slip Ware from Lemonas, moreover, was very worn and difficult to type specifically; it did not form a discrete group within the surveyed area.

Base Ring Ware (BR) is a handmade, thin-walled speciality product of ProBA Cyprus, fired to a metallic hardness and made in a limited range of shapes (Vaughan 1991, 1994). Most common are the low-bodied pitcher with massive tubular neck, and the small-to-medium sized bowl with wishbone handle. The distinctive thin, pock-marked, grey-blue-cored fabric of BR ware made it possible to identify surface assemblage sherds even when the finish was considerably worn (TCP046, TCP241, TCP260). BR ware was rare in the Survey Area and, like WS ware, mostly occurred as scattered single finds from areas known to have ProBA tombs (particularly TS09).

Red Lustrous Wheelmade Ware (RLU), as well as both its white and black variants, occurs on Cyprus during the ProBA. There is some debate as to whether the ware originated and/or was made elsewhere. The similarity to the fine red wheelmade pottery of Anatolia has been noted (Eriksson 1991, 1993; Knappett 2000). Since RLU is a fine ware thrown on a fast wheel, and formed into complex shapes such as the spindle bottle, the fabric is of necessity extremely fine and plastic at the time of forming. The surface is burnished, either with or without a slip, and can be streaky in appearance. Bottles and flasks are the most common shape of RLU, but bowls and cups also occur. Closed vessels retain the distinctive interior spiral pattern in the clay resulting from wheel-throwing. RLU was rare in the Survey Area, limited to just a few scattered finds in the lower Karkotis Valley (TCP079, TCP119).

Pithos Ware sherds of the ProBA were found in the Survey Area primarily at Laonarka and Mandroudhes (TCP343–44, TCP376), but also at Lemonas. The pithos is a distinctive, very large storage jar with ovoid or high-shouldered body, vertical neck, usually a flaring rim, flat base and plain surface, made from clays that fire generally tan to cream coloured, with some amount of gritty temper (Pilides 2000). The similarity of ProBA pithoi to those of the Iron Age resulted in some difficulty separating plain body sherds. As a result, some of the pithos ware is classified as POBAR (PreBA to Cypro-Archaic). The ProBA 1 (LC I) pithos, the earliest phase of the tradition, is distinguishable from the later pithos wares by somewhat clumsier handmade shapes, wider range of fabrics and distinctive applied bands of decoration around the shoulder (Pilides 2000). Firing is usually soft to medium. These LC I pithos motifs recovered in the Survey Area, particularly at Mandhroudhes (which bolsters its identification as a LC I settlement), include the relief rope, where a band of clay is added to the vessel and then imprinted with a fingertip for a pie-crust effect.

Monochrome Ware (MON) is a handmade ProBA Cypriot product with thin walls, matt dark-reddish surface, and very hard firing. MON varies across the island in overall frequency and variety of shapes. Beyond the Morphou area, the most common and usually the only shape is the offset-rimmed bowl with extremely thin, indented base and wishbone handle. This was the only shape recovered in the Survey Area, and mostly in very low frequencies as scattered individual finds in the lower Karkotis drainage (TCP393).

Cooking Ware of the ProBA is not well studied. The tradition of handmade, sack-shaped cooking pots of heavily tempered ferrous fabric seems to continue from the PreBA with the loss of the red burnished slip that characterized the earlier Red Polished variant. Only a few possible examples of ProBA Cooking Ware were found in the Survey Area and none in a cluster that might indicate a settlement locus (TCP398).

A number of distinctive slashed handles found in various locations along the northern fringe of the Survey Area presented a challenge to identification (TCP505–506, TCP509). These flat-sectioned strap handles were made of a distinctive brick red, very hard fabric, coarsely gouged or scratched vertically along their length, similar to Red Polished ware handles but not slipped or polished. They may find their best parallel at the site of Morphou *Toumba tou Skourou* (Vermeule and Wolsky 1990, 365–67). The excavators of that site identified a 'Morphou Bay Mottled ware' among their assemblage, consisting of an early crossover between Black Slip and late Red Polished ware. This ware is also sometimes referred to as Coarse Monochrome. Having viewed a number of these Toumba tou Skourou vessels in the collection of the Cyprus Museum in 2004, it is feasible to state that, in sherd form, the ware resembles plain utility and Cooking Ware from a number of other historical periods, and might not have been recognized in the TAESP collection except for the distinctive slashed handles. The true prevalence of this ware in the Survey Area may have been underestimated, and the failure to recognize it may also explain the apparently low density of ProBA ceramics.

Imports to Cyprus in the ProBA included large amounts of Aegean pottery, particularly Mycenaean Ware (LH IIIA–C) during the ProBA 2 (LC II) period. Mycenaean pottery is readily identifiable in sherd form, so the complete lack of it in the Survey Area can be reported with confidence. There were also no finds of other imports such as Canaanite jars, Tell-el-Yahudieh ware or Minoan wares.

A new class of 'white ware' pottery was produced in Cyprus beginning in the transition to ProBA (MC III–LC I), but unfortunately in sherd form these wares are often indistinguishable from white-based wares of later periods. Possibly imitating mainland wheelmade ceramics from the Syrian coast, or growing out of the tradition of handmade White Painted Wares (or both), these white wares would eventually become the basis for all Cypriot Iron Age ceramics, edging out the handmade and slipped wares of the PreBA and ProBA. Unfortunately the continuity makes it difficult to distinguish between worn body sherds of

Table 3.2. Problems of diagnosing Iron Age pottery in the Survey Area: chronotypes divided by decoration compared to sherds divided by function

Chronotypes by decoration			Sherds by function		
Painted/decorated	447	74%	Table Ware	73	17%
Not painted/decorated	161	26%	Cooking	8	2%
			Heavy Utility	99	23%
			Light Utility	230	52%
			Transport	24	6%
Total	608	100%	Total	434	100%

ProBA and Iron Age white wares. Included in this category are wares such as Plain White Wheelmade, White Painted Wheelmade, Bichrome Wheelmade and handmade versions of all of them, which were made during the ProBA 1 (MC III–LC I) period. Their fabrics are generally well prepared with moderate amounts of sand or small grits, and fired to a cream or light tan colour (Crewe 2004). A very few possible examples of such wares were catalogued in the Survey Area (TCP108–109). Like the Coarse Monochrome ware, the ProBA white wares may comprise a greater part of the collection, but remain unrecognized. This too might have contributed to the apparently limited presence of the ProBA in the Survey Area.

No examples of pottery from LC IIIA–IIIB were identified, but the same caveats listed above must apply. The Handmade Monochrome wares particular to this latest phase of the Bronze Age may in sherd form blend with coarse unburnished examples of Red Polished ware or even Medieval utility ware, and the difficulties of distinguishing among white ware sherds of different periods has already been noted.

Conclusions

The Survey Area yielded an interesting patterning of ceramic material from the Chalcolithic to the end of the Bronze Age. Considerable gaps occur in the Neolithic and Early Bronze Age; the Chalcolithic is very sparsely attested, and the ProBA had a limited presence. The periods of greatest activity are the Late Chalcolithic–Philia transition and MC I–III. The settlement locus at Phlasou *Koutroullis* is the best-defined prehistoric settlement site in the Survey Area, and the most important body of prehistoric pottery recovered by the project. Further exploration of this site is certainly warranted.

A definite locus of settlement for MCI–III, contemporary with previously excavated tombs at Linou village and Katydhata *Laonarka*, was not identified. The wide spread of Red Polished ware along the east side of the Karkotis Valley, however, from Linou to Skouriotissa, make it likely that there was once a settlement in the vicinity, possibly destroyed by river erosion or covered by the modern village of Katydhata. The steeper west bank of the Karkotis River north of Phlasou also presented a broad scatter of PreBA pottery, but this area is unfortunately even more seriously eroded.

3.2 Iron Age Pottery

Sarah Janes and Kristina Winther-Jacobsen

Pottery from the Geometric to the Classical period proved to be amongst the more elusive finds in the Survey Area. Fragments were mainly dated to the Iron Age based on decoration and fabric, since few diagnostic shapes were collected. The matt slipped and painted surface decorations of the Iron Age, however, exhibited low levels of preservation in the Survey Area, resulting in a misleading representation of this group. Moreover, the classification of Iron Age pottery still relies heavily on the typologies set out by Gjerstad (1960), which classify only decorated tomb vessels for the Cypro-Geometric period (1050–750 BC), and which also lean heavily towards the typologies of decorated vessels in the Archaic and Classical periods (750–300 BC; for TAESP period definitions see Table 2.9).

Decoration, therefore, remains the most diagnostic property of Iron Age pottery, and painted chronotypes make up 74% of all the identified Iron Age chronotypes in the present study (Table 3.2, left). In contrast, our apparent lack of knowledge about everyday, undecorated wares of this period further obscures the Iron Age in the survey record: our painted and decorated chronotypes mainly refer to Table Wares, which constitute only 17% of our Iron Age pottery (Table 3.2, right). Our inability to distinguish a large proportion of everyday Iron Age wares from those of preceeding or following periods may be one of the main causes of this. Was there really a decrease in activity in the Survey Area during the Iron Age, or are we merely unable to identify it at the present time? The Sydney Cyprus Survey Project faced a very similar situation with the lack of identifiable Byzantine pottery (Gregory 2003, 283–84). The numbers of sherds identified in the Survey Area were unfortunately too low to enable further fabric studies or to greatly increase our knowledge of pottery from this period.

The decorated Iron Age sherds were chronotyped by Mara T. Horowitz. These include a range of White

Painted, Black on Red, Bichrome, Red and Black Slipped sherds sometimes identifiable as coming from open or closed vessels and assigned to the Table Ware, Heavy and Light Utility categories. White Painted sherds are the most common decorated examples, closely followed by Black on Red if we include sherds where only the red slip is preserved, whereas Bichrome sherds are rare. The undecorated Iron Age sherds are mainly made up of storage and transport amphorae, pithoi and Persian Bowls. The transport amphorae consist of handle fragments of Cypriot amphorae with horizontal handles and a few fragments of Ionian, possibly Milesian, imports (e.g. TCP635; for the pottery catalogue see Chapter 3.6). One type of pithos, Pit12 (e.g. TCP624), was dated to this period due to its appearance at the Archaic sanctuaries at Pano Limna (TS15) and Khalospitia (TP215) (see Plate 3.1 for a map).

Despite the identification of seven Iron Age POSIs, this did not result in a noticeable increase of Iron Age chronotypes identified among the pottery from the Survey Units. No doubt the dearth of Iron Age pottery in the Survey Area to some extent reflects our inability to recognize this material, as discussed above. Moreover, the Iron Age sherds, especially the sherds from the Survey Units, were generally small of size and poorly preserved, which also affected our ability to identify them.

The largest concentrations of Iron Age sherds were collected in the lower Karkotis Valley at Pano Limna and around Katydhata, but smaller concentrations were collected from the Atsas, Mandres and Lagoudhera Intensive Survey Zones. Apart from the concentrations interpreted as sites, the distribution pattern is diffused in the lower Karkotis Valley, whereas Iron Age sherds in the other areas tended to come from distinct sites only. No Iron Age sherds were identified in the Asinou and Koutraphas Intensive Survey Zones.

Only at Pano Limna was there an assemblage with a broad range of functions, including Heavy and Light Utility wares, transport amphorae and Table Wares. Apart from a few Black Slipped sherds, the painted wares included only Black on Red and White Painted sherds. At Khalospitia (TP215) only Heavy and Light Utility wares were identified including White Painted and probably Black on Red sherds. Broken sherds from looted tombs were collected from the surface at Kamilaries (TP248), an Archaic cemetery identified on the edge of the Atsas Valley Intensive Survey Zone. This material consisted of Light Utility sherds from mainly closed vessels with White Painted, Black on Red and Bichrome decoration.

3.3 Hellenistic–Roman Pottery

Kristina Winther-Jacobsen

Because of its unstratified character and the continuous weathering and abrading of the finds the analysis of surface assemblages will always produce a coarse-grained chronology. Some wares or pottery types are more chronologically diagnostic than others, and the chronological framework of any given survey project will initially necessarily be established from these. We were unable to work within a regionally established chronological framework for the Hellenistic–Roman period. Published material of this period from the Survey Area is rare, but two unlooted Hellenistic to Early Roman tombs excavated at Evrykhou provided some local comparanda (TP065 and TP247; see Plate 3.1 for a map). However, the finds from these tombs revealed the existence of a style of Hellenistic Cooking and Light Utility wares not recorded by the survey. These relatively thick-walled vessels are made from similar coarse fabrics fired at a lower temperature. The result is a fairly soft-walled vessel which would be less likely to survive on the surface. In the general area the Swedish Cyprus Expeditions have published some pottery from Soloi, and the Italian Mission has published pottery from Ayia Irini in the Morphou Bay area (Quilici 1971).

The Hellenistic–Roman period was grouped because of the predominance of red Table Wares and brittle thin-walled Cooking Wares during this period in Cyprus. For some types of pottery this period has been broken down into Hellenistic, Hellenistic–Early Roman, Late Hellenistic, Late Hellenistic–Early Roman, Roman, Early Roman, Mid Roman and Late Roman (see Table 2.9). Most of these chronological sub-categories are based on small numbers of highly diagnostic pieces such as Table Wares and Cooking Wares, the most noteworthy exception being the Late Roman period when a full functional assemblage could be identified.

The Hellenistic–Roman period was grouped because of the predominance of red Table Wares and brittle thin-walled Cooking Wares during this period in Cyprus. Recent research has demonstrated that the production of both of these continues into the Early Byzantine period (Armstrong 2009; Hayes 2007, 435), which has lead to recent adjustments to the chronology (see Chapter 5.4 for full discussion). For some types of pottery this period has been broken down into Hellenistic, Hellenistic–Early Roman, Late Hellenistic, Late Hellenistic–Early Roman, Roman, Early Roman, Mid Roman and Late Roman–Early Byzantine. Most of these chronological sub-categories are based on small numbers of highly diagnostic pieces such as Table Wares and Cooking Wares, the most noteworthy exception being the Late Roman–Early Byzantine period when a full functional assemblage could be identified.

As is often the case during the historical period, the transition from one period to the next is based on historical events not closely related to material culture. In Cyprus there is a general continuity of shapes from the Classical to the Hellenistic period, especially in the local repertoire, but some new forms are established such as the fusiform unguentarium and the lagynos. In the Survey Area the Classical and Early Hellenistic periods are poorly represented, mainly by black gloss wares. The Late Hellenistic period becomes more visible; represented

by Table Wares, Cooking Wares and a few transport amphorae. None of the local Hellenistic matt-painted Bichrome and Colour coated wares has been identified, but the decoration probably would not survive the natural weathering of surface material. Colour coated wares were well represented in the Canadian Palaipaphos Survey Project (Lund 1993, 84), but appears absent from the Sydney Cyprus Survey Project (SCSP) area (Moore 2003, 277), and indeed the type was also rare in the contexts of Evrykhou tombs 4 and 5 (Nicolaou 1984; Jacobsen 2007).

During the Hellenistic–Roman period Cyprus was integrated in the pan-Mediterranean trade system. Although these types of pottery were also produced on the island, imported standardized Table Wares, Cooking Wares and goods carried in transport amphorae arrived in Cyprus in great numbers. Utility wares and storage vessels are those involved in agricultural and other production, and they tend to reflect a more localized economy because of the low status of their functions. They are also the most poorly documented types of Hellenistic–Roman pottery. Comparanda for Hellenistic utility wares from settlement assemblages came from the French excavation at Kition *Bamboula* (Salles 1993a), the Danish excavations at Panayia Ematousa (Jacobsen 2006b), the Cypriot excavations at PASYDY in Nicosia (Berlin and Pilacinski 2003) and from the Hill of Nymphs at Kafizin (Mitford 1980a). Compared to the Roman period, however, when there seems to be an Eastern Mediterranean *koine* for both utility vessels and Cooking Wares, there is no such clear *koine* in the Hellenistic period.

The ceramic homogeneity or standardisation is much higher during the Roman period and comparanda for the utility wares came from all over the island (Hayes 1980, 1991; Hayes and Megaw 2003; Jacobsen 2006b; Rautman *et al.* 2003; Tomber 2002). The end of the Late Roman period is defined by the disappearance of red Table Wares and scarcity of fabrics, the introduction of handmade pottery and gradual disappearance of the wheelmade pottery (see next section). Traditionally this change in technology has been related to the crisis of the mid-7th century AD; handmade cooking pots found at Maroni *Petrera*, Salamis and Kourion dating to the second half of the 7th century seem to support this (Diederichs *et al.* 1980, pl. 25:303; Manning and Manning 2002, 52; Megaw 1986, 511–12, fig. 8b).

At Kalavasos *Kopetra*, however, the introduction of handmade Cooking Wares is dated to the early 7th century (Rautman *et al.* 2003, 176). This suggests that the products from the specialized production centre were supplemented by locally manufactured pots before the Arab raids (Rautman 1998, 89) and the resulting economic instability and reorganisation (Papageorghiou 1993, 38–39). Pre-Medieval handmade Cooking Wares have not been identified in the Survey Area, where handmade pieces were found to belong to the Medieval typology. The Hellenistic cooking and utility wares from the excavated tombs at Evrykhou mentioned above were probably made on a slow wheel. The difficulty in identifying 8th–10th-century material makes any conclusions about the continuity of landscape use difficult. However, recent research has demonstrated that several of the common types of Cypriot pottery production such as Cypriot Red Slip wares and Late Roman 1 type transport amphorae traditionally considered Late Roman continued into the 8th century (Armstrong 2009).

Table 3.3. Hellenistic–Roman pottery: functional distribution

Function	Sherds	Percentage
Table	1567	26%
Cooking	1845	30%
Light Utility	254	4%
Heavy Utility	461	8%
Transport	620	10%
Architectural	1355	22%
Lamps	29	0%
Personal	0	0%
Totals	*6131*	*100%*

To some extent the available comparanda underscore the functional distribution of the pottery dated to the Hellenistic–Roman period. Table and Cooking Wares make up more than 50% of all the Hellenistic–Roman pottery, whereas the less diagnostic utility wares make up only 12% (Table 3.3). The low proportion of transport amphorae is, however, unexpected, because hinterland sites such as Panayia Ematousa have produced large quantities of Hellenistic and Early Roman transport amphorae, especially the Koan type in all its different versions and imitations (Jacobsen 2006b). This situation is confirmed by the finds of the Canadian Palaipaphos Survey Project (Lund 1993, 118–29); however, SCSP also recorded a low proportion of Hellenistic and Early Roman transport amphorae (Moore 2003, 278).

Imported Table Wares

Although the Survey Area is a rural area, it is not an isolated one. The vast majority of Table Wares were shipped in from Paphos, Asia Minor, North Africa and even Egypt. Because of the full functional assemblage, the Late Roman pottery outnumbers the earlier periods; however, when looking at the Red Slipped Table Wares, the dominant Table Ware from the Late Hellenistic to the end of the Late Roman period, which is recorded from all sub-periods, a different pattern emerges (Fig. 3.1). The black Table Wares could not be included because it is much more difficult to distinguish between Cypriot and imported wares. Of course the Late Hellenistic to Early Roman period is longer than the later periods, which needs to be taken into account. None of the diagnostic fragments in this group belonged to types datable before 50 BC, but generally this is a very fragmented group of sherds. Consequently, the Late Hellenistic–Early Roman peak may be somewhat exaggerated, although this is unlikely to be the entire explanation.

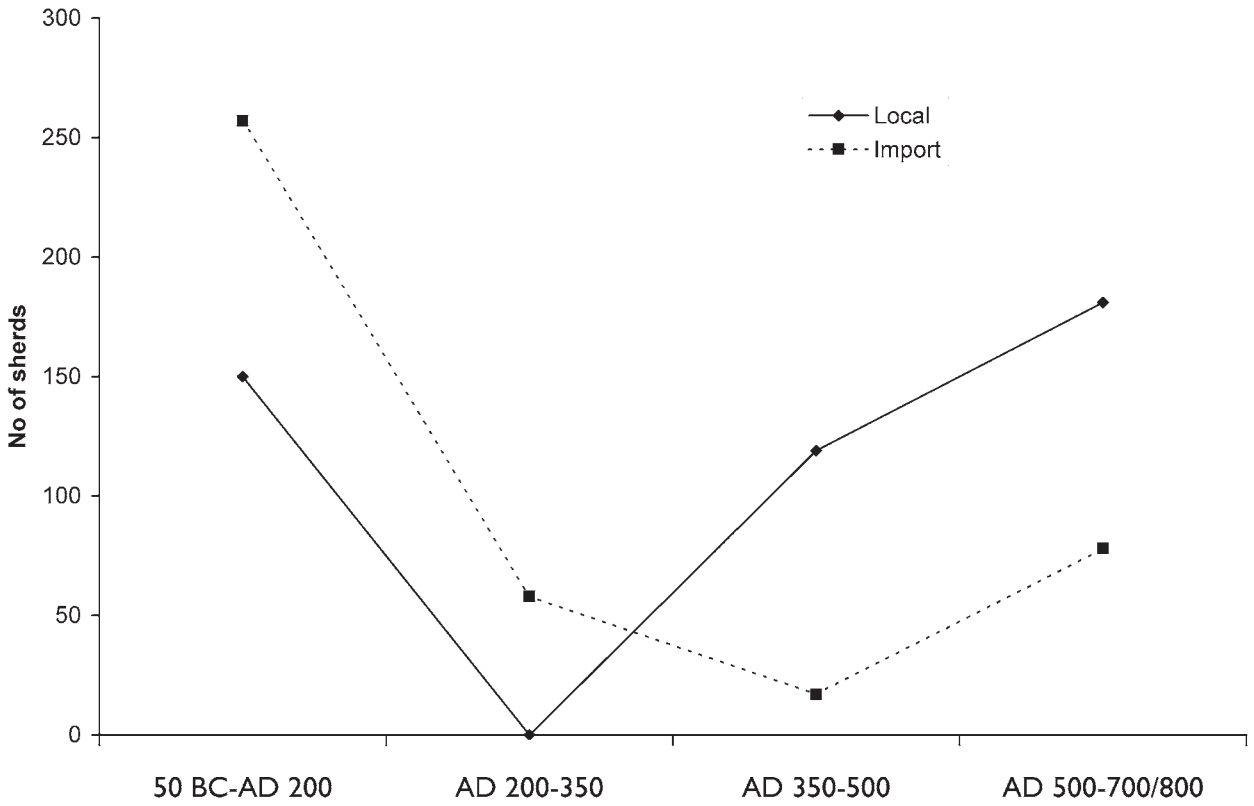


Fig. 3.1. Comparison of Cypriot and imported red slipped Table Wares during the Roman period

The Mid Roman period is the least well-dated one as the evidence consists mainly of African Red Slip bodysherds. Eight out of the ten datable fragments date to the Mid Roman period, while the remaining two are Late Roman, as may be many of the body sherds. The overall distribution pattern of red Table Wares suggests decline from the Late Hellenistic–Early Roman period onwards, even if this is to some extent an exaggerated pattern produced by the length of the individual periods and the character of the Table Ware typology. The Late Roman groups also included many typologically undiagnostic bodysherds (46% of the LRC and 76% of the CRS), and for the sake of the graph these were divided into the two sub-periods according to the percentages revealed by their more diagnostic counterparts. Recent research has demonstrated that several dominant pottery types such as Cypriot Red Slip and Late Roman transport amphora type 1, traditionally considered to have ended in the middle of the 7th century, continued into the 8th century or even longer (Armstrong 2009). The full implications of this have yet to be considered (see Chapter 5.4).

When distinguishing between the imported extra-island red Table Wares (Eastern Sigillata A and B, African, Phocaean and Egyptian Red Slip wares) and Cypriot red Table Wares (Cypriot Sigillata and Cypriot Red Slipped wares), an interesting pattern occurs. Having taken into account the exaggerated patterns explained above it seems that imported red Table Wares were more common in the Survey Area until sometime during the 4th century, when the balance of imported and regional Table Wares shifted in favour of Cypriot wares. In the SCSP area the pattern is more fluctuating, and although the same shift is visible, imports experience a temporary blossoming during the 5th century (Moore 2003, fig. 6.3). The decrease in fine wares during the 7th and 8th centuries demonstrated by Moore (2003, fig. 6.4) for several projects may partly be explained by the state of research. As mentioned above, new focus on Cypriot Red Slip wares has lengthened the period of production and consequently of individual types (Armstrong 2009; Meyza 2007).

Imported Late Roman Transport Amphorae

The selection of Late Roman transport amphorae found in Cyprus is highly standardized, and is dominated by the regional LR1, with much smaller quantities of Near Eastern, Aegean and North African imports (Rautman 2000, 321). In spite of the difficulty of comparing survey results, it appears that although the transport amphorae identified in the Survey Area belong to the standard package of the Late Roman period, relatively few imported transport amphorae were collected compared to the SCSP area. Although the strategies for the registration of the pottery collected were different, the two surveys were run along the same principles. SCSP ran longer and surveyed 28% more Survey Units than TAESP, but the latter collected

Table 3.4. Comparison of Late Roman amphora data from TAESP and SCSP (source: project databases)

	TAESP	SCSP
Survey Units	1,120	1,550
Sherds counted	99,676	95,711
Sherds collected	30,719	29,565
Late Roman Transport Amphora sherds		
LR1	77	201
LR4/Gaz-LR	2	0
LR5/Pal-LR	6	0
North African	0	4
Aegean	0	6
Others	58 (of which 35 local)	379
Total	143	590

4% more pottery. Both projects aimed at a representative sample and both collected 31% of the pottery counted. The higher number of sherds counted in fewer Survey Units would seem to suggest that a higher number of sherds were preserved on the surface in the Survey Area. Based on the experiences from SCSP, however, the people working on TAESP were better trained and worked more slowly, and thus were probably more observant. On the other hand, the number of fragments identified as amphorae is 75% higher at SCSP.

The reason for this is to some extent explained by different criteria for identifying something as an amphora. With SCSP there was no specific category for transport amphorae as opposed to utility amphorae. With TAESP very narrow criteria were applied to identifying transport amphorae: only fragments recognisable by form, fabric or decoration were accepted. Rim or handle fragments of local fabrics which may have come from utility amphorae were not assigned to this group. On the other hand, almost 65% more LR1 amphorae were collected in the SCSP area, which may indicate that although the number of sherds preserved on the surface may have been slightly higher, the overall number of transport amphorae appears to be lower in the Survey Area. In fact, the Canadian Palaipaphos Survey Project (CPSP) also produced a relatively low number of Late Roman transport amphorae of types 1, 4 and 5, which should be correlated with a slight contraction in the settlement pattern during this period (Lund 1993, 130–34; Rupp *et al.* 1984, table 1).

49% of the Late Roman transport amphora fragments from TAESP belong to the LR1 type, and 24% belong to a local type of self-slipped fabric with heavy twisted bases mentioned above. Other amphorae of the standard Late Roman package so common in Cyprus make up such small numbers as to render them only just statistical visible at 1–3%. Furthermore, transport amphorae make up only 9% of the pottery dated to the Late Roman period and 2% of all the pottery collected in the Survey Area. Compared to Kopetra, where the Late Roman transport amphorae make up 53% of the survey pottery, this illustrates the relatively small quantity of transport amphorae collected in the Survey Area (Rautman *et al.* 2003, table 5.5). In actual numbers the site specific survey of Kopetra collected 2673 LR1 sherds, compared to the 201 sherds from the entire SCSP area, the 18, possibly 39 sherds from the CPSP area and the 74 sherds from the TAESP Survey Area. Apart from the slag heap at Skouriotissa, where transport amphorae make up 12% of the collected pottery, the transport amphorae do not exceed 9% at any of the identified Late Roman sites in the Survey Area.

The ancient city centre of Tamassos is located in the SCSP area, and this may account for the higher number of transport amphorae collected there. However, in the southern part of Cyprus the hinterland has revealed a more complex site hierarchy with prosperous Late Roman market villages such as Kopetra where transport amphorae make up almost half of all the finds. Of course the Survey Area is a rural area, and no large-scale Late Roman settlements similar to *Kopetra* have been identified. The few local or imported transport amphorae collected indicate that not much produce was coming in from and or going out to the international market, reflecting a localized agricultural economy possibly tied up with the copper production (Chapter 5.3).

Local Fabrics

Two groups of pottery were chosen for petrographic analysis by thin section and read by John Gordon-Smith: the coarse reddish-brown tiles and pithoi; and the self-slipped transport amphorae with twisted bases from Skouriotissa and Mavrovouni (Plate 3.2). Both groups were made of clay from deposits of a similar mineralogical composition. This comprised pyroxene, feldspar, glass and opaques, which come from the lower pillow lavas, and quartz and amphiboles from the ultra basic plagiogranite. In addition, grog was commonly added to both groups.

The preparation of the clay in the two groups was, however, dissimilar. The temper of the tiles and pithoi was less well sorted and often angular in form, while in the case of the transport amphorae the temper was always sub-angular or even sub-rounded. Finally, dissimilar firing conditions produced the very different colours. The tiles and pithoi appear to have been fired at lower temperatures, which could reflect a different type of kiln, but no remains of ancient kilns have been identified in the Survey Area. Some misfired fragments were collected, but always individually, indicating they were sold to be used. The material profile of the pithoi looks very similar to the *pitharia* of the Ottoman period, which were fired in a freestanding dome up-draft kiln without combustion chamber (Ionas 2000, 178). Fragments of tiles found in TP065, a large chamber tomb of the Hellenistic–Early Roman period, were included in the analysis and proved indistinguishable from the main group.

Local Transport Amphorae Types

The amphora dump located at Skouriotissa (Volume 2, Chapter 3.12) was mainly made up of two types of amphorae, AmSk01 and AmSk02, of which the first is predominant. A few rim fragments of a possible third type (AmSk03) have been identified, but they may be variations of either type. The fabric was impossible to study due to mineral accretions, but fragments collected elsewhere in the Survey Area have been recorded in the inventory. Several rim fragments of AmSk01 have been collected in the Survey Area, but only one AmSk02 fragment has so far been collected east of Skouriotissa (Plate 3.3).

AmSk01 has an everted thickened rim with flattened sloping lip, vertical handles with two vertical ribs and a solid round knob base/toe, but there is quite a lot of variety in the detail (TCP661–87; for the pottery catalogue, see Chapter 3.6). The toe is very distinctive. It has a tendency to be twisted and appears to be related to the Mavrovouni amphorae (cf. TCP676 with TCP133). All the toes collected are of similar form, although two sizes exist. The two sub-groups are not easily distinguished from the main type. AmSk02 (TCP683–86) appears to be a smaller version of AmSk01, and the same probably goes for AmSk03, which reveals itself only by having a higher and almost vertical rim (TCP687). All three types of amphorae are remarkably thin-walled and seem unsuitable for long-distance transport. On the other hand, the large handles and the toes provide a good grip for lifting.

The clay is very pale brown (10YR 7/3) with a pale yellow (5Y 8/2) surface, and is medium hard with smooth fractures. There is medium sorting with abundant to moderately abundant inclusions of pyroxene, feldspar, glass, opaques and grog of sub-angular to sub-rounded form (Plate 3.2). Towards the end of the firing process a reducing atmosphere seems to have been induced. Combined with a different surface treatment, probably smoothing, it produced the self-slipped surface. The self-slipped fabric is very common in the Survey Area in the Roman period, not only for transport amphorae but also for Light and Heavy Utility wares and tiles.

Generally the amphorae appear not to be very carefully made and there is great morphological variation in the detail. Some interesting details concerning the manufacturing process of the toes can be observed. The toes are made separately on the turntable, hence the tendency to be twisted (e.g. TCP675). They often have a hole in the upper end, which must come from a peg that would have held the clay on the table (e.g. TCP676). The bottom of the toes varies. Sometimes they are flat, sometimes depressed and sometimes there is a deep hole in it. Flat is obviously the ideal, and the various depths of depressions or holes appear when the potter pulls up the base on the table but does not squeeze it tightly enough to close the hole. On some base fragments the base of the actual vessel is visible (e.g. TCP666). This appears to have a twisted exterior as well, which would facilitate the attachment of the toe. Often the toe is only superficially attached to the base of the vessel as if this part of the vessel were somewhat carelessly made (e.g. TCP673).

Three types of transport amphorae made of self-slipped fabrics appear at Mavrovouni: Mav01, Mav02 and Mav03, of which at least the first two have twisted bases (e.g. TCP615, TCP133). Several diagnostic fragments have been identified, and though morphologically different all types appear to be rather heavy and thick-walled compared to the Skouriotissa amphorae. The petrographic analyses, however, indicate that the fabrics are closely related. The clay is reddish-yellow to pink (5YR 6/6–7.5YR 7/4) with pale yellow (2.5Y 8/4) surface, and is medium hard with medium fractures. There is medium sorting with abundant to moderately abundant inclusions of pyroxene, feldspar, glass, opaques and grog of sub-angular to sub-rounded form. The difference between the texture of the wheel-turned body parts and the handmade bases and handles is considerable. The relatively small number of sherds chronotyped as Mavrovouni amphorae prevents a detailed description of the morphology of the vessels.

The dates of both the Skouriotissa and the Mavrovouni amphorae are problematic. Morphologically speaking, the Skouriotissa amphora is a strange bird, with the almost Archaic-looking neck area, the handles with the deep central groove more common on utility amphorae, the old-fashioned elliptical body, and the toe which appears to be a cross between the 'classical' Hellenistic Rhodian toe and the ribbed and hollow footed Kapitän 2 of the Mid Roman period (for the most complete vessel see Bruce *et al.* 1937, 663, fig. 327). A possible fragment found at Ayia Irini suggests a *terminus ante quem* no later than the 2nd century AD (Quilici 1971, fig. 52.III:33, fig. 83:III:56). All the pottery collected around the Skouriotissa slag heap was Late Roman, but although several fragments of transport amphorae were found, there were no fragments of the Skouriotissa amphorae identified among them. Little detail is known about the shape of the Mavrovouni amphorae, which deters a morphological analysis, but pottery from the mining and smelting sites in the Lagoudhera Valley where this type of amphora has mainly been found are dated from the Hellenistic to the Late Roman period.

Based on the these concerns, both types have been conservatively dated to the Hellenistic–Roman period. Future stratigraphic data may, however, provide evidence to suggest that the Skouriotissa amphorae are the vessels seen and commented on by Galen, medical practitioner and author of the 2nd century AD, after his visit to Skouriotissa (Galen, *De Temp. Fac. Simp. Med.* 9 (Wallace and Orphanides 1990, 223); see Volume 2, Chapter 3.12). The fabric and the morphology, especially the twisted bases, would seem to suggest some continuity, and the Mavrovouni amphorae may be a Late Roman version of the Skouriotissa amphorae. However the primary function is unlikely to be the same since the Skouriotissa amphorae are very thin-walled and the Mavrovouni ones appear to be very sturdy and heavy.

Production and Distribution of Tiles and Utility Wares

A substantial number of rooftiles were collected throughout the Survey Area, with some spatial differentiation (Plate 3.4). The Karkotis Valley revealed an almost uninterrupted distribution of tile fragments, while on the plains and in the mountains the distribution was mostly restricted to the immediate areas surrounding identified sites. To some extent this pattern is repeated in the Lagoudhera Valley, where the distribution is continuous in the river valley itself, but outside it tends to congregate around the only site identified, Litharkies. The greatest number and variation came from the Skouriotissa slag heap, where six types of pan tiles and five types of cover tiles have been classified. These have been dated to the Late Roman period, according to the chronologically diagnostic wares found by the slag heap. Many of the tiles collected in the Survey Area match the types identified at Skouriotissa.

The tiles can be divided into three broad fabric groups: reddish-brown; pink to red; and self-slipped. The reddish-brown group is the most common fabric for tiles and pithoi in the Survey Area and it is generally very coarse and poorly sorted. The pink-red fabric group and the self-slipped tiles are generally of a much higher quality in terms of sorting of the inclusions and firing. The distribution pattern of the fabric groups reveals an interesting spatial differentiation. The reddish-brown tiles dominate the higher areas, while the self-slipped tiles become more common as we move into the lower areas and particularly on the plains. This suggests the co-existence of two different traditions of production, one probably located in the mountains and one located in the plains.

The pattern cannot be dismissed as a chronological phenomenon. Self-slipped tiles appear commonly with Late Roman pottery and are also found, albeit in small numbers, on higher ground, for example at Asinou and in the Lagoudhera Valley; the reddish-brown tiles are completely dominant in these areas, where the Late Roman period is very prominent. In the Karkotis Valley these two traditions meet and mix the most and, as mentioned, small numbers of self-slipped tiles penetrate into the mountains, however, on the plains further away from Skouriotissa, only self-slipped tiles have been collected. This seems to imply that pottery moves up more regularly than down.

This distribution pattern is corroborated by the utility wares, with higher proportions of self-slipped wares in the lower Karkotis Valley and in the plains, but for utility vessels there is another concern, the specific function. Certain types of pottery, such as the very large pithoi, were always of the reddish-brown fabric similar to the tiles. Different production traditions may also account for the lower number of self-slipped utility wares in the mountains. The reddish-brown fabric group is closely related to the fabric used for the later *choletrota*, which suggests similar technology and a production location for the *choletrota* in the higher grounds. This is supported by the tile kiln at Ayios Theodhoros *Vatherou* (TP019), which was used until relatively recently and had moulds for several types of tiles (Chapter 3.11).

Although morphologically the tiles collected in the Survey Area are very similar to tiles found on the south coast of Cyprus, the two dominating fabrics indicate that the vast majority were produced locally. Apart from one almost complete tile from Vrysi tou Hajichristophi (TCP693), no complete tiles were collected, which would be necessary to create a proper typology in the classical sense. Some general observations, supported by complete tiles from two tombs near Evrykhou excavated by the Department of Antiquities (TP065 and TP247; see Volume 2, Chapter 3.14), are, however, possible.

All the pan tiles collected in the Survey Area appear to belong to the flat Corinthian-style type. The tiles from the two Evrykhou tombs, dated to the Early Roman period, belong to the reddish-brown fabric group. Measuring c. 52 × 60 cm, they are rather larger than the Late Roman TCP693, which measures 44 × 49 cm. Morphologically, they are the simplest of the Corinthian-style type, with raised edges along three sides, almost no indication of flow directors and a completely flat back. Fragments collected by the survey indicate that this fabric group was also used for more morphologically complex tiles with flow directors, offset top ridge (TCP514), flared lip (TCP625) and cut away corners (TCP575).

The pink-red group is by far the smallest, mainly consisting of cover tiles. From this group comes TCP640, the most accurately shaped tile fragment with neatly raised edge, sharp corner, triangular flow director and a precise cut away corner, though it appears to have no flared lip. Generally the self-slipped tiles appear to be morphologically simple, similar to the tiles from the two tombs. On the other hand, they are often decorated with finger marks, consisting of long parallel lines along the edges or across the surface, which are less regularly seen in the other fabric groups. TCP693 has four sets of three lines running down diagonally and a double-lined Z between them. Another fragment is decorated with two squiggly lines (TCP621). It is difficult to determine to what extent these morphological changes reflect chronological differentiations.

Looking at Hellenistic–Roman tiles previously published in Cyprus, there seems to be some indication of evolutionary movement towards simplicity in the Roman period, although flow directors are absent from the Kition tiles (Callot 1993; Hadjichristophi 1989; Huffstot 1987; Rautman *et al.* 1999). Although there is some variation, morphologically the pan tiles from the Survey Area appear to be similar to types X and Z from the Sanctuary of Apollo Hylates (Huffstot 1987, figs. 179, 185). The quality of TCP640 stands out both in terms of fabric and morphology, which may be considered chronologically significant: this fragment was collected at the sanctuary and settlement of Pano Limna (Volume 2, Chapter 3.11), which was active from the Archaic period.

When did the production of Corinthian-style pan tiles end? Tiles of this type of the reddish-brown fabric group have been found in the Asinou Valley and deep into the Troodos Mountains. In most cases they were accompanied by Roman pottery, but occasionally they were the only pre-Medieval material. In Greece and Turkey production continued into the 11th century (Chapter 5.4). According to Rautman *et al*. (2003, 178), Corinthian-style pan tiles continued to be made into the mid-20th century, combined with *choletrota*; however, this is a much smaller completely flat tile with a small peg on the back (Ionas 1998, 41). This type appears in the reddish-brown fabric, but the technology is different. Nevertheless, with heavily abraded fragments it is impossible to distinguish from the Corinthian-style ones. Since Corinthian-style pan tile fragments were collected from sites deep in the mountains, such as Nikitari *Khalospita* (TP250), Mandres ton Rotson and Khandakia where no other pre-Medieval pottery was found, the tradition may have continued, unless we are dealing with re-use.

The cover tiles come in two broad groups: the ridged group and the semicircular group, of which the former is the most common in the Survey Area during the Hellenistic–Roman period. The majority of cover tiles belong to the reddish-brown fabric group. A small group of them is very thick-walled (TiSkC02). Thinner-walled versions of the ridged cover tiles appear in both the reddish-brown and self-slipped fabric groups. Semicircular cover tiles are relatively rare during the Hellenistic–Roman period, and although the shape is somewhat similar to the ubiquitous Cypriot *choletrota*, which is still found on old buildings, the fabric and technology makes them easily distinguishable. The existence of ancient semicircular cover tiles (e.g. TCP535, TCP623) suggests the use of Laconian-style pan tiles, as is known from the south coast of Cyprus, but none have been identified. But, as the studies of cover tiles from the Sanctuary of Apollo Hylates have shown, the ridged type comes in a more rounded version, which may be the case with TCP545, TCP559, TCP527 and TCP389 (Huffstot 1987, fig. 195). TCP527 is decorated with a relief cross with swallowtail ends.

Although the Table Wares recorded, at least during the Roman period, were not produced within the Survey Area, petrographic analyses have confirmed the production of cooking and utility wares, as well as transport amphorae, pithoi and tiles, within the lower pillow lavas area which makes up much of the Survey Area. No traces of these production sites have been identified, but this is hardly surprising as no traces have been found in Cyprus of what must have been extensive production sites of Cypriot Red Slip, and only two Cypriot LR1 production sites have been identified (Demesticha 2000, 2003; Manning *et al.* 2000). The transport amphorae produced within the lower pillow lavas appear to have been for consumption within the region, as the only fragment identified outside the Survey Area came from Ayia Irini, but this may be affected by the poor state of publication of Roman pottery north of the Troodos Mountains. Personal communications with researchers working in Rough Cilicia on the south coast of Turkey also suggests that the types are unknown there.

Stylistically, the Roman pottery from the Survey Area appears to correlate largely with the Cypriot *koine*. Some regional variation, however, is suggested especially by the Hellenistic to Early Roman pottery from the rich tombs at Evrykhou. Since the pottery from Soloi is virtually undocumented, it is not possible to determine if this degree of regionality is related to this particular city centre or if it is a hinterland phenomenon, correlated with the pottery production in the lower pillow lava area. During the Late Roman period the regionality in pottery production appears to have dissolved, in the sense that comparanda have come from all over Cyprus, although this does not exclude a regional production. Furthermore, imported Table Wares penetrated to the remotest sites. The rarity of imported transport amphorae, however, clearly denotes a difference between the pottery distributed to city centres and market villages such as Kopetra, and that distributed to the rural TAESP Survey Area (Chapter 5.3).

3.4 Medieval–Modern Utility Wares

Ruth Smadar Gabrieli

The aim of this section is dictated by the nature of utility wares, which are suitable mostly to the study of daily life and local economy. We hope to contribute to an understanding of the use of the TAESP landscape, and the changes or stability in this use over time. The presence or absence of utility ware in relation to other finds, the proportion of storage to Cooking Ware and the preferred cooking methods, if such can be established, all contribute to creating patterns of use.

Utility wares, as the material culture manifestation of food and foodways, represent a conservative aspect of pre-modern society. As such they are in themselves conservative, in manufacturing techniques, morphology and stylistic development. Assimilation of outside influences into local manufacture of utility wares tends to lag behind acceptance of other cultural indicators, most obviously the finer vessels used as Table Wares (Rice 1984, 251–52, 274). This general rule proves particularly pertinent to the periods discussed here.

The conservatism of utility wares poses problems in interpretation of behaviour patterns even when analysing stratified material. In survey assemblages, the uncertainty of association with chronologically sensitive material increases the difficulty considerably.

Vessels used for food processing, cooking and storage are all manufactured in the same fabric and using the same technique throughout the Medieval period, and to a large extent also in post-Medieval times. Often cooking and storage vessels are of similar size and the wall thickness is within a similar range. Of particular significance in this case is the fact that shapes overlap, and there is considerable

similarity in the details of bases, rims and handles, which are the diagnostic fragments that, in the absence of restoration, are the only indication of shape. These similarities reflect, at least in part, true multi-functionality, and there is little doubt that considerable numbers of these vessels were used also as undecorated Table Wares for serving food and possibly for eating.

Chronological Overview

The establishment of a chronological sequence for utility wares of Medieval and post-Medieval Cyprus is still in its initial stages (for TAESP period definitions see Table 2.9). This is due to a range of reasons: the general state of Medieval archaeology in Cyprus, which is only beginning to come into its own; the tendency to pay little attention to utility wares in the archaeology of historical periods; the small number of stratified sites excavated; and the slow rate of development of utility wares.

A steadily growing body of published material demonstrates, however, that some chronological division is possible, and that the gloomy view of Gregory (1993, 157), stating that there is no development from the 13th century to present times, can be modified. Publications include material from the large sites of Saranda Kolones (Megaw 1971, 1972; Megaw and Jones 1983) and Kouklia (von Wartburg 1997b, 1998, 2001b), and small assemblages of short duration such as two of the three pits excavated in 1936 by Megaw in Nicosia (Megaw 1937–39), the well, excavated by Flourentzos in Nicosia (Flourentzos 1994), the tomb from Odos Zik Zak, Limassol, excavated by Prokopiou (Prokopiou *et al.* 1997), and the tomb from Icarus Street, Paphos, excavated by Raptou (Gabrieli 2008; Raptou 2006). Much of this material is, however, not yet published, including four stratified sites: the Old Town Hall, St George's Hill and the convent of St Theodore in Nicosia, and Fabrika Hill in Paphos. This combination of short-term sites and large stratified ones in which there are short-term sealed deposits allows a definition of two and possibly three distinct phases in the development of utility ware manufacture between the 12th and 19th centuries with growing confidence, as well as sub-division of the first phase (Gabrieli 2004; 2007; 2008). This is admittedly a very crude division, but as a first step it is encouraging.

Common to the whole period is hand-forming or turning on the slow wheel. The use of the fast wheel was limited, at least until the 15th or possibly 16th century, to utilitarian wares that were manufactured in light fabrics and probably only by workshops in the Nicosia area (François and Vallauri 2001, 533). Later on, some reddish-brown utility wares were produced on the fast wheel, but only to a limited extent. This production seems to be mostly of jugs, and at the same time there is an introduction of similar jugs produced on the wheel in lighter-orange fabrics. This last may relate to Ionas's description of the clays used in recent time to produce utilitarian pottery in urban workshops. In his study of the production of traditional pottery in the late 19th and early 20th century, he distinguishes the red fabric, handmade pottery of the Troodos villages from the wheel-thrown pottery of the urban workshops manufactured in clay varying in colour from white to pink (Ionas 2000, 28–29). It is possible that for a time, as village and urban workshops manufactured similar vessels, some rural potters experimented with the fast wheel. The decision to abandon the use of the fast wheel is not unknown (Balfet 1984). It may be related to a change in the repertoire of shapes, or a shift in production mode such as a move from fully professional status to part-time, or a change in the gender of the potters. More research, and in particular provenience studies, is necessary before we can hazard an explanation regarding the relationship between the two modes of production during the Ottoman period.

Gregory (Given and Gregory 2003, 286) suggests that there are differences in the fabric of the pottery which are chronologically significant. Unfortunately, detailed descriptions that would allow his work to be continued by others are missing, and it was not possible to reproduce his conclusions, with the exception of identifying the light orange fabric just mentioned, which does not seem to predate the Ottoman period. The present work, however, does in a sense continue Gregory's work, in reiterating the importance of manufacturing details in any attempt to establish a chronological sequence.

The development of the utility wares and the distinguishing features of the various phases have been published elsewhere (Gabrieli 2004; 2007; 2008), and a brief summary will suffice here. The definition of the chronological sequence is based on overall shapes, on morphological attributes of the individual shapes and on decoration. Though surface finish and fabric also changed from the early to the later phases, the differences are less consistent and more difficult to quantify. In general, it is possible to say that during the early phase in the 12th–14th centuries the vessels were finer and better finished.

Morphological Changes Figure 3.2 summarises the vessel shapes which are found in each phase, and the morphological details that change over time. These include:

- The change in the vertical handles from a thin section with squared edges, either completely flat or very slightly concave on its upper face, to an oval section (compare 1a and 2a with 1b and 2b in Fig. 3.2)
- Even when the handles in the later phases are occasionally flat and thin, the edges are rounded (Fig. 3.2, 3d). This change probably signifies a change in manufacturing technique as well as in shape
- The appearance of horizontal handles on cooking pots with in-turned rim (Fig. 3.2, 4b, 6b)
- The elongation of the pinched spout of jugs and jars, and the loss of the precise finger-dimples at their base
- The use of glaze (considered to be a functional rather than decorative feature) to coat the internal surface of

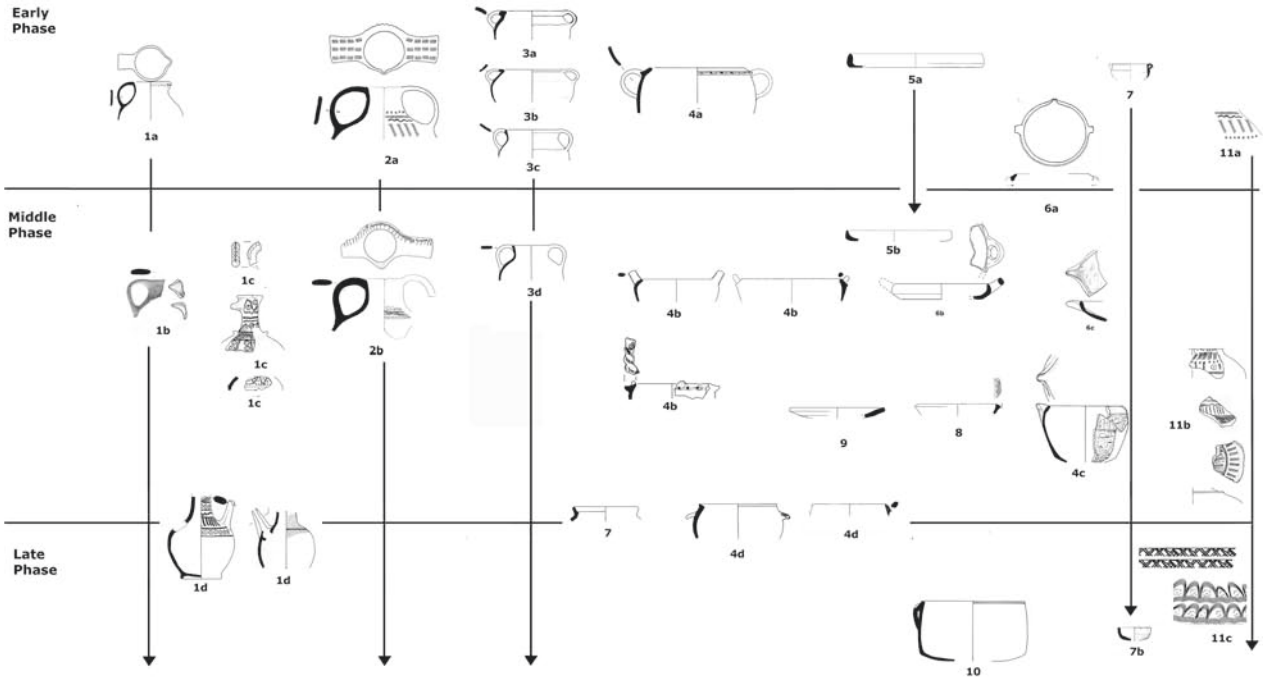


Fig. 3.2. Development of Cypriot Medieval–Modern utility wares. The early phase is fully illustrated, but only a selection from the middle and late phases is shown. The vertical arrows indicate continuity in shape. Where morphological details change (e.g. the handle section) but the overall shape remains the same, the type-variant is superimposed on the arrow. The right-hand column illustrates some of the decorative motifs. (Ruth Smadar Gabrieli)

pots and pans with a pinched spout in the late 14th and 15th centuries

It seems that the use of glaze ceased by the 16th century, though a precise date is not yet available. The exception is the Late Ottoman-period glazed casseroles with upright walls and small vertical handles (e.g. TCP093; for the pottery catalogue see Chapter 3.6). These often have highly micaceous fabric that is probably an import from Siphnos (Vroom 2005, 192–93).

Decoration The most common form of decoration is incised design around the shoulder or along the handles. Occasionally the lip is also decorated. The pattern, usually produced by a multiple-tooth tool, is arranged in bands. In the early phase the decoration is simple, comprising four simple motifs: wavy bands; straight horizontal bands; interrupted horizontal bands; or oblique strokes (Fig. 3.2, 11a). These motifs persist until the present day, but in the 15th century other patterns, as well as plastic decoration, become common. The earliest known introduction of the more complex style was found in late 14th/early 15th century contexts in Nicosia (e.g. the convent of St Theodore on the site of the High Court). Some of the new decorative motifs are shown in Fig. 3.2, 1c, 11b. The incised motifs may remain in use during the late phase, but the small carinated jugs and the decorative fine crests along the handles – often with a schematic 'face' at its top end – are exclusive to this phase (Fig. 3.2, 1c; see also TCP298). These short-lived shapes and decorative motifs belong to a group which also stands out by its frequent use of glaze. It is apparently abundant in Nicosia, but so far very rare in Paphos and in the TAESP collection, and may prove to be a short-lived regional variation. If so, it will allow more precise dating of late 14th–15th-century assemblages. Other motifs that already allow a sub-division of the late phase are the 'Kornos' motif of interconnected arches and dotted rosettes (TCP097) and the reticulated band typical of Phini production (Fig. 3.2, 11c). Both are dated no earlier than the 17th century, and more likely to the 18th century onwards.

The TAESP Assemblage

Early phase (MEDUI: 13th–14th centuries) (TCP030, TCP039, TCP056, TCP062–63, TCP089, TCP126, TCP258, TCP280, TCP305–306, TCP308, TCP312–13, TCP443). Exclusive to the early phase are the flat large lids, decorated in a distinct style of incised/impressed decoration (TCP312, TCP443), and the flat dish with in-turned rim and thin base (TCP062, TCP308, TCP313). The rim of this last is actually up-turned because of the completely flat base, but we use the term 'in-turned' because it is obviously part of the series of vessels with in-turned rims, such as the cooking bowl TCP095, and the cooking jar TCP089. Both these shapes are found in 12–13th century contexts at Kouklia (for the flat dish see von Wartburg 1998, 142, fig. 59). Stopper TCP280 is also quite likely to be of this phase.

Its fabric and manufacture are very similar to TCP312, but the absence of decoration makes the attribution insecure.

In spite of the fact that the lids are not known from archaeological deposits that post-date the 13th century, they are part of the household of the house-museum at Phikardou, where the contents are said to date to the 14th–15th centuries. While this prevents a firm conclusion relating to their life-span, they are used in Phikardou to cover large storage vessels and may, therefore, date from a considerably earlier time (Devos *et al.* 1999, 87). For comparison, on a visit to a village house in Apulia, southern Italy, a wine-producing farmer boasted a series of storage amphorae, the earliest of which were well over 200 years old.

The flat dishes with in-turned rim may be the *gastra* or *gastrion* described by Bakirtzis (1989, 131, pl. 11, nos 3–4). The *gastra* was the base for the mobile oven, the dome-shaped *klibanos* that can be traced back to the classical Greek period (Bats 1988, 43) and was used to bake bread or meat. The type remained in use well into the Ottoman period, but the thin base of the Early Medieval period became considerably thicker in the later phases.

The small bowl or cup TCP126 is a shape that is known as early as the 12th century, and continues at least until the Late Ottoman period, but with the obvious development that it gets progressively coarser with time. The delicate outline with the rounded lip, similar to the cooking pots of the early phase, and the precise execution of TCP126 place it in the early phase.

More problematic are the pots whose rim is decorated with an indentation line, either with a thickened and rounded rim (TCP039, TCP063, TCP306) or with a horizontal rim (TCP056, TCP305). This shape is typical of the early phase, but has a revival during the period covered by OttMod II. Complete late vessels can be distinguished from early ones by the section of the handles and their position: in the later version the handles are often attached to the neck rather than to the lip. The fragmented state of the survey material does not allow such identification. The presence of handles dated to the early phase in conjunction with these rims supports the assumption that at least some of these pots should be attributed to the early phase.

Evidence for the presence of the pots with in-turned rim that can be dated to the early phase by their vertical rim and globular body (Fig. 3.2, 4a) is limited. The globular outline is impossible to identify in the survey material. Vertical handles were not found in association with in-turned rims in the Survey Area; the upwards angle of the lip, the least secure feature used to identify the early version, is the only one that was found (TCP089, TCP258). The glaze on the inside surface of TCP089, however, suggests that it should not date before the second half of the 14th century.

Finally, TCP030, a bowl with lug handle, is tentatively assigned to the early phase, though the shape is so far unrecorded. This attribution is on the basis of the decoration on the rim, which is identical to that of lid TCP443. The fabric of TCP030, which is quite distinct, is also identical to that of TCP443 (and also stopper TCP280).

The absence of jugs and jars with a pinched spout should not necessarily be taken at face value. It is possible that this absence is due to the fact that the spout, the only unequivocal identifier of these types, is not often preserved, or that the occasional one was found by fieldwalkers in association with later ones and because of their similarity was discarded in the first selection process.

Middle Phase (MEDUII: early 15th–1st half 16th century) (TCP139, TCP284, TCP298). Always elusive, there are very few pieces that can be attributed with any confidence to the middle phase. The most typical vessels of the period are those with the in-turned rim (the Tia and Tta types), and in particular the hole-mouth jar (e.g. TCP092) and the bowl/dish (e.g. TCP139). These vessels are not, however, exclusive to the period, and their production continues to recent times. One feature which is probably chronologically dependent is the use of glaze, which seems to disappear after the 15th century, or at latest during the first half of the 16th century. This observation was initially made to the author by Mme Vallauri, from LAMM, the University of Aix-en-Provence, who analysed the pottery from the Potamia project. Subsequent personal observations, mostly of unpublished material, seem to support it, but until more securely dated assemblages are published it cannot be fully substantiated. The glaze on the inside surface of TCP139 therefore reinforces its attribution to this phase, but where glaze is absent, as it is in the similar TC092, TCP095, TCP127 and TCP303, it had to be assigned to MEDUIII, which spans a longer period.

As mentioned above, the origin of the vessels with in-turned rim is in the early phase, but their handles change in the middle phase from the flat vertical handles to horizontal ones with an oval section, attached to the rim and rising above it. Handles with a round section, as well as hole-mouth jars with no handles, may be a late phase development, but the evidence is not conclusive.

TCP284, a jar or pot with a thickened, nearly triangular rim and glazed surface, may also belong to this phase. Although glazed pots can be dated back at least to the second half of the 14th century and possibly earlier, the triangular section is more likely to be of the 15th century. This attribution is, however, far from secure.

Middle or Late Phase (MEDUIII: 15th century onwards) (TCP021, TCP057, TCP092, TCP095, TCP127, TCP299, TCP303, TCP314, TCP324, TCP402, TCP405–407). A considerable number of fragments cannot be attributed specifically to either the middle or the late phase. These include the unglazed vessels with in-turned rim (e.g. TCP092, TCP095, TCP127, TCP303); vessels with plastic decoration and no glaze, such as the bowls with in-turned rim TCP402 and TCP405–406, or the jugs with ridge at the base of the neck TCP021 and TCP299; and the many fragments with incised decoration motifs and a coarse style of execution in which the grooves are quite wide and the design at times seems to be impressed

rather than incised (e.g. TCP314, TCP407). There is little doubt that the current wave of excavations of Medieval and post-Medieval sites, particularly in Nicosia, will make further modification possible and necessary.

A different type of manufacture is represented by the light fabric vessels (TCP057, TCP324). Both are decorated with finely executed incised decoration, which cannot and should not be confused with the incised decoration of the red/brown fabric vessels. Thrown on the fast wheel, these vessels are probably the product of urban workshops. Chronological sub-division of this decoration style may be possible, but has not yet been done.

Late Phase (OttModI: mid-16th–early 20th century; OttModII: 1780 onwards) (TCP006, TCP018, TCP033, TCP090–91, TCP093–94, TCP097, TCP291, TCP296, TCP400–401, TCP403–404, TCP406, TCP408, TCP519). This phase is by far the best represented in the assemblage. Perhaps the most noteworthy innovation is the manufacturing of the dark reddish-brown utility ware on the fast wheel (e.g. TCP401, TCP406), signifying an introduction of a new production mode (Peacock 1982, 8–9).

In terms of shapes, TCP400, with the pinched spout pulled forward and down, is a good illustration of the development of jugs with a pinched spout. The manufacturing technique and quality of the surface finish place this jug as OttModII, and possibly Modern. TCP094 and TCP291 demonstrate the degenerate form of the in-turned rim, which is nearly flat, with only a hint of turning-in. TCP090 shows yet another variant of the shape, where the rim while obviously shortened retains the rounded in-turned profile.

The use of jugs with a long, narrow neck increases dramatically in excavated contexts of this period. Their near absence in the TAESP material is therefore very surprising. Innovations in this type, apart from their manufacture on the fast wheel, consist of a ring or flat base, and a spout on the shoulder. When manufactured in plain rather than utility ware fabric (TCP408), the jug with the spout on the shoulder is the Ottoman *ibriq* (for history and typology see Hayes 1992, 293, fig. 106, 348, fig. 127). When manufactured in the red-brown fabric, on the other hand (TCP403), these jugs are a good example of an adaptation of foreign influence to local style.

New shapes of Cooking Wares include the globular pots with simple rim (TCP296), casseroles (TCP093, TCP006) and the very shallow plates (TCP404). The globular pot with simple rim, though a derivative of the vessels with in-turned rim, has developed into a new shape, losing the distinction between rim and body. The plates, too, are derivatives of the in-turned series. The only shape whose origin cannot be traced before the OttModII phase is that of the casserole.

In terms of decoration, in the late phase there is a development in the style of the indentation ridges on the edge of the in-turned rims, and new motifs are introduced to the incised decoration. In both cases the changes are added to, rather than replacing, the older style. The indentation ridge is sometimes transformed into a row of well-spaced notches (jar TCP401, bowl TCP291, and dish/plate TCP033).

The new motifs of incised decoration are today associated with three different manufacture centres. Interconnected arches, usually multiple, with impressed dot-rosettes in their centre (TCP097, TCP519) are the signature of Kornos (London 1989, 72). This motif dates back at least to the 18th century. It was found in an excavation of the church of Panayia Galaktotrophousa in the Limassol area, in a context sealed under a floor dated by inscription to 1780 (Eleni Prokopiou, pers. comm.). The reticulated band, found under the rim of some pots and casseroles, was identified by the custodian of the Phini ethnographic museum, Mr. Pilavakis, as a typical Phini decoration. A rouletted design of parallel, interrupted and staggered lines (TCP006, TCP018) was identified by Mr. Pilavakis as a Lapithos design.

Discussion

The picture which emerges from the Medieval and post-Medieval utility ware industry of Cyprus is one of a robust and continuous tradition, not without development but certainly with a strong element of conservatism. Even given the well established conservatism of utility wares, there seems to be a remarkable adherence to local identity, particularly in view of the continuous influx of foreign influence which can be seen through the glazed Table Ware. It is true that utility and fine wares, representing the conflicting forces of tradition and fashion, are often out of step in their development (Ionas 2000, 13; Rice 1984, 251–52, 274), but the extent of it here is extreme. If we look at the Roman period for example, shapes of Cooking Ware may persist over two or three centuries. In the Medieval and post-Medieval periods, on the other hand, we have shapes, albeit not all shapes, that show only subtle changes in style over six centuries.

If we turn to the specific characteristics of the Survey Area (and apparently that of SCSP), there is a more specific regional dimension. The regional character is based on absence, and absence is notoriously difficult to prove, but assuming that the survey assemblages are representative of the living assemblages which created them, there are three glaring gaps: Levantine pots and pans of the 12th and 13th centuries; Cypriot glazed pots and pans of the 14th and early 15th centuries; and jugs with long narrow necks, of the middle and particularly of the late phase.

The Levantine pots and pans, glazed and made on the fast wheel, have a fabric which is clearly distinct from the Cypriot. They were imported into Cyprus in large quantities following the Lusignan takeover in 1192 until the fall of Akko in 1291. They are common in Nicosia and even more so in the area of Paphos.

Local manufacture of glazed Cooking Wares started around the time imports from the Levant ceased. Absent from Saranda Kolones and from the Icarus Street assemblage,

dated to the late 13th/early 14th centuries, they are common in the late 14th-century assemblage from the well in Nicosia published by Flourentzos (1994). They were also found in the 14th-century levels of the Chrysopolitissa Basilica in Paphos. In all of the TAESP material, less than ten glazed sherds of Cooking Wares were found.

The third gap is of a specific shape: the jugs with long narrow neck. The most common shape in late contexts at Paphos and Nicosia, their paucity in the Survey Area is surprising and cannot at the moment be satisfactory explained.

Acknowledgments

I am indebted to many colleagues for giving me access to their material, and discussing their work with me: in the Department of Antiquities to Dr Flourentzos, Dr Ieronimidou, Dr Prokopiou, Dr Pilides, Dr Raptou, Mr Violaris and Dr Zachariou; for material from Saranda Kolones, to Mr Megaw and Dr Hayes; from the Potamia project, to Dr Lecuyer and Mme Vallauri; from Kouklia, Dr von Wartburg; and from Athienou Prof. Toumazou. My thanks to Professor Green for allowing me to publish the material from Fabrika Hill.

3.5 Medieval–Modern Fine Wares

Joanita Vroom

This section on Medieval–Modern fine wares complements Gabrieli's analysis of the period's utility pottery in Chapter 3.4 above. In line with the system used by her, the fine glazed wares are divided here into an 'early phase' (c. 11th–14th centuries), a 'middle phase' (c. 15th–16th centuries) and a 'late phase' (c. late 16th/17th–20th centuries). The only difference from Gabrieli's chronology is that the 'early phase' for the fine glazed wares also includes the 11th–12th centuries. For the sake of clarity, I will mainly use comparisons and analogies which are both contemporary and from Cyprus, i.e. glazed fine wares from the 11th to 20th centuries (for TAESP period definitions, see Table 2.9).

As the TAESP material presented here does not originate from an excavated context, I had to rely on classification systems based on Cypriot pottery finds from excavations and museum collections. These will be discussed first. Then I will examine the chronology of excavated pottery assemblages on Cyprus and the problems involved with their dating. Finally, the glazed ceramics from the Survey Area will be presented by phase. For the pottery catalogue (numbers prefixed 'TCP' for 'TAESP Catalogue Pottery'), see Chapter 3.6.

Classification Systems

The first article on Medieval–Modern glazed wares from Cyprus was published by Joan du Plat Taylor 70 years ago (1938). In a rather tentative preliminary classification system, she distinguished eight groups of pottery finds from a small excavation of three sites at Episkopi, west of Limassol. For this classification she used decoration technique and style only. Furthermore, she suggested approximate dates of her pottery groups (Table 3.5).

After the Second World War, Cypriot-made Medieval glazed wares became, for the first time, the subject of an exhibition. With great success the Nicosia Museum showed pots from the Loizides collection at Morphou in 1947 (Megaw 1947), while in the same year a more detailed and refined version of du Plat Taylor's earlier classification system was presented by Peter Megaw and Joan du Plat Taylor (du Plat Taylor and Megaw 1937–39). In this article, entitled 'Cypriot Medieval Glazed Pottery: notes for a preliminary classification', Megaw and du Plat Taylor divided the wares from Medieval Cyprus into twelve distinctive groups, identifiable by technique and design as well as by form and texture (Table 3.5). These groups were placed in a more or less chronological sequence. The system was soon afterwards revised and supplemented in further sub-divisions, based on glazed pottery finds from Polis in north-western Cyprus (Dikigoropoulos and Megaw 1940–48).

Apart from excavated pottery assemblages, complete pots in museums and private collections in Cyprus and abroad now started to get broader attention. Cypriot pottery was not only studied in the Loizides, Pierides and Leventis collections on Cyprus itself, but also in the Patras and Benaki Museums in Greece and in the Ceramic Museum of Sèvres, the von Post collection in Stockholm, the Ashmolean Museum in Oxford and the Nicholson Museum in Sydney (Brown and Catling 1980; Kontogiannis 2003; Megaw 1947; Papanikola-Bakirtzis 1984a; 1984b; 1989; Piltz 1996; Webb 2001). The landmark publication by Demetra Papanikola-Bakirtzis of 60 Medieval pots from Cyprus in the Pierides Foundation Museum added further to the knowledge of the shapes and decoration styles of Cypriot glazed ceramics from the Medieval and Early Modern periods (Papanikola-Bakirtzis 1989). With its colour illustrations, this handsome catalogue gave a first overview of the decorated Table Wares produced at workshops in Paphos, Lemba, Lapithos and Enkomi. Other pottery workshops of Medieval glazed ceramics have recently been discovered in Nicosia and in Soloi (Flourentzos 1994; François and Vallauri 2001; Papanikola-Bakirtzis 1996, 220; Violaris 2004; von Wartburg 2007, 423 and note 15). Predominant in the Pierides catalogue are small and deep bowls, goblets or chalices on a high ring-base, decorated with incised figures and motifs emphasized by alternate green and ochre colours in the lead glaze.

In addition, to mark the accession of (the Greek part of) Cyprus to the European Union, the Leventis Municipal Museum of Nicosia organized an exhibition in 2004 at the Hellenic Centre in London, showing 102 complete pots from its Medieval Ceramic Collection. These vessels were

Table 3.5. Medieval–Modern pottery groups according to du Plat Taylor 1938, du Plat Taylor and Megaw 1937–1939, and Papanikola-Bakirtzis 1996

du Plat Taylor 1938		**du Plat Taylor and Megaw 1937-39**	**Papanikola-Bakirtzis 1996**	
Brown-and-green sgraffito A	12th–13th C.	I. Plain Sgraffito	Slip-painted Ware from Paphos	Early 13th C.
Brown-and-green sgraffito B	14th C.	II. Slip-painted Ware	Plain Incised Sgraffito Ware from Paphos	Early 13th C.
Green sgraffito A	?	III. Early Brown and Green Sgraffito	One Colour Incised Sgraffito Ware from Paphos	Early 13th C. +
Green sgraffito B	15th–16th C.	IV. Brown and Green Sgraffito with External Glaze	Brown and Green Incised Sgraffito Ware from Paphos	Transitional group
Green-painted	Late 15th–16th C.	V. Brown and Green Sgraffito with Plain Slipped Exterior	Brown and Green Sgraffito Ware from Paphos	14th C.
Plain white glazed	?	VI. Brown and Green Sgraffito, Overall Sgraffito	Plain Glazed ware from Paphos	14th–15th C.
Plain green glazed	?	VII. Brown and Green Decadent Sgraffito	Brown and Green Sgraffito Ware from Lapithos	Late 14th–15th C.
Plain brown glazed	13th C.	VIII. Green-painted Sgraffito	Green Painted Sgraffito Ware A from Lapithos	(Late 15th–) early 16th C.
Foreign	15th–16th C.	IX. Green-painted	Green Painted Sgraffito Ware B from Lapithos	(Late 15th–) early 16th C.
Coarse red (unglazed)	?	X. Green-glazed Sgraffito	Green Painted Ware from Lapithos	16th C. +
		XI. Plain-glazed Sgraffito		
		XII. Imported Wares		

presented in a lavishly illustrated full colour catalogue with the appropriate title *Colours of Medieval Cyprus*, but this time the pots were presented not in chronological or typological order but by decoration motif, such as 'people', 'coats of arms', 'birds and fish', 'plants and flowers', 'geometrical designs' and 'plain glazed ceramics' (Papanikola-Bakirtzis 2004).

More useful as a typological framework, however, is Papanikola-Bakirtzis' classification system based on decoration techniques according to Medieval pottery workshops (Papanikola-Bakirtzis 1996). Her system was mainly focused on the glazed and decorated products of the two largest pottery production centres on the island during Medieval times: south-west Paphos (specifically in Kato Paphos, Lemba and Kouklia, where several kiln sites were excavated); and northern Lapithos, near Kyrenia (Table 3.5).

This classification system, based on stylistic features of Cypriot workshops of the 13th to 16th centuries, is nowadays still used as a typological framework by most Medieval archaeologists and ceramicists working in Cyprus and the Near East (e.g. Avissar and Stern 2005, 57; François and Vallauri 2001, 526; Given and Gregory 2003, 286). It should be kept in mind, however, that the well-preserved vessels in museums and private collections, on which this classification system is largely based, come from clandestine excavations such as robbed tombs. So we have complete shapes and designs, but no provenance and archaeological context, and all in all this is a rather slim base for providing evidence for absolute chronology. As a consequence, the chronology of these pots is, unfortunately, often based rather on anecdotal correlations with political events than on clear stratigraphy.

On this matter the archaeologist Marie-Louise von Wartburg, from the Swiss excavations at Kouklia, has recently rightly observed that turning classification by shape and style into a chronological sequence always represents 'an operation full of pitfalls' (von Wartburg 2007, 425). In fact, she warns explicitly about basing a chronological division between 'Paphos Ware' and 'Lapithos Ware' solely on stylistic distinction. Glazed ceramics from Paphos have until now routinely been considered to have been produced first, beginning in the 13th century, followed by glazed ceramics from Lapithos, which are generally thought to start before the end of the 14th century. Von Wartburg suggests, however, that it would be worthwhile to look critically at stratigraphic data from systematic excavations before endlessly repeating such conclusions, which are based on a traditional consensus rather than on evidence.

Chronology: Archaeological Assemblages

Since the 1970s the excavations at the Castle of Saranda Kolones in Paphos has yielded abundant information about Cypriot glazed wares from the Middle Byzantine and Late Byzantine/Frankish periods (Megaw 1971; 1972; 1982; 1984; see also Rosser 1985). The same applies to excavations at Medieval sites such as Kouklia and Paphos, which yielded mainly early 13th to late 16th century pottery (Giudice *et al.* 1992; 1993; 1996; 1994; Herrin 1973, 1974).

The chronological framework based on the destruction of the castle of Saranda Kolones in AD 1222 as a key date is, however, still open to discussion. Some scholars argue that the AD 1222 earthquake destroyed the castle and that this date is supported by literary sources and coin finds (Rosser 2007). Using pottery and written evidence, other scholars argue that the earthquake was not the definitive end of the Castle (von Wartburg 2001a; 2003, 162; 2007, 427–28).

The Sanctuary of Aphrodite at Kouklia has also provided important stratigraphical pottery assemblages for the relative chronology of Medieval imported and local wares. One closed deposit (Grube 7A), for example, yielded several fragments of glazed Byzantine and Islamic wares with locally made domestic wares (von Wartburg 1998, 138–42).

Other archaeological sites where locally produced Medieval glazed wares were found together with glazed wares from the Byzantine and Islamic worlds are the Chrysopolitissa basilica and Leptos Walls at Paphos, the theatre site at Nea Paphos and the recent excavations at the Palaion Demarcheion (Old Municipality) in Nicosia (Cook and Green 2002; Violaris 2004; von Wartburg 1997a, 339; 1998; 2007, 426, note 28; for an overview of excavations on Cyprus, see Walker 2003, 390–92). This last site shows continuous occupation from the 11th to the 20th centuries in one of the busiest urban centres on the island. The material found here is rich and shows pottery production in this part of Nicosia (Violaris 2004, 73, fig. 18).

Despite these new results, we are still hampered with an unstable chronological framework for research on Cypriot-made glazed ceramics. Published material from the kiln sites at Lemba in the Paphos district, for example, pointed to the fact that different decorative glazed groups (previously thought to form a chronological sequence) were all produced at the same time (von Wartburg 1997a, 339). More research is, therefore, needed (see also Walker 2008, 108). The provenance of most locally made glazed wares is not yet definitely established. Furthermore, most archaeological research was until now only concentrated in the southern and western parts of the island, and especially on the Medieval (read: Lusignan) period, leaving other periods (such as Early Medieval and post-Medieval) nearly untouched.

Early Phase (c. 11th–14th centuries)

Imported glazed wares There are hardly any fine glazed wares of the Byzantine period found in the Survey Area. The earliest pieces recovered are some fragments of a Byzantine glazed ware in a whitish fabric, which is also known as 'Glazed White Ware II' (TCP216, TCP221, TCP262, TCP267, TCP285). The main production centre of this group of Glazed White Wares should be sought in the wider environs of modern Istanbul, or Constantinople during its days as the Capital of the Byzantine Empire (Megaw and Jones 1983, 258 and note 56; Waksman *et al.* 2007; see also Vroom 2006, 163). In addition, the sites of Preslav and Patleina in Bulgaria were apparently important production centres of Glazed White Wares, although mostly glazed tiles and ceramic icons were made there (Mason and Mango 1995; Miatev 1936, 51–61). Glazed White Ware II is generally dated between approximately the 9th and 12th centuries (Hayes 1992, 18). The sherds of Glazed White Ware II found in the Survey Area can roughly be dated to the late 11th–12th centuries.

The fabric of these fragments is soft, medium fine and has a white colour. The powdery fabric contains a few fine lime and sand inclusions. There is no white or creamish slip (in French known as *engobe*) on the surface of the fragments. The lead glaze in a (ochre-) yellow or (pale) green colour is applied directly on the fabric (which is normal for this type of pottery). Shapes are difficult to discern from the fragments found in the Survey Area.

Glazed White Ware II is widely distributed in the eastern Mediterranean. Apart from a wide area around Constantinople/Istanbul it has been found on sites in Turkey, the Aegean, the Balkans, Caucasus/Crimea, Albania, Italy and even as far away as Sweden (e.g. Armstrong 2001, fig. 6.1; Böhlendorf-Arslan 2004, 99–103; D'Amico 2007, 220–26; Vroom 2003, 150; 2005, 75–77; 2006, 165–66 for the distribution in Turkey). Apparently, this group of glazed pottery was an important trading item during Byzantine times. On Cyprus, sherds of Glazed White Ware II have until now not been recognized, though an exception is that there have been finds of Glazed White Ware I and IV (Hayes 1980; von Wartburg 2007, note 1).

Apart from these imported pieces of Glazed White Ware II from the Byzantine world, there were also three small sherds found in the Survey Area of Islamic glazed wares from the Near East. They include two fragments of Islamic Glazed Fritware covered all over with a monochrome turquoise-blue glaze (TCP102, TCP191), as well as a piece of Islamic Lustre Painted Fritware with a turquoise-green glaze all over and a yellowish 'lustre' paint on the interior wall (TCP282). All three fragments were probably imported from Syria (from workshops in Raqqa, on the River Euphrates and in Damascus). One sherd of Monochrome Glazed Fritware (TCP102) has a moulded or carved exterior surface (perhaps copying *repoussé* decoration in metal vessels), and can be dated to approximately the 12th–13th

centuries (see, in general, Tonghini 1994, 260, nos 295–96 or 287, no. 330; 1998, fig. 46, i–k, n–o and fig. 47, a–b, g–h Ware F; von Wartburg and Violaris 2009, 258, fig. 7, nos 2–7; Watson 2004, 297–300). The lustre painted piece (TCP282) is a bit later and may come from a workshop in Damascus of the 13th–14th centuries (see, in general, Watson 2004, 396–99).

More Islamic Glazed Ware finds on Cyprus have been recovered in Nicosia and in the Paphos district, for instance at Kouklia (Palaepaphos) and at the 'Leptos Walls' area in Kato Paphos (Megaw 1937–39, 148, figs 1–2; von Wartburg 1998, fig. 51, nos 8–9, fig. 77, no. 48; 2003, 160–61, figs 14–17; von Wartburg and Violaris 2009, 258–62, types 6–9 for Nicosia). In addition, during restoration work at the monastery of Ayia Moni, situated in the southern foothills of the Troodos Mountains north-east of Paphos, various types of Islamic Glazed Wares were found, dating from the late 11th to 13th centuries (von Wartburg 2003, 155–57, figs 7–10). They all show evidence of trade contacts between Cyprus and the Near East.

Locally made glazed wares From a local workshop on western Cyprus (probably from Paphos or from Lemba) came two small pieces of Slip-painted Ware, which can be dated to the Byzantine–Medieval period (c. early 13th century?) (TCP150, TCP104). The shapes of these pieces are an open vessel, probably a carinated bowl with a slightly concave vertical upper wall, and a hemispherical bowl with a simple rim (see for these shapes Papanikola-Bakirtzis 1996, fig. 1, nos 1–2, 7; von Wartburg 1998, fig. 49, nos 2–3, fig. 61, no. 23). A white slip was used to paint abstract motifs (such as spirals and curving lines) on the interior surface of the red-coloured body before the lead glaze was added (see, in general, Papanikola-Bakirtzis 1996, pls 2–4).

Furthermore, the Survey Area yielded four sherds of Plain (or Monochrome) Incised Sgraffito Ware (TCP219, TCP287, TCP368, TCP488) and two fragments of One Colour and Incised Sgraffito Ware (TCP017, TCP304) from the Paphos region. Because of the tiny size of these pieces, it is not always easy to see whether they came from workshops in Paphos or Lemba. All six sherds can be dated to the Byzantine to Medieval period (c. 13th century).

The shapes of the Incised Sgraffito Wares found in the Survey Area are mainly bowls with a high ring-base and out-turned foot (Papanikola-Bakirtzis 1996, fig. 3, nos 2, 6, fig. 6, no. 10; von Wartburg 1997a, fig. 2, nos 1.51A & 1.60, fig. 4, no. 2.32). The incised decoration (in thick and thin lines) is limited to concentric circles, hatched medallions and other abstract designs in the centre of the interior (Papanikola-Bakirtzis 1996, pl. 7, nos 34–35, pl. 11, nos 55–58, pl. 15, no. 77, pl. 18, nos 91–93; von Wartburg 1997a, figs 4–5; 1998, fig. 76, no. 46; Cook and Green 2002, fig. 1, no. 3). The incised circles of one sherd (TCP304) are reminiscent of Zeuxippus Ware II sub-types or imitations, suggesting that this piece was perhaps produced in Lemba (von Wartburg 1997a, 337, fig. 4, pl. 67, no. 2, pl. 68, no. 4; see also, in general, Vroom 2005, 110–11; 2003, 159, fig. 12 mentions finds of real Zeuxippus Ware II at Kouklia and at Paphos-Leptos).

Local products also included several diagnostic fragments of Brown and Green Sgraffito Ware of the Medieval-Frankish period. From workshops in the Paphos region came a body fragment of an open vessel, probably a bowl (TCP014), and a body fragment of a closed vessel, perhaps a jug (TCP060). Both have an incised abstract decoration (in a thin line) of triangles filled with small scrolls, enlivened with added green and yellowish-brown brushstrokes or splashes, which has parallels with 14th century pottery finds (Papanikola-Bakirtzis 1989, 80–81, no. 9; 1996, pls 22–24). In addition, two base fragments (TCP220, TCP276) seem to have an abstract flower/palmette motif and a cross in the centre of the interior (see, for decoration, François and Vallauri 2001, fig. 10, 1; Papanikola-Bakirtzis 1996, pl. 21 and pl. 22, nos 111–13, pl. 26; von Wartburg 1998, fig. 50, no. 6). During the 14th century the use of broad incisions (in thick lines) was gradually abandoned, and incised motifs (in thin lines) started to dominate in the decoration of most glazed vessels (Papanikola-Bakirtzis 1996).

Middle Phase (c. 15th–16th centuries)

Imported glazed wares One small body fragment of Polychrome Painted Sgraffito Ware (SU0045.P04.1) came, undoubtedly, from northern Italy (perhaps from Venice?), although it seems similar to local sgraffito wares from Lapithos. The exterior surface of this sherd is incised with thin lines showing a floral design, embellished with painted splashes in pale green and blue-green (see, in general, Vroom 2005, 142–43).

Another imported piece is a rim fragment of a later group of Polychrome Painted Sgraffito Ware, in Italy known as '*graffita a punta e a stecca*' (TCP053). The interior surface of this sherd is alternatively incised with thin and thick lines, enhanced with painted colours such as yellow and green-blue. This type of pottery is normally dated c. late 15th–early 16th centuries. Similar-looking examples of this *graffita a punta e a stecca* have also been found in western Cyprus, for example at the Garrison's Camp and at the Sanctuary of Aphrodite in Paphos (e.g. Giudice *et al.* 1993, fig. 13, no. 6, pl. 84, no. 5; Megaw 1937–39, figs 13–14; von Wartburg 1998, 163, fig. 84, nos 74–76).

Of northern Italian origin is also a base fragment of a closed vessel (probably a trefoil mouth jug) with an opaque glaze and a painted blue stripe on the exterior surface (TCP051). It belongs to Blue-and-white Painted Maiolica of the so-called '*stile severo*' group from northern Italy (probably from workshops at Faenza). Maiolica is a tin-glazed earthenware. The sherd from the Survey Area can be roughly dated to the late 15th–early 16th centuries (see, in general, Vroom 2005, 146–47).

Other finds of imported glazed wares from Italy have been recognized at various sites on Cyprus. The first serious publication dealing with 14th–16th century imports from Italy is Peter Megaw's pre-Second World War article (but

published in 1951) of three closed deposits of fine and coarse wares excavated in Nicosia (Megaw 1937–39, figs 9–14, 18–19, 25–27, pl. 45). These finds were the result of random discoveries during building operations, and therefore not the result of systematic excavation. The rubbish pits contained Maiolica from Faenza, Padua and Venice, as well as Italian Polychrome Sgraffito Ware from the Veneto region. Apart from these Italian imports, some pieces from the East such as Iznik Ware from Turkey, Chinese porcelain and painted bowls from Syria were also found in these pits.

Apart from Nicosia, more fragments of sgraffito wares and Maiolica from northern Italy were recovered during excavations at Famagusta and at the Sanctuary of Aphrodite in Kouklia (Palaepaphos) (Mogabgab 1937–1939, 190, pl. 36, no. 4; von Wartburg 1997b, 194, pl. 21, nos 6–7; 1998, 159–65, figs 82–86). Several pieces were also picked up by the Gialias and the Potamia-Ayios Sozomenos surveys around Potamia (François and Vallauri 2001, 537–39), as well as by the Canadian Palaepaphos Survey Project in south-western Cyprus (Gregory 1987, fig. 4; 1993, fig. 63, no. D-96, pl. 27; von Wartburg 2000, fig. 5, 3–4).

Locally made glazed wares Local products of this period are well represented in the Survey Area. They contain, for example, fragments of Brown and Green Sgraffito Ware of the Medieval-Frankish period from Lapithos (TCP059, TCP103, TCP140, TCP143, TCP183, TCP212). These can be generally dated to the late 14th to 15th centuries.

Shapes include bowls with a heavy ring foot and goblets or chalices with high feet (see for shapes, Papanikola-Bakirtzis 1996, fig. 10, nos 6–7, fig. 12, no. 6). The decoration is finely engraved (with thin lines), showing for instance an abstract palmette motif in a quarter (TCP183) (see for decoration, Papanikola-Bakirtzis 1996, pl. 45, nos 32–33, pl. 46, nos 35–36, pl. 53, no. 56). Another base fragment of a chalice (TCP140) has a small incised circle in the centre of the interior base, as well as an incised cross on one side of the high ring foot (see for incised circle, Papanikola-Bakirtzis 1996, pl. 54, nos 57–58; François and Vallauri 2001, fig. 10, 3; Piltz 1996, 72, no. 55). Another sherd (TCP059) has an elaborate incised design on the interior surface of intermingling scrolls and guilloches (du Plat Taylor and Megaw 1937–39, no. 45, no. VI; Papanikola-Bakirtzis 1996, pl. 41). Finally, a body fragment (TCP103) has a border of linked scrolls on the interior upper wall (see, in general, Papanikola-Bakirtzis 1996, pl. 48, no. 26).

From the workshops in Lapithos also came many fragments of Green Painted Sgraffito Ware of the Medieval-Venetian to Early Ottoman period, which can approximately be dated to the late 15th and early 16th centuries (TCP043, TCP050, TCP052, TCP055, TCP130, TCP138, TCP145, TCP149, TCP155, TCP322, TCP382, TCP399, TCP709–11). Shapes include bowls with a heavy low ring foot and with a straight rim (sometimes slightly carinated just below the rim) or with an everted rim with rounded lip (see for shapes Papanikola-Bakirtzis 1996, fig. 14, nos 1–4 and 7, fig. 15, nos 4, 5, 7, 10, 11). The decoration on most fragments consists of a hatched medallion (in thin lines), enclosed within a concave-sided square. In this pottery group green painted lines are added on the interior surface of the vessels in order to follow or repeat the incised motifs (see for decoration Papanikola-Bakirtzis 1996, pl. 58, pl. 59, no. 73, pl. 60 below, pl. 62, nos 82, 85 and 87, pl. 63, nos 88, 91 and 93; 2004, 147, no. 94).

The last local group from Lapithos in this period is Monochrome Green Painted Ware of the Medieval-Venetian to Early Ottoman periods, which can generally be dated to the 16th century (and later?) (TCP029, TCP035, TCP037, TCP137, TCP151, TCP269–70, TCP323, TCP515, TCP522–23). Shapes include (small) bowls with a heavy low ring foot and with an everted rim and rounded lip (see for shape, Papanikola-Bakirtzis 1996, fig. 16, nos 1, 2, 4, 6, 7, 9 and 10). The painted decoration, in green, is carelessly done in simplified and schematic patterns (such as zig-zags and wavy lines) on the interior surface of the vessels (see for decoration, Papanikola-Bakirtzis 1996, p. 59, pl. 66 below, pl. 67, pl. 68, no. 110, pl. 69, nos 114–16; 2004, 148, no. 95; François and Vallauri 2001, fig. 11, 1). The incised decoration has totally disappeared by now.

Late Phase (c. late 16th/17th–20th century)

Imported glazed wares Until now, imported glazed wares of this phase have not been substantially studied and published because attention was more focused on glazed pottery from Byzantine and Medieval times. A laudable exception, however, is an article by Marie-Louise von Wartburg presenting glazed ceramics used in Cyprus during the period of Ottoman rule (von Wartburg 2001b). This pottery came from excavations at Kouklia (Palaepaphos) in western Cyprus. von Wartburg distinguished 15 groups of imported wares, among them pottery from Italy (e.g. Pisa, Montelupo, Albisola), as well as imports from Thrace, western Turkey and China. In addition, some imported glazed wares of this phase have been published from excavations at the theatre site at Nea Paphos (Cook and Green 2002), as well as from a survey by the French team around Potamia and Ayios Sozomenos in central Cyprus (François and Vallauri 2001, 539–46).

From Italy comes a base fragment of Polychrome Painted Ware, which is also known as 'Marbled Ware' (TCP265). On the interior is a painted 'marbled' decoration, created by shaking a white slip in order to intermingle and produce the marbled effect. This sherd originates from workshops in northern Italy (perhaps from Pisa or Savona?), and can be dated to the 17th century (see, in general, Vroom 2005, 164–65). On Cyprus, more pieces of 'Marbled Ware' have been identified at Kouklia (von Wartburg 2001b, 378, no. 59, fig. 10) and Nicosia (Y. Violaris, pers. comm.).

The Survey Area also yielded three fragments of Polychrome Painted Maiolica with so-called '*a spirali*

verdi' design from the Montelupo region in Tuscany, central Italy (TCP032, TCP185, TCP218). These sherds have a flat base with painted stripes/spirals in brown, light green and yellow on the interior (TCP032). All three fragments can be dated to the (17th to) 18th century. Complete examples of this later type of Maiolica can be seen in the Yeroskipou Folk Art Museum and in the vaulting of the narthex of the church of Panayia Kanakaria at Lythrankomi (Ionas 2000, 81, fig. 2.73; Megaw and Hawkins 1977, figs 26–27). Fragmentary pieces were also found during the Potamia-Ayios Sozomenos survey around Potamia (François and Vallauri 2001, 545, fig. 11, 2).

From another Italian pottery production centre, this time Grottaglie in Apulia, southern Italy, comes a rim fragment of Polychrome Painted Ware (TCP066). In shape it is a large shallow dish with everted, flattened rim and rounded lip. The decoration is limited to two simple lines on top of the rim, painted in brown. The sherd can be roughly dated to the 19th century. It seems that this white glazed Apulian Table Ware had an extensive distribution in the East: it is to be found from Austria and the Balkans to Greece and Turkey (see, in general, Vroom 1998a, 138–42; 2005, 184–85). Another sherd of this ware was found at Keratidhi Bay in western Cyprus (Morris and Peatfield 1987, p,. 58, no. 7).

Some workshops on the island of Corfu, Greece, however, also produced a kind of Grottaglie Ware, because potters from Grottaglie settled on Corfu from the 19th century onwards (Charitonidou 1983, 292, pl. 65a–b). The main shapes and designs of these 'Grottaglie imitations' are similar to the Italian ones, so it is difficult to distinguish between both groups, particularly as potters in this period were already importing clays. The Yeroskipou Folk Art Museum on Cyprus apparently has two other imitations of Grottaglie Ware from Italy (Ionas 2000, 79 and note 32, fig. 2.72).

Among the Ottoman imported ceramics in the Survey Area is a tiny base fragment of a Kütahya Ware cup from north-western Turkey (TCP325). This piece has a painted black circle on the inside, and painted underglaze decoration in blue and black (P306) on the outside. This is a small thinly-potted coffee cup (also known as '*fincan*'), which is widely distributed in countries of the former Ottoman Empire and can be dated to the 18th century (Vroom 2005, 168–71; 2007, fig. 4.17; for the spread of coffee drinking during the Ottoman period, see also Vroom 1996; 2007, fig. 4.18). More sherds of Kütahya Ware have been found during excavations at Kouklia (von Wartburg 2001b, 367, nos 6–14, figs 4, 9), as well as at the Potamia-Ayios Sozomenos survey around Potamia (François and Vallauri 2001, 544).

Apart from pottery, the Survey Area also yielded a tobacco pipe fragment. This is a disk-based clay pipe fragment of the eastern-style '*chibouk*' pipe, probably from the Tophane district in Istanbul (TCP571). This piece can be dated to the late 17th–18th centuries because of its shape (see, in general, Graf 2001, fig. 11B; Hayes 1992, fig. 149; Vroom 2005, 172–75). On Cyprus, other tobacco pipe fragments of the '*chibouk*' style were recognized in Nicosia, Limassol, Larnaca, Kouklia, as well as in the Potamia-Ayios Sozomenos survey (Baram 1995; François and Vallauri 2001, 544; Graf 2001; see also Vroom 2007, 84–86 for the dating of post-Medieval ceramics by tobacco pipes).

Furthermore, five fragments were found of Monochrome Painted Ware from Çanakkale on the Dardanelles in western Turkey (TCP054, TCP096, TCP326, TCP511, TCP518). Shapes include large dishes with a low small ring foot. The decoration of vegetal stylized motifs (such as leaves and flowers) was painted freely, with broad strokes of the brush, in a black-purple to dark reddish-brown colour. The sherds from the Survey Area can be dated to the 19th century (see, in general, Vroom 2005, 180–83).

It seems that large quantities of such glazed and decorated dishes from Çanakkale were imported to Cyprus at the end of the 19th century and sold at the ports of the island (Ionas 2000, 81 and 241, appendix 1). They were made in three sizes and reasonably priced, because this ware was sold for the same price as locally made glazed ceramics from Lapithos, which were not fully glazed. Complete examples of Çanakkale Ware dishes (with similar decoration to the TAESP sherds) are now preserved as decorative '*bacini*' in the churches of Panayia Kanakaria at Lythrankomi and of Ayios Georgios at Ayios Sozomenos (Ionas 2000, 135, fig. 4.26; Megaw and Hawkins 1977, 15, figs 21–22, 26–27). More such finds come from Potamia, Kouklia and Paphos (Cook and Green 2002, fig. 2, no. 15; François and Vallauri 2001, 544, figs 8, 4–5 and 11, 3; von Wartburg 2001b, 367–69, nos 16–20, figs 4, 9).

Finally, TAESP yielded several fragments of slip-painted Ware from Didymoteicho, northern Greece, and/or Çanakkale on the Dardanelles, western Turkey (TCP031, TCP164, TCP510). There are two variants of this glazed slip-painted pottery. One has a brilliant greenish glaze, becoming dark green on the fabric and pale green on the white slip. The other shows an ochre-yellowish glaze, becoming brown on the fabric and yellow on the white slip. The slip is simply put on the rim by hand, dribbling star-like towards the interior of the vessel (Korre-Zographou 1995, fig. 29). Shapes are often open, usually dishes with an everted rim and straight divergent walls (François 1995, figs 1–5; Vroom 2005, 186).

This 19th-century slip-painted ware was widely distributed throughout the eastern Mediterranean. One can find it in Istanbul, as well as in the Aegean, Egypt and Northern Syria (see, in general, François 1995; Vroom 1998a, 142; 2005, 186–87). Several pieces of this slip-painted ware were also found in the bay of Keratidhi, at Kouklia and at the theatre site and Garrison's Camp at Paphos, but at this last site they were not recognized as being this type of pottery and were, therefore, dated too early in the 13th century (Cook and Green 2002, fig. 2, no. 14; Giudice *et al.* 1994, 256, C5–6, fig. 16, nos 3–4, pl. 70; Giudice *et al.* 1996, 240, C14, fig. 27, no. 7, pl. 35; Morris and Peatfield 1987, figs 1–2, nos K040–43, K072, K100, pl. 58, no. 9; von Wartburg 2001b, 375–76, nos 48–53, figs 7, 10).

Locally made glazed wares Local glazed fine ceramics of the Ottoman to Modern period include fragments of Monochrome Green Painted Ware (TCP002, TCP516, TCP524, TCP570), Monochrome Brown Painted Ware (TCP326) and Monochrome Ochre Glazed Ware (TCP525) from workshops in Lapithos. Apparently, during this period, Lapithos was the only pottery manufacturing centre left producing glazed and decorated ceramics with clay of a superior quality (Ionas 2000, 81). About 40 pottery workshops were in operation in 1889, but only four in 1899 when P. Gennadius wrote a report on agriculture in Cyprus (Ionas 2000, 241, appendix 1).

The most frequently found shape in the Survey Area is a shallow bowl with a flat base, straight divergent walls and an everted rim. On Cyprus, this shape existed in various sizes and was known as '*kouppa*', '*skoutellin*', '*skoutellarka*' (large size for communal dining), '*skoutellou(d)in*' (small size) or '*skoutellouroudin*', and was used as an eating bowl (see for shape Ionas 1998, 68, 71; 2000, 81, figs 2.75–76; see also François and Vallauri 2001, fig. 7, nos 11–15 for similar finds from the Potamia-Ayios Sozomenos survey). The bowls are totally glazed on the inside and under the rim on the outside. The painted decoration consists of green splashes or brushes, also known as '*graliasmata*' (Korre-Zographou 2000, 177, fig. 174; Papademetriou 2005, 34–35, 47 upper left picture and 53 for green painted bowls, 47 upper right picture for an ochre-glazed bowl). The bowls can probably be dated c. late 19th–early 20th centuries.

Noteworthy are two pieces of Monochrome Brown Painted Ware of the Ottoman to Modern period (TCP517, TCP526). Their decoration in brown paint looks very similar to products from D. Tsimouris' workshop in Lapithos (see for decoration Papademetriou 2005, 54). If these fragments do originate from this workshop, they can be dated to the late 19th–early 20th centuries, as Demetris Tsimouris lived between 1855 and 1935 (cf. Papademetriou 2005, 55–59 for further information about this potter).

Discussion

Despite the fragmentary condition of the finds, the research on the glazed pottery fragments from the Survey Area has offered new insights in the distribution of local and imported wares in this part of the island, most notably for the Medieval to Modern periods.

With respect to glazed ceramics, there certainly appears to be a dominance of locally made wares in the Early and Middle phases (c. 11th–14th centuries and c. 15th–16th centuries respectively). Figure 3.3 shows by phase the relation between locally produced and imported wares for the most clearly diagnostic glazed pieces from the Survey Area. This graph clearly shows that the Middle phase (c. 15th–16th centuries) has by far the largest amount of glazed pottery in the Survey Area, and that this amount consists mainly of locally made ceramics. These local wares were primarily manufactured in the important pottery production centre of Lapithos on the northern coast of Cyprus. It is in fact hardly a surprise to find such a high percentage of these products, because Lapithos is just 35 km away from the Survey Area.

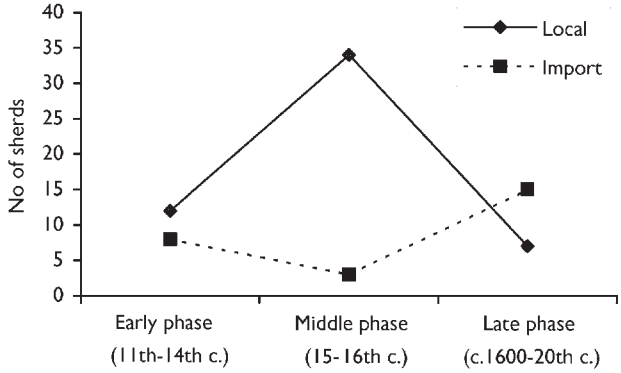


Fig. 3.3. Distribution of locally made and imported glazed diagnostic fragments by phase

Imported glazed sherds, on the other hand, are well presented in the Late phase (c. late 16th/17th–20th centuries) (Fig. 3.3). These wares include imports from Italy as well as imports from the Aegean and north-west Turkey. From Gennadius' 1899 report on agriculture in Cyprus we learn that large quantities of glazed wares from the famous pottery production site of Çanakkale in north-western Turkey were indeed imported to Cyprus in this period, leading to the decline of the local pottery industry at Lapithos (Ionas 2000, 241 and appendix 1). The pottery from TAESP seems to corroborate this information, and also offers additional information which enhances the knowledge on the island's overseas trade exchanges in this period.

Finally, I would like to stress how useful it would be for future research, if all ongoing projects published on a more regular basis the much neglected glazed pottery of the Ottoman to Modern periods found in archaeological contexts on Cyprus.

3.6 Pottery Catalogue

Kristina Winther-Jacobsen, Ruth Smadar Gabrieli, Mara T. Horowitz, Sarah Janes, Luke Sollars and Joanita Vroom

During the five seasons of the project a total of 99,679 ceramic artefacts were counted. Of those, 30,721 were collected and analysed, and a sample of 712 objects was selected for the catalogue. The catalogue represents 0.7% of the counted material and 2.3% of the collected material. This sample was, of course, selected not for its statistical validity but as an indication of the range of functions, types and periods represented in the Survey Area.

In a recent volume on ploughsoil assemblages, three articles discussed some of fundamental problems faced by ceramic studies in current Mediterranean survey: the poor understanding of the pottery types; the lack of excavated published contexts; and the human resources (Hayes 2000; Malone and Stoddart 2000; Patterson 2000). For the historical periods we were unable to work within a regionally established chronological framework since few excavations have been published in or around the Survey Area (Chapter 1.3). Imported pottery is relatively rare, and the petrographic analyses have demonstrated how very different local pottery types were made from clay deposits of analogous mineral composition over very long periods of time (Chapter 3.3). Hence we have had limited success in distinguishing distinctive local fabrics.

Quite a few artefacts have been included in the inventory for functional reasons, even if the chronology is based mainly on their distribution within the Survey Area. When certain types of vessels are found repeatedly with the same types of well-dated pottery, there is a high probability of chronological correlation, even if they may not have the same range of dates. The aim here is to permit the reader some idea of the range of pottery found. A similar approach was applied to date fabric groups by the Sphakia Survey in Crete (Moody *et al.* 2003, 51–54), although for type of vessels the diagnosis was mainly based on simple combinations rather than proportions. The situation is parallel to the situation in Central Boeotia, where imports and excavated reference points are lacking and where thousands of sherds fall into recognisable classes but the exact date-span remains elusive (Hayes 2000, 106).

Model catalogue entry (anything in italics is a heading)

Catalogue No.	Inventory No. Provenance
Shape	Chronotype; Function
	Parts of vessel; Preservation
Decoration	Decoration/Surface treatment
	Diam. (Diameter); Thickness
Fabric	Clay; Texture; Hardness; Fracture; Sorting
	Munsell: exterior; interior; material
Inclusions	Frequency; Size; Shape; Colour; Reflective
	Void Type; Void Comments
Comments	Comments
Comparanda	Comparanda

Inventory numbers (TIP*nnnn*) were assigned to and written on sherds in the field. A selection of the full inventory was transferred to the catalogue. These sherds were grouped according to where they were found and assigned a Catalogue Number (TCP*nnn*). The catalogue number is used throughout this publication.

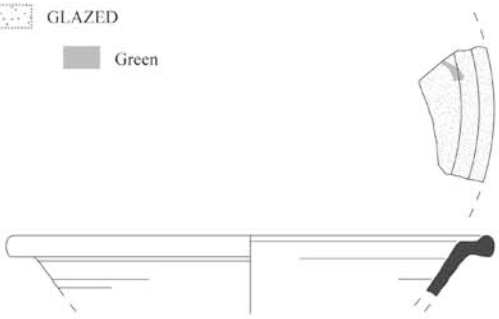
The provenance identifies where the item was recovered, and consists of a combination of some of the following: SIA no.; Transect no.; SU no.; POSI no.PU no.; POSI no.AU no.Layer no.; BU no.SE no. It will always end with: Batch no.Piece no. The comparanda only apply to the specific fragment. For more general comparanda to the chronotype see the chronotype list in Appendix 2. For TAESP period definitions, see Table 2.9.

Line drawings and black and white photos are shown opposite the catalogue entry. Colour photos of Medieval–Modern glazed sherds are in Plates 3.5–3.7; the reference is given in the catalogue entry. A few sherds without distinguishing features were not drawn or photographed, particularly prehistoric and Iron Age body sherds.

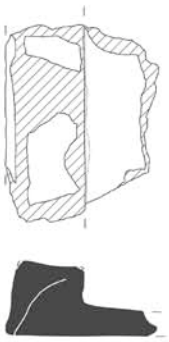
TCP001

GLAZED

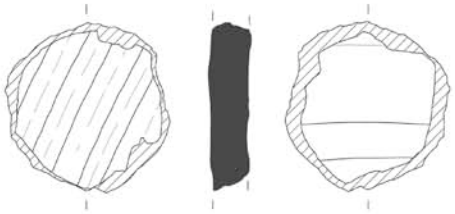
Green



TCP002

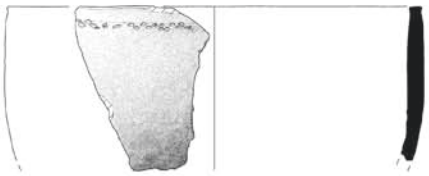


TCP003



TCP004

TCP005

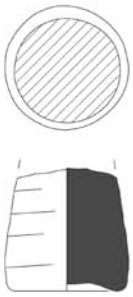


TCP006

TCP007

TCP008

TCP009



TCP010

TCP011

TCP012

0 20 cm

TCP013

0 10 cm

TCP014

GLAZED:

Red/Brown

White

TCP001 TIP0001. TS11 SU0001 P15.1
Shape CWPR11-LR; CW
Rim; Good
Diam. 14 mm; External; Rim thickness 7 mm
Fabric Ferrous; Coarse; Medium; Medium; Good
Munsell: 7.5YR 6/4; 7.5YR 6/4; 2.5YR 5/6
Inclusions Common; Medium; Angular; Greyish-white

TCP002 TIP0064. TT383500N SU0002 P02.1 (Plate 3.5)
Shape MP01-OTTMODII; TW
Rim; Good
Decoration Interior/exterior rim: white slip & green painted abstract decoration (5G 3/1) under transparent lead glaze
Diam. 280 mm; External; Rim thickness 6 mm
Fabric Calcareous; Fine; Medium; Smooth, Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/6
Inclusions Common; Small; Rounded; White
Rare; Small; Angular; White/purple
Rare; Tiny; Sub-Rounded; Black
Limestone
Comments Green Painted Ware from Lapithos. Kouppa?
Comparanda Ionas 1998, 71.

TCP003 TIP0009. TT383500N SU0002 P11.1
Shape TiSk02-LR; Ar
Rim; Good
Thickness 14 mm
Fabric Mixed; Medium; Hard; Medium; Medium
Munsell: 2.5Y 7/3; 2.5Y 7/3; 2.5YR 8/4
Inclusions Common; Small; Sub-Rounded; Dark quartz
Sparse; Tiny; Sub-Rounded; Yellow calcium carbonite?
Sparse; Medium; Sub-Rounded; Grog

TCP004 TIP0010. T383500N SU0002 P14.1
Shape HU-ROM; HU
Body; Good
Diam. 83 mm; Other. Thickness 21 mm
Fabric Mixed; Poor; Coarse; Medium; Medium
Munsell: 2.5YR 7/8; 2.5YR 7/8; 5YR 7/6
Inclusions Common; Medium; Sub-Rounded; White
Common; Large; Angular; Dark
Comments Disc cut out of Roman-period self-slipped tile, possible amphora stopper.

TCP005 TIP0402. TT383500N SU0002 P25.1
Shape ESA-LHER; TW
Base; Poor
Thickness 12.4 mm
Fabric Calcareous; Fine; Medium; Smooth; Good
Munsell: 10YR 8/3; 10YR 8/3; 10YR 8/3
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish

TCP006 TIP0432. TT383500N SU0002 P28.1
Shape BGW02-MOD; CW
Rim; Medium
Decoration Lapithos style. Rouletted interrupted staggered lines.
Diam. 180 mm; External; Rim thickness 7 mm
Fabric Ferrous, Coarse; Medium; Gritty; Medium
Munsell: 5YR 5/4; 7.5YR 4/4; 5YR 4/6
Inclusions Abundant; Tiny, Small; Rounded; Red/Brown
Sparse; Medium, Large; Rounded; Red/Brown
Sparse; Medium, Large; Sub-Rounded; Red/Brown
Comments Internally glazed casseroles, 19th c. or later

TCP007 TIP0434. TT383500N SU0002 P29.1
Shape Uja-MM; U
Rim; Poor
Diam. 260 mm; External; Rim thickness 8 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 5YR 5/4; 5YR 5/4; 10YR 5/1
Inclusions Abundant; Tiny, Small; Rounded; White/light brown
Sparse; Medium; Rounded; Dark brown

TCP008 TIP0438. TT383500N SU0002 P30.1
Shape UFB02-OTTMODI; U
Base; Medium
Diam. 105 mm; External; Base thickness 7 mm
Fabric Ferrous; Medium; Soft; Medium; Medium
Munsell: 7.5YR 6/6; 7.5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Rounded; White
Sparse; Small; Rounded; Red/Brown
Sparse; Small, Medium; thin & elongated; White
Comments Minor lime pitting.

TCP009 TIP0006. TT383500N SU0002 P31.1
Shape KoaP-HER; Tr
Base; Poor
Fabric Self Slip; Medium; Medium; Medium; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Greyish quartz
Comparanda Hayes 1991, Fig. 37: 3–4

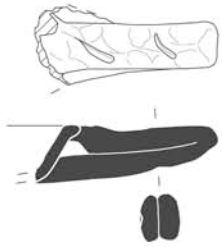
TCP010 TIP0008. TT383500N SU0002 P32.2
Shape Am01-HR; Tr
Base; Good
Diam. 70 mm; External; Base
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 2.5YR 8/3; 2.5YR 8/3; 7.5YR 8/3
Inclusions Common; Medium; Sub-Rounded; Clear quartz; Reflective
Common; Medium; Sub-Rounded; Calcium carbonite
Common; Medium; Sub-Rounded; grog
Comments Africana Grande?

TCP011 TIP0007. TT383500N SU0002 P33.3
Shape Am11-HR; Tr
Base; Poor
Fabric Mixed; Medium; Medium; Medium; Poor
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Small; Sub-Rounded; Grey quartz
Sparse; Medium; Sub-Rounded; Red clay pellets

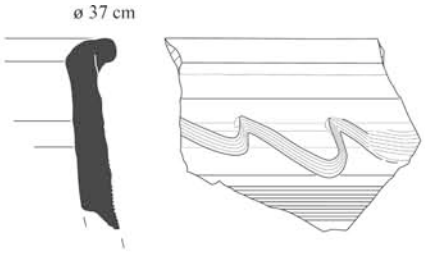
TCP012 TIP0013. TS11 SU0003 P04.1
Shape Ug-HEL; PO
Base; Medium
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 2.5Y 7/4; 10YR 6/4; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white
Sparse; Tiny; Sub-Rounded; Red

TCP013 TIP0014. TS11 SU0003 P05.1
Shape RS-HR; TW
Rim; Medium
Diam. 150 mm; External; Rim thickness 4 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 6/8
Inclusions Rare; Tiny; Sub-Rounded; Yellowish-white
Unknown; Tiny elongated voids.
Comments Similar to TCP165, an imitation of Late Roman CRS02; this fragment's slip is much higher quality.

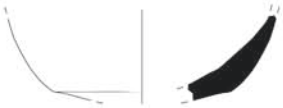
TCP014 TIP0063. TS11 SU0003 P22.1 (Plate 3.5)
Shape CGS05-MEDF; TW
Body; Poor
Decoration Sgraffito. Interior: white slip & incised decoration under transparant lead glaze.
Thickness 5 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Rare; Tiny; Sub-Rounded; Red
Rare; Tiny; Rounded; White
Rare; Small; Angular; Black
Limestone
Comments Brown & green sgraffito, possibly from Paphos. 14th c.
Comparanda Same as SCSP 4552.1.1 from Lapithos (unpublished).



TCP015

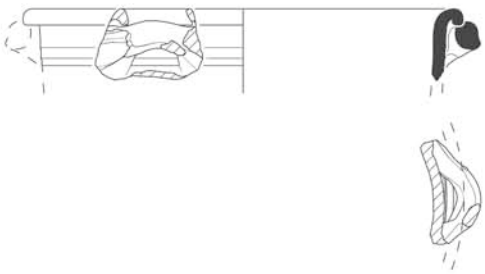


TCP019



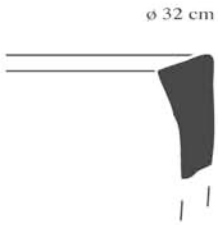
TCP020

TCP021

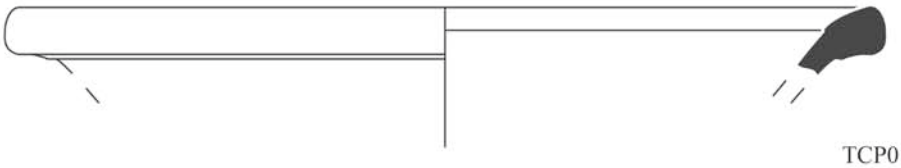


TCP022

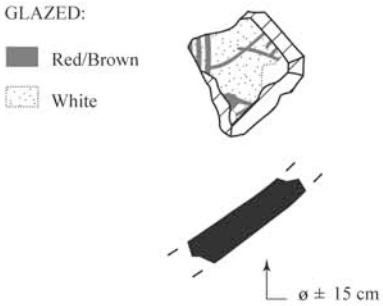
TCP024



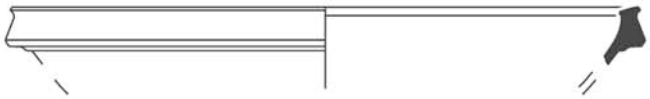
TCP028



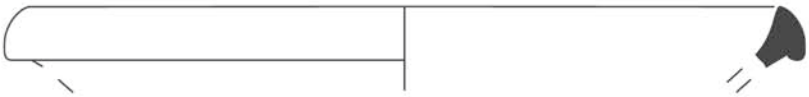
TCP016



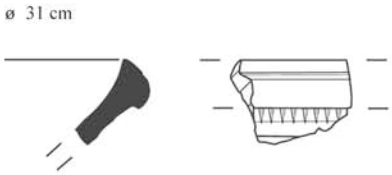
TCP017



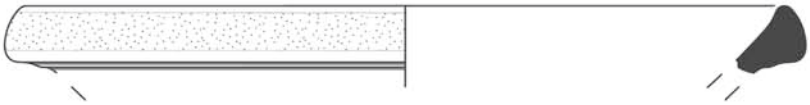
TCP023



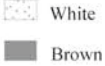
TCP025



TCP026



TCP027



TCP015 TIP0016. TS11 SU0004 P14.1
Shape CWFPWh-HR; CW
Rim, Handle; Medium
Diam. (int.) 150–200 mm; Rim thickness 5.5 mm
Fabric Ferrous; Medium; Hard; Medium; Medium
Munsell: 7.5YR 4/3; 7.5YR 4/3; 7.5YR 4/3
Inclusions Rare; Small; Sub-Rounded; White
Sparse; Small; Sub-Rounded; Brownish-white
Sparse; Small; Sub-Rounded; Dark grey
Comparanda Gjerstad *et al.* 1937, fig. 280.

TCP016 TIP0015. TS11 SU0004 P15.1
Shape LRC10A-LR; TW
Rim; Medium
Decoration Blackened rim
Diam. 210 mm; External; Rim thickness 5.5 mm
Fabric Ferrous; Medium; Hard; Medium; Good
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Limestone; Halos

TCP017 TIP0132. TS11 SU0004 P18.1 (Plate 3.5)
Shape CGS07-MEDB; TW
Body; Poor
Decoration Interior: white slip & incised abstract decoration & pale yellow lead glaze (2.5Y 7/6).
Thickness 7 mm
Fabric Ferrous; Fine; Soft; Smooth; Rare
Munsell: 2.5YR 5/6; 2.5YR 5/8; 2.5YR 5/8
Inclusions Tiny; Rounded; White
Rare; Medium; Sub-Rounded; Red
Limestone
Comments Incised Sgraffito Ware from Paphos. 13th c.

TCP018 TIP0019. TS07 SU0009 P03.1 (Plate 3.5)
Shape HU-MOD; HU
Body; Good
Decoration Burnished & dented. One with graffito.
Thickness 10.5 mm
Fabric Ferrous; Medium; Medium; Medium; Poor
Munsell: 7.5YR 5/4; 7.5YR 5/4; 7.5YR 5/4
Inclusions Common; Small; Sub-Rounded; Black
Sparse; Small; Sub-Rounded; Yellowish-white
Sparse; Large; Sub-Rounded; Red
Comments Interior almost covered in greyish-white layer. Fabric like SA-Mod.

TCP019 TIP0020. TS07 SU0010 P02.1
Shape HUR10-LR; HU
Rim; Good
Decoration Combed lines & wavy lines
Thickness 14 mm
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 2.5Y 8/3; 2.5Y 8/3; 7.5YR 7/6
Inclusions Common; Small; Sub-Rounded; Grey & black
Sparse; Small; Sub-Rounded; White

TCP020 TIP0436. TS07 SU0010 P07.1
Shape UFB01-MM; U
Good
Diam. 75 mm; External; Base thickness 6.25 mm
Fabric Ferrous; Coarse; Hard; Gritty; Good
Munsell: 7.5YR 5/4; 7.5YR 5/4; 10YR 3/3
Inclusions Common; Tiny, Small; Rounded; White

TCP021 TIP0437. TS07 SU0011 P03.1
Shape ID03-MEDUIII; U
Body; Good
Decoration Simple ridge on base of jug's neck with incised decoration; band of vertical lines above ridge, & single wavy line below.
Thickness 9 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 5/4; 5YR 5/4;
Inclusions Common; Medium; Sub-Rounded; Orange
Common; Tiny, Small, Medium; Sub-Rounded; White
Sparse; Small; Rounded; Red/brown

TCP022 TIP0032. TS02 SU0012 P20.1
Shape CWCR01-LR; CW
Rim, Handle; Good
Diam. 180 mm; External; Rim thickness 5 mm
Fabric Ferrous; Medium; Medium; Medium; Good
Munsell: 5YR 4/6; 5YR 4/6; 5YR 4/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white

TCP023 TIP0030. TS02 SU0012 P23.1
Shape LRC03F-LR; TW
Rim; Medium
Diam. 150 mm; External; Rim thickness 2 mm
Fabric Ferrous; Fine; Medium; Medium; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/8
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white
Small variant.

TCP024 TIP0027. TS02 SU0012 P24.1
Shape CRSK01-LR; TW
Rim; Medium
Diam. 220 mm; External; Rim thickness 55 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish; Reflective
Unknown; Sparse

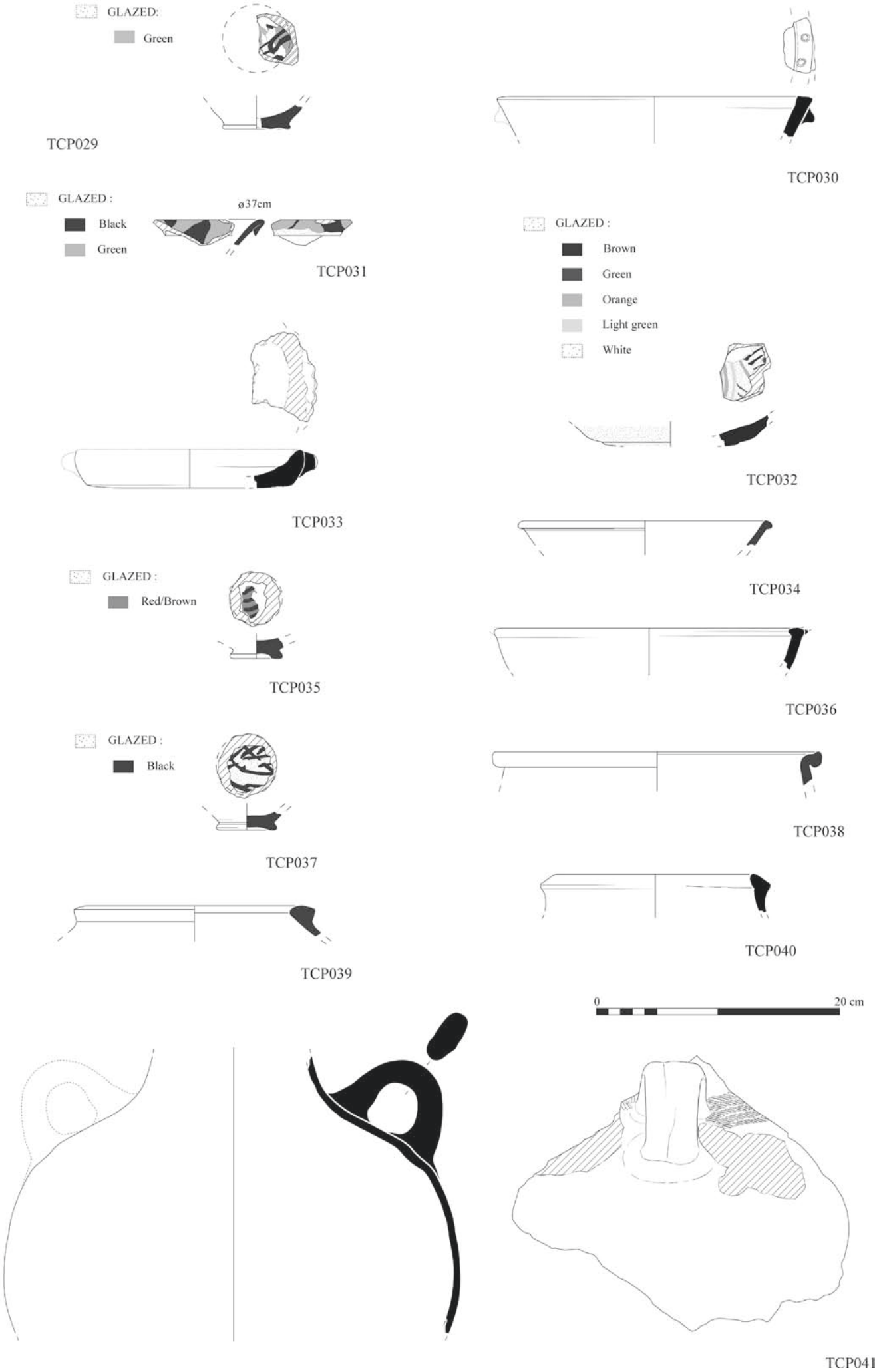
TCP025 TIP0028. TS02 SU0012 P25.1
Shape CRS09-LR; TW
Rim; Poor
Diam. 250 mm; External; Rim thickness 4 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish-white
Unknown; Sparse

TCP026 TIP0031. TS02 SU0012 P25.2
Shape CRS09-LR; TW
Rim; Poor
Decoration Roulette decoration just below the rim.
Diam. 180 mm; External; Rim thickness 5 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish-white
Unknown; Sparse

TCP027 TIP0029. TS02 SU0012 P27.2
Shape LRC10-LR; TW
Rim; Poor
Diam. 230 mm; External; Rim thickness 4 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish-white
Unknown; Sparse

TCP028 TIP0035. TS11 SU0015 P10.1
Shape LUR06-HR; LU
Rim; Good
Diam. 180 mm; External; Rim thickness 7.4 mm
Fabric Self Slip; Medium; Medium; Medium; Good
Munsell: 2.5Y 8/2; 2.5Y 8/2; 5YR 7/4
Inclusions Common; Small; Sub-Rounded; Greyish-black
Sparse; Small; Sub-Rounded; Red
Limestone; Beige halos

Pottery catalogue: TCP015–17, TCP019–028 (drawings: Jean Humbert; photo: Chris Parks)



Pottery catalogue: TCP029–TCP041 (drawings: Jean Humbert)

TCP029 TIP0095. TS11 SU0016 P17.1 (Plate 3.5)
Shape MP01-MedVOtt; TW
Base; Medium
Decoration Interior: white slip? & painted abstract decoration in dark green (5Y 3/2) under transparent lead glaze.
Diam. 40 mm; External; Base thickness 6 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 10YR 6/4; 10YR 6/4; 10YR 6/4
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Green Painted Ware possibly from Lapithos, 16th c.+

TCP030 TIP0525. TS11 SU0017 P13
Shape UBR02-MEDUI; U
Rim, Handle; Medium
Decoration Impressed circles along the upper face of the rim.
Diam. 330 mm; Internal; Rim thickness 7 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 7.5YR 5/6; 2.5YR 4/6; 5YR 4/6
Inclusions Abundant; Medium, Large; Sub-Rounded, Rounded; White (Lime?)
Common; Medium, Large; Sub-Rounded; Dark Brown
Common; Medium, Large; Rounded; Dark Brown
Sparse; Medium; Rounded; Brown (grog?)
Comments Edge of handle too chipped to be sure of shape, but fabric & decoration similar to stopper TCP443; date of 12th–13th c. is tentatively suggested.

TCP031 TIP0096. TS11 SU0019 P09.1 (Plate 3.5)
Shape SP01-OTTMODII; TW
Rim; Good
Decoration Interior & exterior rim: painted with white slip becoming pale green (P377 U) under green lead glaze (10Y 4/1).
Diam. 270 mm; External; Rim thickness 3 mm
Fabric Ferrous; Fine; Medium; Smooth; Medium
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/6
Inclusions Rare; Tiny; Rounded; Purple
Sparse; Small; Rounded; White
Limestone
Comments Slip-painted ware, Didymoteicho. Late 19th–early 20th c.

TCP032 TIP0072. TS11 SU0019 P12.1 (Plate 3.5)
Shape PP01-OTT; TW
Body; Medium
Decoration Interior & exterior: white slip & tin glaze. Interior: polychrome painted abstract decoration in brown (2.5YR 4/1), yellow (7.5YR 6/8) & pale green (5GY 7/1).
Thickness 11 mm
Fabric Calcareous; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/4; 7.5YR 7/4; 7.5YR 7/4
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Maiolica 'Spirali verdi' from Tuscany, 17th–18th c.

TCP033 TIP0524. TT3880000N SU0021 P10.1
Shape UPL03-OTTMODI; U
Rim, Base, Body; Medium
Decoration Indentation line along the outside edge of the rim.
Diam. 150 mm; External; Rim thickness 11.5 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 7.5YR 4/2
Inclusions Common; Medium; Rounded; Dark brown
Common; Small; Rounded; White & dark brown
Common; Tiny; Rounded; White
Sparse; Medium, Large; Sub-Rounded; White
Sparse; Medium, Large; Rounded; White

TCP034 TIP0062. TT3880000N SU0023 P01.1
Shape CS10-ER; TW
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white

TCP035 TIP0097. TT3880000N SU0023 P03.1 (Plate 3.5)
Shape MP01-MedVOtt; TW
Base; Medium
Decoration Interior: possible white slip? Painted abstract decoration in green-brown (5Y 3/2) under transparent lead glaze.
Diam. 36 mm; External; Base thickness 5 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Rare; Tiny; Rounded; Black and white
Limestone
Comments Green Painted Ware. Possibly Lapithos? Late 16th c.+

TCP036 TIP0526. TT3880000N SU0023 P23
Shape UBRB-OTTMODI; U
Rim; Poor
Decoration Wet smoothed interior & exterior.
Diam. 240 mm; Internal; Rim thickness 6 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5YR 6/6; 5YR 6/6; 5YR 4/4
Inclusions Common; Small, Medium; Rounded; Dark brown/black
Common; Tiny, Small, Medium; Sub-Rounded; White
Rare; Medium; Sub-Rounded; Grey

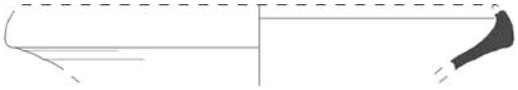
TCP037 TIP0101. TT3880000N SU0024 P09.1 (Plate 3.5)
Shape MP01-MedVOtt; TW
Base; Medium
Decoration Interior: painted abstract decoration in dark green (10Y 4/1) under transparent lead glaze.
Diam. 47 mm; External; Base thickness 4 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Sparse; Tiny; Rounded; White
Comments Green Painted Ware from Lapithos, 16th c.+

TCP038 TIP0037. TT3880000N SU0024 P22.1
Shape CWPR01-ROM; CW
Rim; Medium
Diam. 190 mm; Internal; Rim thickness 7.6 mm
Fabric Ferrous, Medium; Medium; Medium; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Greyish-brown

TCP039 TIP0039. TT3880000N SU0024 P23.1
Shape BuLR01-MEDUI; LU
Rim; Medium
Diam. 210 mm; Internal; Rim thickness 5.1 mm
Fabric Ferrous; Coarse; Medium; Medium; Medium
Munsell: 7.5YR 6/4; 10YR 6/3; 2.5Y 4/2
Inclusions Common; Small; Sub-Rounded; Black; Reflective

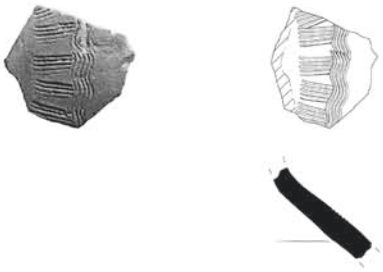
TCP040 TIP0519. TT3880000N SU0024 P24
Shape BUJaK-MM; U
Rim; Medium
Decoration Smoothed exterior.
Diam. 170 mm; External; Rim thickness 4 mm
Fabric Ferrous, Coarse; Medium; Medium; Poor
Munsell: 7.5YR 6/6; 5YR 6/4; 7.5YR 4/6
Inclusions Abundant; Small, Medium; Sub-Rounded, Rounded; Brown
Sparse; Tiny, Small; Rounded; White

TCP041 TIP0148. TT3880000N SU0027 P05.1
Shape BUPSJa-MM; LU
Handle, Body; Medium
Decoration Blackened handle. 5 rows of short incised lines on shoulder, in line with upper attachment of handle
Thickness 55 mm
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 5YR 4/4; 5YR 4/4; 5YR 4/4
Inclusions Common; Medium; Sub-Rounded; Dark brown
Comments Same as TCP512.



TCP042

TCP044



TCP047

TCP048

TCP049

0 20 cm

GLAZED :

Red/Brown

Green

White

TCP043

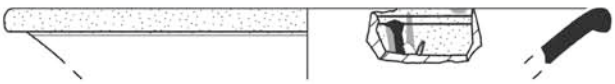
TCP046

GLAZED :

Black

Green

White

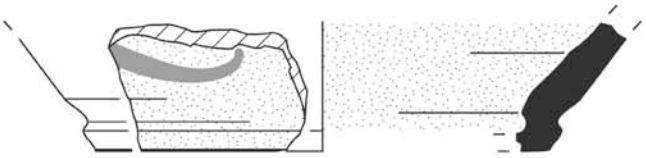


TCP050

GLAZED :

Blue

White

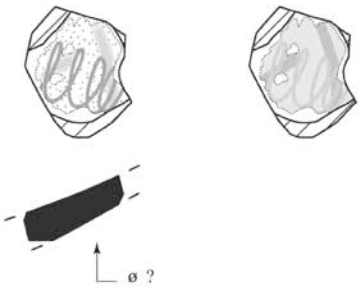


TCP051

GLAZED :

Brown

Light green



TCP052

GLAZED :

Black

Green - Blue

Yellow

White

TCP053

0 10 cm

TCP042 TIP0074. TT3880000N SU0031 P17.1
Shape CRS09B-LR; TW
Rim; Poor
Decoration Yellow rim
Diam. 290 mm; External; Rim thickness 4.7 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/4; 2.5YR 6/4; 2.5YR 6/4
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white Limestone

TCP043 TIP0065. TT3880000N SU0031 P20.1 (Plate 3.5)
Shape CGS06- MedVOtt; TW
Body; Good
Decoration Interior: white slip & incised abstract decoration highlighted with green paint (P 370 V) under a transparent lead glaze.
Thickness 4 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Green Painted Sgraffito Ware from Lapithos. Late 15th to 1st half of 16th c.

TCP044 TIP0527. TT3880000N SU0031 P28
Shape ID04-MEDUIII; U
Body; Good
Decoration Single wavy line, hastily made, defines neck/shoulder line
Thickness 6 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 5/6
Inclusions Abundant; Medium; Sub-Rounded, Rounded; Brown
Common; Small; Rounded; White
Comments An example of late decoration style.

TCP045 TIP0208. TT3880000N SU0032 P12.1
Shape WSOS-POB; TW
Body; Medium
Decoration White salt slip, light burnish & black paint.
Thickness 45 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 2.5Y 8/1; 2.5Y 8/1; 2.5Y 6/1
Inclusions Common; Small; Sub-Rounded; White
Sparse; Tiny; Sub-Rounded; Black

TCP046 TIP0209. TT3880000N SU0032 P38
Shape BRII-POB; TW
Fabric Ferrous;
Munsell: 7.5YR 6/4; 7.5YR 6/6; 2.5Y 5/1
Inclusions Common; Tiny; Sub-Rounded; Black
Common; Small; Angular; White

TCP047 TIP0516. TT3880000N SU0032 P39
Shape ID02-MEDUIII; U
Shoulder; Good
Decoration Incised decoration, deep & sharp. Oblique strokes over a wavy band. Five-teeth comb. Glazed inside, starting close to lower break-line. Glaze 5YR 3/3.
Thickness 9.5 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 5YR 5/4; 5YR 5/4; 2.5YR 5/8
Inclusions Sparse; Small, Medium, Large; Sub-Rounded, Rounded; Dark brown
Sparse; Small, Medium, Large; Sub-Rounded, Rounded; White
Comments The decoration band is shorter than usual.

TCP048 TIP0521. TT3881000N SU0040 P10.1
Shape UBRB-OTTMODI; U
Rim, Handle; Poor
Decoration Smoothed interior & exterior.
Thickness 7 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 6/6; 5YR 6/6; 5YR 5/3
Inclusions Common; Medium; Rounded; Dark brown
Common; Tiny, Small; Rounded; White
Sparse; Medium, Large; Sub-Rounded, Rounded; White

TCP049 TIP0528. TT3881000N SU0043 P22
Shape UBRB-OTTMODI; U
Rim; Good
Decoration Wet smoothed.
Diam. 300 mm; External; Rim thickness 6 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 6/3; 5YR 6/4; 7.5YR 4/4
Inclusions Common; Tiny, Small; Sub-Rounded, Rounded; White
Rare; Medium; Rounded; Light red/brown
Sparse; Medium; Rounded; Black

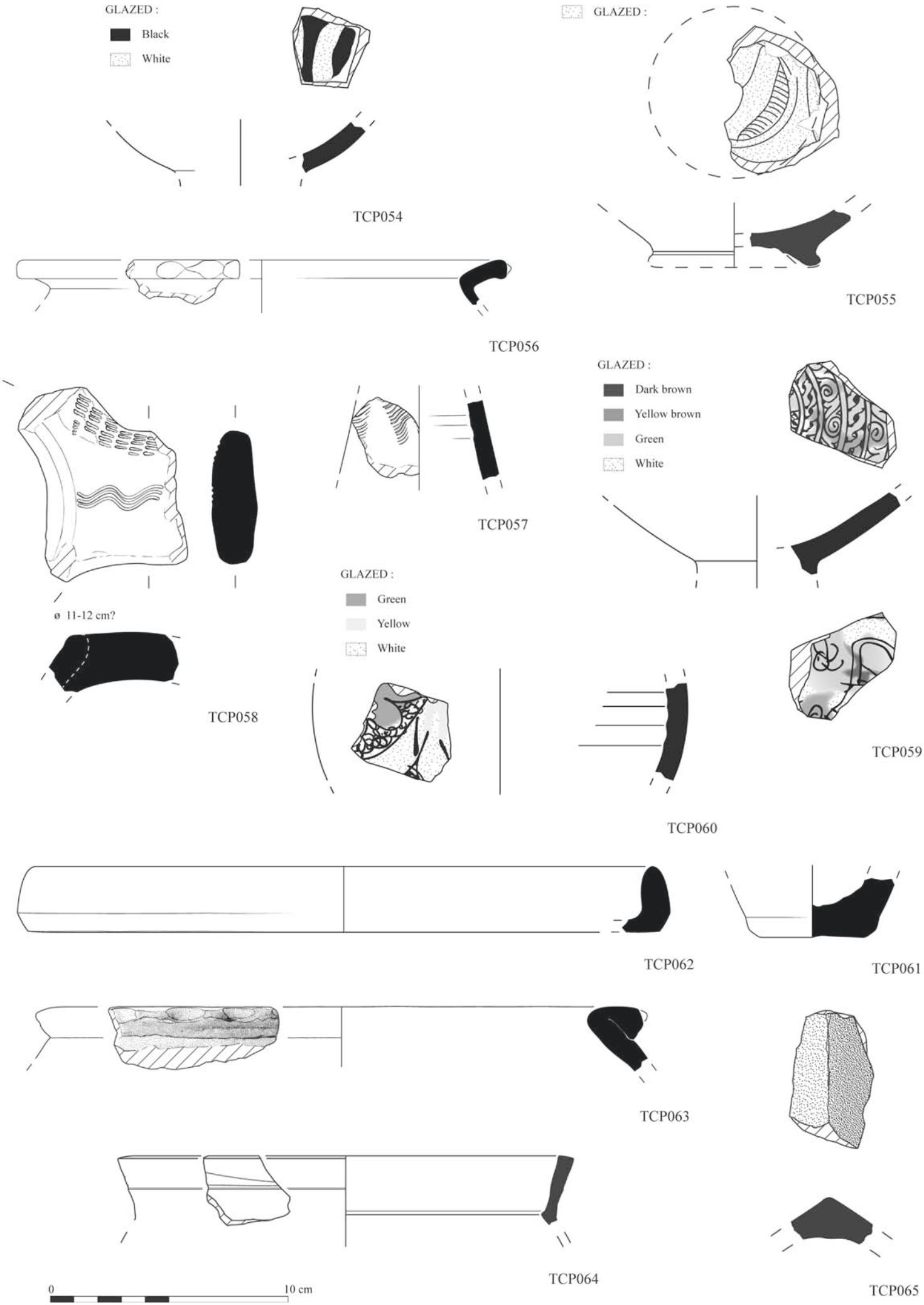
TCP050 TIP0067. TT3881000N SU0045 P03.1 (Plate 3.5)
Shape CGS06-MedVOtt; TW
Rim; Good
Decoration Interior: white slip & incised abstract decoration highlighted with green paint (P 363 U-5G 2.5/2) under a transparent lead glaze.
Diam. 180 mm; External; Rim thickness 4 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/6
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Green Painted Sgraffito Ware from Lapithos. Late 15th to first half of the 16th c.

TCP051 TIP0106. TT3881000N SU0045 P05.1 (Plate 3.5)
Shape PP02-MedVOtt; TW
Base; Good
Decoration Interior & exterior: white slip & tin glaze. Exterior: painted stripe in blue
Diam. 130 mm; External; Base thickness 8 mm
Fabric Calcareous, Fine; Medium; Smooth; Good
Munsell: 2.5Y 8/3; 2.5Y 8/3; 2.5Y 8/3
Inclusions Rare; Tiny; Rounded; Black
Limestone
Comments Blue painted maiolica 'stile severo' from Tuscany or Faenza. End 15th to beginning of 16th c.

TCP052 TIP0066. TT3881000N SU0046 P01.1
Shape CGS06-MedVOtt; TW
Body; Medium
Decoration Interior: white slip & incised abstract decoration highlighted with pale green paint (P 570 V) under a transparent lead glaze.
Thickness 8 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Green Painted Sgraffito Ware, Lapithos. Late 15th to first half of the 16th c.

TCP053 TIP0107. TT3881000N SU0046 P16.1
Shape GS08-MedVOtt; TW
Body; Medium
Decoration Interior & exterior: white slip & transparent glaze. Exterior: incised abstract decoration highlighted with yellow (10YR 7/8)
Thickness 4 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Tiny; Rounded; White
Rare; Tiny; Sub-Rounded; Black
Rare; Small; Sub-Rounded; Red
Limestone
Comments Polychrome sgraffito. Late 15th to 16th c.

Pottery catalogue: TCP042–44, TCP046–53 (drawings: Jean Humbert; photos: Chris Parks)


GLAZED :
Black
White
TCP054
GLAZED :
TCP055
TCP056
GLAZED :
Dark brown
Yellow brown
Green
White
TCP057
ø 11-12 cm?
TCP058
GLAZED :
Green
Yellow
White
TCP059
TCP060
TCP062
TCP061
TCP063
TCP064
TCP065
0
10 cm

TCP054 TIP0108. TT3881000N SU0051 P13.1 (Plate 3.5)
Shape MP02-OTTMODII; TW
Body; Medium
Decoration Interior: white slip & painted decoration of stripes in brown (7.5R 3/1) under transparent lead glaze
Thickness 7 mm
Fabric Ferrous; Fine; Medium; Smooth; Medium
Munsell: 5YR 5/6; 2.5YR 5/8; 2.5YR 5/8
Inclusions Rare; Tiny; Angular; Black
Rare; Small; Angular; Purple
Sparse; Medium; Angular; White
Limestone
Comments Monochrome painted ware, Canakkale. 19th c.+

TCP055 TIP0109. TT3881000N SU0052 P07.1 (Plate 3.5)
Shape CGS06-MedVOtt; TW
Base; Medium
Decoration Interior: white slip & incised abstract decoration possibly under transparent lead glaze?
Diam. 80 mm; External; Base thickness 7.5 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Rare; Tiny; Rounded; Black & white
Limestone
Comments Green Painted Sgraffito Ware B from Lapithos. Late 15th to first half 16th c.

TCP056 TIP0517. TT3881000N SU0052 P22
Shape UJa06-MEDUI; U
Rim; Good
Decoration Pie-crust edge that is not continuous.
Diam. 240 mm; External; Rim thickness 3 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor:
Munsell: 5YR 6/3; 5YR 6/3; 5YR 5/6
Inclusions Common; Small; Rounded; Red/brown
Common; Small, Medium; Rounded; Dark brown
Comments Shape is typically 13th/14th c. but manufacture style may put it in 19th c. re-introduction of shape.

TCP057 TIP0529. TT3881000N SU0053 P16.1 (Plate 3.5)
Shape IDWF-OTTMODI; U
Body; Good
Decoration Bands of curved lines radiate from the base of the neck to the shoulder.
Thickness 6 mm
Fabric Self Slip; Coarse; Hard; Gritty; Good
Munsell: 5YR4/8
Inclusions Abundant; Small; Rounded; Brown
Rare; Small; Rounded; White; Reflective
Comments Thin reddish layer under external surface demonstrates possible relation between incised decoration on self-slipped pottery (IDSS) & incised decoration, white fabric (IDWF).

TCP058 TIP0520. TT3881000N SU0054 P06
Shape UPSJa-MEDUIII; U
Rim, Handle; Poor
Decoration Incised decoration of wavy line along centre of handle & interrupted band along back edge
Thickness 8 mm
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 7.5YR 4/2; 5YR 5/3; 5YR 4/4
Inclusions Abundant; Tiny, Small; Rounded; White/light brown
Sparse; Medium; Rounded; Dark brown
Comments Dated to 15th c. or later on the basis of handle section & decoration along its rear edge.

TCP059 TIP0086. TT3880500N SU0060 P06.1 (Plate 3.5)
Shape CGS05-medF; TW
Rim; Good
Decoration Interior & exterior: white slip & incised decoration highlighted with green (P579 U) and ochre-brown (2.5Y 5/6) under a transparent lead glaze.
Thickness 7 mm
Fabric Mixed; Fine; Medium; Smooth; Good:
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Brown & Green Sgraffito Ware, Lapithos. Late 14th–15th c.
Comparanda Papanikola-Bakirtzis 1996, pl. XLI (general).

TCP060 TIP0087. TT3880500N SU0060 P06.1 (Plate 3.5)
Shape CGS05-medF; TW
Rim; Good
Decoration Exterior: white slip & incised abstract decoration highlighted with pale green (P579 U) & olive-brown paint (2.5Y 6/8) under transparent lead glaze
Thickness 7 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 2.5Y 6/3; 2.5Y 6/3; 2.5Y 6/3
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Overfired. Brown & green sgraffito, Paphos, 14th c.

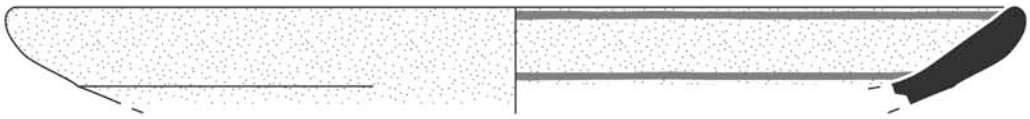
TCP061 TIP0518. TT3880500N SU0060 P32
Shape UFB02-OTTMODI; U
Base; Medium
Diam. 50 mm; External; Base thickness 10 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5YR 5/4; 5YR 5/4; 5YR 4/6
Inclusions Abundant; Tiny, Small; Rounded; Brown
Sparse; Large; Sub-Rounded; Brown
Comments Wheelmade coarse ware. Ottoman & later.

TCP062 TIP0522. TT3880500N SU0061 P16.1
Shape UAA98-MEDUI; U
Complete profile; Medium
Diam. 300 mm; External; Rim
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 6/4; 5YR 6/6; 5YR 5/3
Inclusions Common; Small, Medium; Sub-Rounded, Rounded; Dark brown
Sparse; Small, Medium; Sub-Rounded; White

TCP063 TIP0375. TT3880500N SU0062 P14.1
Shape UJa04-MEDUI; U
Rim; Medium
Decoration Well smoothed, glossy surface.
Diam. 180 mm; External; Rim thickness 6 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor:
Munsell: 5YR 6/4; 5YR 6/4; 5YR 5/2
Inclusions Abundant; Medium, Large; Sub-Rounded; Black
Sparse; Medium; Sub-Rounded; Grey/Black; Reflective
Sparse; Medium, Large; Sub-Rounded; White

TCP064 TIP0089. TT3880500N SU0067 P06.1
Shape CWPR03-HEL; CW
Rim; Medium
Diam. 350 mm; External; Rim thickness 5.5 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Common; Tiny; Sub-Rounded; White
Sparse; Small, Medium; Angular; Yellowish-white

TCP065 TIP0100. TT3880500N SU0067 P08.1
Shape TiCA-ROM; Ar
Body; Good
Decoration The top of the tile is decorated with a relief cross.
Fabric Mixed; Medium; Hard; Medium; Poor
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny, Small; Sub-Rounded; Black
Sparse; Large; Sub-Rounded; Clay matrix



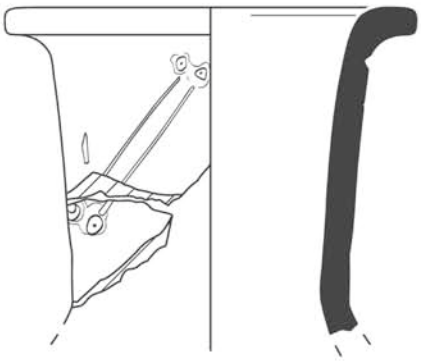
GLAZED :

Purple

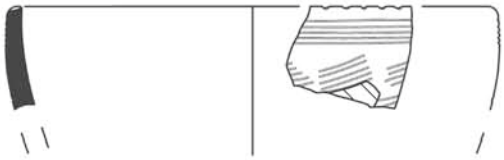
White

TCP066

TCP067



TCP068



TCP069

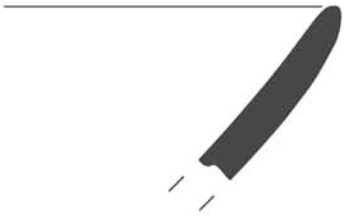
TCP070

ø ± 40 cm ?

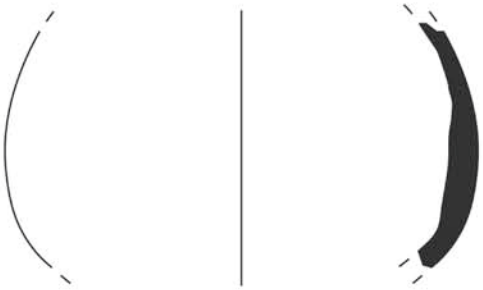
TCP071

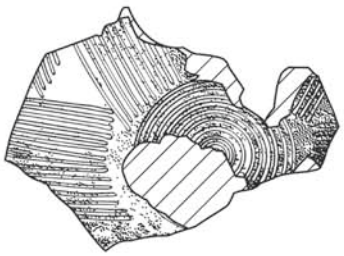
TCP075

ø 43,5 cm



TCP073





TCP076

0 10 cm

TCP066 TIP0110. TT3880500N SU0069 P20.1 (Plate 3.5)
Shape MP02-OTTMODII; TW
Rim; Good
Decoration Interior & exterior: tin-glazed. On top rim: two painted stripes in brown (10R 4/2) .
Diam. 270 mm; External; Rim thickness 6.5 mm
Fabric Calcareous; Fine; Soft; Medium; Good
Munsell: 2.5Y 8/3; 2.5Y 8/3; 2.5Y 8/3
Inclusions Rare; Tiny; Rounded; Purple
Limestone
Comments Polychrome painted ware from Grottaglie, Southern Italy 19th c.+
Comparanda Vroom 1998b

TCP067 TIP0088. TT3880500N SU0070 P01.1
Shape LUR08-HR; LU
Rim; Poor
Diam. 200–250 mm; External; Rim thickness 7.2 mm
Fabric Self Slip; Medium; Medium; Medium; Good
Munsell: 2.5Y 8/2; 2.5Y 8/2; 7.5YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Limestone; Numerous & tiny–large

TCP068 TIP0113. TS09 SU0073 P02.1
Shape RPC-PeB; LU
Rim; Good
Decoration Thick red slip, burnish. Two diagonal grooves on neck ending in punches.
Diam. 60 mm; Internal; Rim thickness 7 mm
Fabric Mixed; Medium; Hard; Gritty; Poor
Munsell: 2.5YR 4/4; 2.5YR 4/4; 5YR 5/6
Inclusions Common; Tiny; Angular; Black
Rare; Medium; Sub-Rounded; Red
Limestone; Organic

TCP069 TIP0111. TS09 SU0073 P15.1
Shape RPIOS-PeB; TW
Rim; Good
Decoration Red slip, highly burnished, notched rim. Incised patterns, lime-filled, blackened interior.
Diam. 150 mm; External; Rim thickness 5 mm
Fabric Ferrous; Fine; Hard; Medium, Good
Munsell: 2.5YR 4/6; 2.5YR 5/6; 10YR 6/4
Inclusions Sparse; Small; Angular; Whitish
Limestone; Organic
Comments ECIIIB–MCI (Merrillees, pers. comm.).
Similar patterns can actually be found from Philia (c.2400 BC) on to MCII. Same fabric as TCP070.

TCP070 TIP0112. TS09 SU0073 P16.1
Shape RPTOS-PeB; TW
Rim; Good
Decoration Thin patchy red slip, streaky burnish.
Diam. 120 mm; External; Rim thickness 38 mm
Fabric Mixed; Medium; Hard; Medium; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 10YR 7/3
Inclusions Common; Tiny; Rounded; Whitish
Common; Tiny; Rounded; Black
Limestone
Comments ECIIIB–MCI (Merrillees, pers. comm.).
Could actually be anything from c.2400–1700 BC.

TCP071 TIP0175. TS09 SU0074 P01.1
Shape RPOL-PeB; HU
Rim; Good
Decoration Slip & burnish, stacking line.
Diam. 40 mm; External; Rim thickness 11 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 5/4; 5YR 7/6; 2.5YR 4/6
Inclusions Common; Small; Rounded; Black
Common; Small; Sub-Rounded; Yellow
Limestone; Organic

TCP072 TIP0176. TS09 SU0074 P02.1
Shape RPOL-PeB; HU
Body; Good
Decoration Slip & burnish. Thickness 14 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 4/6; 2.5YR 5/4; 2.5YR 4/6
Inclusions Common; Tiny; Rounded; Cream
Sparse; Tiny; Rounded; White
Limestone; Organic

TCP073 TIP0120. TS09 SU0074 P04.1
Shape RPOL-PeB; HU
Rim; Good
Decoration Red slip, streaky burnish led to brown streaks in slip when fired.
Diam. 600 mm; External; Rim thickness 87 mm
Fabric Ferrous, Medium; Hard; Gritty; Medium
Munsell: 5YR 5/4; 2.5YR 5/4; 2.5YR 4/6
Inclusions Abundant; Tiny; Rounded; Whitish
Sparse; Small; Rounded; Red clay matrix
Sparse; Small; Sub-Rounded; Black
Limestone; Organic
Comments ECIIIB–MCI (Merrillees, pers. comm.)
Streaked burnishing more likely to be earlier than later

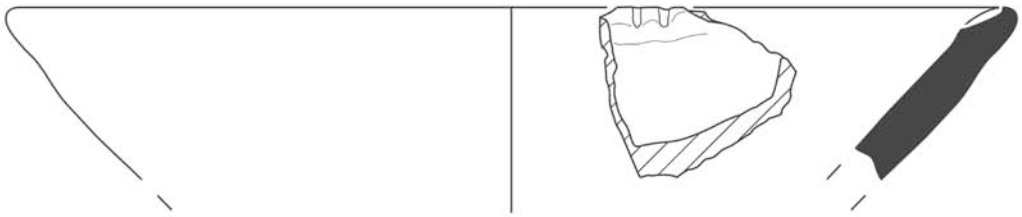
TCP074 TIP0177. TS09 SU0074 P11.1
Shape RPC-PeB; LU
Body; Good
Decoration Slip & burnish.
Thickness 75 mm
Fabric Mixed; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 5/4; 10YR 5/2; 10YR 5/2
Inclusions Sparse; Small; Sub-Rounded; Cream
Limestone; Organic

TCP075 TIP0119. TS09 SU0074 P18.1
Shape RPTOS-PeB; TW
Rim; Good
Decoration Thick slip, streaky burnish. Rim & interior blackened.
Diam. 210 mm; External; Rim thickness 6 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 10R 4/6; GLEY1 2.5/N; 10R 3/6
Inclusions Common; Small; Angular; Dark brown
Sparse; Medium; Rounded; White
Sparse; Small; Angular; Light grey; Reflective
Limestone
Comments ECIIIB–MCI (Merrillees, pers. comm.).
Similar to material from ECI through MCII

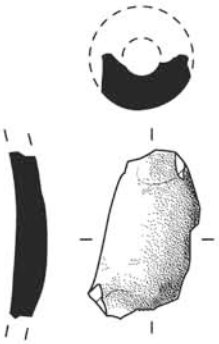
TCP076 TIP0174
TS09 SU0074 P20.1
Shape RPIC-PeB; TW
Body; Medium
Decoration Slip, burnish, comb-incised, lime-filled.
Thickness 6 mm
Fabric Calcareous; Medium; Medium; Medium; Poor
Munsell: 2.5YR 4/8; 10YR 7/4; 10YR 6/4
Inclusions Rare; Large; Rounded; Tan
Rare; Large; Sub-Rounded; Red-brown
Sparse; Tiny; Rounded; Black
Comments Fragile. One piece now broken into 7 pieces.

TCP077 TIP0163. TS09 SU0075 P01.1
Shape RPTOM-PeB; TW
Body; Good
Decoration Highly burnished bowl with possible exterior stack lines & black interior.
Thickness 5.5 mm
Fabric Mixed; Medium; Hard; Smooth Medium
Munsell: 10R 4/6; 5Y 3/1; 5Y 7/2
Inclusions Sparse; Small; Sub-Rounded; Dark brown
Organic

Pottery catalogue: TCP066–71, TCP073, TCP074–77 (drawings: Jean Humbert)

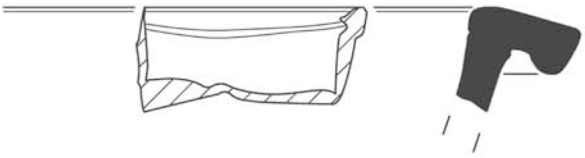


TCP078



TCP079

ø 45 cm



TCP080

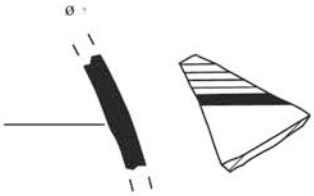
Black

Red/Brown

ø 28 cm

TCP081

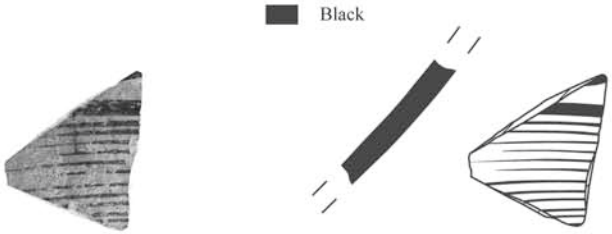
ø ?



Black painting

TCP082

Black



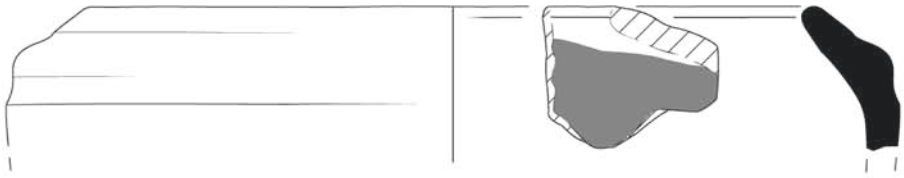
ø ?

TCP084

TCP086

ø ?

TCP088



GLAZED :

Dark Brown

TCP089

0 10 cm

TCP090

TCP078 TIP0117. TS09 SU0075 P02.1
Shape RPOL-PeB; HU
Rim; Good
Decoration Interior stack or fire line-greyed rim. Rim has tab-lug with 3 deep grooves perpendicular to circumference.
Diam. 400 mm; Internal; Rim thickness 11 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 10R 5/6; 10R 6/6; 10R 4/6
Inclusions Common; Small; Sub-Rounded; Red-brown
Sparse; Medium; Sub-Rounded; Red
Limestone
Comments ECIIIB–MCI (Merrillees, pers. comm.)
Could actually be earlier, even Late Chalcolithic.

TCP079 TIP0164. TS09 SU0076 P08.1
Shape RLU-POB; LU
Body; Medium
Decoration Red slip & burnished. Unknown shape. Graffito: 'IX'.
Thickness 8 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 10R 4/4; 10R 5/6; 10R 8/4
Inclusions Rare; Tiny; Sub-Rounded; Dark brown
No visible voids
Comments Possibly red lustrous ware arm-shaped bottle?

TCP080 TIP0118. TS09 SU0077 P01.1
Shape HUR03-HR; HU
Rim; Medium
Diam. 460 mm; Internal; Rim thickness 8.3 mm
Fabric Self Slip; Medium; Hard; Medium; Medium
Munsell: 5Y 8/2; 5Y 8/2; 10YR 8/3
Inclusions Common; Small; Sub-Rounded; Black
Common; Tiny, Small; Sub-Rounded; Reddish-beige

TCP081 TIP0115. TS09 SU0078 P01.1
Shape BcBO-GAC; TW
Rim; Medium
Decoration Interior: Black & red slip horizontal bands
Exterior: White ground, red spot, black horizontal band.
Diam. 280 mm; External; Rim thickness 6 mm
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 7/2; 10R 5/4; 10YR 4/3
Inclusions Common; Tiny; Sub-Rounded; White and black
Rare; Medium; Sub-Rounded; Red
Sparse; Medium; Rounded; White
Limestone
Comments Possibly Phoenician bichrome due to sandy fabric.

TCP082 TIP0168. TS09 SU0078 P03.1
Shape WP-GAC; LU
Body; Good
Decoration Black painted horizontal bands, burnished. Wheel-mark or compass-grooves.
Thickness 5 mm
Fabric Calcareous; Medium; Hard; Medium; Good
Munsell: 2.5Y 8/3; 2.5Y 8/3; 2.5Y 7/3
Inclusions Sparse; Small; Rounded; Dark grey

TCP083 TIP0156. TS09 SU0078 P03.1
Shape WP-GAC; LU
Body; Good
Decoration Burnished black painted circle, a bichrome.
Thickness 4.7 mm
Fabric Calcareous; Fine; Hard; Smooth; Good
Munsell: 2.5Y 8/3; 2.5Y 7/4; 2.5Y 7/4
Inclusions Sparse; Small; Angular; Dark; Reflective
Limestone

TCP084 TIP0116. TS09 SU0078 P03.1
Shape WP-GAC; LU
Body; Good
Decoration White painted (WP) surface, black horizontal lines, possibly compass-grooves? Burnished or glazed?
Thickness 5.6 mm
Fabric Calcareous; Medium; Hard; Medium; Medium
Munsell: 2.5YR 8/2; 2.5YR 8/3; 2.5YR 8/3
Inclusions Common; Small; Sub-Rounded; Dark brown
Comments Possibly bichrome.

TCP085 TIP0169. TS09 SU0078 P19.1
Shape RPTOM-PeB; TW
Body; Good
Decoration Red slip, well polished. Thickness 8 mm
Fabric Calcareous, Fine; Hard; Medium, Good
Munsell: 2.5YR 4/8; 2.5YR 4/6; 10YR 7/3
Inclusions Rare; Tiny; Sub-Rounded; Dark grey

TCP086 TIP0171. TS09 SU0078 P22.1
Shape RPOL-PeB; HU
Rim; Medium
Decoration Red slip, burnished. Raised rope band.
Diam. 27 mm; External; Rim thickness 11 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 4/8; 10R 6/6; 10R 5/6
Inclusions Rare; Medium; Sub-Rounded; Pink-Red
Sparse; Small; Sub-Rounded; Whitish

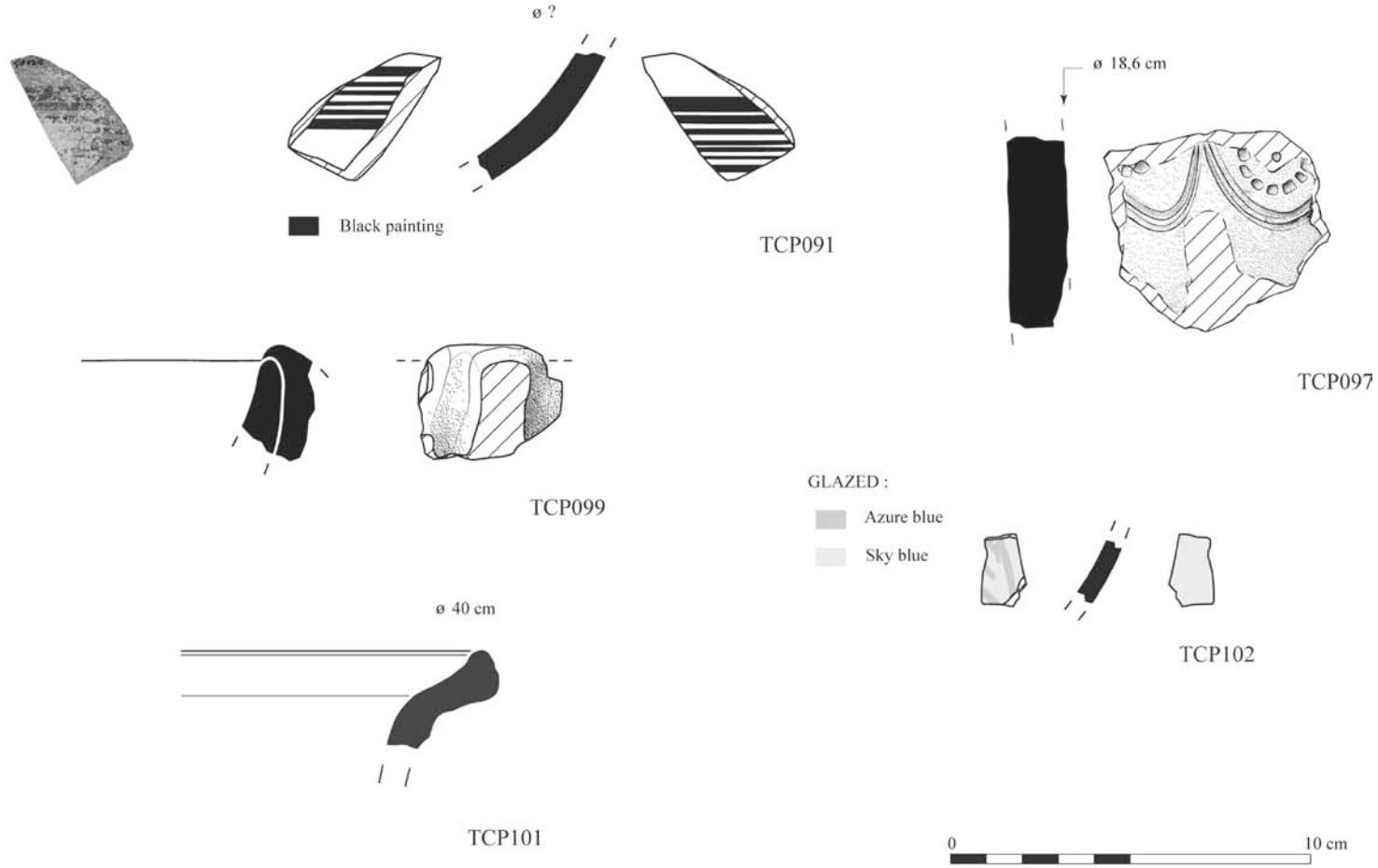
TCP087 TIP0172. TS09 SU0078 P24.1
Shape RPOL-PeB; HU
Body; Medium
Decoration Red slip, burnish.
Thickness 14 mm
Fabric Mixed; Coarse; Medium; Gritty; Medium
Munsell: 2.5YR 5/4; 2.5YR 5/6; GLEY2 4/10B
Inclusions Rare; Medium; Sub-Rounded; Grey
Sparse; Small; Rounded; Whitish
Organic

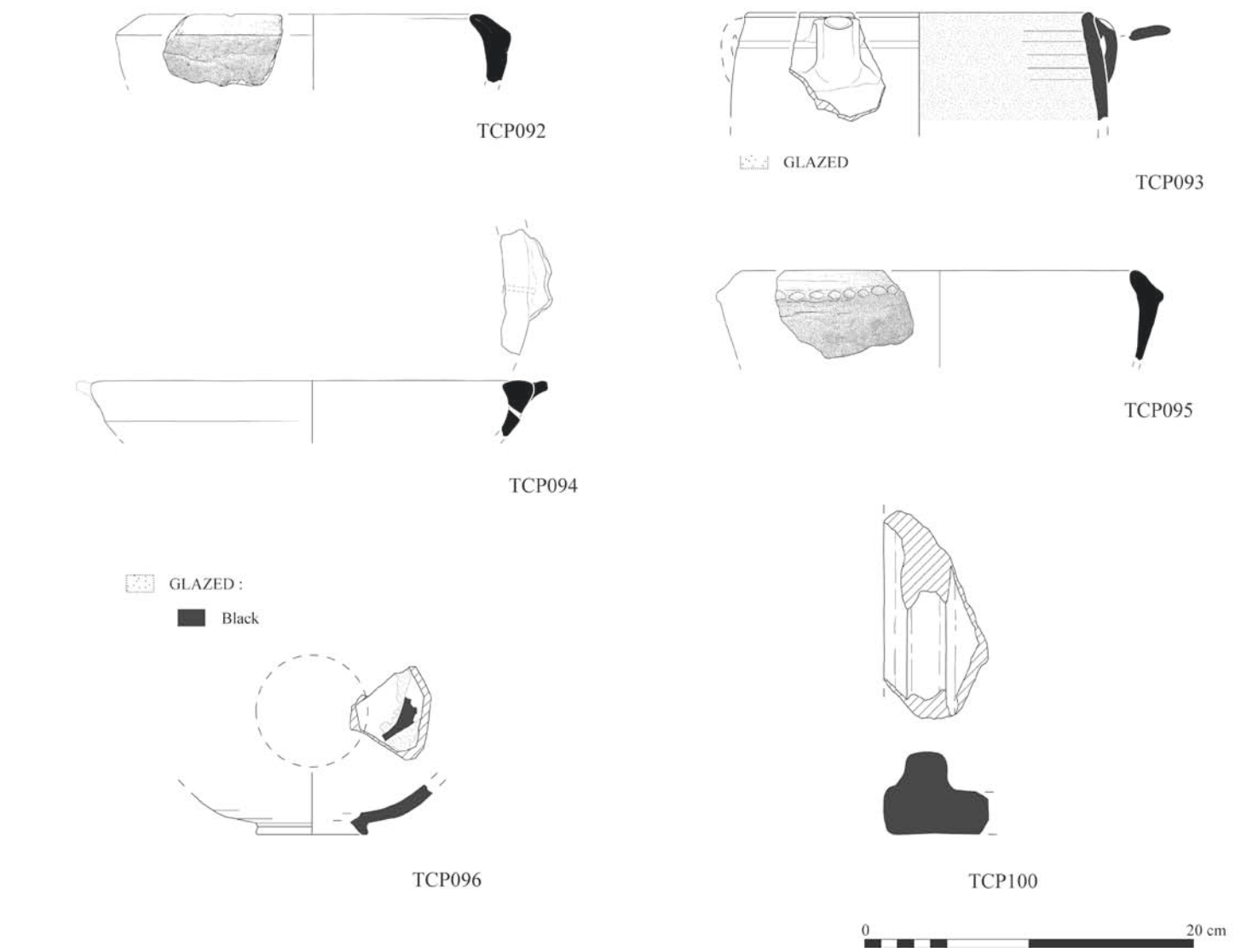
TCP088 TIP0173
TS09 SU0078 P26.1
Shape RPOL-PeB; LU
Rim; Medium
Decoration Slip, stroke burnish.
Diam. 30 mm; External; Rim thickness 8 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 4/6; 2.5YR 4/6
Inclusions Sparse; Small; Rounded; Black
Limestone; Organic

TCP089 TIP0372. TT3880500N SU0081 P30
Shape Tta-MEDUIII; CW
Rim; Poor
Decoration Glazed interior.
Thickness 10 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 4YR 4/1; 2.5YR 3/2; 2.5YR 4/8
Inclusions Abundant; Small, Medium; Rounded; White
Common; Medium, Large; Sub-Rounded; Brown (grog?)
Comments 15th–16th c. Shape as Ttavas burnished (TtaB), but glazed interior.

TCP090 TIP0374. TT3880500N SU0081 P31
Shape Tia03-OTTMODI; CW
Rim; Good
Decoration Smooth surface, triple wavy line along the rim, uneven.
Diam. 240 mm; External; Rim thickness 7 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 5/8; 5YR 5/8; 10YR 4/4
Inclusions Abundant; Tiny, Small, Medium, Large; Sub-Rounded; Black
Common; Small, Medium, Large; Sub-Rounded, Rounded; White
Sparse; Medium; Rounded; Brown (grog?)
Comments Degenerate in-turned rim with no ridge & depth of decor & surface indicates OttModII date.

Pottery catalogue: TCP078–82, TCP084, TCP086, TCP088–90 (drawings: Jean Humbert)


ø ?
Black painting
TCP091
ø 18,6 cm
TCP097
TCP099
GLAZED :
Azure blue
Sky blue
TCP102
ø 40 cm
TCP101
0
10 cm


TCP092
GLAZED
TCP093
TCP094
TCP095
GLAZED :
Black
TCP096
TCP100
0
20 cm

TCP091 TIP0210. TS04 TT3880500N SU0082 P02.1
Shape BORO-GAC; LU
Body; Medium
Decoration Red slip, burnished, black manganese paint, horizontal bands.
Thickness 8.4 mm
Fabric Mixed; Medium; Hard; Medium; Poor
Munsell: 2.5YR 7/6; 2.5YR 6/6; 10YR 6/4
Inclusions Sparse; Small; Sub-Rounded; White
Sparse; Medium; Sub-Rounded; Red

TCP092 TIP0370. TS04 TT3880500N SU0083 P09.1
Shape Tta02-MEDUIII; CW
Rim; Poor
Decoration Remnants of pie-crust edge (abraded).
Thickness 6 mm
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 7.5YR 5/6; 7.5YR 5/6; 7.5YR 5/6
Inclusions Abundant; Small, Medium, Large; Sub-Rounded; Brown
Common; Tiny, Small; Sub-Rounded; White
Rare; Medium; Sub-Rounded; Red/Brown (grog?)

TCP093 TIP0141. TS04 TT3881000N SU0084 P17.1
Shape BGW02-mod; CW
Rim; Good
Decoration Interior: transparent lead glaze (5YR 5/8).
Diam. 210 mm. Thickness 7 mm
Fabric Ferrous; Medium; Soft; Gritty; Medium
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Common; Small; Rounded; White; Reflective
Rare; Small; Angular; Purple
Sparse; Tiny; Sub-Rounded; Black
Limestone
Comments Cooking pot (*tsoukali*) possibly from Siphnos?

TCP094 TIP0371. TS04 TT3881000N SU0084 P19.1
Shape UBRB-OTTMODI; U
Rim, Handle; Poor
Decoration Burnish surface.
Diam. 250 mm; Internal; Rim thickness 6 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/4; 5YR 5/4; 5YR 4/6
Inclusions Abundant; Small, Medium, Large; Sub-Rounded, Rounded; Black
Common; Small, Medium, Large; Sub-Rounded; White
Comments Degenerate in-turned rim. 16th c. or later.

TCP095 TIP0373. TS04 TT3881000N SU0084 P20.1
Shape Tia04-MEDUIII; CW
Rim; Good
Decoration Indentation ridge along the edge of the rim. Smooth surface in & over rim.
Diam. 150 mm; External; Rim thickness 4.5 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 7.5YR 5/2
Inclusions Abundant; Tiny, Small; Sub-Rounded; White
Common; Small, Medium; Sub-Rounded, Rounded; R/Br (grog?)
Comments Most likely modern but may be OttMod.

TCP096 TIP0142. TS04 TT3881000N SU0084 P26.1 (Plate 3.5)
Shape MP02-OTTMODII; TW
Base; Poor
Decoration Interior: white slip & painted decoration in brown, under a transparent lead glaze
Diam. 50 mm; External; Base thickness 6.5 mm
Fabric Ferrous
Good
Inclusions Common; Small; Sub-Rounded; White
Rare; Tiny; Angular; Red
Sparse; Tiny; Sub-Rounded; Black
Limestone
Fine; Medium; Smooth
Munsell: 5YR 6/6; 2.5YR 6/8; 2.5YR 6/8
Comments Monochrome painted ware, Canakkale, 19th c.+

TCP097 TIP0369. TS11 SU0088 P05
Shape ID01-OTTMODII; HU
Body; Good
Decoration Incised & stamped Kornos decoration: continuous arches enclosing rosettes.
Thickness 14.5 mm
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 7.5YR 5/4
Inclusions Common; Small, Medium, Large; Sub-Rounded; Black
Common; Tiny; Rounded; White
Sparse; Medium; Sub-Rounded; White/brown
Comments Earliest secure context known for this design found under floor dated to 1780, church of Panayia Galaktotrophousa, Limassol area (Prokopiou, pers. comm).

TCP098 TIP0211. TS11 SU0091 P10.1
Shape RPC-PeB; HU
Body; Medium
Decoration Red slip & light burnish.
Thickness 17 mm
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 2.5YR4/6; 7.5YR5/4; 10YR 5/2
Inclusions Common; Tiny; Sub-Rounded; White
Sparse; Small; Angular; Black
Limestone; Organic

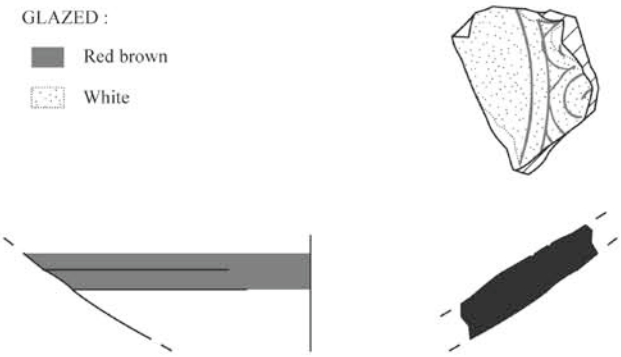
TCP099 TIP0212
TS11 SU0094 P06.1
Shape RP-PeB; HU
Body; Medium
Decoration Red slip & burnish.
Thickness 13 mm
Fabric Mixed; Medium; Medium; Gritty; Medium
Munsell: 2.5YR5/6; 2.5YR 5/6; 2.5YR 5/8
Inclusions Common; Small; Angular; Brown and white
Limestone; Organic
Comments Irregular: part of composite or figural vessel?

TCP100 TIP0135. TS11 SU0096 P03.1
Shape Ti-HR; Ar
Rim; Medium
Thickness 25.8 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Common; Large; Sub-Rounded; Greyish-brown

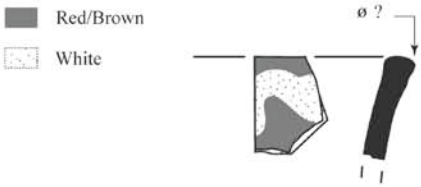
TCP101 TIP0136. TS11 SU0096 P04.1
Shape HUR04-MM; HU
Rim; Poor
Diam. 350 mm; External; Rim thickness 9.4 mm
Fabric Mixed; Medium; Hard; Medium; Medium
Munsell: 7.5YR 7/4; 7.5YR 7/4; 2.5YR 7/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Sparse; Small; Sub-Rounded; Greyish-brown

TCP102 TIP0139. TS11 SU0097 P16.1 (Plate 3.5)
Shape G06-MEDB; TW
Body; Good
Decoration Interior & exterior: tin-glazed & painted decoration in blue (P 305 U). Fabric is fritware.
Thickness 4 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: White; White; White
Inclusions Not visible
Comments Polychrome painted ware, Kutahya, Turkey, 18th c.

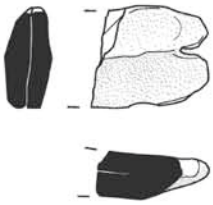
Pottery catalogue: TCP091–TCP102 (drawings: Jean Humbert; photo: Chris Parks)



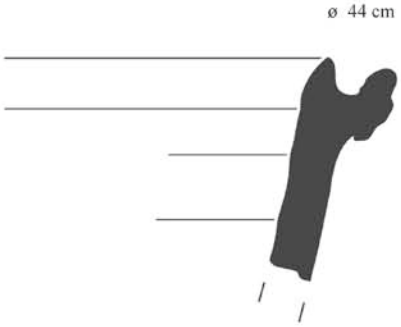
TCP103



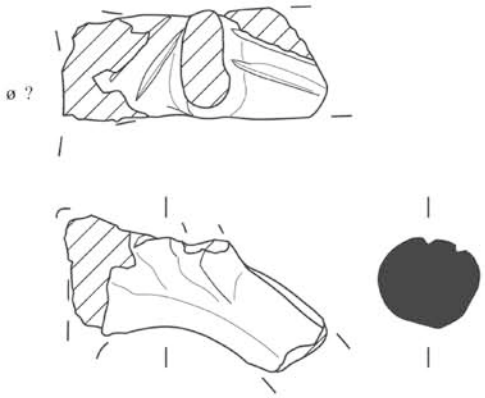
TCP104



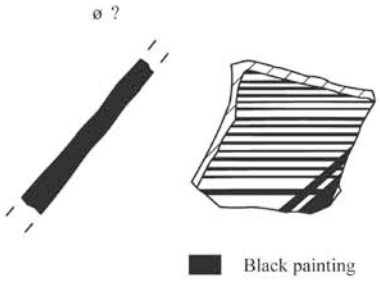
TCP105



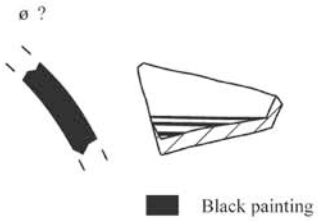
TCP106



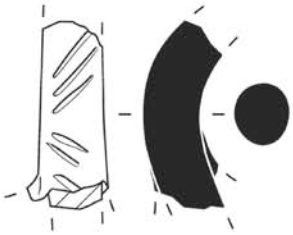
TCP107



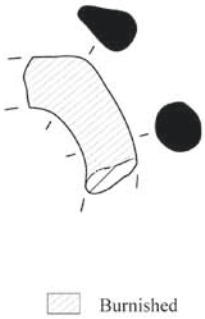
TCP108



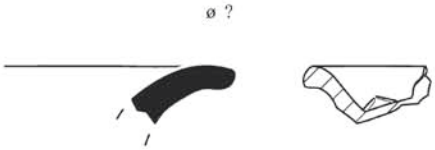
TCP110



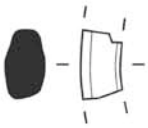
TCP111



TCP112



TCP114



TCP115

0 10 cm

TCP103 TIP0144. TS11 SU0098 P13.1 (Plate 3.5)
Shape CGS05-MEDF; TW
Body; Good
Decoration Interior: white slip & incised abstract decoration under possible pale yellow/creamish lead glaze.
Thickness 8 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Sgraffito Ware possibly from Lapithos?

TCP104 TIP0143. TS11 SU0098 P14.1 (Plate 3.5)
Shape SP03-medb; TW
Rim; Medium
Decoration Interior: painted decoration with white slip becoming yellowish under lead glaze
Thickness 5 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 5YR 6/8; 5YR 6/8; 5YR 6/8
Inclusions Rare; Tiny; Sub-Rounded; Red
Rare; Tiny; Angular; Purple
Sparse; Small; Sub-Rounded; White
Limestone
Comments Slip-painted ware from Paphos. Early 13th c.?

TCP105 TIP0126. TS09 SU0099 P02.1
Shape CWFPWh-HR; CW
Handle; Medium
Decoration Herring bone fish tail
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 5/6; 7.5YR 5/2
Inclusions Common; Tiny; Sub-Rounded; Reddish-brown
Sparse; Tiny; Sub-Rounded; Greyish-white

TCP106 TIP0134. TS09 SU0099 P05.1
Shape HUR05-LR; HU
Rim; Medium
Diam. 520 mm; Internal; Rim thickness 10.1 mm
Fabric Self Slip; Medium; Hard; Medium; Medium
Munsell: 2.5Y 8/3; 2.5Y 8/3; 5YR 6/6
Inclusions Common; Small; Sub-Rounded; Greyish-black
Common; Small; Sub-Rounded; White

TCP107 TIP0133. TS09 SU0099 P19.1
Shape LUS-MM; LU
Handle; Good
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 10YR 4/2
Inclusions Common; Small; Angular; Black & white
Limestone
Comments Unglazed domestic ware.

TCP108 TIP0157. TS09 SU0101 P01.1
Shape WPBC-PoB; LU
Body; Good
Decoration Light burnish. White painted surface with black horizontal bands, black diagonal bands fading to red.
Thickness 6 mm
Fabric Calcareous; Medium; Hard; Gritty; Medium
Munsell: 2.5YR8/2; 2.5YR 8/2; 2.5YR 8/2
Inclusions Common; Small; Sub-Rounded; Black
Rare; Small; Angular; Reddish
Limestone

TCP109 TIP0178. TS09 SU0101 P02.1
Shape WPBC-PoB; LU
Body; Medium
Decoration Slipped, painted, burnished. Black paint, horizontal bands.
Thickness 6 mm
Fabric Mixed; Medium; Medium; Medium; Medium
Munsell: 10YR 7/3; 10YR 7/3; 10YR 7/3
Inclusions Common; Tiny; Rounded; Dark brown
Sparse; Medium; Sub-Rounded; Reddish

TCP110 TIP0179. TS09 SU0101 P03.1
Shape LU-GAC; LU
Body; Good
Decoration Traces of burnish.
Thickness 7 mm
Fabric Calcareous; Medium; Hard; Medium; Medium
Munsell: 2.5Y 8/3; 2.5Y 8/3; 2.5Y 8/3
Inclusions Sparse; Small; Sub-Rounded; Black

TCP111 TIP0180. TS09 SU0101 P06.1
Shape RPC-PeB; LU
Handle; Good
Decoration Slip, burnish, hatch-mark grooves.
Thickness 12 mm
Fabric Mixed; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 5/6; 2.5YR 5/6; CLAY2 3/10B
Inclusions Common; Small; Rounded; Black & white
Sparse; Medium; Sub-Rounded; Cream
Organic

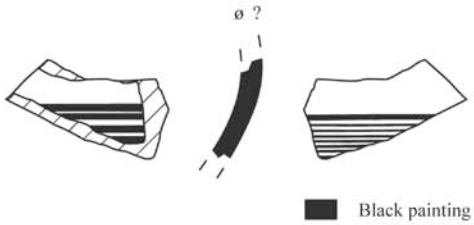
TCP112 TIP0181. TS09 SU0101 P07.1
Shape RPT-PeB; TW
Handle; Good
Decoration Slip, burnish.
Thickness 11 mm
Fabric Calcareous; Fine; Medium; Smooth; Good
Munsell: 5YR 5/6; 5YR 5/6; 7.5YR 7/3

TCP113 TIP0182
TS09 SU0101 P08.1
Shape RPIC-PeB; TW
Body; Good
Decoration Slip, burnish, comb-incised & lime-filled.
Thickness 5 mm
Fabric Calcareous; Fine; Hard; Medium; Medium
Munsell: 2.5YR 4/8; 10YR 7/2
Inclusions Sparse; Small; Sub-Rounded; Orange

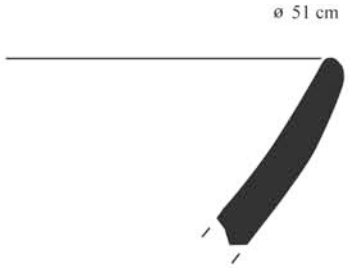
TCP114 TIP0183. TS09 SU0101 P14.1
Shape RPTOS-PeB; TW
Rim; Medium
Decoration Slip, burnish, incised motif – possible zig-zag.
Diam. 12 mm; External; Rim thickness 8 mm
Fabric Mixed; Fine; Soft; Medium; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 7.5YR 7/4
Inclusions Rare; Tiny; Rounded; Black

TCP115 TIP0189. TS09 SU0102 P01.2
Shape RS-BA; LU
Handle; Medium
Decoration Slip & burnish.
Thickness 11 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 2.5YR 4/4; 2.5YR 4/3; 7.5YR 6/2
Inclusions Sparse; Tiny; Sub-Rounded; Dark brown

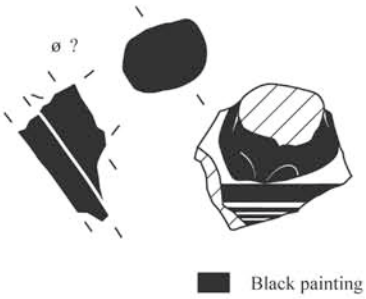
TCP116 TIP0188. TS09 SU0102 P01.1
Shape RS-BA; LU
Body; Good
Decoration Slip & polish.
Thickness 8 mm
Fabric Mixed; Fine; Medium; Medium; Good
Munsell: 5YR 4/4; 10YR 6/3; 10YR 5/1
Inclusions Sparse; Small; Sub-Rounded; Black



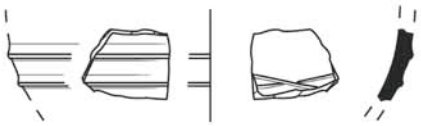
TCP118



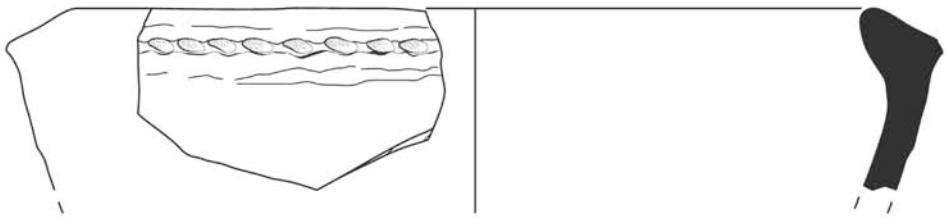
TCP121



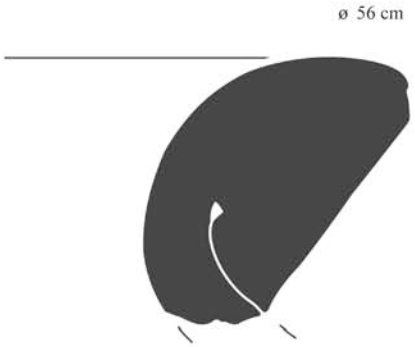
TCP122



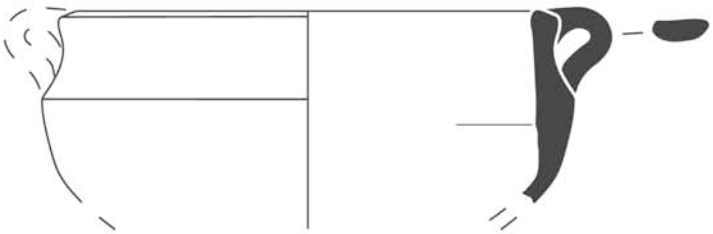
TCP124



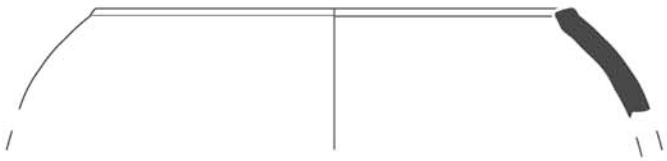
TCP127



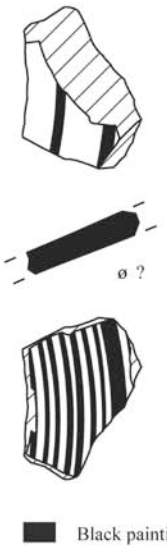
TCP125



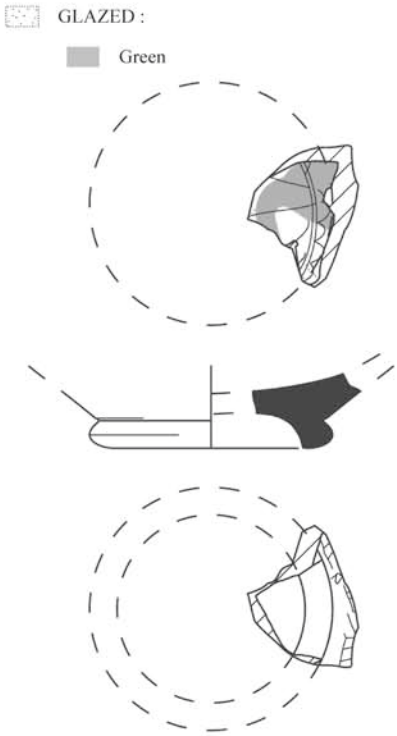
TCP126



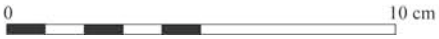
TCP128



TCP129



TCP130



TCP117 TIP0192. TS09 SU0102 P17.1
Shape RPOS-PeB; LU
Body; Good
Decoration Slip & burnish. Crude 'rub-lines' or grooves.
Thickness 4.5 mm
Fabric Ferrous; Medium; Hard; Gritty; Good
Munsell: 2.5YR 4/3; 2.5YR 5/4; 2.5YR 6/1
Inclusions Common; Tiny; Sub-Rounded; White
Sparse; Tiny; Sub-Rounded; Brown

TCP118 TIP0193. TS09 SU0103 P16.1
Shape BOR-GAC; TW
Body; Good
Decoration Red slip & burnish. Black horizontal bands.
Thickness 4.6 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/4; 2.5YR 7/4
Inclusions Sparse; Small; Rounded; Red
Sparse; Tiny; Sub-Rounded; White

TCP119 TIP0194. TS09 SU0103 P17.1
Shape RLUC-POB; LU
Body; Good
Decoration Red slip & burnish.
Thickness 3 mm
Fabric Ferrous; Fine; Hard; Smooth; Good
Munsell: 2.5YR 5/8; 2.5YR 6/6; 2.5YR 5/8

TCP120 TIP0195. TS09 SU0103 P18.1
Shape RPC-PeB; HU
Body; Medium
Decoration Red slip & burnish. Neck & shoulder wall.
Diam. 130 mm; Internal; Other thickness 7.5 mm
Fabric Mixed; Medium; Medium; Medium; Good
Munsell: 2.5YR 4/4; 2.5YR 5/4; 10YR 6/3
Inclusions Common; Small; Angular; Dark brown

TCP121 TIP0196. TS09 SU0103 P19.1
Shape RPOL-PeB; HU
Rim; Good
Decoration Red slip & burnish. Fire-clouded.
Diam. 500 mm; External; Rim thickness 105 mm
Fabric Ferrous; Medium; Medium; Gritty; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 5YR 7/6
Inclusions Rare; Small; Rounded; Red
Sparse; Tiny; Sub-Rounded; White
Limestone; Organic

TCP122 TIP0197. TS09 SU0103 P20.1
Shape WP-GAC; LU
Handle; Medium
Decoration White painted surface (discoloured); burnished. Black paint with horizontal bands & handle accent.
Diam. 18 mm; Internal; Other thickness 13 mm
Fabric Calcareous; Fine; Medium; Gritty; Medium
Munsell: 5YR 6/1; 7.5YR 7/4; 7.5YR 7/3
Inclusions Common; Tiny; Sub-Rounded; Brown
Sparse; Small; Rounded; White
Sparse; Small; Sub-Rounded; Red
Limestone

TCP123 TIP0187. TS09 SU0104 P04.1
Shape RPTOM-PeB; TW
Body; Good
Decoration Slip & burnish with blackened interior.
Thickness 6 mm
Fabric Calcareous; Fine; Hard; Medium, Good
Munsell: 10R 3/6; 5Y 2.5/1; 5Y 7/2
Inclusions Rare; Tiny; Rounded; Black

TCP124 TIP0185. TS09 SU0104 P10.1
Shape RP-PeB; LU
Body; Good
Decoration Slip, sculpted into raised bands on exterior, stroke burnish with scratched grooves on interior.
Thickness 4 mm
Fabric Calcareous; Medium; Hard; Gritty; Medium
Munsell: 10R 4/6; 10R 4/6; 10R 5/6
Inclusions Common; Small; Sub-Rounded; Brown

TCP125 TIP0038. TS12 TT497000E SU0301 P05.1
Shape BUP-OTTMODII; HU
Rim; Good
Diam. 600 mm; External; Rim
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Common; Large; Sub-Rounded; Black; Reflective
Sparse; Large; Sub-Rounded; White

TCP126 TIP0070. TS12 TT497000E SU0301 P07.1
Shape UFR02-MEDUI; CW
Rim, Handle, Body; Good
Decoration The body is shaved below the handle.
Diam. 130 mm; Internal; Rim thickness 3 mm
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Small; Sub-Rounded; Greyish-white
Limestone; Some

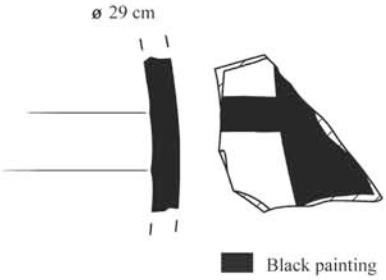
TCP127 TIP0033. TT497000E SU0304 P01.1
Shape Tia-MEDUIII; CW
Rim; Medium
Diam. 210 mm; Internal; Rim thickness 7.5 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 7.5YR 4/2; 7.5YR 4/2; 7.5YR 4/2
Inclusions Abundant; Tiny, Small, Medium, Large; Sub-Rounded; Reddish-yellow
Common; Tiny, Small; Sub-Rounded; Greyish-white

TCP128 TIP0075. TS07 TT495500E SU0336 P02.1
Shape RPOS-PeB; LU
Rim; Medium
Diam. 180–220 mm; Internal; Rim thickness 6.2 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 5/2;
Inclusions Abundant; Small; Sub-Rounded; Greyish-white
Sparse; Medium; Sub-Rounded; Greyish-white
Limestone; Small

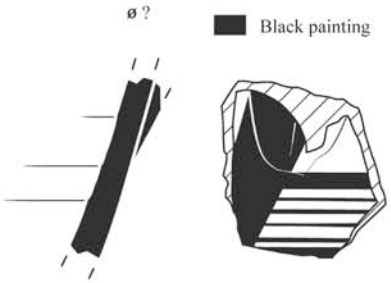
TCP129 TIP0198. TS07 SU0344 P02.1
Shape BcB-GAC; LU
Body; Medium
Decoration Red slip & burnished. Black manganese paint with horizontal bands.
Thickness 6 mm
Fabric Calcareous; Medium; Hard; Medium; Medium
Munsell: 2.5YR 5/4; 2.5YR 5/4; 10YR 7/4
Inclusions Common; Tiny; Rounded; Dark brown
Common; Small; Rounded; Red
Limestone

TCP130 TIP0078. TS07 SU0345 P02.1 (Plate 3.5)
Shape CGS06-MEDVOTT; TW
Base; Good
Decoration Interior: white slip & incised abstract decoration highlighted with green paint (P370 U) under a transparent glaze. Exterior possibly Graffito
Diam. 50 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Green Painted Sgraffito Ware B from Lapithos. Late 15th to first half of 16th c.

Pottery catalogue: TCP117–18, TCP121–22, TCP124–30 (drawings: Jean Humbert)

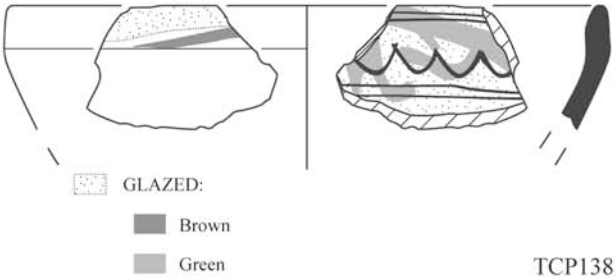


TCP131



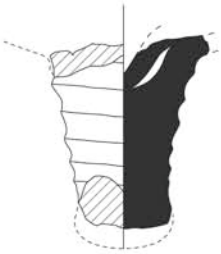
TCP132

TCP135

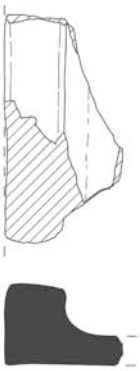


TCP138

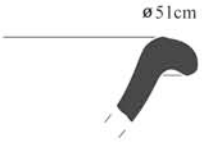
0 10 cm



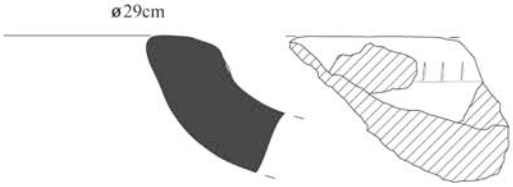
TCP133



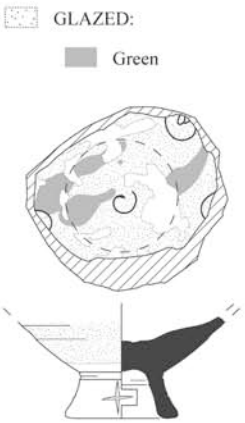
TCP134



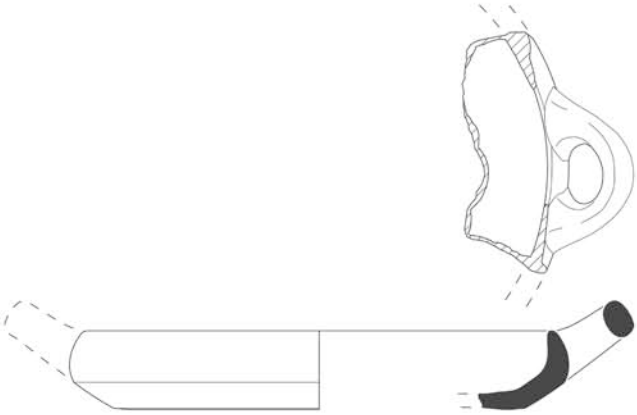
TCP136



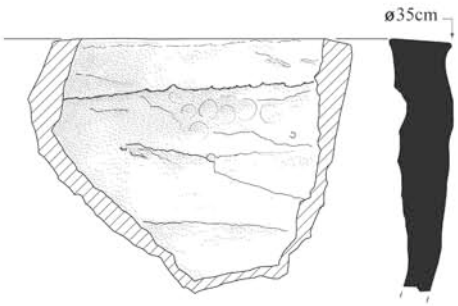
TCP137



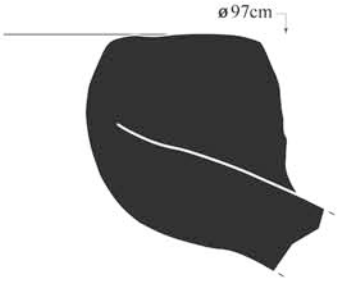
TCP140



TCP139



TCP141



TCP142

0 20 cm

TCP131 TIP0214. TS07 SU0346 P01.2
Shape WPC-GAC; LU
Body; Medium
Decoration White painted surface, black paint, horizontal & vertical bands
Thickness 7 mm
Fabric Self Slip; Medium; Hard; Medium; Medium
Munsell: 2.5Y 7/3; 2.5YR 6/6; 2.5YR 6/4
Inclusions Common; Tiny; Sub-Rounded; Black
Sparse; Small; Rounded; White
Sparse; Small; Angular; Dark brown
Sparse; Small; Sub-Rounded; Red
Limestone

TCP132 TIP0213. TS07 SU0346 P01.1
Shape WPC-GAC; LU
Handle; Medium
Decoration White painted surface & black paint. Horizontal bands, handle tail motif.
Thickness 61 mm
Fabric Self Slip; Medium; Hard; Medium; Medium
Munsell: 2.5Y 8/2; 2.5Y 8/3; 10YR 6/4
Inclusions Common; Tiny; Sub-Rounded; Black
Sparse; Medium; Angular; Clay matrix

TCP133 TIP0145. TS07 SU0346 P05.1
Shape Mav02-HR; Tr
Base; Medium
Self Slip. Twisted base.
Fabric Self Slip; Medium; Medium; Medium, Medium
Munsell: 7.5YR7/6; 2.5YR 7/6
Inclusions Common; Small; Sub-Rounded; Dark red
Common; Small, Medium, Large; Sub-Rounded; White
Comments Visible joint between base & body reveals different distribution of the temper.

TCP134 TIP0104. TS07 SU0346 P11.1
Shape Ti-HIS; Ar
Rim, Body; Medium
Thickness 15 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/1
Inclusions Common; Small; Sub-Rounded; Black & white
Sparse; Small; Sub-Rounded; Clear quartz; Reflective
Comments Fabric similar to modern burnished ware.

TCP135 TIP0079. TS07 SU0348 P03.1
Shape BS01-HEL; TW
Rim; Medium
Diam. 150 mm; Internal; Rim thickness 3.7 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 8/4; 7.5YR 8/4; 7.5YR 8/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellow sand
Comments Fabric same as TCP476.

TCP136 TIP0080. TS07 SU0349 P01.1
Shape HUR06-ROM; HU
Rim; Medium
Diam. 520 mm; External; Rim thickness 11.1 mm
Fabric Ferrous; Medium; Hard; Medium; Medium
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Greyish-white
Sparse; Small, Medium; Rounded; Greyish-white
Limestone

TCP137 TIP0084. TS08 SU0356 P04.1
Shape Pit02-MM; HU
Rim; Poor
Decoration Incised lines on exterior rim
Diam. 500–600 mm; External; Rim thickness 32.8 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Small; Sub-Rounded; Greyish-white
Common; Medium; Rounded; Yellowish-white
Sparse; Large; Sub-Rounded; Reddish-brown
Comments Closed form. Tile fabric of kitchen-like matrix. Same clay as TIP0012 (unpublished) & TCP141.

TCP138 TIP0085. TS08 SU0357 P02.1 (Plate 3.5)
Shape CGS06-MEDVOTT; TW
Rim; Good
Decoration Interior: white slip & pale yellow lead glaze (2.5YR 7/3); incised & green painted decoration (P385)
Diam. 200 mm; External; Rim thickness 4.6 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Not visible.
Comments Green painted Sgraffito Ware from Lapithos. Late 15th or early 16th c.

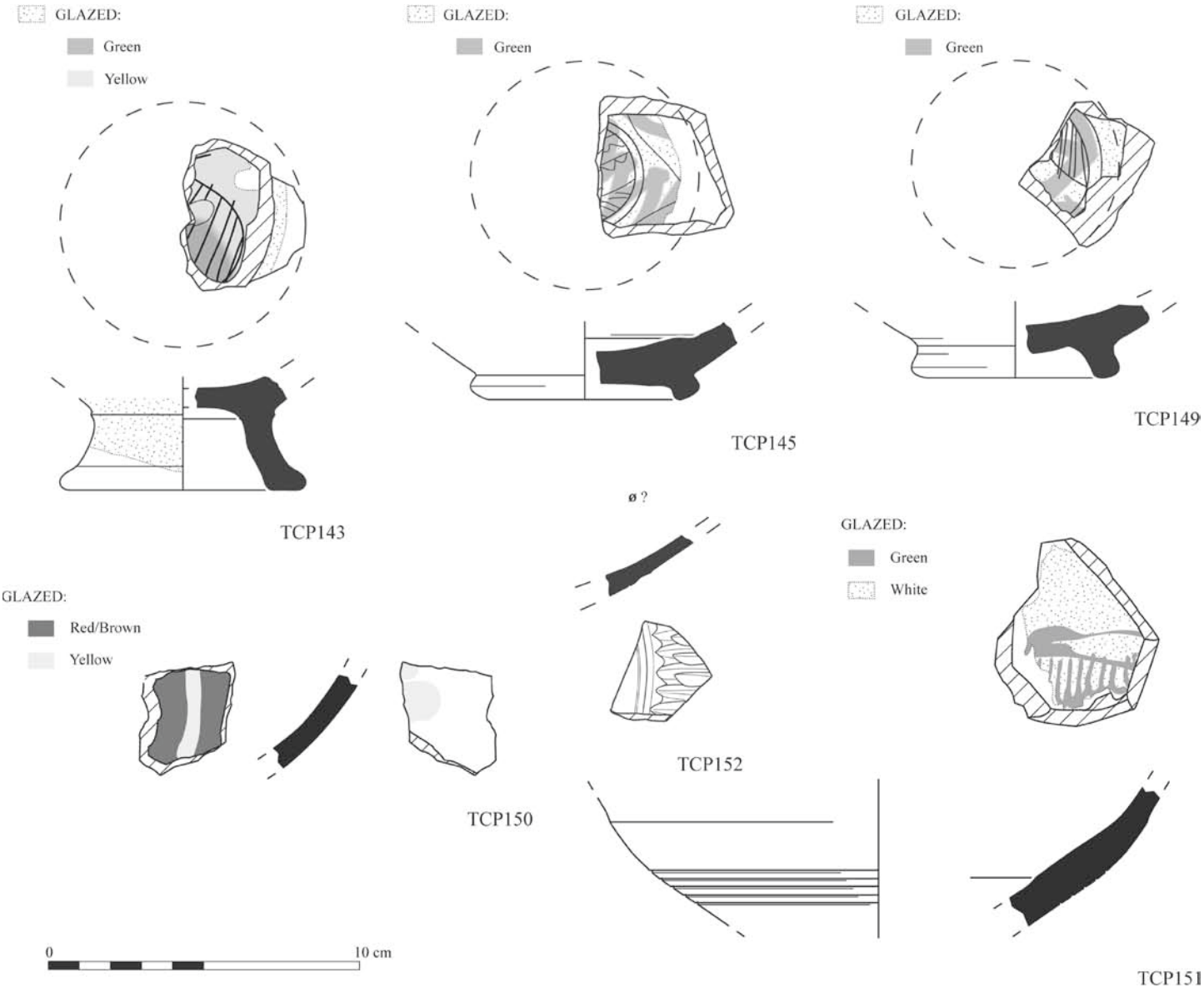
TCP139 TIP0090. TS12 SU0365 P02.1
Shape Tia-MEDUIII; CW
Rim, Handle, Base; Good
Misfired
Diam. 290 mm; External; Rim thickness 10 mm
Fabric Ferrous; Medium; Hard; Medium; Medium
Munsell: 2.5YR 4/1; 2.5YR 4/1; 2.5YR 4/1
Inclusions Abundant; Small; Sub-Rounded; White
Rare; Medium; Sub-Rounded; Yellowish-brown
Comparanda Ionas 1998, Fig. 42.

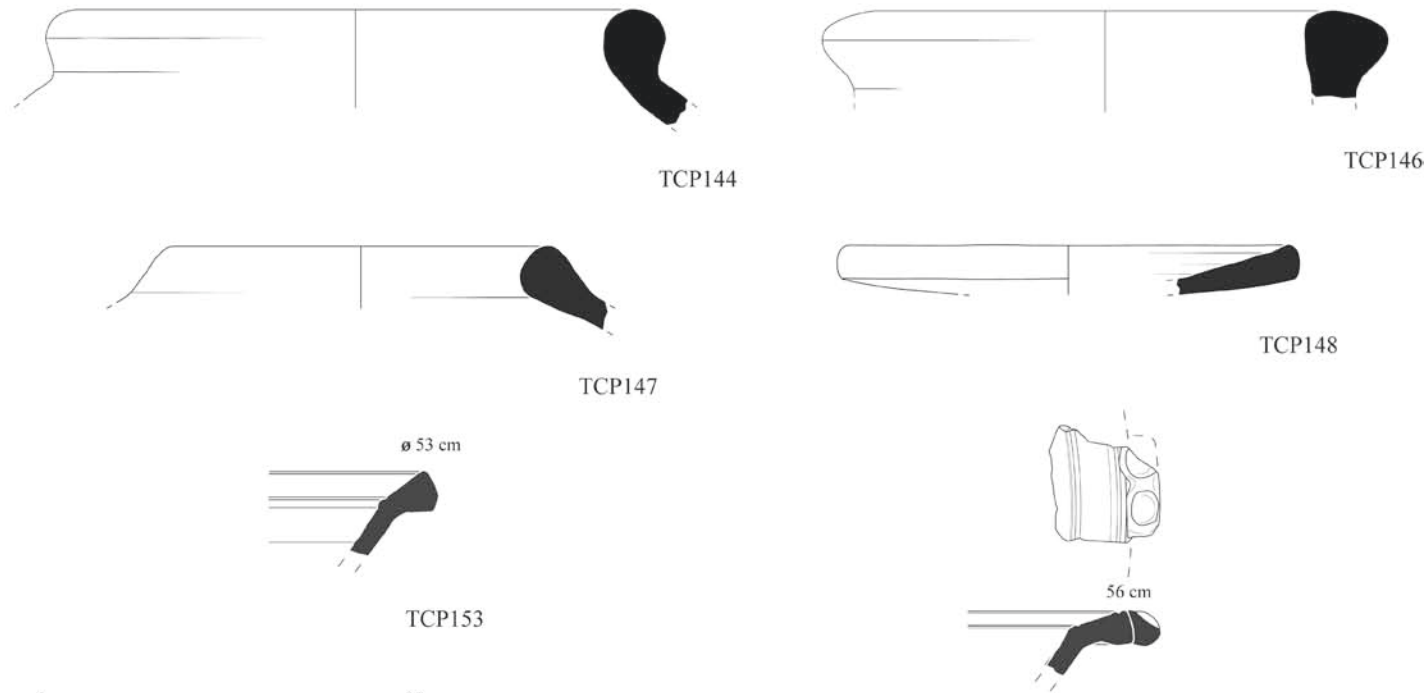
TCP140 TIP0091. TS12 SU0365 P03.1 (Plate 3.6)
Shape CGS05-MEDF; TW
Base; Medium
Decoration Interior & exterior upper wall: white slip & transparent lead glaze. Interior: incised abstract decoration highlighted with green paint (5GY 6/1 + 5/1). Incised cross on foot.
Diam. 50 mm; External; Base thickness 6 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Rare; Tiny; Sub-Rounded; Purple
Rare; Small; Sub-Rounded; Black
Sparse; Small; Rounded; White
Limestone
Comments Brown(?) & green sgraffito, Lapithos. Late 14th–15th c.
Comparanda Papanikola-Bakirtzis 1996, Pl. XXXII (CS 1808/21).

TCP141 TIP0093. TS12 SU0365 P15.1
Shape Dana-MOD; HU
Rim; Good
Diam. 300 mm; Internal; Rim thickness 19.4 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 4/4; 5YR 4/4; 5YR 4/4
Inclusions Abundant; Small; Sub-Rounded; Greyish-white
Common; Medium; Rounded; Yellowish-white
Sparse; Large; Sub-Rounded; Reddish-brown
Comments Fabric same as TCP137. Collected from wine/oil press

TCP142 TIP0094. TS12 SU0365 P17.1
Shape Pit03-MOD; HU
Rim; Medium
Diam. 500–600 mm; Internal; Rim thickness 3.75 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Common; Small, Large; Sub-Rounded; Black
Common; Large; Rounded; Black

Pottery catalogue: TCP131–TCP142 (drawings: Jean Humbert; photo: Chris Parks)


GLAZED:
Green
Yellow
TCP143
GLAZED:
Green
TCP145
GLAZED:
Green
TCP149
ø ?
GLAZED:
Red/Brown
Yellow
TCP150
TCP152
GLAZED:
Green
White
TCP151
0
10 cm


TCP144
TCP146
TCP147
TCP148
ø 53 cm
TCP153
56 cm

TCP143 TIP0092. TS12 SU0365 P19.1 (Plate 3.6)
Shape CGS05-MEDF; TW
Base; Good
Decoration Interior & exterior foot: white slip & transparent lead glaze. Interior: incised abstract decoration highlighted with green & olive paint.
Diam. 70 mm; External; Base thickness 7 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Rare; Tiny; Rounded; Black
Limestone
Comments Brown & green sgraffito, Lapithos, late 14th–15th c.

TCP144 TIP0155. TS12 SU0365 P20.1
Shape Pit06-MOD; HU
Rim; Good
Thickness 16.4 mm
Fabric Ferrous; Coarse; Medium; Gritty, Medium
Munsell: 5YR 5/6; 2.5YR 5/8; 5YR 4/1
Inclusions Abundant; Small; Sub-Rounded; White/Lime
Sparse; Medium; Sub-Rounded; White
Sparse; Medium; Angular; Beige/yellowish
Limestone; Organic

TCP145 TIP0121. TS12 SU0366 P04.1 (Plate 3.6)
Shape CGS06-medf; TW
Base; Good
Decoration Interior: white slip & incised abstract decoration highlighted with green paint (P363 U) under transparent lead glaze.
Diam. 70 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 10YR 7/4; 2.5YR 7/6; 2.5YR 7/6
Inclusions Rare; Small; Rounded; White
Limestone
Comments Green painted Sgraffito Ware B, Lapithos. Late 15th–16th c.

TCP146 TIP0152. TS12 SU0366 P09.1
Shape Pit04-MOD; HU
Rim; Good
Diam. 300 mm; Internal; Rim Thickness 23.3 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 2.5YR6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Medium; Rounded; Calcium
Common; Small; Sub-Rounded; Grey quartz
Sparse; Large; Rounded; Rock fragment
Limestone

TCP147 TIP0153. TS12 SU0366 P11.1
Shape Pit05-MOD; HU
Rim; Good
Diam. 200 mm; Internal; Rim thickness 12.3 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 4/6; 5YR 4/6; 7.5YR 4/3
Inclusions Abundant; Small; Angular; Whitish
Common; Medium; Angular; Yellowish/beige
Sparse; Large; Angular; Dark
Sparse; Medium; Angular; Whitish
Limestone

TCP148 TIP0154. TS12 SU0366 P12.1
Shape LU-MOD; HU
Rim; Good
Diam. 230 mm; External; Rim thickness 8 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 7.5YR 5/6; 5YR 5/6; 2.5YR 3/6
Inclusions Common; Medium; Rounded; Dark brown
Common; Small; Sub-Rounded; Beige, grey, & lime (white)

TCP149 TIP0140. TS16 SU0393 P12.1 (Plate 3.6)
Shape CGS06-MedVOtt; TW
Base; Good
Decoration Interior: white slip & incised abstract decoration highlighted with a green paint (P 363 U) under a transparent lead glaze.
Diam. 60 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Rare; Tiny; Rounded; Black
Sparse; Small; Sub-Rounded; White
Limestone
Comments Green Painted Sgraffito, Lapithos. Late 15th–1st half 16th c.

TCP150 TIP0122. TS02 SU0614 P13.1
Shape SP03-MEDB; TW
Body; Medium
Decoration Interior: Painted decoration of white slip becoming pale yellow (2.5Y 8/4) in tone by lead glaze.
Thickness 7 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 2.5YR 5/8; 2.5YR 5/8
Inclusions Rare; Tiny; Rounded; Black
Sparse; Small; Rounded; White
Limestone
Comments Slip-painted ware from Paphos. Early 13th c.

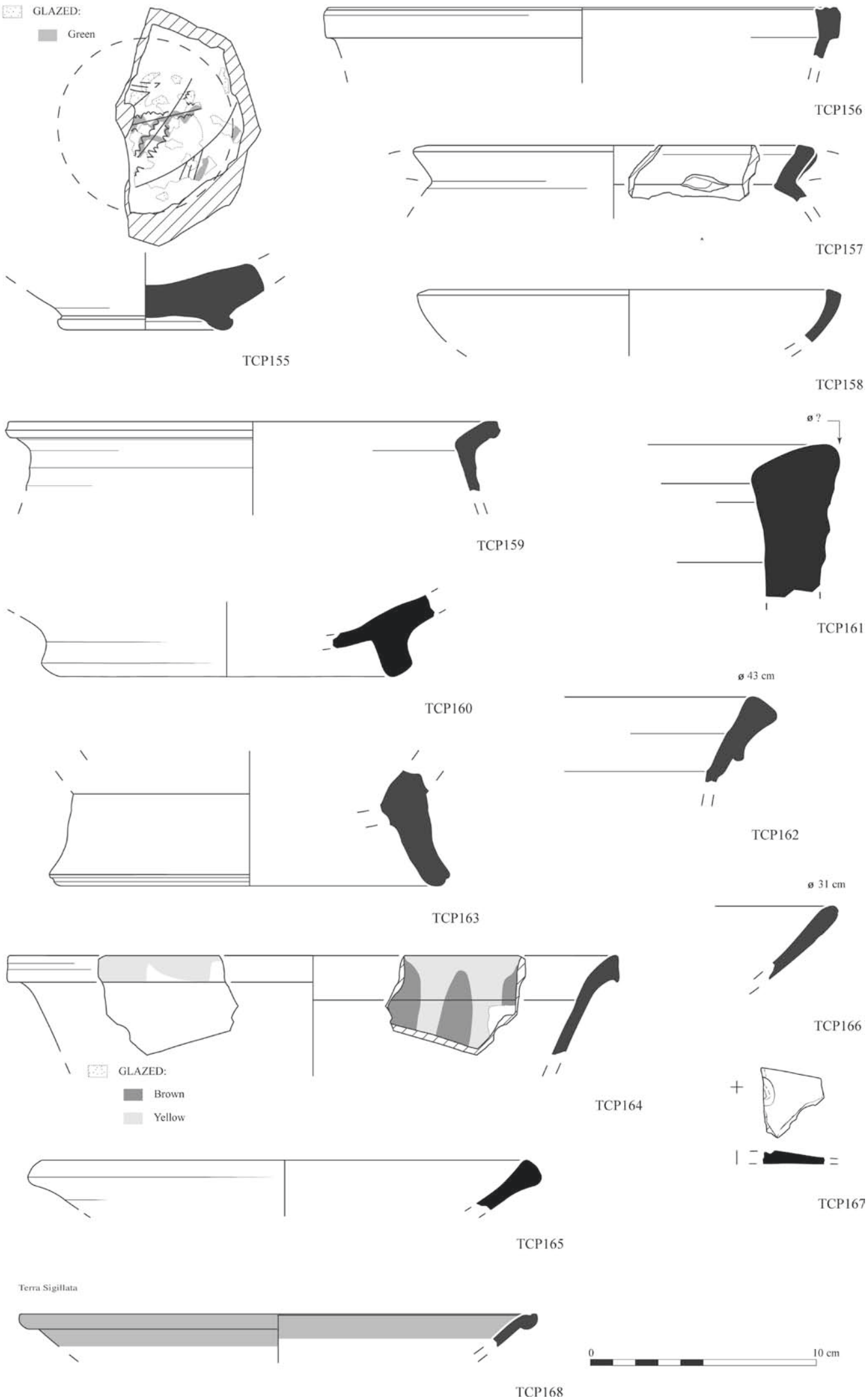
TCP151 TIP0068. TS02 SU0614 P15.1
Shape MP01-MedVOtt; TW
Body; Medium
Decoration Interior: white slip & incised abstract decoration highlighted with green paint (P 378 U) under a transparent lead glaze.
Thickness 8 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/6
Inclusions Common; Small; Rounded; White
Limestone
Comments Green Painted Ware from Lapithos. 16th c.+
Comparanda Papanikola-Bakirtzis 1996, pl. LXIX, no 114.

TCP152 TIP0046. TS02 SU0614 P17.1
Shape CRS-LR; TW
Body; Medium
Thickness 5 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 5/4; 2.5YR 5/4; 2.5YR 6/4
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white
Limestone

TCP153 TIP0041. TS02 SU0615 P07.1
Shape HUR01-ROM; HU
Rim; Good
Diam. 500 mm; External; Rim thickness 8.5 mm
Fabric Mixed; Medium; Medium; Medium; Poor
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Sparse; Tiny, Small; Sub-Rounded; Greyish-white

TCP154 TIP0042. TS02 SU0615 P08.1
Shape HUR01-ROM; HU
Rim; Good
Diam. 500 mm; External; Rim thickness 11 mm
Fabric Calcareous; Medium; Medium; Medium, Medium
Munsell: 2.5Y 7/3; 2.5Y 7/3; 2.5Y 7/3
Inclusions Abundant; Tiny, Small; Sub-Rounded; Beige
Sparse; Small, Medium, Large; Sub-Rounded; Black
Limestone; Halos
Comparanda Catling 1972, 32, Fig. 20:P325.

Pottery catalogue: TCP143–TCP154 (drawings: Jean Humbert)


GLAZED:
Green
TCP155
TCP156
TCP157
TCP158
TCP159
ø ?
TCP161
TCP160
ø 43 cm
TCP162
TCP163
ø 31 cm
TCP166
GLAZED:
Brown
Yellow
TCP164
TCP167
TCP165
Terra Sigillata
0
10 cm
TCP168

TCP155 TIP0069. TS02 SU0615 P10.1 (Plate 3.6)
Shape CGS06-MedVOtt; TW
Base; Poor
Decoration Interior: white slip & incised abstract decoration highlighted with green paint under a transparent lead glaze.
Diam. 70 mm; External; Base thickness 15 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Sparse; Tiny; Sub-Rounded; White; Reflective Limestone
Comments Green Painted Sgraffito Ware B from Lapithos. Beginning 16th c.

TCP156 TIP0044. TS02 SU0616 P11.1
Shape CWCR02a-ROM; CW
Rim; Poor
Diam. 270 mm; External; Rim thickness 4.2 mm
Fabric Ferrous; Medium; Medium; Medium, Poor
Munsell: 10R 5/6; 10R 5/6; 10R 5/6
Inclusions Common; Tiny; Sub-Rounded; Black
Common; Tiny; Sub-Rounded; Greyish-white

TCP157 TIP0043. TS02 SU0616 P12.1
Shape CWPR07-HEL; CW
Rim; Good
Diam. 180 mm; External; Rim thickness 3.7 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Common; Tiny, Small, Medium; Sub-Rounded; Greyish-white; Reflective

TCP158 TIP0045. TS02 SU0616 P13.1
Shape CS12-ER; TW
Rim; Medium
Diam. 190 mm; Internal; Rim thickness 3.7 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white Limestone

TCP159 TIP0048. TS02 SU0618 P18.1
Shape CWPR07-HEL; CW
Rim; Good
Diam. 240 mm; External; Rim thickness 4.1 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 10YR 4/1; 10YR 4/1; 2.5YR 5/6
Inclusions Common; Tiny, Small; Sub-Rounded; Quartz
Reflective

TCP160 TIP0431. TS02 SU0618 P30
Shape URB01-OTTMODI; U
Base; Medium
Diam. 150 mm; External; Base thickness 8 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 6/6; 5YR 6/6; 10YR 5/1
Inclusions Common; Tiny; Rounded; White
Common; Medium; Sub-Rounded; Grey
Comments Wheelmade base

TCP161 TIP0050. TS02 SU0619 P09.1
Shape Pit11-RM; HU
Rim; Medium
Diam. 500 mm; External; Rim thickness 21.8 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Common; Small; Rounded; Clear quartz
Sparse; Medium; Sub-Rounded; Black
Sparse; Tiny, Medium; Sub-Rounded; Lime

TCP162 TIP0047. TS02 SU0619 P23.1
Shape CRS11-LR; TW
Rim; Medium
Diam. 400 mm; External; Rim thickness 5.6 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 4/1; 2.5YR 5/4; 5YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish

TCP163 TIP0049. TS02 SU0619 P26.1
Shape LUB01-HIS; LU
Base; Medium
Diam. 180 mm; Internal; Base
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 2.5Y 8/2; 10YR 7/3; 7.5YR 6/4
Inclusions Common; Small; Sub-Rounded; Black
Sparse; Small; Sub-Rounded; White quartz

TCP164 TIP0123. TS02 SU0619 P28.1 (Plate 3.6)
Shape SP02-OTTMODII; TW
Rim; Good
Decoration Interior & exterior rim painted with white slip, becoming yellow (2.5Y 7/8) under lead glaze. Brownish glaze on clay (7.5YR 5/6)
Diam. 260 mm; External; Rim thickness 5 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/6
Inclusions Sparse; Tiny; Rounded; Black
Sparse; Small; Rounded; White
Limestone
Comments Slip-painted ware, Didymoteicho, 19th–early 20th c.

TCP165 TIP0649. TS02 SU0619 P31.1
Shape CRS02X-LR; TW
Rim; Medium
Decoration Yellow rim.
Diam. 260 mm; External; Rim thickness 5.1 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Small; Sub-Rounded; Yellowish
Comments Possible imitation?

TCP166 TIP0052. TS02 SU0619 P34.1
Shape LRCA1kn5-LR; TW
Rim; Medium
Diam. 350 mm; External; Rim thickness 4.5 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 10R 6/8; 10R 6/8; 2.5YR 6/8
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish-white
Sparse; Small; Sub-Rounded; Yellowish-white
Limestone
Comments Fabric appears to be similar to TCP467 & TCP603. Imitations?

TCP167 TIP0648. TS02 SU0619 P36.1
Shape LRC-LR; TW
Base; Good
Decoration Stamped decoration.
Thickness 4.4 mm
Fabric Ferrous; Medium; Medium; Smooth; Good
Munsell: 10R 6/6; 10R 6/6; 10R 6/6
Inclusions Abundant; Small; Sub-Rounded; Yellowish

TCP168 TIP0053. TS02 SU0619 P37.1
Shape SigW-ER; TW
Rim; Medium
Diam. 220 mm; External; Rim Thickness 3.8 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 10R 5/6; 10R 5/6; 2.5YR 6/8
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white
Limestone
Comments Bright orange fabric looks very similar to TCP447 & TCP345. The slip is relatively thick.
Comparanda Form similar to Italian Terra Sigillata form VIII dated c. 15 BC (Pucci 1985, 382, Tab. CXVII: 12).

Pottery catalogue: TCP155–TCP168 (drawings: Jean Humbert)

TCP169

TCP170

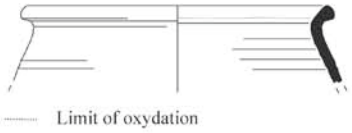
TCP172

0 5 cm

TCP171

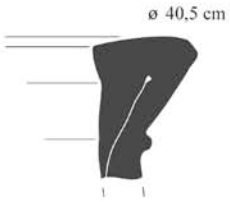
TCP173

TCP174

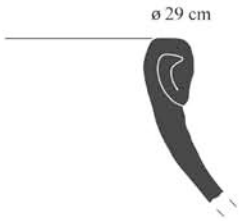


TCP175

TCP176



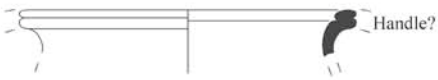
TCP177



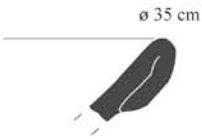
TCP178

TCP179

TCP180



TCP181

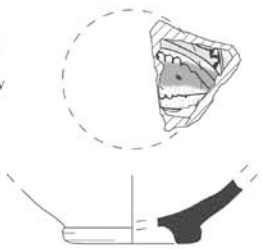


TCP182

GLAZED :

Green

Yellow



TCP183

0 20 cm

TCP169 TIP0051. TS02 SU0619 P41
Shape CRS08-LR; TW
Rim; Poor
Diam. 330 mm; External; Rim Thickness 5.1 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 6/4
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white

TCP170 TIP0054. TS02 SU0621 P01.1
Shape CRS10A-LR; TW
Rim; Medium
Diam. 350 mm; External; Rim thickness 7.1 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 10R 5/4; 2.5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white
Limestone

TCP171 TIP0055. TS02 SU0621 P03.1
Shape CS04B-ER; TW
Rim; Medium
Diam. 210 mm; Internal; Rim thickness 6.3 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 10R 4/6; 10R 4/6;
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white
Limestone

TCP172 TIP0056. TS02 SU0621 P06.1
Shape LRC-LR; TW
Body; Medium
Decoration Floral stamp
Thickness 3.9 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white
Limestone
Comparanda Star of David: Hayes 1972, 351, Fig. 73c

TCP173 TIP0481. TS02 SU0621 P20.1
Shape LUR11-HR; LU
Rim, Handle; Good
Diam. 130 mm; Rim thickness 5 mm
Fabric Self Slip; Medium; Soft; Gritty; Medium
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Abundant; Tiny, Small; Rounded; White oolite halos
Sparse; Small, Medium; Rounded; Reddish-brown

TCP174 TIP0057. TS02 SU0622 P10.1
Shape CWPR05-ER; CW
Rim; Good
Diam. 220 mm; External; Rim thickness 3.1 mm
Fabric Ferrous; Medium; Medium; Gritty; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Small; Sub-Rounded; Greyish-white; Reflective

TCP175 TIP0058. TS02 SU0622 P11.1
Shape CWPR16-LR; CW
Rim; Good
Diam. 160 mm; External; Rim thickness 4.4 mm
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 2.5YR 5/6; 10YR 4/1; 10YR 4/1
Inclusions Abundant; Tiny; Sub-Rounded; Reddish-beige
Limestone; Common, tiny

TCP176 TIP0059. TS02 SU0622 P12.1
Shape CWPR13-LR; CW
Rim; Good
Diam. 190 mm; External; Rim thickness 4.3 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 2.5YR 5/4; 5YR 5/3; 10YR 4/1
Inclusions Abundant; Tiny; Sub-Rounded; White quartz
Common; Tiny, Small; Sub-Rounded; White
Limestone; Common, tiny
Comments Joins TCP592.

TCP177 TIP0060. TS02 SU0622 P16.1
Shape Pit01-LR; HU
Rim; Medium
Diam. 550–600 mm; External; Rim thickness 21.1 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Abundant; Small, Medium; Sub-Rounded; Black

TCP178 TIP0061. TS02 SU0622 P18.1
Shape HUR07-HR; HU
Rim; Good
Diam. 290 mm; External; Rim thickness 9.3 mm
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 2.5Y 8/2; 2.5Y 8/2; 7.5YR 8/4
Inclusions Common; Small; Sub-Rounded; Black
Sparse; Medium; Sub-Rounded; Yellowish-white
Sparse; Small, Medium; Sub-Rounded; Reddish-beige
Unknown; Elongated

TCP179 TIP0151. TS02 SU0626 P08.1
Shape CRS01-LR; TW
Rim; Poor
Thickness 5 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 5YR 6/8; 5YR 6/8; 5YR 6/8
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish
Unknown; Sparse

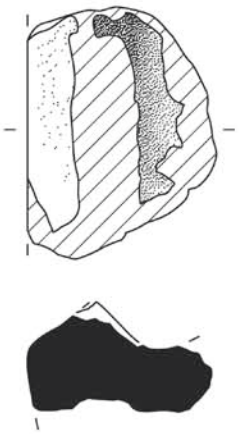
TCP180 TIP0081. TS02 SU0638 P09.1
Shape CWPR02-HR; CW
Rim; Good
Diam. 190 mm; External; Rim thickness 5.8 mm
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 7.5YR 4/3; 7.5YR 4/3; 7.5YR 4/3
Inclusions Common; Small; Sub-Rounded; Greyish
Sparse; Small, Medium; Sub-Rounded; Black

TCP181 TIP0082. TS02 SU0638 P10.1
Shape CWPR09-HR; CW
Rim; Medium
Diam. 180 mm; External; Rim thickness 5.8 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 2.5YR 6/8; 2.5YR 6/8; 2.5YR 6/8
Inclusions Common; Tiny; Sub-Rounded; White
Sparse; Small; Sub-Rounded; Black
Limestone

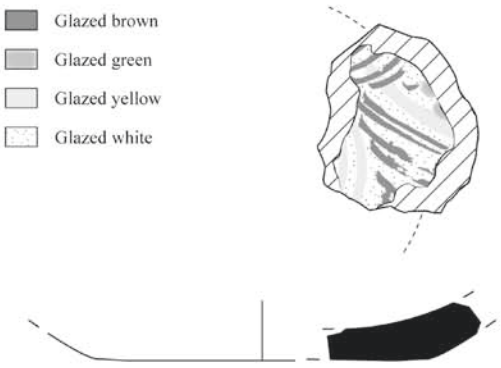
TCP182 TIP0083. TS02 SU0640 P11.1
Shape Per-GAC; HU
Rim; Medium
Diam. 380 mm; External; Rim thickness 10.7 mm
Fabric Calcareous; Medium; Medium; Gritty; Medium
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Rare; Small; Sub-Rounded; Red
Sparse; Small; Sub-Rounded; Black & white

TCP183 TIP0125. TS02 SU0660 P13.1 (Plate 3.6)
Shape CGS05-MedF; TW
Base; Good
Decoration Interior & exterior (until ring foot): white slip & transparent lead glaze. Interior: incised abstract decoration highlighted with green (P385U) & ochre-yellow paint (2.5Y 6/8) under glaze
Diam. 70 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 10YR 6/4; 10YR 6/4; 10YR 6/4
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Brown & green sgraffito, Lapithos, Late 14th–15th c.
Comparanda Papanikola-Bakirtzis 1996, Pl. XLV, No. 32.

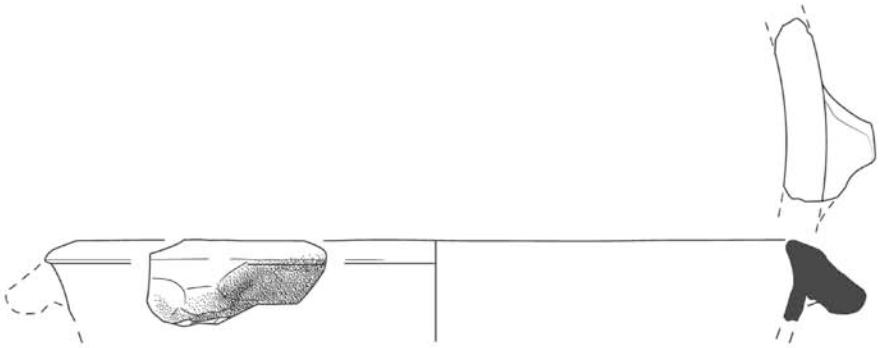
Pottery catalogue: TCP169–TCP183 (drawings: Jean Humbert; photo: Chris Parks)



TCP184



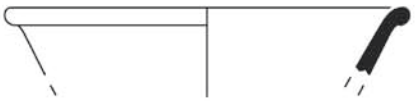
TCP185



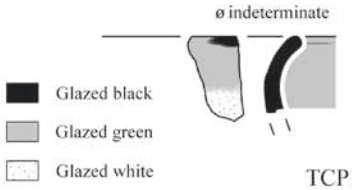
TCP186

TCP188

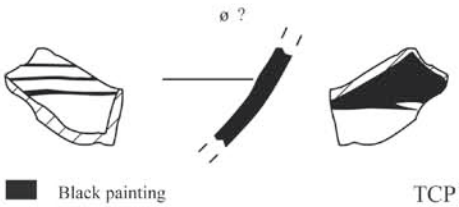
TCP189



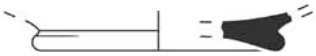
TCP190



TCP191



TCP192



TCP194

TCP196

TCP184 TIP0160. SU0703 P01.1
Shape TiP-LR; Ar
Rim; Poor
Thickness 16 mm
Fabric Self Slip; Coarse; Medium; Gritty; Poor
Munsell: 2.5YR 8/3; 5YR 7/6; 5YR 7/6
Inclusions Common; Large; Rounded; Brown
Common; Large; Angular; Dark
Sparse; Medium; Angular; Reddish
Sparse; Medium; Sub-Rounded; White
Limestone; Organic

TCP185 TIP0709. TS11 SU1001 P16 (Plate 3.6)
Shape PP01-OTT; TW
Base; Medium
Decoration Interior & exterior: white slip & tin glaze. Interior: polychrome painted abstract decoration in yellow, green & brown
Diam. 100 mm; External; Base thickness 8 mm
Fabric Calcareous; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/4; 7.5YR 7/4; 7.5YR 7/4
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Maiolica 'Spirali Verdi' from Tuscany, 17th–18th c.

TCP186 TIP0161. TS11 SU1002 P05.1
Shape CWPR04a-ER; CW
Rim; Medium
Diam. 180–200 mm; Internal; Rim thickness 3.5 mm
Fabric Ferrous; Medium; Soft; Gritty; Medium
Munsell: 2.5YR 4/6; 2.5YR 4/6; 2.5YR 4/6
Inclusions Rare; Medium; Angular; Orange
Sparse; Tiny; Sub-Rounded; Orange & white
Limestone

TCP187 TIP0710. TS11 SU1002 P20.1
Shape CGS03-MED; TW
Body; Poor
Decoration Interior white slip & pale green lead glaze (P367); gouged decoration
Thickness 5 mm
Fabric Mixed; Fine; Medium; Medium; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; White
Limestone
Comments Incised Sgraffito Ware, early 13th c.

TCP188 TIP0162. TS11 SU1003 P03.1
Shape CRS05-LR; TW
Rim; Medium
Decoration No slip preserved.
Diam. 230–250 mm; Internal; Rim thickness 6.2 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish
Unknown; Sparse

TCP189 TIP0166. TS13 TT3884000N SU1006 P02.1
Shape LUR09-HR; LU
Rim; Medium
Diam. 110 mm; External; Rim thickness 7.6 mm
Fabric Self Slip; Medium; Hard; Medium; Medium
Munsell: 2.5Y 8/3; 2.5Y 8/3; 5YR 6/6
Inclusions Rare; Small; Angular; Black
Sparse; Small; Angular; Grey & brown
Limestone; Organic; Sparse

TCP190 TIP0184. TT3883500N SU1010 P04.1
Shape SigW-ER; TW
Rim; Good
Decoration Good quality slip
Diam. 180 mm; External; Rim thickness 4 mm
Fabric Ferrous; Fine; Hard; Smooth; Good
Munsell: 2.5YR 4/8; 2.5YR 4/8; 2.5YR 6/6
Inclusions Common; Tiny; Rounded; Yellow
Unknown; Very few & tiny

TCP191 TIP0712. TT3883500N SU1011 P21
Shape G03-MEDB; TW
Rim; Medium
Decoration Interior & exterior: turquoise-blue glaze (P345); drop of glaze on interior rim.
Diam. 180 mm; External; Rim thickness 3 mm
Fabric Ferrous; Hard; Medium; Poor
Munsell: 10YR 8/1
Inclusions Rare; Small; Rounded; Black
Rare; Tiny; Rounded; White
Sparse; Medium; Angular; White; Reflective
Limestone
Comments Islamic glazed fritware, from Syria? 12th–13th c.

TCP192 TIP0200. TS09 SU1013 P01.1
Shape BOR-GAC; LU
Body; Medium
Decoration Red slip & burnished, fire-clouded. Black manganese paint, horizontal bands.
Thickness 6 mm
Fabric Mixed; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/4; 7.5YR 7/4
Inclusions Common; Tiny; Sub-Rounded; Dark brown
Sparse; Medium; Angular; Dark brown
Sparse; Small; Sub-Rounded; Red-orange
Limestone

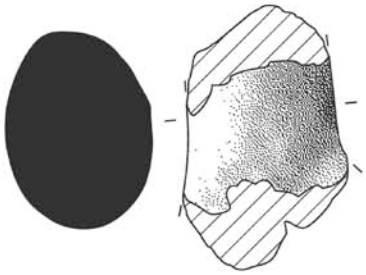
TCP193 TIP0204. TS09 SU1013 P02.1
Shape BSC-GAC; LU
Body; Medium
Decoration Black slip.
Thickness 6 mm
Fabric Calcareous; Medium; Medium; Smooth; Medium
Munsell: 10YR 10/1; 10YR 7/4; 10YR 7/3
Inclusions Common; Small; Sub-Rounded; Dark grey
Sparse; Small; Angular; Red
Limestone

TCP194 TIP0205. TS09 SU1013 P03.1
Shape BSO-GAC; TW
Base; Medium
Decoration Black slip & burnished.
Diam. 65 mm; External; Base thickness 3 mm
Fabric Ferrous; Fine; Medium; Medium; Good
Munsell: 10YR 4/1; 2.5YR 4/1; 5YR 6/6
Inclusions Rare; Small; Sub-Rounded; Red
Rare; Tiny; Sub-Rounded; Black

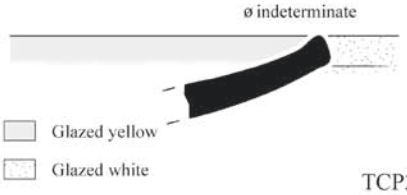
TCP195 TIP0206. TS09 SU1013 P12.1
Shape RP-PeB; HU
Body; Medium
Decoration Untreated surface.
Thickness 18 mm
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 2.5YR 6/6; 5YR 5/4; GLEY2 3/10B
Inclusions Common; Large; Angular; Black
Common; Tiny; Rounded; White. Organic
Comments Chaff impressions on pot surface.

TCP196 TIP0207. TS09 SU1013 P13.1
Shape RPC-PeB; LU
Rim; Medium
Decoration Red slip & burnished.
Diam. 14 mm; External; Rim thickness 7 mm
Fabric Ferrous; Fine; Hard; Medium; Medium
Munsell: 2.5YR 4/3; 2.5YR 4/4; 2.5YR 6/1
Inclusions Rare; Medium; Angular; Red
Sparse; Tiny; Sub-Rounded; Grey
Sparse; Small; Rounded; Red

Pottery catalogue: TCP184–86, TCP188–92, TCP194–96 (drawings: Jean Humbert)

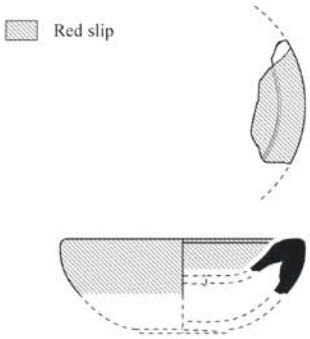


TCP199



TCP202

TCP204



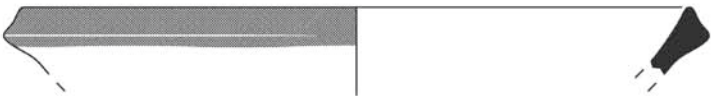
TCP203

TCP205

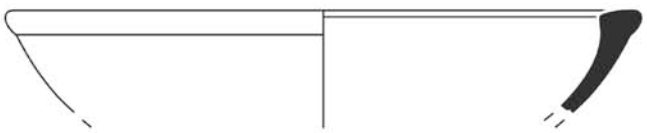
TCP206

TCP207

TCP208



TCP209



TCP210

TCP197 TIP0202. TS09 SU1014 P05.2
Shape RPC-PeB; LU
Body; Medium
Decoration Red slip & burnish.
Thickness 6 mm
Fabric Mixed; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 4/4; CLAY2 2.5/5PB; 5YR 4/2
Inclusions Common; Small; Sub-Rounded; Black
Common; Tiny; Rounded; White
Limestone; Organic
Comments Possibly kitchen ware?

TCP198 TIP0201. TS09 SU1014 P05.1
Shape RPC-PeB; LU
Body; Medium
Decoration Red slip & burnish.
Thickness 6 mm
Fabric Mixed; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 4/4; CLAY2 2.5/5PB; 5YR 4/2
Inclusions Common; Small; Sub-Rounded; Black
Common; Tiny; Rounded; White
Limestone; Organic
Comments Possibly kitchen ware?

TCP199 TIP0199. TS09 SU1014 P13.1
Shape RP-PeB; HU
Handle; Medium
Decoration Red slip & light burnish.
Thickness 37 mm
Fabric Mixed; Coarse; Medium; Medium; Poor
Munsell: 2.5YR 4/3; 2.5YR 5/4; 10YR 5/3
Inclusions Common; Tiny; Sub-Rounded; White
Common; Small; Sub-Rounded; Black
Rare; Large; Rounded; Pink
Limestone; Organic

TCP200 TIP0203. TS09 SU1014 P15.1
Shape WPC-GAC; LU
Body; Medium
Decoration White painted surface, Black horizontal lines.
Thickness 7 mm
Fabric Calcareous; Medium; Medium; Medium; Medium
Munsell: 2.5Y 8/2; 10YR 7/3; 10YR 7/3
Inclusions Common; Tiny; Sub-Rounded; Dark grey
Sparse; Small; Rounded; Red
Sparse; Small; Sub-Rounded; Black
Limestone

TCP201 TIP0223. TT3883500N SU1015 P03.1
Shape Un-BA; TW
Body; Good
Decoration Does not seem to be slipped; pattern burnish.
Thickness 2.9 mm
Fabric Self Slip; Fine; Medium; Medium; Medium
Munsell: 2.5Y 8/3; 2.5YR 6/8; 5YR 7/6
Inclusions Sparse; Small; Sub-Rounded; Red
Sparse; Tiny; Angular; Black
Unknown
Comments White lustrous wheelmade ware. LCI–LCII

TCP202 TIP0711. TT3883500N SU1015 P13.1
Shape G02-MED; TW
Rim; Medium
Decoration Interior white slip & pale yellow lead glaze (2.5YR 8/4). Exterior: thin layer of white slip.
Thickness 8 mm
Fabric Calcareous; Medium; Hard; Medium; Medium
Munsell: 2.5YR 6/8; 5YR 8/6; 2.5YR 6/8
Inclusions Sparse; Small; Angular; Dark
Sparse; Medium; Sub-Rounded; White
Limestone
Comments Monochrome glazed ware. Late 12th–early 13th c.

TCP203 TIP0698. TT3883500N SU1015 P14.1
Shape La01-ER; La
Rim; Good
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime

TCP204 TIP0699. TT3883500N SU1015 P20.1
Shape ESA18-LH; TW
Rim; Good
Diam. 140 mm; External; Rim thickness 4.2 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 10YR 8/3; 10YR 8/3; 10YR 8/3
Inclusions Abundant; Tiny; Sub-Rounded; Beige lime

TCP205 TIP0225. TT3883500N SU1015 P22.1
Shape CS40-ER; TW
Body; Medium
Thickness 4 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 4/6; 10YR 5/6; 2.5YR 4/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Limestone

TCP206 TIP0226. TT3883500N SU1015 P23.1
Shape BG01-HEL; TW
Rim; Good
Diam. 150 mm; External; Rim thickness 4.5 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 5/8
Inclusions Rare; Tiny; Sub-Rounded; White & black

TCP207 TIP0697. TT3883500N SU1015 P46.1
Shape CWL04-LR; CW
Lid; Good
Diam. 23 mm; External; Rim
Fabric Ferrous; Coarse; Medium; Medium; Medium
Munsell: 2.5YR 4/4; 2.5YR 4/4; 2.5YR 4/4
Inclusions Common; Tiny, Small; Sub-Rounded; Milky white
Sparse; Medium; Angular; White
Sparse; Medium; Sub-Rounded; Black

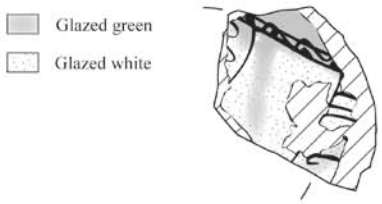
TCP208 TIP0303. TT3883500N SU1016 P15.1
Shape Gaz-LR; Tr
Rim; Good
Diam. 100 mm; Internal; Rim thickness 7 mm
Fabric Ferrous; Coarse; Medium; Medium; Poor
Munsell: 10YR 8/3; 5YR 6/6; 5YR 6/6
Inclusions Sparse; Small, Medium, Large; Sub-Rounded; Greyish lime
Unknown; Elongated

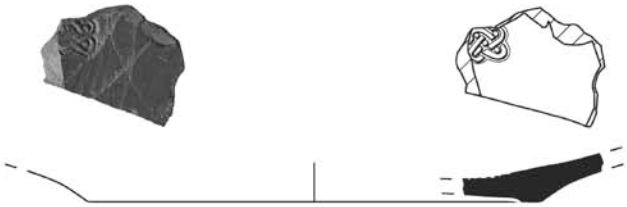
TCP209 TIP0219. TT3883500N SU1016 P17.1
Shape BOR-CL; TW
Rim; Good
Diam. 170 mm; Internal; Rim Thickness 5 mm
Fabric Ferrous; Fine; Hard; Medium; Good
Munsell: 10R 5/6; 10R 5/8; 10R 5/8
Inclusions Sparse; Tiny; Sub-Rounded; Dark brown; Reflective

TCP210 TIP0220. TT3883500N SU1016 P20.1
Shape ESB80-ER; TW
Rim; Poor
Diam. 160–200 mm; External; Rim thickness 4 mm
Fabric Mixed; Fine; Soft; Medium; Good
Munsell: 2.5YR 5/8; 2.5YR 5/8; 5YR 5/8
Inclusions Abundant; Tiny; Angular; Mica; Reflective
Unknown; Oblong

Pottery catalogue: TCP197–99, TCP202–10 (drawings: Jean Humbert)

TCP211



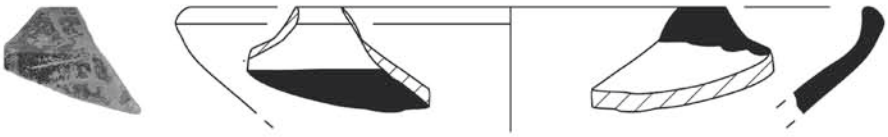


TCP213

TCP212

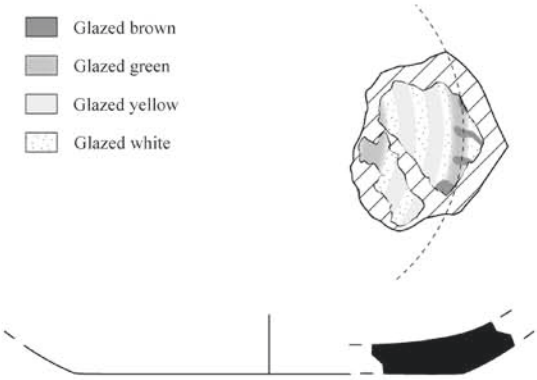
ø ?

TCP21

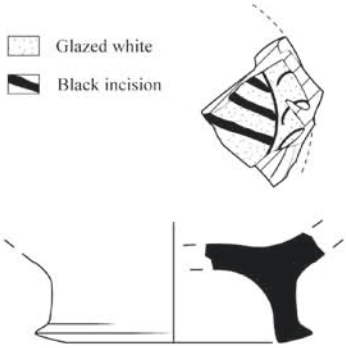


Black painting

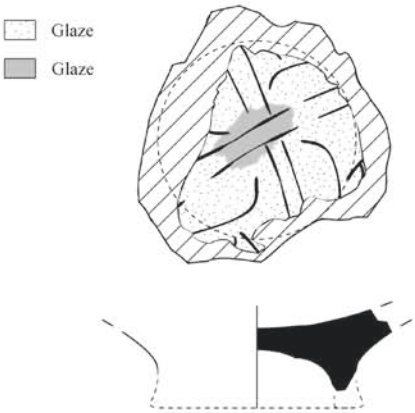
TCP214



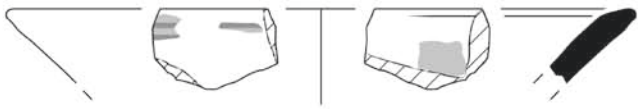
TCP218



TCP219

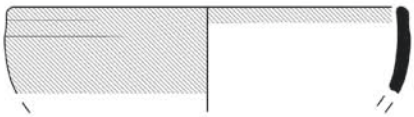


TCP220



Glazed brown
Glazed green

TCP22



Red slip

TCP222

TCP211 TIP0304. TT3883500N SU1016 P21.1
Shape CS22A-ER; TW
Rim; Medium
Diam. 110 mm; Internal; Rim thickness 3 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 6/4
Inclusions Sparse; Tiny, Small; Sub-Rounded; White lime Limestone

TCP212 TIP0713. TT3883000N SU1024 P03.1 (Plate 3.6)
Shape CGS05-MEDF; TW
Base; Medium
Decoration Interior: White slip & transparent lead glaze. Incised & green painted decoration (P362).
Diam. 70 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 2.5YR 5/4; 2.5YR 8/2; 10YR 6/4
Inclusions Sparse; Small; Angular; Dark brown; Reflective
Comments Green Painted sgraffito. Lapithos, late 14th–15th c.

TCP213 TIP0288. TT3883000N SU1024 P09.1
Shape LRC-LR; TW
Base; Medium
Decoration Floral stamp.
Diam. 70 mm; Internal; Base thickness 4.1 mm
Fabric Ferrous; Medium; Hard; Medium; Good
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Abundant; Small; Sub-Rounded; Yellowish lime Limestone; Halos
Comparanda Variation of Star of David (Hayes 1972, 351, fig. 73a).

TCP214 TIP0227. TT3883000N SU1024 P18.1
Shape BC-CLH; TW
Rim; Medium
Thickness 6 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 4/8; 2.5YR 4/8; 5YR 5/6
Inclusions Sparse; Tiny; Sub-Rounded; Black
Limestone; Sparse
Comments Red exterior rim. Could be Classical.
Comparanda Michaelides & Młynarczyk 1988, 154, 166, fig. 3:11.

TCP215 TIP0228. TT3882500N SU1034 P08.1
Shape RB-HEL; TW
Body; Poor
Decoration Possible relief of leaves?
Thickness 3.1 mm
Fabric Ferrous; Fine; Hard; Medium; Good
Munsell: 2.5YR 3/1; 2.5YR 3/1; 5YR 6/6
Inclusions Rare; Tiny; Sub-Rounded; Yellow
Rare; Tiny; Angular; White

TCP216 TIP0714. TT3882500N SU1036 P05
Shape G03-BYZ; TW
Body; Medium
Interior & exterior: yellow lead glaze (ext: 5Y 7/4; int: 2.5Y 6/6).
Thickness 3 mm
Fabric Calcareous; Medium; Medium; Medium; Medium
Munsell: 5Y 8/3; 5Y 8/3; 5Y 8/3
Inclusions Common; Small; Rounded; Black
Rare; Tiny; Rounded; Red
Sparse; Tiny; Rounded; White
Comments Glazed White ware II, Late 11th–12th c.

TCP217 TIP0715. TT3882500N SU1037 P08
Shape SP02-OTTMODII; TW
Body; Medium
Decoration Interior painted with a white slip becoming pale yellow (5Y 8/3); lead glaze (2.5Y 5/4).
Thickness 6 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/6
Inclusions Sparse; Small; Rounded; Black & white Limestone
Comments Slip-painted ware, Didymoteicho, 19th–early 20th c.

TCP218 TIP0716. TT3882500N SU1037 P09 (Plate 3.6)
Shape PP01-OTT; TW
Base; Medium
Decoration Interior & exterior: white slip & tin glaze. Interior: polychrome painted abstract decoration in yellow, green & brown.
Thickness 8 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 10R 6/6; 10R 6/6; 10R 6/6
Inclusions Rare; Tiny; Rounded; Black
Rare; Small; Rounded; White
Comments Maiolica 'spirali verdi' from Tuscany 17th–18th c.

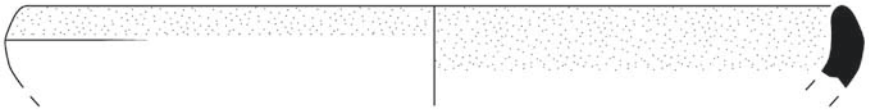
TCP219 TIP0718. TT3882500N SU1038 P08 (Plate 3.6)
Shape CGS02-MEDB; TW
Base; Medium
Decoration Interior: white slip & incised & gouged abstract decoration. One spot of pale yellow lead glaze (2.5Y 8/3). Exterior: splashes of lead glaze (5Y 4/4).
Diam. 80 mm; External; Base thickness 7 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/4; 2.5YR 5/6; 2.5YR 5/6
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments A bit grey-fired. Incised Sgraffito Ware from Paphos or Lemba. 13th c.

TCP220 TIP0719. TT3882500N SU1038 P09.1 (Plate 3.6)
Shape CGS05-MEDF; TW
Base; Medium
Decoration Interior: white slip & traces of lead glaze. Incised decoration highlighted with green (P369).
Diam. 50 mm; External; Base thickness 7 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 5YR 6/4; 10YR 8/2; 5YR 5/6
Inclusions Sparse; Small; Rounded; White
Limestone
Comments Coloured Sgraffito Ware from Paphos, 14th c.

TCP221 TIP0720. TT3882500N SU1038 P12
Shape G07-BYZ; TW
Decoration Interior & exterior: spots of ochre-yellow lead glaze (5Y 5/6)
Thickness 5 mm
Fabric Calcareous; Medium; Soft; Medium; Medium
Munsell: 2.5Y 7/2; 2.5Y 7/2; 2.5Y 7/2
Inclusions Rare; Medium; Angular; White; Reflective
Rare; Tiny; Rounded; Black
Limestone
Comments Glazed White ware II. Late 11th–12th c.

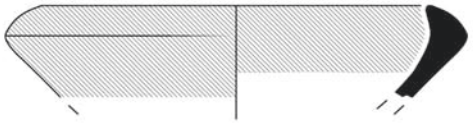
TCP222 TIP0230. TT3882500N SU1039 P12.1
Shape CS01-LHER; TW
Rim; Medium
Thickness 3 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 5YR 6/8; 5YR 6/8; 5YR 6/8
Inclusions Rare; Tiny, Small; Sub-Rounded; White lime Limestone

Pottery catalogue: TCP211–15, TCP218-22 (drawings: Jean Humbert; photos: Chris Parks)



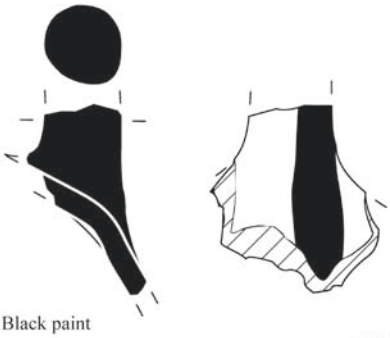
Glazed white

TCP225



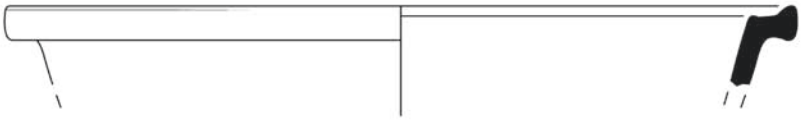
Brown slip

TCP230

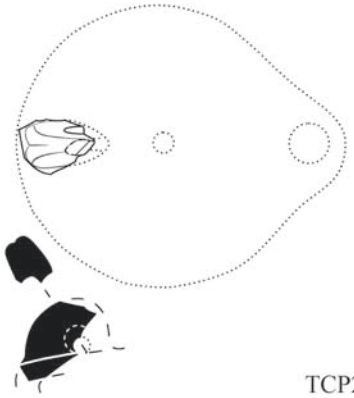


Black paint

TCP227



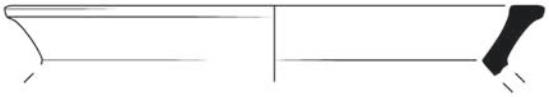
TCP231



TCP232

TCP233

TCP234



TCP235

0 10 cm

TCP223 TIP0723. TT3882500N SU1039 P38.1
Shape GS05-MEDVOTT; TW
Body; Medium
Decoration Interior: white slip & transparent lead glaze. Incised decoration highlighted with yellow (2.5Y 6/8) & green (P345).
Thickness 4 mm
Fabric Ferrous; Fine; Medium; Medium; Medium
Munsell: 5YR 6/8; 2.5YR 8/1; 5YR 6/8
Inclusions Rare; Medium; Sub-Rounded; Dark brown
Rare; Small; Sub-Rounded; Red
Limestone
Comments Brown & Green Sgraffito Ware from Veneto region. Late 15th–early 16th c.

TCP224 TIP0229. TT3882500N SU1040 P08.1
Shape WS-POB; TW
Body; Medium
Decoration White salt slip.
Thickness 3.7 mm
Fabric Ferrous; Medium; Hard; Gritty; Good
Munsell: 2.5Y 8/2; 2.5Y 8/2; 2.5Y 4/1
Inclusions Common; Tiny; Rounded; White
Comments Late Bronze Age white slip.

TCP225 TIP0724. TT3882500N SU1040 P30.1
Shape G03-MEDB; TW
Rim; Poor
Decoration Interior & upper part exterior rim: white slip & pale yellow glaze (2.5Y 8/4).
Thickness 6 mm
Fabric Mixed; Fine; Soft; Medium; Good
Munsell: 7.5YR 7/4; 10YR 8/3; 2.5YR 5/6
Inclusions Sparse; Small; Sub-Rounded; Dark brown
Limestone
Comments Monochrome glazed ware, late 12th–early 13th c.

TCP226 TIP0231. TT3882500N SU1047 P05.1
Shape WS-POB; TW
Body; Medium
Decoration White salt slip, thickly applied & burnished, brown paint on exterior: lines.
Thickness 4 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 10YR 8/1; 10YR 8/1; 5YR 4/4
Inclusions Common; Small; Angular; Dark brown; Reflective
Sparse; Medium; Sub-Rounded; White

TCP227 TIP0287. TS09 SU1055 P01.1
Shape WPC-GAC; LU
Handle; Medium
Decoration Reduced plain surface ('Self Slip') with black paint.
Thickness 5 mm
Fabric Self Slip; Medium; Hard; Medium; Medium
Munsell: 10YR 7/2; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Small; Sub-Rounded; White
Sparse; Small; Angular; Black; Reflective
Sparse; Medium; Sub-Rounded; Red; Reflective
Comments Typical lug handle with painted handle tail. Jar/amphora etc.

TCP228 TIP0307. TS09 SU1060 P01.1
Shape Pin-MR; Tr
Handle; Poor
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 6/8; 2.5YR 6/8; 2.5YR 6/8
Inclusions Common; Tiny; Angular; Quartz; Reflective
Sparse; Small, Medium; Rounded; Red

TCP229 TIP0281. TS09 SU1061 P01.1
Shape WPC-GA; HU
Body; Medium
Decoration Remains of apparent light burnish? Black painted 'bull's-eye' & thick band.
Thickness 9 mm
Fabric Mixed; Fine; Hard; Medium; Good
Munsell: 2.5Y 8/3; 2.5Y 8/3; 5YR 8/2
Inclusions Common; Small; Sub-Rounded; Clear; Reflective
Common; Small; Sub-Rounded; Brown; Reflective

TCP230 TIP0282. TS09 SU1061 P02.1
Shape WPC-GA; LU
Rim; Poor
Decoration Plain surface with black paint in thick horizontal bands.
Diam. 260 mm; External; Rim thickness 4 mm
Fabric Mixed; Medium; Medium; Medium; Poor
Munsell: 2.5Y 7/3; 2.5Y 7/3; 2.5Y 7/3
Inclusions Common; Small; Sub-Rounded; Black; Reflective
Sparse; Small; Sub-Rounded; White
Sparse; Large; Angular; Brown; Reflective
Comments Seems to be cup-rim of medium-sized jar or jug.

TCP231 TIP0284. TS09 SU1061 P10.1
Shape CWCR06-LR; CW
Rim; Good
Diam. 220 mm; External; Rim thickness 8 mm
Fabric Ferrous; Medium; Medium; Medium;
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 4/4
Inclusions Abundant; Tiny; Angular; Quartz; Reflective
Common; Tiny; Sub-Rounded; Yellowish lime

TCP232 TIP0294. TS09 SU1061 P13.1
Shape La02-ER; La
Handle; Medium
Decoration Unslipped
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 10YR 8/2; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Sandy

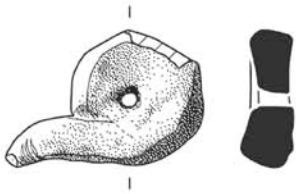
TCP233 TIP0285. TS09 SU1062 P11.1
Shape CS31A-ER; TW
Rim; Poor
Diam. 180 mm; External; Rim thickness 3 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish
Unknown; Sparse

TCP234 TIP0286. TS09 SU1062 P12.1
Shape Sig-LHER; TW
Rim; Medium
Diam. 210 mm; External; Rim thickness 3.5 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 10R 6/6; 10R 6/6; 10R 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish lime
Comments Possibly Cypriot Sigillata?

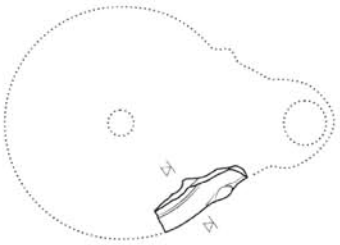
TCP235 TIP0289. TS09 SU1062 P19.1
Shape CWPR04a-ER; CW
Rim; Medium
Diam. 110 mm; External; Rim Thickness 5.5 mm
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Angular; Quartz; Reflective
Common; Tiny; Sub-Rounded; Yellowish lime
Sparse; Small; Angular; Black

Pottery catalogue: TCP225, TCP227, TCP230–35 (drawings: Jean Humbert)

TCP236



TCP237

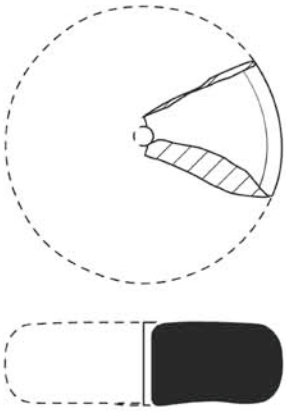


TCP238

TCP239

TCP240

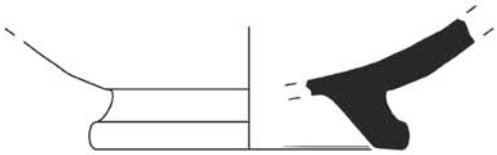
TCP241



TCP243

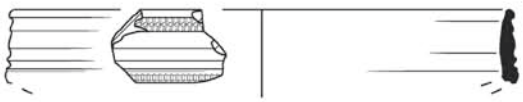
TCP244

TCP245

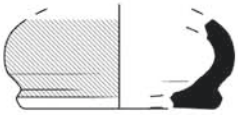


TCP246

TCP249



TCP247



TCP250

TCP248

TCP236 TIP0290. TS09 SU1063 P07.1
Shape SigW-ER; TW
Rim; Medium
Diam. 200 mm; External; Rim thickness 5.5 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 10R 6/8;
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime
Unknown; Few elongated
Comparanda Form similar to North Italian Terra Sigillata Drangendorf form 17B, 1st c. AD (Mazzeo Saracino 1985, 201, tab. LXI: 17).

TCP237 TIP0291. TS09 SU1063 P15.1
Shape La-RM; La
Handle; Medium
Thickness 8.5 mm
Fabric Ferrous; Coarse; Medium; Medium; Poor
Munsell: 7.5YR 5/3; 7.5YR 5/3; 7.5YR 5/3

TCP238 TIP0293. TS09 SU1064 P06.1
Shape La04-ER; La
Rim; Medium
Thickness 3.1 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 8/3; 5YR 8/3; 5YR 8/3
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Sandy

TCP239 TIP0295. TS09 SU1064 P07.1
Shape BS-CLH; TW
Rim; Medium
Decoration Matt black slip, interior rim no slip, exterior rim slipped.
Diam. 13 mm; External; Rim thickness 4 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 7/3
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Sandy

TCP240 TIP0296. TS09 SU1064 P08.1
Shape BS02-HEL; TW
Rim; Medium
Decoration Red interior, black exterior. Thick slip.
Diam. 120 mm; Internal; Rim thickness 6.5 mm
Fabric Mixed; Fine; Medium; Smooth; Medium
Munsell: 7.5YR 7/4
Inclusions Abundant; Tiny, Small; Sub-Rounded; Yellowish

TCP241 TIP0280. TS09 SU1066 P09.1
Shape BRIIC-POB; TW
Handle; Medium
Decoration Streaky incomplete burnishing.
Thickness 4 mm
Fabric Ferrous; Medium; Hard; Medium; Medium
Munsell: 5YR 4/3; 10YR 6/2; GLEY1 6/N
Inclusions Common; Small; Sub-Rounded; White
Sparse; Small; Angular; Black; Reflective
Sparse; Medium; Sub-Rounded; White
Limestone
Comments Plug-through handle.

TCP242 TIP0283. TS09 SU1067 P01.1
Shape Sla-PH; CW
Body; Medium
Decoration Slip & low-lustre burnish; brown firing cloud; applied bucrania motif & incised horizontal and vertical marks.
Thickness 6 mm
Fabric Ferrous; Medium; Medium; Gritty; Good
Munsell: 2.5YR 5/6; 2.5YR 4/6; 7.5YR 4/1
Inclusions Common; Tiny; Rounded; White
Sparse; Small; Rounded; Grey

TCP243 TIP0292. TS09 SU1067 P09.1
Shape Loom-HA; U
Rim; Medium
Diam. 70 mm; External; Rim thickness 13.5 mm
Fabric Mixed; Coarse; Soft; Medium; Poor
Munsell: 5YR 7/6; 5YR 7/6; 10YR 7/4

TCP244 TIP0278. TS09 SU1069 P01.1
Shape CWPR08-HR; CW
Rim, Handle; Good
Diam. 170 mm; Internal; Rim
Fabric Ferrous; Medium; Hard; Medium; Good
Munsell: 10YR 5/1; 10YR 5/1; 10YR 5/6
Inclusions Abundant; Tiny; Angular; Quartz; Reflective
Common; Tiny; Sub-Rounded; Lime

TCP245 TIP0279. TS09 SU1069 P02.1
Shape Am07-HR; Tr
Base; Poor
Thickness 7.3 mm
Fabric Ferrous, Medium; Medium; Medium; Poor
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Tiny; Angular; Quartz; Reflective
Sparse; Large; Rounded; Dark brown

TCP246 TIP0305. TS13 SU1073 P04.1
Shape ESA15B-LH; TW
Base; Medium
Diam. 80 mm; External; Base thickness 7.5 mm
Fabric Mixed, Fine; Hard; Smooth; Good
Munsell: 10YR 6/2
Inclusions Rare; Small; Sub-Rounded; White
Rare; Tiny; Sub-Rounded; Black & red

TCP247 TIP0297. TS13 SU1074 P01.1
Shape SigW-ER; TW
Rim; Medium
Diam. 140 mm; Internal; Rim thickness 5.5 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 10R 6/8; 10R 6/8
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime
Unknown; Elongated (few)
Comparanda Form similar to ESB70 (Hayes 1985: Tab. XV:1) but no mica visible, & to Italian Terra Sigillata form X dated from Augustan times to early 1st c. AD (Pucci 1985, 383–85, tab. CXX:4)

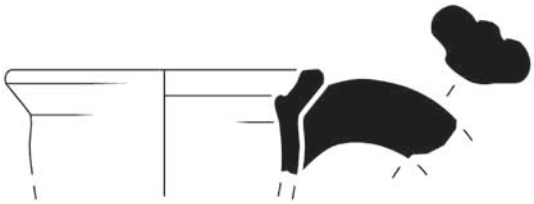
TCP248 TIP0298. TS13 SU1074 P06.1
Shape CWPR04a-ER; CW
Rim; Good
Diam. 170 mm; External; Rim thickness 5 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Angular; Quartz; Reflective

TCP249 TIP0300. TS13 SU1075 P02.1
Shape HUR20-LR; HU
Thickness 9.4 mm
Fabric Ferrous; Coarse; Medium; Medium; Poor
Munsell: 2.5YR 8/2; 2.5Y 8/2; 2.5YR 5/4
Inclusions Common; Large; Angular; Red
Common; Medium, Large; Angular; Black
Common; Small, Medium; Rounded; Yellowish-white

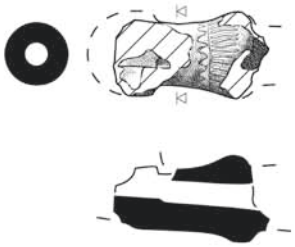
TCP250 TIP0302. TS13 SU1075 P03.1
Shape La03-HEL; La
Base; Poor
Diam. 55 mm; External; Base thickness 4.5 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/4; 7.5YR 7/4; 7.5YR 7/4
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish
Sandy

Pottery catalogue: TCP236–41, TCP243–50 (drawings: Jean Humbert; photo: Chris Parks)

TCP251



TCP252



TCP256

TCP259

TCP260

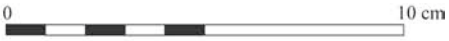
Black painting

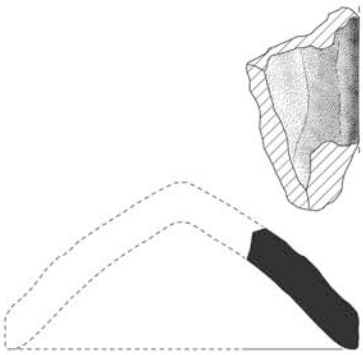
TCP261

Glazed yellow

TCP262

TCP263





TCP253

TCP255

TCP257

TCP258

TCP251 TIP0301. TS13 SU1075 P04.1
Shape Sig-LHER; TW
Rim; Medium
Diam. 200 mm; External; Rim thickness 4.5 mm
Fabric Ferrous; Good
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish-white
Fine; Soft; Smooth
Munsell: 5YR 7/4; 5YR 7/4; 5YR 7/4
Comparanda Plates with this type of carination below rim are very common in HLER period. Fabric appears to be finer version of Phocaean Red Slip ware (LRC).

TCP252 TIP0308. TS09 SU1079 P17.1
Shape LUR03-MM; LU
Rim; Good
Diam. 80 mm; External; Rim thickness 42 mm
Fabric Ferrous; Medium; Medium; Medium; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Common; Tiny; Angular; Quartz; Reflective
Common; Small, Medium; Angular; Greyish-black

TCP253 TIP0165. TS11 SU1302 P15.1
Shape TiC-MM; Ar
Body; Medium
Thickness 17 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5YR 4/6; 5YR 4/6; 5YR 4/6
Inclusions Common; Small; Sub-Rounded; White
Rare; Medium; Angular; White
Rare; Large; Sub-Rounded; Dark brown & yellowish
Unknown; Sparse
Comments V-shaped

TCP254 TIP0726. TS11 SU1304 P02.1
Shape CGS02-MEDB; TW
Body; Medium
Decoration Interior: white slip & pale yellow lead glaze (5Y 8/4). Gouged decoration.
Thickness 10 mm
Fabric Ferrous; Fine; Hard; Medium; Medium
Munsell: 7.5YR 6/4; 5Y 8/4; 2.5YR 5/6
Inclusions Sparse; Small; Sub-Rounded; White; Reflective
Limestone
Comments Incised Sgraffito Ware. Late 12th–early 13th c.

TCP255 TIP0170. TT3881500N SU1307 P01.1
Shape CRS10-LR; TW
Rim; Good
Diam. 200 mm; External; Rim thickness 7 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 5/4; 2.5YR 6/6; 10R 5/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish
Unknown; Sparse
Comments Fabric somewhat similar to Phocaean, but size of inclusions is much smaller. Possible imitation.

TCP256 TIP0727. TT3881500N SU1315 P02.1
Shape Pipe-OTT; PO
Body; Medium
Decoration Incised decoration on stem.
Thickness 5 mm
Fabric Ferrous; Fine; Hard; Smooth; Medium
Munsell: Burnt?; Burnt?; 10Y 5/1
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Clay pipe fragment of the chibouk pipe (late 19th c.?)

TCP257 TIP0186. TT3881500N SU1316 P20.1
Shape HUR09-HA; HU
Rim; Medium
Diam. 300 mm; Internal; Rim thickness 11 mm
Fabric Mixed; Medium; Hard; Smooth; Medium
Munsell: 7.5YR 5/6; 7.5YR 5/6; 5YR 5/4
Inclusions Common; Tiny; Rounded; Whitish
Rare; Small; Sub-Rounded; Dark
Limestone; Organic; Occasionally
Comments Interior surface has taken colour from other material.

TCP258 TIP0190. TT3881500N SU1316 P29.1
Shape TtaB-MM; CW
Rim; Good
Diam. 260 mm; Internal Thickness 7 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 4/6; 5YR 4/6; 7.5YR 3/2
Inclusions Rare; Medium; Angular; White
Sparse; Medium; Angular; Whitish/grey
Sparse; Small; Sub-Rounded; Black

TCP259 TIP0191. TT3881500N SU1316 P30.1
Shape Tta-MM; CW
Rim; Medium
Decoration Grooves on rim.
Thickness 8.5 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 10YR 4/6;
Inclusions Common; Small; Sub-Rounded; Beige & white
Limestone; Occasionally larger

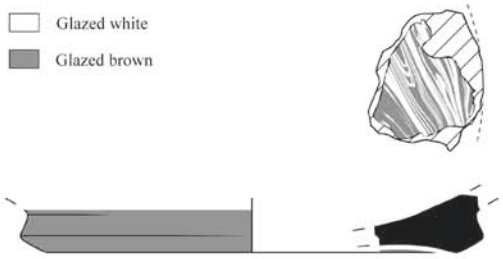
TCP260 TIP0216. TT3881500N SU1317 P21.1
Shape BRIIO-POB; TW
Handle; Medium
Decoration Washy slip & unburnished.
Thickness 4.4 mm
Fabric Ferrous; Medium; Medium; Smooth; Medium
Munsell: 5YR 6/6; 2.5YR 6/6; 10YR 5/2
Inclusions Common; Small; Sub-Rounded; White
Common; Small; Angular; Black
Sparse; Small; Sub-Rounded; Red

TCP261 TIP0217. TT3881500N SU1317 P23.1
Shape BOR-GAC; LU
Handle; Medium
Decoration Red slip. Black manganese paint-handle accent.
Thickness 23 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 7.5YR 5/2; 2.5YR 7/6
Inclusions Common; Small; Sub-Rounded; Black
Sparse; Small; Sub-Rounded; Red

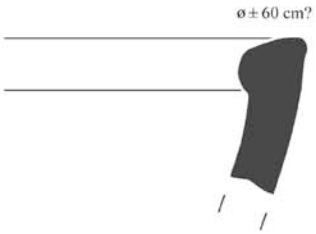
TCP262 TIP0729. TT3881500N SU1317 P24
Shape G02-BYZ; TW
Rim; Medium
Decoration Interior: yellow lead glaze (2.5Y 6/4).
Diam. 120 mm; External; Rim thickness 4 mm
Fabric Calcareous
Munsell: 2.5Y 8/3; 2.5Y 8/3; 2.5Y 8/3
Inclusions Sparse; Medium; Sub-Rounded; Purple
Sparse; Tiny; Rounded; Black
Sparse; Small; Rounded; Red
Limestone
Comments Possible glazed white ware?

TCP263 TIP0218. TT3881500N SU1325 P01.1
Shape LRC-LR; TW
Base; Poor
Decoration Stamp
Diam. 140 mm; External; Base thickness 5.5 mm
Fabric Ferrous; Medium; Hard; Medium; Good
Munsell: 2.5YR 4/8; 2.5YR 5/8; 5YR 5/6
Inclusions Abundant; Small; Sub-Rounded; Yellowish lime
Limestone; Halos

Pottery catalogue: TCP251–53, TCP255–63 (drawings: Jean Humbert; photos: Chris Parks)

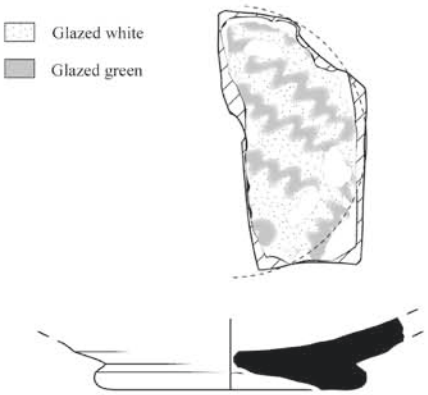


TCP265



TCP266

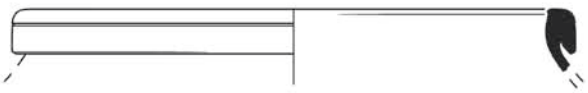
TCP267



TCP269

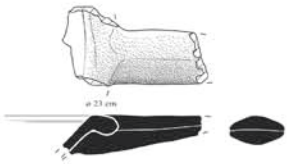
TCP270

TCP272

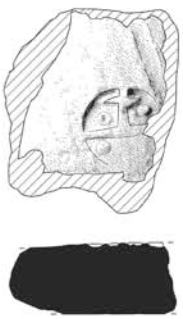


TCP275

0 10 cm



TCP268



TCP271

0 20 cm

TCP264 TIP0730. TT3881500N SU1325 P13
Shape GS02-BYZ; TW
Body; Poor
Decoration Interior: traces of white slip & pale yellow lead glaze (2.5Y 8/4). Incised decoration.
Thickness 6 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/8
Inclusions Rare; Tiny; Rounded; Red
Sparse; Tiny; Rounded; White
Limestone
Comments Fine Sgraffito Ware. Late 12th c.

TCP265 TIP0731. TT3881500N SU1325 P30 (Plate 3.6)
Shape PP05-OTT; TW
Base; Medium
Decoration Interior & exterior: transparent lead glaze. Interior: painted 'marbled' decoration with white slip (2.5Y 8/2).
Diam. 80 mm; External; Base thickness 4 mm
Fabric Ferrous; Fine; Hard; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 5/8
Inclusions Rare; Tiny; Rounded; Black & white
Limestone
Comments Polychrome marbled ware, Italy (Savona?), 17th c.

TCP266 TIP0114. TT3881500N SU1327 P04.1
Shape HUR08-LR; HU
Rim; Medium
Diam. 500 mm; External; Rim thickness 12 mm
Fabric Self Slip; Medium; Hard; Medium; Medium
Munsell: 2.5Y 8/3; 2.5Y 8/3; 7.5YR 8/4
Inclusions Common; Small; Sub-Rounded; Reddish-brown
Sparse; Tiny; Sub-Rounded; Dark grey
Limestone; Numerous & tiny

TCP267 TIP0732. TS07 TT495900E SU1379 P05
Shape G03-MED; TW
Rim; Medium
Decoration Interior & upper part exterior rim: ochre-yellow lead glaze (5Y 6/6 to 5/6).
Diam. 230 mm; External; Rim thickness 6 mm
Fabric Calcareous; Medium; Medium; Medium; Medium
Munsell: 2.5Y 7/3; 2.5Y 7/3; 2.5Y 7/2
Inclusions Rare; Tiny; Rounded; White & black
Sparse; Small; Sub-Rounded; Red
Limestone
Comments Glazed white ware II. Late 11th–12th c.

TCP268 TIP0247. TS07 TT495900E SU1382 P01.1
Shape CWFPWh01-ROM; CW
Rim, Handle; Medium
Thickness 4 mm
Fabric Ferrous; Medium; Medium; Gritty; Good
Munsell: 2.5YR 4/8; 2.5YR 4/8; 2.5YR 4/8
Inclusions Common; Tiny, Small; Angular; White
Sparse; Small; Angular; Orange
Sparse; Small, Medium; Angular; Grey

TCP269 TIP0734. TS11 SU1605 P01.1 (Plate 3.6)
Shape MP01-MEDVOTT; TW
Base; Medium
Decoration Interior: white slip, transparent lead glaze & painted abstract decoration in green. (P363).
Diam. 70 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 7.5YR 6/6; 5Y 8/3; 7.5YR 6/6
Inclusions Limestone
Comments Green Painted Ware from Lapithos 16th c.

TCP270 TIP0733. TS11 SU1605 P01.1 (Plate 3.6)
Shape MP01-MEDVOTT; TW
Base; Medium
Decoration Interior: white slip, transparent lead glaze & painted abstract decoration in green (P362).
Diam. 70 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 7.5YR 7/6; 2.5Y 8/4; 7.5YR 7/6
Inclusions Limestone
Comments Green Painted Ware from Lapithos 16th c.

TCP271 TIP0167. TS11 SU1605 P13.1
Shape Ti-MM; Ar
Body; Medium
Decoration Round stamp of perhaps three crosses.
Thickness 37 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 2.5YR 4/8; 2.5YR 4/8; 2.5YR 4/8
Inclusions Abundant; Tiny; Sub-Rounded; White
Common; Large; Rounded; Brown & black
Limestone; Also large oblong

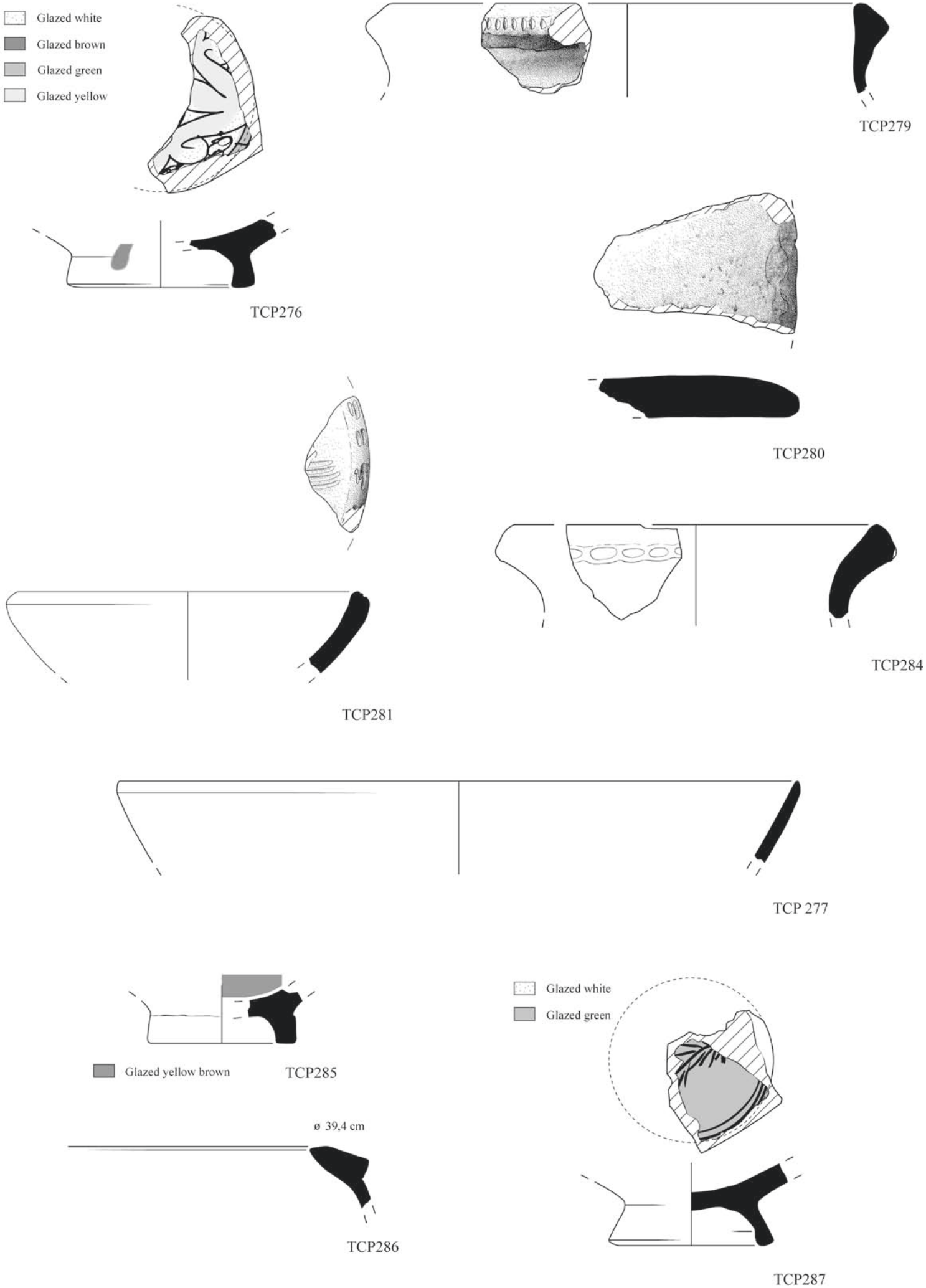
TCP272 TIP0224. TS02 SU1626 P01.1
Shape RMCL-CHAL; HU
Body; Medium
Decoration Red slip & burnish.
Thickness 10.3 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 2.5YR 5/6; 10R 5/6; 10R 5/6
Inclusions Common; Tiny; Sub-Rounded; Whitish; Reflective
Rare; Large; Sub-Rounded; Dark brown
Sparse; Small; Angular; Dark red; Reflective
Organic; Large Chaff
Comments Late Chalcolithic. Red monochrome.

TCP273 TIP0222. TS02 SU1626 P03.1
Shape ROWOL-CHAL; LU
Body; Medium
Decoration Thick whitish slip. Red slip over interior. Burnished.
Thickness 8 mm
Fabric Mixed; Coarse; Hard; Gritty; Poor
Munsell: 2.5Y 8/3; 2.5YR 5/6; 7.5YR 5/4
Inclusions Common; Medium; Angular; White
Organic; Large Chaff
Comments If Late Chalcolithic, could be Red-on-White ware.

TCP274 TIP0735. TS02 SU1708 P01
Shape CGS03-MEDB; TW
Rim; Medium
Decoration Interior: white slip & incised abstract decoration. Traces of ochre-yellow lead glaze (2.5Y 6/6).
Diam. 160 mm; External; Rim thickness 7 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments (Incised) Sgraffito Ware from Paphos, 13th c.

TCP275 TIP0368. TT493250E SU1915 P05.1
Shape CWPR17-ROM; CW
Rim; Good
Diam. 170 mm; External; Rim thickness 2.7 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Tiny, Small; Sub-Rounded; Red & lime
Common; Tiny, Small; Rounded; Clear; Reflective

Pottery catalogue: TCP265–72, TCP275 (drawings: Jean Humbert; photos: Chris Parks)


Glazed white
Glazed brown
Glazed green
Glazed yellow
TCP279
TCP276
TCP280
TCP281
TCP284
TCP 277
Glazed yellow brown
TCP285
ø 39,4 cm
TCP286
Glazed white
Glazed green
TCP287
0
10 cm

TCP276 TIP0736. TT493250E SU1917 P04 (Plate 3.6)
Shape CGS05-MEDF; TW
Base; Good
Decoration Interior: white slip & transparent lead glaze. Incised decoration highlighted with yellow (2.5Y 7/8) & green (P369).
Diam. 70 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 7/4; 7.5YR 6/8; 7.5YR 6/8
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Brown & Green Sgraffito Ware from Paphos. 14th c.

TCP277 TIP0482. TS04 SU2003 P04.1
Shape ARS50-MR; TW
Rim; Good
Thickness 4.8 mm
Fabric Ferrous; Fine; Medium; Medium; Good
Munsell: 10R 5/6; 10R 5/6; 10R 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Quartz
Limestone; Abundant

TCP278 TIP0533. TS06 SU2006 P07.1
Shape RPC-PeB; LU
Body; Good
Decoration Exterior red slip & very nice burnish.
Thickness 11 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 10R 4/6; 7.5YR 5/4; 2.5YR 6/6
Inclusions Abundant; Medium; Angular; Grey; Reflective
Sparse; Large; Angular; Red; Reflective
Comments Particularly crunchy fabric, possibly early?

TCP279 TIP0767. TS04 SU2007 P09
Shape UJa02-MEDUIII; U
Rim; Poor
Decoration Glazed on the inside & over the rim.
Diam. 150 mm; Internal; Rim thickness 3 mm
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 4/8
Inclusions Common; Small, Medium, Large; Sub-Rounded; Red-brown
Sparse; Small; Rounded; Dark brown
Comments The 'pie-crust' edge is actually a row of notches. Similar form, fabric & glaze seen in Kythera (Vroom, pers. com.) in 15th c. contexts.

TCP280 TIP0399. TS04 SU2007 P10.1
Shape UL01-MEDUI; U
Lid; Medium
Diam. 300 mm; Internal; Rim thickness 11 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 7.5YR 5/6; 7.5YR 5/6
Inclusions Abundant; Small, Medium, Large; Rounded; Light red/brown
Common; Small, Medium, Large; Sub-Rounded, Rounded; Dark brown & white
Comments Plain flat lid. Under surface completely flattened, top slightly curved.

TCP281 TIP0423. TS04 SU2008 P01.1
Shape UPL01-OTTMODII; U
Rim; Medium
Decoration Band of four-teeth incised horizontal strokes on inside. Line of two parallel dashes along the rim.
Diam. 170 mm; External; Rim thickness 6 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5YR 4/6; 5YR 4/6; 5YR 4/6
Inclusions Abundant; Tiny, Small; Rounded; White
Sparse; Medium; Sub-Rounded, Rounded; White
Comments Very uneven rim makes orientation very uncertain.

TCP282 TIP0740
TS04 SU2008 P06
Shape MP06-MEDB; TW
Body; Good
Decoration Interior & exterior: turquoise-green glaze (P3295) in yellowish 'lustre' painted (54718) decoration.
Thickness 6 mm
Fabric Calcareous; Fine; Soft; Smooth; Good
Munsell: 7.5YR 8/4; 7.5YR 8/4; 7.5YR 8/4
Inclusions Rare; Small; Rounded; White
Rare; Tiny; Rounded; Black
Limestone
Comments Islamic lustre painted ware from Syria (?). 12th–13th c.

TCP283 TIP0741. TS04 SU2008 P07
Shape CGS05-MEDF; TW
Body; Good
Decoration Interior: white slip & transparent lead glaze. Incised decoration highlighted in yellow (2.5Y 6/8) and green (P369).
Thickness 8 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Brown & Green Sgraffito Ware from Lapithos. Part of a wedding bowl from 14th–15th c.

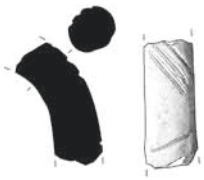
TCP284 TIP0745. TS04 SU2008 P12
Shape UJa02-MEDUIII; U
Rim; Poor
Decoration Glazed inside, with dribbles on the exterior.
Diam. 170 mm; External; Rim thickness 7 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 5YR 5/8; 5YR 5/8; 5YR 5/8
Inclusions Common; Small, Medium; Rounded; Dark brown
Common; Small, Medium; Rounded; Light brown
Comments Seen in 15th c. context in Kythera (Vroom, pers. comm.).

TCP285 TIP0742. TS04 SU2008 P13
Shape G07-BYZ; TW
Decoration Interior base: spots of ochre-yellow lead glaze (5Y 5/6).
Fabric Calcareous; Medium; Medium; Medium; Medium
Munsell: 2.5Y 8/2; 2.5Y 8/2; 2.5Y 7/2
Inclusions Sparse; Small, Medium; Sub-Rounded; Black
Limestone
Comments Glazed white ware II. Late 11th–12th c.

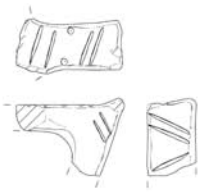
TCP286 TIP0746. TS04 SU2008 P29
Shape TtaB-MEDUI; CW
Rim; Medium
Decoration Surface well smoothed & slighly lustrous.
Diam. 280 mm; Internal; Rim thickness 4 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 5YR 5/6; 5YR 5/6; 2.5YR 5/6
Inclusions Common; Small, Medium; Sub-Rounded; Dark brown
Common; Tiny; Rounded; White
Sparse; Small; Rounded; Red-brown
Comments Indentations on ridge are uneven & unevenly spaced

TCP287 TIP0743. TS04 SU2009 P12 (Plate 3.6)
Shape CGS02-MEDF; TW
Base; Good
Decoration Interior: White slip & greenish lead glaze (P377). Incised decoration & circles.
Diam. 70 mm; External; Base thickness 7 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 2.5YR 5/6; 2.5YR 5/8; 2.5YR 5/8
Inclusions Common; Small, Medium; Rounded; White
Limestone
Comments One-colour sgraffito, Lemba. 13th (or early 14th?) c.

Pottery catalogue: TCP276–77, TCP279–81, TCP284–87 (drawings: Jean Humbert)



TCP289



TCP290

TCP291

TCP292

TCP293

TCP294

ø unknown

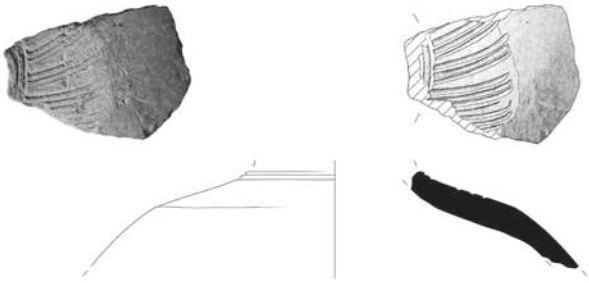
Red burnish

TCP295

TCP296

TCP297

TCP298



TCP299

0 20 cm

TCP288 TIP0397. TS04 SU2009 P30.1
Shape BuH-OTTMODII; HU
Body; Medium
Decoration Tar on inside.
Thickness 11 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 7.5YR 5/2; 7.5YR 5/6
Inclusions Abundant; Small, Medium, Large; Sub-Rounded, Rounded; White
Common; Medium; Sub-Rounded, Rounded; Dark brown
Common; Small; Rounded; Red/brown
Comments Body of storage vessel.

TCP289 TIP0465. TS04 SU2010 P25.1
Shape RPS-PeB; HU
Handle; Medium
Decoration Round handle with diagonal slashes in groups of three, alternating to form chevron.
Thickness 25 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 5YR 5/6; 10YR 3/1
Inclusions Common; Tiny; Sub-Rounded; White
Sparse; Medium; Sub-Rounded; Black
Comments Typical Red Polished ware.

TCP290 TIP0378. TS04 SU2011 P05.1
Shape RPS-PeB; LU
Handle; Good
Decoration Slashed line & dots decoration.
Fabric Ferrous; Coarse; Soft; Gritty; Medium
Munsell: 2.5YR 5/6;
Inclusions Common; Small, Medium; Sub-Rounded; Black
Common; Small; Rounded; Light red
Sparse; Medium; Sub-Rounded; Red/brown (grog?)
Comments EBA/MBA Red Polished HU ware. Large vessel.

TCP291 TIP0376. TS04 SU2011 P06.1
Shape UBR01-OTTMODI; U
Rim; Medium
Decoration Indentation ridge. Interrupted wavy triple line
Diam. 220 mm; External; Rim thickness 8 mm
Fabric Ferrous; Coarse; Soft; Gritty; Medium
Munsell: 5YR 4/6; 5YR 4/6; 5YR 4/6
Inclusions Abundant; Tiny, Small; White
Common; Small, Medium; Rounded; Dark brown
Comments The degenerated form of the bowls with in-turned rim, with a minimal ridge out & flattened top.

TCP292 TIP0377. TS04 SU2011 P07.1
Shape UPSJu-MEDUIII; U
Rim; Good
Decoration Smooth/ burnished. Surface glistens.
Thickness 3.5 mm
Fabric Ferrous; Coarse; Hard; Gritty;
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Common; Small, Medium; Sub-Rounded; Black
Rare; Large; Angular; White
Sparse; Small, Medium; Rounded; Grey; Reflective
Sparse; Tiny, Small; Rounded; Red/Brown
Comments Spout is short & rounded, which is characteristic of 13th–14th c., but quality of manufacture & finish would place this towards the end of this period.

TCP293 TIP0392. TS04 SU2011 P18.1
Shape Pit13-RM; HU
Rim; Medium
Decoration Smoothed surface
Diam. 330 mm; External; Rim thickness 17 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 6/4; 5YR 6/4; 5YR 5/6
Inclusions Common; Medium, Large; Sub-Rounded; Black
Common; Small, Medium, Large; Sub-Rounded, Rounded; Black
Sparse; Small, Medium; Sub-Rounded, Rounded; White

TCP294 TIP0393. TS04 SU2011 P21.1
Shape ULSJ01-OTTMODI; U
Long spout & shoulder; Medium
Internal Diam. 8mm.
Diam. 26 mm; External; Other thickness 14 mm
Fabric Ferrous; Coarse; Hard; Gritty; Good
Munsell: 5YR 4/4; 5YR 4/4; 2.5YR 4/4
Inclusions Abundant; Small, Medium; Rounded; Brown (grog?)
Common; Small; Rounded; White
Comments The spout is thick & rather crude.

TCP295 TIP0495. TS06 SU2012 P04.1
Shape RPC-PeB; HU
Handle; Medium
Decoration Red slip, shiny streak burnish.
Diam. of handle 22 mm; Other thickness 25 mm
Fabric Mixed; Fine; Hard; Medium; Good
Munsell: 10R 4/8; 7.5YR 8/4; 2.5YR 5/0
Inclusions Common; Tiny; Sub-Rounded; White; Reflective
Organic

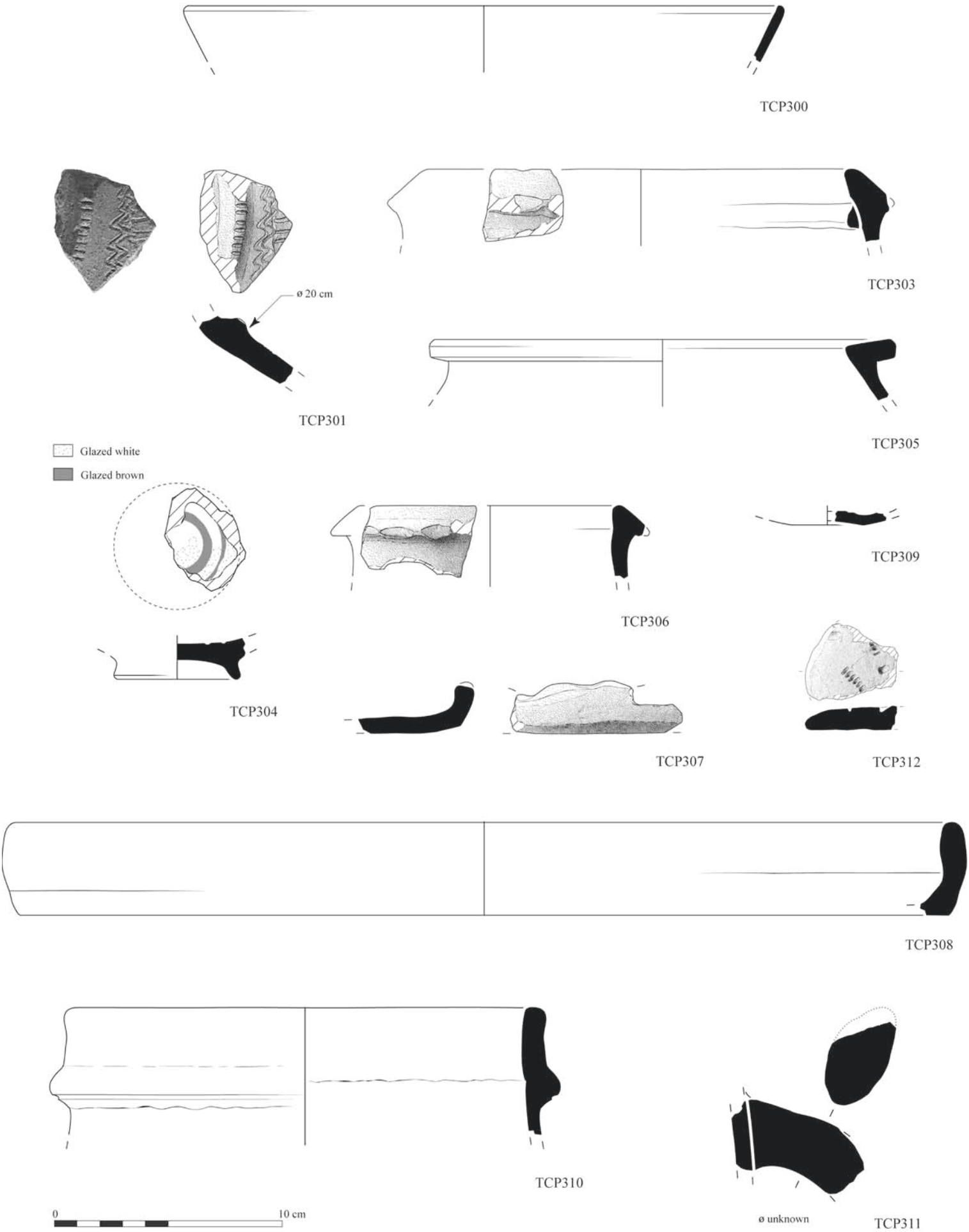
TCP296 TIP0387. TS04 SU2014 P04.1
Shape UFR01-OTTMODI; U
Rim, Handle; Poor
Thickness 6 mm
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 5/2
Inclusions Abundant; Small, Medium, Large; Sub-Rounded; Brown
Sparse; Small, Medium; Sub-Rounded, Rounded; Black
Sparse; Small, Medium; Sub-Rounded; White
Comments Rim & handle root of globular pot/jar with simple lip & horizontal handle.

TCP297 TIP0413. TS04 SU2014 P15.1
Shape Am12-ROM; Tr
Rim, Handle; Medium
Thickness 6.7 mm
Fabric Self Slip
Poor:
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Common; Small; Sub-Rounded; Grits
Medium; Medium; Gritty
Munsell: 2.5Y 8/2; 2.5Y 8/2; 7.5YR 7/3
Comments Multicoloured temper.

TCP298 TIP0390. TS04 SU2016 P09.1
Shape BGWCC-MEDUIII; CW
Jug handle; Poor
Decoration Brown glaze; incised decoration marking central 'cock's comb' ridge.
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 10YR 3/3;
Inclusions Common; Small, Medium, Large; Angular; Brown
Common; Small, Medium, Large; Sub-Rounded; Brown
Common; Tiny, Small, Medium; Sub-Rounded; White
Comments Handle section 27 × 12 mm.

TCP299 TIP0388. TS04 SU2016 P11.1
Shape ID02-MM; U
Shoulder; Medium
Decoration Horizontal band of three-tooth combing at base of neck with three-tooth oblique strokes pendant from it.
Thickness 11 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 5YR 5/4; 5YR 6/4; 5YR 4/2
Inclusions Abundant; Small, Medium, Large; Sub-Rounded, Rounded; Brown
Sparse; Tiny, Small; Rounded; White
Comments Standard shoulder decoration, but deep sharp definition is characteristic of Ottoman & later.

Pottery catalogue: TCP289–TCP299 (drawings: Jean Humbert; photo: Chris Parks)


TCP300
TCP303
ø 20 cm
TCP301
TCP305
Glazed white
Glazed brown
TCP309
TCP306
TCP304
TCP307
TCP312
TCP308
TCP310
0
10 cm
ø unknown
TCP311

TCP300 TIP0415. TS04 SU2016 P12.1
Shape ARS50-MR; TW
Rim; Medium
Decoration Slip completely fused.
Thickness 3.7 mm
Fabric Ferrous; Fine; Medium; Medium; Good
Munsell: 10R 6/8; 10R 6/8; 10R 6/8
Inclusions Abundant; Tiny; Sub-Rounded; Lime
Limestone; Abundant
Comments 300–360 AD
Comparanda Hayes 1972: Fig. 12, No. 55

TCP301 TIP0384. TS04 SU2017 P01.1
Shape ID03-MEDUIII; U
Shoulder & base of neck; Good
Decoration Notched plastic ridge; double uneven wavy line under it
Thickness 9.75 mm
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 5YR 4/6; 5YR 4/6; 7.5YR 4/4
Inclusions Abundant; Tiny, Small; Rounded; Brown
Common; Tiny; Rounded; White

TCP302 TIP0747. TS04 SU2017 P07
Shape CGS03-MEDB; TW
Body; Medium
Decoration Interior: traces of white slip & yellow lead glaze (2.5Y 7/4 to 6/8/); incised & gouged decoration. Exterior: wet smoothed.
Thickness 8 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Rare; Small; Rounded; Black & white
Limestone
Comments Incised Sgraffito Ware, from Paphos (?). 13th c.

TCP303 TIP0385. TS04 SU2018 P01.1
Shape Tia04-MEDUIII; CW
Rim; Medium
Thickness 5 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 5YR 6/6; 5YR 6/6; 10YR 5/1
Inclusions Common; Small; Rounded; Brown & red/brown
Common; Tiny; Rounded; White

TCP304 TIP0748. TS04 SU2018 P07 (Plate 3.6)
Shape CGS03-MEDB; TW
Base; Medium
Decoration Interior: traces of white slip & pale yellow lead glaze (5Y 8/3); gouged circles at centre. Exterior base: transparent lead glaze.
Diam. 70 mm; External; Base thickness 6 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 5/8; 2.5YR 5/8
Inclusions Rare; Tiny; Rounded; White & black
Limestone
Comments Incised Sgraffito Ware/Zeuxippus variant. Possibly from Lemba? 13th c.

TCP305 TIP0379. TS04 SU2019 P01.1
Shape UJ01-MEDUI; U
Rim & upper body; Medium
Decoration Self-slipped & smoothed/ burnished.
Diam. 190 mm; External; Rim thickness 4 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/4
Inclusions Common; Small, Medium, Large; Sub-Rounded; Black
Common; Small, Medium; Sub-Rounded; White
Sparse; Medium, Large; Sub-Rounded; Grey/black; Reflective

TCP306 TIP0380. TS04 SU2019 P12
Shape UJ02-MEDUI; U
Rim; Good
Decoration Indentation ridge at base of rim.
Diam. 130 mm; Internal; Rim thickness 5 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 10YR 5/3; 10YR 5/3;
Inclusions Abundant; Small, Medium, Large; Sub-Rounded, Rounded; Black
Common; Tiny, Small; Rounded; White
Sparse; Small; Rounded; Red/brown (grog?)

TCP307 TIP0386. TS04 SU2020 P07.1
Shape UPL01-OTTMODII; U
Rim, Base; Medium
Decoration Lip shaped into a rough pie-crust.
Diam. 160 mm; External; Rim thickness 6 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 7.5YR 4/2
Inclusions Abundant; Small, Medium, Large; Sub-Rounded, Rounded; Dark brown/black
Common; Small, Medium; Sub-Rounded, Rounded; White

TCP308 TIP0429. TS04 SU2020 P21.1
Shape UAA98-MEDUII; U
Complete profile; Good
Thickness 5.75 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 4/6; 5YR 4/6; 5YR 3/2
Inclusions Common; Medium, Large; Sub-Rounded, Rounded; Dark brown
Common; Small, Large; Sub-Rounded, Rounded; White
Comments Unusual variant on UAA98: matt surface finish & details of shape.

TCP309 TIP0405. TS04 SU2021 P01.1
Shape La01-ER; La
Base; Medium
Thickness 4.7 mm
Fabric Ferrous; Fine; Medium; Smooth; Medium
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish

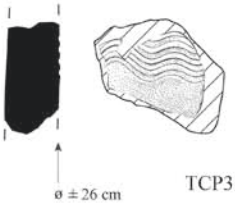
TCP310 TIP0433. TS04 SU2022 P01.1
Shape BUJaK-MM; U
Rim; Poor
Decoration Wet smoothed exterior.
Thickness 4.5 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 2.5Y 6/2; 5YR 6/4;
Inclusions Common; Small, Medium, Large; Sub-Rounded; Dark brown
Sparse; Tiny, Small; Rounded; White
Comments Forming marks visible inside.

TCP311 TIP0404. TS07 TT3879500N SU2024 P02.1
Shape Mav01-HR; Tr
Handle; Medium
Fabric Self Slip; Medium; Medium; Medium;
Munsell: 2.5Y 8/2; 2.5Y 7/3; 5YR 6/6
Inclusions Common; Small; Sub-Rounded; Grits

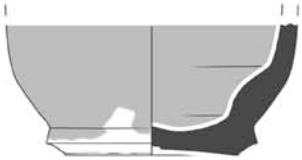
TCP312 TIP0383. TS07 TT3879500N SU2024 P10.1
Shape UL01-MEDUI; U
Lid; Good
Decoration Lines of deep indentations.
Diam. 260 mm; Internal; Rim thickness 18 mm
Fabric Ferrous; Coarse; Medium; Medium; Poor
Munsell: 7.5YR 5/4–6; 7.5YR 5/4–6; 7.5YR 5/4–6
Inclusions Abundant; Small, Medium, Large; Angular, Sub-Rounded; Dark brown
Common; Medium, Large; Rounded; Reddish-brown
Sparse; Small, Medium; Sub-Rounded, Rounded; White
Comments Large flat lid, carelessly made.
Comparanda Kouklia: von Wartburg 2001b

Pottery catalogue: TCP300–301, TCP303–12 (drawings: Jean Humbert; photo: Chris Parks)

TCP313



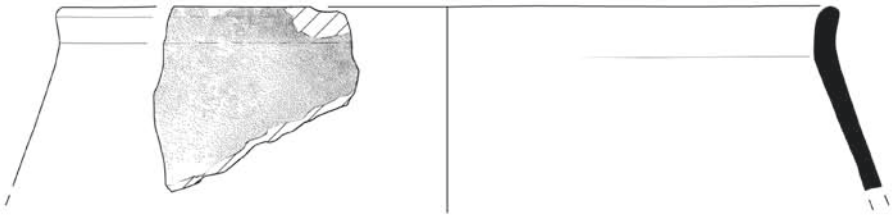
TCP314



GLAZED:
Blue green

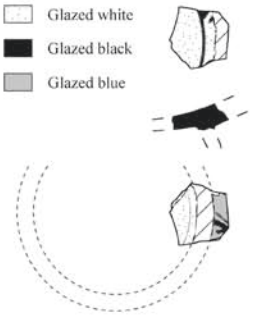
TCP315

TCP316



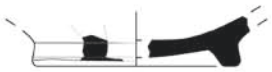
TCP317

Glazed white
Glazed black
Glazed blue



TCP325

TCP318



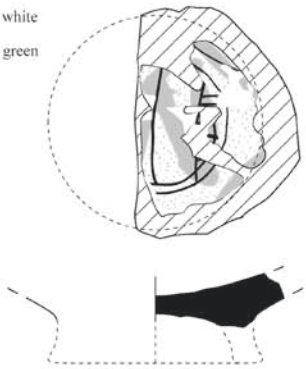
Black painting

TCP319

TCP320

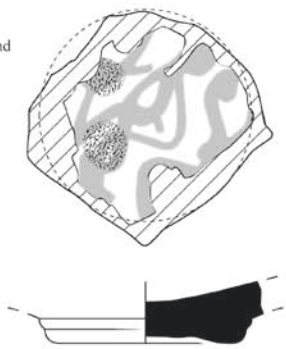
TCP321

Glazed white
Glazed green

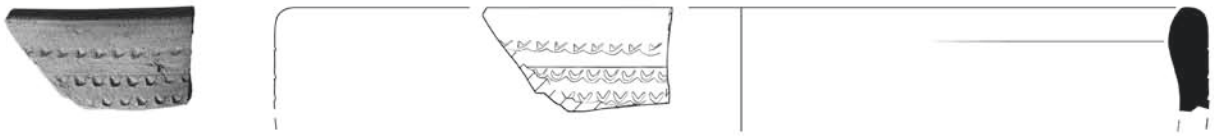


TCP322

Glazed green
No background colour
Fingerprint



TCP323



TCP324

0 10 cm

TCP313 TIP0400. TS04 TT3879500N SU2026 P03.1
Shape UAA98-MEDUI; U
Complete profile; Good
Decoration Burnished/smooth surface
Diam. 300 mm; Internal; Rim thickness 3 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 10YR 5/3; 10YR 5/3; 10YR 5/3
Inclusions Common; Small, Medium; Sub-Rounded; Black
Common; Tiny, Small, Medium; Sub-Rounded, Rounded; Black
Rare; Medium, Large; Angular; Brown
Sparse; Large; Sub-Rounded; White (Lime?)
Comparanda Possible parallel at Kouklia: von Wartburg 1998, 1

TCP314 TIP0421. TT3879500N SU2029 P17.1
Shape ID04A-MM; U
Body; Medium
Decoration Band of wavy incised four-teeth band.
Thickness 14 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 7.5YR 5/2; 5YR 5/6; 5YR 5/6
Inclusions Common; Small, Medium; Sub-Rounded; White
Sparse; Small, Medium, Large; Sub-Rounded; Dark brown

TCP315 TIP0442. TT3879500N SU2030 P13.1
Shape G06-OTT; TW
Base; Medium
Decoration Interior & exterior: cracked turquoise-blue glaze all over (P329).
Thickness 5.4 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Angular; Mica; Reflective
Sparse; Small; Angular; Black
Comments Monochrome glazed ware. Closed vessel.

TCP316 TIP0422. TT3879500N SU2030 P18.1
Shape URB01-OTTMODI; U
Base; Medium
Decoration Smooth surface.
Diam. 100 mm; External; Base thickness 11 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 5/4; 5YR 5/4; 7.5YR 5/4
Inclusions Common; Medium; Sub-Rounded, Rounded; White and brown
Comments Handmade ring-base. Crude but surface smoothed

TCP317 TIP0398. TT3879500N SU2036 P03.1
Shape UJa03-MM; U
Rim & upper Body; Medium
Thickness 4.5 mm
Fabric Mixed; Coarse; Medium; Gritty; Poor
Munsell: 5YR 4/4; 7.5YR 6/4; 7.5YR 4/4
Inclusions Abundant; Small, Medium, Large; Sub-Rounded, Rounded; Black
Sparse; Medium; Sub-Rounded; White.
Comments Soot on outside.

TCP318 TIP0458. TT3879500N SU2037 P07.1
Shape HUR33-HA; HU
Rim; Medium
Thickness 14.2 mm
Fabric Mixed; Medium; Medium; Gritty; Medium
Munsell: 10YR 8/2; 10YR 8/2; 10YR 8/2
Inclusions Common; Small, Medium; Sub-Rounded; Dark red
Sparse; Small; Sub-Rounded; Black
Limestone; Abundant
Comments Resembles Central/Eastern Cypriot fabric. Probably Iron Age, possible Persian bowl?

TCP319 TIP0460. TT3879000N SU2050 P01.1
Shape BS-HEL; TW
Base; Good
Thickness 4.8 mm
Fabric Mixed; Fine; Soft; Medium; Good
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Comments Fabric similar to TCP135, TCP473 & TCP476.

TCP320 TIP0461. TT3879000N SU2050 P09.1
Shape LUR15-HR; LU
Rim; Medium
Thickness 5.7 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 2.5YR 3/2
Inclusions Common; Small; Sub-Rounded; Grits
Common; Small; Sub-Rounded; Quartz; Reflective
Comments Fabric related to TCP427 & TCP428.

TCP321 TIP0459. TT3879000N SU2051 P02.1
Shape CS29-ER; TW
Rim; Poor
Thickness 4.6 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white

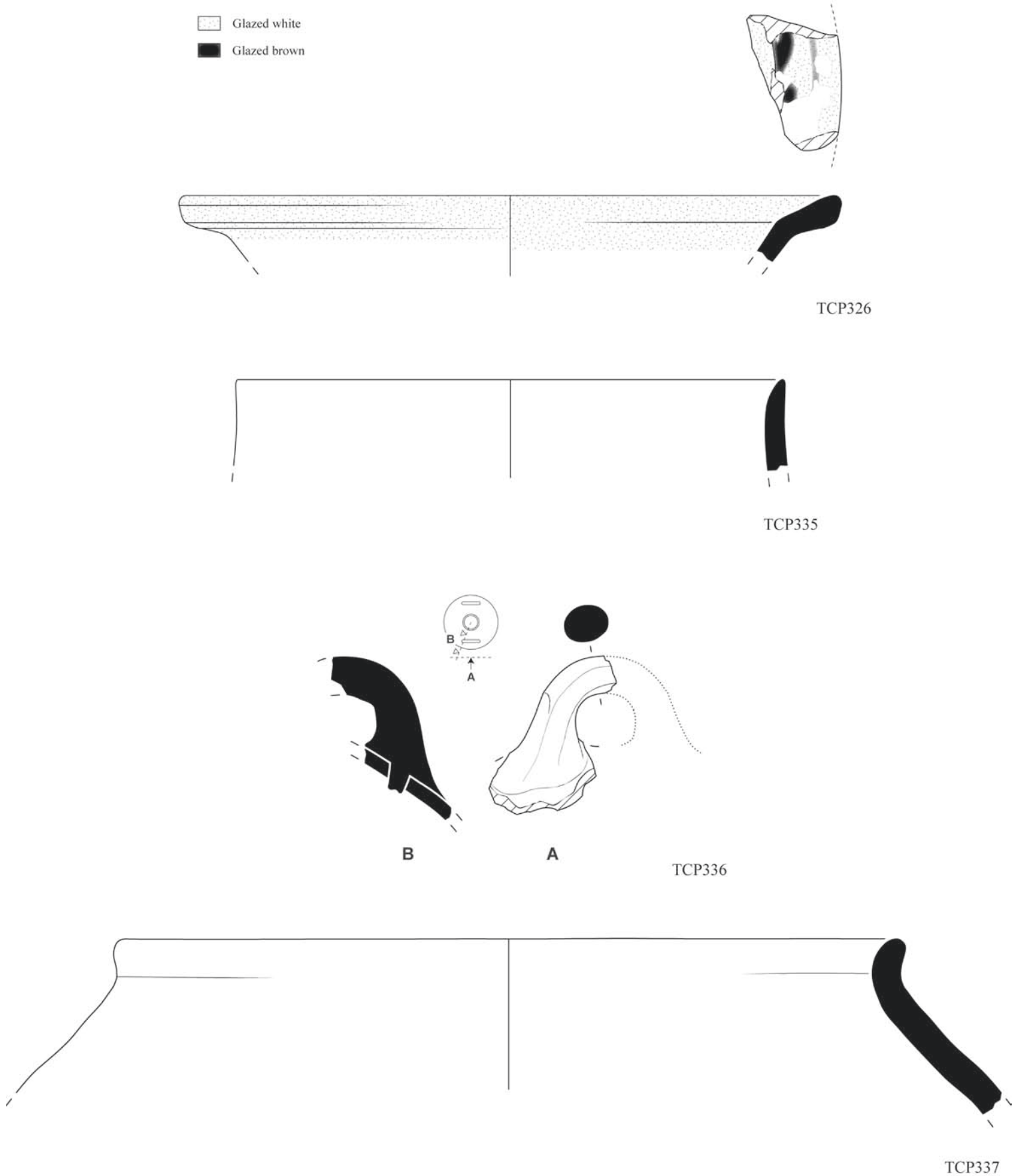
TCP322 TIP0749. TT3879000N SU2056 P05.1 (Plate 3.6)
Shape CGS06-MEDVOTT; TW
Base; Poor
Decoration Interior: white slip & transparent lead glaze. Incised & green painted decoration (P355).
Diam. 60 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 7.5YR 8/4; 5Y 8/3; 7.5YR 8/4
Inclusions Limestone
Comments Green Painted Sgraffito Ware from Lapithos. Late 15th–early 16th c.

TCP323 TIP0750. TT3879000N SU2056 P06.1 (Plate 3.6)
Shape MP01-MEDVOTT; TW
Base; Poor
Decoration Interior: transparent lead glaze & painted abstract decoration in ochre-green (P385).
Diam. 60 mm; External; Base thickness 10 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 7.5YR 8/4; 7.5YR 7/4; 7.5YR 8/4
Inclusions Rare; Medium; Sub-Rounded; White
Limestone
Comments Green Painted Ware from Lapithos 16th c.+

TCP324 TIP0430. TT3879000N SU2059 P01.1
Shape IDSS-OTTMODI; U
Rim; Good
Decoration Rows of V-shaped indentations.
Diam. 240 mm; External; Rim thickness 7 mm
Fabric Self Slip; Medium; Hard; Medium; Good
Munsell: 10YR 7/3; 10YR 7/3; 5YR 6/6
Inclusions Common; Tiny; Rounded; White & grey
Rare; Medium; Rounded; White

TCP325 TIP0756. TT3878500N SU2064 P16 (Plate 3.7)
Shape PP07-OTTMODII; TW
Base; Medium
Decoration Interior & exterior: white slip & transparent glaze. Interior: painted black circle. Exterior: painted underglaze decoration in blue & black (P306).
Thickness 4 mm
Fabric Calcareous; Fine; Hard; Smooth; Good
Munsell: White
Inclusions Rare; Tiny; Rounded; Black
Comments Polychrome painted ware, Kutahya. Coffee cup, 18th c.

Pottery catalogue: TCP313–TCP325 (drawings: Jean Humbert; photo: Chris Parks)


Glazed white
Glazed brown
TCP326
TCP335
B
A
B
A
TCP336
TCP337
0
10 cm

TCP326 TIP0757. TT3878500N SU2065 P04 (Plate 3.7)
Shape MP02-OTTMODII; TW
Rim; Medium
Decoration Interior & upper part exterior rim: white slip & transparent lead glaze (2.5Y 8/2). Interior: painted decoration in brown (5YR 4/1).
Diam. 260 mm. Thickness 6 mm
Fabric Mixed; Fine; Medium; Smooth; Medium
Munsell: 7.5YR 6/6; 2.5YR 6/8; 2.5YR 6/8
Inclusions Rare; Tiny; Angular; Black & purple
Sparse; Small; Rounded; White
Limestone
Comments Monochrome painted ware, Canakhale. 19th c.+

TCP327 TIP0758. TS06 SU2082 P01
Shape SP03-MEDB; TW
Body; Medium
Decoration Interior: painted with a white slip becoming pale yellow (5Y 8/2), lead glaze (5Y 4/2).
Thickness 8 mm
Fabric Ferrous; Fine; Hard; Smooth; Medium
Munsell: 2.5YR 5/6; 5YR 5/2; 2.5YR 5/8
Inclusions Rare; Tiny; Rounded; Black
Sparse; Small, Medium; Sub-Rounded; White
Limestone
Comments Possibly overfired? Slip-painted ware from Paphos. Late 12th–early 13th c.

TCP328 TIP0469. TS06 SU2083 P01.1
Shape RM-CHAL; HU
Body; Medium
Decoration Slip & burnish (mostly obscured).
Thickness 24 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 5/6; 5YR 5/3; 7.5YR 5/2
Inclusions Common; Small; Sub-Rounded; White
Sparse; Medium; Sub-Rounded; Black. Organic
Comments Grain impression inside fabric.

TCP329 TIP0489. TS06 SU2083 P02.1
Shape RM-CHAL; HU
Body; Medium
Decoration One side slip & burnish with black core.
Thickness 12 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 7.5YR 5/4; 7.5YR 4/2; 7.5YR 3/4
Inclusions Common; Small; Sub-Rounded; Black
Sparse; Large; Sub-Rounded; Red
Organic
Comments Possibly a spout?

TCP330 TIP0490. TS06 SU2083 P03.1
Shape RM-CHAL; HU
Body; Medium
Decoration Slip & burnish (worn).
Thickness 13 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 5/3; 5YR 2.5/1; 5YR 2.5/1
Inclusions Common; Small; Sub-Rounded; White
Sparse; Medium; Sub-Rounded; Grey
Organic
Comments Inside very black. Lots of chaff. Large open vessel or hole-mouth jar.

TCP331 TIP0491. TS06 SU2083 P03.2
Shape RM-CHAL; HU
Body; Medium
Decoration Exterior slip & burnish.
Thickness 12 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 4/6; 2.5YR 5/6; 2.5YR 3/0
Inclusions Common; Medium; Sub-Rounded; Grey
Sparse; Small; Sub-Rounded; White
Organic
High chaff content. Large closed vessel.

TCP332 TIP0492. TS06 SU2083 P04.1
Shape RMCS-CHAL; LU
Body; Medium
Decoration Slip & burnish. Exterior fire-cloud.
Thickness 10 mm
Fabric Ferrous; Medium; Hard; Medium; Medium
Munsell: 2.5YR 4/6; 7.5YR 6/2; 2.5YR 5/6
Inclusions Common; Small; Sub-Rounded; White
Sparse; Medium; Angular; Grey
Sparse; Small; Sub-Rounded; Red
Organic
Medium–large closed vessel.

TCP333 TIP0493. TS06 SU2083 P04.2
Shape RMCS-CHAL; LU
Body; Medium
Decoration Exterior red slip & burnish.
Thickness 9 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 2.5YR 4/8; 5YR 5/3; 2.5YR 3/0
Inclusions Common; Small; Sub-Rounded; White
Sparse; Medium; Sub-Rounded; Grey
Sparse; Small; Sub-Rounded; Red. Organic
Scraped inside. Medium-sized closed vessel. Over fired.

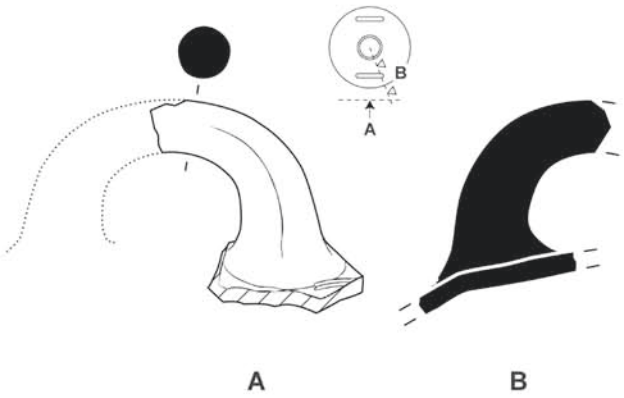
TCP334 TIP0494. TS06 SU2083 P06.1
Shape RP-PeB; TW
Body; Medium
Decoration Interior reddish slip & light burnish. Exterior grey-brown blotchy slip with possible painted red lines.
Thickness 5 mm
Fabric Mixed; Fine; Medium; Medium; Good
Munsell: 5YR 5/3; 7.5YR 5/4; 5YR 4/1
Inclusions Common; Small; Sub-Rounded; Grey. Organic
Medium vessel open or wide mouth closed.

TCP335 TIP0479. TS06 SU2085 P04.1
Shape RM-CHAL; LU
Rim; Medium
Decoration Red slip with streaky burnish.
Thickness 7 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 6/8; 2.5YR 6/8
Inclusions Common; Small; Sub-Rounded; Dark red; Reflective
Organic
Medium-sized conical bowl.

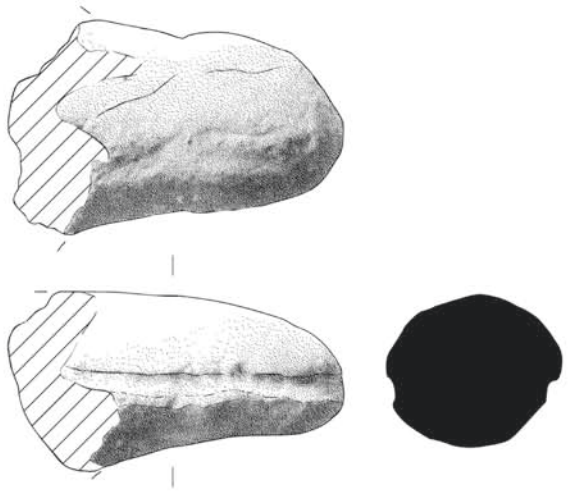
TCP336 TIP0480. TS06 SU2085 P05.1
Shape RP-PeB; LU
Handle; Medium
Decoration Red slip & burnish.
Thickness 5 mm
Fabric Mixed; Medium; Hard; Gritty; Medium
Munsell: 5YR 6/6; 7.5YR 7/4; 7.5YR 6/6
Inclusions Common; Small; Sub-Rounded; Grey; Reflective
Common; Small; Sub-Rounded; Orange
Common; Medium; Rounded; White
Organic
Comments Plug handle of closed vessel, small sized.

TCP337 TIP0496. TS06 SU2104 P03.1
Shape RPC-PeB; HU
Rim; Medium
Decoration Red slip & slightly burnished.
Diam. 26 mm; Internal; Other thickness 10 mm
Fabric Mixed; Medium; Hard; Medium; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/0
Inclusions Common; Small; Sub-Rounded; Grey; Reflective
Sparse; Small; Rounded; White
Sparse; Medium; Sub-Rounded; Grey; Reflective

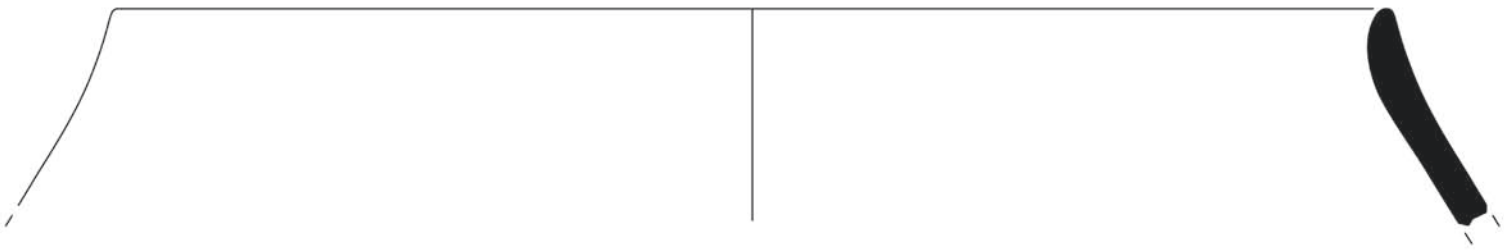
Pottery catalogue: TCP326, TCP335–37 (drawings: Jean Humbert)



TCP338

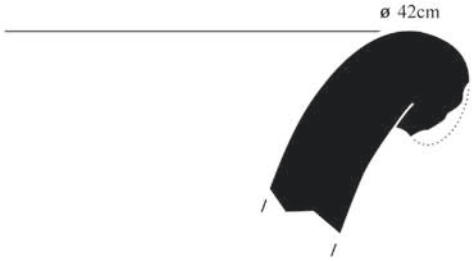


TCP340



TCP339

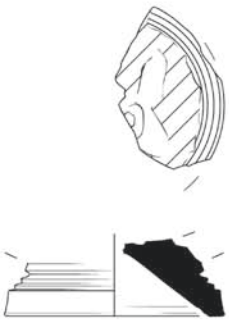
TCP341



TCP344

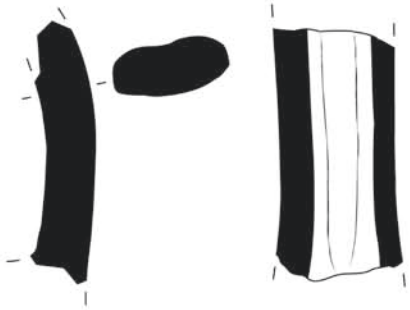
TCP345

TCP346



TCP349

TCP350



Black painting

TCP348

0 10 cm

TCP338 TIP0497. TS06 SU2104 P04.1
Shape RPC-PeB; LU
Handle; Medium
Decoration Red slip & burnish on exterior but largely worn off.
Thickness 4 mm
Fabric Ferrous; Medium; Hard; Medium; Poor
Munsell: 5YR 6/6; 5YR 7/4; 7.5YR 5/0
Inclusions Common; Small, Medium; Sub-Rounded; White
Limestone

TCP339 TIP0498. TS06 SU2104 P08.1
Shape RM-CHAL; LU
Rim; Good
Decoration Thick brown slip, well polished.
Diam. 27 mm; External; Rim thickness 7 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 4/6; 2.5YR 5/6; 2.5YR 2.5/0
Inclusions Common; Small; Sub-Rounded; White; Reflective
Sparse; Medium; Rounded; Brown
Organic
Comments Chaff-temper. Hole-mouth jar.

TCP340 TIP0499. TS06 SU2104 P11.1
Shape RMP-LChPh; HU
Base; Poor
Gouge running all round. Slip & burnish mostly worn off
Diam. 30 mm; External; Other thickness 30 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 5/8; 2.5YR 3/6
Inclusions Common; Small; Sub-Rounded; White; Reflective
Common; Medium; Angular; Grey; Reflective
Sparse; Large; Angular; Brown; Reflective
Limestone; Organic
Comments Possible huge tripod leg or something figural?

TCP341 TIP0553. TT491000E SU2113 P03.1
Shape ARS105-LR; TW
Rim; Medium
Diam. 27 mm; Internal; Rim Thickness 6.5 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 7/6
Inclusions Abundant; Tiny; Sub-Rounded; Lime
Limestone; Abundant
Comparanda Possibly sub-type C of the second half of the 7th c. AD (Bonifay 2004, 183–85, fig. 98).

TCP342 TIP0552. TT491000E SU2115 P04.1
Shape Pal-LR; Tr
Body; Good
Thickness 6.5 mm
Fabric Self Slip; Coarse; Medium; Gritty; Good
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 6/4
Inclusions Common; Small; Angular; Black
Rare; Small; Angular; Red
Sparse; Small; Angular; White

TCP343 TIP0534. TS15 SU2125 P02.1
Shape Pit19-PoBAR; HU
Body; Medium
Decoration Raised strip with incised zig-zag line.
Thickness 30 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 7.5YR 6/4; 7.5YR 7/6; 7.5YR 6/4
Inclusions Abundant; Medium; Angular; Brown; Reflective
Limestone
Comments Typical Late Bronze Age (LBA) pithos.

TCP344 TIP0535. TS15 SU2125 P03.1
Shape Pit20-PoBAR; HU
Rim; Medium
Diam. 450 mm; Internal; Rim Thickness 20 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 6/8; 2.5YR 6/8; 7.5YR 6/4
Inclusions Abundant; Medium; Angular; Jasper; Reflective
Sparse; Medium; Sub-Rounded; White
Comments Rolled out rim.

TCP345 TIP0562. TS15 SU2128 P02.1
Shape SigW-ER; TW
Rim; Medium
Diam. 20 mm; External; Rim thickness 3.8 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/8; 5YR 6/8; 5YR 6/8
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand
Rare; Tiny; Sub-Rounded; Yellowish
Bright orange fabric similar to TCP168 & TCP447.
Relatively thick slip.
Comparanda Form similar to Italian Terra Sigillata form XX of Augustan period (Pucci 1985, 389, tab. CXXV).

TCP346 TIP0565. TS15 SU2130 P03.1
Shape Ug01-HEL; PO
Base; Good
Thickness 16.4 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/3; 7.5YR 7/3; 7.5YR 7/4
Inclusions Sparse; Small; Rounded; Black
Sparse; Small; Angular; White

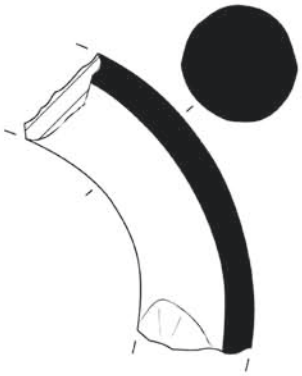
TCP347 TIP0567. TS15 SU2131 P09.1
Shape Rho-HEL; Tr
Handle; Poor
Thickness 7 mm
Fabric Self Slip; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/4; 7.5YR 7/4; 7.5YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Rare; Small; Angular; Red

TCP348 TIP0576. TS15 SU2132 P01.1
Shape BOR-GAC; HU
Handle; Medium
Decoration Smoothed red surface with black painted down back.
Thickness 13 mm
Fabric Ferrous; Medium; Hard; Medium; Good
Munsell: 2.5YR 6/6; 2.5YR 5/6
Inclusions Common; Small; Rounded; White
Sparse; Medium; Sub-Rounded; Black; Reflective
Comments Strap handle.

TCP349 TIP0572. TS15 SU2133 P01.1
Shape ESA48-ER; TW
Base; Medium
Diam. 5.5 mm; External; Base
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 2.5YR 8/2; 2.5YR 8/2; 2.5YR 8/2
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Limestone; Tiny & abundant

TCP350 TIP0541. TS15 SU2134 P01.1
Shape WPC-GAC; HU
Body; Medium
Decoration Whitened surface. Black painted 'bull's-eye' & horizontal bands
Thickness 12 mm
Fabric Self Slip; Medium; Hard; Gritty; Medium
Munsell: 2.5Y 7/3; 10YR 7/4; 10YR 7/4
Inclusions Abundant; Small; Angular; Red-brown; Reflective
Sparse; Medium; Angular; Red-brown; Reflective
Comments Probably Archaic.

Pottery catalogue: TCP338–41, TCP344–46, TCP348–50 (drawings: Jean Humbert; photo: Chris Parks)

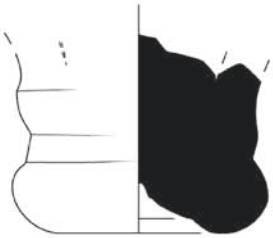


Black painting

TCP351

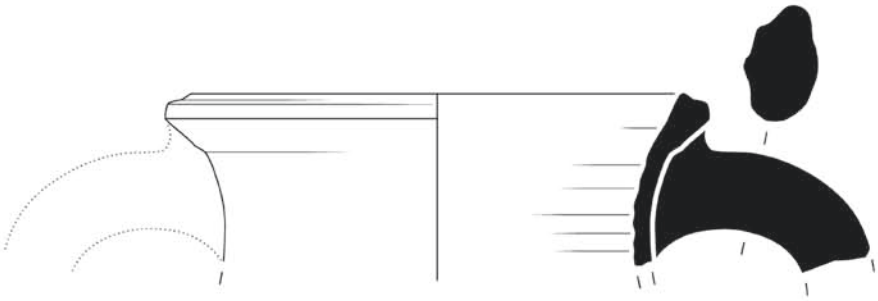
TCP352

TCP353

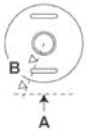


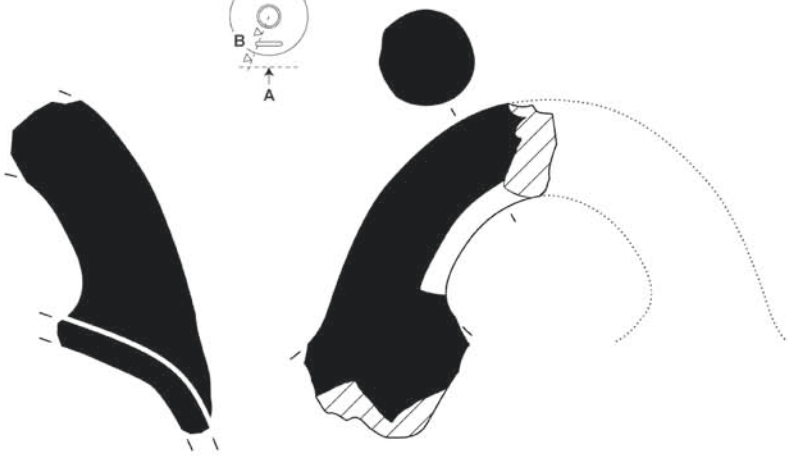
TCP356

TCP355



TCP357





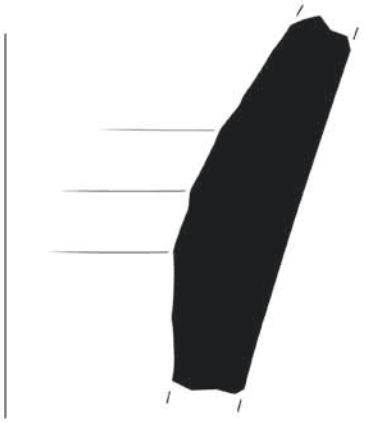
B A

TCP359

TCP362

Black painting

TCP363



TCP361

0 10 cm

TCP351 TIP0579. TS15 SU2134 P23.1
Shape BOR-GAC; LU
Handle; Poor
Decoration Black painted stripe down length (very worn).
Thickness 26 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Inclusions Abundant; Small; Rounded; White
Abundant; Small; Angular; Dark red; Reflective
Sparse; Medium; Sub-Rounded; White
Comments Rolled lug handle.

TCP352 TIP0584. TS15 SU2135 P02.1
Shape LUB03-LR; LU
Base; Medium
Diam. 160 mm; External; Base thickness 7.1 mm
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 2.5YR 6/8; 2.5YR 6/8; 2.5YR 6/8
Inclusions Common; Tiny, Small; Angular; Black
Sparse; Small, Medium; Angular; White
Limestone; Common

TCP353 TIP0585. TS15 SU2135 P03.1
Shape FP-HEL; TW
Base; Medium
Decoration Slip fired red.
Diam. 50 mm; External; Base
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 10YR 7/3; 10YR 7/3; 10YR 7/3
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Limestone; Common
Comparanda Jehasse 1978, 37, 90, fig. 24.

TCP354 TIP0575. TS15 SU2135 P06.1
Shape RS-BA; TW
Body; Medium
Decoration Washy, mottled red-brown slip inside & out.
Thickness 5 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 2.5YR 5/4; 10YR 4/2; 10YR 6/3
Inclusions Sparse; Tiny; Sub-Rounded; Brown
Comments Short closed spout-open vessel, possibly LBA

TCP355 TIP0536. TS15 SU2136 P03.1
Shape TW-HA; TW
Rim; Medium
Diam. 200 mm; External; Rim thickness 3 mm
Fabric Mixed; Fine; Hard; Smooth; Medium
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime
Common; Small; Sub-Rounded; Dark brown
Rare; Large; Rounded; White lime
Comments Rather coarse clay for a vessel of this delicate shape.
Possibly GAC? Possibly overfired? Sandy fabric.

TCP356 TIP0571. TS15 SU2136 P06.1
Shape Mav01-HR; Tr
Base; Poor
Diam. 6.8 mm; External; Base
Fabric Self Slip; Medium; Medium; Medium; Poor
Munsell: 10YR 7/3; 10YR 7/3; 10YR 7/3
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Common; Small; Rounded; Red
Common; Tiny; Sub-Rounded; Black
Sparse; Large; Rounded; Red
Limestone; Common

TCP357 TIP0601. TS15 SU2137 P01.1
Shape AmSk02-ROM; Tr
Rim, Handle; Good
Diam. 130 mm; External; Rim thickness 3.5 mm
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Small; Sub-Rounded; Black
Common; Tiny, Small; Sub-Rounded; Red
Unknown; Common

TCP358 TIP0574. TS15 SU2138 P01.1
Shape BOR-GAC; HU
Body; Medium
Decoration Finish worn: possibly slip or burnish? Black manganese paint. Horizontal bands.
Thickness 8 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 5YR 6/6; 5YR 5/8; 2.5YR 4/3
Inclusions Common; Small; Sub-Rounded; Red; Reflective
Sparse; Medium; Sub-Rounded; Peach
Comments Large jar.

TCP359 TIP0537. TS15 SU2138 P02.1
Shape WPC-GAC; HU
Handle; Poor
Decoration Black painted.
Thickness 25 mm
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 2.5Y 7/2; 10YR 6/4; 10YR 6/4
Inclusions Common; Small; Sub-Rounded; Brown; Reflective
Sparse; Medium; Sub-Rounded; Dark red; Reflective
Comments Rolled lug handle from large jar/amphora/hydria. Probably Archaic.

TCP360 TIP0538. TS15 SU2138 P03.1
Shape Bc-GAC; LU
Rim; Medium
Decoration Red & black paint in horizontal bands.
Diam. 360 mm; External; Rim thickness 7 mm
Fabric Self Slip; Medium; Hard; Gritty; Medium
Munsell: 10YR 7/3; 10YR 7/3; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Brown
Sparse; Small; Sub-Rounded; Red; Reflective
Limestone
Comments Diagnostic concave rim. Probably Archaic.

TCP361 TIP0539. TS15 SU2138 P04.1
Shape Sh-GAC; HU
Base; Medium
Decoration Shaved base of large white ware vessel.
Thickness 17 mm
Fabric Self Slip; Fine; Hard; Medium; Good
Munsell: 2.5YR 8/2; 7.5YR 7/3; 7.5YR 7/3
Inclusions Common; Tiny; Sub-Rounded; Brown
Limestone

TCP362 TIP0540. TS15 SU2138 P05.1
Shape WPC-GAC; LU
Body; Good
Decoration Very well burnished.
Thickness 10 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 2.5YR 8/3; 2.5Y 8/3; 2.5Y 8/3
Inclusions Rare; Tiny; Sub-Rounded; Brown
Limestone

TCP363 TIP0573. TS15 SU2138 P06.1
Shape LU-GA; LU
Base; Medium
Diam. 120 mm; External; Base thickness 6 mm
Fabric Mixed; Medium; Hard; Medium; Medium
Munsell: 10YR 7/3; 7.5YR 7/6; 7.5YR 7/4
Inclusions Common; Small; Sub-Rounded; Red; Reflective
Sparse; Medium; Sub-Rounded; Red; Reflective
Limestone
Comments GAC fabric with sandy temper with jasper.

Pottery catalogue: TCP351–53, TCP355–57, TCP359, TCP361–63 (drawings: Jean Humbert)

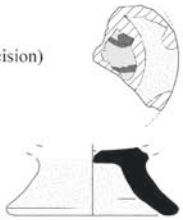
TCP364

TCP365

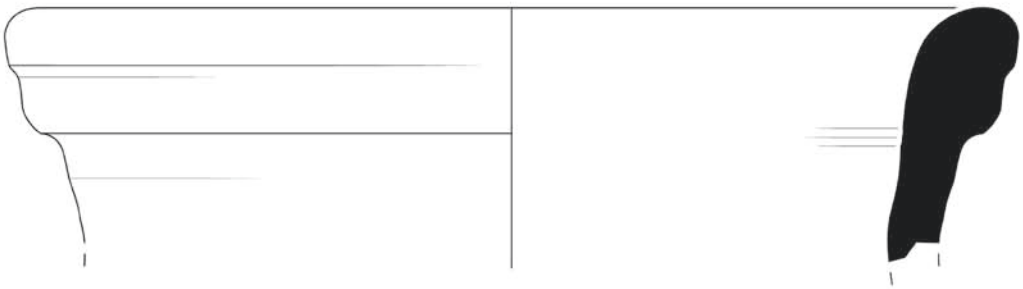
White slip

Glazed brown (incision)

Glazed yellow



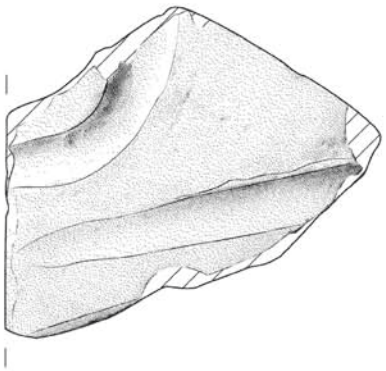
TCP368



TCP370

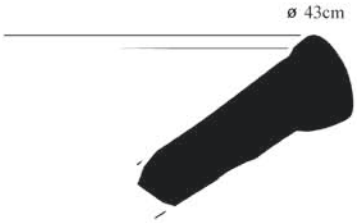
ø 42 cm

TCP371

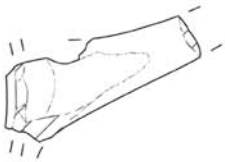


TCP373

ø 43cm



TCP375



TCP374

TCP372

0 10 cm

TCP364 TIP0542. TS15 SU2138 P06.1
Shape LU-GA; LU
Rim; Medium
Diam. 300 mm; Internal; Rim thickness 6 mm
Fabric Mixed; Medium; Medium; Medium; Medium
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Common; Small; Sub-Rounded; Brown
Common; Medium; Angular; Red; Reflective. Limestone
Comments Flanged rim – diagnostic? Typical Cypro-Geometric to Archaic (GA) fabric with jasper temper.

TCP365 TIP0587. TS15 SU2138 P21.1
Shape Pal-LR; Tr
Rim; Medium
Diam. 120 mm; External; Rim thickness 7.4 mm
Fabric Ferrous; Medium; Soft; Medium; Poor
Munsell: 2.5YR 7/8
Inclusions Common; Tiny; Rounded; White
Rare; Large; Angular; White & red

TCP366 TIP0760. TS15 SU2139 P05
Shape GS02-MEDB; TW
Body; Medium
Decoration Interior: white slip & pale yellow lead glaze (5Y 8/4) highlighted with pale green (5Y 7/3). Gouged decoration.
Thickness 6 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 7.5YR 5/4; 7.5YR 5/4; 5YR 5/6
Inclusions Rare; Tiny; Rounded; White. Limestone
Comments Incised Sgraffito Ware. Late 12th–early 13th c.

TCP367 TIP0577. TS15 SU2139 P24.1
Shape TW-GAC; TW
Body; Good
Decoration Wheel-marks & faceted shiny horizontal strips possibly shaved while turning? Thickness 8 mm
Fabric Mixed; Fine; Hard; Medium; Good
Munsell: 5Y 7/3; 2.5Y 8/2; 2.5Y 8/2
Inclusions Sparse; Tiny; Sub-Rounded; Brown

TCP368 TIP0761. TS15 SU2140 P03 (Plate 3.7)
Shape GS02-MEDB; TW
Base; Good
Decoration Interior & exterior: white slip. Interior base: gouged decoration with pale yellow lead glaze (2.5Y 8/3).
Diam. 90 mm; External; Base thickness 5 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 2.5YR 6/4; 2.5YR 5/8; 2.5YR 5/8
Inclusions Rare; Tiny; Rounded; Black
Sparse; Small; Rounded; White. Limestone
Incised Sgraffito Ware from Paphos area. 13th c.

TCP369 TIP0586. TS15 SU2140 P08.1
Shape CWFPWh-HR; CW
Handle; Poor
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Greyish-white
Common; Small, Medium; Sub-Rounded; Black
Common; Medium; Rounded; Grey

TCP370 TIP0569. TS15 SU2141 P01.1
Shape Pit21-HA; HU
Rim; Good
Diam. 260 mm; External; Rim thickness 14.6 mm
Fabric Self Slip; Medium; Medium; Medium; Good
Munsell: 2.5Y 8/4; 2.5Y 8/4; 5YR 6/6
Inclusions Common; Small; Angular; Black
Sparse; Tiny; Sub-Rounded; Black
Organic; Narrow, few

TCP371 TIP0570. TS15 SU2141 P02.1
Shape Pit22-LR; HU
Rim; Medium
Diam. 280 mm; External; Rim thickness 19 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 4/6; 2.5YR 4/6; 2.5YR 4/6
Inclusions Common; Small, Medium, Large; Angular; Black
Common; Tiny, Small, Medium, Large; Sub-Rounded; Yellowish-white
Sparse; Medium, Large; Sub-Rounded; Red

TCP372 TIP0645. TS18 SU2160 P06.1
Shape CRS13-LR; TW
Rim; Poor
Diam. 260 mm; External; Rim Thickness 6.5 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand

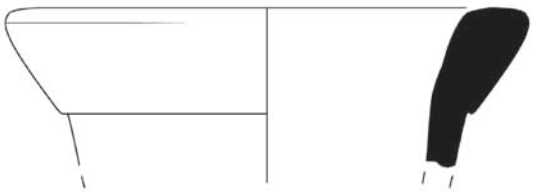
TCP373 TIP0643. TS18 SU2164 P03.1
Shape TiSk02-LR; Ar
Rim; Good
Thickness 19.3 mm
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Common; Small; Angular; White
Common; Tiny; Sub-Rounded; Black
Common; Small; Sub-Rounded; Red
Sparse; Large; Rounded; Grits

TCP374 TIP0657. TT492750E SU2171 P10.1
Shape Sla-PH; Un
Handle; Medium
Decoration Parallel slashes along handle body.
Thickness 12 mm
Fabric Ferrous; Medium; Hard; Medium; Poor
Munsell: 5YR 3/3; 10YR 4/1
Inclusions Abundant; Small; Sub-Rounded; White
Sparse; Small; Sub-Rounded; Black
Sparse; Large; Sub-Rounded; Greenish

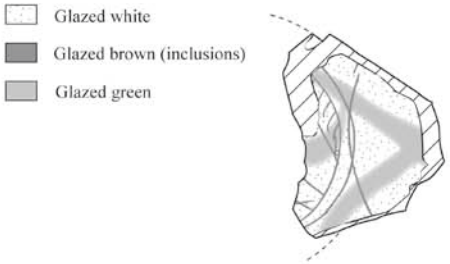
TCP375 TIP0658. TT492750E SU2171 P11.1
Shape HUR32-HA; HU
Rim; Medium
Decoration Possible interior pitting. Self Slip.
Diam. 440 mm; External; Rim thickness 13.9 mm
Fabric Self Slip; Medium; Hard; Medium; Medium
Munsell: 5YR 6/6
Inclusions Abundant; Tiny, Small, Medium; Sub-Rounded; Red
Sparse; Small, Medium; Sub-Rounded; White
Limestone; Abundant

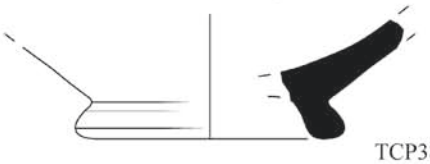
Pottery catalogue: TCP364–65, TCP368, TCP370–75 (drawings: Jean Humbert; photo: Chris Parks)

TCP380



TCP381

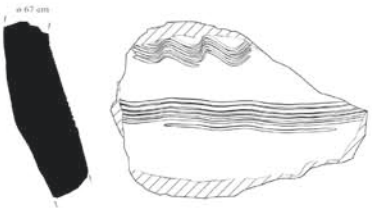




TCP382

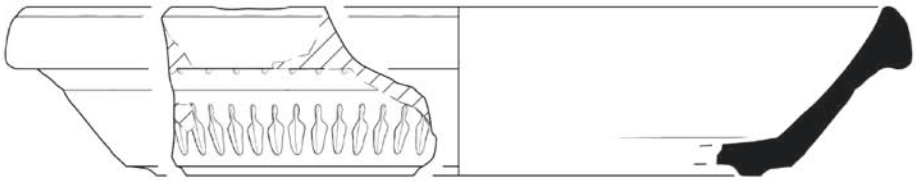
TCP383

TCP388

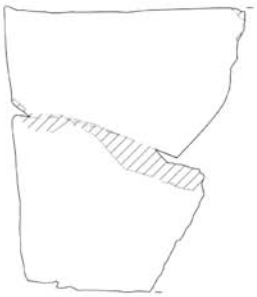


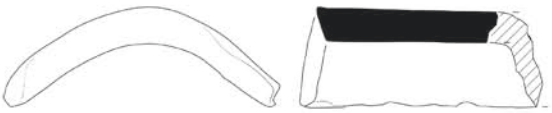
TCP390

TCP384



TCP385

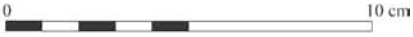




TCP389

TCP386

TCP387



TCP376 TIP0655. TT492750E SU2172 P02.1
Shape HU-POB; HU
Body; Poor
Decoration Low raised band with vertical slashes.
Thickness 11 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 5YR 4/6; 5YR 4/6; 10YR 6/2
Inclusions Abundant; Small; Angular; Black; Reflective
Common; Small; Sub-Rounded; White
Comments Possibly Late Bronze Age small pithos.

TCP377 TIP0656. TT492750E SU2172 P09.1
Shape RM-CHAL; HU
Body; Medium
Decoration Interior has dark brown slip & burnish. Exterior surface is worn & has straight raised horizontal band with puncture decoration of four holes in a diagonal line.
Thickness 10 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 4/1; 2.5YR 5/6
Inclusions Common; Small; Sub-Rounded; Black; Reflective
Sparse; Medium; Sub-Rounded; Red. Organic
Comments Possible transitional ware?

TCP378 TIP0583. TT492750E SU2174 P07.1
Shape ROW-CHAL; LU
Body; Medium
Decoration Thick off-white to peach slip & worn burnish.
Thickness 5 mm
Fabric Mixed; Medium; Soft; Medium; Poor
Munsell: 10YR 7/4; 5YR 7/6; 10YR 7/4
Inclusions Abundant; Small, Medium; Rounded; White
Common; Small; Sub-Rounded; Grey; Reflective
Limestone; Organic
Comments Low quantities of organics. Possibly a transitional painted ware?

TCP379 TIP0659. TT492750E SU2175 P01.1
Shape ROW-CHAL; LU
Body; Poor
Decoration Whitish slip & burnish on exterior.
Thickness 7 mm
Fabric Mixed; Medium; Medium; Gritty; Good
Munsell: 10YR 7/3; 10YR 6/3; 10YR 5/1
Inclusions Common; Tiny; Sub-Rounded; White
Limestone; Organic
Comments Chaff-temper. No red paint preserved; otherwise typical.

TCP380 TIP0660. TT492750E SU2175 P05.1
Shape LUR17-GAC; LU
Rim; Good
Decoration Unfinished surface.
Diam. 220 mm; Internal; Rim thickness 7 mm
Fabric Calcareous; Medium; Hard; Medium; Good
Munsell: 2.5Y 7/4; 2.5Y 7/4; 2.5Y 7/4
Inclusions Sparse; Small; Sub-Rounded; Dark red; Reflective
Limestone
Comments Rim diagnostic of Cypriot Plain White Ware.

TCP381 TIP0668. TT492750E SU2176 P06.1
Shape Am-GAC; Tr
Rim; Good
Decoration Plain surface
Diam. 130 mm; External; Rim thickness 9 mm
Fabric Ferrous; Fine; Hard; Medium; Good
Munsell: 2.5YR 5/6; 10R 5/6; 10R 7/1
Inclusions Common; Tiny; Sub-Rounded; Silver; Reflective
Sparse; Small; Sub-Rounded; Black; Reflective
Sparse; Small; Sub-Rounded; Whitish; Reflective
Limestone

TCP382 TIP0762. TT492750E SU2176 P07.1 (Plate 3.7)
Shape CGS06-MEDVOTT; TW
Base; Medium
Decoration Interior: white slip & transparent lead glaze. Incised & green painted decoration (P346).
Diam. 70 mm; External; Base thickness 7 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 7.5YR 8/4; 5Y 8/3; 7.5YR 8/4
Inclusions Limestone
Comments Green Painted Sgraffito Ware from Lapithos. Late 15th–early 16th c.

TCP383 TIP0669. TT492750E SU2176 P20.1
Shape CC-LHER; TW
Rim; Medium
Decoration Matt brown slip.
Diam. 100 mm; Internal; Rim thickness 4 mm
Fabric Mixed; Fine; Soft; Medium; Good
Munsell: 10R 3/1; 2.5YR 3/4; 7.5YR 8/3
Inclusions Common; Tiny; Sub-Rounded; Brownish-black
Sparse; Tiny; Sub-Rounded; Red

TCP384 TIP0667. TT492750E SU2177 P08.1
Shape LUR18-GAC; LU
Rim; Poor
Decoration Surface worn off.
Diam. 220 mm; Internal; Rim thickness 6 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Dark brown; Reflective
Common; Small; Sub-Rounded; White
Sparse; Medium; Sub-Rounded; Red. Limestone
Comments In-turned bowl rim.

TCP385 TIP0661. TT492750E SU2178 P01.1
Shape CRSK01/03-LR; TW
Rim, Base, Body; Medium
Diam. 230 mm; External; Rim thickness 6.3 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand

TCP386 TIP0662. TT492750E SU2178 P10.1
Shape CWPR08-HR; CW
Rim, Handle; Medium
Diam. 305 mm; External; Rim thickness 3.9 mm
Fabric Ferrous; Coarse; Medium; Medium; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Greyish
Limestone; Common

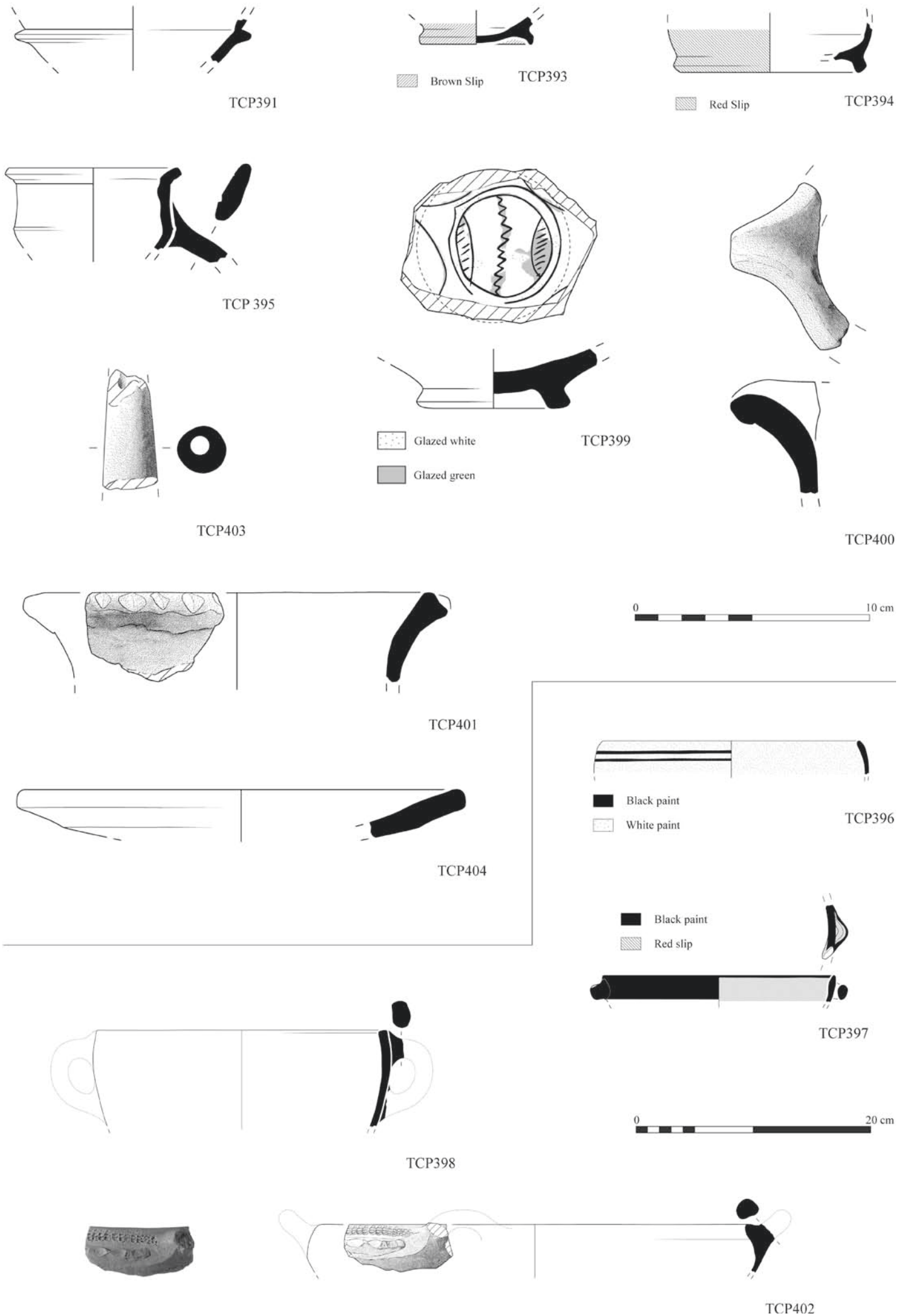
TCP387 TIP0670. TS20 SU2187 P01.1
Shape HUR10b-LR; HU
Rim; Good
Diam. 230 mm; Internal; Rim thickness 11 mm
Fabric Self Slip; Medium; Soft; Medium; Good
Munsell: 2.5Y 7/4; 2.5Y 7/4; 5YR 7/6
Inclusions Common; Small; Angular; Reddish-brown & black
Rare; Medium; Rounded; White
Organic; Some narrow

TCP388 TIP0671. TS20 SU2187 P03.1
Shape CWPR06-LR; CW
Rim; Good
Diam. 160 mm; Internal; Rim thickness 4 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 2.5YR 4/6; 2.5YR 4/6; 2.5YR 4/8
Inclusions Common; Small; Sub-Rounded; White
Sparse; Small; Sub-Rounded; Orange
Organic; Some, very narrow

TCP389 TIP0674. TS20 SU2187 P17.2
Shape TiCS-ROM; Ar
Rim; Good
Thickness 16 mm
Fabric Mixed; Medium; Medium; Smooth; Good
Munsell: 10YR 8/1; 10YR 8/1; 10YR 7/2
Inclusions Abundant; Small; Sub-Rounded; Red
Abundant; Small; Sub-Rounded; Black
Common; Tiny; Rounded; White
Sparse; Small; Sub-Rounded; White
Organic; Narrow, Some

TCP390 TIP0673. TS20 SU2187 P18.1
Shape HUC-RM; HU
Body; Medium
Decoration Bands of incised decoration. Smooth marks both interior & exterior.
Thickness 21.7 mm
Fabric Ferrous; Medium; Medium; Medium; Good
Munsell: 2.5YR 4/6; 2.5YR 4/6; 2.5YR 4/6
Inclusions Abundant; Small; Angular; Orange-brown and white
Rare; Large; Angular; Greyish-white

Pottery catalogue: TCP380–TCP390 (drawings: Jean Humbert)


TCP391
Brown Slip
TCP393
Red Slip
TCP394
TCP 395
TCP403
Glazed white
Glazed green
TCP399
TCP400
0
10 cm
TCP401
TCP404
Black paint
White paint
TCP396
Black paint
Red slip
TCP397
0
20 cm
TCP398
TCP402

TCP391 TIP0672. TS20 SU2187 P23.1
Shape Sig-LHER; TW
Body; Good
Thickness 38 mm
Fabric Ferrous; Medium; Hard; Medium; Good
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Small; Sub-Rounded; Yellowish
Comparanda Bowls or cups with this type of carination below the rim are very common in ER sigillatas. The fabric appears to be a finer version of LRC.

TCP392 TIP0675. TS09 SU2188 P02.1
Shape BRI-POB; TW
Body; Medium
Decoration Washy dark slip (worn). Raised rope application with diagonal slashes.
Thickness 3 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 10YR 6/3; 10YR 5/2; 10YR 5/1
Inclusions Sparse; Small; Rounded; White
Sparse; Small; Sub-Rounded; Black; Reflective
Comments Typical Base Ring decor, but fabric is soft.

TCP393 TIP0676. TS09 SU2188 P03.1
Shape Mo-POB; TW
Base; Medium
Decoration Washy brown slip, not burnished.
Diam. 50 mm; External; Base thickness 3 mm
Fabric Ferrous; Fine; Hard; Smooth; Good
Munsell: 10YR 4/2; 7.5YR 5/4; GLEY1 5/N
Inclusions Sparse; Small; Sub-Rounded; White
Comments Thin ring-base with grey-core. Monochrome Ware

TCP394 TIP0678. TS09 SU2188 P05.1
Shape RS-POB; TW
Base; Poor
Decoration Red slip & burnish.
Diam. 80 mm; External; Base thickness 3 mm
Fabric Ferrous; Fine; Medium; Medium; Good
Munsell: 5YR 5/6; 2.5YR 6/6; 10YR 6/1
Inclusions Sparse; Small; Sub-Rounded; White
Tiny ring-base, Red Slip ware.

TCP395 TIP0679. TS09 SU2188 P07.1
Shape LU-BA; LU
Rim; Poor
Decoration Possibly slipped at one time?
Diam. 70 mm; External; Rim thickness 6 mm
Fabric Ferrous; Fine; Hard; Medium; Good
Munsell: 5YR 6/6; 5YR 6/6; GLEY1 7/N
Inclusions Common; Small; Angular; White. Limestone
Comments Carelessly made, grey-core. Jar rim flared with strap handle from neck.

TCP396 TIP0680. TS09 SU2188 P10.1
Shape WPO-GAC; TW
Rim; Poor
Decoration White slip? Black painted horizontal bands. Burnished.
Diam. 200 mm; Internal; Rim thickness 4 mm
Fabric Ferrous; Fine; Hard; Gritty; Good
Munsell: 7.5YR 7/3; 10YR 8/2; 7.5YR 6/4
Inclusions Abundant; Small; Sub-Rounded; Black; Reflective

TCP397 TIP0681. TS09 SU2188 P11.1
Shape BORO-GAC; TW
Rim, Handle; Poor
Decoration Red slip with black paint over it. Burnished.
Diam. 180 mm; Internal; Rim thickness 4 mm
Fabric Ferrous; Fine; Medium; Medium; Medium
Munsell: GLEY1 3/N; 2.5YR 4/4; 5YR 7/6
Inclusions Sparse; Small; Sub-Rounded; Red; Reflective
Sparse; Medium; Sub-Rounded; Dark red; Reflective
Comments Bowl rim with horizontal handle just below it.

TCP398 TIP0683. TS09 SU2188 P50.1
Shape CW-PoBAR; CW
Rim; Medium
Decoration Smoothed.
Diam. 210 mm; Internal; Rim thickness 7 mm
Fabric Ferrous; Medium; Hard; Gritty; Good
Munsell: 2.5YR 4/4; 2.5YR 4/4; 2.5YR 5/6
Inclusions Common; Tiny; Sub-Rounded; Black
Common; Tiny; Rounded; White. Limestone
Comments Sack-shaped cooking pot with round vertical handle. LBA or GAC.

TCP399 TIP0770. TS08 SU2301 P02.1 (Plate 3.7)
Shape CGS06-MEDVOTT; TW
Base; Poor
Decoration Interior: traces of white slip & pale yellow lead glaze (2.5Y 8/3); incised & green painted decoration (P346).
Diam. 60 mm; External; Base thickness 6 mm
Fabric Ferrous; Fine; Hard; Smooth; Good
Munsell: 7.5YR 7/6; 5Y 8/4; 7.5YR 7/6
Inclusions Limestone
Comments Green Painted Sgraffito Ware from Lapithos. Late 15th–early 16th c.

TCP400 TIP0424. TS08 SU2301 P10.1
Shape UPSJ01-MEDUIII; U
Rim; Good
Thickness 6 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 7.5YR 6/6; 7.5YR 6/6; 10YR 5/4
Inclusions Abundant; Tiny, Small; Sub-Rounded, Rounded; White
Sparse; Small, Medium; Sub-Rounded, Rounded; Brown
Comments The spout is pulled forward & down.

TCP401 TIP0425. TS08 SU2301 P13.1
Shape Uja-MM; U
Rim; Good
Diam. 150 mm; External; Rim thickness 4.5 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 7.5YR 5/4; 10YR 4/3; 10YR 4/2
Inclusions Abundant; Tiny, Small; Sub-Rounded, Rounded; White
Abundant; Medium, Large; Sub-Rounded, Rounded; Dark brown
Sparse; Small; Rounded; Red/Brown
Comments Modelling marks visible outside.

TCP402 TIP0395. TS08 SU2302 P02.1
Shape Tia-MM; CW
Rim, Handle, Body; Good
Decoration Pie-crust ridge on rim/body angle; band of four-tooth interrupted lines on outside edge of rim
Diam. 340 mm; Internal; Rim thickness 5 mm
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 7.5YR 5/4; 7.5YR 5/4; 5YR 4/6
Inclusions Abundant; Tiny, Small; Rounded; White

TCP403 TIP0391. TS08 SU2302 P17.1
Shape ULSJ01-OTTMODI; U
Spout; Medium
Diam. 20 mm; External; Other thickness 6 mm
Fabric Ferrous; Coarse; Soft; Gritty; Good
Munsell: 7.5YR 4/6; 7.5YR 4/6
Inclusions Common; Tiny, Small; Rounded; Brown & white

TCP404 TIP0426. TS08 SU2302 P19.1
Shape UPL01-OTTMODII; U
Rim, Body; Good
Decoration Scrape marks on outside.
Diam. 200 mm; External; Rim thickness 6 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 7.5YR 4/6; 7.5YR 4/6; 7.5YR 4/6
Inclusions Abundant; Tiny, Small; Rounded; Light brown
Sparse; Small, Medium; Rounded; Dark brown

Pottery catalogue: TCP391, TCP393–404 (drawings: Jean Humbert; photo: Chris Parks)

TCP405

TCP406

TCP408

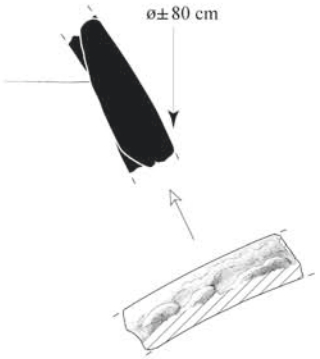
TCP409

TCP407

TCP410

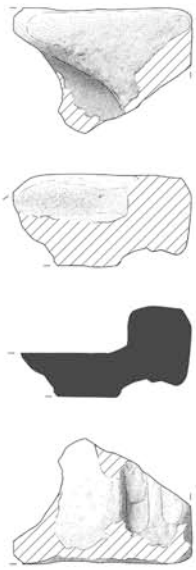
TCP411

TCP412



TCP414

TCP413



TCP415

TCP416

TCP417

0 20 cm

TCP405 TIP0427. TS08 SU2302 P24.1
Shape Tia-MM; CW
Rim; Medium
Decoration Rounded bump/knob on rim exterior.
Thickness 6.5 mm
Fabric Ferrous; Medium; Hard; Medium; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Common; Small, Medium; Rounded; Dark brown
Sparse; Small, Medium; Rounded; Red/brown

TCP406 TIP0428. TS08 SU2302 P26.1
Shape Uja-MEDUIII; U
Rim, neck; Good
Decoration Small knob, sloppily applied on rim, with another probably just starting on break-line (<20 mm apart).
Diam. 140 mm; External; Rim thickness 5.5 mm
Fabric Ferrous; Coarse; Medium; Medium; Good
Munsell: 5YR 5/4; 2.5YR 5/6
Inclusions Abundant; Tiny, Small; Rounded; White/light brown

TCP407 TIP0394. TS08 SU2303 P05.1
Shape ID02A-MEDUIII; LU
Shoulder; Good
Decoration Sharply incised pendant obliques with elongated dots.
Thickness 5.25 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/8; 5YR 5/8; 5YR 4/6
Inclusions Common; Tiny, Small, Medium; Sub-Rounded, Rounded; White
Common; Small, Medium; Sub-Rounded; Brown

TCP408 TIP0396. TS08 SU2304 P01.1
Shape ULSJ01-OTTMODI; U
Shoulder, Spout; Medium
Diam. (spout) 20 mm; External; Other thickness 7 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 5YR 5/8; 5YR 5/8; 5YR 5/8
Inclusions Common; Small; Rounded; Light red/white
Common; Small, Medium, Large; Rounded; Brown
Comments Wheelmade.

TCP409 TIP0389. TS08 SU2305 P16.1
Shape Tta-MOD; CW
Rim, Body; Medium
Diam. 280 mm; External; Rim Thickness 8.5 mm
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny, Small; Rounded; Brown & white
Comments Just on the transition between Ttavas & Tianistra

TCP410 TIP0414. TS05 SU2602 P03.1
Shape HUR31-HR; HU
Rim; Medium
Thickness 9.3 mm
Fabric Mixed; Medium; Medium; Gritty; Poor
Munsell: 10YR 8/2; 10YR 8/2; 2.5YR 6/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Sparse; Large; Sub-Rounded; Dark red
Red inclusions are black on the surface.

TCP411 TIP0406. TS05 SU2604 P19.1
Shape HU01-RM; HU
Rim; Medium
Diam. 50 mm; External; Rim thickness 19.9 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 7.5YR 5/4
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Abundant; Tiny, Small, Medium; Sub-Rounded; Black
Rare; Large; Angular; Grits
Comments Probably from same vessel as TCP412, but not joining

TCP412 TIP0409. TS05 SU2604 P19.1
Shape HU01-RM; HU
Base; Good
Diam. 250 mm; External; Base Thickness 17.5 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 7.5YR 6/4; 7.5YR 6/4; 2.5Y 6/3
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Abundant; Tiny, Small, Medium; Sub-Rounded; Black
Rare; Large; Angular; Grits
Comments Probably from same vessel as TCP411, but not joining. Black speckled appearance fabric same as TCP411, TCP414–16.

TCP413 TIP0407. TS05 SU2604 P21.1
Shape Pit12a-HIS; HU
Rim; Medium
Thickness 17 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Small, Medium, Large; Rounded; Dark brown
Abundant; Small, Medium, Large; Sub-Rounded; Dark brown
Sparse; Small, Medium; Rounded; White
Sparse; Small, Medium; Sub-Rounded; White
Sparse; Medium, Large; Rounded; Light brown
Comments Pithos rim, thickened & rounded on outside.

TCP414 TIP0408. TS05 SU2604 P22.1
Shape HUR30-RM; HU
Rim; Good
Decoration Black speckled appearance.
Diam. 56 mm; External; Rim thickness 19.1 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 4/6; 5YR 4/6; 5YR 4/6
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Abundant; Tiny, Small, Medium; Sub-Rounded; Black
Rare; Large; Angular; Grits
Comments Handmade. Same fabric as TCP411–12, TCP416–15.

TCP415 TIP0411. TS05 SU2604 P25.2
Shape TiP-HR; Ar
Rim; Medium
Decoration Black speckled appearance. Finger-made depression in lower corner, rounded corner.
Thickness 20.4 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/4; 5YR 5/4; 5YR 5/4
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Abundant; Tiny, Small, Medium; Sub-Rounded; Black
Rare; Large; Angular; Grits
Comments Same as TCP416. Same fabric as TCP411, TCP414, TCP412, TCP416.

TCP416 TIP0410. TS05 SU2604 P25.1
Shape TiP-HR; Ar
Rim; Medium
Thickness 17.5 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Abundant; Tiny, Small, Medium; Sub-Rounded; Black
Rare; Large; Angular; Grits
Comments Black speckled appearance. Fabric is the same as TCP411–12, TCP414, TCP418.

TCP417 TIP0412. TS05 SU2604 P27.1
Shape TiP-HR; Ar
Rim; Medium
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Abundant; Tiny, Small, Medium; Sub-Rounded; Red
Rare; Large; Angular; Grits
Comments Fabric is similar to TCP053 – a matter of firing stages?

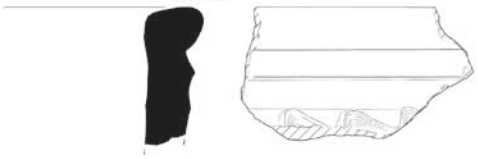
Pottery catalogue: TCP405–TCP417 (drawings: Jean Humbert)

TCP418

TCP422

TCP420

ø 74 cm



TCP421

TCP419

0 20 cm

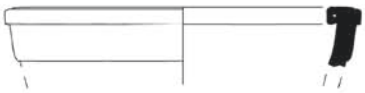
ø ± 50 cm

TCP423

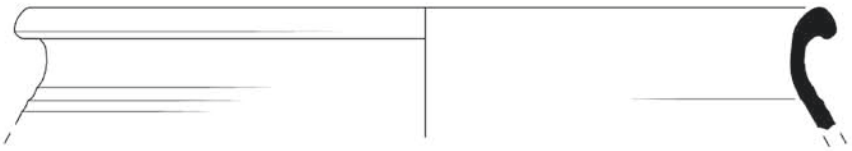
TCP431

TCP426

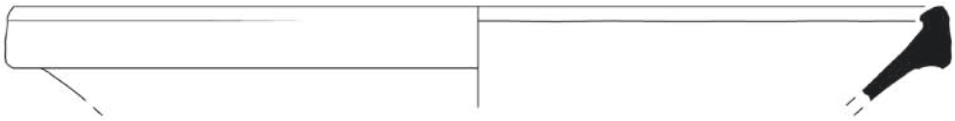
TCP424



TCP427

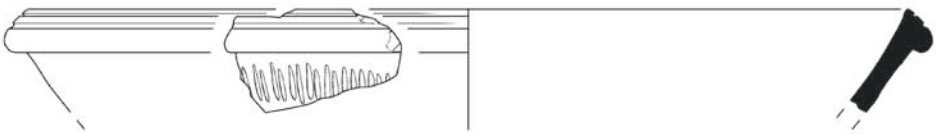


TCP428



TCP429

TCP425



TCP430

Terra Sigillata

TCP432

0 10 cm

TCP418 TIP0456. TS05 SU2604 P31.1
Shape AmSk03-ROM; Tr
Rim; Medium
Thickness 6.7 mm
Fabric Self Slip; Medium; Medium; Medium; Poor
Munsell: 7.5YR 8/2; 5YR 7/6; 5YR 6/6
Inclusions Common; Small, Medium, Large; Sub-Rounded; Reddish-black
Rare; Large; Sub-Rounded; Red
Sparse; Small; Sub-Rounded; White

TCP419 TIP0441. TS05 SU2605 P04.1
Shape TiP-HR; Ar
Rim; Good
Thickness 1.5 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Grey
Sparse; Small, Medium; Sub-Rounded; Reddish-brown

TCP420 TIP0444. TS05 SU2605 P06.1
Shape TiSkC03-LR; Ar
Rim; Good. Thickness 11.6 mm
Fabric Ferrous; Munsell: 7.5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Abundant; Tiny, Small, Medium; Sub-Rounded; Black
Rare; Large; Angular; Black & white grits

TCP421 TIP0445. TS05 SU2605 P14.1
Shape Pit23-HR; HU
Rim; Good
Diam. 55 mm; External; Rim thickness 23.7 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 7.5YR 5/4; 7.5YR 5/4; 7.5YR 5/4
Inclusions Abundant; Tiny; Sub-Rounded; Greyish-black
Common; Small, Medium, Large; Sub-Rounded; Grey

TCP422 TIP0446. TS05 SU2605 P15.1
Shape Pit14-HR; HU
Rim; Medium
Diam. 275 mm; External; Rim thickness 13.7 mm
Fabric Ferrous; Coarse; Medium; Gritty, Poor
Munsell: 7.5YR 5/4; 7.5YR 5/4; 10YR 6/4
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Common; Small; Angular; Black
Sparse; Small, Medium; Sub-Rounded; Black/white grit

TCP423 TIP0447. TS05 SU2605 P20.1
Shape HUR24-LR; HU
Rim; Poor
Thickness 12.8 mm
Fabric Self Slip; Medium; Medium; Gritty; Poor
Munsell: 2.5Y 8/2; 2.5Y 8/2; 5YR 6/4
Inclusions Common; Tiny; Sub-Rounded; Yellowish
Rare; Large; Rounded; White
Sparse; Small, Medium, Large; Sub-Rounded; Yellowish
Limestone

TCP424 TIP0594. TS05 SU2605 P33.1
Shape HUC-RM; HU
Body; Poor
Decoration Straight combed lines.
Thickness 7.4 mm
Fabric Mixed; Medium; Medium; Gritty; Medium
Munsell: 7.5YR 7/6
Inclusions Common; Tiny, Small; Sub-Rounded; Black
Common; Tiny; Sub-Rounded; Red
Sparse; Small, Medium; Angular; White
Limestone; Organic; Many.
Comments Misfired.

TCP425 TIP0595. TS05 SU2605 P33.2
Shape HUC-RM; HU
Body; Good
Decoration Straight combed lines.
Thickness 10.1 mm
Fabric Mixed; Medium; Medium; Gritty; Medium
Munsell: 7.5YR 7/6
Inclusions Common; Tiny, Small; Sub-Rounded; Black
Common; Tiny; Sub-Rounded; Red
Sparse; Small, Medium; Angular; White
Limestone; Organic; Many
Comments Fabric & form similar to TCP424.

TCP426 TIP0448. TS05 SU2605 P47.1
Shape CWCR02b-ROM; CW
Rim; Good
Thickness 4.1 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Common; Tiny; Sub-Rounded; White
Rare; Large; Sub-Rounded; Yellow
Sparse; Small; Sub-Rounded; Grey

TCP427 TIP0449. TS05 SU2605 P48.1
Shape CWJ04-HR; CW
Rim; Poor
Thickness 5.7 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 5YR 5/2; 2.5YR 5/6; 5YR 3/1
Inclusions Common; Small; Sub-Rounded; Grits
Common; Small; Sub-Rounded; Quartz; Reflective
Comments Fabric related to TCP320.

TCP428 TIP0450. TS05 SU2605 P50.1
Shape CWPR15-HR; CW
Rim; Medium
Thickness 4.5 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 2.5YR 4/1; 2.5YR 5/6; 2.5YR 5/6
Inclusions Common; Small; Sub-Rounded; Grits
Common; Small; Sub-Rounded; Quartz; Reflective
Comments Fabric related to TCP320.

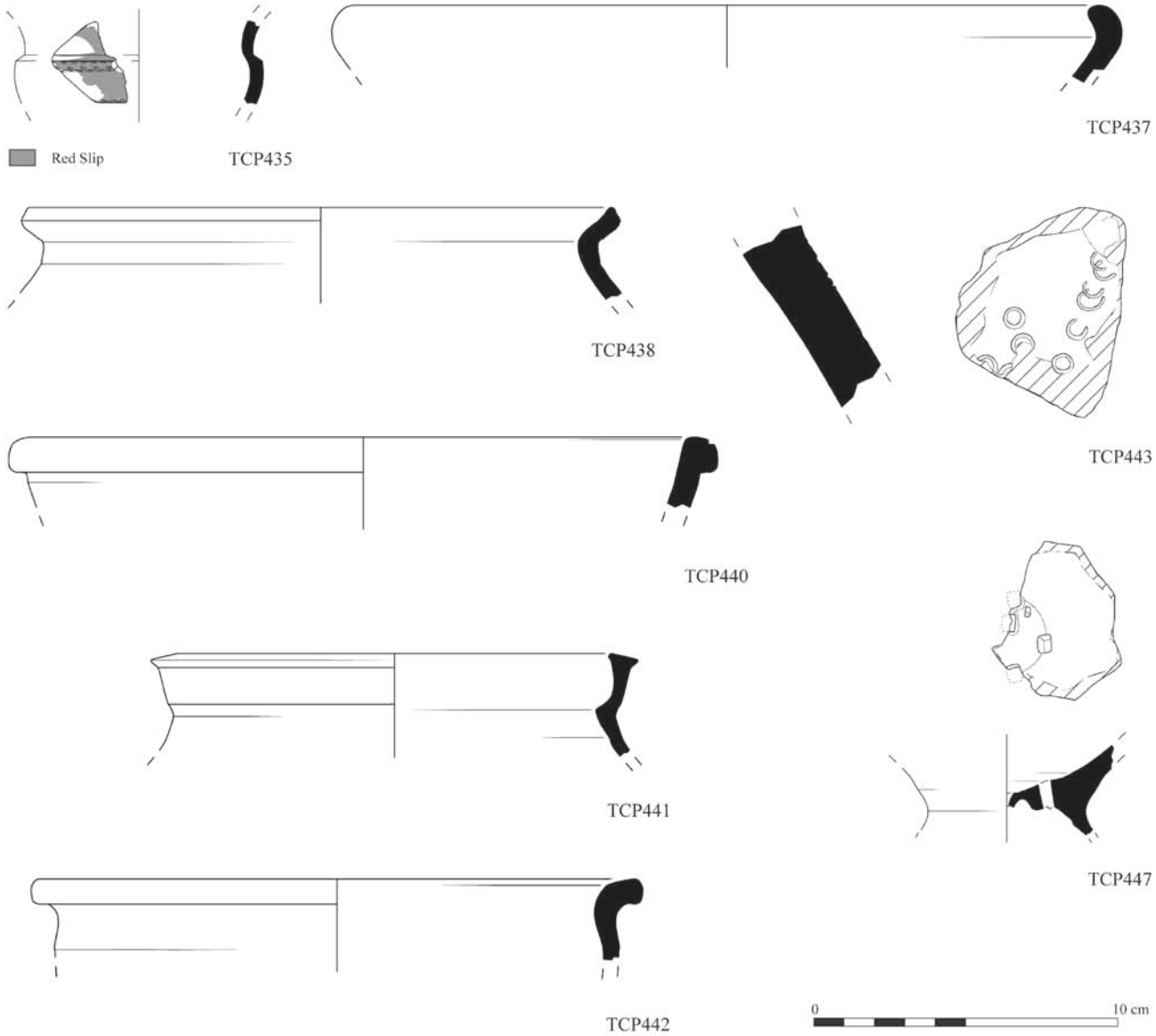
TCP429 TIP0451. TS05 SU2605 P53.1
Shape LRC03-LR; TW
Rim; Medium
Thickness 3.4 mm
Fabric Ferrous; Fine; Medium; Medium; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Sparse; Small; Sub-Rounded; Yellowish. Limestone

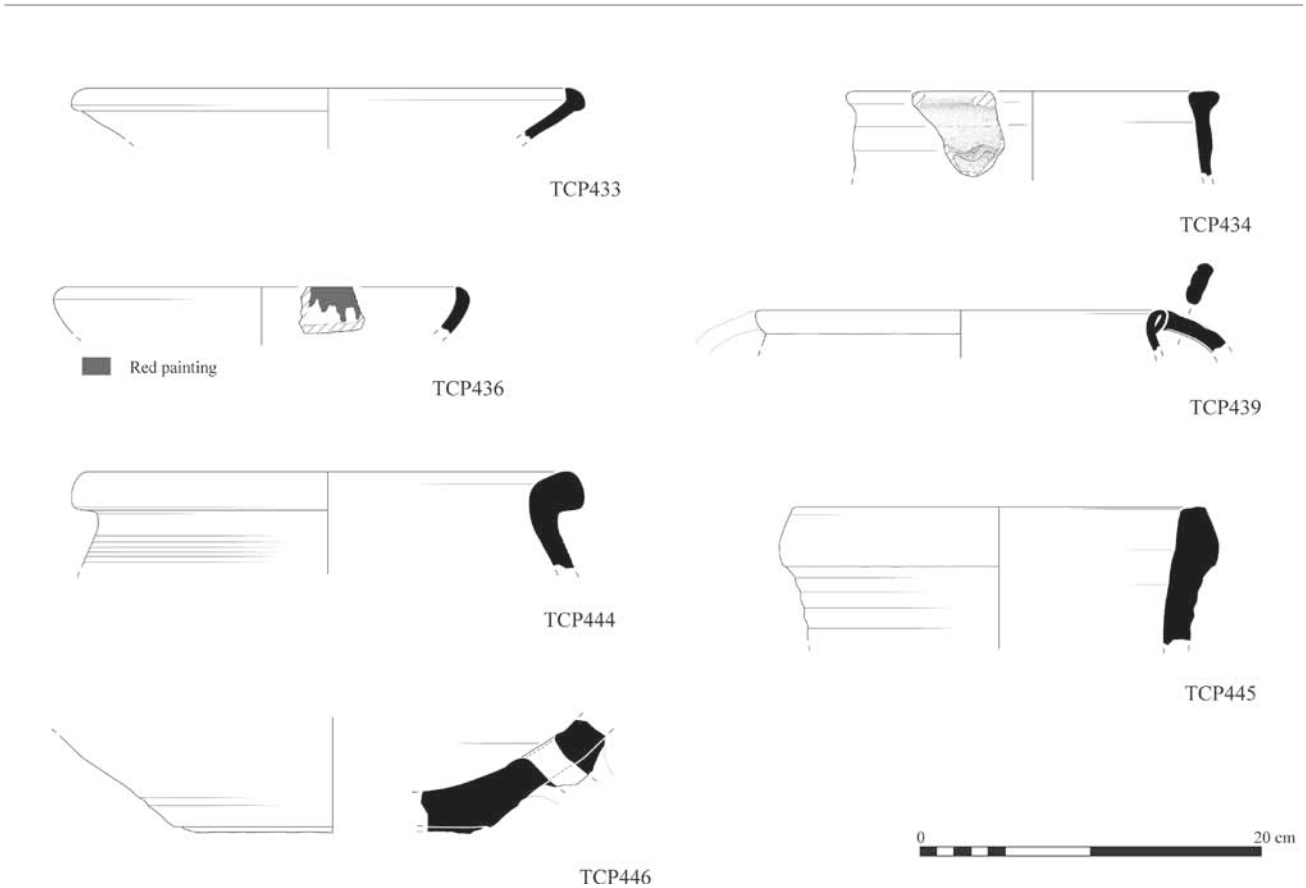
TCP430 TIP0452. TS05 SU2605 P55.1
Shape CRS09-LR; TW
Rim; Medium
Thickness 5 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish

TCP431 TIP0453. TS05 SU2605 P57.1
Shape CS11-ER; TW
Rim; Medium
Thickness 6.4 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish

TCP432 TIP0454. TS05 SU2605 P58.1
Shape CS29-ER; TW
Rim; Medium
Thickness 4.2 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 7/4; 5YR 7/4; 5YR 7/4
Inclusions Common; Tiny; Sub-Rounded; Yellowish

Pottery catalogue: TCP418–TCP432 (drawings: Jean Humbert; photos: Chris Parks)


Red Slip
TCP435
TCP437
TCP438
TCP443
TCP440
TCP441
TCP447
TCP442
0
10 cm


TCP433
TCP434
Red painting
TCP436
TCP439
TCP444
TCP445
TCP446
0
20 cm

TCP433 TIP0455. TS05 SU2605 P62.1
Shape CRS09X-LR; TW
Rim; Medium
Thickness 5.2 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 10YR 7/3; 10YR 7/3; 10YR 7/3
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish

TCP434 TIP0468. TS05 SU2606 P06.1
Shape LUR13-LR; LU
Rim; Medium
Thickness 5.7 mm
Fabric Self Slip; Medium; Medium; Gritty; Medium
Munsell: 2.5Y 8/3; 2.5Y 8/3; 5YR 7/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Sparse; Small; Sub-Rounded; Black

TCP435 TIP0483. TS05 TT502000E SU2619 P07.1
Shape CS18A-LHER; TW
Body; Good
Thickness 3.8 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish

TCP436 TIP0500. TS05 SU2632 P08.1
Shape CS12-ER; TW
Rim; Medium
Diam. 250 mm; Internal; Rim thickness 7 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish

TCP437 TIP0501. TS05 SU2632 P09.1
Shape CS12-ER; TW
Rim; Medium
Diam. 260 mm; External; Rim
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand

TCP438 TIP0502. TS05 SU2632 P10.1
Shape CS-LHER; TW
Rim; Medium
Diam. 220 mm; External; Rim thickness 7.1 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand

TCP439 TIP0503. TS05 SU2632 P16.1
Shape CWPR13-LR; CW
Rim; Medium
Diam. 240 mm; External; Rim thickness 4.4 mm
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 7.5YR 6/6; 7.5YR 4/1; 7.5YR 4/1
Inclusions Abundant; Tiny; Sub-Rounded; Whiteish
Common; Tiny; Sub-Rounded; Beige
Limestone; Common

TCP440 TIP0504. TS05 SU2632 P20.1
Shape CWPR16a-HR; CW
Rim; Good
Diam. 255 mm; External; Rim thickness 5.1 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5YR 5/4; 5YR 5/4; 5YR 5/4
Inclusions Abundant; Tiny; Angular; Grey
Sparse; Small; Angular; White
Limestone; Common

TCP441 TIP0505. TS05 SU2632 P21.1
Shape CWPR04b-ER; CW
Rim; Medium
Diam. 172 mm; External; Rim thickness 4.1 mm
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 5YR 5/4; 5YR 5/4; 5YR 5/4
Inclusions Common; Small, Medium; Sub-Rounded; Black
Common; Tiny, Small, Medium; Sub-Rounded; White

TCP442 TIP0700. TS05 SU2632 P23
Shape CWCR01-LR; CW
Rim; Good
Diam. 210 mm; External; Rim thickness 5.6 mm
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 5YR 5/4; 5YR 5/4; 5YR 5/4
Inclusions Common; Tiny, Small; Sub-Rounded; Milky white; Reflective
Limestone; Common

TCP443 TIP0514. TS05 SU2632 P27.1
Shape UL01-MEDUI; U
Body; Poor
Thickness 16 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 7.5YR 5/4; 7.5YR 5/4; 7.5YR 3/2
Inclusions Abundant; Small, Medium; Rounded; Light brown
Abundant; Small, Medium; Rounded; Dark brown
Abundant; Small, Medium; Sub-Rounded; Light and dark brown

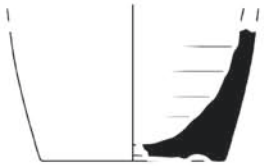
TCP444 TIP0506. TS05 SU2632 P34.1
Shape HUR02-HR; HU
Rim; Medium
Decoration Soft ribbing on shoulder.
Diam. 310 mm; External; Rim thickness 10.5 mm
Fabric Mixed; Medium; Medium; Medium; Poor
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Abundant; Tiny, Small; Rounded; White oolites
Common; Small, Medium, Large; Rounded; Black
Sparse; Small, Medium; Sub-Rounded; Red
Comments Thick interior lime accretions up to rim.

TCP445 TIP0508. TS05 SU2632 P38.1
Shape HUR23-HR; HU
Rim; Medium
Diam. 300 mm; External; Rim thickness 15.2 mm
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Sparse; Small, Medium; Angular; Black
Limestone; Organic; Elongated

TCP446 TIP0509. TS05 SU2632 P45.1
Shape HUB02-HR; HU
Base; Poor
Thickness 17.8 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Greyish
Common; Small, Medium; Sub-Rounded; Grits

TCP447 TIP0510. TS05 SU2633 P02.1
Shape SigW-ER; TW
Base; Medium
Diam. 80 mm; External; Base
Fabric Ferrous; Fine; Soft; Medium; Medium
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand
Rare; Small; Sub-Rounded; Yellowish
Comments Bright orange fabric similar to TCP168 & TCP345. Relatively thick slip.
Comparanda Jugs with strainer in neck in coarse ware from Anemurium (Williams 1989, 85–86, fig. 51)

Pottery catalogue: TCP433–TCP447 (drawings: Jean Humbert)



TCP448

Terra Sigillata

TCP452

TCP461

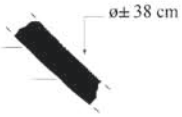
0 10 cm

TCP449

TCP450

TCP453

TCP454

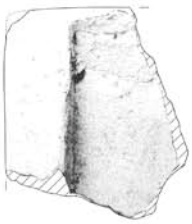


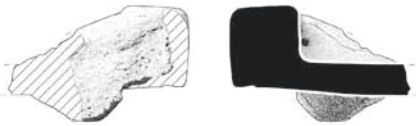
TCP451

TCP455

TCP456

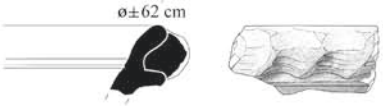
TCP457





TCP458

TCP459



TCP462

TCP460

0 20 cm

TCP448 TIP0511. TS05 SU2633 P03.1
Shape CS58-ER; TW
Base; Poor
Diam. 5.5 mm; External; Base thickness 3.6 mm
Fabric Mixed; Fine; Soft; Smooth; Medium
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Rare; Tiny; Rounded; Red & yellowish-white
Sparse; Tiny; Sub-Rounded; Greyish-yellow

TCP449 TIP0512. TS05 SU2633 P04.1
Shape LUB02-HR; LU
Base; Medium
Diam. 125 mm; External; Base thickness 5.8 mm
Fabric Self Slip; Medium; Soft; Medium; Medium
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Sparse; Small; Rounded; Red
Sparse; Small; Angular; White

TCP450 TIP0513. TS05 SU2633 P06.1
Shape Sig-LHER; TW
Rim; Medium. Thickness 3.2 mm
Fabric Ferrous; Fine; Soft; Smooth; Medium
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand
Rare; Small; Sub-Rounded; Halos
Unknown; Elongated
Comparanda Similar to Chandarli form L6 (Hayes 1985: Tab. XVII) of 1st c. AD, but no mica. Fabric appears to be finer version of Phocaean Red Slip ware (LRC).

TCP451 TIP0515. TS05 SU2634 P12
Shape HUC-RM; HU
Body; Good
Decoration Two bands of five-tooth comb with zig-zagging band between
Thickness 13.5 mm
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Greyish
Common; Small, Medium; Sub-Rounded; Grits
Comments Local tile fabric.

TCP452 TIP0532. TS05 SU2635 P01.1
Shape ESB09-ER; TW
Rim; Good
Diam. 10 mm; External; Rim thickness 2.8 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand

TCP453 TIP0543. TS05 SU2635 P04.1
Shape CS20-LH; TW
Rim; Medium
Diam. 210 mm; External; Rim thickness 5.4 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand

TCP454 TIP0544. TS05 SU2635 P05.1
Shape CS29-ER; TW
Diam. 180 mm; External; Rim thickness 4.6 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand
Unknown; Common

TCP455 TIP0545. TS05 SU2635 P06
Shape CS11-ER; TW
Rim; Medium
Diam. 250 mm; External; Rim thickness 6.4 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand

TCP456 TIP0546. TS05 SU2635 P07.1
Shape CS12-ER; TW
Rim; Medium
Diam. 180 mm; External; Rim thickness 6.8 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand

TCP457 TIP0547. TS05 SU2635 P11.1
Shape CWPR04a-ER; CW
Rim, Handle; Good
Diam. 16 mm; External; Rim thickness 6 mm
Fabric Ferrous; Medium; Medium; Smooth; Good
Munsell: 2.5YR 4/6
Inclusions Common; Small, Medium; Sub-Rounded; Whitish
Sparse; Tiny; Rounded; Orange
Sparse; Tiny, Small; Angular; Black. Limestone

TCP458 TIP0548. TS05 SU2635 P25.1
Shape Ti-HR; Ar
Rim; Good
Thickness 15 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 4/6
Inclusions Abundant; Tiny, Small; Sub-Rounded; Whitish
Common; Small, Medium, Large; Sub-Rounded; Yellowish
Common; Small, Medium; Angular; Black. Limestone; some

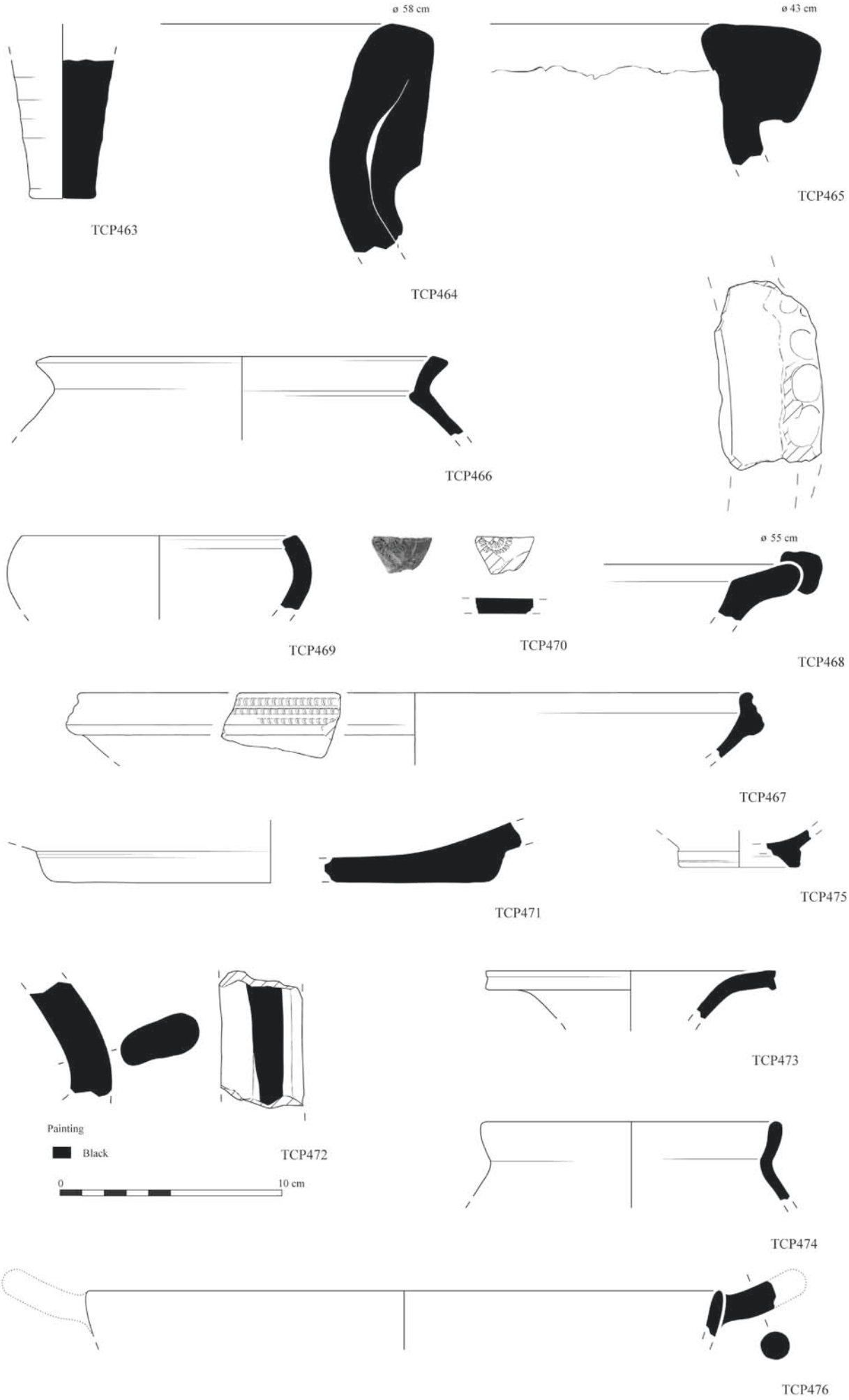
TCP459 TIP0549. TS05 SU2637 P01.1
Shape HUR24-LR; HU
Rim; Medium
Diam. 420 mm; External; Rim thickness 10 mm
Fabric Self Slip; Medium; Medium; Medium; Good
Munsell: 2.5YR 7/4; 2.5YR 7/4; 7.5YR 6/3
Inclusions Abundant; Tiny, Small, Medium; Rounded; Black
Organic; Narrow, common

TCP460 TIP0550. TS05 SU2639 P01.1
Shape Pit15-RM; HU
Rim; Medium
Decoration Incised rim.
Thickness 15 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 2.5YR 4/6
Inclusions Common; Tiny, Small; Rounded; White
Common; Small, Medium, Large; Sub-Rounded; Black
Sparse; Small, Medium; Angular; Red
Organic; Also limestone; some, small

TCP461 TIP0551. TS05 SU2639 P02.1
Shape Am07-HR; Tr
Rim; Good
Diam. 7 mm; External; Rim Thickness 7.6 mm
Fabric Ferrous; Medium; Medium; Medium; Poor
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Small, Medium, Large; Sub-Rounded; Reddish-black
Common; Tiny; Sub-Rounded; White

TCP462 TIP0507. TS05 SU2639 P11.1
Shape HUR24-LR; HU
Rim; Medium
Diam. 50 mm; External; Rim thickness 12.2 mm
Fabric Self Slip; Coarse; Medium; Gritty; Poor
Munsell: 7.5YR 7/4; 7.5YR 7/4; 7.5YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Common; Tiny, Small, Medium; Angular; Black
Sparse; Small, Medium; Rounded; Red
Limestone; Organic; Common

Pottery catalogue: TCP448–TCP462 (drawings: Jean Humbert)


ø 58 cm
ø 43 cm
TCP463
TCP464
TCP465
TCP466
TCP469
TCP470
ø 55 cm
TCP468
TCP467
TCP471
TCP475
TCP473
Painting
Black
0
10 cm
TCP472
TCP474
TCP476

TCP463 TIP0557. TS05 SU2641 P02.1
Shape Ug-HEL; PO
Base; Good
Diam. 28 mm; External; Base
Fabric Self Slip; Medium; Medium; Medium; Good
Munsell: 2.5YR 8/3; 5YR 5/6
Inclusions Common; Tiny; Rounded; Black
Sparse; Small; Sub-Rounded; Red & greyish-black
Organic; Some

TCP464 TIP0558. TS05 SU2641 P14.1
Shape Pit16-HR; HU
Rim; Good
Diam. 400 mm; Internal; Rim thickness 23 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 4/6
Inclusions Abundant; Tiny; Sub-Rounded; Greyish-white
Common; Small; Sub-Rounded; Grey
Sparse; Large; Angular; Dark brown

TCP465 TIP0559. TS05 SU2641 P15.1
Shape Pit17-HR; HU
Rim; Good
Diam. 420 mm; Internal; Rim thickness 14.5 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 5YR 4/6
Inclusions Common; Medium; Rounded; Brownish
Common; Medium; Sub-Rounded; Brownish
Common; Small; Sub-Rounded; Yellowish-white
Rare; Large; Rounded; Dark brown
Organic; Various sizes

TCP466 TIP0561. TS05 SU2642 P08.1
Shape CWPR04c-ER; CW
Rim; Good
Diam. 160 mm; Internal; Rim thickness 6.6 mm
Fabric Ferrous; Medium; Hard; Gritty; Good
Munsell: 2.5YR 4/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish-white
Sparse; Medium; Sub-Rounded; Orange yellow

TCP467 TIP0555. TS05 SU2643 P02.1
Shape LRC03D-LR; TW
Rim; Medium
Diam. 250 mm; External; Rim thickness 4.3 mm
Fabric Ferrous; Medium; Hard; Medium; Good
Munsell: 5YR 7/8; 5YR 7/8; 5YR 7/8
Inclusions Abundant; Small; Sub-Rounded; Yellowish sand
Comments Fabric appears to be similar to TCP166 & TCP603. Possible imitations?

TCP468 TIP0556. TS05 SU2643 P06.1
Shape HUR01b-LR; HU
Rim; Medium
Thickness 15 mm
Fabric Ferrous; Coarse; Hard; Gritty; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 6/8
Inclusions Abundant; Tiny; Sub-Rounded; White
Common; Tiny; Rounded; Yellowish-white; Reflective
Common; Medium; Angular; Black
Organic; Some

TCP469 TIP0554. TS05 SU2646 P03.1
Shape LUBW-OTTMODII; LU
Rim, Body; Medium
Decoration Smoothed. Small groove near rim on interior.
Diam. 110 mm; External; Rim thickness 8.5 mm
Fabric Ferrous; Medium; Hard; Gritty; Good
Munsell: 2.5YR 5/3; 2.5YR 4/6; 2.5YR 4/6
Inclusions Common; Tiny; Rounded; Black & white
Rare; Tiny; Rounded; Orange
Organic; Few

TCP470 TIP0568. TS05 SU2648 P05.1
Shape LRC-LR; TW
Decoration Stamped decoration.
Thickness 6.5 mm
Fabric Ferrous; Medium; Hard; Medium; Good
Munsell: 7.5YR 7/4; 7.5YR 7/4; 7.5YR 7/4
Inclusions Abundant; Small; Sub-Rounded; Yellowish

TCP471 TIP0580. TS05 SU2654 P13.1
Shape WPC-GAC; HU
Base; Poor
Decoration Smoothed, unfinished surface.
Thickness 11 mm
Fabric Self Slip; Medium; Hard; Gritty; Medium
Munsell: 2.5Y 6/3; 2.5Y 6/3; 2.5Y 6/3
Inclusions Common; Small; Sub-Rounded; Grey; Reflective
Sparse; Medium; Sub-Rounded; Multi
Limestone
Comments Plain White Ware or White Painted Ware.

TCP472 TIP0581. TS05 SU2654 P13.2
Shape WPC-GAC; HU
Handle; Medium
Decoration Stripe of black paint down handle exterior.
Thickness 15 mm
Fabric Self Slip; Medium; Hard; Gritty; Medium
Munsell: 2.5Y 6/3; 2.5Y 6/3
Inclusions Sparse; Tiny; Sub-Rounded; Brown
Sparse; Small; Sub-Rounded; Red; Reflective
Limestone
Comments Typical of Cypriot White Painted Ware.

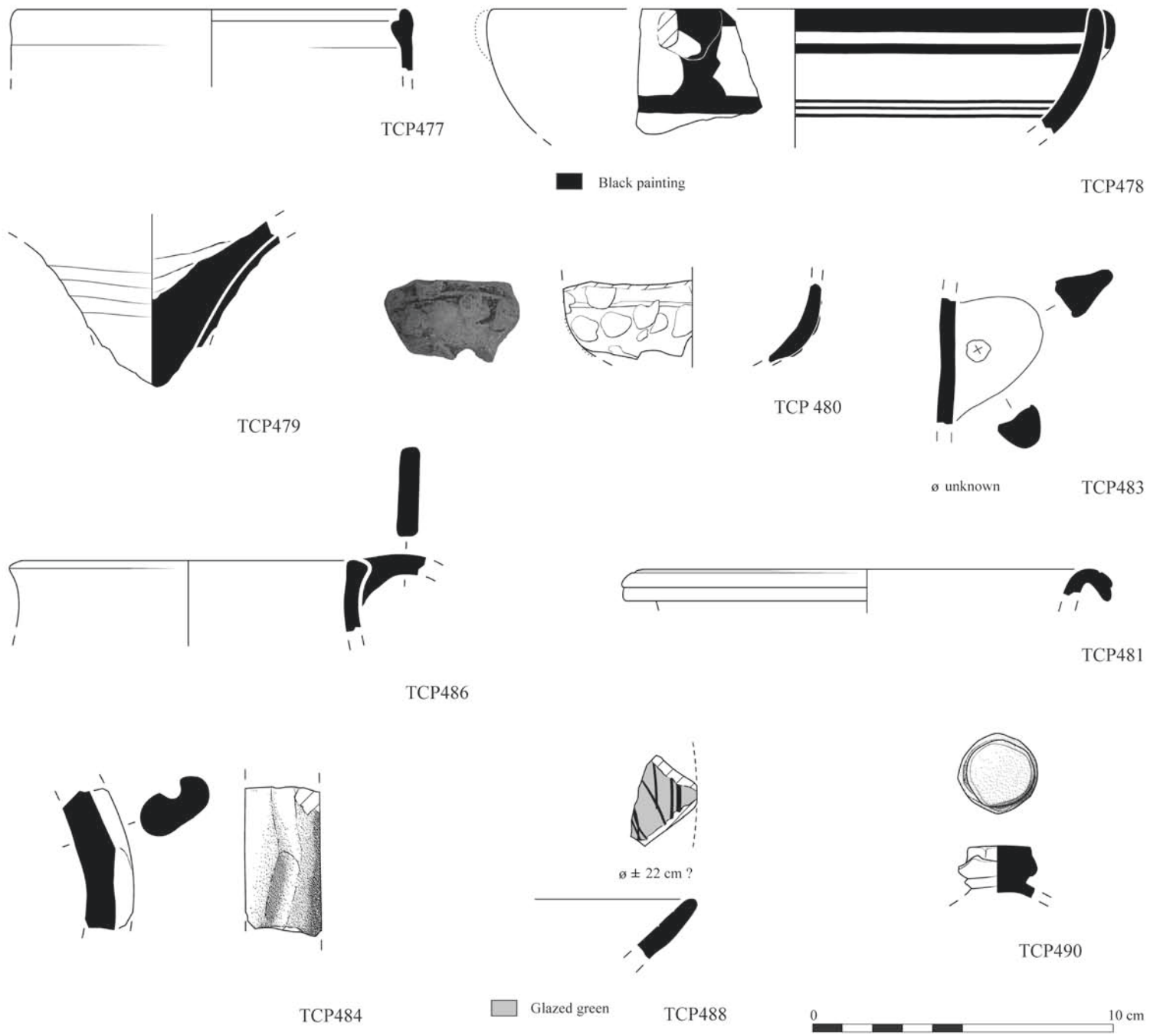
TCP473 TIP0596. TS05 SU2655 P02
Shape BS-HEL; TW
Rim; Medium
Diam. 130 mm; External; Rim thickness 6 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Limestone; Sparse
Comments Fabric similar to TCP135, TCP319 & TCP476.

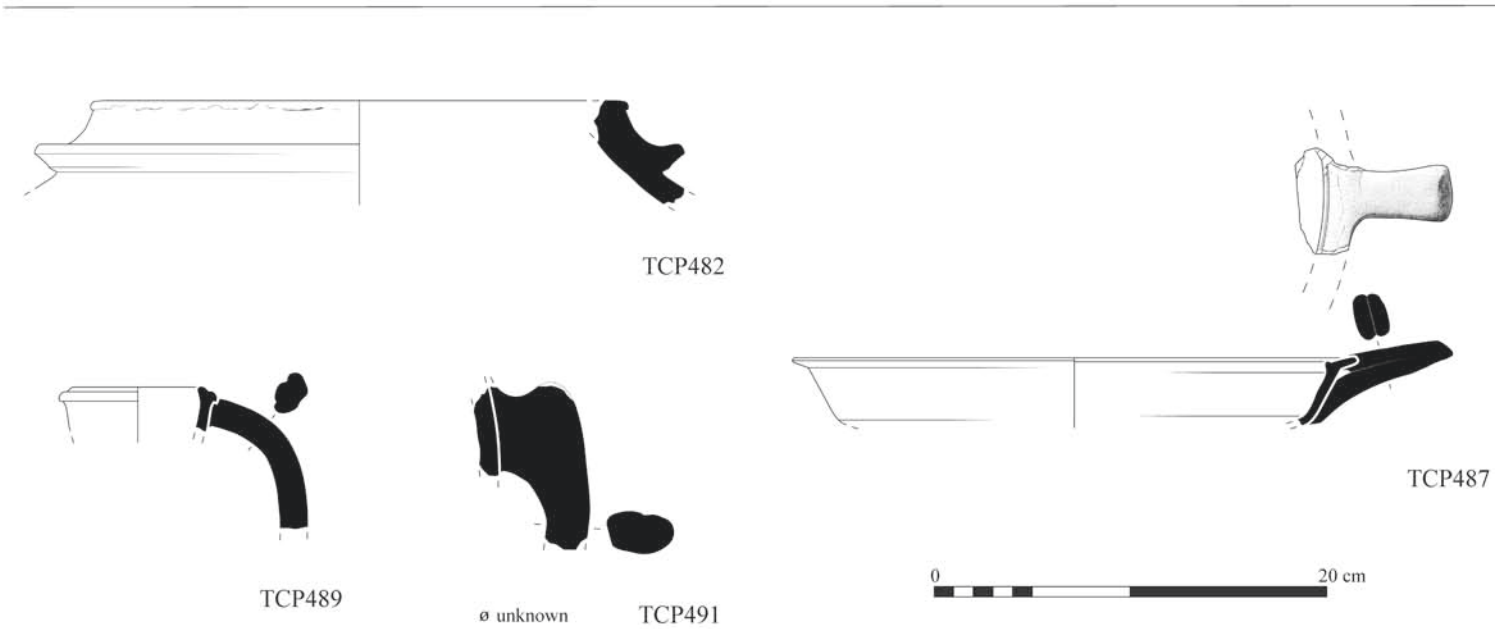
TCP474 TIP0600. TS05 SU2657 P05.1
Shape CWPR10-HEL; CW
Rim; Good
Diam. 170 mm; External; Rim thickness 5.2 mm
Fabric Ferrous; Coarse; Soft; Gritty; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Rounded; Grey (quartz?)

TCP475 TIP0598. TS05 SU2657 P07.2
Shape BS-HEL; TW
Base; Poor
Diam. 52 mm; External; Base thickness 4.1 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 10YR 8/4; 10YR 8/4; 10YR 8/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Rare; Tiny; Sub-Rounded; Red
Comments Very fine clay.

TCP476 TIP0599
TS05 SU2657 P07.3
Shape BS-HEL; TW
Rim, Handle; Medium
Thickness 3.9 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Comments Small cup with loop handles. Vertical or inverted rim? Fabric same as TCP135, TCP319 & TCP473

Pottery catalogue: TCP463–TCP476 (drawings: Jean Humbert; photo: Chris Parks)


TCP477
Black painting
TCP478
TCP479
TCP 480
ø unknown
TCP483
TCP486
TCP481
TCP484
ø ± 22 cm ?
TCP490
Glazed green
TCP488
0
10 cm


TCP482
TCP487
TCP489
ø unknown
TCP491
0
20 cm

TCP477 TIP0597. TS05 SU2657 P07.1
Shape BS-HEL; TW
Rim; Medium
Diam. 150 mm; External; Rim thickness 3 mm
Fabric Mixed; Fine; Soft; Smooth; Medium
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand
Rare; Small; Angular; Black. Limestone; Common

TCP478 TIP0578. TS05 SU2658 P01.1
Shape BORO-GAC; TW
Rim; Medium
Decoration Red slip & burnish. Black manganese painted horizontal bands & handle tail.
Diam. 190 mm; Internal; Rim thickness 6 mm
Fabric Ferrous; Fine; Soft; Medium; Good
Munsell: 2.5YR 6/6; 2.5YR 5/6; 10YR 6/3
Inclusions Sparse; Small; Sub-Rounded; Red; Reflective
Comments Medium-sized hemispherical bowl with lug handle.

TCP479 TIP0589. TS05 SU2658 P02.1
Shape Mav01-HR; Tr
Base; Good
Fabric Self Slip; Medium; Hard; Medium; Good
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Small; Sub-Rounded; Black & grey
Common; Small; Rounded; Reddish-brown
Unknown; Sparse, oblong

TCP480 TIP0590. TS05 SU2658 P08.1
Shape RB-HEL; TW
Body; Poor
Decoration Relief ivy?
Thickness 4 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish sand
Rare; Tiny, Small; Rounded; Black halos

TCP481 TIP0591. TS05 SU2658 P10.1
Shape SigW-ER; TW
Rim; Poor
Diam. 170 mm; External; Rim
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 7/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand
Limestone; Sparse
Comparanda Form similar to Italian Terra Sigillata form XVI dated in the Augustan period (Pucci 1985, 387, tab. CXXIV:2).

TCP482 TIP0588. TS05 SU2659 P01.1
Shape HUR28-LR; HU
Rim; Medium
Diam. 310 mm; External; Rim thickness 11.6 mm
Fabric Self Slip; Medium; Medium; Smooth; Good
Munsell: 7.5YR 8/4; 7.5YR 8/4; 7.5YR 8/4
Inclusions Common; Small, Medium; Sub-Rounded; Reddish-brown
Common; Small, Medium; Rounded; Yellow
Common; Tiny; Angular; White

TCP483 TIP0381. TT497000A SU2901 P01.1
Shape RPO-PeB; LU
Handle; Medium
Thickness 5.5 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/3; 5YR 5/3; 5YR 4/1
Inclusions Abundant; Tiny, Small, Medium; Rounded; Light brown
Comments Pierced ear handle. Shape & finish not seen before.

TCP484 TIP0382. TT497000A SU2901 P02.1
Shape RPS-PeB; LU
Handle; Good
Asymmetrical soft groove along upper face.
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 5YR 5/4; 5YR 5/4; 5YR 5/4
Inclusions Abundant; Tiny, Small; Rounded; White
Comments EBA/MBA Red polished HU ware from large vessel. Section of handle: 24 × 12.5 mm.

TCP485 TIP0722. TT495000E SU3005 P01.1
Shape WS-POB; TW
Body; Poor
Decoration White slip & burnish with elaborate black painting.
Thickness 3 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 10YR 8/1; 10YR 8/1; 2.5YR 4/6
Inclusions Common; Small; Angular; Dark; Reflective
Sparse; Small; Sub-Rounded; Red
Sparse; Medium; Sub-Rounded; White. Limestone
Comments Possibly White Slip Ware?

TCP486 TIP0701. TT495000E SU3010 P02.1
Shape Uja-MEDUI; U
Rim, Handle; Good
Diam. 110 mm; Internal; Rim thickness 5 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 10YR 6/4; 5YR 6/6; 10YR 5/4
Inclusions Abundant; Small, Medium; Rounded; Black
Common; Small, Medium; Rounded; Brown

TCP487 TIP0696. TT496000E SU3018 P01
Shape CWFPWh02-LH; CW
Rim, Handle; Good
Diam. 210 mm; Internal; Rim thickness 3.6 mm
Fabric Ferrous; Coarse; Hard; Medium; Medium
Munsell: 5YR 4/3; 5YR 4/3; 5YR 4/3
Inclusions Abundant; Tiny; Sub-Rounded; Brown lime
Common; Tiny; Sub-Rounded; White

TCP488 TIP0766. TT497000E SU3028 P04
Shape CGS02-MEDB; TW
Rim; Good
Decoration Interior & exterior: white slip & green lead glaze (P370). Interior: incised (and gouged) abstract decoration.
Thickness 5 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Tiny; Rounded; Black/white
Comments Possible Incised Sgraffito ware? 13th c.

TCP489 TIP0688. TT499500E SU3039 P02
Shape CWJ03-ER; CW
Rim, Handle; Medium
Fabric Ferrous; Medium; Soft; Medium; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Reddish-brown lime
Common; Tiny; Sub-Rounded; Quartz
Sparse; Medium; Rounded; Black iron oxide?
Comments Two joining fragments.

TCP490 TIP0689. TT499500E SU3039 P03.1
Shape CWL03-LH; CW
Lid; Good
Diam. 250 mm; External; Rim
Fabric Ferrous; Medium; Medium; Smooth; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Common; Small; Rounded; Milky quartz; Reflective

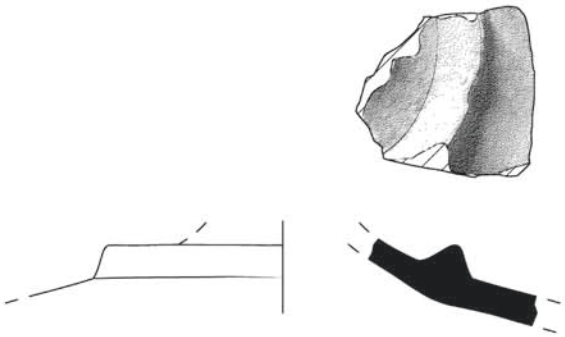
TCP491 TIP0686. TT499500E SU3040 P01.1
Shape Pin-MR; Tr
Handle; Poor
Fabric Self Slip; Medium; Soft; Medium; Medium
Munsell: 7.5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime
Common; Small; Sub-Rounded; Milky quartz
Limestone; Abundant

Pottery catalogue: TCP477–84, TCP486–91 (drawings: Jean Humbert; photo: Chris Parks)

TCP492

TCP493

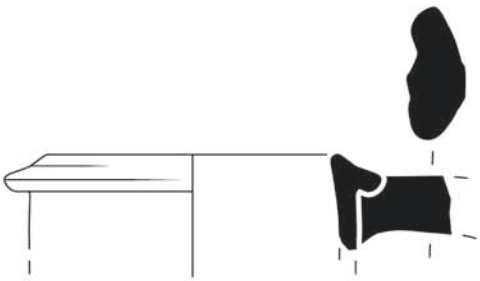
TCP494



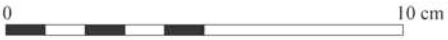
TCP497

TCP499

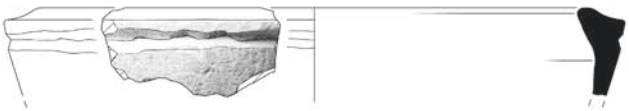
TCP500



TCP501



TCP495



TCP496

TCP502

TCP503

TCP504

TCP505

TCP506

TCP492 TIP0690. TT499500E SU3041 P01.1
Shape BS-HEL; TW
Rim; Medium
Diam. 130 mm; Internal; Rim thickness 4.6 mm
Fabric Mixed; Fine; Soft; Smooth; Medium
Munsell: 7.5YR 7/4; 7.5YR 7/4; 7.5YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime
Limestone; Abundant

TCP493 TIP0691. TT499500E SU3044 P04.1
Shape LUR19-HR; LU
Rim; Poor
Diam. 80 mm; Internal; Rim thickness 4.8 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Brown lime
Common; Tiny; Sub-Rounded; Milky quartz
Limestone; Abundant

TCP494 TIP0759. TT499000E SU3069 P15
Shape UL03-MM; U
Lid; Medium
Decoration Interior: brown, glazed. Exterior: nearly black, glazed.
Thickness 6 mm
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 4/8; 2.5YR 5/6
Inclusions Common; Tiny, Small; Rounded; Red-brown
Sparse; Small, Medium; Rounded; Dark brown
Comments Similar to UL01, but decoration style implies later date

TCP495 TIP0763. TT499000E SU3070 P18
Shape UJa07-OTTMODI; U
Rim; Medium
Diam. 300 mm; External; Rim thickness 10 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 5YR 4/6
Inclusions Common; Small, Medium; Rounded; Dark brown
Common; Small, Medium; Rounded; Red-brown
Sparse; Tiny, Small; Rounded; White
Comments Type found in post-Medieval context, Fabrika Hill, Paphos

TCP496 TIP0765. TT499000E SU3070 P19
Shape ID03-MEDUIII; U
Rim, Body; Medium
Thickness 6 mm
Fabric Ferrous; Coarse; Hard; Gritty;
Munsell: 2.5YR 4/6; 2.5YR 5/6; 5YR 4/6
Inclusions Common; Small, Medium; Rounded; Dark brown
Common; Small, Medium; Rounded; Red-brown
Sparse; Small, Medium; Rounded; Grey

TCP497 TIP0764. TT499000E SU3071 P29
Shape Tta02-MM; U
Shoulder, base of neck; Good
Decoration Surface finish rough on outside below the rim.
Diam. 320 mm; External; Rim thickness 6 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 5/4; 2.5YR 5/4; 2.5YR 4/4
Inclusions Common; Tiny, Small, Medium; Rounded; Red-brown
Common; Small, Medium; Rounded; Grey & dark brown

TCP498 TIP0695. TT499000E SU3072 P05
Shape IDWF-MEDUIII; LU
Body; Medium
Thickness 6 mm
Fabric Self Slip; Fine; Medium; Medium; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/4
Inclusions Sparse; Medium; Rounded; Brown
Comparanda François & Vallauri 2001, 523–46.

TCP499 TIP0694. TT499000E SU3073 P03.1
Shape LRC01B-LR; TW
Rim; Medium
Diam. 210 mm; External; Rim thickness 4.7 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/4; 2.5YR 6/4; 2.5YR 6/4
Inclusions Abundant; Small; Sub-Rounded; Yellowish lime

TCP500 TIP0684. TT499000E SU3074 P05.1
Shape FP-HEL; TW
Rim; Medium
Decoration Fired brownish-red.
Diam. 180 mm; External; Rim thickness 3.8 mm
Fabric Calcareous; Fine; Soft; Smooth; Good
Munsell: 10YR 8/3; 10YR 8/3; 10YR 8/3
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime
Comparanda du Plat Taylor 1980, 185, 144, fig. 17; Salles and Rey 1993, 228–30, fig. 217.

TCP501 TIP0685. TT499000E SU3074 P19.1
Shape CWJ02-ER; CW
Rim, Handle; Medium
Diam. 10 mm; Internal; Rim
Fabric Ferrous; Medium; Soft; Medium; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6
Inclusions Common; Tiny; Sub-Rounded; White
Sparse; Small; Rounded; Quartz; Reflective
Comments High quality of fabric & firing & shape of handle suggest ER date.

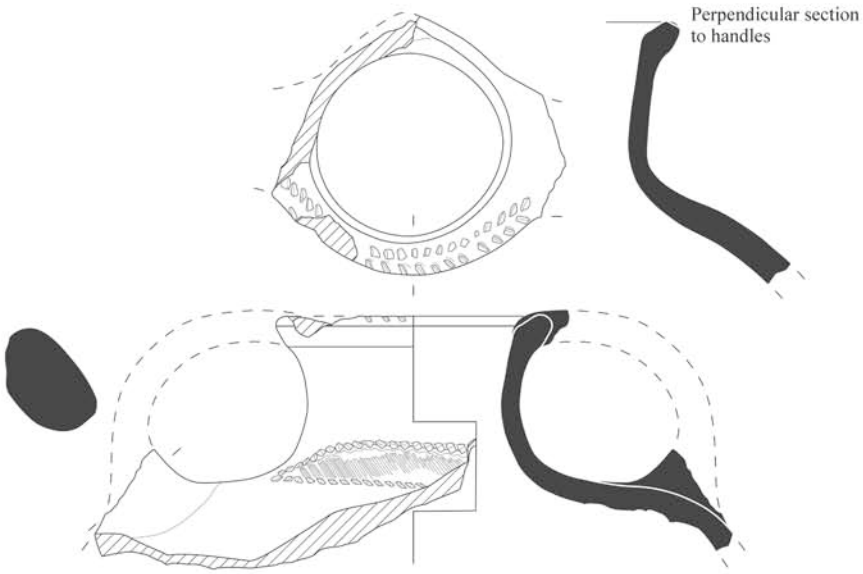
TCP502 TIP0687. TT499000E SU3076 P09.1
Shape CRS-LR; TW
Base; Poor
Diam. 150 mm; Internal; Base thickness 6.7 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 6/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime

TCP503 TIP0692. TT498500E SU3081 P04.1
Shape LUR10-RM; LU
Rim; Medium
Diam. 250 mm; External; Rim thickness 4.4 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 7.5YR 5/4; 5YR 5/6; 5YR 3/1
Inclusions Common; Small; Rounded; White
Sparse; Medium; Rounded; Dark brown

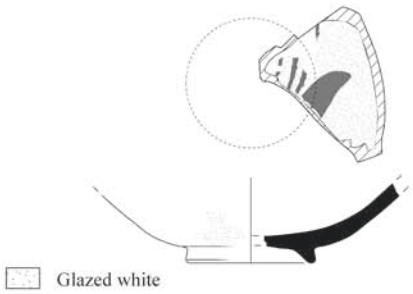
TCP504 TIP0693. TT499500E SU3089 P02.1
Shape CRS02-LR; TW
Rim; Poor
Diam. 220 mm; External; Rim thickness 4.8 mm
Fabric Ferrous; Fine; Soft; Smooth; Good
Munsell: 5YR 7/4; 7.5YR 7/4;
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime

TCP505 TIP0751. TT499000A SU3097 P17.1
Shape Sla-PH; Un
Handle; Medium
Decoration Four deep irregular slashes.
Fabric Ferrous; Medium; Medium; Smooth; Medium
Munsell: 7.5Y 5/4; 5YR 5-4/1
Inclusions Common; Tiny; Sub-Rounded; Greyish-brown
Comments Strap handle.

TCP506 TIP0752. TT499000A SU3098 P05.1
Shape LU-PH; LU
Handle; Good
Decoration Three shallow slashes.
Fabric Ferrous; Medium; Soft; Medium; Medium
Munsell: 7.5YR 6/6; 7.5YR 5/1
Inclusions Common; Small; Sub-Rounded; Red
Sparse; Small; Angular; White lime
Comments Strap handle.



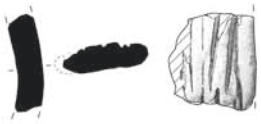
TCP512



Glazed white

Glazed brown

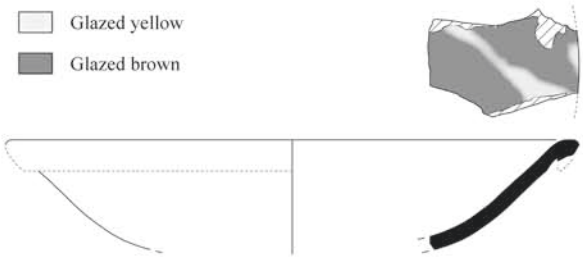
TCP511



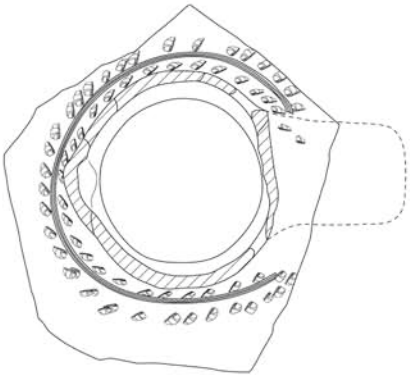
TCP509

Glazed yellow

Glazed brown



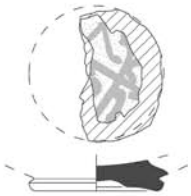
TCP510



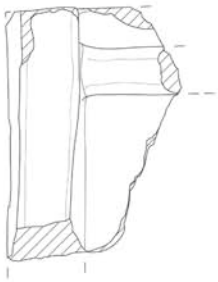
TCP507

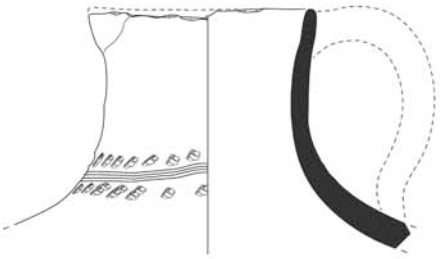
GLAZED:

Green

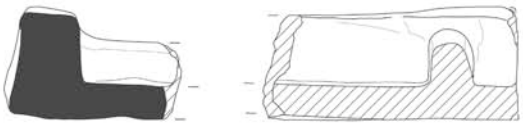


TCP515





TCP513



TCP514

GLAZED:

Black

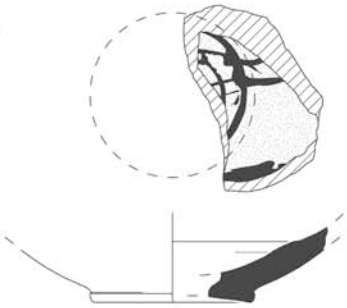
GLAZED:

Black

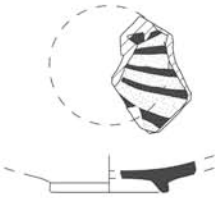
GLAZED:

Green

TCP516



TCP517



TCP518

0 20 cm

TCP507 TIP0753. TT499000A SU3098 P12
Shape LU-PH; LU
Handle; Medium
Decoration One deep slashed groove down exterior centre.
Fabric Ferrous; Medium; Soft; Gritty; Medium
Munsell: 2.5YR 6/8; 7.5YR 4/2
Inclusions Abundant; Tiny; Sub-Rounded; Greyish-brown

TCP508 TIP0755. TT499000A SU3100 P03.1
Shape HU-BA; HU
Body; Good
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 2.5YR 6/6; 10YR 6/4–5YR 6/6; 10YR 4/1
Inclusions Common; Large; Angular; White
Unknown; Common
Comments Surface full of imprints of organic material. White particles: long, thin & flat.

TCP509 TIP0754. TT499000A SU3100 P04.1
Shape Sla-PH; HU
Handle; Good
Decoration Irregular slashes (deep & shallow). Strap handle.
Fabric Ferrous; Medium; Medium; Smooth; Medium
Munsell: 5YR 5/3–4; 10YR 4/1
Inclusions Common; Tiny; Sub-Rounded; Greyish-brown
Unknown; Some elongated. Voids probably lime.

TCP510 TIP0768. TS07 BU0010.SE01 P01
Shape SP02-OTTMODII; TW
Rim; Good
Decoration Interior & exterior: painted with a white slip becoming yellow (2.5Y 6/8); lead glaze (10Y 5/8).
Diam. 200 mm; External; Rim thickness 6 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/6
Inclusions Sparse; Small; Rounded; Black & white
Limestone
Comments Slip-painted ware, Didymoteicho, 19th (or early 20th) c.

TCP511 TIP0769. TS07 BU0010.SE01 P02 (Plate 3.7)
Shape MP02-OTTMODII; TW
Base; Good
Decoration Interior: White slip & transparent lead glaze (5Y 8/3); painted decoration brown (2.5YR 3/1). Exterior: splashes of white slip.
Diam. 80 mm; External; Base thickness 6 mm
Fabric Ferrous; Fine; Medium; Smooth; Medium
Munsell: 5YR 5/6; 2.5YR 5/8; 2.5YR 5/8
Inclusions Rare; Small; Angular; Purple
Rare; Tiny; Rounded; White
Sparse; Small; Angular; Black. Limestone
Comments Monochrome painted ware, Canakkale, 19th c.+

TCP512 TIP0017. TS07 BU0020 P01
Shape UPSJa-MM; U
Rim, Handle, upper Body; Good
Decoration Incised; surface smoothed
Diam. 120 mm; External; Rim thickness 10.5 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 7.5YR 5/4; 7.5YR 5/3; 7.5YR 5/1
Inclusions Common; Small; Sub-Rounded; White
Sparse; Tiny; Sub-Rounded; Black
Sparse; Small; Sub-Rounded; Red
Comments 2 joining fragments; jar with 2 handles & pinched spout

TCP513 TIP0146. TS07 BU0020 P01.1
Shape UPSJa-MM; U
Rim, Handle, upper Body; Good
Decoration Horizontal band incised with three-tooth comb at base of neck; bands of dashes incised with same comb above and below it; smoothed surface.
Diam. 11 mm; External; Rim thickness 14.3 mm
Fabric Ferrous; Coarse; Hard; Medium; Poor
Munsell: 5YR 5/4; 5YR 5/4; 5YR 5/4
Inclusions Common; Small; Sub-Rounded; Whitish
Common; Small; Rounded; Black
Rare; Large; Angular; Greyish-black
Sparse; Medium; Sub-Rounded; Black
Unknown; Few
Comments 2 joining fragments. Complete neck, rim almost gone, pinched spout opposite handle.

TCP514 TIP0018. TS07 BU0020 P05.1
Shape Ti-HR; Ar
Rim; Medium
Thickness 15 mm
Fabric Ferrous; Coarse; Medium; Medium; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Common; Small, Medium; Sub-Rounded; Yellowish-brown
Sparse; Large; Sub-Rounded; Yellowish-brown
Comments Ledge on edge of short side is pushed back 20 mm.

TCP515 TIP0073. TS07 BU0025.SE01 P05.1 (Plate 3.7)
Shape MP01-MedVOtt; TW
Base; Good
Decoration Interior: white slip & painted abstract decoration in green (P392 U) under lead glaze.
Diam. 70 mm; External; Base
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Rare; Tiny; Rounded; Black
Rare; Tiny; Rounded; White
Limestone
Comments Green Painted Ware from Lapithos, 16th c.

TCP516 TIP0124. TS07 BU0025.SE15 P01.1 (Plate 3.7)
Shape MP01-OTTMODII; TW
Rim; Good
Decoration Interior & exterior rim: white slip & transparent lead glaze. Interior: possibly painted lines in pale green (P391 U) under glaze.
Diam. 180 mm; External; Rim thickness 5 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 7/3; 5YR 7/6; 5YR 7/6
Inclusions Common; Tiny; Rounded; White
Sparse; Small; Sub-Rounded; Black
Limestone
Comments Monochrome painted ware from Lapithos. Kouppa?
Comparanda Ionas 1998, 68.

TCP517 TIP0127. TS07 BU0025.SE15 P01.1 (Plate 3.7)
Shape MP01-OTTMODII; TW
Base; Good
Decoration Interior: painted abstract decoration in brown (5YR 3/2) under a transparent lead glaze
Diam. 80 mm; External; Base thickness 11.5 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Common; Tiny; Rounded; White
Sparse; Small; Sub-Rounded; Matt white/purple
Limestone
Comments Monochrome painted ware from Cyprus. OttMod?

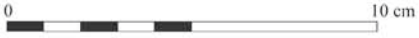
TCP518 TIP0128. TS07 BU0030.SE03 P09.1 (Plate 3.7)
Shape MP02-OTTMODII; TW
Base; Good
Decoration Interior: white slip & painted decoration of stripes in monochrome brown (7.5R 3/1)
Diam. 60 mm; External; Base thickness 5.5 mm
Fabric Ferrous; Fine; Medium; Smooth; Medium
Munsell: 5YR 5/6; 2.5YR 5/8; 2.5YR 5/8
Inclusions Rare; Tiny; Angular; Purple & black
Sparse; Small; Rounded; White
Limestone
Comments Monochrome painted ware, Canakkale, 19th c.+

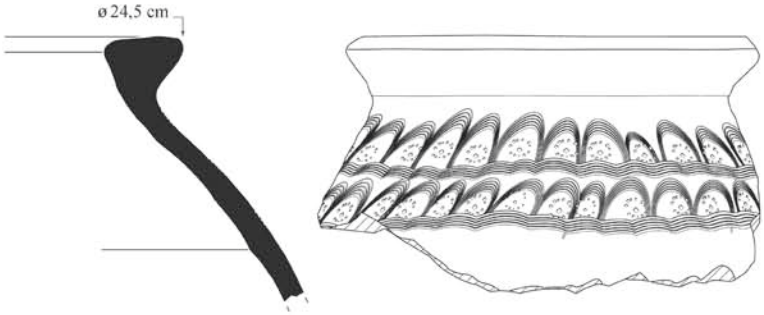
Terra Sigillata

TCP521

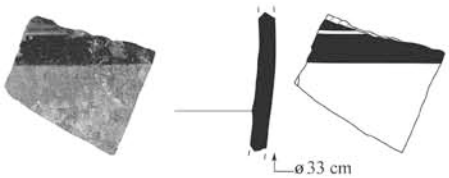
TCP530

TCP528





TCP519

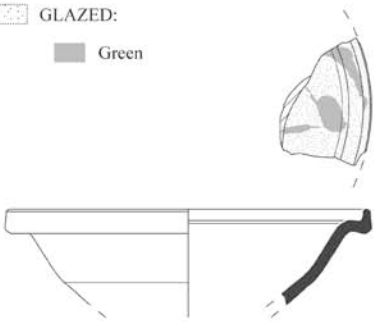


Black painting

TCP520

GLAZED:

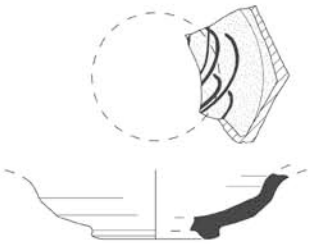
Green



TCP524

GLAZED:

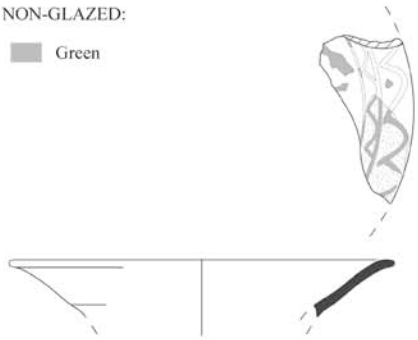
Black



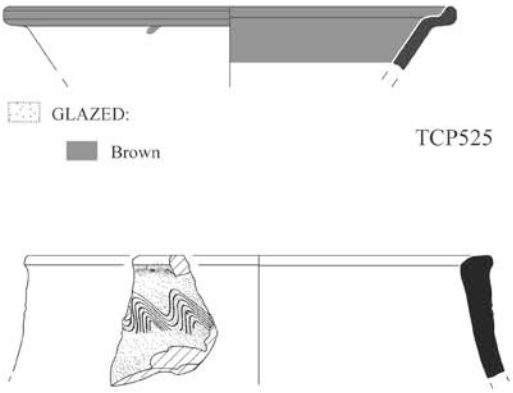
TCP522

NON-GLAZED:

Green



TCP523



GLAZED:

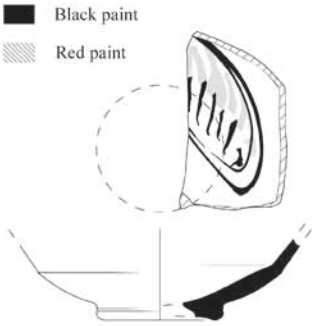
Brown

TCP525

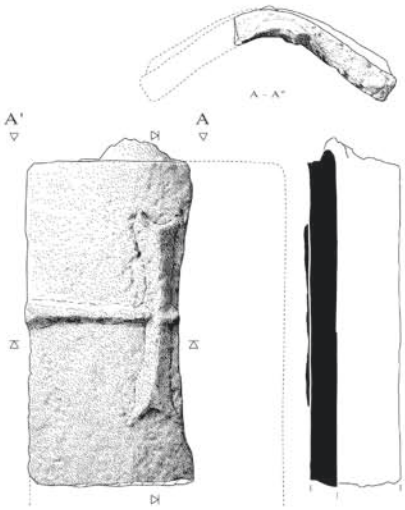
TCP529

Black paint

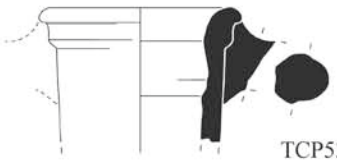
Red paint



TCP526



TCP527



TCP531

TCP519 TIP0147. TS07 BU0031.SE09 P01.1
Shape HU-MOD; HU
Rim, upper Body; Good
Decoration Incised decoration on upper body, 'Kornos' decoration; surface is smoothed next to the rim.
Diam. 240 mm; External; Rim thickness 12 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 7.5YR5/6; 7.5YR5/6; 7.5YR 5/6
Inclusions Common; Tiny; Angular; White
Rare; Large; Angular; White
Rare; Large; Angular; Black
Sparse; Small; Sub-Rounded; Black
Organic; Very few
Comments Two fragments from the same pithos.

TCP520 TIP0215. TS07 BU0032.SE02 P02.1
Shape BORC-GAC; HU
Body; Medium
Decoration Red slip & burnish. Black manganese paint; horizontal bands
Diam. 300 mm; Internal; Other thickness 10.3 mm
Fabric Mixed; Medium; Hard; Gritty; Medium
Munsell: 2.5YR 5/6; 10YR 6/4; 2.5YR 5/6
Inclusions Common; Tiny; Rounded; White
Rare; Medium; Sub-Rounded; Brown
Sparse; Small; Sub-Rounded; Reddish

TCP521 TIP0076. TS07 BU0037.SE12 P01.1
Shape ESA04A-LHER; TW
Rim; Medium
Diam. 200–250 mm; External; Rim thickness 4 mm
Fabric Calcareous; Fine; Medium; Smooth; Good
Munsell: 10YR 8/3; 10YR 8/3; 10YR 8/3
Inclusions Rare; Tiny; Sub-Rounded; Black & red

TCP522 TIP0071. TS07 BU0037.SE16 P02.1 (Plate 3.7)
Shape MP01-MEDVOTT; TW
Base; Good
Decoration Interior: painted abstract decoration in green paint (P378 U) under a transparent lead glaze.
Diam. 60 mm; External; Base thickness 7 mm
Fabric Calcareous; Fine; Medium; Smooth; Good
Munsell: 7.5YR 7/4; 7.5YR 7/4; 7.5YR 7/4
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Green Painted Ware possibly from Lapithos? 16th c.+

TCP523 TIP0129. TS07 BU0040.SE10 P04.1 (Plate 3.7)
Shape MP01-MedVOtt; TW
Rim; Poor
Decoration Interior: white slip & green painted abstract decoration in green (P 378 U) under transparent lead glaze
Diam. 220 mm; External; Rim thickness 4 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/6
Inclusions Rare; Small; Rounded; White
Limestone
Comments Green Painted Ware from Lapithos, 16th c.+

TCP524 TIP0130. TS07 BU0040.SE10 P05.1 (Plate 3.7)
Shape MP01-OTTMODII; TW
Rim; Good
Decoration Interior & exterior rim: white slip & transparent lead glaze. Interior: painted abstract. Decoration in green (P 363 U) under glaze
Diam. 180 mm; External; Rim thickness 5 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 7.5YR 6/6; 7.5YR 6/6; 7.5YR 6/6
Inclusions Rare; Small; Angular; White
Limestone
Comments Green Painted Ware possibly from Lapithos? 16th + Ottoman period?

TCP525 TIP0131. TS07 BU0040.SE10 P06.1 (Plate 3.7)
Shape G04-OTTMODII; TW
Rim; Good
Decoration Interior & exterior rim: possible white slip? Lead glaze in orange-brown (7.5YR 5/8).
Diam. 220 mm; External; Rim thickness 6 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 5YR 6/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Rare; Tiny; Rounded; White
Limestone
Comments Monochrome glazed ware, from Lapithos? Kouppa?

TCP526 TIP0159. BU0059 P01.1
Shape MP01-OTTMODII; TW
Base; Medium
Decoration Slipped with decoration in blackish/brownish paint. Interior slip 10YR 7/4, paint 5YR 3/3 – 7.5YR 2.5/1.
Diam. 65 mm; External; Base thickness 7 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Common; Tiny; Rounded; White

TCP527 TIP0334. TS01 TP007.AU04 P01.1
Shape TiSkC01-LR; Ar
Rim; Good
Thickness 13 mm
Fabric Mixed; Medium; Soft; Medium; Medium
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Sparse; Small; Sub-Rounded; Dark red & greyish-black
Comments Rather fine fabric for tile. Type in use until at least 11th c. (e.g. Roodenberg 2009, figs 6–7; Rosser 1983; Witte-Orr 2007, figs 5–8)

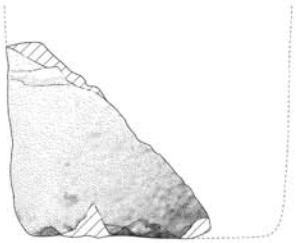
TCP528 TIP0321. TS01 TP007.AU04 P02.1
Shape LUR07-LR; LU
Rim; Poor
Diam. 145 mm; External; Rim thickness 6.1 mm
Fabric Mixed; Medium; Medium; Medium; Medium
Munsell: 5YR 6/4; 5YR 6/4; 5YR 6/4
Inclusions Abundant; Tiny; Sub-Rounded; Greyish lime
Sparse; Small; Angular; Black

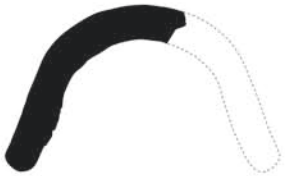
TCP529 TIP0324. TS01 TP007.AU04 P03.1
Shape HUR10a-LR; HU
Rim; Good
Thickness 11.6 mm
Fabric Self Slip; Medium; Medium; Medium; Poor
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Small, Medium, Large; Sub-Rounded; Yellow
Common; Small; Angular; White
Common; Small, Medium; Sub-Rounded; Greyish-black

TCP530 TIP0323. TS01 TP007.AU04 P04.1
Shape CWPR14-LR; CW
Rim; Poor
Diam. 160 mm; External; Rim thickness 3.7 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 7.5YR 5/3; 10YR 3/2
Inclusions Abundant; Tiny, Small; Sub-Rounded; Reddish-beige
Common; Small; Rounded; Quartz

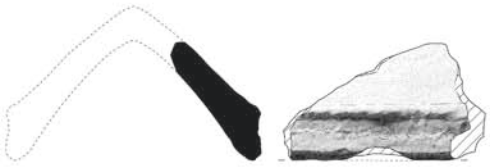
TCP531 TIP0344. TS01 TP007.AU05.Y57 P01.1
Shape LR1-LR; Tr
Rim; Medium
Diam. 110 mm; External; Rim Thickness 9.9 mm
Fabric Self Slip; Coarse; Medium; Medium; Good
Munsell: 7.5YR 8/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Common; Tiny; Sub-Rounded; Red
Limestone; Abundant

Pottery catalogue: TCP519–TCP531 (drawings: Jean Humbert; photo: Chris Parks)

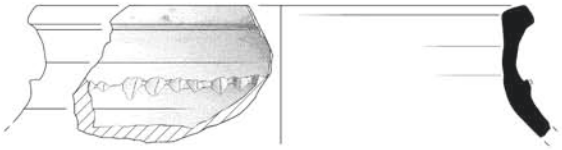




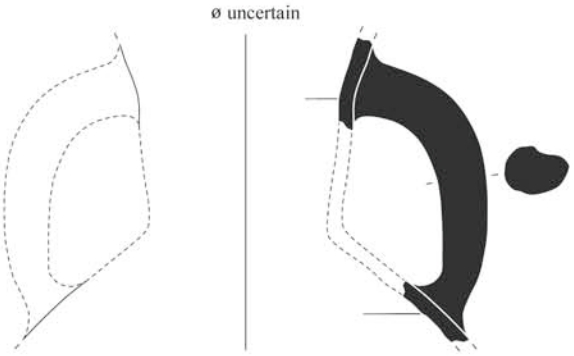
TCP535



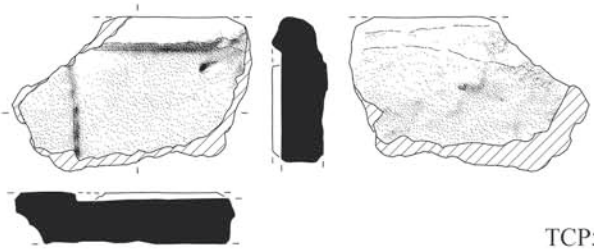
TCP536



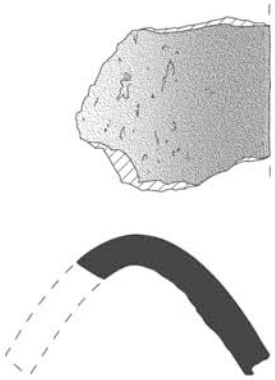
TCP539



TCP537

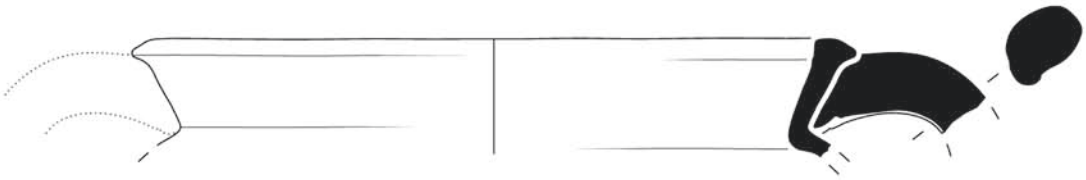


TCP543



TCP545

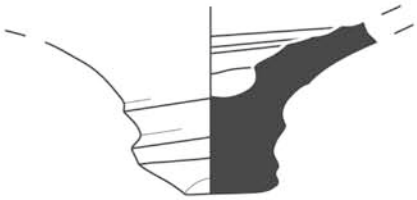
0 20 cm



TCP540

TCP541

0 10 cm



TCP542

TCP532 TIP0345. TS01 TP007.AU05.Y57 P06.1
Shape TiSkC02-LR; Ar
Body; Poor
Thickness 16.7 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 2.5YR 4/8; 2.5YR 4/8; 2.5YR 4/8
Inclusions Rare; Medium; Angular; Red
Rare; Medium; Angular; Grits black/grey
Limestone; Few lime

TCP533 TIP0339. TS01 TP007.AU07.Clean P01.1
Shape TiSk02-LR; Ar
Rim; Good
Thickness 15.4 mm
Fabric Self Slip; Fine; Medium; Smooth; Medium
Munsell: 7.5YR 8/3; 7.5YR 8/3; 7.5YR 8/3
Inclusions Common; Tiny; Sub-Rounded; Black
Sparse; Small; Rounded; Red
Comments Very fine fabric for tile.

TCP534 TIP0340. TS01 TP007.AU07.Clean P02.1
Shape TiSk05-LR; Ar
Rim; Good
Thickness 16.2 mm
Fabric Self Slip; Medium; Hard; Gritty; Medium
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Common; Small; Sub-Rounded; Black/grey
Sparse; Small; Rounded; Red
Sparse; Tiny; Sub-Rounded; Black
Organic; Oblong voids. Few large.

TCP535 TIP0328. TS01 TP007.AU07.Clean P03.1
Shape TiSkC01-LR; Ar
Body; Good
Thickness 15 mm
Fabric Mixed; Medium; Medium; Medium; Medium
Munsell: 7.5YR 6/4; 7.5YR 6/6; 7.5YR 6/6
Inclusions Abundant; Small; Sub-Rounded; Greyish-black grits
Common; Large; Angular; Greyish-black grits
Limestone; Some

TCP536 TIP0329. TS01 TP007.AU07.Clean P04.1
Shape TiSkC04-LR; Ar
Rim; Good
Thickness 13 mm
Fabric Mixed; Medium; Medium; Medium; Medium
Munsell: 5YR 6/8; 5YR 6/8; 5YR 6/6
Inclusions Common; Small; Sub-Rounded; Greyish-black grits
Rare; Small; Angular; White
Sparse; Medium; Angular; Grits
Limestone; Few

TCP537 TIP0316. TS01 TP007.AU07.Clean P05.1
Shape Am08-LR; Tr
Handle; Good
Decoration Assymetrical groove.
Diam. 60 mm; Internal; Other thickness 5.7 mm
Fabric Self Slip; Medium; Medium; Medium; Poor
Munsell: 2.5YR 6/6; 7.5YR 7/4; 7.5YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Sparse; Small; Angular; Black
Unknown; Common

TCP538 TIP0341. TS01 TP007.AU07.Clean P06
Shape TiSkC05-LR; Ar
Body; Good
Thickness 13.6 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 4/4; 2.5YR 4/8; 2.5YR 4/8
Inclusions Sparse; Small; Sub-Rounded; White
Sparse; Tiny; Sub-Rounded; Black
Sparse; Tiny; Sub-Rounded; White; Reflective

TCP539 TIP0357. TS01 TP007.AU07.Y02 P01.1
Shape HUR35-LR; HU
Rim; Good
Diam. 250 mm; External; Rim thickness 8.3 mm
Fabric Self Slip; Medium; Soft; Medium; Medium
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Small; Rounded; White oolites
Sparse; Medium; Sub-Rounded; Red
Limestone

TCP540 TIP0420. TS01 TP007.AU07.Y04 P01.1
Shape CWPR04a-ER; CW
Rim, Handle; Good
Diam. 180 mm; External; Rim Thickness 4.2 mm
Fabric Ferrous; Medium; Medium; Gritty; Medium
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Common; Tiny; Sub-Rounded; Grey
Sparse; Medium; Sub-Rounded; Grey

TCP541 TIP0462. TS01 TP007.AU09.Clean P05.1
Shape ERSAP-LR; TW
Diam. 120 mm; Internal Thickness 4.5 mm
Fabric Ferrous; Fine; Medium; Medium; Medium
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish
Rare; Small; Angular; White
Sparse; Small; Sub-Rounded; Red

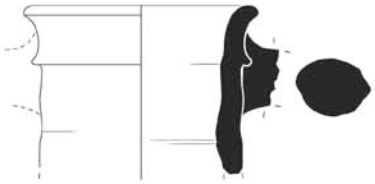
TCP542 TIP0002. TS01 TP007.PU01 P04.1
Shape Am05-ROM; Tr
Base; Good
Thickness 9 mm
Fabric Ferrous; Coarse; Medium; Medium; Poor
Munsell: 2.5YR 4/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Common; Small; Sub-Rounded; White
Rare; Large; Sub-Rounded; Calcium carbonate

TCP543 TIP0317. TS01 TP007.PU01 P06.1
Shape Un-LR; Un
Rim; Good
Thickness 2.5 mm
Fabric Mixed; Coarse; Soft; Medium; Poor
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Small, Medium; Angular; Black
Rare; Medium, Large; Rounded; Black
Rare; Large; Sub-Rounded; Red
Comments Date suggested by fabric & context. Function unknown, but it may be a tile fragment.

TCP544 TIP0343. TS01 TP007.PU01 P10.1
Shape TiSk03-LR; Ar
Rim; Medium
Thickness 20.8 mm
Fabric Self Slip; Medium; Hard; Medium; Good
Munsell: 7.5YR 7/4
Inclusions Common; Small; Angular; Red
Sparse; Tiny; Rounded; Black grits
Organic; Few narrow oblong voids

TCP545 TIP0021. TS01 TP007.PU02 P01.1
Shape TiSkC01-LR; Ar
Rim; Medium
Thickness 16 mm
Fabric Self Slip; Medium; Medium; Gritty; Medium
Munsell: 10YR 8/3; 2.5Y 8/3; 7.5YR 7/6
Inclusions Common; Small; Sub-Rounded; Greyish-brown & red
Comments Very gritty interior wall

Pottery catalogue: TCP535–37, TCP539–43, TCP545 (drawings: Jean Humbert)

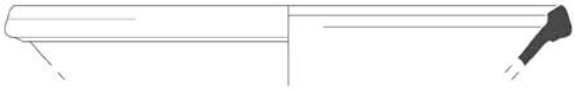


TCP546

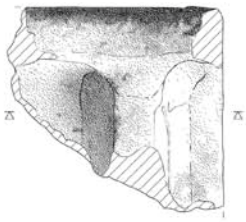
TCP547

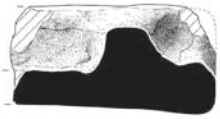
TCP548

TCP549



TCP553



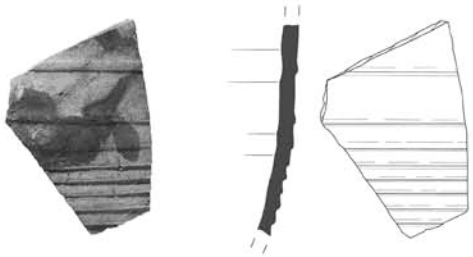


TCP550

PLASTER

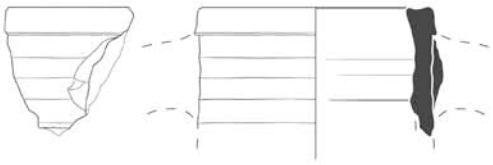
Surface

Broken



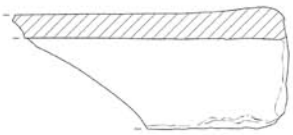
TCP554

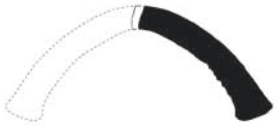
TCP556



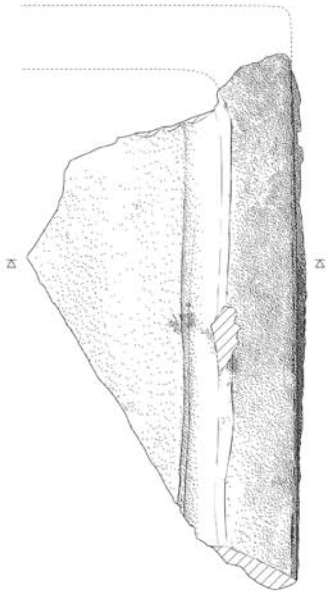
TCP555

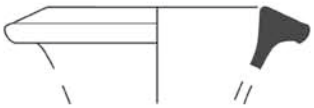
TCP558





TCP559





TCP552

TCP557

0 10 cm

0 20 cm

TCP546 TIP0322. TS01 TP007.PU02 P08.1
Shape LR1-LR; Tr
Rim; Medium
Diam. 125 mm; External; Rim thickness 12 mm
Fabric Self Slip; Medium; Medium; Gritty; Medium
Munsell: 5YR 7/6; 5YR 7/6; 10YR 7/4
Inclusions Common; Small; Rounded; Red & black
Common; Small; Angular; White
Limestone; Abundant

TCP547 TIP0318. TS01 TP007.PU02 P09.1
Shape CWPR12-LR; CW
Rim; Good
Diam. 240 mm; External; Rim thickness 8.2 mm
Fabric Ferrous; Medium; Soft; Medium; Medium
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Abundant; Tiny, Small, Medium; Sub-Rounded; White. Quartz

TCP548 TIP0319. TS01 TP007.PU02 P10.1
Shape HUR21-LR; HU
Rim; Medium
Diam. 50 mm; External; Rim thickness 14.5 mm
Fabric Self Slip; Fine; Medium; Smooth; Medium
Munsell: 7.5YR 7/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish
Sparse; Small, Medium; Angular; White lime

TCP549 TIP0320. TS01 TP007.PU02 P11.1
Shape HUR22-LR; HU
Rim; Good
Diam. 50 mm; External; Rim thickness 12.9 mm
Fabric Self Slip; Medium; Medium; Smooth; Poor
Munsell: 5YR 7/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Common; Small, Medium, Large; Angular; Multi-coloured red grits

TCP550 TIP0335. TS01 TP007.PU02 P13.1
Shape TiSk04-LR; Ar
Rim; Poor
Decoration Overfired & partly covered in soot.
Thickness 16.3 mm
Fabric Mixed; Coarse; Soft; Gritty; Poor
Munsell: 2.5Y 7/3; 2.5Y 7/3; 2.5Y 7/3
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Abundant; Tiny, Small, Medium, Large; Sub-Rounded; Greyish-red
Comments Fabric same as TCP557

TCP551 TIP0336. TS01 TP007.PU02 P14.1
Shape TiSk06-LR; Ar
Rim; Medium
Thickness 13.6 mm
Fabric Self Slip; Medium; Medium; Medium; Poor
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Common; Small; Sub-Rounded; Grits
Common; Tiny, Small; Angular; Black
Sparse; Tiny; Sub-Rounded; Reddish-beige
Limestone; Organic

TCP552 TIP0022. TS01 TP007.PU03 P05.1
Shape CWJ01-LR; CW
Rim; Good
Diam. 80 mm; External; Rim thickness 3 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 5YR 4/6; 5YR 4/6; 5YR 4/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish-white

TCP553 TIP0023. TS01 TP007.PU03 P06.1
Shape LRC10b-LR; TW
Rim; Poor
Diam. 0.3 mm; External; Rim thickness 5 mm
Fabric Ferrous; Medium; Hard; Medium; Good
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Abundant; Small; Sub-Rounded; Yellowish
Limestone; Rare halos
Comments Covered with slag

TCP554 TIP0025. TS01 TP007.PU05 P01.1
Shape LR1-LR; Tr
Body; Medium
Decoration Irregular corrugation
Thickness 8 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5Y 8/3; 5YR 6/6; 5YR 6/6
Inclusions Abundant; Small; Sub-Rounded; Greyish
Comments Partly covered with slag.

TCP555 TIP0024. TS01 TP007.PU05 P04.1
Shape Am02-MR; Tr
Rim; Good
Diam. 120 mm; External; Rim thickness 9 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Sparse; Tiny; Sub-Rounded; Black
Sparse; Small; Sub-Rounded; Yellowish-white

TCP556 TIP0026. TS01 TP007.PU05 P05.1
Shape WaP-HIS; Ar
Rim; Good
Diam. 18 mm; External; Rim thickness 10 mm
Fabric Ferrous; Medium; Medium; Gritty; Poor
Munsell: 2.5YR 6/8; 2.5YR 6/8; 2.5YR 6/8
Inclusions Rare; Small; Sub-Rounded; Red
Sparse; Medium; Sub-Rounded; Dark
Sparse; Small; Sub-Rounded; Yellowish-grey
Comments Interior covered with lime.
Comparanda Wheelmade clay pipes found at Skouriotissa but no date suggested (Bruce *et al.* 1937, fig. 367).

TCP557 TIP0330. TS01 TP007.PU07 P02.1
Shape TiSk01-LR; Ar
Rim; Good
Thickness 20 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 10R 5/6; 2.5YR 4/6; 2.5YR 4/8
Inclusions Abundant; Medium; Angular; Greyish-black
Abundant; Small; Sub-Rounded; Greyish-black-whitish
Sparse; Medium; Angular; Grits
Limestone; Very few
Comments Fabric same as TCP560.

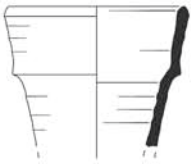
TCP558 TIP0150. TS01 TP007.PU07 P38.1
Shape CWL02-LR; CW
Rim; Medium
Decoration Dark exterior ribbed shoulder.
Diam. 24 mm; External; Rim thickness 3.8 mm
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Grey quartz; Reflective
Limestone; Common
Comments Possible African import?

TCP559 TIP0325. TS01 TP007.PU08 P03.1
Shape TiSkC01-LR; Ar
Rim; Good
Thickness 11.9 mm
Fabric Mixed; Medium; Soft; Medium; Medium
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Sparse; Small; Sub-Rounded; Dark red
Sparse; Small; Sub-Rounded; Greyish-black

Pottery catalogue: TCP546–50, TCP552–59 (drawings: Jean Humbert; photo: Chris Parks)

TCP560

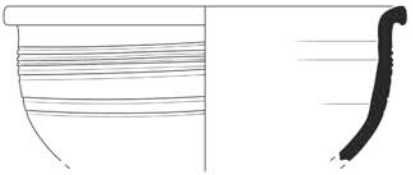
TCP561



TCP562

TCP563

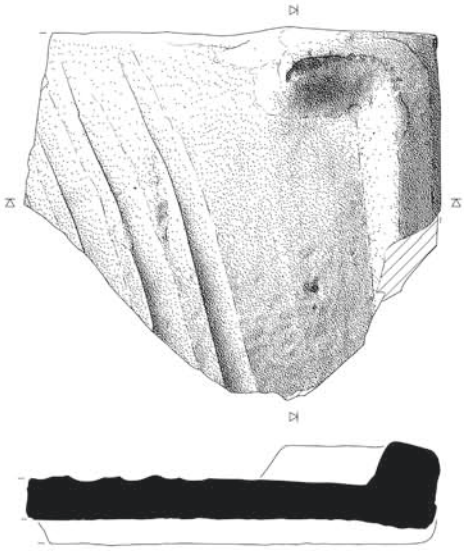
TCP564



TCP565

TCP566

TCP567



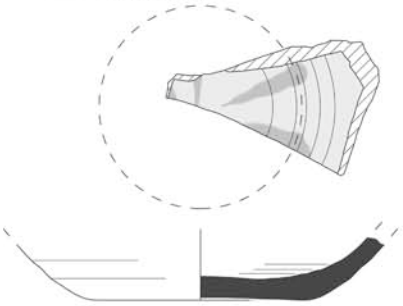
TCP571

GLAZED:

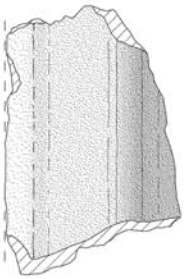
Green

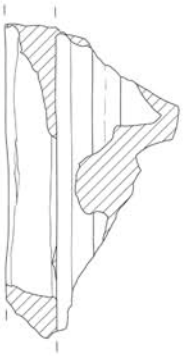
Yellow-green

TCP569



TCP570





0 20 cm

TCP572

TCP573

TCP560 TIP0327. TS01 TP007.PU09 P07.1
Shape TiSkC03-LR; Ar
Rim; Medium
Thickness 11 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/8
Inclusions Common; Small; Angular; Black/Grits
Common; Small; Sub-Rounded; Greyish-black
Sparse; Medium; Angular; Grits
Comments Fabric same as TCP557.

TCP561 TIP0315. TS01 TP007.PU09 P08.1
Shape ARS-ROM; TW
Base; Good
Decoration Interior: legs & lower torso & arms of man in 3/4 profile holding 'spear' in front of him. Short chiton. Fused slip.
Thickness 6 mm
Fabric Ferrous; Medium; Medium; Medium; Good
Munsell: 10R 5/6; 10R 5/6; 10R 5/6
Inclusions Common; Tiny; Rounded; Reaction rims
Sparse; Small; Sub-Rounded; Clear quartz; Reflective
Limestone; Abundant

TCP562 TIP0311. TS01 TP007.PU09 P09.1
Shape Am09-LR; Tr
Rim; Good
Diam. 90 mm; External; Rim thickness 5.6 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Small; Sub-Rounded; White & red
Limestone

TCP563 TIP0310. TS01 TP007.PU09 P10.1
Shape Am10-LR; Tr
Rim; Medium
Diam. 95 mm; External; Rim thickness 68 mm
Fabric Ferrous; Coarse; Medium; Gritty; Good
Munsell: 5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Quartz; Reflective

TCP564 TIP0312. TS01 TP007.PU09 P11.1
Shape CWCR05-LR; CW
Rim; Medium
Diam. 230 mm; External; Rim thickness 5.4 mm
Fabric Mixed; Medium; Soft; Medium; Medium
Munsell: 5YR 6/6; 5YR 6/6; 10YR 6/3
Inclusions Abundant; Small; Rounded; White
Common; Tiny; Sub-Rounded; Pale Orange
Limestone; Abundant

TCP565 TIP0313. TS01 TP007.PU09 P12.1
Shape CWCR01a-LR; CW
Rim; Good
Diam. 250 mm; External; Rim thickness 5.7 mm
Fabric Ferrous; Medium; Soft; Medium; Medium
Munsell: 5YR 5/3; 5YR 5/3; 5YR 5/6
Inclusions Common; Small; Sub-Rounded; Greyish-white
Sparse; Tiny; Sub-Rounded; Black
Limestone; Abundant

TCP566 TIP0309. TS01 TP007.PU09 P13.1
Shape CWL01-LR; CW
Rim; Good
Diam. 240 mm; External; Rim thickness 55 mm
Fabric Ferrous; Medium; Medium; Gritty; Good
Munsell: 7.5YR 5/4; 7.5YR 5/4; 7.5YR 5/4
Inclusions Abundant; Tiny; Sub-Rounded; Quartz

TCP567 TIP0314. TS01 TP007.PU09 P14.1
Shape LUR05-LR; LU
Rim; Good
Diam. 260 mm; External; Rim thickness 3.7 mm
Fabric Mixed; Fine; Soft; Smooth; Medium
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Sparse; Small; Sub-Rounded; Black
Limestone; Common

TCP568 TIP0342. TS01 TP007.PU09 P19.1
Shape TiSk03-LR; Ar
Rim; Good
Thickness 14.6 mm
Fabric Self Slip; Medium; Medium; Medium; Good
Munsell: 2.5Y 7/4;
Inclusions Common; Small; Sub-Rounded; Red
Common; Small; Rounded; Black

TCP569 TIP0333. TS01 TP007.PU11 P03.2
Shape TiSk03-LR; Ar
Rim; Good
Thickness 20 mm
Fabric Self Slip; Coarse; Hard; Gritty; Medium
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 6/4
Inclusions Abundant; Medium; Angular; Greyish-black
Abundant; Medium; Rounded; Greyish-black
Limestone; Very few

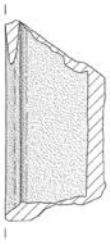
TCP570 TIP0138. TS07 TP021.PU10 P05.1 (Plate 3.7)
Shape MP01-OTTMODII; TW
Body; Good
Decoration Interior: white slip & painted strokes in green (5Y 4/3) under pale olive-green lead glaze (5Y 6/8)
Thickness 10 mm
Fabric Calcareous; Fine; Medium; Smooth; Good
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Rare; Tiny; Rounded; Black & white
Limestone
Comments Monochrome painted ware, from Lapithos? Ottoman?

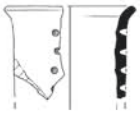
TCP571 TIP0137. TS07 TP021.PU10 P08.1
Shape Pipe-Ott; PO
Good
Decoration Possibly burnished?
Diam. 28 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Common; Small; Rounded; White
Rare; Tiny; Angular; Black
Comments Disk-based clay pipe fragment of chibouk pipe (late 17th–18th c.).

TCP572 TIP0098. TS02 TP022.PU01 P01.1
Shape TiSkC02-LR; Ar
Rim; Good
Thickness 33 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 4/4; 5YR 4/4; 5YR 4/4
Inclusions Common; Large; Sub-Rounded; Greyish-brown
Sparse; Medium; Angular; Clear quartz; Reflective
Comments Same clay as TIP0102 (unpublished), but too small to fit together.

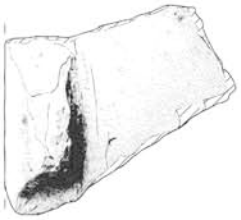
TCP573 TIP0077. TS02 TP025.PU01 P01.1
Shape Ti-HIS; Ar
Rim; Medium
Thickness 19.9 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny, Small, Medium; Sub-Rounded; Black
Unknown
Comments Fabric very similar to the modern burnished ware.

Pottery catalogue: TCP560–67, TCP569–73 (drawings: Jean Humbert; photos: Chris Parks)



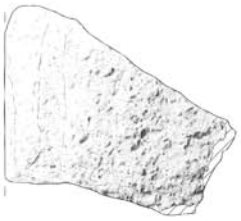


TCP576

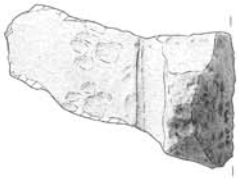


TCP574

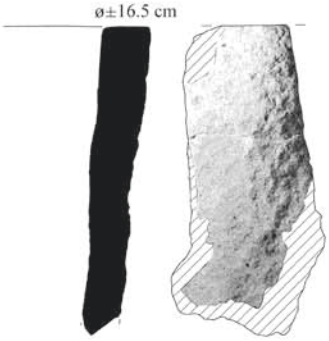
TCP578



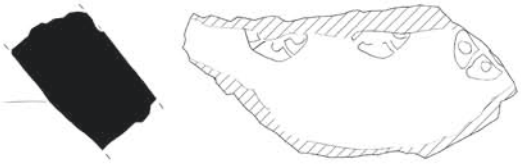
TCP577



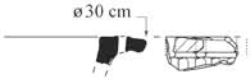
TCP579



TCP580



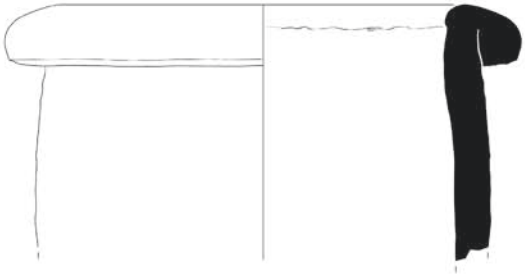
TCP581



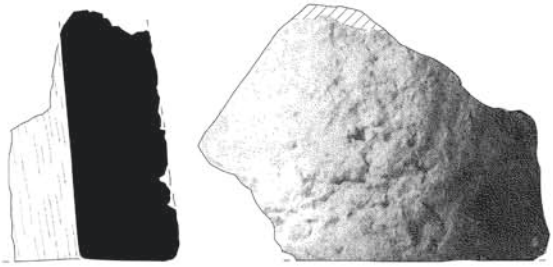
TCP584

TCP585

TCP586



TCP582



TCP583

TCP587

0 20 cm

TCP574 TIP0099. TS02 TP025.PU03 P01.1
Shape TiSkC02-LR; Ar
Rim; Good
Thickness 28 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Common; Medium, Large; Sub-Rounded; Greyish-brown
Comments Same clay as TIP0102 (unpublished), but too small to fit together & better sorted.

TCP575 TIP0149. TS02 TP025.PU13 P01.1
Shape Ti-HR; Ar
Fabric Ferrous

TCP576 TIP0306. TS09 TP035.PUE0S10 P01.1
Shape RPC-PeB; TW
Rim; Good
Decoration Red slip & burnish; vertical line of four puncture holes.
Diam. 70 mm; External; Rim thickness 6 mm
Fabric Ferrous; Fine; Hard; Medium; Good
Munsell: 2.5YR 5/6; 5YR 5/4; 5YR 5/6
Inclusions Common; Small; Sub-Rounded; Black
Sparse; Small; Sub-Rounded; White
Comments Neck of Red Polished (RP) jar/jug

TCP577 TIP0530. TP066.PU01 P01.1
Shape TiF-MM; Ar
Rim; Good
Thickness 19.9 mm
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 2.5Y 4/2; 2.5Y 4/2; 2.5Y 4/2
Inclusions Abundant; Tiny; Sub-Rounded; Greyish
Common; Small, Medium; Sub-Rounded; Grits

TCP578 TIP0593. TP066.PU01 P02.1
Shape TiF-MM; Ar
Rim; Good
Thickness 16.6 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor:
Munsell: 2.5YR 5/6
Inclusions Common; Small, Medium, Large; Angular; Grey
Common; Tiny, Small, Medium, Large; Sub-Rounded; Whitish
Unknown; Some rounded. Small to large
Comments Part of animal paw imprint preserved on surface.

TCP579 TIP0592. TP066.PU03 P02.1
Shape TiF-MM; Ar
Rim; Good
Thickness 17 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 5/6
Inclusions Common; Small, Medium, Large; Sub-Rounded; Yellowish-white
Sparse; Medium, Large; Angular; Black
Limestone; Organic; Unknown. Large to small. Many
Comments 2 animal paw prints preserved on surface. Absence of claws marks suggest cat family. Same fabric as TCP577.

TCP580 TIP0523. TP066.PU06 P01.1
Shape HUR29-MM; HU
Rim; Poor
Decoration No surface preserved.
Thickness 44.5 mm
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 10YR 5/4
Inclusions Abundant; Tiny; Sub-Rounded; Greyish
Common; Small, Medium; Sub-Rounded; Grits
Comments Local tile fabric, Very uneven firing with grey-core.

TCP581 TIP0563. TP066.PU06 P05.1
Shape HU04-MM; HU
Body; Medium
Decoration Circular stamps.
Thickness 39 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 4/6
Inclusions Common; Large; Angular; Grey
Common; Medium; Rounded; Black
Common; Small; Sub-Rounded; Yellowish
Common; Tiny; Rounded; Whitish (mica?); Reflective
Limestone; Organic; Some

TCP582 TIP0564. TP066.PU10 P03.1
Shape Pit18-MM; HU
Rim; Medium
Diam. 180 mm; Internal; Rim thickness 15.7 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5YR 4/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellow-white
Common; Medium; Angular; Yellowish
Common; Medium; Angular; White
Rare; Large; Sub-Rounded; Orange-brown
Organic; Some, medium-sized
Comments Blackened exterior.

TCP583 TIP0560. TP066.PU11 P01.1
Shape HUR29-MM; HU
Rim; Poor
Thickness 44 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 4/1; 10R 4/8
Inclusions Abundant; Tiny, Small; Sub-Rounded; Yellowish-white
Common; Medium; Sub-Rounded; Grey & brown
Organic; Also limestone. few lime, common

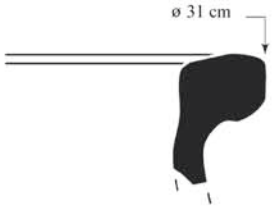
TCP584 TIP0264. TS02 TP104.PU02 P02.1
Shape CRS08-LR; TW
Rim; Poor
Thickness 69 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish
Unknown; Sparse

TCP585 TIP0245. TS02 TP104.PU06 P01.1
Shape TiP-HR; Ar
Rim; Poor
Thickness 20 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Small; Sub-Rounded; Black; Reflective
Common; Small; Sub-Rounded; White
Sparse; Large; Rounded; Grey. Limestone
Comments Date suggested by the form & context.

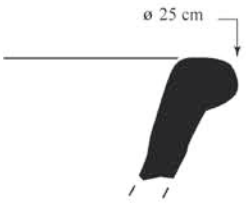
TCP586 TIP0236
TS02 TP104.PU09 P01.1
Shape Mav01-HR; Tr
Diam. 617 mm; External; Base
Fabric Self Slip; Medium; Hard; Medium; Good
Munsell: 2.5Y 8/6; 5YR 6/6
Inclusions Common; Small; Sub-Rounded; Black & grey
Common; Small; Rounded; Brown
Organic; Oblong sparse

TCP587 TIP0246. TS02 TP104.PU11 P01.1
Shape HUR14-HR; HU
Rim; Poor
Diam. 300 mm; Internal; Rim thickness 10.8 mm
Fabric Mixed; Coarse; Hard; Gritty; Medium
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 6/4
Inclusions Abundant; Small; Sub-Rounded; Grey; Reflective
Common; Small; Sub-Rounded; Red; Reflective
Sparse; Medium; Sub-Rounded; Tan
Limestone

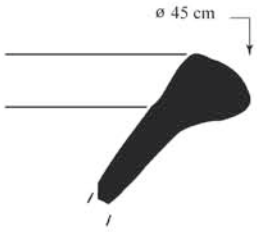
Pottery catalogue: TCP574, TCP576–87 (drawings: Jean Humbert)



TCP588



TCP589

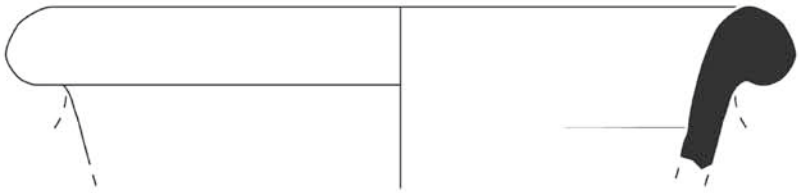


TCP590

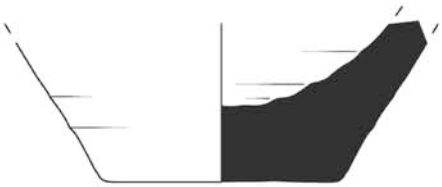
TCP591

TCP592

TCP594



TCP598



TCP596

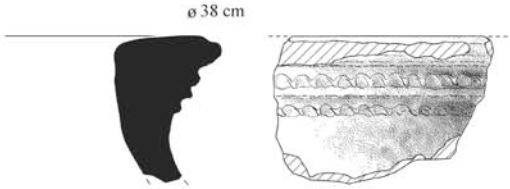
TCP600

TCP597

TCP601

TCP593

TCP595



TCP599

TCP588 TIP0253. TS02 TP104.PU12 P03.1
Shape LUR12-HR; LU
Rim; Good
Thickness 75 mm
Fabric Self Slip; Medium; Medium; Medium; Poor
Munsell: 2.5Y 7/3; 5YR 6/4; 5YR 6/4
Inclusions Common; Tiny, Small, Medium; Sub-Rounded; Yellowish lime
Sparse; Small; Sub-Rounded; Reddish quartz; Reflective

TCP589 TIP0254. TS02 TP104.PU12 P04
Shape HUR11-HR; HU
Rim; Poor
Diam. 250 mm; External; Rim thickness 101 mm
Fabric Mixed; Medium; Medium; Medium; Poor
Munsell: 5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; White
Sparse; Small, Medium, Large; Sub-Rounded; Brown

TCP590 TIP0234. TS02 TP104.PU13 P01.1
Shape LUR04-HR; LU
Rim; Medium
Thickness 73 mm
Fabric Mixed; Medium; Medium; Medium; Rare
Munsell: 5YR 6/4; 5YR 6/4; 5YR 5/6
Inclusions Large; Angular; Black
Sparse; Tiny, Small; Sub-Rounded; Black & white
Limestone; Halos (few)

TCP591 TIP0233. TS02 TP104.PU13 P02.1
Shape LR1-LR; Tr
Rim; Poor
Diam. 90 mm; Internal; Rim thickness 11 mm
Fabric Self Slip; Medium; Soft; Gritty; Good
Munsell: 2.5Y 8/6
Inclusions Abundant; Tiny, Small; Rounded; Black
Limestone; Many small

TCP592 TIP0262. TS02 TP104.PU17 P01.1
Shape CWPR13-LR; CW
Rim; Good
Diam. 180 mm; External; Rim thickness 4 mm
Fabric Ferrous; Coarse; Hard; Gritty;
Munsell: 2.5YR 4/8; 2.5YR 4/8; 2.5YR 4/1
Inclusions Common; Small, Medium; Sub-Rounded; Orange/beige
Common; Tiny, Small; Sub-Rounded; White
Unknown; Occasionally
Comments Joins TCP176.

TCP593 TIP0239. TS02 TP104.PU18 P01.1
Shape Mav02-HR; Tr
Handle; Medium
Fabric Self Slip; Medium; Hard; Medium; Good
Munsell: 2.5Y 8/6; 5YR 6/6
Inclusions Common; Small; Sub-Rounded; Black and grey
Common; Small; Rounded; Brown
Unknown; Oblong sparce

TCP594 TIP0238. TS02 TP104.PU18 P02.1
Shape HUR12-HR; HU
Medium
Diam. 27 mm; Internal; Rim Thickness 11 mm
Fabric Self Slip; Medium; Soft; Medium; Good
Munsell: 10YR 7/4; 10YR 7/4; 5YR 5/6
Inclusions Common; Small; Rounded; Black
Rare; Medium; Rounded; Reddish-brown and white
Rare; Medium; Angular; White
Unknown; Scarce

TCP595 TIP0237. TS02 TP104.PU18 P03.1
Shape HUR13-HR; HU
Rim; Medium
Thickness 12 mm
Fabric Mixed; Coarse; Soft; Medium; Medium
Munsell: 5YR 6/6
Inclusions Common; Medium; Sub-Rounded; Brown
Sparse; Small; Sub-Rounded; Black
Limestone; Halos

TCP596 TIP0255. TS02 TP104.PU18 P05.1
Shape HUB01-HR; HU
Base; Medium
Diam. 60 mm; External; Base thickness 106 mm
Fabric Self Slip; Medium; Hard; Medium; Poor
Munsell: 10YR 7/3; 2.5YR 7/6; 5YR 6/6
Inclusions Abundant; Small; Sub-Rounded; Red; Reflective
Sparse; Tiny; Sub-Rounded; Black; Reflective
Sparse; Tiny; Sub-Rounded; Whitish
Sparse; Medium; Sub-Rounded; Red; Reflective

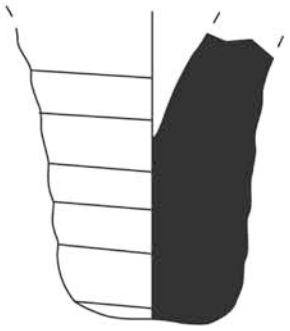
TCP597 TIP0243. TS02 TP104.PU20 P01.1
Shape Am07-HR; Tr
Rim; Medium
Diam. 90 mm; External; Rim thickness 6.1 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish lime
Sparse; Small, Medium, Large; Angular; Black; Reflective

TCP598 TIP0242. TS02 TP104.PU20 P02.1
Shape HUR15-HR; HU
Rim; Medium
Diam. 160 mm; Internal; Rim thickness 7 mm
Fabric Ferrous; Medium; Medium; Smooth; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Common; Tiny, Small, Medium; Sub-Rounded; Black
Rare; Tiny, Small; Angular; White
Sparse; Small, Medium; Sub-Rounded; Brownish
Sparse; Small; Sub-Rounded; Yellowish

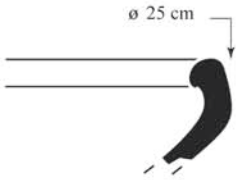
TCP599 TIP0240. TS02 TP104.PU22 P01.1
Shape Pit07-ROM; HU
Rim; Medium
Decoration Pie-crust ribs on exterior.
Thickness 23 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR6/8; 2.5YR 6/8; 2.5YR 6/8
Inclusions Abundant; Tiny, Small, Medium; Angular; White
Common; Small, Medium; Sub-Rounded; Yellowish
Common; Small, Medium, Large; Angular; Dark grey
Sparse; Medium, Large; Angular; Brownish
Unknown; Some

TCP600 TIP0260. TS02 TP104.PU24 P01.1
Shape CWPR13-LR; CW
Rim; Good
Diam. 210 mm; External; Rim thickness 4 mm
Fabric Ferrous; Medium; Medium; Gritty; Good
Munsell: 2.5YR 4/8; 2.5YR 4/8; 2.5YR 4/8
Inclusions Common; Small; Rounded; White
Common; Tiny, Small; Rounded; Yellowish
Common; Tiny; Rounded; White
Rare; Small; Angular; Grey
Limestone; Scarce. Also Unknown

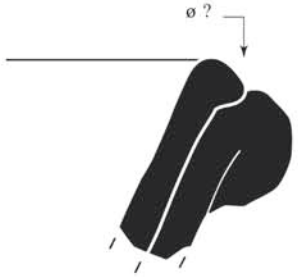
TCP601 TIP0265. TS02 TP104.PU25 P03.1
Shape CRS09A-LR; TW
Rim; Medium
Thickness 3 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 7/4; 5YR 6/4; 2.5YR 5/6
Inclusions Sparse; Tiny; Sub-Rounded; Yellowish
Unknown; Sparse

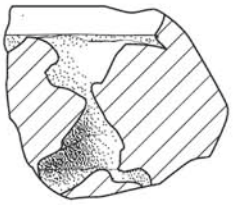


TCP602

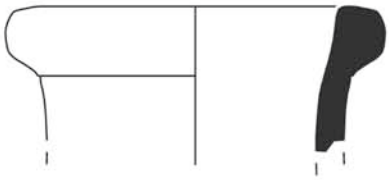


TCP603

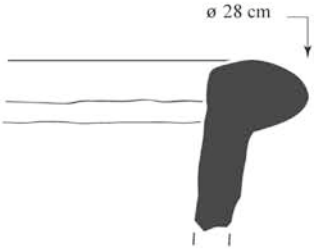




TCP605



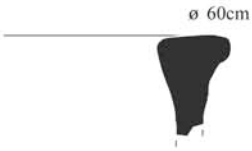
TCP607

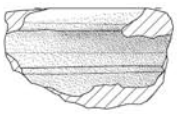


TCP611

0 10 cm

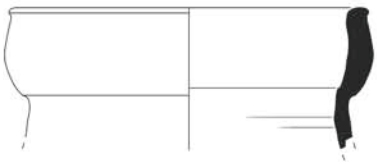
TCP604



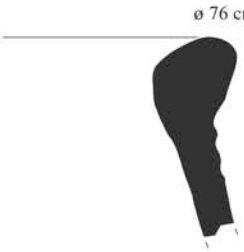


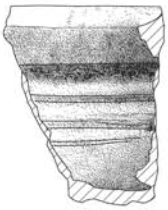
TCP606

TCP608

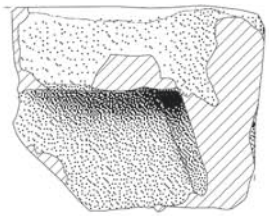


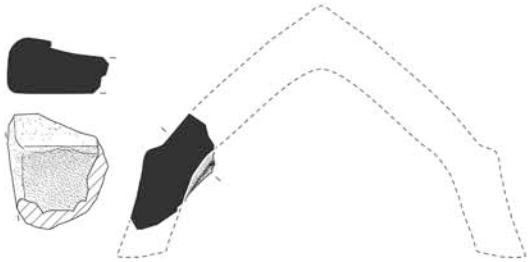
TCP609



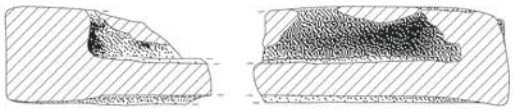


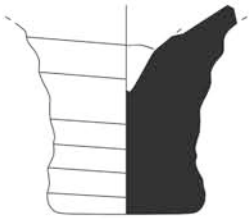
TCP610



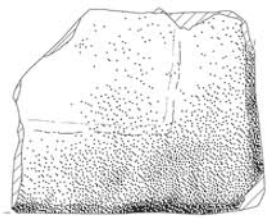


TCP612

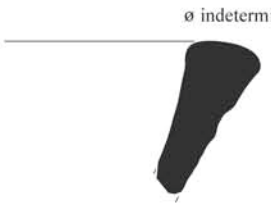




TCP615



TCP613



TCP614

0 20 cm

TCP602 TIP0232. TS02 TP104.PU31 P02.1
Shape Mav02-HR; Tr
Base; Medium
Thickness 16 mm
Fabric Self Slip; Coarse; Soft; Gritty; Medium
Munsell: 2.5Y 8/3; 7.5YR 7/4
Inclusions Abundant; Small, Medium; Angular; Black
Common; Medium; Rounded; Brown/Red
Common; Small, Medium; Angular; White/Lime?
Sparse; Medium; Angular; Quartz?
Limestone; Organic; Sparse
Comments Same fabric as TCP615.

TCP603 TIP0267. TS02 TP104.PUE0S5 P01.1
Shape LRC01A-LR; TW
Rim; Poor
Diam. 28 mm; Internal; Rim thickness 5 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 7/6; 2.5YR 7/6; 2.5YR 7/6
Inclusions Common; Small; Sub-Rounded; White lime
Common; Small; Angular; White quartz; Reflective
Comments Fabric appears to be similar to TCP166 & TCP467. Possible imitation?

TCP604 TIP0275. TS02 TP104.PUW10S20 P01.1
Shape HUR18-HR; HU
Rim; Poor
Diam. 220 mm; External; Rim thickness 10.1 mm
Fabric Ferrous; Medium; Medium; Medium; Poor
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Tiny, Small; Sub-Rounded; Yellowish lime
Sparse; Small; Rounded; Dark brown
Sparse; Large; Rounded; Yellowish-white

TCP605 TIP0276. TS02 TP104.PUW10S20 P02.1
Shape HUR19-HR; HU
Rim, Handle; Poor. Thickness 13.6 mm
Fabric Self Slip; Coarse; Medium; Gritty; Poor
Munsell: 2.5Y 8/2; 7.5YR 6/4; 7.5YR 6/4
Inclusions Common; Small; Sub-Rounded; Dark red
Sparse; Large; Angular; Red
Sparse; Small; Sub-Rounded; Yellowish-white

TCP606 TIP0257. TS02 TP104.PUW15N0 P04.1
Shape Pit08-RM; HU
Rim; Medium
Diam. 450 mm; Internal; Rim thickness 134 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 4/4; 10YR 7/2; 5YR 4/4
Inclusions Common; Medium; Sub-Rounded; Dark brown
Common; Small; Angular; Whitish
Sparse; Medium; Rounded; Reddish. Limestone

TCP607 TIP0252. TS02 TP104.PUW15S15 P01.1
Shape Mav01-HR; Tr
Fabric Self Slip; Medium; Hard; Medium; Good
Munsell: 2.5Y 8/2; 2.5Y 8/2; 5YR 6/6
Inclusions Common; Small; Sub-Rounded; Black & grey
Common; Small; Rounded; Brown
Unknown; Sparse oblong
Comments Same fabric as TCP608.

TCP608 TIP0249. TS02 TP104.PUW15S5 P01.1
Shape Mav01-HR; Tr
Base; Medium. Diam. 744 mm; External; Base
Fabric Self Slip; Medium; Hard; Medium; Good
Munsell: 2.5Y 8/6; 2.5YR 6/6
Inclusions Common; Small; Sub-Rounded; Black and grey
Common; Small; Rounded; Brown
Unknown; Sparse oblong

TCP609 TIP0250. TS02 TP104.PUW15S5 P02.1
Shape Mav03-HR; Tr
Rim; Good
Diam. 20 mm; External; Rim thickness 7.7 mm
Fabric Self Slip; Medium; Medium; Gritty; Poor
Munsell: 2.5Y 8/2; 2.5Y 8/2; 5YR 6/6
Inclusions Common; Small, Medium; Sub-Rounded; Red
Sparse; Small, Medium; Angular; Black
Sparse; Small; Rounded; Yellowish lime
Sparse; Tiny; Angular; Black

TCP610 TIP0268. TS02 TP104.PUW15S5 P03.1
Shape Pit10-LR; HU
Rim; Medium
Diam. 150 mm; Internal; Rim thickness 15 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 7.5YR 5/4; 7.5YR 5/4; 7.5YR 4/4
Inclusions Common; Small; Sub-Rounded; White
Common; Small; Angular; Brown; Reflective
Common; Medium; Sub-Rounded; Dark brown; Reflective. Limestone

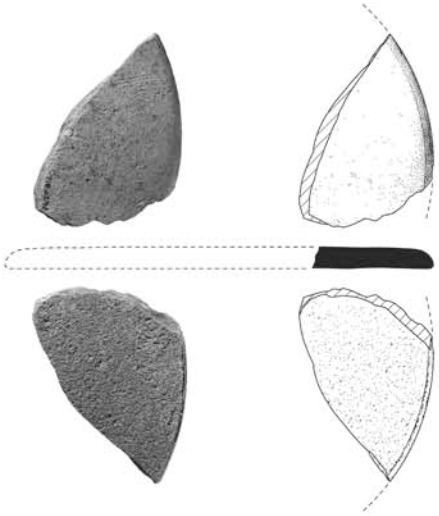
TCP611 TIP0269. TS02 TP104.PUW15S5 P04.1
Shape HUR17-HR; HU
Rim; Poor
Diam. 230 mm; Internal; Rim thickness 11 mm
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 2.5Y 8/2; 2.5Y 8/2; 5YR 6/4
Inclusions Common; Tiny; Sub-Rounded; Yellowish lime
Rare; Medium; Angular; White
Sparse; Tiny; Rounded; Black

TCP612 TIP0277. TS02 TP104.PUW20N0 P01.1
Shape TiSkC03-LR; Ar
Rim; Medium. Thickness 21 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Small, Medium; Sub-Rounded; Whitish
Sparse; Medium; Sub-Rounded; Red; Reflective. Limestone

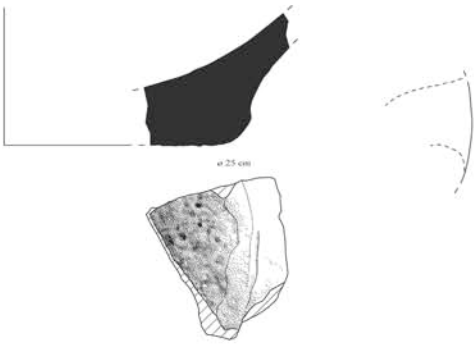
TCP613 TIP0244. TS02 TP104.PUW20S15 P01.1
Shape TiP-HR; Ar
Rim; Medium
Thickness 14.5 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Common; Tiny; Sub-Rounded; White
Common; Small; Sub-Rounded; Dark brown; Reflective
Common; Large; Sub-Rounded; Brown. Limestone
Comments Date suggested by the form & context.

TCP614 TIP0272. TS02 TP104.PUW20S15 P03.1
Shape Pit11-RM; HU
Rim; Poor
Diam. 400 mm; Internal; Rim thickness 17 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 5/6; 10YR 6/4; 2.5YR 5/6
Inclusions Abundant; Small; Sub-Rounded; Brown; Reflective
Common; Small; Sub-Rounded; White
Common; Medium; Sub-Rounded; Brown; Reflective
Sparse; Large; Sub-Rounded; Reddish; Reflective Limestone

TCP615 TIP0251. TS02 TP104.PUW20S25 P01.1
Shape Mav01-HR; Tr
Decoration Twisted.
Diam. 69 mm; External; Base thickness 13 mm
Fabric Self Slip; Coarse; Soft; Gritty; Medium
Munsell: 2.5YR 8/3; 7.5YR 7/4; 7.5YR 7/4
Inclusions Abundant; Small, Medium; Angular; Black & white
Sparse; Small, Medium; Angular; Red
Sparse; Medium; Angular; Quartz
Limestone; Organic; Sparse
Comments Same fabric as TCP602.



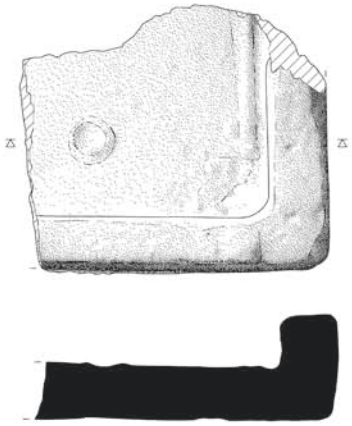
TCP616



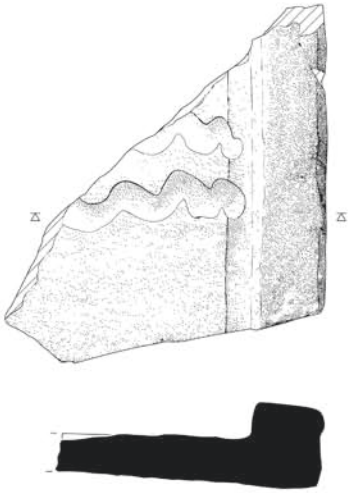
TCP617

TCP619

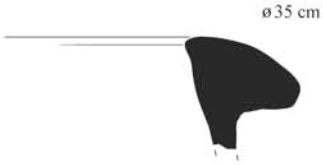
TCP626



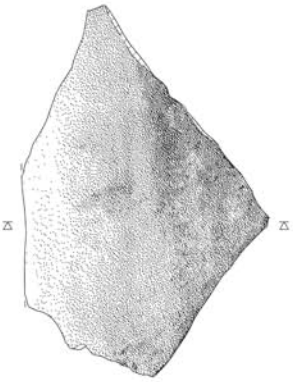
TCP622



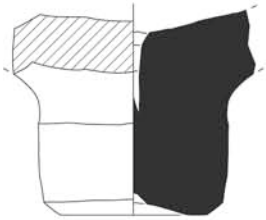
TCP621



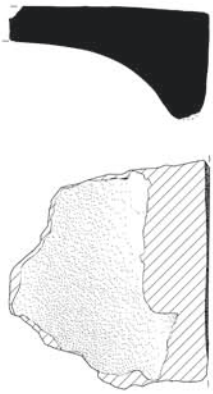
TCP624



TCP 623



TCP267



TCP625

TCP618

0 20 cm

0 10 cm

TCP616 TIP0248. TS02 TP104.PUW20S5 P01.1
Shape HUL01-HR; HU
Lid; Good
Diam. 222 mm; External; Other thickness 9 mm
Fabric Self Slip; Coarse; Medium; Gritty; Medium
Munsell: 2.5Y 8/4; 2.5Y 8/4; 2.5Y 8/4
Inclusions Common; Small, Medium; Sub-Rounded; Brownish and black
Rare; Medium; Angular; White
Sparse; Small, Medium; Sub-Rounded; Grey

TCP617 TIP0258. TS02 TP104.PUW25N0 P01
Shape Pit09-RM; HU
Poor
Diam. 240 mm; External; Base thickness 204 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Small; Angular; White
Common; Small; Rounded; Orange
Sparse; Medium; Sub-Rounded; Red
Limestone

TCP618 TIP0274. TS02 TP104.PUW25S10 P01.1
Shape CWCR03-LR; CW
Rim; Medium
Diam. 150 mm; Internal; Rim thickness 4.8 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 5Y 5/2; 5Y 5/2; 5Y 4/1
Inclusions Common; Tiny, Small; Angular; Quartz; Reflective
Limestone; Orange

TCP619 TIP0241. TS02 TP104.PUW5S20 P01.1
Shape Mav01-HR; Tr
Handle; Medium
Thickness 9 mm
Fabric Self Slip; Medium; Hard; Medium; Good
Munsell: 2.5Y 8/4; 5YR 6/6; 5YR 6/6
Inclusions Common; Small; Sub-Rounded; Black & grey
Common; Small; Rounded; Brown
Rare; Medium; Rounded; Reddish
Unknown; Occasional

TCP620 TIP0299. TS13 TP109.PU01 P05.1
Shape LUBW-OTTMODI; LU
Rim; Good
Diam. 150 mm; External; Rim thickness 7.1 mm
Fabric Self Slip; Medium; Medium; Gritty; Poor
Munsell: 2.5Y 8/3; 2.5Y 8/3; 2.5Y 7/2
Inclusions Common; Small; Sub-Rounded; rock fragments
Limestone; Abundant, beige

TCP621 TIP0717. TS13 TP109.PU04 P01.1
Shape TiP-HR; Ar
Rim; Good
Decoration 2 squiggly finger lines running away from rim. Reverse covered in lime. Red fabric group 2.
Thickness 16.8 mm
Fabric Ferrous; Coarse; Soft; Gritty; Poor
Munsell: 5YR 4/4; 5YR 4/4; 5YR 4/4
Inclusions Sparse; Large; Sub-Rounded; Grits
Sparse; Medium, Large; Sub-Rounded; Dark reddish-brown
Unknown; Common

TCP622 TIP0725. TS13 TP109.PU04 P02.1
Shape TiP-HR; Ar
Rim; Medium
Decoration Small depression with ring around on the flat part.
Thickness 27 mm
Fabric Self Slip; Coarse; Soft; Gritty; Poor
Munsell: 10YR 6/6; 10YR 6/6; 10YR 6/6
Inclusions Common; Small, Medium; Sub-Rounded; Grits
Common; Small, Medium, Large; Sub-Rounded; Red clay pellets
Sparse; Small; Angular; Pale Grey
Unknown; Common
Comments Unusually thick tile.

TCP623 TIP0728. TS13 TP109.PU04 P04.1
Shape TiSkC05-LR; Ar
Rim; Medium
Decoration The rim has small indentations. Scraped exterior surface. Interior surface covered in lime.
Thickness 17.6 mm
Fabric Ferrous; Medium; Soft; Medium; Poor
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Reddish-brown
Sparse; Large; Sub-Rounded; Red
Limestone; Organic; Common
Comments Kitchen ware-like fabric.

TCP624 TIP0347. TS15 TP119.PUB09 P01.1
Shape Pit12-GAC; HU
Rim; Medium
Diam. 50 mm; External; Rim thickness 10.5 mm
Fabric Mixed; Coarse; Medium; Medium; Medium
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/4
Inclusions Abundant; Tiny; Sub-Rounded; Greyish-white
Limestone; Abundant

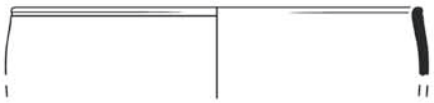
TCP625 TIP0364. TS15 TP119.PUC04 P01.1
Shape Ti-HA; Ar
Rim; Medium
Thickness 18.3 mm
Fabric Ferrous; Coarse; Soft; Gritty; Medium
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Common; Small; Rounded; Greyish grits

TCP626 TIP0361. TS15 TP119.PUC05 P02.1
Shape La01-ER; La
Body; Medium
Radiating fluting on the discus.
Thickness 3.3 mm
Fabric Mixed; Fine; Medium; Smooth; Good
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish
Comparanda Nicolaou 1984, pl. VIII, no. 149; Bailey 1988, 306, no. Q2444.

TCP627 TIP0366. TS15 TP119.PUC07 P05.1
Shape HUB03-HA; HU
Base; Good
Diam. 9 mm; External; Base
Fabric Self Slip; Coarse; Medium; Gritty; Poor
Munsell: 7.5YR 7/4; 7.5YR 7/4; 7.5YR 7/4
Inclusions Abundant; Tiny; Sub-Rounded; Reddish-beige
Common; Medium, Large; Sub-Rounded; White; Reflective
Limestone; Abundant

Pottery catalogue: TCP616–19, TCP621–27 (drawings: Jean Humbert; photos: Chris Parks)

TCP639



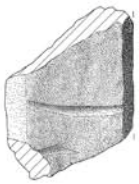
TCP633

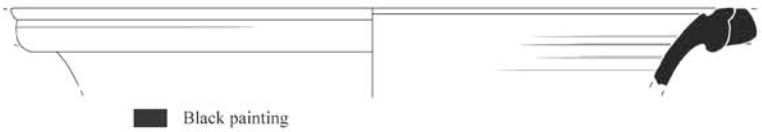
TCP638

0 10 cm

TCP629

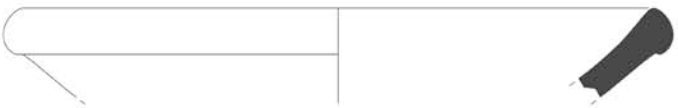
TCP630





TCP631

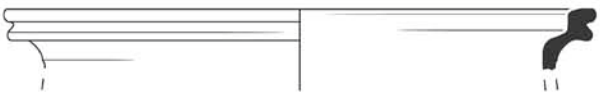
TCP634



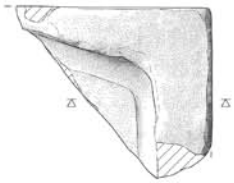
TCP632

TCP635

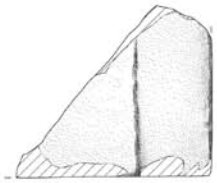
TCP636



TCP637



TCP642



0 20 cm

TCP640

TCP628 TIP0346. TS15 .PUC08 P02.1
Shape TiCA-ROM; Ar
Rim; Good
Thickness 18 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 2.5YR 4/8; 2.5YR 4/8; 2.5YR 4/8
Inclusions Abundant; Medium; Angular; Greyish-black
Abundant; Small; Sub-Rounded; Greyish-black-whitish
Sparse; Medium; Angular; Grits
Limestone; Few
Comments Fabric same as TCP557.

TCP629 TIP0352. TS15 TP119.PUD07 P01.1
Shape HUR01A-LR; HU
Rim; Medium
Diam. 480 mm; External; Rim thickness 11.1 mm
Fabric Mixed; Medium; Soft; Medium; Medium
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 6/4
Inclusions Common; Tiny, Small, Medium; Rounded; White
Limestone; Oolites; Common

TCP630 TIP0351. TS15 TP119.PUD08 P01.1
Shape Per-GAC; HU
Rim; Medium
None
Diam. 300 mm; External; Rim thickness 12 mm
Fabric Mixed; Medium; Hard; Gritty; Medium
Munsell: 5YR 6/4
Inclusions Abundant; Small; Angular; Red & black
Sparse; Medium; Rounded; White
Limestone
Comments 'Persian bowl' coarse ware basin; evidence of grinding.

TCP631 TIP0349. TS15 TP119.PUD11 P01.1
Shape LUR01-ROM; LU
Rim; Good
Diam. 400 mm; External; Rim thickness 7.8 mm
Fabric Self Slip; Medium; Soft; Medium; Medium
Munsell: 2.5Y 7/3; 2.5Y 7/3; 7.5YR 7/3
Inclusions Common; Tiny, Small; Sub-Rounded; White
Common; Tiny, Small, Medium, Large; Sub-Rounded; Red
Limestone; Common

TCP632 TIP0348. TS15 TP119.PUD12 P01.1
Shape Per-GAC; HU
Rim; Poor
None
Diam. 450 mm; External; Rim thickness 14 mm
Fabric Self Slip; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 8/3; 2.5YR 8/3; 2.5YR 8/3
Inclusions Common; Small; Sub-Rounded; White; Reflective
Sparse; Large; Sub-Rounded; Peach
Limestone
Comments 'Persian bowl' coarse ware basin.

TCP633 TIP0365. TS15 TP119.PUE06 P01.1
Shape CC-LHER; TW
Rim; Medium
Matt brown slip.
Diam. 10.5 mm; External; Rim thickness 2.3 mm
Fabric Mixed; Fine; Soft; Smooth; Medium
Munsell: 7.5YR 7/6; 7.5YR 7/6; 7.5YR 7/6
Inclusions Abundant; Tiny; Sub-Rounded; Sand

TCP634 TIP0350. TS15 TP119.PUE06 P03.1
Shape TiSkC04-LR; Ar
Body; Medium
Thickness 15.3 mm
Fabric Mixed; Coarse; Medium; Medium; Poor
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 6/4
Inclusions Abundant; Tiny; Sub-Rounded; Greyish-white
Common; Medium; Sub-Rounded; Greyish-brown
Limestone; Common

TCP635 TIP0353. TS15 TP119.PUE08 P01.1
Shape EGAm-GAC; Tr
Rim; Good
Decoration None. Interesting triple-core.
Diam. 146 mm; External; Rim thickness 7 mm
Fabric Ferrous; Fine; Hard; Smooth; Good
Munsell: 7.5YR 6/6; 5YR 6/6; 7.5YR 4/2
Inclusions Abundant; Tiny; Sub-Rounded; Grey; Reflective
Rare; Medium; Rounded; White
Sparse; Small; Rounded; White
Limestone

TCP636 TIP0355. TS15 TP119.PUF01 P02.1
Shape HUR25-HIS; HU
Rim; Medium
Diam. 260 mm; External; Rim thickness 10.3 mm
Fabric Ferrous; Coarse; Soft; Medium; Medium
Munsell: 5YR 5/4; 5YR 5/4; 10YR 4/1
Inclusions Abundant; Tiny; Sub-Rounded; Grey quartz
Limestone; Common

TCP637 TIP0354. TS15 TP119.PUF02 P01.1
Shape CWPR09-HR; CW
Rim; Medium
Diam. 180 mm; External; Rim thickness 4.2 mm
Fabric Ferrous; Medium; Soft; Medium; Medium
Munsell: 7.5YR 5/3; 7.5YR 5/3; 7.5YR 5/3
Inclusions Rare; Medium; Sub-Rounded; Black
Rare; Large; Sub-Rounded; Red
Limestone; Common
Comments Overfired.

TCP638 TIP0582. TS15 TP119.PUF04 P02.1 (Plate 3.7)
Shape BORO-GAC; TW
Body; Medium
Decoration Red slip & burnished. Black manganese painted horizontal stripes & handle tail.
Thickness 4 mm
Fabric Mixed; Fine; Hard; Medium; Good
Munsell: 2.5YR 5/6; 7.5YR 4/1; 10YR 7/4
Inclusions Sparse; Small; Angular; Multi; Reflective
Comments Inside misfired? Black on black.

TCP639 TIP0356. TS15 TP119.PUF04 P06.1
Shape AmSk01-ROM; Tr
Rim; Medium
Thickness 4 mm
Fabric Self Slip; Fine; Medium; Smooth; Medium
Munsell: 10YR 8/3; 10YR 8/3; 10YR 8/3
Inclusions Common; Tiny, Small; Rounded; Red
Sparse; Small; Sub-Rounded; Black
Sparse; Small; Angular; White
Limestone; Common

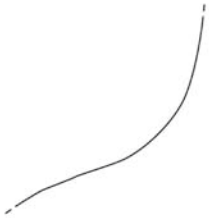
TCP640 TIP0358. TS15 TP119.PUF07 P02.1
Shape Ti-HA; Ar
Rim; Good
Thickness 21.6 mm
Fabric Ferrous; Coarse; Medium; Medium; Medium
Munsell: 5YR 5/4; 5YR 5/4; 5YR 5/4
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish
Common; Tiny, Small; Angular; Black

TCP641 TIP0359. TS15 TP119.PUG10 P02.1
Shape TiSkC03-LR; Ar
Rim; Good
Thickness 11.5 mm
Fabric Ferrous; Coarse; Medium; Gritty; Medium
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Grey quartz
Common; Small, Medium; Sub-Rounded; Dark red
Limestone; Abundant

TCP642 TIP0360. TS15 TP119.PUX02 P01.1
Shape HUR26-HA; HU
Rim, Handle; Good
Diam. 270 mm; External; Rim thickness 8.3 mm
Fabric Ferrous; Medium; Medium; Medium; Medium
Munsell: 2.5YR 6/8; 2.5YR 6/8; 2.5YR 6/8
Inclusions Abundant; Tiny; Sub-Rounded; Sand
Common; Tiny; Sub-Rounded; Greyish-white
Sparse; Medium; Sub-Rounded; White

Pottery catalogue: TCP629–40, TCP642 (drawings: Jean Humbert; photo: Chris Parks)

TCP643

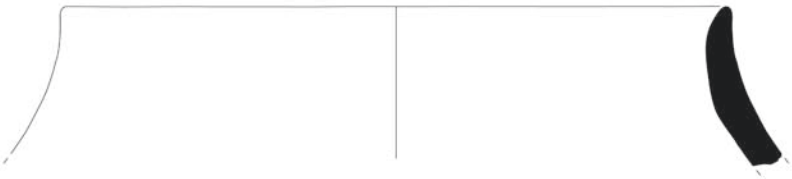


TCP644

Burnished

TCP645

TCP647



TCP652

TCP643 TIP0484. TS06 TP135.PU01 P03.1
Shape RM-CHAL; TW
Base; Medium
Decoration Thick slip & well burnished. Blackened interior with fire-clouding on exterior.
Thickness 6 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 5YR 5/4; 5YR 4/1; 5YR 3/1
Inclusions Abundant; Small; Sub-Rounded; Red & white. Organic
Comments Small open fine ware with edge of indented base preserved. Surface has much chaff burn-through.

TCP644 TIP0485. TS06 TP135.PU01 P04.2
Shape RMP-LChPh; HU
Body; Medium
Thick slip & lightly burnished.
Thickness 20 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 2.5YR 5/4; 2.5YR 5/6; 5YR 2.5/1
Inclusions Abundant; Small; Rounded; Brown
Sparse; Large; Sub-Rounded; Grey-brown. Organic
Comments Very large jar with unfinished interior. Black core with some chaff.

TCP645 TIP0471. TS06 TP135.PU01 P04.1
Shape RMP-LChPh; HU
Rim; Medium
Decoration Thin red slip with streak burnish on interior.
Diam. 360 mm; External; Rim thickness 10 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 5YR 5/6; 2.5YR 4/6; 5YR 4/6
Inclusions Abundant; Tiny; Sub-Rounded; White; Reflective Organic

TCP646 TIP0473. TS06 TP135.PU01 P05.1
Shape RMP-LChPh; HU
Body; Medium
Decoration Exterior red slip with even burnish. Interior unfinished.
Thickness 12 mm
Fabric Mixed; Medium; Hard; Medium; Medium
Munsell: 2.5YR 4/6; 10YR 6/3; 10YR 5/1
Inclusions Common; Small; Sub-Rounded; White; Reflective
Common; Medium; Sub-Rounded; Grey. Organic
Comments Large closed vessel. Clay is mixed/calcareous, slip is ferrous. Thick grey-core, high organic content.

TCP647 TIP0472. TS06 TP135.PU01 P11.1
Shape RPOM-PeB; LU
Base; Medium
Decoration Medium-thick slip & generally well burnished.
Diam. 25 mm; External; Base thickness 8 mm
Fabric Ferrous; Fine; Hard; Medium; Good
Munsell: 5YR 5/4; 2.5YR 4/8; 2.5YR 4/2
Inclusions Common; Tiny; Sub-Rounded; White; Reflective Organic
Comments Intended base of open vessel or wide mouthed jar. Could possibly be Red Monochrome ware (RM).

TCP648 TIP0474. TS06 TP135.PU02 P06.1
Shape RMP-LChPh; LU
Body; Poor
Decoration Incised chevron, then red slip & burnish.
Thickness 7 mm
Fabric Mixed; Fine; Soft; Smooth; Good
Munsell: 2.5YR 4/6; 10YR 7/2; 10YR 6/1
Inclusions Common; Small; Sub-Rounded; Grey; Reflective
Sparse; Small; Rounded; Reddish
Organic
Comments Decoration looks like RP ware but fabric is highly organic. Mixed to calcareous paste with ferrous slip.

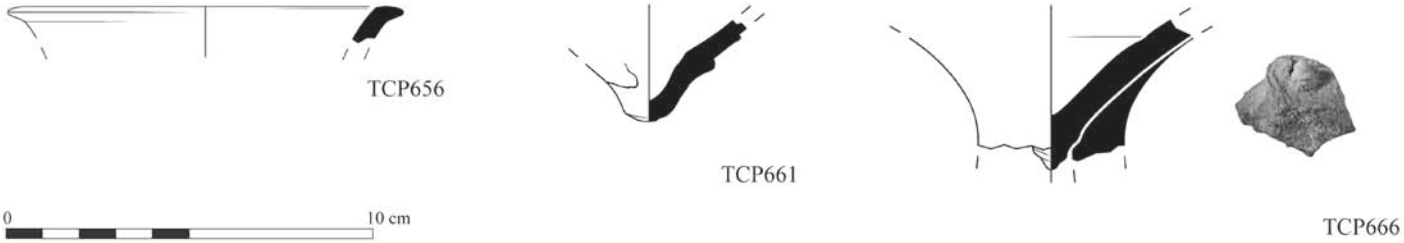
TCP649 TIP0475. TS06 TP135.PU02 P09.1
Shape RPC-PeB; LU
Body; Medium
Decoration Red slip & burnish on exterior with interior unfinished.
Diam. 40 mm; External; Other thickness 6 mm
Fabric Ferrous; Fine; Hard; Medium; Good
Munsell: 2.5YR 5/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Small; Sub-Rounded; White
Comments Narrow straight bottle neck & ferrous clay matrix.

TCP650 TIP0477. TS06 TP135.PU03 P02.1
Shape RM-CHAL; HU
Body; Medium
Decoration Exterior & interior both slipped & burnished. Exterior crackling & dark brown fire-clouded.
Thickness 19 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 5YR 3/2; 2.5YR 5/6; 2.5YR 5/8
Inclusions Abundant; Small; Sub-Rounded; Reddish
Common; Medium; Angular; Brown
Organic; Very porous
Comments Small frequent chaff inclusions. Very porous with vivid red-orange fabric. Fairly well sorted for Chalcolithic

TCP651 TIP0478. TS06 TP135.PU03 P02.2
Shape RM-CHAL; HU
Body; Medium
Decoration Thick slip & well burnished. Stacking line on interior. Slip spalling around chaff burn-through.
Thickness 11 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 5YR 4/4; 5 YR 5/6; GLEY 3/N
Inclusions Common; Small; Sub-Rounded; White; Reflective
Sparse; Medium; Sub-Rounded; White. Organic
Large bowl, well finished.

TCP652 TIP0470. TS06 TP135.PU04 P01.1
Shape RMCL-CHAL; HU
Rim; Poor
Decoration Thick slip with relatively uniform burnish. Fired streaky & blotchy with chaff impressions on surface.
Diam. (neck). 280 mm; Internal; Other thickness 18 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor;
Munsell: 2.5YR 4/2; 2.5YR 5/6; 2.5YR 3/0
Inclusions Common; Medium; Sub-Rounded; Brown
Common; Tiny; Sub-Rounded; White/clear; Reflective
Organic; Large chaff
Comments Large open mouth storage jar.

Pottery catalogue: TCP643–45, TCP647, TCP652 (drawings: Jean Humbert)



TCP653	TIP0476. TS06 TP135.PU05 P04.1
Shape	RM-CHAL; HU Body; Medium
Decoration	Light slip all over, same as matrix. Exterior stroke burnished, interior well burnished. Diam. 40 mm; Internal; Other thickness 10 mm
Fabric	Mixed; Fine; Hard; Medium; Good Munsell: 5YR 7/4; 5YR 6/6; 5YR 8/4
Inclusions	Sparse; Small; Sub-Rounded; White Sparse; Medium; Rounded; Red Unknown
Comments	Mixed clay possible. Bottle neck with vertical stroke burnish or very large bowl. Unusual peach colour
TCP654	TIP0440. TS06 TP135.PU06 P02.1
Shape	RM-CHAL; LU Body; Medium
Decoration	Exterior slip with red & grey blotches, burnished. Thickness 8 mm
Fabric	Mixed; Fine; Medium; Medium; Good Munsell: 10YR 6/3; 10YR 8/3; 10YR 4/1
Inclusions	Sparse; Medium; Sub-Rounded; Reddish

	Sparse; Medium; Sub-Rounded; Grey; Reflective
	Sparse; Tiny; Sub-Rounded; White/clear; Reflective
	Organic; Chaff
Comments	Bit of carination preserved possibly on base.

TCP655	TIP0486. TS06 TP135.PU08 P01.1
Shape	RPT-PeB; TW
	Body; Medium
Decoration	Exterior fine red slip with stroke burnish. Interior unfinished.
	Thickness 6 mm
Fabric	Mixed; Fine; Hard; Medium; Good
	Munsell: 5YR 7/4
Inclusions	Sparse; Small; Sub-Rounded; White; Reflective
	Sparse; Tiny; Rounded; Red & grey. Organic
Comments	Fine ware closed vessel.

TCP656	TIP0487. TS06 TP135.PU08 P01.2
Shape	RPT-PeB; TW
	Rim; Medium
Decoration	Fine red slip, highly polished.
	Diam. 90 mm; External; Rim thickness 5 mm
Fabric	Mixed; Fine; Medium; Smooth; Good
	Munsell: 2.5YR 4/6; 2.5YR 4/6; 10YR 6/4
Inclusions	Rare; Small; Angular; White
	Rare; Tiny; Sub-Rounded; White; Reflective
	Rare; Small; Sub-Rounded; Red; Reflective
Comments	Everted rim of small fine ware vessel (bowl?). Looks almost like LBA red slip.

TCP657	TIP0488
	TS06 TP135.PU08 P07.1
Shape	RM-CHAL; LU
	Body; Medium
Decoration	Red slip & burnish with stack marks on both surfaces.
	Thickness 8 mm
Fabric	Ferrous; Medium; Hard; Gritty; Medium
	Munsell: 2.5YR 4/4; 10R 5/6; 10R 5/6
Inclusions	Sparse; Small; Sub-Rounded; Black
	Sparse; Small; Sub-Rounded; Red; Reflective
	Organic
	Some chaff. Could possibly be RP ware.

TCP658	TIP0439
	TS06 TP135.PU10 P03.1
Shape	RM-CHAL; LU
	Rim; Medium
Decoration	Thin red slip. Streaky burnish.
	Thickness 7 mm
Fabric	Ferrous; Medium; Medium; Gritty; Medium
	Munsell: 2.5YR 5/6; 2.5YR 5/6; 5YR 5/3
Inclusions	Abundant; Tiny; Sub-Rounded; Tan
	Sparse; Medium; Sub-Rounded; White
	Sparse; Large; Angular; Brown chaff
	Organic; Chaff
Comments	Plain rimmed deep bowl.

TCP659	TIP0647
	TS05 TP146.PU01 P01.1
Shape	CWPR04c-ER; CW
	Rim, Handle, Body; Good
	Diam. 215 mm; External; Rim thickness 4.3 mm
Fabric	Ferrous; Coarse; Soft; Gritty; Medium
	Munsell: 2.5YR 6/8; 2.5YR 6/8; 2.5YR 6/8
Inclusions	Abundant; Tiny; Sub-Rounded; Greyish-brown
	Sparse; Medium; Rounded; Grits

TCP660	TIP0646
	TS05 TP146.PU01 P03.1
Shape	Jug-ER; LU
	Handle, Base, Body; Good
	Diam. 8.5 mm; External; Base thickness 4.6 mm
Fabric	Self Slip; Medium; Medium; Medium; Medium
	Munsell: 7.5YR 8/4; 7.5YR 8/4; 7.5YR 8/4
Inclusions	Common; Tiny; Sub-Rounded; Black
	Sparse; Small; Sub-Rounded; Red
	Sparse; Medium; Angular; White

TCP661	TIP0639
	TS01 TP171.PU01 P01.33
Shape	AmSk01-ROM; Tr
	Base; Poor
Fabric	No fabric description (salts & chemicals). See TCP357.
Comments	Twisted base of vessel.

TCP662	TIP0617
	TS01 TP171.PU01 P01.11
Shape	AmSk01-ROM; Tr
	Rim; Poor
	Diam. 130 mm; External; Rim thickness 6.4 mm
Fabric	No fabric description (salts & chemicals). See TCP357.

TCP663	TIP0614
	TS01 TP171.PU01 P01.8
Shape	AmSk01-ROM; Tr
	Handle; Poor
	Thickness 4.4 mm
Fabric	No fabric description (salts & chemicals). See TCP357.

TCP664	TIP0607. TS01 TP171.PU01 P01.1
Shape	AmSk01-ROM; Tr
	Handle; Poor
	Thickness 5.8 mm
Fabric	No fabric description (salts & chemicals). See TCP357.

TCP665	TIP0615. TS01 TP171.PU01 P01.9
Shape	AmSk01-ROM; Tr
	Rim; Poor
	Diam. 131 mm; External; Rim thickness 4.1 mm
Fabric	No fabric description (salts & chemicals). See TCP357.

TCP666	TIP0629. TS01 TP171.PU01 P01.23
Shape	AmSk01-ROM; Tr
	Base; Poor
Fabric	No fabric description (salts & chemicals). See TCP357.

TCP667	TIP0619. TS01 TP171.PU01 P01.13
Shape	AmSk01-ROM; Tr
	Rim; Poor
	Diam. 120 mm; External; Rim thickness 5.9 mm
Fabric	No fabric description (salts & chemicals). See TCP357.

TCP668	TIP0621. TS01 TP171.PU01 P01.15
Shape	AmSk01-ROM; Tr
	Rim; Poor
	Diam. 130 mm; External; Rim thickness 5.7 mm
Fabric	No fabric description (salts & chemicals). See TCP357.

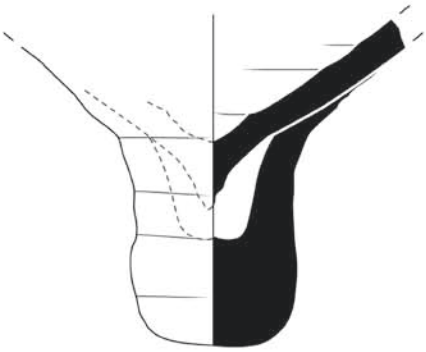
TCP669	TIP0623. TS01 TP171.PU01 P01.17
Shape	AmSk01-ROM; Tr
	Rim; Poor
	Diam. 120 mm; External; Rim thickness 5.5 mm
Fabric	No fabric description (salts & chemicals). See TCP357.

TCP670	TIP0625. TS01 TP171.PU01 P01.19
Shape	AmSk01-ROM; Tr
	Rim; Poor
	Diam. 120 mm; External; Rim thickness 4.4 mm
Fabric	No fabric description (salts & chemicals). See TCP357.

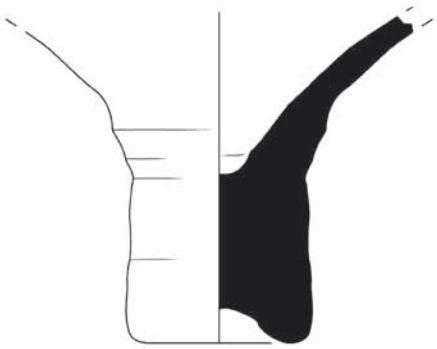
TCP671	TIP0626. TS01 TP171.PU01 P01.20
Shape	AmSk01-ROM; Tr
	Rim; Poor
	Diam. 140 mm; External; Rim thickness 7.2 mm
Fabric	No fabric description (salts & chemicals). See TCP357.

TCP672	TIP0640. TS01 TP171.PU01 P01.34
Shape	AmSk01-ROM; Tr
	Base; Poor
	Diam. 50 mm; Base
Fabric	No fabric description (salts & chemicals). See TCP357.

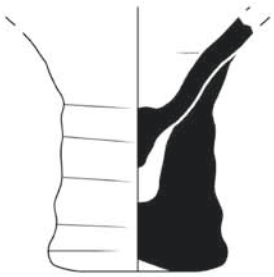
Pottery catalogue: TCP656, TCP658–72 (drawings: Jean Humbert; photos: Chris Parks)



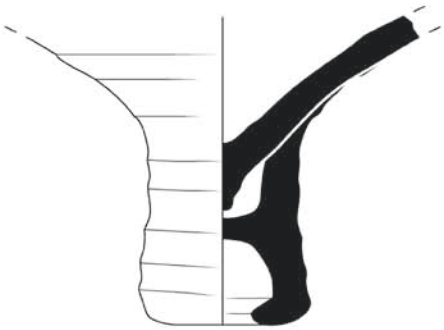
TCP673



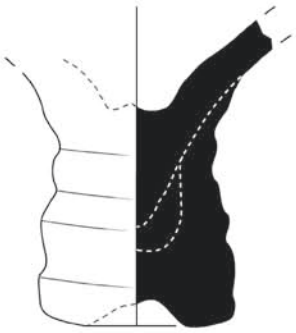
TCP674



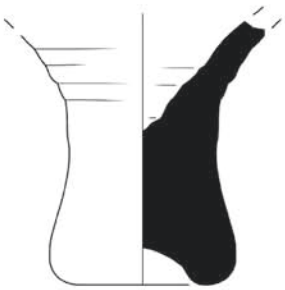
TCP675



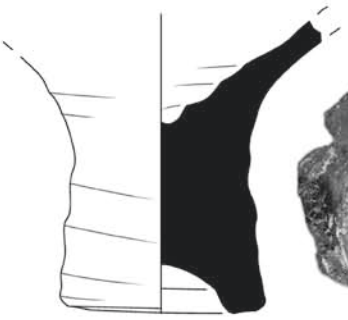
TCP676

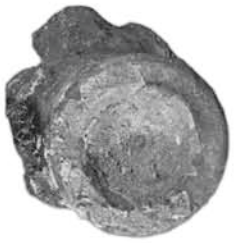


TCP677

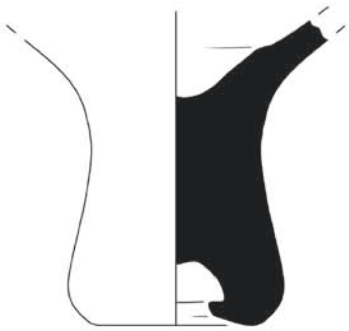


TCP678

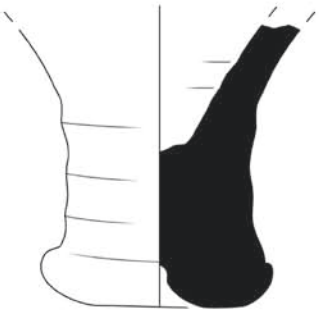




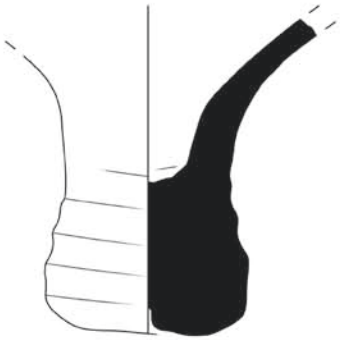
TCP679



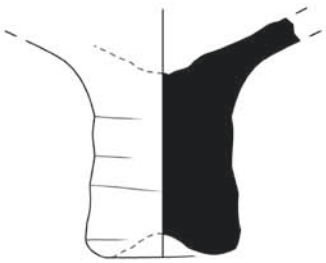
TCP681



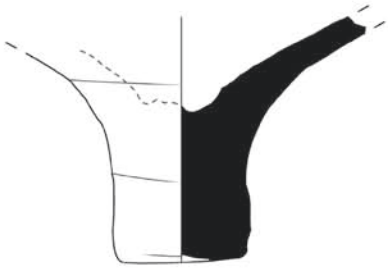
TCP680



TCP682



TCP684



TCP685

0 10 cm

TCP673 TIP0628. TS01 TP171.PU01 P01.22
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 40 mm; External; Base
Fabric No fabric description (salts & chemicals). See TCP357.

TCP674 TIP0638. TS01 TP171.PU01 P01.32
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 4.8 mm
Fabric No fabric description (salts & chemicals). See TCP357.

TCP675 TIP0630. TS01 TP171.PU01 P01.24
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 4.8 mm; External; Base
Fabric No fabric description (salts & chemicals). See TCP357.

TCP676 TIP0631. TS01 TP171.PU01 P01.25
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 48 mm; External; Rim
Fabric No fabric description (salts & chemicals). See TCP357.

TCP677 TIP0632. TS01 TP171.PU01 P01.26
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 50 mm; External; Rim
Fabric No fabric description (salts & chemicals). See TCP357.

TCP678 TIP0633. TS01 TP171.PU01 P01.27
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 5.8 mm; External; Base
Fabric No fabric description (salts & chemicals). See TCP357.

TCP679 TIP0634
TS01 TP171.PU01 P01.28
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 6.4 mm; External; Base
Fabric No fabric description (salts & chemicals). See TCP357.

TCP680 TIP0635. TS01 TP171.PU01 P01.29
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 60 mm; External; Rim
Fabric No fabric description (salts & chemicals). See TCP357.

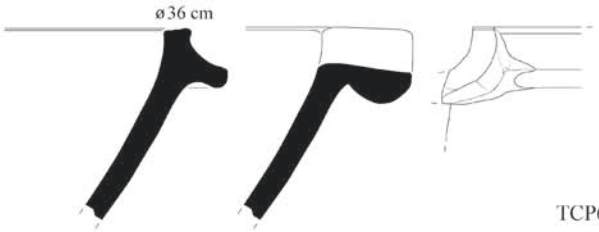
TCP681 TIP0636. TS01 TP171.PU01 P01.30
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 5.4 mm; External; Base
Fabric No fabric description (salts & chemicals). See TCP357.

TCP682 TIP0637. TS01 TP171.PU01 P01.31
Shape AmSk01-ROM; Tr
Base; Poor
Diam. 50 mm; External; Rim
Fabric No fabric description (salts & chemicals). See TCP357.

TCP683 TIP0605. TS01 TP171.PU01 P02.3 (illustrations on next page)
Shape AmSk02-ROM; Tr
Handle; Poor
Fabric No fabric description (salts & chemicals). See TCP357.

TCP684 TIP0604. TS01 TP171.PU01 P02.2
Shape AmSk02-ROM; Tr
Base; Poor
Diam. 40 mm; External; Base
Fabric No fabric description (salts & chemicals). See TCP357.

TCP685 TIP0603. TS01 TP171.PU01 P02.1
Shape AmSk02-ROM; Tr
Base; Poor
Diam. 34 mm; External; Base
Fabric No fabric description (salts & chemicals). See TCP357.



TCP690

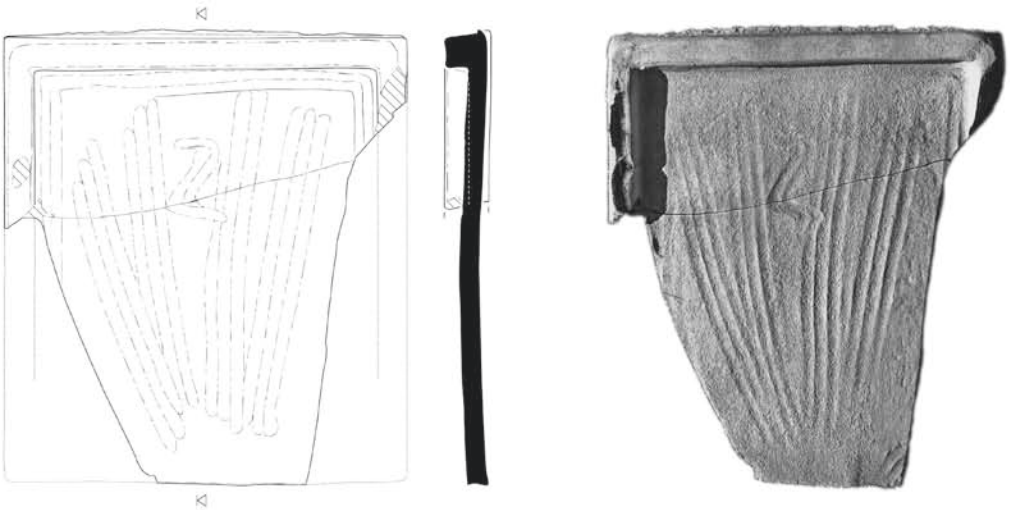
TCP688

TCP686

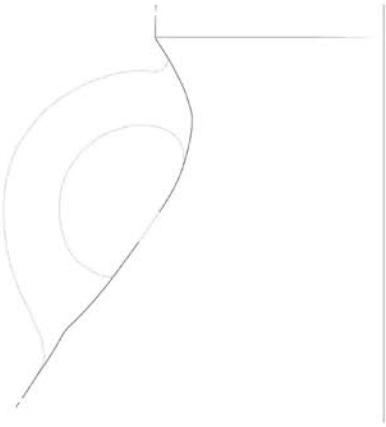
TCP687

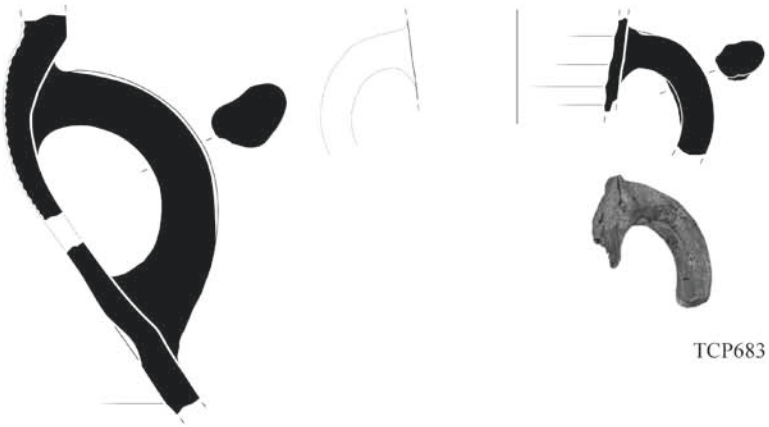
TCP689

TCP692



TCP693





TCP683

TCP691

TCP686 TIP0606. TS01 TP171.PU01 P02.4
Shape AmSk02-ROM; Tr
Rim; Poor
Diam. 105 mm; External; Rim thickness 4.1 mm
Fabric No fabric description (salts & chemicals). See TCP357.

TCP687 TIP0644. TS01 TP171.PU01 P07.1
Shape AmSk03-ROM; Tr
Rim; Poor
Diam. 110 mm; External; Rim thickness 5.3 mm
Fabric No fabric description (salts & chemicals).

TCP688 TIP0642. TS18 TP202.PU01 P01.1
Shape CWCR02c-LR; CW
Rim; Poor
Diam. 230 mm; External; Rim thickness 3 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 7.5YR 6/4; 2.5YR 4/3; 2.5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Grey
Limestone; Common

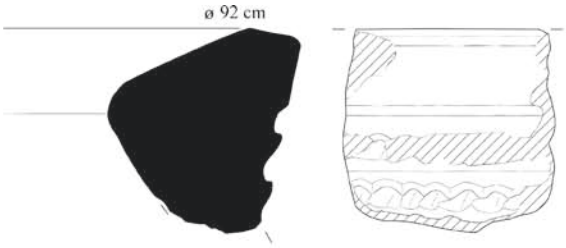
TCP689 TIP0641. TS18 TP202.PU01 P04.1
Shape CS-LHER; TW
Base; Medium
Thickness 4.2 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 7/6; 5YR 7/6; 5YR 7/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand
Comments Flat string cut base?

TCP690 TIP0663. TS18 TP202.PU05 P01.1
Shape Mor-LR; HU
Rim; Poor
Diam. 405 mm; External; Rim thickness 12.2 mm
Fabric Mixed; Medium; Medium; Smooth; Good
Munsell: 10YR 7/4; 10YR 7/4; 10YR 7/4
Inclusions Common; Small; Sub-Rounded; Black
Common; Small; Angular; White
Sparse; Small; Sub-Rounded; Red

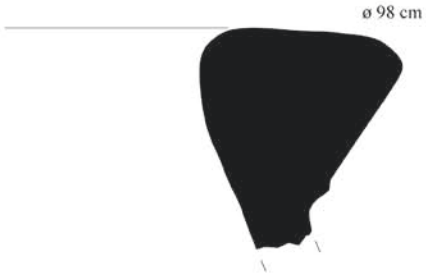
TCP691 TIP0664. TS18 TP202.PU05 P02.1
Shape Am13-ROM; Tr
Handle, Body; Poor
Thickness 16 mm
Fabric Mixed; Medium; Medium; Medium; Good
Munsell: 7.5YR 6/4; 7.5YR 6/4; 7.5YR 6/4
Inclusions Sparse; Small; Angular; White; Reflective
Sparse; Small; Sub-Rounded; Greyish-black; Reflective

TCP692 TIP0665. TS18 TP202.PU05 P03.1
Shape CWPDh-LR; CW
Diam. 150 mm; Internal; Rim thickness 3.2 mm
Fabric Ferrous; Coarse; Soft; Gritty; Good
Munsell: 2.5YR 5/8; 2.5YR 5/8; 2.5YR 5/8
Inclusions Common; Small; Angular; White
Sparse; Small; Sub-Rounded; White

TCP693 TIP0666. TS18 TP202.PU06 P01.1
Shape TiSk02-LR; Ar
Rim, Body; Medium
Thickness 17.8 mm
Fabric Self Slip; Medium; Medium; Medium; Medium
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Black
Common; Small, Medium; Sub-Rounded; Red
Sparse; Large; Sub-Rounded; Grits
Comments Joining fragments. Complete width & length 44 × 50 cm. Type in use until at least 11th c. (e.g. Roodenberg 2009, figs 6–7; Rosser 1983; Witte-Orr 2007, figs 5–8)

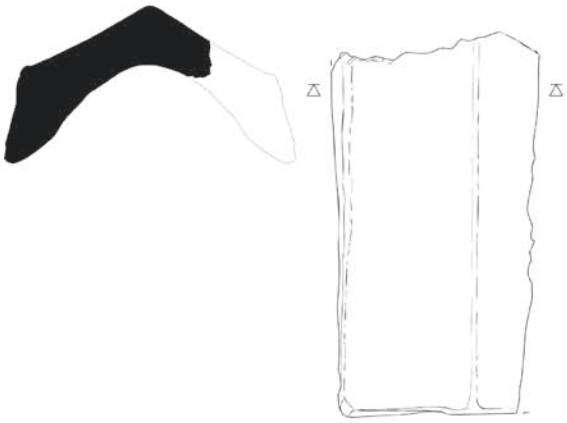


TCP694

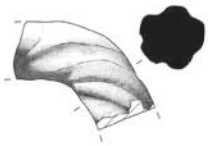


TCP695

TCP696

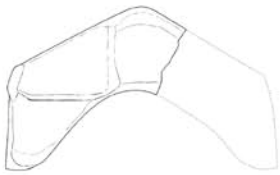


TCP697



TCP699

TCP700

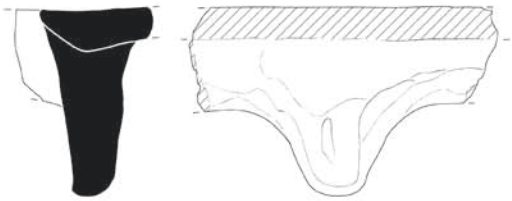


TCP698

TCP702

TCP701

TCP703



TCP704

TCP705

Brown painting

TCP706

Black paint

Red paint

TCP707

0 20 cm

TCP694 TIP0650. TS05 TP210.PU11 P01.1
Shape Pit07-ROM; HU
Rim; Medium
Diam. 50 mm; External; Rim thickness 45.6 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Common; Small; Sub-Rounded; Black & white
Sparse; Large; Rounded; Grey
Sparse; Large; Angular; Red
Limestone; Common

TCP695 TIP0651. TS05 TP210.PU38 P01.1
Shape Pit24-LR; HU
Rim; Medium
Diam. 600 mm; External; Rim thickness 30 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Small; Sub-Rounded; Black
Common; Medium, Large; Sub-Rounded; Black & white grits
Sparse; Tiny, Small; Sub-Rounded; White
Comments Fabric same as TCP011.

TCP696 TIP0652. TS05 TP211.PU01 P02.1
Shape CS58-ER; TW
Base; Good
Diam. 5.5 mm; External; Base thickness 6.1 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 5YR 6/6; 5YR 6/6; 5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish

TCP697 TIP0653. TS05 TP211.PU01 P03.1
Shape CS40-ER; TW
Rim; Good
Diam. 230 mm; External; Rim thickness 4.2 mm
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 6/6; 2.5YR 6/6; 2.5YR 6/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand

TCP698 TIP0654. TS05TS05 TP211.PU01 P05.1
Shape TiSkC02-LR; Ar
Rim; Good
Thickness 22.6 mm
Fabric Ferrous; Coarse; Medium; Gritty; Poor
Munsell: 5YR 5/6; 5YR 5/6; 5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Yellowish-brown
Common; Medium, Large; Rounded; Reddish-brown

TCP699 TIP0704. TP215.PU01 P07.1
Shape Lag-HEL; TW
Handle; Medium
Decoration Painted or slipped in dark brown or black.
Thickness 30 mm
Fabric Calcareous; Fine; Hard; Smooth; Good
Munsell: 2.5Y 6/4; 2.5Y 7/3
Inclusions Sparse; Small; Angular; Dark; Reflective
Comments Twisted handle of large vessel.

TCP700 TIP0705. TP215.PU01 P19.1
Shape LUB04-GAC; LU
Base; Good
Diam. 40 mm; External; Rim thickness 4.9 mm
Fabric Ferrous; Fine; Medium; Medium; Poor
Munsell: 5YR 5/3; 5YR 5/3; 5YR 4/1
Inclusions Sparse; Tiny; Angular; Lime
Sparse; Tiny; Sub-Rounded; Quartz
Comments String cut base, paper thin at centre: small hole. Difficult to describe because of firing.

TCP701 TIP0706. TP215.PU01 P37.1
Shape ERSAI-LR; TW
Rim; Medium
Decoration Burnished exterior with thick red slip. Discolouring present below the rim (brownish).
Diam. 350 mm; External; Rim thickness 4.6 mm
Fabric Ferrous; Fine; Soft; Smooth; Poor
Munsell: 2.5YR; 2.5YR; 2.5YR
Inclusions Common; Tiny; Sub-Rounded; Yellowish
Sparse; Tiny, Small; Angular; White organic lime
Unknown; Sparse, L–XL, Exterior
Form similar to Egyptian red slip form, but the texture is fine while the sorting is poor.

TCP702 TIP0702. TP216.PU01 P02.1
Shape Am06-HR; Tr
Rim; Good
Diam. 180 mm; External; Rim
Fabric Self Slip; Medium; Medium; Medium; Good
Munsell: 2.5Y 8/2; 2.5Y 8/2; 5YR 7/4
Inclusions Sparse; Tiny, Small; Sub-Rounded; Beige-red

TCP703 TIP0703. TP216.PU01 P03.1
Shape CWPDh-LR; CW
Rim, Handle; Good
Decoration Pale greyish-brown exterior.
Diam. 170 mm; Internal; Rim
Fabric Ferrous; Medium; Medium; Medium; Good
Munsell: 7.5YR 6/3; 10R 5/8; 10R 5/8
Inclusions Common; Tiny; Sub-Rounded; Milky yellowish-white quartz
Sparse; Tiny; Angular; Lime

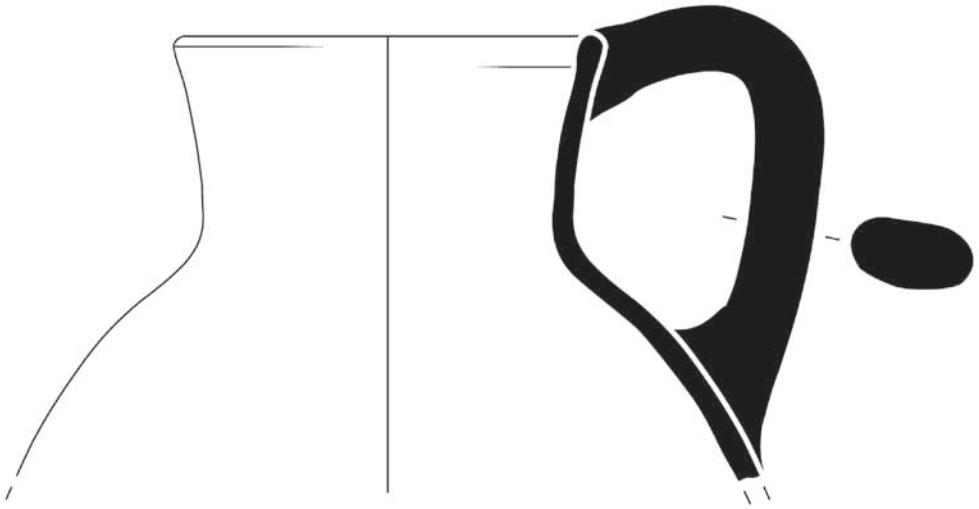
TCP704 TIP0682. TP220.PU04 P03.1
Shape Tri-MM; HU
Base; Good
Diam. 230 mm; Internal; Base
Fabric Ferrous; Coarse; Medium; Medium; Good
Munsell: 2.5YR 5/6; 2.5YR 5/6; 2.5YR 5/6
Inclusions Abundant; Tiny; Sub-Rounded; Grey
Sparse; Small; Sub-Rounded; Red

TCP705 TIP0677. TP220.PU07 P01.1
Shape CRS09-LR; TW
Rim; Medium
Diam. 280 mm; External; Rim
Fabric Ferrous; Fine; Medium; Smooth; Good
Munsell: 2.5YR 7/6; 2.5YR 7/6; 2.5YR 7/6
Inclusions Common; Tiny; Sub-Rounded; Yellowish sand

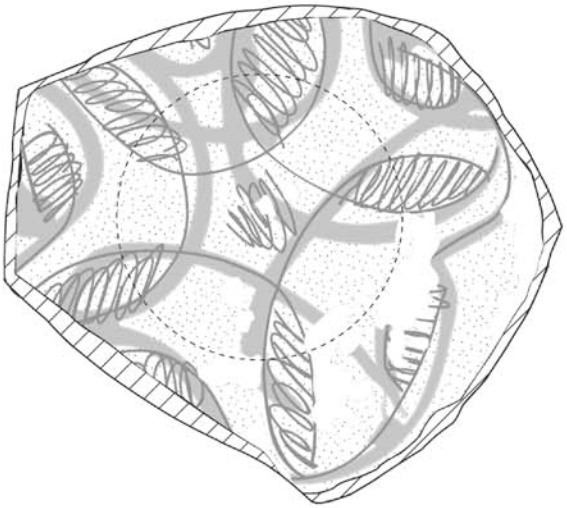
TCP706 TIP0721. TP239.PUE2S1 P01.1
Shape WSO-POB; TW
Rim; Poor
Decoration White slip, burnished with black horizontal band & wavy line.
Diam. 220 mm; External; Rim thickness 4 mm
Fabric Ferrous; Medium; Hard; Gritty; Medium
Munsell: 10YR 8/1; 7.5YR 8/2; 2.5YR 4/6
Inclusions Common; Small; Angular; Dark; Reflective
Sparse; Small; Rounded; White
Limestone
Comments Possibly White Slip Ware?

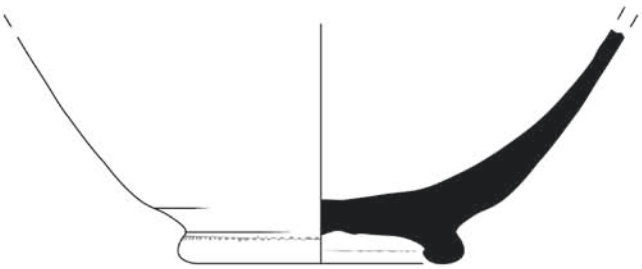
TCP707 TIP0708. TP248.PU01 P01.2
Shape WPC-AC; LU
Rim; Medium
Decoration Horizontal lines.
Diam. 240 mm; Internal; Rim thickness 5 mm
Fabric Mixed; Medium; Hard; Gritty; Medium
Munsell: 2.5YR 7/3; 2.5YR 7/3; 2.5YR 7/3
Inclusions Common; Small; Angular; Dark; Reflective
Sparse; Small; Sub-Rounded; White
Limestone
Comments Painted large jar with diagnostic rim.

Pottery catalogue: TCP694–TCP707 (drawings: Jean Humbert)



TCP708

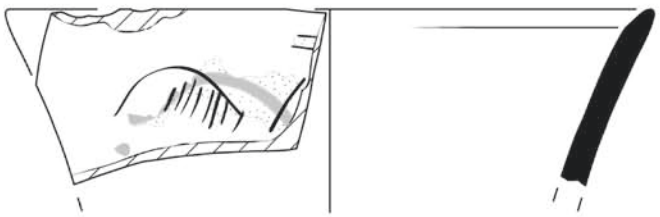




Glazed white

Glazed green

TCP709



Glazed white

Glazed green

TCP710

0 10 cm

TCP708 TIP0707. TP248.PU01 P02.1
Shape CW-AC; CW
Rim; Good
Diam. 90 mm; Internal; Rim thickness 4 mm
Fabric Ferrous; Coarse; Hard; Gritty; Medium
Munsell: 10R 4/6; 2.5YR 4/4; 2.5YR 4/4
Inclusions Sparse; Small; Angular; Dark; Reflective
Sparse; Small; Sub-Rounded; Red
Sparse; Small; Rounded; White
Limestone
Comments Classic GAC cooking pot.

TCP709 TIP0737. TP250.PU01 P01 (Plate 3.7)
Shape CGS06-MEDVOTT; TW
Base; Medium
Decoration Interior: white slip & transparent lead glaze. Incised & green painted decoration (P377).
Diam. 65 mm; External; Base thickness 8 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 7.5YR 6/6; 5Y 8/3; 7.5YR 6/6
Inclusions Sparse; Tiny; Sub-Rounded; Silver; Reflective
Limestone
Comments Green Painted Sgraffito Ware, Lapithos. Late 15th–early 16th c.

TCP710 TIP0738. TP250.PU01 P01.1 (Plate 3.7)
Shape CGS06-MEDVOTT; TW
Rim; Poor
Decoration Interior: traces of white slip & transparent lead glaze; incised & green painted decoration (P362).
Diam. 140 mm; External; Rim thickness 5 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 7.5YR 7/6; 5Y 8/3; 7.5YR 7/6
Inclusions Limestone
Comments Green Painted Sgraffito Ware, Lapithos. Late 15th–early 16th c.

TCP711 TIP0739. TP250.PU01 P01.1
Shape CGS06-MEDVOTT; TW
Body; Poor
Decoration Interior: traces of white slip & transparent lead glaze; incised green painted decoration (P362).
Thickness 8 mm
Fabric Mixed; Fine; Hard; Smooth; Good
Munsell: 7.5YR 7/6; 5Y 8/3; 7.5YR 7/6
Inclusions Limestone
Comments Green Painted Sgraffito Ware, Lapithos. Late 15th–early 16th c.

TCP712 TIP0744
TP250.PU01 P05
Shape HU-MM; HU
Body; Good
Thickness 15 mm
Fabric Ferrous; Coarse; Hard; Gritty; Poor
Munsell: 5YR 5/8; 5YR 5/8; 5YR 4/4
Inclusions Common; Small, Medium; Sub-Rounded; Red-Brown
Common; Small, Medium, Large; Sub-Rounded; Dark brown
Comments Wall of storage container, coiled. Forming technique visible.

Pottery catalogue: TCP708–TCP710 (drawings: Jean Humbert)

3.7 Special Finds Analysis and Catalogue

Sarah Janes (figurines), Danielle A. Parks (catalogue of glass and coin) and Kristina Winther-Jacobsen (glass and metals text)

Of the 313 special finds collected and analysed, we inventoried 57, with a full description and illustration of each (ID numbers are prefixed TIS for 'TAESP Inventory Special Finds'). We publish all 57 of these in the catalogue in this section (ID numbers prefixed TCS for 'TAESP Catalogue Special Finds'). For a map of the Survey Area see Plate 3.1.

Glass and Metals

Glass has limited chance of surviving on the surface, and it is no coincidence that the majority of ancient glass fragments came from the large slag heap at Skouriotissa (TP007) and from inside a looted chamber tomb in Katydhata (TP127). The fragments collected were generally tiny, morphologically unidentifiable and therefore difficult to date. Nevertheless, glass vessels were collected at all the major Roman sites, Skouriotissa (TP007), Mavrovouni (TS02), Litharkies (TS05) and Lithosourka (TP216), whereas the jewellery and a few vessels came from the village of Mandres (TS07) and Asinou (TS08).

The glass fragments were examined by Danielle A. Parks. Because of their poor preservation she was cautious in assigning dates and they were not considered well enough preserved to warrant illustrations. This catalogue gives details of 18 fragments (TCS058–75); basic descriptions of the other 44 can be found in the Special Finds table of our online database (TAESPdata 2007).

The identifiable vessels consist of 11 unguentaria, seven or eight drinking vessels, a bowl and a globular vessel. The unguentaria mostly belong to the candlestick type of the 2nd–3rd century AD, but there is also a fragment of a core-formed cobalt blue and white unguentarium of the Hellenistic period (TCS064). The beakers are mainly ring-footed, and there is a skyphos handle fragment of the 2nd century AD (TCS062). A unique find is a fragment of an olive-green inkwell cover from the gridded area of Mavrovouni (TCS072). The jewellery consists of two blue bangles, two mosaic bangles and two mosaic beads. All of these except one come from Mandres (TS07) and Asinou (TS08), and should probably be dated to the Ottoman period. Also from Mandres came a cobalt blue cosmetic wand for which Parks suggested a date in the 1st–3rd century AD (TCS071).

A single ancient coin was collected in the Survey Area, also examined by Parks (TCS006). This is a Ptolemaic bronze coin depicting Zeus Ammon and eagles, a very common coin of the 2nd century BC (e.g. Destrooper-Georgiades 2006, 371; Tziambazis 2002, 46–47, nos 50–52). The coin was collected in the gridded area of Mavrovouni (TP104), along with a thick bronze disc of similar diameter. The use of this artefact is unknown. The remaining metals consisted of poorly preserved fragments of farming tools, knife blades and buckles, all presumably of more recent date, which were not catalogued.

Figurines

The overwhelming majority of figurines collected in the Survey Area date to the Archaic and Classical periods and were found in the Archaic–Classical sanctuaries of Katydhata *Pano Limna* (TS15; Volume 2, Chapter 3.11) and Evrykhou *Khalospitia* (TP215; Volume 2, Chapter 2.4). The predominance of figurines of these periods is perhaps due more to sampling technique and chance discovery than to a lack of activity in the landscape at other times. For example, although only two Bronze Age figurative pieces were recovered in the areas surveyed (TCS003; SU2173.S01), this apparent absence of Bronze Age figurines within Survey Units does not necessarily preclude the presence of Bronze Age cult activity across the entire Survey Area. Figurines are not exclusive to larger sanctuaries such as Pano Limna, and further exploration may reveal smaller, local cult areas, akin to the cave discovered at Soloi (Loulloupis 1989). Furthermore, figurines, often female, are known from Late Bronze and Iron Age burial contexts in this area (Keswani 2004, 135). Small numbers of figurines found in the Atsas and Mandres areas suggest that further investigation could expand our knowledge of the cultic and burial landscapes.

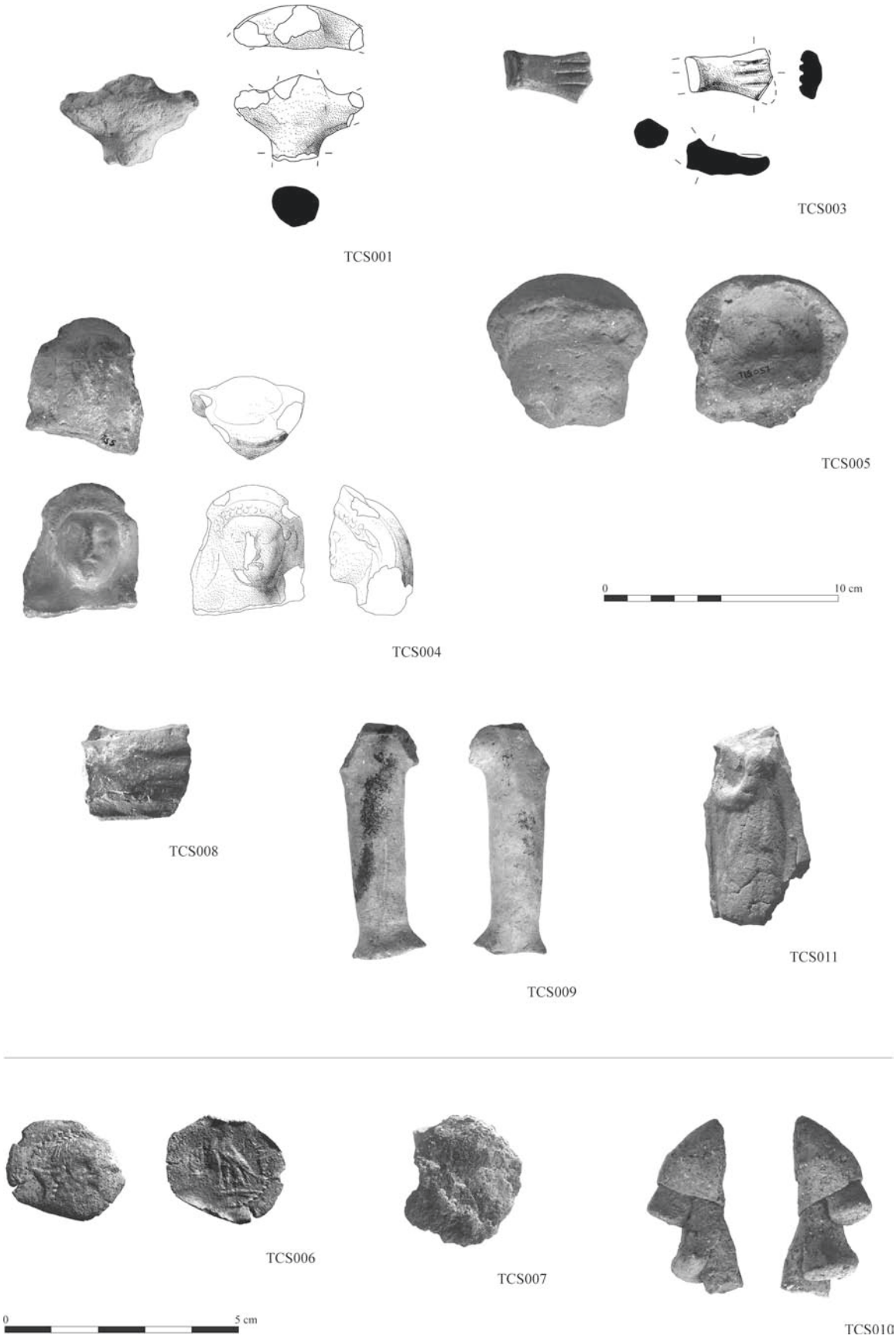
As is often the case with survey materials, the finds are all fragmentary and exhibit varying degrees of erosion, resulting in c. 68% of the materials being non-diagnostic. Despite this, the collection exhibits a diverse variety of shapes, sizes, manufacturing techniques, fabrics and decoration. As a whole, the TAESP figurine collection reflects the stylistic and material characteristics of assemblages from other Archaic–Classical sanctuary sites across the island, in particular Tamassos *Frangissa* (Buchholz 1991), Ayia Irini (Gjerstad *et al.* 1935, 642–824) and the sanctuary of Apollo Hylates at Kourion (Buitron-Oliver 1996; Young and Young 1955).

The most prevalent type of figurine in the collection is anthropomorphic; these are present in various shapes and in a range of sizes, and many of them would have originally formed ring dancer groups. Only three fragments belonging to zoomorphic figurines were identified in the Survey Area. This is probably due largely to issues of preservation, but may also indicate that animal representations did not feature heavily in any cult activities at either of the sites. The typical Archaic–Classical chariot groups or rider figurines that appear abundantly across the island in other sanctuaries of this date, for example at Ayia Irini (Gjerstad *et al.* 1935, 642–824), are also conspicuously absent from our collection. The presence of two horses' heads (TCS048; TCS050) and countless small body parts which may have belonged to such groups suggest that the absence of this figurative type is due to issues of preservation rather than omission in the Archaic–Classical period.

A few pieces show signs of painted decoration, for example TCS046–47. It is highly likely that many more of the figures were originally painted but that the decoration has been lost through gradual erosion both in the soil and on the surface; some of the figures are estimated to have been exposed for more than 40 years (e.g. TCS019; TCS043). As well as painted decoration, several figurines appear to have personal markers, for example one arm with a small clay addition on the wrist that may symbolise a tumour or a mole (TCS038), while a large figurine fragment bears a small clay earring (TCS037). Distinctive features such as these, the range of figures recovered and the potential presented by the collection for future investigations all ensure that the figurines are a valuable addition to the corpus of figurative artefacts from the island.

Model catalogue entry (anything in italics is a heading)

Cat. No.	Inventory No. Provenance
Description	Type; Form; Period; Preservation Comment Decoration/Surface Length; Thickness
Fabric	Clay; Munsell material; Munsell exterior; Munsell interior
Comparanda	Comparanda



Special finds catalogue: TCS001, TCS003–11 (drawings: Jean Humbert; photos: Chris Parks)

TCS001 TIS001. SU1065.S01.1
Description Figurine; Human; GAC; Poor
Most likely Archaic
Typical cylindrical-bodied figurine with upraised arms. Torso intact. Very worn.
Surface not preserved
55 mm; 17 mm
Fabric Calcareous; 2.5YR 8/3; 2.5Y 8/3
Comparanda Rupp *et al.* 2000, 210–11, figs 2, 3

TCS002 TIS056. SU1067.S01.1
Description Implement; Weaving tool; HA
Discoid weight with central piercing
Thickness: 16 mm
Fabric Mixed; 10YR 7/4; 5YR 7/6; 5YR 7/6
Comparanda Difficult to date: in Hellenistic layers at Kition (Salles and Chavane 1993, 339, no. 845, fig. 264), and CGIII–CAI at Palaepaphos *Skales* (Karageorghis 1983, T54, 103 no. 74; T75, 208 no. 74)

TCS003 TIS004. SU1073.S01.1
Description Figurine; Human; BAE; Good
Arm or leg, possibly a figurine or a figural pot.
Red slip burnish.
35 mm; 8 mm
Fabric Ferrous; 2.5YR 5/8; 2.5YR 5/8

TCS004 TIS005. SU1082.S01.1
Description Figurine; Human; HA; Medium
Mouldmade female head from jar handle
55 mm; 25 mm
Fabric Ferrous; 2.5YR 5/2; 2.5YR 5/8
Comparanda Possible comparison in shape/type with Caubet 1998, Vol.2, 399; fig. 680.

TCS006 TIS002. TP104.PUW10S15.S01.1
Description Coin; HEL; Medium
Hellenistic/Ptolemaic coin, 2nd c. BC. Obverse: head of Zeus Ammon; 2 perched eagles. Reverse: eagle with thunderbolt; inscription.
24 mm; 2 mm

TCS007 TIS003. TP104.PUW10S15.S02.1
Description HR; Poor
Unknown metal disk-shaped object. Possibly a button? Dated according to context.
Surface not preserved.
26 mm; 4 mm

TCS008 TIS041. TP119.PUA13.S01.1
Description Figurine; Human; AC; Medium
Modelled votive foot? Or frontal plaque figurine.
44 mm; 20 mm
Fabric Ferrous; 5YR 5/1; 5YR 5/4

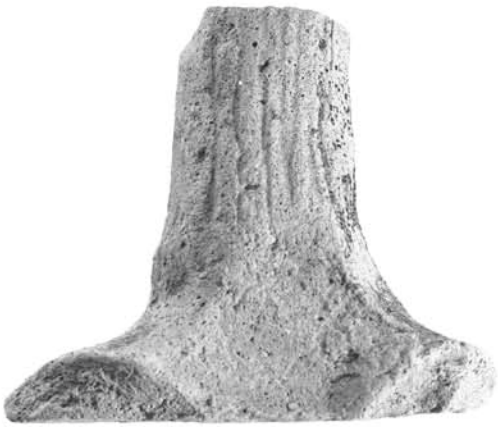
TCS009 TIS038. TP119.PUD11.S01.1
Description Figurine; Human; AC; Medium
Tall tubular figurine with torso and arm stump, widens toward top. Either from ring-base or freestanding.
98 mm; 22 mm
Fabric Mixed; 7.5YR 7/1; 7.5YR 5/4
Comparanda Freestanding example: Rupp *et al.* 2000, 210, fig. 9

TCS010 TIS039. TP119.PUD11.S02.1
Description Figurine; Human; AC; Medium
Small bearded head with large nose and pointed hat
40 mm; 10 mm
Fabric Ferrous; 7.5YR 4/4; 7.5YR 4/4

TCS011 TIS007. TP119.PUE08.S01.1
Description Figurine; Human; AC; Medium
Female figurine profile from below neck to knee with bent arm. Mould impressed.
80 mm; 20 mm
Fabric Ferrous; 5YR 4/3; 7.5YR 4/4
Comparanda Young and Young 1955, 973, pl. 15.

TCS012

TCS013



TCS015

TCS017

TCS016

TCS021

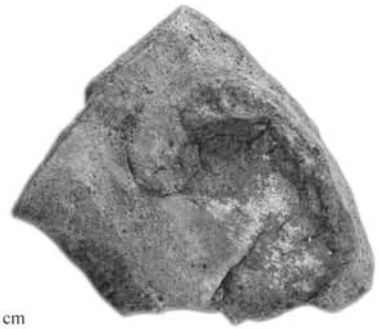
TCS022

TCS030

TSC024

TCS025

TCS026



TCS027

0 5 cm

TCS012 TIS008. TP119.PUE09.S01.1
Description Figurine; Human; AC; Medium
Flat figurine torso with small lump (nose?)
Hand formed.
53 mm; 10 mm
Fabric Ferrous; 5YR 5/4; 7.5YR 5/4

TCS013 TIS011. TP119.PUE10.S03.1
Description Figurine; Human; AC; Medium
Archaic-style curled hand. Handmade as insert and plugged into arm. Medium–large figurine.
65 mm; 31 mm
Fabric Ferrous; 10R 6/6; 10YR 7/3

TCS014 TIS037. TP119.PUE15.S01.1
Description Figurine; Unknown; AC; Poor
Tubular figure on ring-base, part of figure group, possibly a row of figures
65 mm; 25 mm
Fabric Ferrous; 7.5YR 7/2; 5YR 6/6
Comparanda Examples of shape from Kourion (Young and Young 1955, 40–41; pl. 11; figs 807, 814, 816)

TCS015 TIS040. TP119.PUE16.S02.1
Description Figurine; Human; AC; Poor
Tubular ring-figurine with incised drapery lines.
65 mm; 23 mm
Fabric Mixed; 10YR 6/4; 10YR 6/4
Comparanda Example of shape, though later Hellenistic, from Kourion (Young and Young 1955, 28, pl. 66)

TCS016 TIS034. TP119.PUF09.S01.1
Description Figurine; Human; AC; Medium
Tiny female head (or monkey?)
21 mm; 15 mm
Fabric Ferrous; 2.5YR 4/4; 2.5YR 4/4

TCS017 TIS035. TP119.PUF09.S02.1
Description Figurine; Human; AC; Medium
Flat tubular figure bottom
50 mm; 20 mm
Fabric Ferrous; 2.5YR 6/6; 7.5YR 6/4

TCS018 TIS031. TP119.PUF11.S02.1
Description Figurine; Human; AC; Medium
Flattened tubular figurine. Possibly from ring-group. Possible squeeze-mark. Hand-prints.
55 mm; 10 mm
Fabric Ferrous; 2.5YR 5/4; 7.5YR 7/4

TCS019 TIS032. TP119.PUF11.S04.1
Description Figurine; Human; AC; Medium
Folded or clasped arms. Exposure 40–80 years.
38 mm; 9 mm
Fabric Ferrous; 5YR 5/6; 5YR 5/6

TCS020 TIS006. TP119.PUF11.S07.1
Description Figurine; AC; Medium
Large, thick, curved fragment with finished edge. Could be the base of a statue or a wall sconce.
90 mm; 15 mm
Fabric Ferrous; 5YR 5/3; 5YR 5/3

TCS021 TIS030. TP119.PUF12.S02.1
Description Figurine; Human; AC; Medium
Possibly small head with tall pointed cap.
28 mm; 20 mm
Fabric Ferrous; 5YR 4/4; 5YR 4/4

TCS022 TIS029. TP119.PUF12.S03.1
Description Figurine; Human; AC; Medium
Small pinched head with Greek traveller's cap: flat with centre point
20 mm; 17 mm
Fabric Ferrous; 5YR 6/6; 5YR 6/6
Comparanda Kourion: Young and Young 1955, 145–46, pl. 51

TCS023 TIS015. TP119.PUF13.S01.1
Description Figurine; Human; AC; Medium
Flattened on one side, slightly rounded on the other. Possibly bottom edge of leaning figure.
Handmade.
82 mm; 17 mm
Fabric Ferrous; 7.5YR 6/3; 7.5YR 6/4
Comparanda Leaning figure from Tamassos *Frangissa* (type not size): Buchholz 1991: pl. 4b. Flattened object: Rupp *et al.* 2000, 210–11, fig. 12.

TCS024 TIS042. TP119.PUF13 S10.1
Description Figurine; Human; AC; Medium
Possible body fragment
Flat concave with finished edges, ripples like coil building
60 mm; 7 mm
Fabric Ferrous; 2.5YR 5/6; 10YR 6/4; 2.5YR 5/6

TCS025 TIS014. TP119.PUF14.S01.1
Description Figurine; Human; AC
Flat piece, flattened on both sides. Unknown object, possibly bottom edge of leaning figure.
Handmade.
52 mm; 13 mm
Fabric Ferrous; 5YR 6/2; 5YR 5/6
Comparanda Leaning figure from Frangissa: Buchholz 1991, pl. 4b. Flattened object: Rupp *et al.* 2000, 210–11, fig. 12.

TCS026 TIS020. TP119.PUG10.S01.1
Description Figurine; Unknown; AC; Poor
Flat ring-base for figure group; possibly a row of figures
83 mm; 11 mm
Fabric Ferrous; 5YR 7/2; 5YR 6/6
Comparanda Kourion: Young and Young 1955, 40–41, pl. 11, figs. 807, 814, 816

TCS027 TIS021. TP119.PUG10.S01.2
Description Figurine; Unknown; AC; Poor
Flat ring-base from figurine group with scar from figurine
48 mm; 11 mm
Fabric Ferrous; 7.5YR 7/4; 7.5YR 6/4

TCS028 TIS022. TP119.PUG10.S01.3
Description Figurine; Unknown; AC; Medium
Flat ring-base for figure group, possibly a row of figures
60 mm; 15 mm
Fabric Ferrous; 7.5YR 6/4; 7.5YR 6/4
Comparanda Kourion: Young and Young 1955, 40–41, pl. 11, figs. 807, 814, 816

TCS029 TIS023. TP119.PUG10.S01.4
Description Figurine; Unknown; AC; Medium
Flat ring-base for figure group, possibly a row of figures or flat platform base
50 mm; 9 mm
Fabric Ferrous; 10YR 6/1; 10YR 6/4
Comparanda Kourion: Young and Young 1955: 40–41, pl. 11, figs. 807, 814, 816. Caubet 1998, vol.1, 154, fig. 202; Karageorghis 1995, pl. LXXVIII.

TCS030 TIS024. TP119.PUG10.S03.1
Description Figurine; Human; AC; Medium
Tiny head(?) of rolled clay lumps.
16 mm; 10 mm
Fabric Ferrous; 2.5YR 4/4; 2.5YR 4/4

Special finds catalogue: TCS012–13, TCS015–17, TCS021–22, TCS024–27, TCS030 (photos: Chris Parks)

TCS035

TCS037

TCS040

TCS043

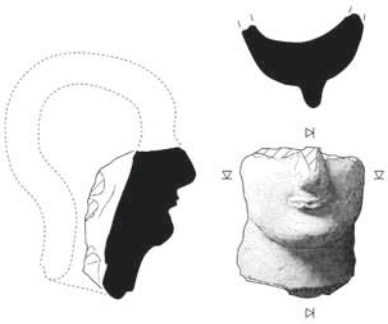
TCS034

TCS038

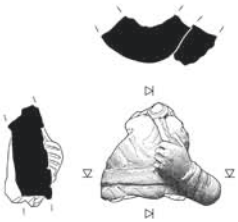
0 10 cm

Plaster

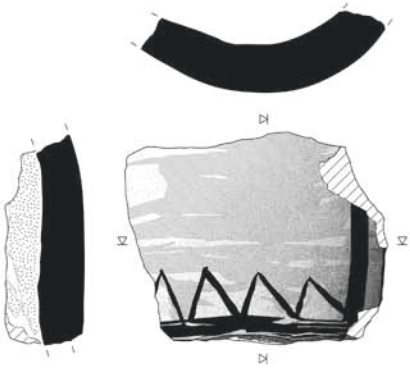
TCS041



TCS045



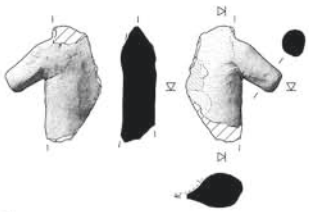
TCS046



Black Paint
Red Paint
Plaster

TCS047

0 20 cm



Addition

TCS048

TCS031 TIS025. TP119.PUG10.S04.1
Description Figurine; Human; AC; Poor
Flat torso with convex (concave?) horizontal section
45 mm; 8 mm
Fabric Ferrous; 2.5YR 7/4; 2.5YR 7/4

TCS032 TIS026. TP119.PUG10.S05.1
Description Figurine; Human; AC; Poor
Tubular body and base. Possible ring-figure
53 mm; 22 mm
Fabric Ferrous; 7.5YR 7/4; 7.5YR 7/4

TCS033 TIS010. TP119.PUG11.S01.1
Description Human; AC; Medium
Angular bearded head fragment, nose and ears preserved. Possibly from 'snowman' figurine or tambourine man.
32 mm; 30 mm
Fabric Ferrous; 5YR 6/6; 5YR 6/6
Comparanda Similar to tambourine men (Caubet 1998, vol. 1, 110–11; fig. 124; Karageorghis 1995, pl. XX, fig. 3)

TCS034 TIS009. TP119.PUG11.S02.1
Description Figurine; Animal; AC; Medium
Horse head wearing bridle
28 mm; 14 mm
Fabric Ferrous; 2.5YR 4/6; 2.5YR 4/6

TCS035 TIS027. TP119.PUG13.S01.1
Description Human; AC; Poor
Short tubular figurine with torso intact. Possible ring-figure.
73 mm; 20 mm
Fabric Mixed; 10YR 6/4; 5YR 6/6

TCS036 TIS028. TP119.PUG13.S04.1
Description Figurine; Human; AC; Medium
Folded arms made from clay rolls.
40 mm; 15 mm
Fabric Mixed; 5YR 7/6; 5YR 7/6

TCS037 TIS036. TP119.PUH09.S01.1
Description Figurine; Unknown; AC; Medium
Applied lump from very large hollow figurine. Possible neck with earring.
95 mm; 15 mm
Fabric Ferrous; GLEY2 4/10B; 2.5YR 4/6

TCS038 TIS033. TP119.PUR10.S01.1
Description Figurine; Human; AC; Medium
Folded arms with forked 'hands'. Small 'button' of clay on one wrist: an accident, personalization or seal-stone?
35 mm; 12 mm
Fabric Ferrous; 7.5YR 6/4; 7.5YR 6/4

TCS039 TIS016. TP119.PUR11.S07.1
Description Figurine; Unknown; AC; Medium
Possible body of figure
Mouldmade? (semicircular horizontal section)
73 mm; 15 mm
Fabric Ferrous; 7.5YR 5/2; 7.5YR 5/3

TCS040 TIS017. TP119.PUR12.S01.1
Description Figurine; Human; AC; Medium
Folded arms from small medium figurine. Handmade.
45 mm; 15 mm
Fabric Ferrous; 5YR 5/4; 5YR 4/6

TCS041 TIS019. TP119.PUR12.S05.1
Description Figurine; Unknown; AC; Medium
Circular flat platform base with foot stumps probably from a figure group.
68 mm; 7 mm
Fabric Ferrous; 10YR 5/1; 5YR 5/6
Comparanda Caubet 1998, vol.1, 154, fig. 202; Karageorghis 1995, pl. LXXVIII.

TCS042 TIS018. TP119.PUR12.S06.1
Description Figurine; Human; AC; Medium
Flattened on both sides, firing marks on both sides. Unknown object, possibly bottom edge of leaning figure. Handmade.
60 mm; 13 mm
Fabric Ferrous; GLEY2 5/10B; 5YR 5/6
Comparanda Leaning figure from Tamassos *Frangissa* (type not size): Buchholz 1991, pl. 4b. Flattened object: Rupp *et al.* 2000, 210–11, fig. 12.

TCS043 TIS013. TP119.PUR13 S10.1
Description Figurine; Human; AC; Poor
Frontal female figure on flat plaque, possibly cruciform (Astarte-like). Surface exposed 40+ years.
Possibly mould impressed
38 mm; 13 mm
Fabric Ferrous; 7.5YR 7/4; 5YR 6/6

TCS044 TIS012. TP119.PUR13 S10.1
Description Figurine; Human; AC; Medium
Figure profile on narrow rectangular plaque. Mould impressed.
72 mm; 18 mm
Fabric Ferrous; 7.5YR 7/3; 5YR 5/4

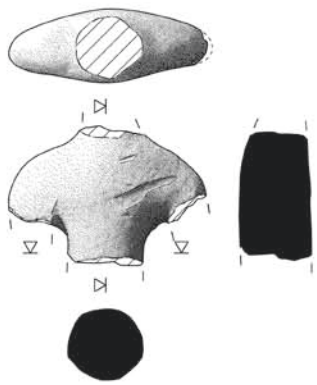
TCS045 TIS044. TP215.PU01.S01.1
Description Figurine; Human; AC; Good
Modelled face. Possible mould.
85 mm; 15 mm
Fabric Calcareous; 5YR 5/1; 5YR 5/4

TCS046 TIS045. TP215.PU01.S02.1
Description Figurine; Human; AC; Medium
Painted draped torso with drapery, fibula on shoulder and belt. Bent arm on chest holding something. Large horizontal folds across stomach. Traces of red and perhaps blue. 10YR 8/3.
50 mm; 15 mm
Fabric Calcareous; 7.5YR 5/1; 7.5YR 6/4
Comparanda Westholm 1936, 132–33, pl. XVII

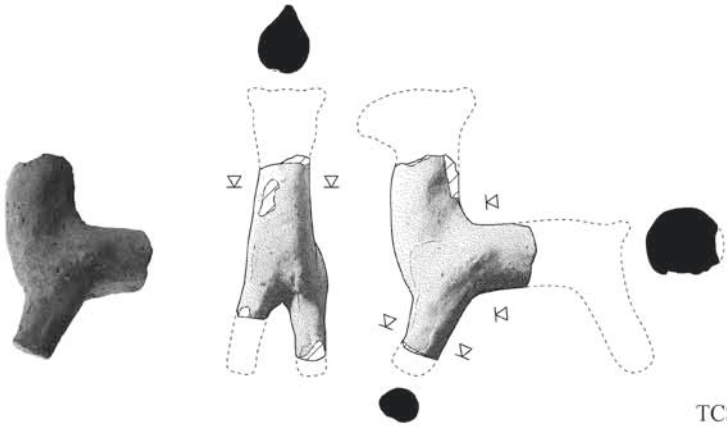
TCS047 TIS046. TP215.PU01.S03
Description Figurine; Human; AC; Medium
Possible base of large hollow figurine
Black paint. Painted drapery with lines and zig-zags.
150 mm; 18 mm
Fabric Ferrous; 2.5YR 5/1; 7.5YR 6/4; 2.5YR 5/6

TCS048 TIS047. TP215.PU01.S04.1
Description Figurine; Animal; AC; Medium
Horse's head with mane and eyes. Probably part of chariot group.
60 mm; 15 mm
Fabric Ferrous; 5YR 5/4; 5YR 5/6
Comparanda Caubet 1998, vol. 1, 127, fig. 155; Young and Young 1955, 70, fig. 1475, pl. 25.

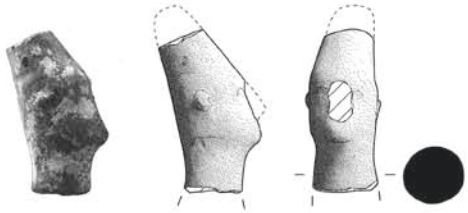
Special finds catalogue: TCS034–35, TCS037–38, TCS040–41, TCS043, TCS045–48 (drawings: Jean Humbert; photos: Chris Parks)



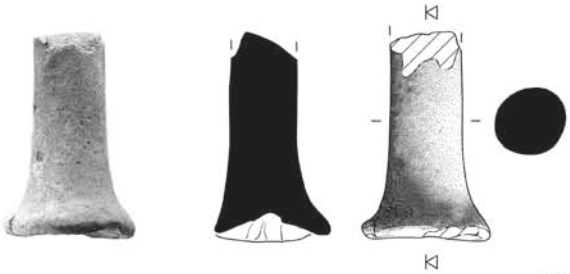
TCS049



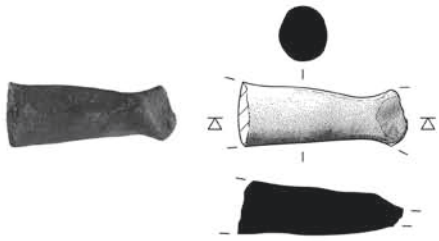
TCS050



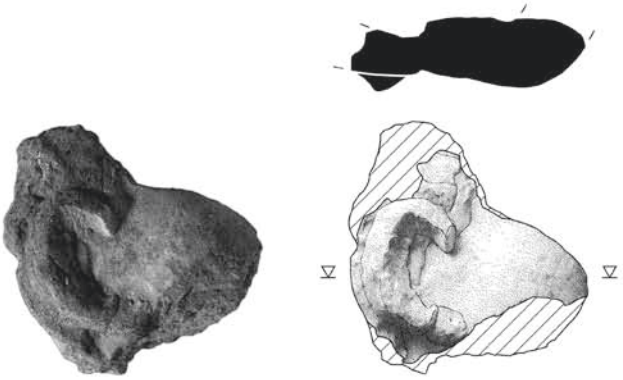
TCS051



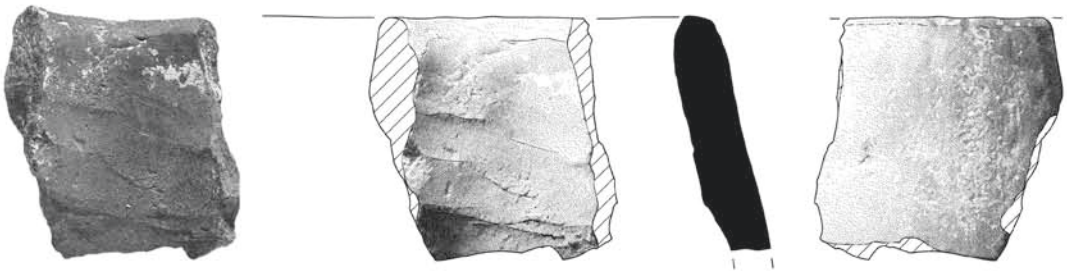
TCS052



TCS053



TCS054



TCS055

TCS056

TCS057

0 10 cm

TCS049 TIS052. TP215.PU01.S05.1
Description Figurine; Human; AC; Poor
Torso of tubular figurine.
65 mm; 25 mm
Fabric Mixed; 7.5YR 6/4; 5YR 6/6

TCS050 TIS053. TP215.PU01.S06.1
Description Figurine; Animal; AC; Medium
Animal torso, possibly a horse
70 mm; 20 mm
Fabric Ferrous; 10YR 6/1; 5YR 5/6

TCS051 TIS055. TP215.PU01.S09.1
Description Figurine; Human; AC; Poor
Very worn small head with tall hat.
55 mm; 23 mm
Fabric Ferrous; 5YR 6/6; 5YR 6/6

TCS052 TIS051. TP215.PU01 S10.1
Description Figurine; Human; AC; Medium
Tubular figurine body and base.
70 mm; 25 mm
Fabric Ferrous; 2.5Y 7/3; 2.5Y 7/3; 2.5Y 7/3
Comparanda Handmade, freestanding 'snowmen' figurines from Paphos district: Sørensen 2000, 210–11, figs. 2, 3, 9.

TCS053 TIS050. TP215.PU01 S13.1
Description Figurine; Human; AC; Medium
Limb. 55 mm; 17 mm
Fabric Mixed; 2.5YR 5/6; 2.5YR 5/6; 7.5YR 5/4

TCS054 TIS049. TP215.PU01 S15.1
Description Figurine; Human; AC; Poor
Fragment of face with ear.
90 mm; 20 mm
Fabric Ferrous; 5YR 5/6; 5YR 7/4; 5YR 5/6

TCS055 TIS048. TP215.PU01 S22.1
Description Figurine; Unknown; AC; Medium
Hollow base or stand.
90 mm; 15 mm
Fabric Ferrous; 2.5YR 4/6; 7.5YR 7/3; 7.5YR 4/3

TCS056 TIS054. TP215.PU01 S23.1
Description Figurine; Unknown; AC; Medium
Unknown fragment of very large hollow figurine.
One applied knob/lump.
110 mm; 14 mm
Fabric Mixed; 7.5YR 6/2; 7.5YR 6/4; 7.5YR 6/4

TCS057 TIS057. SU2642.S01.1
Description Figurine; Human; UN; Poor
Head of figurine. Deep set eyes, high arched forehead, curls or wreath along forehead.
63 mm; 17 mm
Fabric Ferrous; 5YR 4/6; 5YR 4/6

TCS057 TIS043. TP215.PU02.S01.1
Description Figurine; Human; AC; Good
Moulded face of a medium-sized terracotta figurine. mid-6th c. onwards, no Archaic smile
130 mm; 13 mm
Fabric Ferrous; 2.5YR 6/2; 2.5YR 5/6

Glass

TCS058 TIS058. SU0355.S01
Description Base; ROM
Spherical or globular vessel

TCS059 TIS059. SU0356.S01
Description HA. Core-formed bead; may be ancient

TCS060 TIS060. SU0615.S01
Description Base; ROM
Fragment of ring-footed small beaker with cylindrical body. 2nd or more likely 3rd c. AD. Cypriot shape.

TCS061 TIS061. SU0621.S01
Description Base; ROM
Base of unguentarium

TCS062 TIS062. SU0625.S01
Description Handle; ER
Fragment of skyphos handle. 2nd c. AD

TCS063 TIS063. SU1059.S01
Description Body; ER
Body fragment of sea-green free-blown glass

TCS064 TIS064. SU1069.S01
Description Body; HEL
Unguentarium, probably core-formed. Cobalt blue and white.

TCS065 TIS065. SU1074.S01
Description Rim; ROM
Small/medium open bowl. Two grooves.

TCS066 TIS066. SU2635.S02
Description Base; ROM
Ring-footed base fragment, from beaker or bowl

TCS067 TIS067. TP007.AU03.Y09.S01
Description Body; ROM
Probable candlestick unguentarium. 2nd–3rd c. AD

TCS068 TIS068. TP007.AU07.CLEANING WALL SURFACE.S01
Description Rim; ROM
Rim fragment from beaker

TCS069 TIS069. TP007.AU07.CLEANING WALL.S01
Description Handle; ROM
Possibly from small flask. 2nd–3rd c. AD

TCS070 TIS070. TP007.AU08.S01
Description Body; ROM
Fragment of base of neck from candlestick unguentarium

TCS071 TIS071. TP021.PU09.S01
Description Body; ROM
Fragment of cosmetic wand, 1st–3rd c. AD

TCS072 TIS072. TP104.PU25.S01
Description Lid; MM
Fragment of covering from inkwell; probably Medieval–Modern

TCS073 TIS073. TP127.PU01 S10
Description ROM
Two joining base fragments from very large candlestick unguentarium

TCS074 TIS074. TP127.PU01.S08
Description Rim; ROM
Rim fragment from very large beaker: thin-walled, fairly straight-sided, rounded base

TCS075 TIS075. TP216.PU01.S01
Description Base; ROM
Probable base fragment from ring-footed goblet

3.8 Lithics Analysis

Carole McCartney

Chipped and ground stone artefacts collected by TAESP are discussed here in order to evaluate the lithic data with respect to the human use of the landscape through time. Artefact distributions are discussed in Volume 2; here samples of artefacts are regarded as parts of broader assemblages that demonstrate the evolution of stone use through time, with context supplying relative dates through the association of other finds, especially pottery. The available diagnostic stone tool classes and types agree well with the ceramic data, providing typological keys that permit the evaluation of assemblage character and technical variables illustrating diachronic stone usage, and documenting the presence of distinct lithic industries in the Survey Area. Some periods documented below, especially the Late Roman and historic periods, are not typically associated with the use of stone technologies. Nonetheless these data add a significant body of evidence that allows us to define and refine the industries used during the recent past. Above all, they show that stone technologies are not limited to a distant prehistory; rather lithics, perhaps more than any other type of archaeological find, document a persistent element of the evolving human landscape.

See Chapter 2.6 for an account of the methodology of collecting and analysing the lithic material. For detailed analysis of specific areas, see the relevant sections of Volume 2. Places of Special Interest (prefixed 'TP') are summarised in Volume 2, Appendix 1. Special Interest Areas (e.g. Ayia Marina *Mavrovouni* or Kato Phlasou *Koutroullis*) are summarised in Volume 2, Appendix 2, along with cross-rerences and a list of the Survey Units and POSIs associated with each one. For a map see Plate 3.1. Catalogued lithics have the prefix 'TCL'; a selection has been illustrated and is referred to in this chapter. For a full description of each one, and listings of lithic artefacts recorded in Survey Units and Places of Special Interest, see the online database in Given *et al.* 2007, or the data archive in TAESPdata 2007.

Sample Size and Character

Issues of post-depositional disturbance and artefact recognition are important for considering the representativeness of surface material. Although efforts were made to cover all parts of the Survey Area systematically, differences in collection strategy exist with most intensive

collections of lithic finds made at clearly identified prehistoric places. Different factors including erosion, ploughing and pine needles affected visibility in the various Intensive Survey Zones, which in turn influenced recovery of lithic data (discussed in Volume 2). Here it is worth noting that larger objects like ground stone tools, in contrast to smaller items, were affected differentially by field clearance and ploughing (Ammerman 1985, 35; Schiffer 1995, 175–76); thus ground stone samples may be expected to be under-represented in some cases.

In contrast, such post-depositional processes based on artefact size should not have affected the smaller pottery sherds and chipped stone differentially. Although multi-period survey can affect the collection of chipped stone data, it is debatable whether this is negatively biased in comparison with pottery data (Bintliff *et al.* 2000, 119; Hawkins *et al.* 2003, 9; McCartney *et al.* 2006, 42). Yet the discovery of the best early prehistoric samples in the Koutraphas area, where pottery finds are rare, would appear to corroborate this point. Similarly, variability in lithic detection rates between fieldwalkers can limit significantly the size of samples collected (Hawkins *et al.* 2003). Efforts to reduce this kind of bias in the TAESP lithic samples were made by training fieldwalkers in the identification of lithic types. Survey training was particularly successful with the highly visible red jaspers that characterize the pillow lavas of the local bedrock. Greater problems of artefact visibility were faced with the ground stone material, since the alluvial and colluvial beds of volcanic basal rocks that characterize much of the local geology are difficult to recognize against such dense background noise.

Beyond recovery, the issue of material quality also affected the analysis of the lithic data, particularly with respect to the technology of chipped stone. The nature of the primary local chipped stone raw material, namely jasper, resulted in lithic material that was poorly diagnostic. Use of this material, often intractable and difficult to work, for chipped stone production dictated the use of a simple core technology across both time and space. The variety of tools produced was therefore limited and their character frequently crude. Under such circumstances highly detailed attribute analysis or evaluation of *chaînes opératoires* was unwarranted. A separate problem exists for the ground stone technology where individual types evolved slowly and cut across multiple archaeological periods, while the durability of individual stone tools lends them to re-use, even into modern times. Such difficulties preclude meaningful discussion of single artefacts, requiring instead that we focus on larger samples and search for broader trends indicating change over time. In spite of the limitations, significant differences can be documented with the TAESP lithic data that help to distinguish under-recorded industries of the Roman and Medieval–Modern periods, as well as those of the Neolithic, Chalcolithic/Early Cypriot and Late Cypriot periods.

Keeping such caveats of sample character in mind, it is worth summarising here the apparent differences in the intensity of human occupation related to the distribution of stone tools across the Survey Area. We collected a total of 2108 lithic artefacts, of which 1796 belong to samples that can be compared across the major Intensive Survey Zones, namely Karkotis, Atsas, Asinou, Koutraphas and Lagoudhera Valleys. The remaining 312 lithic artefacts represent individual finds widely scattered across survey transects showing a generalized carpet of archaeological material in the Survey Area. While the latter finds illustrate the more widespread use of the TAESP landscape, the lack of contextual association with other chronologically sensitive material and the incompleteness of the typo-technological data provided by such sparse scatters prohibit more detailed evaluation here (see Volume 2 for area overviews). Following the summary of artefact distributions across sections of the Survey Area, a more detailed analysis of 1490 artefacts that belong to chronologically sensitive samples – recovered from individual farmsteads, mining settlements, pre-modern and modern villages and jasper outcrops – are used to characterize the lithic industries that evolved through time.

Summary by Area

Numerically the Lagoudhera area in the east provided the largest lithic sample (n = 525; 29% of the total), agreeing well with the intensity of Roman-period activity in this area (Table 3.6). Chipped stone materials were clearly prominent here, generating good evidence of a heretofore undocumented industry belonging to the Late Roman period, and demonstrating the importance of jasper sources in the area. The Karkotis Valley in the west, marked by intensive human activity from the Chalcolithic/Early Cypriot through the historic period, provided a comparable sample (n = 482; 27% of the total). Together the Lagoudhera and Karkotis Valleys account for over 50% of the TAESP lithic database. The Atsas Valley, while representing a smaller proportion of the total lithic sample (n = 319; 18%), provides further evidence of Roman and Medieval–Modern industries, as at Lagoudhera. Nearby Koutraphas provided 15% of the lithic sample (n = 268), documenting industries from the Late Cypriot to the Medieval–Modern periods; together with the Atsas Valley these combine to form a central zone that provided nearly one-third (32.68%) of the TAESP database. The Koutraphas area farther east provided an additional 11% of the lithic sample, which, although smaller than either the eastern or western flanks of the Survey Area, included the only significant Neolithic data (as well as additional Late Cypriot and Roman-period samples). Only the Asinou Valley Intensive Survey Zone failed to generate significant lithic data. While this paucity is marked in part by the methodological difficulties of mountain survey (Volume 2, Chapter 5.1), the low number of chipped stone artefacts agrees well with the paucity of domestic and industrial contexts documented in this area.

Given the enhanced visibility of the local jasper, the distribution of chipped stone artefacts is likely to

Table 3.6. Distribution of lithic finds from site assemblages found in Intensive Survey Zones (ISZs). 'On-site' refers to the immediate areas designated as POSIs, while 'off-site' refers to wider block survey across Special Interest Areas. Non-site transect data are not included

ISZ	Chipped stone			Ground stone			Recorded ground stone		
	'On-site'	'Off-site'	Total	'On-site'	'Off-site'	Total	'On-site'	'Off-site'	Total
Karkotis	225	141	366 (23%)	99	17	116 (55%)			
Atsas	294	13	312 (20%)	2	2	4 (2%)	2	1	3 (17%)
Mandres	185	43	228 (15%)	29	1	30 (14%)	10		10 (56%)
Koutraphas	73	83	156 (10%)	17	21	38 (18%)			
Lagoudhera	163	335	498 (32%)	8	14	22 (10%)	5		5 (28%)
Asinou	7		7 (0.4%)	1		1 (0.4%)			
TOTAL			1567 (100%)			211 (100%)			18 (100%)

demonstrate real differences in human occupation patterns. The numbers of ground stone artefacts shown in Table 3.6 are, however, more uneven, being linked to issues of visibility and recording methodology that are significant. Heavy ground stone tools are less easily transported (both in antiquity and by archaeologists), while the distributions across the landscape are skewed to areas where major prehistoric sites were recorded more intensively. Multiple survey visits and collection by a lithic specialist resulted in more representative samples at some sites. The clear peak in the ground stone sample at Karkotis can be linked in part to collection methodology, although assemblages documenting the use of this stone technology are typically large at Chalcolithic/Early Cypriot sites elsewhere on Cyprus. Conversely, logistical difficulties presented by the character of some TAESP contexts significantly reduced the amount of data that could be collected in particular circumstances. In the Lagoudhera Valley, for example, where Roman-period data were associated with mining settlements at Alestos, Mavrovouni, Ayios Kyriakos and Litharkies, ground stone samples are likely to be under-represented. These sites exhibited an abundant potential for ground stone, yet few individual tools could be collected or recorded in detail since this material was dumped into large undifferentiated field clearance piles (at Litharkies in particular). While the presence of ground stone items was recognized, little reliable detailed data were generated, creating the need for further investigations in the future.

The Koutraphas area may represent something of a unique window on the Neolithic not seen in other Intensive Survey Zones with heavier overburdens of later ceramic period samples (cf. Barker 2000, 100–102). The surface of Kambos tou Lemonari (TP095) appears to have been stripped of its overlying sediments, while other transects in the Koutraphas area provided lithic samples especially where older relic land surfaces were documented (Volume 2, Chapter 2.13). This could indicate that the extreme paucity of pre-Chalcolithic finds in other parts of the Survey Area is due, in part, to subsequent burial during the later Holocene. Even if the Koutraphas area does represent a unique window, the TAESP lithic database is nevertheless exceedingly small in comparison to samples from other areas in Cyprus where early prehistoric remains have been recovered (e.g. Given and Knapp 2003, 182–86; McCartney 2005; McCartney *et al.* 2006, table 2; see the Early Prehistoric discussion below).

From the Chalcolithic onwards, the distribution of both chipped and ground stone agrees well with patterns shown by the ceramic data recovered in the Survey Area. In particular, significant distributions of both chipped and ground stone correspond with Chalcolithic/Early Cypriot and Protohistoric Bronze Age (ProBA) pottery concentrations in the Karkotis Valley. Although unexpected, concentrations of lithic material were also significant where Roman and later historic (Medieval–Modern) pottery was prominent. The latter areas provide insignificant amounts of prehistoric ceramic data, which do not correspond to the noteworthy presence of lithic artefacts, nor do the lithics themselves correspond to Late Neolithic through Bronze Age assemblages found elsewhere in Cyprus in terms of relevant technical and typological detail (with very few exceptions; see below). As such the concentrations of chipped stone and ground stone artefacts found associated with Roman and Medieval–Modern pottery concentrations in the Lagoudhera and Kato Koutraphas areas in particular must be deemed as correlated accurately, even if prehistoric entities lie buried beneath these later occupations. Detailed analysis of these chipped stone finds provides evidence of lithic tool use during metal-using periods under-documented elsewhere in Cyprus (see below).

Early Prehistoric

Lithic evidence dating prior to the Chalcolithic in the Survey Area is rare and concentrated in the Koutraphas area. A single site, Nikitari *Kambos tou Lemonari*, provides the most conclusive evidence of an Aceramic Neolithic occupation, and is discussed in detail below. The industry is a simple one showing the dominant use of local jasper and ground stone tools found associated on a surface devoid of ceramic material. The presence of cup-marked stones and a single prismatic glossed blade segment provide the most diagnostic elements of this assemblage (see

below). Together with a further cup-marked stone from TT501200E and a bidirectional backed and bi-truncated glossed segment found on TT499500E, these are clearly indicative of earlier Neolithic assemblages elsewhere in Cyprus. The absence of obsidian, ground stone vessels diagnostic of the Late Aceramic Neolithic (Khirokitia) or Ceramic Neolithic pottery in the Koutraphas area, suggests a relative date assigned to the Early Aceramic Neolithic (equating to Levantine mainland PPNA–PPNB). Given the generalized nature of the rest of the chipped and ground stone material from the Koutraphas sites however, it is impossible to provide a more precise chronological date on the basis of current evidence.

Chipped lithic data from the Kambos tou Lemonari assemblage, like other lithic samples in the area, show a flake-based industry that is simple and expedient but not truly 'ad hoc'. In spite of the generalized, raw material-dependent character of the simple core technology employed, the relatively high diversity of tool types is distinct from later counterparts. There is no evidence of systematic blade production in the Survey Area, a clear impossibility because of the absence of good quality chert. Across the Survey Area, single diagnostics (lost tools carried into the area), including prismatic blade tools made on Lefkara cherts and a single obsidian artefact (found in the Karkotis Valley), provide parallels to Neolithic assemblages in other parts of Cyprus. Their paucity argues less for an in situ settlement pattern than temporary visits to this region of Cyprus. Given the ground stone sample from Kambos tou Lemonari, such temporary occupation may have been related to plant processing activities. Although both chipped and ground stone samples collected at Kambos tou Lemonari represent relatively significant TAESP samples, they are still small when compared to assemblages belonging to later period TAESP entities or to Neolithic assemblages in other regions of Cyprus.

Nikitari *Kambos tou Lemonari* (TP095) The most conclusive evidence for pre-Chalcolithic occupation in the Survey Area was found at Nikitari *Kambos tou Lemonari* (TP095) on an eroded land surface in the Koutraphas area. Surveyed intensively, after transect survey provided a significant number of chipped stone artefacts from SU1330, TP095 produced significant samples of both chipped and ground stone (see also Volume 2, Chapter 2.13). The chipped stone sample (n = 61) provided a reasonable assemblage of material for detailed analysis (Tables 3.7–3.10). Beyond TP095, samples of chipped and ground stone from other transects around Koutraphas may document a wider presence of Aceramic Neolithic temporary occupations in the Survey Area, but this evidence is suggestive rather than definitive. More generally, it is notable that very few Aceramic Neolithic diagnostics were recovered across the Survey Area, while the extreme rarity of pottery dating to the Ceramic Neolithic corresponds to the absence of Ceramic Neolithic stone artefact types (e.g. McCartney 2003; 2005; 2008; Clarke *et al.* 2007, 53–58).

Table 3.7. Distribution of major artefact categories for early prehistoric entities

Locality	Cores		Blanks		Debris		Tools	
Lemonari	15	25%	5	8%	3	5%	38	62%
TT501200E	6	30%	1	5%	9	45%	4	20%
TT500500E	3	28%	1	9%	4	36%	3	27%
TT500000E	2	15%	0	0%	2	15%	9	69%
TT499500E	6	27%	3	14%	2	9%	11	50%

The distribution of chipped stone categories for TP095 and SU1330 shows an assemblage clearly dominated by tools but also containing a significant numbers of cores (Table 3.7). The core category (including cores, core trimming elements and hammer stones) indicates that knapping was conducted at this locality. The relative paucity of unworked blanks and knapping debris, however, indicates that the simple core technology employed was expedient, with the majority of flakes struck being used as tools. The overall distribution of artefacts suggests that tool use rather than tool manufacture was dominant at this locality, which together with the relative paucity of finds (in contrast to Neolithic settlement sites elsewhere in Cyprus) suggest that Kambos tou Lemonari was an activity site rather than a settlement. The locality of TP095 has been described as an exposed surface stripped of overlying sediments (see Volume 2, Chapter 2.13). Although the artefacts may no longer be strictly in situ, it is notable that similar likely early lithic scatter sites elsewhere in Cyprus have also been found in such eroded landscapes. As with sites like Agrokipia *Palaeokamina*, Politiko *Kelaïdhoni* or lithic scatter sites more recently documented by the Elaborating Early Neolithic Cyprus project (EENC), Kambos tou Lemonari appears to provide a view of low visibility, Early Holocene evidence, linked to mobile Neolithic groups (Given and Knapp 2003, 182–86; McCartney *et al.* 2006; 2007; 2008).

In terms of raw materials, the chipped stone from Kambos tou Lemonari is, like all chipped stone assemblages in the Survey Area, dominated by the use of local jasper (Table 3.8). The rarity of Lefkara formation cherts at TP095, as in the TAESP lithic database generally, corresponds to the character of the underlying bedrock in which jasper and chalcedony represent the only locally available siliceous rocks. Higher quality Lefkara formation cherts do not occur locally, and the nearest documented outcrops lie to the east (McCartney *et al.* 2007, 38; McCartney *et al.* 2008, 79–81). This resource limitation is unique to the Survey Area, and appears to be strongly correlated to the general paucity of early prehistoric sites found in it. This is hardly surprising, given the necessity of this vital resource to stone tool-using populations. A similar pattern of low site density and poor chert accessibility can be seen in western areas (contrasting with eastern areas) across the EENC survey region, although the appearance of Lefkara cherts as 'fingers' within the pillow lava areas of this landscape suggests a stronger

Table 3.8. Raw material utilization for early prehistoric entities (indicates a tool made on a microgabbro flake not counted in this table)*

Locality	Jasper		Chalcedony		Lefkara Chert	
Lemonari	57	93%	2	3%	2	3%
TT501200E	20	100%				
TT500500E	11	100%				
TT500000E	10	77%	2	15%	1	8%
TT499500E*	16	76%	2	10%	3	14%

Table 3.9. Nikitari Kambos tou Lemonari *(TP095): average dimensions of major classes for early prehistoric tools (measurements in mm)*

Tool class	Length	Width	Thickness
Dentic	37.2	34.3	15.4
Glossed	37.1	18.5	5.3
Notch	35.3	45.2	21.3
Pièce esquillée	31.2	20.9	13.2
Perforator	29.0	25.8	11.0
Utilized	37.6	36.4	16.3
Utilized: chopper	51.5	55.6	33.9
Dhoukani	44.9	24.6	14.6

Table 3.10. Nikitari Kambos tou Lemonari *(TP095): technical attributes for early prehistoric tools*

Tool blanks	Flake: 25 (66%)	Indeterminate: 7 (18%)	Core: 3 (8%)	Blade: 2 (5%)	Pebble: 1 (3%)
Butt types	Plain: 13 (52%)	Facetted: 6 (24%)	Cortical: 6 (24%)		
Dorsal scar patterns	Unidirectional: 11 (33%)	Crossed at 90º: 22 (67%)			

boundary of the volcanic and sedimentary formations in the area (Given and Knapp 2003, 264–65, particularly in the area around Mitsero; McCartney *et al.* 2006; 2007; 2008; 2009). The presence of a few Lefkara chert artefacts suggests that this higher quality material was brought into the Survey Area, but that such material was too valuable to be left behind unless already exhausted or accidentally lost. The presence of a single broken Lefkara blade tool at TP095 agrees with such an interpretation (as with a similar, singular blade tool from TT499500E, for which see below).

Because jasper is frequently rather difficult to work it is best suited to informal flake production. It is thus understandable that assemblages dominated by the use of this material exhibit evidence of a simple core technology, as at TP095 and indeed throughout the Survey Area. The use of jasper (where available) for expedient tool production can, however, be seen elsewhere in Cyprus during the Neolithic, in partnership with formal tools made on Lefkara cherts (McCartney 2007; McCartney and Gratuze 2003, 13).

At Kambos tou Lemonari, core reduction materials (10 cores, 2 core trimming elements, and 3 hammer stones) were all made of jasper and chalcedony. These cores were used for flakes and include, one single platform core, three alternating platform cores, one core made on a thick flake and a flake core fragment, all of which define a simple core technology (Fig. 3.4). It is notable that comparatively high quality jasper was selected for use at TP095 relative to TAESP samples elsewhere, while the presence of four tested cores further demonstrates the degree of selectivity in the choice of raw cobbles employed. The presence of two core trimming elements shows only a low level of attention to core shaping. The relatively small average core size (length 46.3 mm, width 45.3 mm, thickness 30.3 mm) shows that the cores were typically heavily reduced, a fact that corresponds well with the absence of jasper outcrops in the immediate area of the site.

Average tool dimensions similarly agree with the size of the cores (Table 3.9). The tools are typically small and were typically made on short wide flakes with broad plain or faceted butts (Table 3.10). The glossed tool made on a prismatic blade represents the only significant deviation from the norm, but as there are no corresponding blade core reduction materials, this tool must have been carried into the Survey Area after being produced elsewhere. The latter was struck from a unidirectional blade core made on good quality, non-local, Lefkara chert; it provides a significant contrast to the dominant flake-based core technology. Because unidirectional prismatic blades were produced throughout the Neolithic, this single tool cannot provide adequate evidence to assign Kambos tou Lemonari to any particular Neolithic phase (McCartney *et al.* 2007, 33; McCartney and Todd 2005, 213–27, with references).

Perhaps the most interesting characteristic of the Kambos tou Lemonari chipped stone sample is the diverse tool kit (Table 3.11). The single unretouched glossed piece made on a prismatic blade of non-local Lefkara chert (TCL173; Fig. 3.4) has precedents in assemblages from other Neolithic sites in Cyprus (e.g. McCartney and Gratuze 2003, 24, table 4). The dominant tool type here, as elsewhere in the Survey Area, is the unretouched utilized flake produced on local jasper and chalcedony, the most expedient characteristic of the industry. The prominence of the utilized flakes suggests that simple cutting tools were in constant use at Kambos tou Lemonari, while the presence of examples with abraded edges, as well as three cores re-used as heavily battered 'chopping' tools, indicate a wider range of activities. Use-wear analysis is required

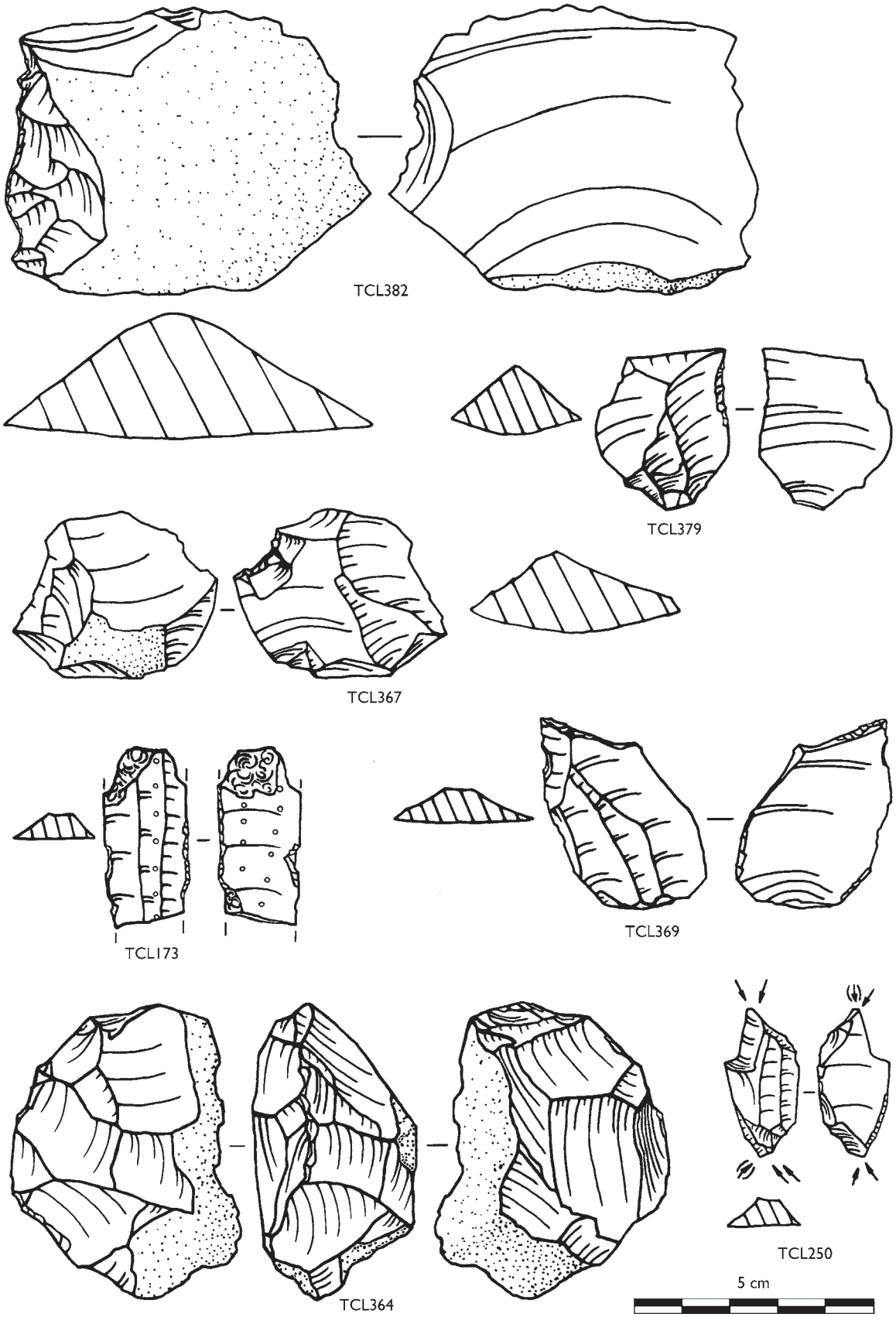


Fig. 3.4. Chipped stone. Nikitari Kambos tou Lemonari *(TP095): TCL382 (utilized piece); TCL379 (utilized piece); TCL367 (notch); TCL173 (glossed blade); TCL369 (perforator); TCL364 (flake core). Xyliatos* Athassi *(SU1699): TCL250 (burin; residual) (Carole McCartney)*

Table 3.11. Chipped stone tool classes for early prehistoric entities

Tool Class	Lemonari	TT510-200E	TT500-500E	TT500-000E	TT499-500E
Backed		1			
Burin					1
Denticulated	2				
Glossed	1			1	2
Notch	1				
Multiple	3			1	1
Pièce esquillée	1				
Perforator	2				1
Retouch					1
Scraper			1		1
Utilized	27	2	2	7	3
Dhoukani	1	1			1

Table 3.12. Ground stone tool classes for early prehistoric entities

Tool Class	Lemonari	TT510-200E	TT500-500E	TT500-000E	TT499-500E
Anvil		1			
Axe-shaped grinder	1				
Cup-marked stone	1	1			
Grinder	1	2			
Grinding slab	1				
Hammer stone		1		1	
Hammer stone/grinder		1			
Hammer stone/ Pounder			1		1
Mortar	1				
Pecking stone					
Pounder					
Quern	2				1
Rubber	2			1	2
Rubbing stone		3			1
(Perforated Weight)					1
(Senet Board)					

to determine the specific activities pursued, although the cutting and shredding of plant materials would fit well with the comparatively abundant sample of ground stone tools (see below).

Additional activities are indicated by the presence of two perforators, two denticulates, a *pièce esquillée* and three multiple tools (a scraper/utilized piece and two perforators with additional utilized edges). Notable absences include the lack of arrowheads, abundant at Early Aceramic Neolithic (Cypro-PPNA) Ayia Varvara *Asprokremnos* and present at Early Aceramic Neolithic (Cypro-PPNB) Parekklesia *Shillourokambos*, glossed crescents, as at the latter site, as well as Kalavasos *Tenta*, or backed blades, as well as tanged blades which are particularly abundant in Early Aceramic Neolithic to Late Aceramic Neolithic (Khirokitia) assemblages like Tenta periods 4–1 (Briois 2003, 127, figs 3–4; McCartney and Todd 2005, 199–200, 206, figs 16, 19–21; McCartney *et al.* 2008, 71, fig. 2). A single *dhoukani* flake recovered with the Lemonari assemblage is likely intrusive and corresponds to the small background presence of Medieval–Modern pottery in the area.

A sample of nine ground stone tools collected from Kambos tou Lemonari for more detailed analysis (Fig. 3.5; Table 3.12) comprises a representative collection of a larger body of material noted at the site. This sample includes a cup-marked stone re-using a rubber, two other rubbers, two grinders (one of which is axe-shaped), a grinding slab, two querns and a mortar; all are made on local volcanic basal rocks. The artefacts are relatively simple tools, either shaped by pecking around lateral edges or exhibiting use-wear only. Notable parallels include the cup-marked stones found in assemblages dating to Early Neolithic phases elsewhere in Cyprus (Jackson 2003, 37; McCartney 2005, 3–6; McCartney *et al.* 2006, fig. 3). Significantly, no stone vessels were recovered in the Lemonari sample, although they are a common feature at Neolithic sites like Mylouthkia, Shillourokambos, Tenta or Khirokitia (Jackson 2003, 38; Manen 2003; Saliou 1989; South and Todd 2005). The absence of the highly recognizable Khirokitian diabase vessels or incised pebbles (from anywhere in the Survey Area) and of cutting tools suggests that this assemblage belongs to the earlier rather than later Neolithic, as does the absence of chipped stone artefacts characteristic of later Neolithic phases.

Additional Neolithic Scatters While Kambos tou Lemonari may represent a narrow window exposed by erosion, the relative paucity of pottery in the Koutraphas Intensive Survey Zone generally demands that we consider whether lithic samples from other transects in the area are indicative of a broader early prehistoric landscape. The distribution of chipped stone categories in Table 3.7 shows samples from both stable and eroding land surfaces that appear to correspond to the evidence shown at Kambos tou Lemonari including, in particular, the samples from TT501200E and TT499500E, both of which provide the widest range of parallels. Both these transects bisect GUs that were considered stable, in contrast to that of Kambos tou Lemonari, suggesting that while the latter site may have been recently re-exposed due to erosion, not all such localities appear to have been buried and re-exposed in this way. Other transect data from the Koutraphas area (discussed in Volume 2, Chapter 2.13) are inconclusive and cannot be assigned to an early prehistoric date with any degree of certainty.

The chipped and ground stone material belonging to TT501200E (SU2384–91) was collected just north of Kambos tou Lemonari from a stable land surface and provides relatively good parallels to the latter site. The chipped stone sample (n = 20) is more heavily

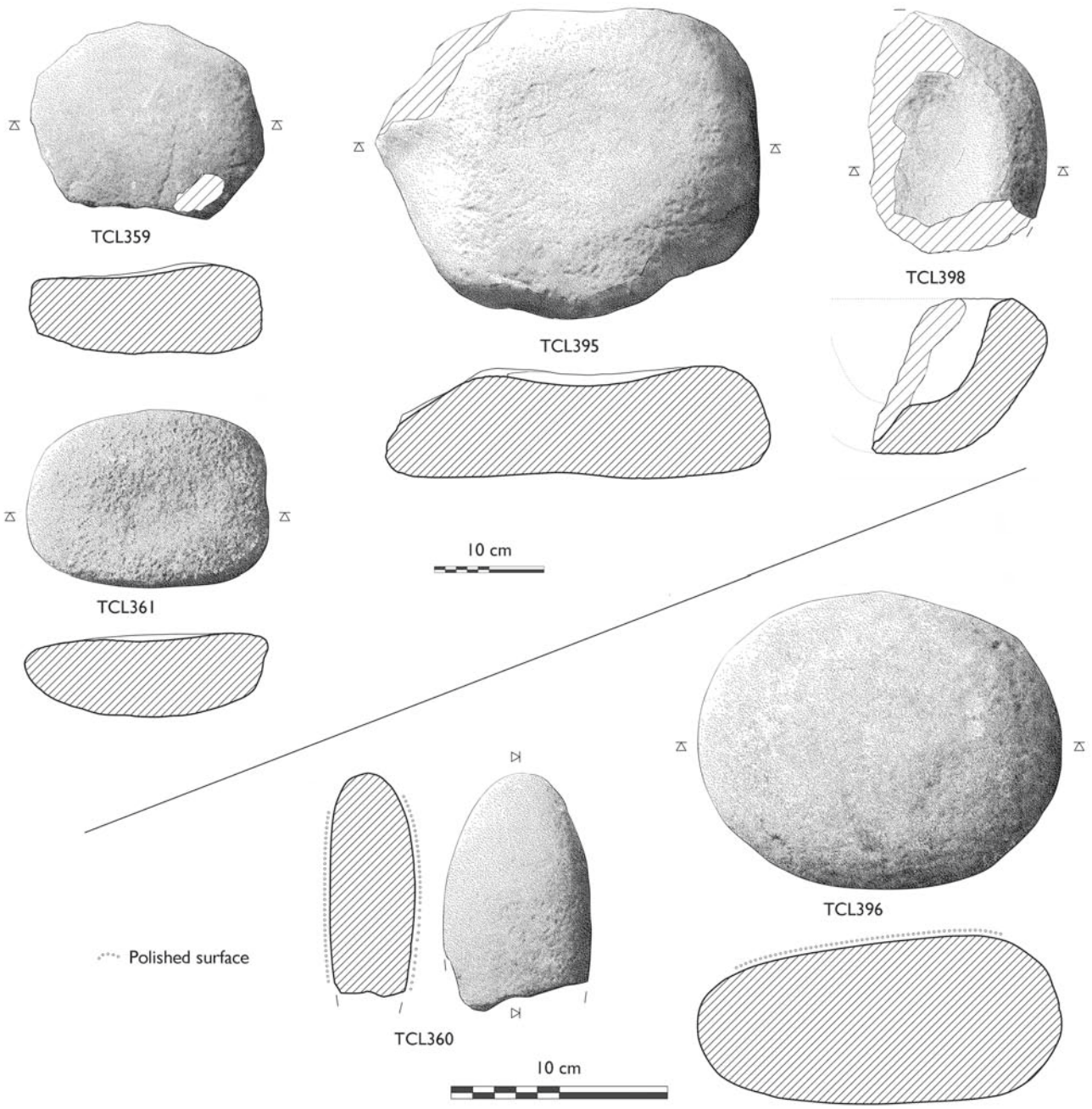


Fig. 3.5. Nikitari Kambos tou Lemonari *(TP095): ground stone. TCL395 (quern); TCL360 (axe-shaped grinder); TCL361 (cup-marked stone/rubber); TCL395 (quern); TCL396 (grinding slab); TCL398 (mortar) (Jean Humbert)*

dominated by cores (n = 6) and other evidence of core reduction (debris n = 9, plus 1 blank). The sample shows clear evidence of a simple core technology used for manufacturing simple flake tools from local jasper. Tools represent only 20% of the sample (n = 4) which, although lower than the percentage seen at Kambos tou Lemonari, is still higher than the percentage (generally under 10%) found at settlement sites (e.g. McCartney and Todd 2005, 214). This greater concentration of tools is suggestive of a temporary activity focus, as at Kambos tou Lemonari and elsewhere (McCartney 2005, 7–8). The tools from TT501200E include two utilized flakes, a backed flake and a likely intrusive *dhoukani* flake, which is consistent with the Kambos tou Lemonari sample, but is too poorly diagnostic to be definitive. More indicative of the Neolithic is the sample of ground stone (n = 9) from transect TT501200E, dominated by simple rubbing stones and grinders, an anvil, a hammer stone and a hammer stone/grinder. The strongest link to early prehistoric activity is provided by a cup-marked stone, representing a type found at Kambos tou Lemonari but nowhere else in the Survey Area.

With transect TT499500E there is more definitive material that could be attributed to the Neolithic. This transect, which passed near to Roman-period Nikitari *Sanidhia* (TP245), was collected in SU3033–46 across a surface that was considered stable. A sample of 22 pieces of chipped stone is, like that of Kambos tou Lemonari, dominated by tools and cores with comparatively few blanks and little debris (Table 3.7). TT499500E cores, core trimming elements and blanks correspond to an industry defined by the use of a simple core technology focused on producing flakes from local jasper. More diagnostic are the tools from TT499500E, which represent a wide range of tool classes including examples made on non-local Lefkara cherts as well as the dominant local jasper and chalcedony. These tools include a burin, two perforating tools (one on a multiple tool also exhibiting denticulation), three utilized flakes, a retouched flake, a scraper and, importantly, two glossed pieces; they are all consistent with the Aceramic Neolithic sample collected from Kambos tou Lemonari. In particular, the presence of a backed and bi-truncated glossed tool made on a bidirectional prismatic blade segment recalls Neolithic examples from Early Aceramic Neolithic (Cypro-PPNB) assemblages elsewhere in Cyprus (e.g. McCartney and Todd 2005, 199–201, figs 19, 21). A single *dhoukani* flake found in SU3036 made on non-local chert is likely to be intrusive.

Six ground stone artefacts found on this transect include three tools that would be consistent with an early prehistoric interpretation (a rubbing stone, a simple quern and a pounder all made of diabase). Three additional ground stone items, however, argue against an early prehistoric attribution; these are a perforated weight (TCL301) from SU3036 that corresponds better with materials reported from Protohistoric Bronze Age contexts on Cyprus (e.g. Elliot 1985, 307), while two ground stone rubbers with up-turned terminals (from SU3045–46) would similarly be more consistent with the nearby TP245 ground stone sample (see Protohistoric Bronze Age section below).

Only four other chipped stone finds collected elsewhere in the Survey Area appear to correspond to the concentration of Neolithic activity shown at Koutraphas. These include a fragment of a tool, made on high quality Lefkara chert, exhibiting flat retouch (TCL282) found near Petra *Phoukasa* in the Atsas Valley, a *pièce esquillée* made on a high quality blade of Lefkara chert (TCL233) from SU1676 near Ayios Kyriakos, and a dihedral burin (TCL250) made on a prismatic blade segment of high quality Lefkara chert from SU1699 near Athassi (Fig. 3.4). *Pièces esquillées* made on blade segments are relatively common in Early Aceramic Neolithic (Cypro-PPNB) assemblages and are distinct from those made on flakes during the Chalcolithic, while dihedral burins on blades are also characteristic of Early Aceramic Neolithic (Cypro-PPNB) assemblages (Briois *et al.* 1997, 104, fig. 2; McCartney 2005, 15; McCartney and Gratuze 2003, 20–21, 25; Webb *et al.* 2009).

One final artefact of note is a utilized flake of obsidian (TCL090) recovered from SU1035/TT3882500E in the Karkotis Valley (see also the Medieval–Modern section below). It is worth noting again here the absence of obsidian from Kambos tou Lemonari, or any other potentially Neolithic entity in the Survey Area. This raw material is similarly absent from Late Epipalaeolithic Aetokremnos or Early Aceramic Neolithic (Cypro-PPNA) Ayia Varvara *Asprokremnos* (McCartney and Todd 2005, 218; McCartney *et al.* 2006, 58; Simmons 1999, 127; Webb *et al.* 2009). A single ground stone tool, a pestle from SU1703 near Athassi, found near a Combed Ware sherd, provides scant evidence of Ceramic Neolithic presence in the Survey Area.

Chalcolithic and Prehistoric Bronze Age

The Chalcolithic–Prehistoric Bronze Age (PreBA) stone industries are represented in the Survey Area by a single site, Phlasou *Koutroullis*. In the chipped stone assemblages the core technology used from the Chalcolithic onwards in Cyprus is almost entirely flake-based (for discussions of blade-based aspects of later prehistoric assemblages, see McCartney 2003, 209–10; Smith 1996, 105). Chalcolithic and later period assemblages show the use of a simple core reduction strategy on a wide range of material types, deployed with limited core preparation or core maintenance, to produce flake tools belonging to a variety of classes and types (McCartney 2003, 207–11 with references; see Finlayson and McCartney 1998, 257 for definitions). The TAESP assemblages fit well with this description. Raw material utilization in the Survey Area during both the PreBA and ProBA (Protohistoric Bronze Age) periods displays a characteristic dependence on local jasper and to a lesser degree chalcedony, but the presence of Lefkara cherts is more common at this time than that seen in the early prehistoric samples (above) or in the subsequent Roman industry. Tool diversity in the TAESP samples is not extensive, but generally corresponds to types found in Chalcolithic and Bronze Age assemblages across the island (Falconer *et al.* 2005; Finlayson and McCartney 1998, 261–88; McCartney 2003; McCartney and Gratuze 2003, 21–27 for type definitions; Kingsnorth 2003; Smith 1996, 2006; Webb *et al.* 2009). As there is, as yet, little published information concerning the use of chipped stone during the ProBA in Cyprus, the TAESP data (despite the small and likely incomplete samples) are significant.

In contrast to the paucity of chipped stone, ground stone samples from both PreBA and ProBA entities were comparatively plentiful and provide clear chronological markers. These assemblages show the continued importance of this technology to domestic food production in particular. Their relative abundance points towards settlements of significant size and relative permanence, in comparison with the preceding temporary activity sites suggested by Neolithic samples. These ground stone data provide clear comparisons to well documented Chalcolithic and Bronze Age assemblages elsewhere in Cyprus (Elliot 1985; 1998; Swiny 1986; Swiny *et al.* 2003; Webb 1996).

Table 3.13. Phlasou Koutroullis *(TS06): sample counts and percentages of major chipped stone categories*

Tool Class	Lemonari	TT510-200E	TT500-500E	TT500-000E	TT499-500E
Anvil		1			
Axe-shaped grinder	1				
Cup-marked stone	1	1			
Grinder	1	2			
Grinding slab	1				
Hammer stone		1		1	
Hammer stone/grinder		1			
Hammer stone/ Pounder			1		1
Mortar	1				
Pecking stone					
Pounder					
Quern	2				1
Rubber	2			1	2
Rubbing stone		3			1
(Perforated Weight)					1
(Senet Board)					

Phlasou *Koutroullis* (TS06) A substantial amount of lithic material, representing both the chipped stone (n = 68) and ground stone (n = 70) industries, was collected at Koutroullis from Survey Units assigned to TS06 (SU2006, SU2012, SU2029–31, SU2078–85, SU2104) (Table 3.13; see also Volume 2, Chapter 3.5). The samples from TS06 provide one of the most comprehensive prehistoric chipped and ground stone assemblages collected by TAESP; they give a clear picture of the industries in use here during the transition from the Chalcolithic to the Bronze Age. A total of 40 chipped stone artefacts and 24 ground stone artefacts collected from the road section (TP135) represent the main stone artefact assemblages from Koutroullis. Minor samples were collected at TP177; these consist of an additional four ground stone tools and a single chipped stone tool. A further two chipped stone and two ground stone artefacts were recovered from the TP246 flood deposits. Survey Units in the wider area of Koutroullis provided significant numbers of both chipped stone (n = 25) and especially ground stone (n = 40). While keeping the possibility of post-depositional movement of artefacts in mind, the distribution of artefact categories listed in Table 3.13 suggests that a greater amount of tool use may have taken place in the vicinity of the road section, with more evidence for core reduction demonstrated across the wider site area.

The cores used for the production of tool blanks invariably represent cores for the manufacture of flakes (n = 12), which are represented by a variety of types including two change-of-orientation cores, one single platform example, two splintered pieces, two cores-on-flakes, two core fragments and three tested pebbles. The use of splintered pieces and cores-on-flakes shows a significant interest in raw material conservation; indeed, all cores are heavily exhausted, showing diminutive average dimensions of 25.0 mm long, 21.5 mm wide, and 17.3 mm thick (e.g. TCL491 in Fig. 3.6). The reason for employing a knapping

Table 3.14. Phlasou Koutroullis *(TS06): raw material counts and percentages of local material*

Locality	Jasper		Chalcedony		Lefkara	
TP135	12	30%	1	3%	27	68%
TP177	1	100%				
TP246					2	100%
Koutroullis SU's	20	80%	1	4%	4	16%
Koutroullis all	33	49%	2	3%	33	49%
TT3879500N	9	82%			2	18%
TT3879500E	17	100%				

Table 3.15. Phlasou Koutroullis *(TS06): average tool class dimensions (TP135, TP177, TP246, SUs). Measurements in mm*

Tool Class	Length	Width	Thickness
Notch	23.4	17.4	5.8
Perforator	21.6	17.7	8.4
Retouch	35.8	33.4	12.7
Scraper	30.1	28.4	10.7
Truncation	31.5	29.8	10.2
Utilized	26.1	24.2	9.5
Dhoukani	27.9	43.3	14.4

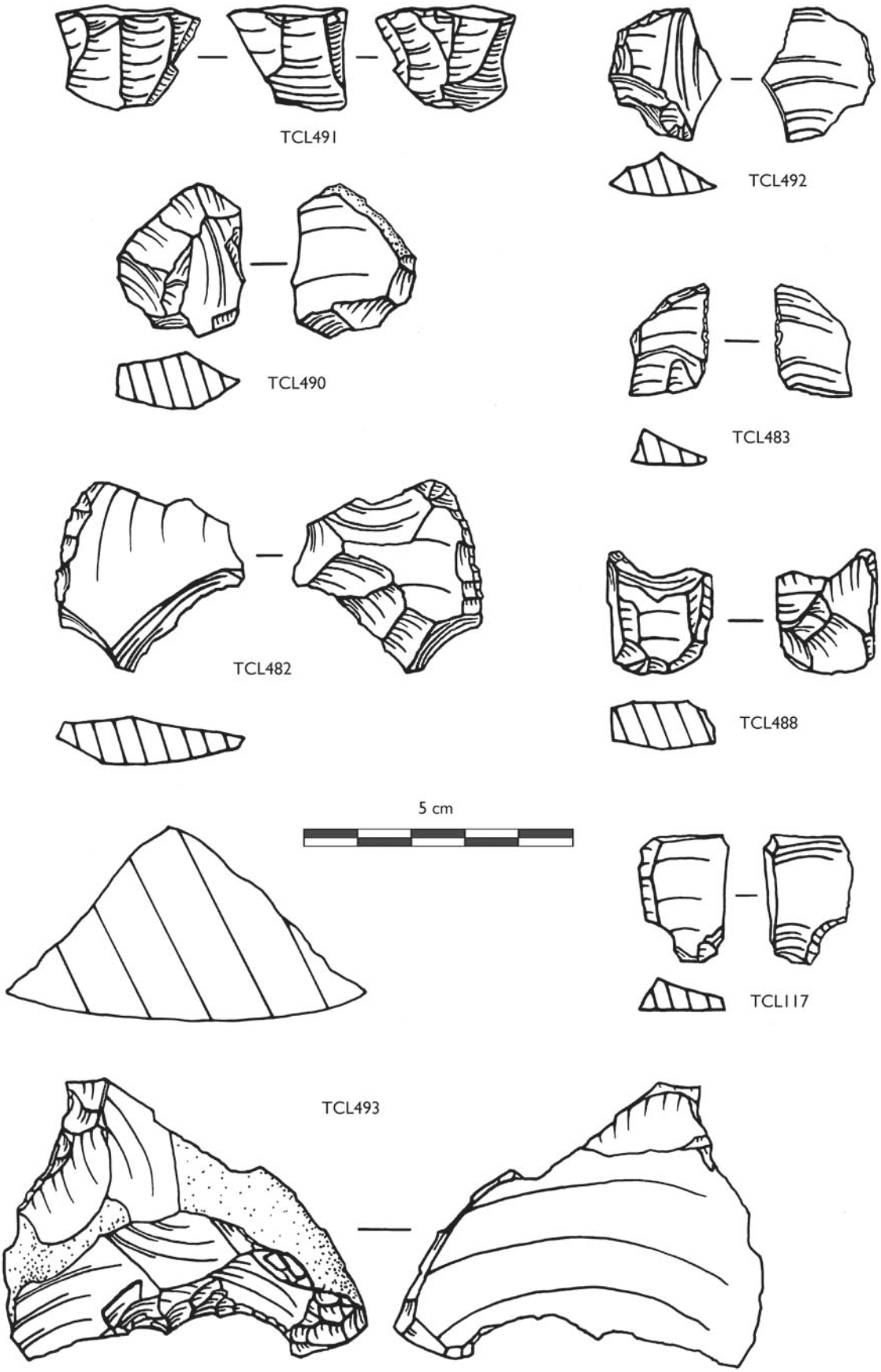


Fig. 3.6. Chipped stone from Phlasou Koutroullis *(TS06; TP135): TCL491 (flake core); TCL492 (utilized piece); TCL490 (truncation); TCL483 (utilized piece); TCL482 (truncation); TCL488 (perforator); TCL493 (notch). Katydhata* Laonarka *(TS09; SU1060): TCL117 (denticulate) (Carole McCartney)*

Table 3.16. Phlasou Koutroullis *(TS06): technical attributes for tools (TP135, TP177, TP246, SUs)*

Tool blanks	Flake: 13 (81%)	Indeterminate: 2 (13%)	Core: 1 (6%)	Blade: 0
Butt types	Plain: 7 (70%)	Facetted: 2 (20%)	Cortical: 1 (10%)	
Dorsal scar patterns	Unidirectional: 3 (20%)	Crossed at 90º: 10 (67%)	Cortical: 1 (7%)	Kombiwa: 1 (7%)

Table 3.17. Phlasou Koutroullis *(TS06): tool class distribution (none for TT3879500N)*

Tool Class	TP135	TP177	TP246	SUs	TT38-78500N
Notch	1				
Perforator	1				
Retouch	5			1	1
Scraper			1		
Truncation	3				
Utilized	4	1		1	
Dhoukani	1				1

strategy designed to conserve raw material is suggested by the high percentage (49%) of non-local Lefkara cherts. This is the only prehistoric assemblage in the Survey Area to demonstrate such a concentrated utilization of non-local chert. Table 3.14 shows the percentages of different raw materials for each of the Koutroullis samples. This comparatively prominent percentage of non-local Lefkara chert could imply contact with other areas of the island where such materials can be obtained, such as at Politiko *Kokkinorotsos* or Marki *Alonia* and chert outcrops nearby those sites (Given and Knapp 2003, 192–97; Smith 1996; Webb *et al.* 2009). The heavily exhausted state of the Koutroullis cores, comparatively small artefact size (Table 3.15) and evidence of tool re-utilization, however, show an intensity of material exploitation that could, alternatively, suggest few or irregular contacts for the purpose of obtaining Lefkara chert (Table 3.15). The assemblage from PreBA Sotira *Kaminoudhia* similarly shows diminutive artefacts and an attention to intensive raw material exploitation (Kingsnorth 2003, 291; personal observation).

At Koutroullis, Lefkara chert was seen across all major artefact categories. More typically, fewer cores and core trimming elements belonging to the Koutroullis samples were made from Lefkara cherts, in contrast to higher percentages of such materials in the blank, debris (mainly blank fragments) and particularly tool categories. This dichotomy suggests the possibility that some of this material arrived at the site in the form of blanks and/or ready made tools. Both formal and informal tool types were made from Lefkara cherts, corresponding to similar preferences elsewhere (Finlayson and McCartney 1998, 258–59; McCartney 2003, 205–207, table 18.3).

Beyond the cores, a core trimming element (a crested flake) and three hammer stones (one of which is made on Lefkara chert) correspond to the use of a hard hammer direct percussion technique. The paucity of core trimming elements like the prominence of simple plain and cortical butts, shows a low degree of core preparation or maintenance (Table 3.16). The appearance of the so-called 'kombiwa' dorsal scar pattern, consisting of a remnant ventral aspect on the dorsal surface, agrees well with the presence of cores-on-flakes in the assemblage, while the high percentage of tools made on flake blanks shows an even more exclusively flake-based industry than that noted for the early prehistoric samples above. Such technological features are all typical of Chalcolithic and PreBA assemblages elsewhere on the island (Kingsnorth 2003, 320; McCartney 2003, 205–208, tables 18.2, 18.5; Smith 1996, 105).

The tools present in the different Koutroullis samples are dominated by retouched flake tools (63%), in comparison to 32% unretouched utilized flake implements (Table 3.17). A single *dhoukani* flake is intrusive and presumably associated with the nearby threshing floors (TP176, TP187). The types of retouched flake tools include a variety of marginally retouched flakes, three truncations, a notch, a perforator and a scraper (Fig. 3.6). Such flake tools are typical of Chalcolithic and PreBA (Early Cypriot) assemblages elsewhere (Finlayson and McCartney 1998, 261–88; Kingsnorth 2003, 326–33; McCartney 2003, 211–17 with references; Smith 1996, 107–109). That said, the near absence of burins, scrapers and *pièces esquillées* at Koutroullis marks this assemblage as distinct in comparison to other broadly contemporary assemblages (Given and Knapp 2003, 196; McCartney 2003, 214–16; Smith 1996, 107–108; Webb *et al.* 2009).

Some of this difference may have to do with the comparative lateness of Koutroullis, a possibility corresponding well with the decline in tool type diversity shown for period 5 at Kissonerga *Mosphilia* or Sotira *Kaminoudhia* (Finlayson and McCartney 1998, 290–91; Kingsnorth 2003, 326–32; personal observation), and a feature that also agrees with aspects of the ground stone assemblage (see below). The absence of arch-backed glossed blade segments, however, represents a clear difference between the Koutroullis sample and those of EC–MC Kaminoudhia, Marki *Alonia* and Alambra *Mouttes* (Kingsnorth 1996, 195–96; 2003, figs 7.13–14; Smith 1996, 106; 2006, 252; personal observation). Although backed and truncated glossed elements are present in Chalcolithic assemblages, the prominence of convex backed glossed tools in PreBA assemblages represents a clear resurgence of a tool form not seen abundantly since the Late Aceramic Neolithic (Finlayson and McCartney 1998, 268; McCartney 2003, 214; McCartney and Todd 2005, 226–27 with references; Smith 1996, 107).

Table 3.18. Phlasou Koutroullis *(TS06): ground stone tool types (none for TT3879500N)*

Tool type	TP135	TP177	TP246	SUs
Axe	1			1
Grinder	1	1		
Grinder/rubbing stone			2	
Grinding slab	1			6
Hammer stone	2			
Hammer stone/grinder				1
Hammer stone/pounder				1
Hammer stone/pestle /rubbing stone				1
Hammer stone/ pounder/pestle				1
Hammer stone/rubbing stone	1			
Hammer stone/rubbing stone/pecking stone	1			
Hammer stone/pecking stone/polisher	1			
Pecking stone		1		2
Polishing stone	1			3
Polishing stone/rubbing stone	1			
Pounder	1			2
Pounder/grinder	1			
Pounder/pestle/rubbing stone				1
Pounder/rubbing stone	4			
Pounder/rubber	1			
Rubber	1	1		10
Rubbing stone	3	1		9
Saddle quern	1			
Vessel fragment				2
Manufacturing flakes	2			

Ground stone artefacts collected from Koutroullis represent one of the most significant of our lithic assemblages (Table 3.18; Fig. 3.7). A total of 70 artefacts was recovered from TP135, TP177, TP246 and the Survey Units in TS06, with the largest number coming from, or near, areas where prehistoric pottery was most dense. Additional items recorded in the field, but not collected, include a large mortar and a large quern fragment. The number of ground stone artefacts collected from TP177 is but a fraction of a larger assemblage photographed where they lay embedded in the ground surface. Differentiation in the use of space may be indicated by the greater numbers of grinding tools collected across the Survey Units and at TP177, in comparison to the comparatively high number of pounding and hammering tools at the road section (TP135). A sample of 15 ground stone tools collected by the Department of Antiquities (Cyprus Survey 2957) contains parallel grinding and pounding tools, as well as a vessel fragment, confirming the TAESP survey results and further illustrating the substantial size of the ground stone industry.

The Koutroullis ground stone assemblage is more diverse than that of Neolithic *Kambos tou Lemonari*, and shows a significant degree of multiple tool use and re-use across both formal and informal tool types. The samples are dominated by hand tools including numerous hammer stones, pounders, grinders and rubbing stones, which provide parallels to other broadly contemporary settlement sites such as Kissonerga *Mosphilia* (Elliot 1998), Sotira *Kaminoudhia* (Swiny 2003), Marki *Alonia* (Webb 1996) or Politiko *Troullia* (Falconer *et al.* 2005).

The tool types used here conform to the established convention of listing tools as a combination of wear types, although the definition of these tool types varies to a degree in the Cypriot literature. In particular, the distinction between grinders and rubbing stones used here follows a kinetic difference in wear patterns, namely, the presence of striations or smoothing/polish that indicate a circular or rotary motion for grinders and a back-and-forth motion for the rubbing stones and rubbers (Elliot 1998, 172–73; Kassianidou 2007, 278–79; Swiny 1986, 6–8). While this division will include examples used on both softer and harder materials (cf. Webb 1996, 84), this degree of resolution in tool wear was not always possible with the surface artefacts examined here. Small hand-held grinders frequently exhibited smooth working surfaces that were on occasion highly polished (particularly on the small circular or discoidal plano-convex grinders, for example TCL275), but other examples also exhibited fine circular striations and no consistent pattern was apparent. Numerous artefacts represent multiple tools employed for a variety of pounding, hammering, grinding and rubbing functions, with distinct wear types located on different areas of the tool. Only when overlapping wear patterns showed that tools were clearly transformed by secondary re-working could successive uses be established. The significant amount of tool re-use and/or multiple tools seen at Koutroullis is a feature that corresponds well with assemblages belonging to other Chalcolithic/PreBA sites in Cyprus.

The predominant rubbing and pounding tools represent tool types prominent in Chalcolithic and Bronze Age assemblages elsewhere (e.g. Elliot 1998, 172–73; Falconer *et al.* 2005, 74; Jackson 2003, 179–80; Kassianidou 2007, 278–79; Mogelonsky 1996, 158; Swiny 1986, 9; 2003, 223–25); however, the pestles and cutting tools so well developed in the Chalcolithic (Elliot 1998, 169–72; Jackson 2003, 177–79) are rare at Koutroullis. This pattern fits well with the trends shown at PreBA Sotira *Kaminoudhia* and Marki *Alonia* where cutting tools and pestles are also comparatively rare (Swiny 2003, 222–25; Webb 1996, 80–81). The relative prominence of axes at PreBA 2 Alambra *Mouttes* provides an exception to this trend, one that demonstrates the significance of inter-site variability (Mogelonsky 1996, 147–50; see also below). The two well-

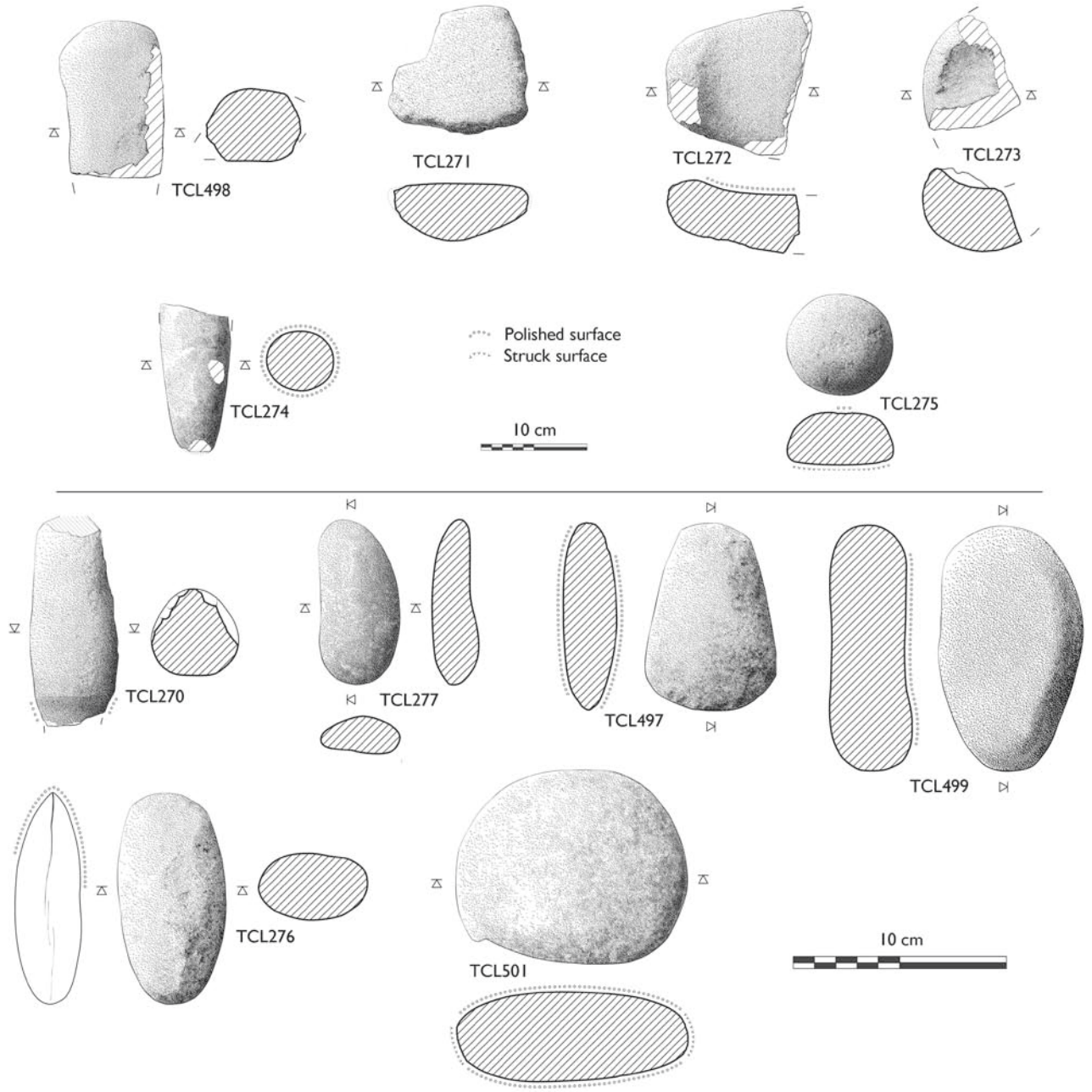


Fig. 3.7. Ground stone from Phlasou Koutroullis *(TS06): TCL270 (pounder/pestle/rubbing stone); TCL271 (rubber); TCL272 (rubber); TCL273 (vessel fragment); TCL274 (hammer stone/pounder/pestle); TCL275 (hammer stone/grinder); TCL276 (axe); TCL277 (polishing stone); TCL497 (axe); TCL498 (pounder/rubbing stone); TCL499 (hammer stone/rubbing stone/pecking stone); TCL501 (grinder) (Jean Humbert)*

made axes recovered from TP135 and SU2104 (TCL276, TCL497), as well as an axe and one adze collected by the Department of Antiquities (CS2957), conform to the types of small, frequently triangular or wedge-shaped axes recorded in Bronze Age assemblages (Mogelonsky 1996, 150; Swiny 1986, 3–4; 2003, 222; Webb 1996, 80).

Numerous querns and rubbers demonstrate a focus on food processing activities common in domestic contexts, with rubbers exhibiting the 'up-turned' ends associated with use on a lower saddle quern element (e.g. TCL272). Formal tools of this type are frequent in both Chalcolithic and Bronze Age settlement contexts (Elliot 1998, 174; Swiny *et al.* 2003, 229; Webb 1996, 75). The more numerous grinding slabs found at Koutroullis represent flat working surfaces on which the smaller hand-sized rubbing stones were more likely used. One possibly intrusive artefact in the Koutroullis sample is a rubber made of vesicular basalt. Although vesicular basalt is available locally from the Lower Pillow Lavas, it represents a material type used infrequently at broadly contemporary Marki *Alonia* where

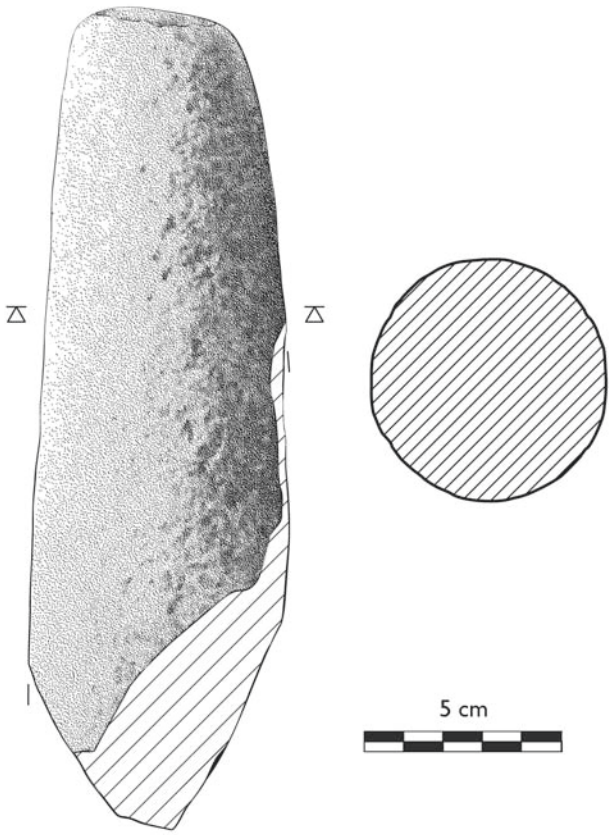


Fig. 3.8. Probable Chalcolithic bottle-shaped pestle, re-used as a pounder (TCL192) (Jean Humbert)

it was employed for the manufacture of small mortars and vessels, not rubbers (Webb 1996, 73–74). Highly vesicular basalt like the example from Koutroullis, however, represents an imported material type used to make durable rubbers, as recorded in ProBA (Late Cypriot) contexts in the Survey Area and elsewhere (e.g. Elliot 1985, 313; 1988, 418). Only two vessel fragments were collected from Survey Units assigned to Koutroullis, demonstrating the relative paucity of this class of ground stone artefact at the site.

The presence of a single picrolite flake fragment in the TP135.PU02 sample is also significant to the interpretation of ground and polished stone at Koutroullis, considering the importance of this material for the manufacture of cruciform figurines during the Chalcolithic, and picrolite ornaments during both the Chalcolithic and subsequent Prehistoric Bronze Age. Two additional unworked picrolite pieces were collected by the Department of Antiquities as part of the CS2957 sample. Given the proximity of the Survey Area to the Karkotis River, one would expect picrolite to be more prevalent than the few pieces recovered. The relative paucity of this material may, therefore, represent a regional difference between the north-west and south-west regions of the island at this time (Xenophontos 1991, 136–37).

Other 'Chalcolithic' finds Four single finds of note are likely to represent additional Chalcolithic/PreBA tools, suggesting a wider interaction with the TAESP landscape at this time. A probable Chalcolithic bottle-shaped pestle re-used as a pounder was recovered from SU1625 at the south end of Mavrovouni, near a few sherds of Chalcolithic/PreBA pottery in SU1626 (TCL192; Fig. 3.8). A second large pestle fragment from Evrykhou village (TCL478) also exhibits flattened sides from use as a grinding tool. The third artefact is a relatively small wedge-shaped polished axe recovered at Phlasou village in SU2004 (TCL263), which exhibits a curved blade and one slightly facetted lateral edge. The final artefact is a piece of picrolite from SU1007 below the Roman site of Pseftas on TT3883500N, a favoured raw material during the earlier Chalcolithic and PreBA periods.

Protohistoric Bronze Age

The Protohistoric Bronze Age (ProBA) lithic material (Table 3.19) comes mainly from three sites: Katydhata *Laonarka* (Volume 2, Chapter 3.9); Kato Koutraphas *Mandroudhes* (Volume 2, Chapter 2.9); and Nikitari *Petrera* (Volume 2, Chapter 2.14). The chipped stone from Laonarka consists of just 32 pieces; in spite of this small sample, all major categories of chipped stone artefact are represented, suggesting that tool production was done in the local area. The percentage of tools (although affected by the small sample size) is, however, relatively high for a settlement site. One factor generating this surplus is a number of potentially intrusive historical-period *dhoukani* flakes (see below). In contrast to Laonarka, Mandroudhes produced only four chipped stone artefacts: a jasper hammer stone (SU3006); a *dhoukani* flake made on non-local chert (SU3008); and a second jasper hammer stone and a flake core (TP239). Nikitari *Petrera* had a similarly small sample, with a core, a tool and a chunk, from Survey Units (SU3097, SU3100) associated with TP242 at Petrera, and two flake cores, a chunk and an unretouched utilized flake from wider transect survey to the north and south.

The overall similarity of the artefacts in all three ProBA assemblages suggests that the sample size discrepancy between Laonarka, Petrera and Mandroudhes is unlikely to be representative of any real distinction in the use of chipped stone between the sites, but more likely reflects collection biases generated by post-depositional processes acting on all three sites. The small size of all three samples means, however, that they are unlikely to provide a complete view of the ProBA chipped stone industry in the area. In spite of this deficiency, differences between this material and that of earlier or later TAESP industries are worthy of note, providing a basis for future research into a little known industry on Cyprus.

Unlike Koutroullis, chipped stone artefacts in the larger Laonarka sample were made predominantly on local jasper and chalcedony, while at Petrera all artefacts were made from local materials (Table 3.20). Although reduced, a significant number of ProBA artefacts were still produced

Table 3.19. Protohistoric Bronze Age sample counts and percentages of major chipped stone categories

Location	Cores		Blanks		Debris		Tools	
Katydhata SUs +TT388200E	6	19%	1	3%	9	28%	16	50%
Linou/Laonarka (TT3881500N)	8	29%	1	4%	4	14%	15	54%
Mandroudhes (TP239)	2	100%						
Mandroudhes area (TT495000E)	1	50%					1	50%
Petrera SUs	1	33%			1	33%	1	33%
Petrera area (TT499000A)	2	50%			1	25%	1	25%

Table 3.20. Raw material utilization for Protohistoric Bronze Age sites ('Other' includes gypsum, silicified sandstone and non-Lefkara chert)

Location	Jasper		Chalcedony		Lefkara		Other	
Katydhata SUs +TT388200E	25	78%	1	3%	5	16%	1	3%
Linou/Laonarka (TT3881500N)	21	75%			5	18%	2	7%
Mandroudhes (TP239)	1	50%			1	50%		
Mandroudhes area (TT495000E)	1	50%					1	50%
Petrera SUs	3	100%						
Petrera area (TT499000A)	4	100%						

Table 3.21. Technical attributes for Protohistoric Bronze Age tools (based only on the Laonarka sample Survey Units)

Tool blanks	Flake: 6 (50%)	Indeterminate: 6 (50%)	Blade: 0	Core: 0	Pebble: 0
Butt types	Plain: 2 (22%)	Facetted: 2 (22%)	Cortex: 4 (44%)	Compression: 1 (11%)	
Dorsal scars	Unidirectional: 1 (9%)	Bidirectional: 2 (18%)	Crossed at 90º: 8 (73%)		

on non-local raw materials, including a chunk and five of the tools from Laonarka, and a well-made core from Mandroudhes. The imported materials are predominantly Lefkara cherts, including one example that belongs to the so-called 'Moni' chert type, common in the south-western part of the island (Fox 1984, 62). Two examples do not appear to fit with other Lefkara cherts, and at least one of these may derive from the Lapithos formation, implying connections with the northern part of the island. Thus, while the overall proportion of non-local cherts in the ProBA assemblages is reduced, the diversity of such cherts suggests the possibility of more widespread connections with other areas of Cyprus than that shown previously at Koutroullis (but see further below).

The ProBA chipped stone artefacts clearly document the use of a simple flake-based core technology. As with the Koutroullis sample, the blank types selected for tool use are less diverse than those at Neolithic *Kambos tou Lemonari*. At Laonarka, however, half of the tools measured were indeterminate as to blank type. This is partly a function of the frequency of broken tools due to post-depositional processes at the site, but also shows the more ad hoc character of the industry (Table 3.21). The higher percentage of cortical butts in the assemblage supports this expedient characterization, indicating less preparation of core platforms prior to blank removal; this deviates from other TAESP industries both prior and subsequent. A few platform rejuvenation pieces (one re-

Table 3.22. Distribution of chipped stone tool classes for Protohistoric Bronze Age sites

Tool Class	Laonarka	TT3881500N	TT495000E	Petrera	TT499000A
Denticulate	1				
Notch	1				
Perforator		1			
Utilized	9	8			1
Retouched				1	
Dhoukani	5	6	1		

Table 3.23. Average dimensions of the different tool classes for the Protohistoric Bronze Age, based only on the Laonarka Survey Units (measurements in mm)

Tool Class	Length	Width	Thickness
Denticulate	58.2	61.9	32.4
Notch	26.7	36.4	17.4
Utilized	36.3	34.3	17.2
Dhoukani	35.6	30.1	15.3

used as a tool) similarly show a relatively low degree of attention to core maintenance.

Dorsal scar patterns show change-of-orientation core reduction (corresponding to the 90º cross scar pattern) to be dominant, according well with preceding industries. The latter agrees with the presence of two change-of-orientation cores at Laonarka, while the presence of a core-on-flake and a splintered piece core correspond to more expedient facets of the industry. One of the change-of-orientation cores provided length, width and thickness dimensions of 62.3 × 80.4 × 57.8 mm, showing that cores were not as intensively reduced as those belonging to the Chalcolithic/PreBA industry. A well-made discoidal flake core made of jasper collected at Mandroudhes, an alternating platform core from Laonarka, and three amorphous flake cores, two from Mandroudhes and one from Petrera, add further diversity to the range of flake core types. Three fragmentary cores and three tested nodules complete the sample and demonstrate an active ProBA core reduction technology. This was aimed at the reduction of core materials for expedient flake tools, and compares well with the limited ProBA data available elsewhere (Morris 1977, 50; Steel and McCartney 2008, 23–34, table 4).

The tool types belonging to the ProBA industry are less diverse than those of other TAESP industries, but, as in the Chalcolithic/PreBA industry they are frequently diminutive (Table 3.22, Table 3.23). Beyond a denticulate (TCL117 in Fig. 3.6) and a notched flake from Laonarka, simple flake tools present in this and other ProBA samples are dominated by informal utilized implements, a tool type well suited to the use of jasper. This reduced tool type diversity in the Survey Area is lower than that of ProBA Aredhiou *Vouppes*, again suggesting the incompleteness of the TAESP samples (Steel and McCartney 2008, 24, table 7). Notably absent are the backed glossed blades of the preceding periods seen at Marki *Alonia* (Smith 1996, 106; 2006, 252), Sotira *Kaminoudhia* (Kingsnorth 1996, 195–96; 2003, figs 7.13–14; personal observation), or Politiko *Troullia* (Falconer *et al.* 2005, 83, fig. 7). At Petrera the single tool recovered is a marginally retouched flake exhibiting concave retouch, while a perforator similarly made of local raw material from TT3881500N near Laonarka adds to the limited tool diversity.

Beyond the simple flake tools and utilized implements noted above, the presence of *dhoukani* tools in each of the ProBA samples is interesting. Taken at face value this tool type represents 35% (n = 12) of all tools sampled in ProBA assemblages. Such a high percentage of *dhoukani* tools (although still only about half of the 62% of such tools found in Medieval–Modern contexts) is considerably higher than preceding prehistoric samples (5% and 10% for the Neolithic and Chalcolithic/PreBA respectively), and also exceeds that of the subsequent Roman period (15%). Two of the five *dhoukani* tools from Laonarka are made of non-local chert types, demonstrating that these tools were produced elsewhere, while five of six examples from transect TT3881500N were similarly made on non-local raw materials, as was the single Mandroudhes example. These eight *dhoukani* tools, in particular, could represent intrusive pieces from historic periods. The presence of Medieval to Early Modern ceramics in these areas makes this credible (in which case less imported chert was used during the ProBA in the Survey Area). And yet, while there are threshing floors (TP102) on the north-eastern edge of the modern village of Katydhata, there are none in the immediate area of the Laonarka site, as was the case at Koutroullis. The three remaining jasper *dhoukani* tools from Laonarka and one other from TT3881500N were clearly made locally. As discussed with the Medieval–Modern industry below, such tools could represent characteristic historic examples that are locally made replacements for worn out Lefkara sledge elements, but reasons for their presence at Laonarka need to be considered.

Alternatively, although it has been inferred that the Cypriot *dhoukani* tool form evolved from the Roman *tribulum*, research in other parts of the Near East place the origins of threshing sledges at least as early as the Chalcolithic if not deeper into the Neolithic, once free-threshing wheats became available (Anderson 1999, 128, 138, 143–44, table 122; Anderson and Chabot 2001, 259; Anderson *et al.* 2004, 92, 98–102; Fox and

Table 3.24. Ground stone tool types from Protohistoric Bronze Age sites (figures in brackets refer to pieces observed but not collected)

Tool type	Laonarka SUs, TP243	TT38-81500N	Mandroudhes	Petrera	TT49900A
Axe			2		
Adze			1		
Anvil/grinder	1				
Grinder	2		3		
Grinding slab	1				
Hammer stone/axe			1		
Hammer stone	1				
Hammer stone/grinder	1	1	1		
Hammer stone/rubbing stone			1		
Hammer stone/rubbing stone/pounder			1		
Pecking stone			1		
Pounder			1	1	
Pounder/hammer stone			1		
Pounder/hammer stone/grinder	1				
Rubbing stone	2		1	1	
Rubbing stone/perforated hammer		1			
Rubber			9 (+4)	4	
Anvil/rubber				1	
Quern			1 (+1)	1	
Grinding slab			(+1)		
Mortar			1		
Stone disc fragment	1				
Gaming stone (Senet)		1			1
Manufacturing flake		1			
Engraved stone fragment		1			

Pearlman 1987, 227; Hornell 1930, 138–39; Pearlman 1984, 16–17; Whittaker 2000, 65). Related to the threshing sledge's likely deeper history, the concept of a distinct 'Mediterranean' sledge related to the Roman *tribulum* seems an oversimplification, since threshing sledges have a much wider geographical distribution. It is more likely that the use of a wooden sledge board may be a chronological development, which being both heavier and larger supported the use of hundreds rather than tens of inserts, facilitating the processing of large quantities of grain while also permitting the use of more varied (and cheaper) insert materials like basalt chunks or metal strips (Anderson 1999, 143–44; Pearlman 1984, 40, 49; personal observation).

Threshing is also likely to have a much deeper history of use in Cyprus, dating from the Neolithic as elsewhere in the Near East (see preliminary reference in McCartney 2008, 67). Possible threshing tools (identified by Patricia Anderson) made on flakes from the ProBA site of Kalavasos *Ayios Dhimitrios*, however, which are currently under research, are closely parallel in both typological and technological terms to modern Cypriot threshing sledge inserts. These tools, like those found at Laonarka, suggest the possibility that the particular Cypriot *dhoukani* tool form may have evolved during the ProBA and that this relatively simple tool form changed little subsequently, though this suggestion requires further research. Much still needs to be learned with regard to the origins of the Cypriot *dhoukani* as well as the ProBA chipped stone industry on Cyprus, and as Pearlman (1984, 3) noted, our lack of progress is likely to have more to do with a failure to identify the correct variables than a paucity of archaeologically related examples. It is therefore impossible to say with certainty whether the *dhoukani* tools found in ProBA samples in the TAESP assemblages are intrusive or not.

Ground Stone In comparison to either Mandroudhes or Petrera, the ground stone sample from Laonarka is not highly diagnostic of the Bronze Age in Cyprus (Table 3.24). Only one ground stone object came from the gridded area at Laonarka (TP243), with eight pieces from SU1097–98, and another five from transect TT3881500N running past Laonarka's southern edge. Significant numbers of rubbers and querns are notably missing from the Laonarka ground stone sample, given that such tools are typical for this period of intensive agricultural production (Elliot 1985, 304–307; 1988, 417–20; Kassianidou 2007, 278; Swiny 1986, 23–24). Only a single irregular grinding slab is present in the Laonarka sample.

The majority of the Laonarka ground stone artefacts represent smaller hand-held tools utilized either for grinding/rubbing or for hammering/pounding, representing informal tools that exhibit little or no evidence of deliberate shaping, but which were used repeatedly and thus curated. Such tools were also found at Petrera (including a rubbing stone and a pounder), with a greater variety of these tools recovered at Mandroudhes. Informal tools typical of ProBA assemblages elsewhere were already dominant in the Koutroullis assemblage documented above, demonstrating a significant degree of continuity between the earlier and later phases of Bronze Age ground stone technology. Many of the ground stone items collected at Laonarka are fragmentary, which like the exaggerated damage exhibited on some tool surfaces suggests significant alteration of the sample by ploughing activity. Given, however, the expectation that ploughing should bring larger stone tool fragments (namely the ground stone) to the surface (Ammerman 1985, 35; Schiffer 1995, 175–76), the small size of the Laonarka ground stone sample is surprising for a settlement site.

The five ground stone objects collected from transect TT3881500N provide additional ProBA parallels that add to the Laonarka sample, but also a number of more enigmatic pieces. These artefacts include a grinder made on basalt (SU1315), a small spherical gaming piece (marble) made on hertzburgite (SU1307), a flat diabase pebble engraved with an 'x' or crude cross (also SU1307), and a diabase chunk exhibiting polish and striations, probably struck during the re-sharpening of an axe (SU1317). Of special interest is a rubbing stone made by reusing a perforated hammer made of microgabbro (TCL150). While rubbing stones are rather commonplace, perforated hammers represent a tool type associated with ore crushing in Bronze Age contexts elsewhere (Falconer *et al.* 2005, 84, fig. 8; Kassianidou 2007, 278–79; Mogelonsky 1996, 162; Swiny 1986, 15–16; Webb 1996, 79). Although other perforated discs were present from the Neolithic, perforated hammers represent a diagnostic feature belonging to the Bronze Age, particularly to the middle and later phases of this period (Swiny 1986, 15). A second such perforated hammer was found at Roman-period Dodekaskala (SU0014), where a smaller amount of Bronze Age pottery was also present. One other perforated hammer is documented in the literature from Kalokhorio *Khalandrikas* near Skouriotissa. Like those from Apliki *Karamallos*, these suggest a significant amount of ore crushing activity in or near the Survey Area (Kassianidou 2007, 280; Swiny 1986, 15).

One further item from Laonarka is a well-shaped stone disc fragment that was ground all over and may represent a jar lid. It is of much finer quality than the examples from Episkopi *Phaneromeni* but provides an indication of other stone artefacts that might exist at these sites (Swiny 1986, 25, fig. 29). Only one ground stone tool was collected from transect TT499000A, but it reveals one of the most diagnostic types belonging to the ProBA sample from Nikitari *Petrera*. This artefact is a fragment of a senet board (TCL323 from SU3098), a type fossil of the Cypriot Bronze Age (Falconer *et al.* 2005, 74; Steel and McCartney 2008, 30–33; Swiny 1986, fig. 42; 2003, 231–33; Webb 1996, 86–87). Like the sample recovered from transect TT499500E (including a stone weight and two rubbers noted above with the early prehistoric samples), this suggests a wider ProBA presence in the Survey Area.

The ground stone components of Mandroudhes and Petrera are, by far, the most significant lithic elements of these sites, providing characteristic ProBA assemblages in contrast to that found at Laonarka (Table 3.24). A general background scatter of basal rocks at Petrera suggests that the TAESP sample represents only a small portion of a potentially much larger assemblage. Nearly all of the artefacts in both the Petrera and Mandroudhes samples were made on these heavy basal rock types that derive from the Troodos range. One exception at Mandroudhes, a quern made of dense sandstone, was worn thin from use (TCL515). A second quern recorded, but not collected, and a flat grinding slab fragment (also not collected) were made of diabase.

The large heavy rubbers are particularly numerous at Mandroudhes (TCL506–507, TCL514, TCL516–18, with a further four recorded in the field). These tools, while present in earlier contexts, are particularly abundant in other Bronze Age contexts (e.g. Elliot 1998, 174; Webb 1996, 73). A large saddle quern was collected from Petrera (TCL328) along with four additional examples, photographed but not collected, one of which is fragmentary. The latter, as well as four well-made rubbers (TCL320, TCL322, TCL326–27), an anvil made from a re-used rubber and a rubber that was recorded but not collected, similarly imply intensive cereal processing (or other grinding activities) during the ProBA at Petrera. The rubbers from both Mandroudhes and Petrera include two distinct types, namely well-worn examples with 'up-turned' handles, pecked to provide extra grip. These show a pronounced concave working surface. A second type shows a thick, steep-sided elongated boulder exhibiting a lightly pecked or unshaped upper surface and a flat lower working face. Both types are notably present at the ProBA sites of Aredhiou *Vouppes* and Maa *Palaeokastro*, representing a differentiation not found in earlier assemblages rather than a distinction determined by the degree of tool wear (Elliot 1988, 418; Kassianidou 2007, 278; Steel and McCartney 2008, 28; Webb 1996, 75–76).

A distinct feature of the Mandroudhes ground stone sample is the comparatively large number of cutting tools, consisting of two axes (TCL520, TCL523), an adze and an axe re-used as a hammer stone (TCL519). Cutting tools are generally not as prevalent in ProBA contexts as they were during the Chalcolithic, having decreased in number at the start of the PreBA (Elliot 1985, 301; 1998; Swiny 1986, 4; Webb 1996, 80). Exceptions to this general trend are shown by the relative abundance of cutting tools found at Alambra and Phaneromeni, showing inter-site variability that is likely to be functionally specific (Mogelonsky 1996,

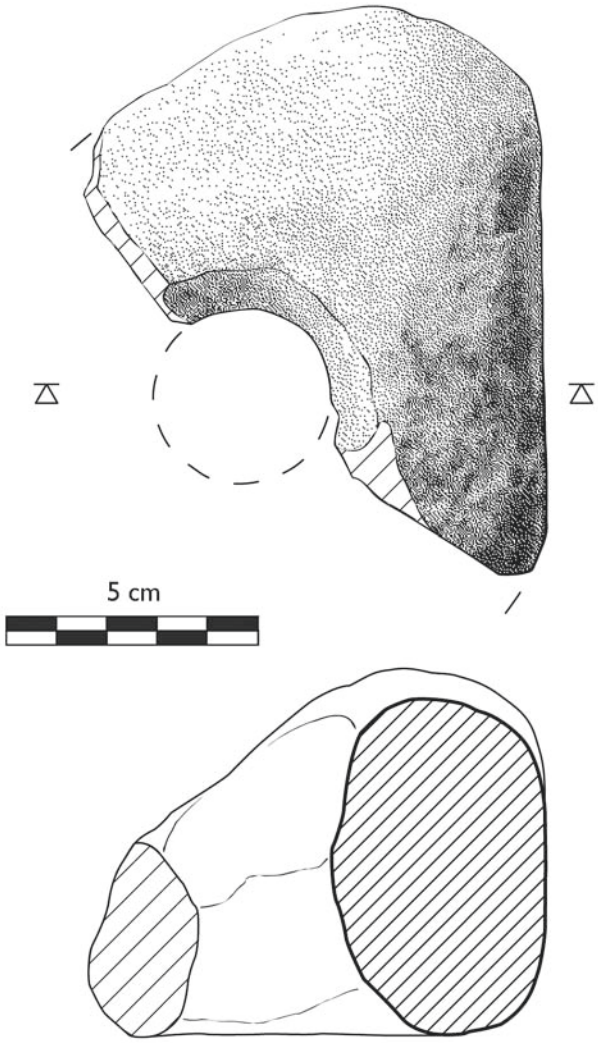


Fig. 3.9. Perforated hammer (TCL150) from Katydhata Laonarka *(SU1305; TS09)*

147–54; Swiny 1986, 2–4). There are significant absences of diagnostic ProBA stone tools found elsewhere, such as whetstones, maceheads, tethering stones and stone spindle whorls, although future research could easily alter this deficiency (Elliot 1985, 299, 304, 308–309; 1988, 417, 422; Kassianidou 2007, 280–81; Mogelonsky 1996, 161, 169; Swiny 1986, 12–14, 19).

Roman Period

One prominent feature of the Survey Area is the significant amount of data that point to Roman-period agricultural and mining settlements. A large sample of lithic artefacts corresponds to this intensity of occupation. Interestingly, the main wealth of lithic material belongs not to ground stone items, although these are numerous, but to chipped stone tools and manufacturing debris, including jasper quarrying. Yet, in spite of the association of the Cypriot *dhoukani* industry with the Roman *tribulum* (e.g. Pearlman 1984, 20) it has been generally assumed that the technology of chipped stone was not practised during the Roman period because so few data exist to suggest otherwise. The recognition of a recording bias against chipped lithics belonging to historic periods has, of course, been noted elsewhere (Pearlman 1984, 3; Rosen 1997, 11–20), and the TAESP lithics data provide a further substantial body of data that complements earlier evidence (see also Fox 1984, 66–67; Fox and Pearlman 1987, 230; Given and Knapp 2003, 309; Stewart 2007). The abundance of consistent lithic evidence from 12 settlement and mining occupations as well as five likely associated jasper outcrops dated to the Roman period in the Survey Area demands that the continued use of a chipped stone industry during later antiquity be acknowledged. Continuity in the use of a ground stone industry in the Hellenistic–Roman period is perhaps less surprising, but only because ground stone tools and containers have been more consistently recorded at later prehistoric and post-prehistoric sites.

Both Early and Late Roman occupations are considered here as a generalized Roman-period sample because of

the low number of diagnostics found within individual lithic samples, precluding finer attribution to phase. In considering the Roman entities in the Survey Area we are dealing with background noise created by the presence of both earlier and especially later evidence. The occasional presence of pottery dating to the Hellenistic period, as well as the more consistent presence of Medieval–Modern pottery at sites interpreted as Roman, requires that we treat some samples as potentially mixed. Thus, samples from Skouriotissa *Pseftas* and Ayia Marina *Mavrovouni* contain Survey Units with Hellenistic as well as Roman pottery. Conversely, samples from Phlasou *Dodekaskala*, Nikitari *Sanidhia*, Xyliatos *Litharkies* and Ayia Marina *Mavrovouni* exhibited Survey Units with Medieval–Modern pottery, and thus may indicate some mixing of material from both early and later historic times (see above and Volume 2).

This potential problem characterizes all survey data, and requires that the following descriptions of both the Roman and Medieval–Modern industries be viewed as starting points for discussions that require future analysis. Beyond the difficulty of potential temporal mixing, the ground stone samples discussed below are limited by significant post-depositional processes (namely field clearance) and the consequent difficulty of recording the large stone piles encountered at some sites. Because of these issues, the samples of ground stone cannot be viewed as representing complete assemblages. That said, the ground stone assemblages discussed below help to demonstrate the active agricultural, industrial and international atmosphere of north-west Cyprus during the Roman period.

Chipped Stone Chipped stone finds were recovered from 17 localities in the Survey Area that are associated with significant evidence of Roman period occupation, particularly ceramic and roof tile data (Table 3.25). The numbers of artefacts assigned to two Roman-period farmsteads, where we might have expected to see more evidence for the use of stone tools, are very small: Linou *Vrysi tou Haji Christophi* has one, and Petra *Phoukasa* eight. Yet it is perhaps not surprising that larger samples were collected from the more substantial Roman settlement sites of Xyliatos *Litharkies* (34), Phlasou *Dodekaskala* (41) and the spread of Roman pottery found at Skouriotissa *Pseftas* (49). Considerable samples were also collected at Ayia Marina *Mavrovouni* (212) and Xyliatos *Ayios Kyriakos* (93), interpreted as Roman-period settlements associated with mining activity. Additionally, three jasper sources likely associated with these Roman-period entities provided substantial raw material quarry assemblages at Ayia Marina *Vrysi* (65), Petra *Phoukasa* TP236 (198) and TP237 (86).

All major lithic categories are represented in Table 3.25, indicating that core reduction and tool manufacture as well as tool use took place at Roman localities. The distribution of major artefact categories illustrated in Table 3.25 shows relatively high numbers of cores and core trimming elements in comparison to moderate amounts of unworked blanks and knapping debris. This implies the use of a highly expedient core technology in which cores were not heavily exploited, but used for a relatively small number of blank detachments, most of which were subsequently utilized as tools, leaving comparatively few unworked blanks. Significant numbers of tools found in the settlement and mining area samples represent on average 21–44% of the total samples, as at Dodekaskala, Phoukasa, Pseftas, Mavrovouni, Ayios Kyriakos and Memi mine. Given that these sites are clearly not temporary activity camps, such high percentages of tools correspond instead to the use of a more decidedly ad hoc system of tool manufacture where individual tools had short use-lives. By contrast, the assemblages collected from the jasper outcrops (Phoukasa TP236 and TP237 and Ayia Marina *Vrysi*) are more heavily dominated by cores, blanks and reduction debris, clearly illustrating the use of these localities for quarrying activity.

Core types are essentially the same as those seen in earlier period industries, and commonly noted in any flake-based assemblage produced using a simple core technology. Roman-period core samples are comparatively substantial with some dominated more heavily by expedient examples, namely amorphous cores, splintered pieces and undiagnostic core fragments, and tested cores (Fig. 3.10). More formal single platform, change-of-orientation, alternating platform and discoidal examples are correspondingly less common. At Dodekaskala one each of the more formal single platform, discoidal and change-of-orientation cores was recorded, in addition to three core fragments and two tested nodules found together with a crested flake. Core examples collected near Skouriotissa *Pseftas* include an amorphous example and a splintered piece, while at the site of Pseftas itself, two more amorphous cores, a change-of-orientation core, one single platform core and four core fragments along with a tested nodule provide a substantial sample showing the variety of simple flake cores employed.

In the large Mavrovouni sample (42, five of which are core trimming elements), one alternating platform core, two single platform cores, a discoidal example, and a change-of-orientation core represent more formal core types. Expedient types including amorphous cores (8), cores-on-flakes (3) and splintered pieces (7) clearly dominate. This sample is completed by a large number of fragmentary examples (9), that together with five tested nodules demonstrate the ad hoc character of core reduction at Mavrovouni. At Litharkies ten cores belong to a similarly undiagnostic sample, showing the same type range (an alternating platform core, two amorphous cores, a core fragment and six tested nodules). Eleven unworked nodules add to the core reduction evidence at this site. Samples from Nikitari *Sanidhia* include three flake cores: one change-of-orientation, one single platform and a tested nodule. The Ayios Kyriakos sample is similar, including 12 cores and one hammer stone with two amorphous cores, a single splintered piece, three tested nodules and six core fragments.

The jasper quarry site of Ayia Marina *Vrysi* (TP096) provided a large sample of 27 cores that compare well with

Table 3.25. Chipped stone artefact category counts and percentages for Roman-period localities

Locality	Cores		Blanks		Debris		Tools	
Haji Christophi (TP202)	1	100%						
Litharkies (TS05)	10	29%	11	32%	8	24%	5	15%
Dodekaskala (TS11)	9	22%	8	20%	6	15%	18	44%
Sanidhia (TP245)	3	75%					1	25%
Pano Limna (TS15)	3	38%	1	13%	4	50%		
Psephtas (TS13)	9	18%	11	22%	14	29%	15	31%
Memi mine (SU1667–74)	3	21%	2	14%	5	36%	4	29%
Mavrovouni (TS02)	42	20%	43	20%	71	33%	56	26%
Ayios Kyriakos (TS10)	13	14%	10	11%	50	54%	20	22%
Skouriotissa (TS01)								
Ayia Marina *Vrysi* (TP096)	27	42%	15	23%	17	26%	6	9%
Sykia tou Kaiserili (TP078)	1	50%			1	50%		
Phoukasa (TP206)	1	100%						
Phoukasa (TP207)	1	100%						
Phoukasa (TP221)	1	13%			4	50%	3	38%
Phoukasa (TP236)	23	12%	75	38%	99	50%	1	0.5%
Phoukasa (TP237)	18	21%	8	9%	53	62%	7	8%

core samples from sites with substantial Roman-period pottery: four alternating platform cores; eight amorphous cores, plus one splintered piece; and an additional 12 core fragments and two tested nodules (Fig. 3.11). The presence of intensive core reduction at the jasper outcrop sites suggests that some flake production was not expedient, but pre-planned with some tools produced at quarry sites and other flakes struck for future use as tools elsewhere.

Average core dimensions across all Roman entities show cores 64 mm in maximum length, 54 mm wide and 38 mm thick. Cores from Roman settlement sites, however, are slightly larger on average (76 × 63 × 46 mm respectively) and marked in particular by very large examples from Petra *Phoukasa* (TCL280) and Nikitari *Sanidhia* (TCL318–19). Mining site samples are, by contrast, somewhat smaller (54 × 45 × 29 mm on average). These differences in core dimension correspond well with the closer proximity of at least two substantial jasper outcrops at Petra *Phoukasa*. Cores worked at mining sites may not necessarily have been carried farther from jasper outcrops, but individual cores appear to have been worked more intensively.

The industry is clearly flake-based and marked by a large majority of flake blanks (nearly 78%), with random use of other tool blanks including two blades, a core and an irregular chunk (Table 3.26). The two blades shown in Table 3.26 are irregular examples and do not indicate the deliberate production of blades in the industry. The focus on flake production is higher in the Roman samples than in all but the Chalcolithic industry described previously. The distributions of dorsal scar patterns, however, show the prevalence of scars crossed at 90º, indicating that the rotation of cores during reduction was as prevalent during the Roman period as in the prehistoric industries. In contrast, however, the greater percentage of simple facetted butts (42%) is unique to the Roman industry, agreeing well with the prominent use of amorphous cores recovered from Roman sites. Despite the possibility of some mixing with later Medieval–Modern period material, these technical features are distinct and help to confirm the existence of two different historic period industries (see below).

A further difference from the later Medieval–Modern industry is the selection of raw materials employed at Roman-period sites. Nearly all artefacts found in Roman samples were made on jasper and/or chalcedony (Table 3.27). Unlike later prehistoric and Medieval–Modern samples, raw material exploitation shown by the Roman samples agrees best with the early prehistoric Nikitari *Kambos tou Lemonari* assemblage where the use of local jasper also dominates. In both cases the near lack of Lefkara cherts indicates a greater willingness to work with the often poor quality, locally available raw materials. Although contacts with areas outside the Survey Area are clearly indicated for the Roman period (including the ground stone industry discussed below), comparatively few Lefkara cherts were recovered in Roman entity assemblages. The 27 Lefkara cherts that do exist represent only 3% of all Roman assemblages and were used almost exclusively for tools (with the exception of one core, a splintered piece from Ayios Kyriakos made of Lefkara basal chert). Eight of these tools are *dhoukani* flakes and are likely to be intrusive Medieval–Modern examples (one from Dodekaskala, one from Litharkies, one from Ayios Kyriakos and five from Mavrovouni). The remaining artefacts made of Lefkara cherts include simple flake tools.

Although most of these Lefkara chert tools fit within the Roman industry, a tool fragment exhibiting flat invasive

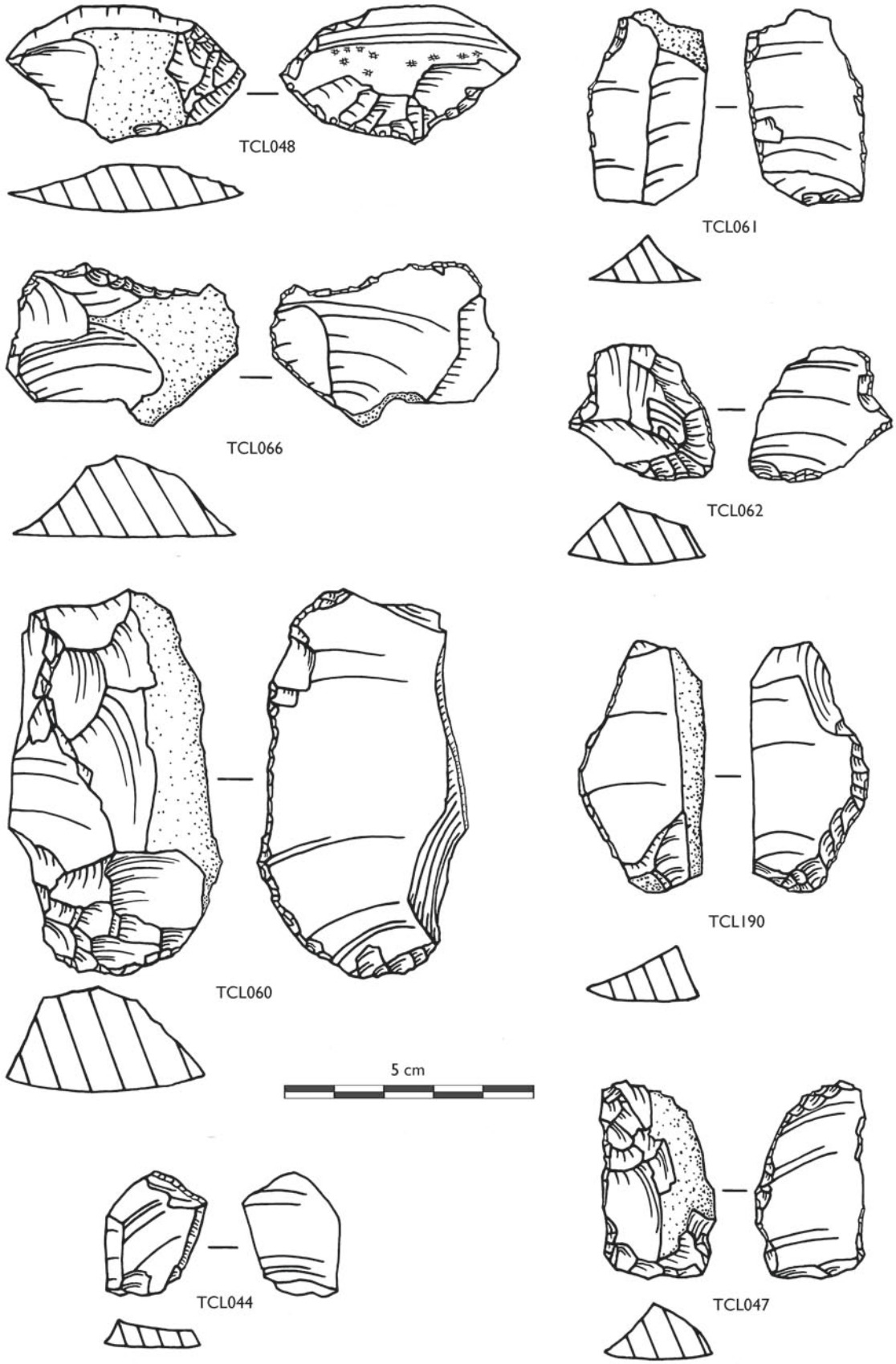


Fig. 3.10. Roman-period chipped stone. Phlasou Dodekaskala *(TS11): TCL048 (dhoukani flake); TCL066 (utilized piece). Ayia Marina* Mavrovouni *(TS02): TCL061 (notch); TCL062, TCL060 (utilized pieces). Xyliatos* Ayios Kyriakos *(TS10): TCL190 (side scraper). Ayios Epiphanios: TCL044 (utilized piece); TCL047 (utilized piece/dhoukani patch?) (Carole McCartney)*

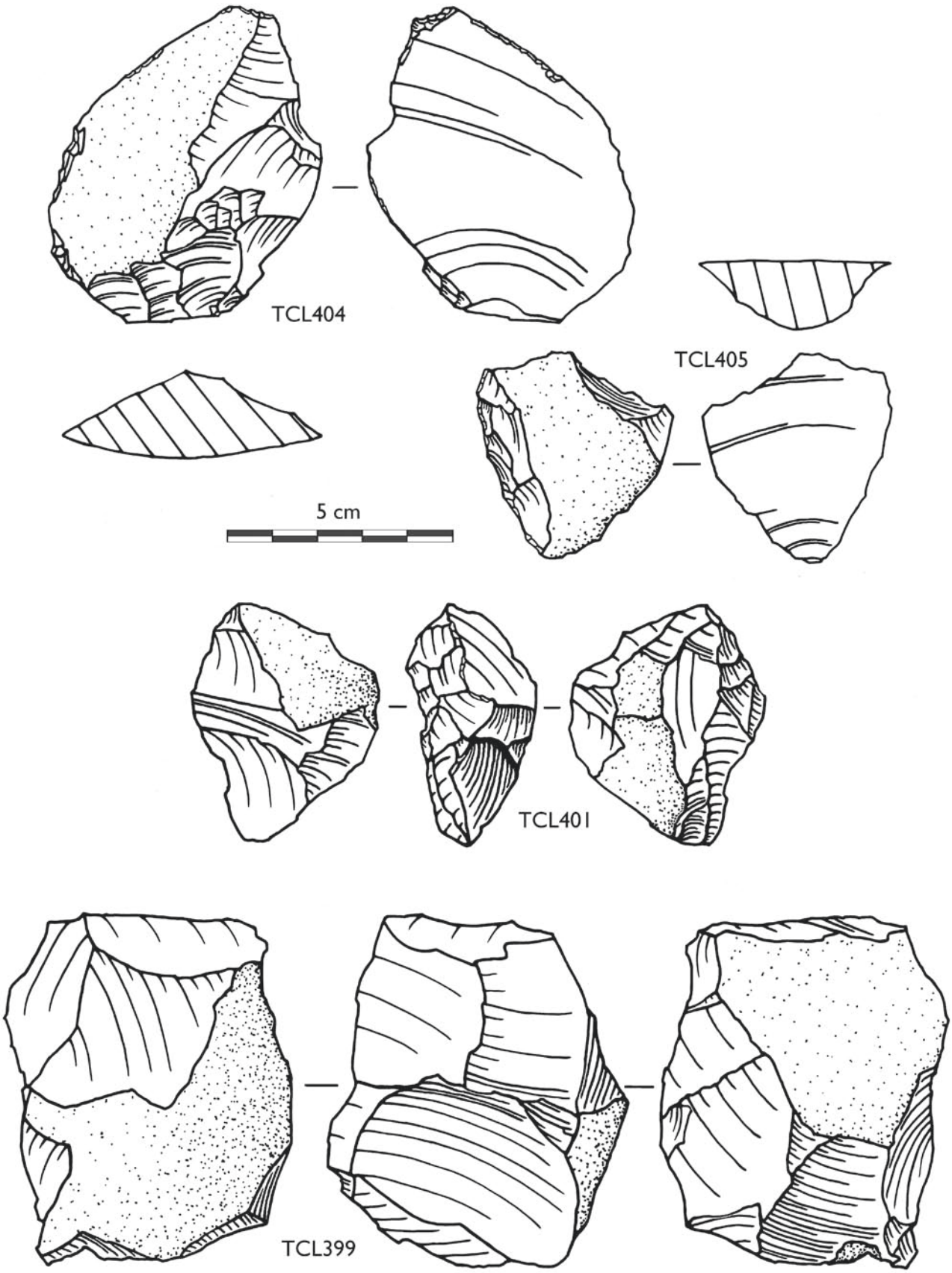


Fig. 3.11. Roman-period chipped stone from Ayia Marina Vrysi *(TP096): TCL404–405 (utilized pieces); TCL401, TCL399 (flake cores) (Carole McCartney)*

Table 3.26. Technical attributes for a sample of Roman-period tools and blanks

Tool blanks	Flake: 46 (78%)	Blade: 2 (3%)	Indeterminate: 9 (15%)	Core: 1 (2%)	Chunk: 1 (2%)
Butt types	Plain: 15 (39%)	Facetted: 16 (42%)	Dihedral: 1 (3%)	Cortical: 5 (13%)	Compression: 1 (3%)
Dorsal scar patterns	Unidirectional: 11 (19%)	Bidirectional: 6 (10%)	Crossed at 90º: 35 (60%)	Kombiwa: 3 (5%)	Cortex: 3 (5%)

Table 3.27. Raw material counts and percentages for Roman-period sites

Locality	**Jasper**		**Chalcedony**		**Lefkara**		**Other**	
Haji Christophi (TP202)	1	100%						
Litharkies (TS05)	3	9%	29	85%	2	6%		
Dodekaskala (TS11)	39	95%			2	5%		
Sanidhia (TP245)	3	75%					1	25%
Pano Limna (TS15)	7	88%	1	13%				
Psephtas (TS13)	47	96%	1	2%			1	2%
Memi mine (SU1667–74)	12	86%	2	14%				
Mavrovouni (TS02)	145	68%	39	18%	19	9%	9	4%
Ayios Kyriakos (TS10)	90	97%			3	3%		
Skouriotissa (TS01)								
Ayia Marina *Vrysi* (TP096)	65	100%						
Sykia tou Kaiserili (TP078)	2	100%						
Phoukasa (TP206)	1	100%						
Phoukasa (TP207)	1	100%						
Phoukasa (TP221)	7	88%			1	13%		
Phoukasa (TP236)	198	100%						
Phoukasa (TP237)	86	100%						

retouch from Phoukasa (TCL282) and a *pièce esquillée* made on a prismatic blade found at Ayios Kyriakos (TCL233) are clearly intrusive Neolithic tools, as noted above. The sample belonging to Litharkies shows a unique preference for chalcedony (accounting for about 85% of the sample), indicating a likely localized abundance of this siliceous material, although no specific quarries dominated by chalcedony were found in the area. Instead, five outcrops of jasper were located in proximity to Roman sites, four in the vicinity of Petra *Phoukasa* in the Atsas area and the fifth at Ayia Marina *Vrysi* in the Lagoudhera valley. The samples collected from these localities are representative of the very high jasper/chalcedony potential of the Survey Area.

Chipped Stone Tools Tools from Roman localities in the Survey Area are distinctly marked by a clear dominance of expedient utilized flake implements (Table 3.28; Fig. 3.10). This agrees well with the suggestion of a more ad hoc character for the industry, showing the use of local raw materials for the production of simple, sharp unretouched flake implements, which are effective tools for a variety of cutting activities. Other tools are simple, marginal retouched flakes, including relatively common notches and scrapers, while denticulates, multiple tools and a single perforator are rare. Significantly, a number of samples, including Petra *Phoukasa*, the Phoukasa jasper outcrops TP236 and TP237, Nikitari *Sanidhia* and Ayia Marina *Vrysi*, include only such flake tools and utilized flake implements to the complete exclusion of *dhoukani* tools. The dominance of utilized cutting implements is interesting, particularly in the context of likely copper production activity, since similar tools were recovered at the ProBA smelting site of Politiko *Phorades* (Given and Knapp 2003, 133; Knapp 2003; personal observation).

The presence of *dhoukani* flakes in some of the Roman assemblages is also interesting. In contrast to the lower proportion of jasper *dhoukani* flakes in the ProBA samples (only 33%), the use of jasper for these tools in the Roman samples has nearly doubled (60%). Only eight of the 20 Roman-period examples were made on non-local Lefkara cherts, representing possible intrusive Medieval–Modern artefacts, particularly as the localities involved (Dodekaskala, Litharkies, Ayios Kyriakos and Mavrovouni) have later historical components. The remaining 12 *dhoukani* flakes from Roman assemblages were produced on local jasper (1 from Dodekaskala, 1 from Memi mine, 2 from Ayios Kyriakos, and 3 from Mavrovouni (Fig. 3.10). Perhaps the most significant sample are five *dhoukani* flakes made of jasper from Pseftas, a site where Hellenistic–Roman rather than

Table 3.28. Tool class counts for Roman-period localities

Locality	Utilized	Retouched	Notch	Denticulate	Scraper	*Dhoukani*	Multi-tool	Perforator	*Pièce esquillée*
Haji Christophi (TP202)									
Litharkies (TS05)	2	1		1		1			
Dodekaskala (TS11)	12	1			3	2			
Sanidhia (TP245)				1					
Pano Limna (TS15)									
Psephtas (TS13)	9		1			5			
Memi mine (SU1667–74)	3					1			
Mavrovouni (TS02)	34	3	7	1	2	8	1		
Ayios Kyriakos (TS10)	12				2	3	1	1	1
Skouriotissa (TS01)									
Ayia Marina *Vrysi* (TP096)	5		1						
Sykia tou Kaiserili (TP078)									
Phoukasa (TP206)									
Phoukasa (TP207)									
Phoukasa (TP221)	1	1	1						
Phoukasa (TP236)	1								
Phoukasa (TP237)	6				1				

Medieval–Modern pottery was recorded. In addition, the presence of utilized pieces (made of jasper) exhibiting abrasion wear rather than the more typical micro-flaking edge damages from Ayios Kyriakos, may suggest that these tools too represent *dhoukani* flakes on which visible gloss has failed to develop (although this would need to be evaluated more closely through microwear analysis).

The significant numbers of *dhoukani* flakes found at sites thought to relate to mining activity need not be surprising. Activities related to agricultural production may not have been fully external to such localities, and it is important to remember that threshing is not exclusively related to obtaining cereals for human consumption. Threshing generates cut straw that can equally function as animal fodder, temper for mudbrick, plaster or even pottery, or for the production of materials used in thatch or bedding (Anderson *et al.* 2004, 113; Anderson and Chabot 2001, 271–72). At mining and smelting sites additional reasons for the production of large amount of straw could be the need of temper for ceramic components of furnaces and combustion tinder.

Although variability in *dhoukani* tool manufacture makes distinctions between possible Roman examples and later Medieval–Modern examples produced on local jasper difficult, the character of the Roman-period *dhoukani* flakes seems less systematic, functioning more on the selection of any suitable flake, rather than as a specialized industry (see below). Despite showing a clearly localized character, Roman-period *dhoukani* tools are consistent enough to apparently confirm earlier assertions of threshing sledges being used during the Roman period, even if the origins of this multiple tool are likely to lie deeper in the past (see the ProBA period discussion above). If some of the ProBA Lefkara chert examples are indeed intrusive Medieval–Modern artefacts, the TAESP evidence might then show a linear increase in the use of this composite tool from prehistoric through Roman to Medieval–Modern times. There is, however, no

Table 3.29. Average dimensions for individual tool classes from Roman-period localities (measurements in mm)

Tool Class	Length	Width	Thickness
Utilized	45.2	43.7	21.8
Retouched	29.5	40.8	16.1
Notch	36.0	28.0	13.9
Denticulate	45.3	39.5	25.7
Scraper	35.5	43.3	20.1
Dhoukani	36.5	32.4	13.3
Multi-tool	50.5	63.1	18.2
Perforator	31.4	40.0	20.2
Burin	46.3	19.0	10.6
Pièce esquillée	34.2	15.6	6.4

evidence for a separate *dhoukani chaîne opératoire* during Roman times or any other pre-Modern period. Instead, flakes selected for producing *dhoukani* tools were struck from the same raw materials and cores as the other flake tools and utilized pieces belonging to the Roman samples, demonstrating a single generalized flake-based production. If confirmed by future research, the well documented specialized industry recorded by ethnographic research (Fox 1984; Pearlman 1984; Stewart 2007) could be a comparatively recent development that cannot be used to explain the origins, or early development of the threshing sledge in Cyprus (see also below).

Ground Stone The comparatively small amounts of ground stone belonging to Roman-period samples are somewhat illusory, being related more to problems of collection rather than a reflection of a reduction in the use of ground stone tools (Table 3.30). This was particularly the case where large items could not be collected, but were recorded by photographs in the field. While this worked relatively well for larger artefacts, smaller items recorded in this fashion were at times not identifiable to type, and could not be listed in Table 3.30. Little beyond the presence of ground stone could be noted for the large stone piles found at Litharkies and Mavrovouni, although these field clearance cairns potentially contain large numbers of ground stone tools. Here as elsewhere the ground stone samples are likely to represent only a minimum number of tools in theoretically much larger assemblages.

Many of the formal and informal tool types seen in Table 3.30 have origins well back within prehistoric periods (Fig. 3.12). Pounders, hammer stones and pecking stones are typical informal tools defined more by their use-wear than distinctive shaping; all of which have been seen in earlier TAESP industries. Roman-period localities normally produced such tools as single objects or occasionally pairs at all sites but Vrysi tou Haji Christophi, Phoukasa (TP237) and Nikitari *Sanidhia*. One interesting possibility regarding such pounding and hammering tools is their presence at sites where copper mining/smelting is suggested to have taken place, such as Mavrovouni and Ayios Kyriakos. These stone tool types, as well as simple grinders and rubbing stones, have been associated with ore crushing elsewhere in Cyprus (Connolly 1992, 71–72; Kassianidou 2007, 278–83). The pounder-pestle (TCL192) collected south of the church of Ayios Kyriakos at Mavrovouni represents a well-made, probably Chalcolithic, pestle that was re-used and perhaps similarly employed for a heavy pounding activity in the Mavrovouni context. A crude mortar found at Skouriotissa *Vouppes* (TP007.AU05; TCL334) may also have been employed in ore or slag crushing activities; such tool types are found regularly in contexts associated with metal working activities. A similar mortar from Litharkies, like the anvils from Litharkies, Dodekaskala or Pseftas, provided lower surfaces upon which grinders and rubbing stones, pounders and hammers were used, as they are equally suited to ore dressing and domestic tasks.

Grinders and rubbing stones are often shaped by pecking the lateral edges in order to enhance the user's grip, and are, therefore, 'formal tools', even if they were frequently employed in an expedient fashion. Like the pounders and hammer stones (for which pebbles were selected expediently), these tools were often stored and re-used multiple times. Only one rubber was found in a Roman-period assemblage (at Dodekaskala), but the more frequent presence of querns suggests a continued interest in the use of ground stone technology for food processing. The presence of such tools at Litharkies, Ayios Kyriakos and Skouriotissa *Vouppes*, as well as the farmstead of Vrysi tou Haji Christophi, could have helped the provisioning of food stuffs for mining populations (Knapp 1997, 59–61).

Of interest in the Roman-period ground stone samples is a small number of larger tools, including two millstones (from Litharkies and Vrysi tou Haji Christophi) and a basin from Litharkies, both likely components of larger pre-industrial machines, such as, water or flour mills or olive presses (Cotterell and Kamminga 1990; Hadjisavvas 1992). A single corner fragment of a large, square, grooved, grinding block, part of a larger two-piece grain mill (also from the Litharkies sample), is similarly a development of the Hellenistic–Roman period; parallels may be found in the Hellenistic Kyrenia shipwreck where such tools were carried as ballast (Elliot 1985, 315; Katzev 1969, 57; 1970, 7–8). Both the millstone from Vrysi tou Haji Christophi and the latter grooved grain mill fragment were made of vesicular basalt, an imported material that appeared in Cyprus during the ProBA (Elliot 1985, 313–15). Increased investment in the procurement of such exotic materials, like the construction of complex installations during the Hellenistic–Roman period, shows not only a continued

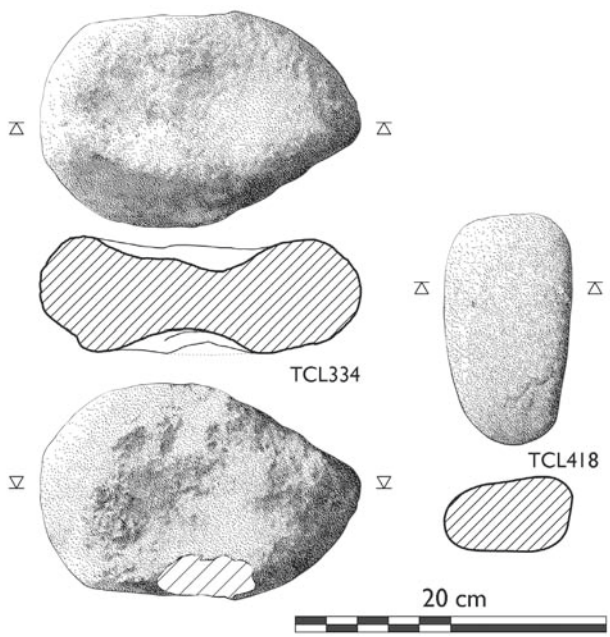


Fig. 3.12. Roman-period ground stone: TCL334 (mortar); TCL418 (pounder/grinder) (Jean Humbert)

Table 3.30. Ground stone types for Roman-period localities

	Mavrovouni (TS02)	**Litharkies** (TS05)	**Ayios Kyriakos** (TS10)	**Skouriotissa** (TS01)	**Psephtas** (TS13)	**Phoukasa** (TP237)	**Dodekaskala** (TS11)	**Pano Limna** (TS15)	**Haji Christophi** (TP202)	**Sanidhia** (TP245)
Pounder/rubbing stone			1							
Pounder/grinder								1		
Pounder	2				1					
Hammer stone			1	1						
Pounder/hammer stone/grinder		1								
Hammer stone/grinder		1								
Pecking/polishing stone	2									
Polishing stone			2				1			
Rubbing stone			1		5		1			
Grinder	1	1	1			1				
Rubber							1			
Quern		3		1					1	
Anvil/pounder		1								
Anvil/grinding slab							1			
Anvil/rubbing stone					1					
Mortar		1		1						
Millstone		1							1	
Basin		1								
Grooved grinding stone		1								
Perforated weight										1
Manufactured flake	1	1								

need for stone tools but considerable development in this lithic technology.

Medieval–Modern

Eleven TAESP localities, with predominantly Medieval to Modern pottery, provided samples of stone artefacts used to characterize the later historic chipped stone and ground stone industries considered below (Table 3.31). Although the following industry descriptions generalize across a broad time frame, the paucity of localities assigned strictly to the Medieval, Ottoman or Modern periods necessitates this over-simplification. The lithic data from entities such as the recent agricultural village of Kato Koutraphas *Mandres*, however, which shows parallel characteristics to more clearly Medieval entities such as the estate at Xyliatos *Athassi*, also justify this generalization. As with the Roman-period localities described above, the prevalence of lithic artefacts recovered from later historic localities in the Survey Area was higher than expected, particularly for the technology of chipped stone (see Volume 2 for a detailed discussion of context).

Although the specialized production of *dhoukani* flakes for the manufacture of threshing sledges is well-known from ethnographic evidence (Fox 1984; Fox and Pearlman 1987; Pearlman 1984; Whittaker 2000), the TAESP samples provide a range of new data in their historic context (see also Given and Knapp 2003; Stewart 2007). Beyond the *dhoukani* evidence, an unexpected element of the TAESP Medieval–Modern industry shows the use of an expedient chipped stone *chaîne opératoire* used alongside the *dhoukani chaîne opératoire*. Only small samples of chipped stone (from two to nine artefacts) were recovered from Evrykhou village, Nikitari *Vouni* and the Medieval monastery of Panayia Phorviotissa. Samples from the modern villages of Phlasou *Pano Phlasou* (38), Katydhata and Linou (35), Agroladhou village (11), Lemonas (13), Ayios Epiphanios (29) and the Medieval–Ottoman estate of Athassi (22) provide more substantial samples for consideration, while the collection of 210 pieces from Kato Koutraphas *Mandres* is uniquely large. The latter comprises collections from multiple Survey Units collected from a seasonal Ottoman–20th-century village that incorporated up to 40 threshing floors (see Volume 2, Chapter 2.10). The nearby jasper outcrop TP240 adds a further 14 chipped stone artefacts to our understanding of this important historical-period locality.

Although *dhoukani* flakes clearly dominate most Medieval–Modern chipped stone samples, the presence of core reduction material and simple flake tools in the

Table 3.31. Medieval–Modern chipped stone category counts and percentages

Locality	Cores		Blanks		Debris		Tools	
Phlasou, TP132, TT3881000N	7	18%	4	11%	6	16%	21	55%
Katydhata, Linou, TP102, TT3882500N	5	14%	1	3%	1	3%	28	80%
Evrykhou					1	50%	1	50%
Lemonas	3	23%	1	8%	6	46%	3	23%
Ayios Epiphanios	5	17%	6	21%	6	21%	12	41%
Agroladhou	5	45%	1	9%	3	27%	2	18%
Mandres main village (TP021)	6	6%	9	10%	37	40%	41	44%
Mandres threshing floors (TP122)	10	11%	15	17%	17	19%	46	52%
Mandres outlier (TP027)	1	20%					4	80%
Mandres outliers (TP008)							1	100%
Mandres, SU0345–54	1	33%					2	67%
Mandres, TT495900E (SU1374–84)	5	25%	5	25%	5	25%	5	25%
Mandres, all	23	11%	29	14%	59	28%	99	47%
Khalosphidhia jasper outcrop (TP240)	4	29%	2	14%	4	29%	4	29%
Athassi (TP014)	2	9%	2	9%	7	32%	11	50%
Vouni (TP031)			1	33%	1	33%	1	33%
Asinou church (TP030)	1	25%	1	25%			2	50%

samples considered here show the persistence of an expedient simple core technology used alongside the threshing sledge material. In some cases the evidence for expedient flake-based material may reflect residual Roman-period artefacts; a problem associated with the investigation of surface material noted above. Expedient flake tools and the debris from their production, however, also come from Survey Units with exclusively Medieval–Modern pottery, indicating the presence of a truly separate industry that shows broad continuity with the earlier one belonging to late antiquity. The data presented here, however, are preliminary and dependent on confirmation with future research.

Chipped Stone: Core Technology Unlike the Roman–period industry that precedes it, the Medieval–Modern industry is a composite of two clearly different *chaînes opératoires* providing distinct facets of a flake-based simple core technology. Because of the need to understand the relationship between these two *chaînes opératoires*, it is worth noting here that historical-period Anatolian threshing tools, like their Canaanite predecessors, were made on segments of long prismatic blades and those from Crete and mainland Greece employed similarly standardized, if shorter, blades. These, however, differ from their comparatively less standardized Cypriot counterparts (Anderson and Chabot 2001, 260–61; Whallon 1978, 219, figs 1–2; personal observation). Unlike the blade-based examples which Whallon (1978, 319) compared to an Upper Palaeolithic industry, the Cypriot *dhoukani* tool belongs to a true flake-based industry. The use of the terms 'flake-blade' (providing a 'functional' suffix) or simply 'blade' in the Cypriot literature (Fox 1984, 65; Pearlman 1984, 73; Stewart 2007, 332) is not employed here as they do not reflect correctly the core technology employed, and add confusion to efforts aimed at understanding of the development of the local *dhoukani chaîne opératoire*.

The first *chaîne opératoire* defines an expedient flake-based system that differs little from that seen in Roman-period samples. Irregular flake tools are prominent in the assemblages and were produced using direct percussion from a variety of simple flake cores, using moderate to poor quality raw materials. The relative abundance of jasper artefacts including debris, cores and unworked flake blanks (as well as three jasper hammer stones found at Mandres), attest to the manufacture of these artefacts locally. The presence of a very few core trimming elements at Lemonas (2 examples) and Mandres (3) indicate limited platform maintenance, but overall little or no core shaping took place beyond the removal of cortex. Instead, flakes were struck from primarily irregular amorphous cores made on jasper pebbles, as at Pano Phlasou (3), Lemonas (1), Agroladhou (1), Nikitari *Khalospidhia* (TP240; 1) and Mandres (6). There were also more structured change-of-orientation cores (Pano Phlasou: 1; Agroladhou: 1; Mandres: 2; Khalospidhia: 1). Truly ad hoc splintered piece cores produced with a bipolar-on-anvil (or 'pebble smashing') technique were found at Agroladhou (1) and Mandres (2), while the latter assemblage also produced two diminutive cores-on-flakes that are similarly expedient.

The remaining artefacts assigned to the core category in Table 3.31 comprise undiagnostic core fragments from Athassi (1), Mandres (1) and Khalospidhia (2), or tested nodules from Pano Phlasou (1), Agroladhou (2), Athassi (1) and Mandres (2). Average dimensions for core samples from the modern villages of Ayios Epiphanios, Katydhata and Linou are: length 43 mm, width 33 mm, thickness 24 mm. At Mandres the cores were somewhat larger, averaging 63 × 59 × 40 mm; this is perhaps due to the presence of locally available jasper at Khalospidhia. Very large exceptions were also recorded at Athassi (126 × 94 × 81 mm), with two similarly sizeable examples from Mandres (123 × 110 × 103 mm and 270 × 280 × 151 mm). The latter appear to represent the storage of good quality jasper that could have equally served either *chaîne opératoire* (see below).

The second *chaîne opératoire* documented by the Medieval–Modern assemblages in the Survey Area belongs to the *dhoukani* flakes used in threshing sledges. Evidence for this, however, is incomplete since there is little distinct evidence for local *dhoukani* tool manufacture and such evidence as there is does not represent the manufacture of sledge inserts made on non-local cherts. The complete *dhoukani* tool *chaîne opératoire* is shown in the Canadian Palaepaphos Survey Project (CPSP) area where over 90% of lithic scatters belonged to this historic industry. It begins with exploitation of chert sources and includes knapping scatters where flakes were struck, workshops where *dhoukani* tools were shaped and sledges were assembled, and places of sledge use at threshing floors (Fox 1984, 66–67; Fox and Pearlman 1987, 230; Stewart 2007, figs 2–3). Each of these different localities exhibited distinct lithic assemblages in the chert-rich area of south-western Cyprus where threshing sledge production was highly specialized (Fox and Pearlman 1987, 228; Pearlman 1984, 109, 159, 163; Stewart 2007, 332–34, 341; Whittaker 2000, 66). In the Survey Area only the threshing floor pattern of deposition was readily apparent, with additional evidence suggesting the local manufacture of replacement sledge inserts (see below).

The *dhoukani chaîne opératoire* documented in the south and west of the island (Fox 1984; Fox and Pearlman 1987; Pearlman 1984; Whittaker 1999; 2000; but see Stewart 2007) suggests that specialist craftsmen involved in the production of threshing sledge inserts used a simple core technology that employed unidirectional cores made from large flakes. Flake blanks were then struck from the unprepared core platform with a metal hammer using direct percussion (Fox 1984, 64–65, fig. 4; Pearlman 1984, 74–78, 86; Whittaker 1996; 2000, 66). Only one TAESP sample, from Mandres, produced a single platform core from transect TT495900E, which ran between the centre of the village and an outlying structure and threshing floor (TP027). This example, however, was made using local jasper rather than the non-local cherts that dominate the *dhoukani* flake tools. Although this core might demonstrate the use of the local jasper by *dhoukani* knappers, it would be equally compatible with the more expedient local flake-based reduction strategy, presenting the possibility that local farmers had a hand in the manufacture of their own replacement sledge inserts.

Dominant butt types and dorsal scar patterns in the Medieval–Modern assemblages are clearly different from the preceding Roman samples and agree well with the high frequency of *dhoukani* tools in the assemblages (Table 3.36). Plain butts clearly dominate, corresponding well with the 67% of tools exhibiting this butt type (based on a sample of 99 *dhoukani* tools). Such broad plain butts with steep exterior angles that are indicative of flake production are typical of *dhoukani* flakes elsewhere (Fox 1984, 65; McCartney 1993, 359, table 9; Whittaker 1999, 11). This butt type is more frequent in the Medieval–Modern assemblages than in any other except the Chalcolithic/PreBA industry, demonstrating a clear shift from the preceding Roman-period samples. The prevalence of this butt type, which corresponds to the dominant method of core reduction noted above, also provides a clear hafting function for the *dhoukani* tools, adding thickness to the hafted edge. In some cases the proximal end was almost entirely inserted into the wooden haft board leaving the sharp distal end protruding at an oblique angle from the underside of the sledge.

The percentages of dorsal scar patterns in this industry (see Table 3.36 below) are similarly distinct since unidirectional scars clearly dominate, thus agreeing with the predominance of unidirectional scars on *dhoukani* tools (42%). The change-of-orientation or 'crossed' scars and bidirectional scars together make up a further 45%, being slightly more prevalent (46%) in the sample of *dhoukani* flakes. Interestingly, Pearlman (1984, 86–89) notes the use of core rotation (as on change-of-orientation cores) and even bifacial cores, although Whittaker (1999, 13–14) comments that Pearlman felt such cores to be the products of non-professional knappers. This inference, based on the assertions of informants located predominantly in one region of the island, does not allow for possible regional differences in core reduction methodology or variable patterns of organization in the threshing sledge industry. This illustrates the difficulties of generalizing the well documented ethnographic evidence to the entire island (see below).

What is interesting within the TAESP *dhoukani* tool samples is the relatively significant presence of other scar types, including cortical, radial and 'kombiwa' patterns (13%). These suggest the use of both bifacial and more expedient core reduction methods for *dhoukani* flake production (as with the Medieval–Modern industry as a whole). Thus, while typical *dhoukani* attributes clearly dominate, considerable variability is also prevalent. Such variability may have functioned at the individual level or imply potential regional differences in the manufacture of *dhoukani* flakes (McCartney 1993, 349; Whittaker 1999, 13). For the TAESP samples, the generally parallel distributions of butt types and scar types for both *dhoukani*

tools and the rest of the assemblages are significant for considering the presence of itinerant knappers versus local production (see below).

Chipped Stone: Raw Materials and Regional Production Perhaps the most striking feature of the Medieval–Modern samples belonging to the TAESP survey data is the increased percentage of non-local, predominantly Lefkara cherts (Table 3.32–Table 3.33). This preference is clearly marked for the production of *dhoukani* flakes, in contrast to the predominant use of local jasper and chalcedony for the simple flake tools and virtually all production related material. As Table 3.33 illustrates, *dhoukani* tools belonging to Medieval–Modern samples show a clear preference for non-local chert types accounting for at least 2/3 of these tools in all samples (up to 100% in some samples). In contrast, the use of local jasper and chalcedony accounts for only one-third or less of such tools. Exceptions to this pattern are present, but in these circumstances (as at Evrykhou, Agroladhou and Athassi) sample size was very low, compared to the strong non-local pattern of raw material utilization shown for *dhoukani* tools in more substantial samples (as at Phlasou, Katydhata and Linou villages, Ayios Epiphanios, Mandres and Asinou).

The paucity of cores and related knapping debris or unworked flakes made from non-local cherts at most sites (comprising only 16 out of 197 non-tool pieces (8%) across the total Medieval–Modern industry) is in strong contrast to the abundance of *dhoukani* tools made of such material (78 out of 114; 68%). Clearly these tools cannot be accounted for by local manufacture. Instead they must have entered the Survey Area as complete threshing sledges that were manufactured elsewhere. Cores, blanks and knapping debris made on non-local cherts were found on the Katydhata/Linou transects (1 piece of debris, 2 core fragments), at Lemonas (1 blank and a small chip), Ayios Epiphanios (1 splintered piece core) and Mandres (8 pieces of debris, 1 blank, and 2 cores from the threshing floors; and 1 amorphous core and 1 tested, very poor quality, small chert pebble from the centre of the village). The presence of non-local *dhoukani* flakes and a small amount of Lefkara reduction debris at the Mandres threshing floors in particular, agrees with the type of lithic scatters expected to show the presence of itinerant *dhoukani* knappers working on sledge repair. The co-existing presence of local jasper core reduction materials, also at Mandres, including the very large jasper cores found in the centre of the village and jasper *dhoukani* flakes, could, however, agree instead with sledge repair practised locally; this was recently documented for the Alambra region where local rather than itinerant knappers were at work (Stewart 2007, 334, 338; see below).

The ethnographic model established by Fox and Pearlman (Fox 1984, 62–67; Fox and Pearlman 1987, 228–29; Pearlman 1984, 71–79, 83–84) was based on their interviews with *athkiakadhes* (*dhoukani* knappers) from Panayia and Anatrita. This provided documentation of a specialized threshing sledge craft wherein the entire threshing sledge *chaîne opératoire*, including the manufacture of both the chert inserts and the wooden sledge board, as well as the sale of the completed (surplus) sledges and sledge repair, was accomplished by single craftsmen without need for redistribution (for summary reviews see also Stewart 2007, 332–33; Whittaker 1999, 5–7; 2000, 65–66). According to Pearlman (1984, 70–72, 78–84; Fox and Pearlman 1987, 229), although variability from this norm existed (such as some specialist carpenters or farmers occasionally repairing sledges), it was considered rare, or the work of non-professionals. Pearlman's (1984, 65–69, 71–73) detailed comparison between Cypriot *dhoukani* and Turkish *döven* systems of sledge production focused on the contrast between the Panayia unified craft and the *döven* production, which relied on specialist knappers working in Konya, merchant middlemen who sold on the blades produced and the *döven* makers who snapped the sledge inserts and put the sledge together. In the latter system, importantly, the knappers and the sledge makers never met (Pearlman 1984, 72, 82).

While the lithic *chaînes opératoires* used by Cypriot and Turkish threshing sledge knappers are very clearly distinct (Pearlman 1984, 65–69, 74–78 with references), further threshing sledge research now appears to show the Panayia system as more the exception than the rule. Much *dhoukani* sledge manufacture and maintenance was more typically the work of more than one craftsman providing a more variable structure of organization on Cyprus (Stewart 2007, 338–41; Whittaker 1999, 9, 17). Some researchers (McCartney 1993, 349, 356–57; Whittaker 1999, 17–18; 2000, 66) point to areas of variability both in the artefacts and in the organization of the industry, as well as to problems associated with the use of ethnographic information. While Whittaker (1999, 5) points to the uncertainty of 50 year old memories (although this was clearly governed by the availability of extant craftsmen), it is also clear that generalizing from a group of informants in one area of the island, to the island as a whole, does not account for regional variability.

Additional data are beginning to paint a more complex island-wide picture. Whittaker (1999, 5–9) describes specialists who focused exclusively on carpentry, or others working as itinerant knappers specializing in sledge repair. More recently Stewart (2007, 333–34) has presented data that clearly distinguish between itinerant and local knappers. In Alambra village in central Cyprus, sledges were purchased at the large markets in Kyrenia, but were repaired by local knappers able to exploit the wealth of good quality cherts available in the Alambra area. The two-part *chaîne opératoire* documented by Stewart shows original sledge production and sales centralized in the markets of Nicosia and Kyrenia, separated from localized sledge repair in Alambra, removing the need for employing the itinerant knappers. It is worth noting here the potential regional dichotomy in terms of the location of sledge sales, which

Table 3.32. Raw material counts and percentages for Medieval–Modern period sites (single obsidian artefact from SU1035 in TT3882500N, not included)*

Locality	Jasper		Chalcedony		Lefkara	
Phlasou, TP132, TT3881000N	22	58%			16	42%
Katydhata, Linou, TP102, TT3882500N	15	44%			19*	56%
Evrykhou	2	100%				
Lemonas	10	77%			3	23%
Ayios Epiphanios	24	83%			5	17%
Agroladhou	10	91%	1	9%		
Mandres main village (TP021)	62	67%	5	5%	26	28%
Mandres threshing floors (TP122)	58	66%	3	3%	27	31%
Mandres outlier (TP027)	4	80%			1	20%
Mandres outliers (TP008)					1	100%
Mandres, SU0345–54	2	67%			1	33%
Mandres, TT495900E (SU1374–84)	16	80%			4	20%
Mandres, all	141	67%	8	4%	61	29%
Khalospidhia jasper outcrop (TP240)	14	100%				
Athassi (TP014)	18	82%	1	5%	3	14%
Vouni (TP031)	2	67%	1	33%		
Asinou church (TP030)			2	50%	2	50%

Table 3.33. Relative percentages of raw material utilization for dhoukani *versus other flake tools in Medieval–Modern assemblages*

Locality	Dhoukani, non-local chert		Dhoukani, jasper/ chalcedony		Flake+ utilized tools, non-local chert		Flake+ utilized tools, jasper/chalcedony	
Phlasou, TP132, TT3881000N	13	81%	3	19%	2	40%	3	60%
Katydhata, Linou, TP102, TT3882500N	15	71%	6	29%	2	29%	5	71%
Evrykhou			1	100%				
Lemonas	1	100%			1	50%	1	50%
Ayios Epiphanios	4	75%	1	25%			7	100%
Agroladhou		–	2	100%				–
Mandres main village (TP021)	14	78%	4	22%	5	22%	18	78%
Mandres threshing floors (TP122)	27	61%	17	39%			2	100%
Mandres outlier (TP027)					1	25%	3	75%
Mandres outliers (TP008)	1	100%						
Mandres, SU0345–54	1	100%					1	100%
Mandres, TT495900E (SU1374–84)	1	50%	1	50%			3	100%
Mandres, all	44	67%	22	33%	6	18%	27	82%
Khalospidhia jasper outcrop (TP240)							4	100%
Athassi (TP014)			1	100%	3	30%	7	70%
Vouni (TP031)							1	100%
Asinou church (TP030)	1	100%			1	100%		

at Alambra apparently focused on large town markets in Nicosia and Kyrenia, as opposed to the Paphos region where village fairs (both with and without the use of middlemen) played a greater role (Fox and Pearlman 1987; Stewart 2007, 334; Whittaker 1999, 5). This aspect of the overall *dhoukani* industry, however, has not been documented in detail and requires further research. In the TAESP area, information provided by local informants confirmed that threshing sledges used in the recent past were, as at Alambra, purchased at markets in Kyrenia (and presumably Nicosia).

It is clear from both the distinct major production centre of Panayia/Anarita and localized Alambra system of organization that raw material availability was an essential element in the structure of the organization of sledge production and maintenance. While the Alambra knappers do not appear to have been interested in sledge manufacture, they were nevertheless able to provide for local sledge maintenance, relieving the need to travel back to the sledge's place of origin, or to host itinerant knappers returning from chert sources in the south (Fox 1984, 64; Pearlman 1984, 168–79; Stewart 2007, 338). It has frequently been suggested that no good quality chert is to be found in northern parts of Cyprus, and that itinerant knappers returned yearly to the south of the island out of a need to collect good quality chert (Fox 1984; Pearlman 1984; Stewart 2007, 333; Whittaker 1999, 6). While some chert found in the north of the island is rather coarse-grained and non-homogeneous, research done at prehistoric sites in northern parts of the island suggest that high quality chert is readily available (e.g. Le Brun 1981; Şevketoğlu 2008). The movement of itinerant *dhoukani* knappers to southern areas of the island may, therefore, have had something to do with personal chert preferences, but more particularly the need to generate a client base for repair work (Fox 1984; Fox and Pearlman 1987, 229; Pearlman 1984, 168). The suggestion of itinerants travelling from Paphos to Famagusta reported by Fox and Pearlman (1987, 229) seems to agree with the latter suggestion.

Threshing sledge users in the Survey Area had no ability to provide replacement *dhoukani* inserts from good quality Lefkara chert, so to explain the presence of some non-local chert debris and unworked flakes we must suppose the presence of itinerant knappers visiting the area at least occasionally. Two pieces of evidence, however, militate against this being the sole practice. First, the presence of cores, including the very large jasper cores from Mandres along with other jasper core reduction materials and jasper *dhoukani* tools, imply local threshing sledge tool manufacture. Although 'classic' examples of *dhoukani* tools made from jasper could be the work of itinerant knappers visiting the area, this would represent a strong deviation from their typical reliance on Lefkara cherts. In contrast these could have been made by local knappers, as at Alambra. Rather more crude examples possibly reflect the work of local farmers or other non-professional knappers. Second, the use of irregular 'patches' and *dhoukani* tool re-use (see below) suggest more frequent intervention on the part of local farmers, implying that if itinerant knappers did include the Survey Area in their repair rounds, it was perhaps not on a regular enough basis and so required local farmers to take greater initiative.

One clue to understanding the threshing sledge industry is raw material availability. Of the 78 *dhoukani* tools made from non-local cherts shown in Table 3.33, only eight are Lefkara basal pieces and 12 very high quality Translucent cherts, both of which are classified as 'vitreous' chert (Robertson 1977, 16, 24–28). Such cherts can be found in many areas of Cyprus, with the closest source lying east of the Survey Area, beginning at Politiko and extending through to Alambra (McCartney *et al.* 2008; Stewart 2007). Translucent Lefkara and its dense variant, both granular cherts (McCartney 2007, 308; Robertson 1977, 12–14, 27), are hyper-abundant in the Kalavasos area, a 'minor centre' that is already known to have been visited by itinerant knappers from the north of the island; such chert is also known from Polemi in the Paphos district (Hornell 1930, 112; McCartney and Todd 2005; Pearlman 1984, 129, 145; personal observation). The Marki area provides another source east of the Survey Area, for both the latter granular cherts and the Lefkara-basal materials (Smith 1996, 104). Granular cherts are tough, predominantly white-grey or dark grey and often banded, which more rarely exhibit red, yellow and orange tints. They account for the majority of the TAESP Medieval–Modern *dhoukani* tools (44 translucent Lefkara and six translucent Lefkara-dense, or 64% of the sample).

Other more rare chert types found in the Medieval–Modern *dhoukani* sample included four so-called 'Moni' (opaque grey) cherts associated with the Paphos district, as at Anarita (McCartney 2007, 308; Pearlman 1984, 91–98; Stewart 2007, 331–32). A further four examples could be Lapithos chert (granular very pale red, brown or grey-brown with large inclusions), suggesting contacts with both south and north. Clearly the Lefkara *dhoukani* tools imported to the Survey Area in the form of sledges purchased from markets in Kyrenia and/or Nicosia conform to the suggestion of cherts collected by itinerant knappers from various parts of the island, with a particular focus on the south-central part of the island.

A single obsidian artefact, a utilized piece from SU1035 between Katydhata and Linou villages, is the only artefact of this material type found in the Survey Area. Obsidian is typically associated with the Neolithic period in Cyprus, although examples have been recovered in Chalcolithic assemblages as well (Finlayson and McCartney 1998, 259–61). This intrusive artefact is, therefore, clearly out of place in the context of the Medieval–Modern materials found within the sample from Katydhata and Linou villages.

Chipped Stone: Tools The 184 tools belonging to Medieval–Modern assemblages are listed in Table 3.34. The retouched flake tools parallel those seen in earlier industries, comprising 13% (n = 24) of the total. Type diversity is as high as that seen in the Neolithic industry, although in earlier assemblages flake tools are predominant, as opposed to providing only a minor component as in the Medieval–Modern industry documented here. Such tools are also distributed sparsely across the later assemblages. In contrast to the preceding Roman industry, where utilized implements heavily dominated most samples, these tools represent a reduced 25% (n = 46) of all tools collected in Medieval–Modern samples. Thus, while such expedient tools were still prevalent in the Medieval–Modern industry,

Table 3.34. Tool class counts for Medieval–Modern period localities

Locality	Backed	Burin	Glossed	Denticulate	Notch	Perforator	*Pièce esquillée*	Retouched	Scraper	*Dhoukani*	Utilized
Phlasou, TP132, TT3881000N					1			1	1	16	2
Katydhata, Linou, TP102, TT3882500N	2			1					1	21	3
Evrykhou										1	
Lemonas										1	2
Ayios Epiphanios	1							1	1	5	4
Agroladhou										2	
Mandres main village (TP021)	2	1	1					1		18	18
Mandres threshing floors (TP122)					1			1		44	
Mandres outlier (TP027)						1			1		2
Mandres outliers (TP008)										1	
Mandres, SU0345–54										1	1
Mandres, TT495900E (SU1374–84)										2	3
Mandres, all	2	1	1		1	1		2	1	66	24
Khalospidhia jasper outcrop (TP240)					1						3
Athassi (TP014)		1			1		1			1	7
Vouni (TP031)								1			
Asinou church (TP030)										1	1

their reduced number shows a significant decline from the preceding period. Instead, the most abundant tool type is the *dhoukani* flake (n = 114; Fig. 3.13), technically a glossed tool, which represents just over 60% of all tools assigned to the Medieval–Modern period. Although expected, this prominence helps to clearly distinguish the Medieval–Modern industry from the preceding Roman one, in spite of the poorly diagnostic character of these industries and the possibility of some mixing within samples noted earlier.

According to ethnographic evidence, threshing 'flints' or *dhoukani* tools were made according to the specific size requirements of the holes cut into the under surface of the threshing sledge, with an ideal length of 45 mm (Fox 1984, 65; Pearlman 1984, 45–46, 98). Tool length, however, increases from the front to the back of the sledge, making a range of flake lengths necessary (Fox and Pearlman 1987, 228; Hornell 1930, 136; McCartney 1993, 353; Pearlman 1984, 97). Technically the size of the flakes produced is governed by the size and shape of the cores and control of the flake butt morphology. Variability in *dhoukani* flake size and the use of partial flakes (especially proximal ends) provide a typical range of c. 35–57 mm long and 25–38 mm wide, a pattern first documented by Hornell (1930, 136; see also McCartney 1993, 352–53; Pearlman 1984, 91–98). Interestingly, although the Cypriot *dhoukani* flake tools and the *döven* blade segments of Turkey were produced with widely different core technologies, both show similar sizes. The *döven* blade segments produced also range between 38 and 45 mm, although blade preforms range between 25 and 75 mm (Pearlman 1984, 96; Whallon 1978). Measurement of the maximal dimensions of 99 TAESP *dhoukani* flakes belonging to the Medieval–Modern period shows a close fit to the ethnographic evidence: 44 are <35 mm, 16 are 35–40 mm, 21 are 40–45 mm and 18 are 45–53 mm.

The large number of the more diminutive examples clearly illustrates the discarded character of the TAESP tools, many of which were broken or fragmentary and exhibited heavy wear. Of 98 sampled *dhoukani* flakes, 83% show heavy wear and 17% show light wear. Some 17 of the diminutive examples plus another two larger examples were clearly 'patches' made of small irregular flakes, flake fragments and even chunks used to wedge broken *dhoukani* tool fragments in place (Fig. 3.13). The latter typically show less heavy wear (or none at all) and were clearly produced locally with the expedient *chaîne opératoire* on local jasper and chalcedony, or more occasionally re-using broken fragments of imported Lefkara cherts. The frequency of such patching implies that sledge repair by local farmers was done more regularly and not simply in rare emergencies (Pearlman 1984, 170). The consistent presence of the patches further suggests that specialist *athkiakadhes* were not available frequently enough to keep the sledges in a working condition.

Other diminutive *dhoukani* flakes exhibited evidence of careful re-sharpening (11% of the tools subjected to attribute analysis) that cut through gloss and other edge wear, also affecting the original tool-shaping retouch if rotated and reinserted in the wooden sledge. Such rotated

dhoukani tools represent 12% of the 99 *dhoukani* flakes measured, showing both lateral edges (on occasion three or all four edges) with gloss and edge wear from use. This kind of sledge maintenance which strove to utilize imported *dhoukani* tools to their fullest extent seems further to reflect a relative paucity of repair visits by itinerant knappers, creating a picture of repair by local knappers as suggested for the Alambra area, but also significantly more expedient repair by local farmers or non-professional knappers (Fox 1984, 64; Fox and Pearlman 1987, 229; Pearlman 1984, 168–70; Whittaker 2000, 65–66; Stewart 2007, 334). This suggests a difference between the TAESP evidence and the Alambra model, which is affected in part by the paucity of good quality Lefkara chert. Sledge repair, moreover, appears to have been at least partly incorporated into the local expedient industry that was dependent on the only available raw materials, jasper and chalcedony. Perhaps the durability of jasper made it an acceptable alternative to the skilfully made Lefkara *dhoukani* tools.

The ethnographic literature clearly illustrates the presence of professional jealousies between individual informants that have clouded our impression of the character of *dhoukani* tools (Whittaker 1999, 7–8). The expressed ideal may have been to hammer the *dhoukani* tools into the sledge board and have it held there by friction, but the use of a hafting mastic, although denied by the Pano Panayia informants, is nevertheless fairly common and represents one of the most diagnostic features of these tools (Fox and Pearlman 1987, 228; McCartney 1993, 356–57; Whittaker 1999, 8–9). The TAESP data show that the use of a hafting mastic was relatively common, and was found on 58% of the *dhoukani* tools subjected to attribute analysis. Similarly, flake blanks that were frequently the wrong shape or size needed to be truncated by snapping or retouch, providing numerous examples where only a portion of the original flake blank was utilized. The TAESP evidence clearly demonstrates the use of retouched backing to shape tools, dominated by direct retouch but also utilizing burin blows to create a steeply angled edge. Such formal retouch is found on 54% of the *dhoukani* tool sample examined. Both retouched backings as well as abrupt broken edges clearly gave *dhoukani* flakes additional purchase within the wooded haft, but these hafting devices were also used in combination with mastic.

Table 3.35. Average dimensions for samples of individual tool classes for Medieval–Modern localities (measurements in mm)

Tool Class	Length	Width	Thickness
Backed	32.1	23.1	9.1
Burin	28.3	30.6	20.6
Notch	44.8	45.5	17.6
Pièce esquillée	31.7	25.1	18.1
Scraper	26.1	29.9	13.9
Dhoukani, Mandres (complete)	39.8	28.9	11.5
Dhoukani, Mandres (patches)	23. 6	21.9	8.8
Dhoukani, all	35.2	28. 0	11.2
Utilized	31.2	26.7	13.6

Ground Stone Ground stone samples recovered from Medieval–Modern localities are not as abundant as was the case within previous industries (Table 3.37). Several localities including Evrykhou village, Ayios Epiphanios, Nikitari *Vouni*, and the jasper outcrop at Nikitari *Khalospidhia* produced no ground stone at all, while the remaining sites contained only a single or at most a few objects. One possible explanation is that the construction of large communal installations employing stone technology reduced the need for the production and use of stone tools on an individual basis (Chapter 3.11). This particularly applies to the water and flour mills, and olive presses that became the focus of entire communities. The small Medieval–Modern sample of ground stone tools also indicates the ad hoc re-use of likely earlier (prehistoric) tools for household activities, such as the crushing of green olives or incorporating stones within structure walls; common practices in Cypriot villages today. Given the small size of these samples and the high degree of secondary use, it is impossible to date these artefacts with any degree of certainty.

The use of ground stone technology appears to decline significantly during the Medieval–Modern periods. Very small, sparsely scattered ground stone artefacts were collected at only three sites, with objects recorded but not collected expanding this small sample to four localities. Six large examples of these were re-used not with their original function of food processing but as building stones. Thus the majority of querns shown in Table 3.37 represent artefacts recorded in Building Units and indicates secondary recycling contexts of artefacts which potentially have Roman or earlier dates. At Mandres such artefacts include three querns located in BU0017, BU0028 and

Table 3.36. Technical attributes for a sample of Medieval–Modern period tools and blanks

Tool blanks	Flake: 70 (56%)	Blade: 7 (6%)	Indeterminate: 43 (35%)	Core: 2 (2%)	Chunk: 2 (2%)
Butt types	Plain: 45 (65%)	Facetted: 14 (20%)	Dihedral: 1 (1%)	Cortical: 5 (7%)	Compression: 4 (6%)
Dorsal scar patterns	Unidirectional: 52 (44%)	Bidirectional: 5 (4%)	Crossed at 90º: 48 (41%)	Kombiwa: 6 (5%)	Radial: 7 (6%)

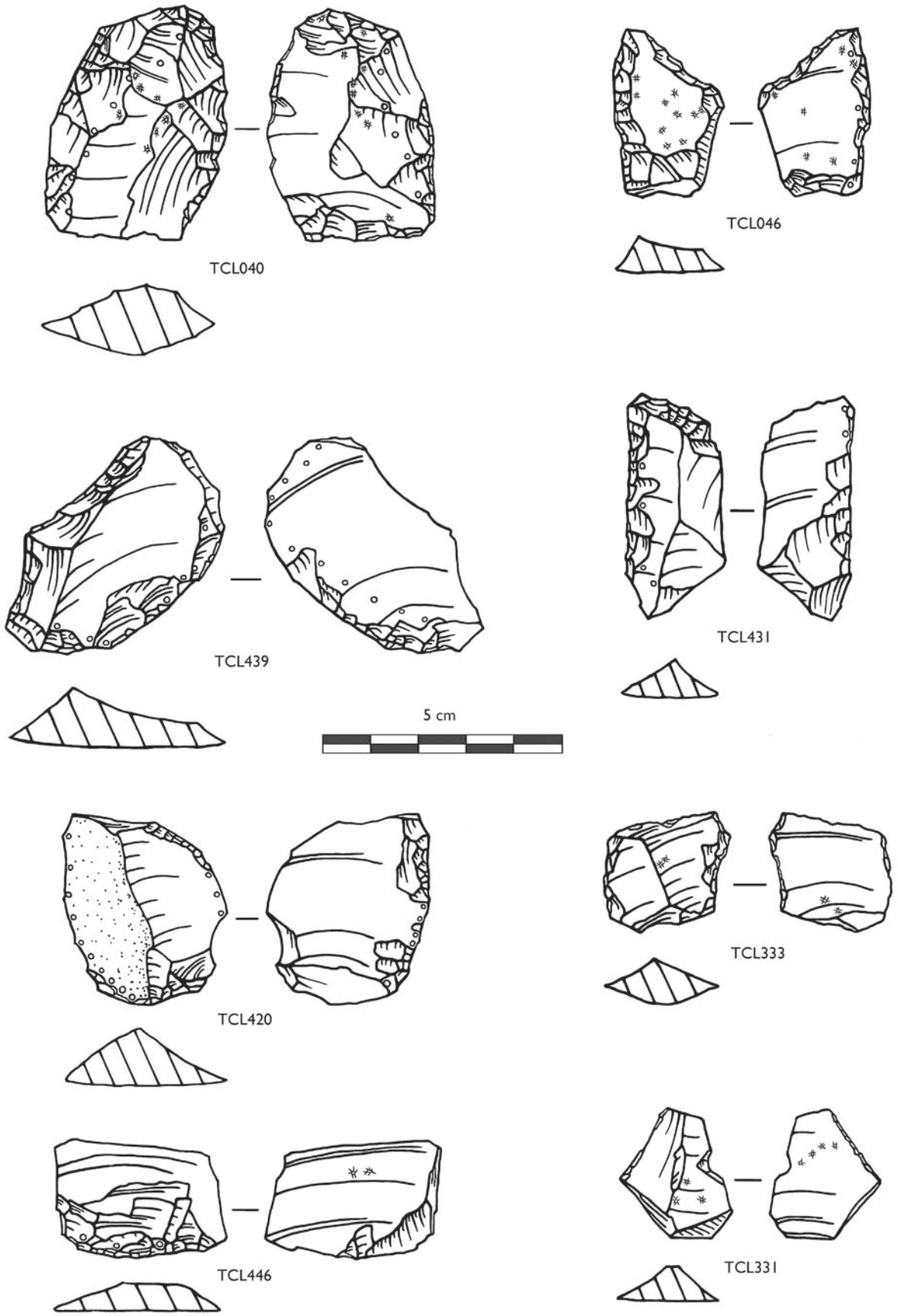


Fig. 3.13. Medieval–Modern dhoukani *flakes and patches. Ayios Epiphanios: TCL040, TCL046 (*dhoukani *flakes). Kato Koutraphas* Mandres *(TS07): TCL420, TCL431, TCL439 (*dhoukani *flakes), TCL331, TCL333, TCL446 (*dhoukani *patches) (Carole McCartney)*

Table 3.37. Ground stone types for Medieval–Modern localities (figures in brackets refer to pieces observed but not collected)

	Phlasou	Katydhata & Linou	Mandres	Asinou church	Lemonas
Grinder				1	
Grinder/polishing stone	1				
Pounder			1		
Hammer stone/pounder/grinder			1		
Rubbing stone			1		
Rubber			1		
Quern		(1)	1(3)		(1)
Griststone			(1)		
Pestle/rubbing stone	1				
Mortar					2
Vessel		1			
Axe	1				

BU0033 and a grist stone incorporated into BU0024. Two further examples were seen in Katydhata where a quern was recorded in BU0002 (a watermill), with a similar example from a watermill (BU0059) in Lemonas village.

Twelve portable ground stone items were recorded at Medieval–Modern localities, representing residual prehistoric items or the likely ad hoc re-use of residual ground stone tools, such as at Pano Phlasou where a pestle/rubbing stone was recorded in SU2021, an axe from SU2004 (TCL263) and a grinder/polishing stone from Transect TT3881000N. The most substantial sample was recovered at Mandres: a rubber fragment from TP021. PU09; a hammer stone/pounder/grinder in TP122.PU06; a small quern in BU0012; a pounder from BU0028; and a rubbing stone from the area of the block survey where Roman ceramics were frequent. A vessel fragment made of marble found at Katydhata (SU1048), two mortars found at Lemonas in SU2171, and a grinder from SU2304 at Panayia Phorviotissa complete the sample. The persistence of such artefacts in later historic contexts demonstrates the continued use of stone tools well beyond the Neolithic.

Conclusion

Unlike pottery, single lithic artefacts in Cyprus are rarely diagnostic to specific time periods. Instead, interpretations concerning change over time need to be based on assemblages of material across which we may monitor in concert elements of raw material utilization, technology and style. Survey data frequently fall short of this ideal, because samples are small and the possibilities of samples mixing components of more than one occupation are high. That said, significant trends may be perceived by concentrating on assemblages of lithic artefacts with the objective of understanding stone objects in terms of human interaction within a given landscape through time.

In using such an assemblage-based approach, five temporal contexts of lithic manufacture were used: early prehistoric/Neolithic; Chalcolithic/PreBA; ProBA; Roman; and Medieval–Modern. As the mixed period labels indicate, the data available do not have the temporal precision of excavated material, yet significant trends are readily apparent and these add substantially to our knowledge of the evolving technologies of chipped and ground stone on Cyprus. Beyond supplying significant new regional data, perhaps the most important outcome is the substantial new body of data on the long-neglected issue of the use of stone in later antiquity. In addition, this material offers a new perspective on the historic *dhoukani* industry of Cyprus.

Given the comparative abundance of chipped stone in lithic assemblages elsewhere in Cyprus, the exclusion of Lefkara cherts (abundant elsewhere in Cyprus) from the Survey Area must have had a significant impact on the development of prehistoric sites. Although their exploitation is notoriously difficult to date, jasper outcrops are common in this area, providing evidence of procurement likely linked to the use of jasper at nearby sites. Jasper, although abundant here, is a comparatively intractable material, and unlike the Lefkara cherts is ill-suited to blade manufacture. For the Neolithic, at least, the focus of the most intensive human occupation on Cyprus appears to have been in areas where high quality chert was more readily available. The near absence of obsidian, which appears to have been exchanged in a down-the-line fashion during the Early Aceramic Neolithic (Cypro-PPNB; Şevketoğlu 2008, 67–68) also supports a general paucity of Neolithic activity in the Survey Area. The similar rarity of picrolite seems less related to restricted access to this raw material than to a regional preference associated with the Kouris River that discharges in the southern coast of the island (Xenophontos 1991, 136–37).

Chipped stone assemblages belonging to the Aceramic Neolithic, later Chalcolithic/PreBA and ProBA industries are relatively undistinguished and display evidence of the intensive exploitation of imported Lefkara cherts. Ground

stone collections belonging to Koutroullis and the ProBA sites are, in contrast, comparatively abundant, well made and provide notable diagnostic parallels to sites elsewhere in Cyprus. During the Roman period little but jasper and chalcedony were exploited: these materials were fully suited to the expedient industry of predominantly utilized flake tools found at Roman localities across the Survey Area. Ground stone appears to shift from portable objects connected with household use to increased numbers of stone artefacts for use in complex, likely communal, installations. The industry of ground stone appears to have declined more rapidly thereafter, with stone tools becoming transformed into building materials during the Medieval–Modern period.

The Cypriot threshing sledge industry has already received attention in terms of ethnographic research, while archaeological evidence for the industry has been steadily increasing. Archaeological data are beginning to provide a better sense of regional variability, and the TAESP evidence adds significantly to this database. Importantly, the TAESP lithic data provide new insights on the organization of the *dhoukani* industry, adding to recent research documenting the more variable organization in the production of sledges, sledge repair systems and the organization of sledge sales, all showing significant regional diversity. While the core technology for the *dhoukani* industry appears to be effectively homogenous across Cyprus (in contrast to the *chaînes opératoires* used elsewhere in the Mediterranean or Middle East), the organization of sledge manufacture, redistribution and maintenance vary considerably from the classic model documented at Pano Panayia.

Although many threshing floors were documented in the Survey Area, no evidence for local sledge production was uncovered. Instead, *dhoukani* tools found in numerous assemblages document local sledge maintenance. Having been affected by the lack of Lefkara cherts, local knappers used jasper and chalcedony to generate lithic 'patches' and to produce new *dhoukani* flake inserts, providing a pattern more closely similar to that of Alambra, albeit with a different raw material. It is notable that in other areas of Cyprus where both jasper and Lefkara cherts are available together, jasper is not used so extensively, making the TAESP chipped lithic data relatively unique (McCartney 2007). Finally, the TAESP data provide support for a greater antiquity of threshing sledge use, as suggested by the presence of typical *dhoukani* flake tools, particularly in the industries belonging to the ProBA onwards, when the familiar *dhoukani* tool form appears to have been used on Cyprus.

TAESP ground stone samples follow at least some of the general functional trends shown elsewhere in Cyprus, namely a peak in the presence of cutting tools (axes and adzes) for field clearance and wood craft during the Chalcolithic, subsequently diminishing. During the Bronze Age a shift towards a significant increase in grinding tools linked to an expansion of agriculture is shown by relatively large numbers of querns and especially rubbers in samples dated by pottery evidence to PreBA or ProBA. Here also, an increase in pounding tools seems to suggest a shift in emphasis for ground stone tool function which could be linked in part to the appearance of perforated hammers and other tools associated with ore preparation and smelting activities. Only the paucity of stone vessels, perhaps particularly in the Neolithic samples, is at odds with Neolithic occupation known elsewhere on the island.

3.9 Archaeometallurgical Finds and Analytical Results

Myrto Georgakopoulou and Vasiliki Kassianidou

A significant amount of archaeometallurgical material was collected during TAESP, following an improved methodology, first developed during the Sydney Cyprus Survey Project (Kassianidou 2003a), and described in detail in Chapter 2.12. Here the results of the compositional and microscopic analysis are presented and discussed in an effort to better understand the technology of copper production in the periods that are represented by the metallurgical sites that were recorded.

Bronze Age

No metallurgical sites dating to the Bronze Age were recorded during fieldwalking. This is disappointing as Lead Isotope Analysis identified the Skouriotissa ore body as a possible source for some of the typical oxhide ingots of that period, including some from Cyprus (Gale 1999, 116), some from the Cape Gelidonya shipwreck (118) and even some from Uluburun (Gale and Stos-Gale 2005, 122). Of course, considering the extent of disturbance caused by opencast mining, it is not surprising that no prehistoric metallurgical sites survived in the vicinity of the Skouriotissa mine.

Nevertheless, we may have some scant evidence for Late Bronze Age copper production in the wider Survey Area. In a Survey Unit (SU2914) located near the village of Nikitari, one of the survey teams recorded a single piece of slag with a very distinctive shape, part of a plano-concave slag cake (Fig. 3.14; for a map see Plate 3.1). This type of slag was first identified during SCSP when the primary smelting workshop of Politiko *Phorades* was discovered, recorded and subsequently excavated (Fig. 3.15; Kassianidou 2003b, 215; Knapp and Kassianidou 2008).

Pieces of this type of slag were also recovered in two other SCSP Survey Units in the area between Mitsero and Politiko, neither of which is in close proximity to Phorades (Kassianidou 2003b, 216). It has been argued, therefore, that although it is difficult to create a typology of slag that is chronologically sound, this specific type of slag, known from a well-dated smelting site, Politiko *Phorades*, belongs to the Late Bronze Age (Kassianidou 2003b, 216).

Having presented the scanty evidence of prehistoric metallurgy recovered by TAESP, some other evidence that came to light just after TAESP fieldwork was completed should also be discussed here (Kassianidou 2008, 255–56). In 2003, while opening a trench in one of the roads in Katydhata village, a team of workers from the Cyprus Water Authority uncovered a series of Bronze Age tombs. Rescue excavations, initiated by the Department of Antiquities and directed by archaeological officer Giorgos Georgiou, uncovered two tombs containing pottery dating to the ProBA 2 (MC II) period (1800–1725 BC). Among the finds that came from this trench was a small quantity of slag. The slag is in the form of flat, thin circular cakes and is very homogeneous (Fig. 3.16).

This type of slag is very different from that found in other PreBA sites (Kassianidou 2008, 251–55). In fact, it is different from all types of slag known to date from Cyprus. It is unclear whether the slag was originally inside or outside the tombs but it is assumed that it is contemporary with the cemetery. If it did come from the tombs, then it will be the first time that we have clear evidence of slag being deposited together with other funerary gifts. Unfortunately, the excavation was not extended and these questions remain for the moment unanswered. Chemical and microscopic analysis should enable us to learn more about the technology that produced it.

Fig. 3.14. Fragment of Phorades-type slag from SU2914 (Chris Parks)

Roman Period

TAESP recorded three Roman slag heaps. The first is at Ayia Marina *Mavrovouni* (TP006; Volume 2, Chapter 4.6), while two others were located in the vicinity of the mine at Skouriotissa *Vouppes* (TP007, TP172; Volume 2, Chapter 3.12). Skouriotissa is the monumental slag heap at the foot of the Phoukasa hill, while TP172, Skouriotissa *Kitromilia*, is a smaller heap located some 500 m south-west of TP007. A significant number of samples were collected from a series of Archaeometallurgical Units (AUs) in all three of the recorded slag heaps; these now form an important reference collection of metallurgical finds from well-stratified and in some cases well-dated deposits. It was economically and practically unfeasible, however, to analyze all the collected samples. Thus 71 samples were selected for chemical and microscopic analysis. Their provenance is discussed below. Generally we tried to include as many different stratigraphic layers as possible, as well as different types of slag (e.g. tap slag and furnace slag).

As already noted in the study of Roman slag heaps during SCSP (Kassianidou 2003b), Roman-period slag heaps consist of slag fragments that vary widely in shape, size and colour. These differences are reflected in their chemical composition, also discussed below. The most distinctive finds from these heaps are large slag cakes weighing approximately 40–55 kg each (Fig. 3.17, Fig. 3.18).

The slag was clearly tapped in a pit from a hole in the furnace, as the cakes often exhibit a narrow protrusion where the slag begins to funnel out to form the elongated cake. The bottom surface is smooth and almost conical. Multiple layers in the slag cakes indicate that the contents of the furnace were tapped several times in the same pit.

In the recorded sections there are a number of layers that consist largely of complete slag cakes. Their orientation and inclination shows the direction of the dumping episodes and the progressive formation of the slag heap (Fig. 3.19). In all three Roman slag heaps, however, layers containing complete slag cakes are the exception rather than the rule. As pointed out in the discussion of these POSIs, most layers in the slag heap consist mainly of medium- (5–10 cm) and small-sized (below 5 cm) slag fragments. Clearly much effort was devoted to crushing and even sorting them. In TP007 a series of mortars was collected that may have been used for this purpose, although it is equally possible they were used for the beneficiation of the ore (e.g. TCL334 from TP007, Fig. 3.12; Fig. 3.20).

Crushing slag was a necessary step in early metallurgical processing, especially before the use of bellows and fluxes, as the metal was often trapped in the viscous slag (Tylecote 1987, 300). This is not what one would expect of metallurgical workshops dating to the Late Roman period, and indeed the analyses show that Roman slag contains very little copper, typically less than 1% (Fig. 3.21).

Clearly the separation of metal from the slag cannot have been the motive or at least the only motive. Perhaps the reason behind this rather laborious activity was to achieve a more efficient disposal of the waste by creating a more stable heap. That a considerable effort was devoted to this purpose is shown by the discovery of what can only be

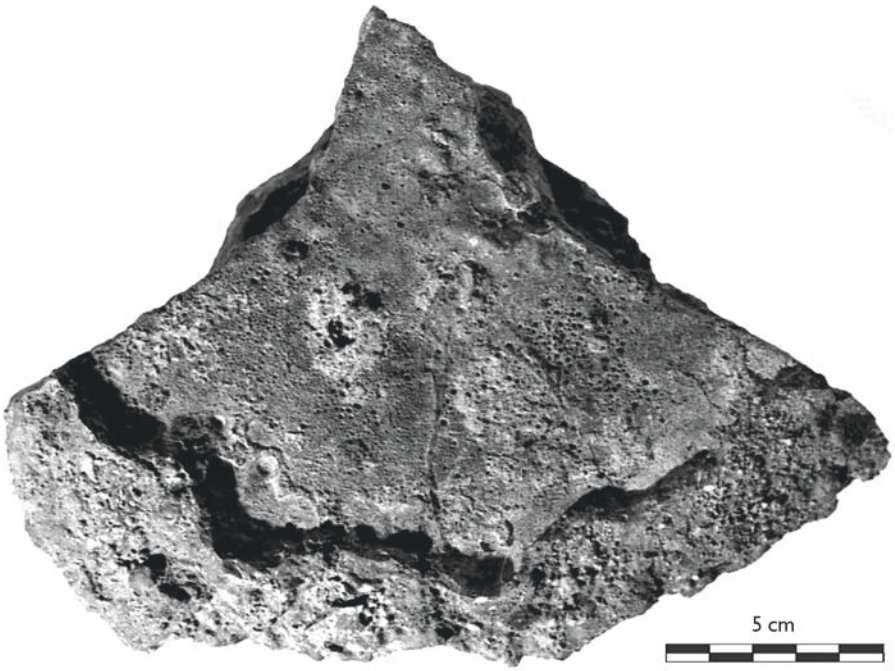


Fig. 3.15. Lower surface of slag cake from Politiko Phorades *(Vasiliki Kassianidou)*

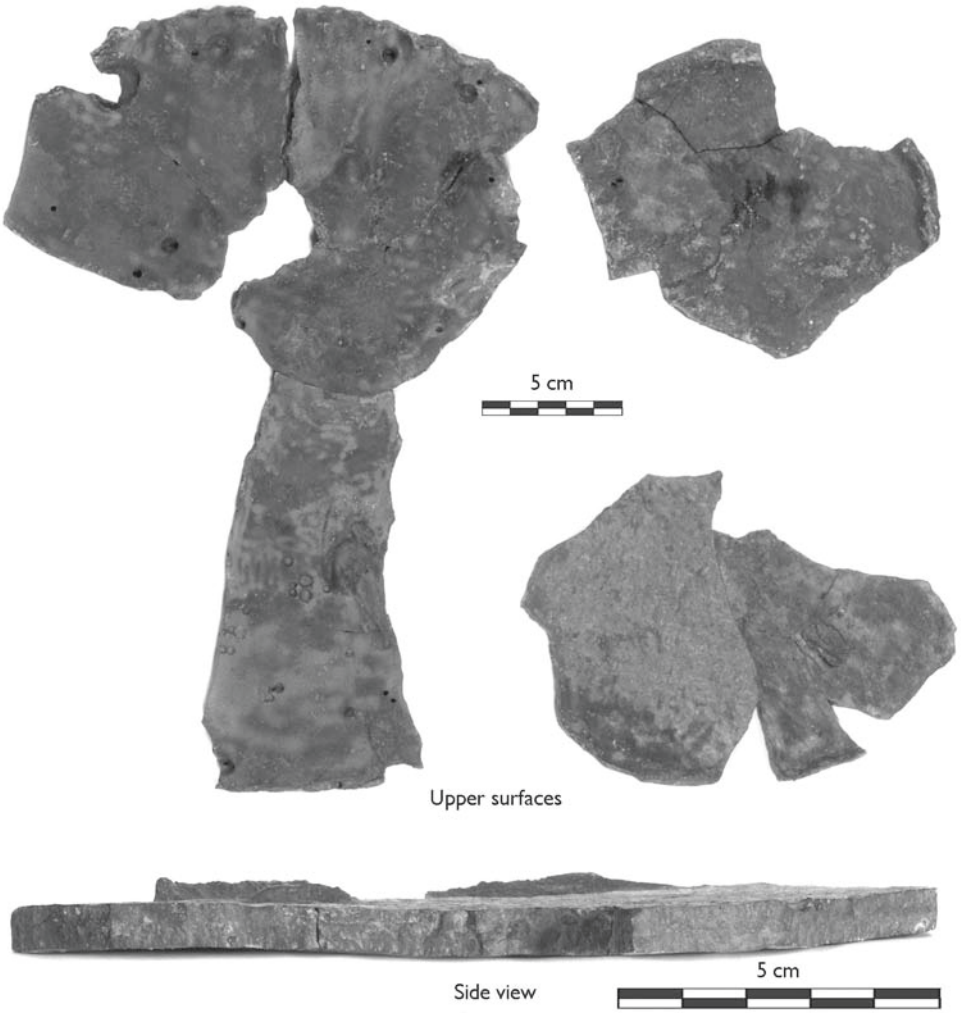


Fig. 3.16. Slag fragments from excavations of Bronze Age tombs in Katydhata (Department of Antiquities, Republic of Cyprus)

interpreted as a supporting wall (TP007.AU07) discovered at the lower part of the Skouriotissa slag heap (Volume 2, Chapter 3.12, Plate 3.27). The wall consists of complete slag cakes placed upside down forming an inclined solid structure. Interestingly the talus and the area in front of the supporting wall was full of pottery, and in fact has produced some of the best preserved examples of Late Roman pottery in the entire Survey Area. This structure can, therefore, also be dated to the Late Roman period. A single radiocarbon date on charcoal collected from the stratified layers gave a calibrated date of 596–645 AD (68.2% confidence). That the Romans were carefully managing industrial waste is well-known from Monte Testaccio in Rome, a site made up from the broken remains of thousands of amphorae. Excavations carried out in 1991 showed that the mound had been raised as a series of level terraces with retaining walls made of nearly intact amphorae filled with sherds to anchor them in place (Blázquez Martínez and Remesal Rodríguez 2001, 13–14; Claridge 1998, 367).

In the past archaeologists, geologists and mining engineers incorrectly dated slag according to its colour: reddish-brown slag was believed to be Phoenician in date, while black slag was considered to be Roman (Bruce *et al.* 1937, 642; Muhly *et al.* 1980, 86). Looking closely at the slag in these heaps one cannot fail but notice that some pieces differ from the rest in having a blueish hue. As discussed below, analysis of this type of slag showed it to be rich in manganese. But the heaps also contain slag that has a reddish hue. As already noted in the study of SCSP's slag heaps, it would appear that colour cannot be used as an indicator of the slag's date.

One striking difference between the slag from the Late Roman heaps and those from earlier workshops, recorded by SCSP, is that the Late Roman slags are relatively free of copper carbonate incrustations. Looking at the chemical composition it is clear why this is so: the copper content in these samples is normally below 1%. The only exceptions are the 'furnace' slags (e.g. AMT33 and AMT34 discussed below): these are usually amorphous masses, sometimes covered in copper incrustations and often with small pieces of charcoal and clay furnace lining attached. Almost certainly this is the material that remained in the furnace once the bulk of the slag (and presumably the metal) had been tapped out.

Unfortunately we know very little about the actual smelting installations, since we found no well-preserved furnace fragments that would indicate the furnaces' shape or dimensions. There is clear evidence, however, that some surfaces within these slag heaps were used as working floors, and we have recorded lenses of furnace material (for example layers Y34–Y36 in TP007.AU01; see Volume 2, Fig. 3.52) amongst the other layers that consist almost entirely of slag (Fig. 3.22).

Nonetheless we do know the types of material used to build the furnaces. Rounded igneous rocks that bear the traces of intense heat were found at both Skouriotissa and Mavrovouni. Some of these stones are quite large and

Fig. 3.17. Complete slag cake (c. 40 cm across) from Ayia Marina Mavrovouni *slag heap (TP006) (Chris Parks)*

Fig. 3.18. Complete slag cake (c. 50 cm across) from Skouriotissa Vouppes *slag heap (TP007) (Vasiliki Kassianidou).*

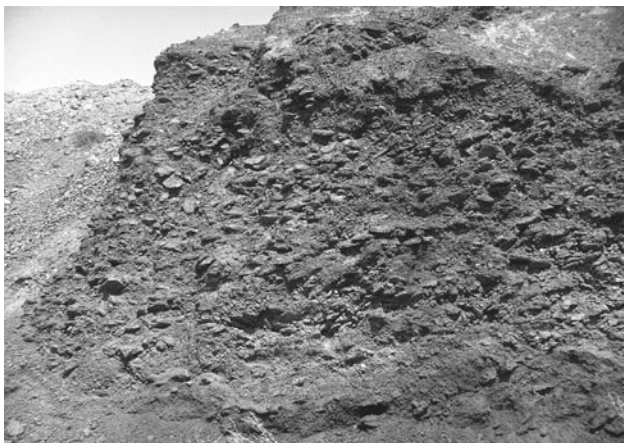


Fig. 3.19. Skouriotissa Vouppes *(TP007): detail of slag heap section AU01, with inclined layers consisting of slag cakes and other layers of crushed slag. Height c. 10 m. (Vasiliki Kassianidou)*

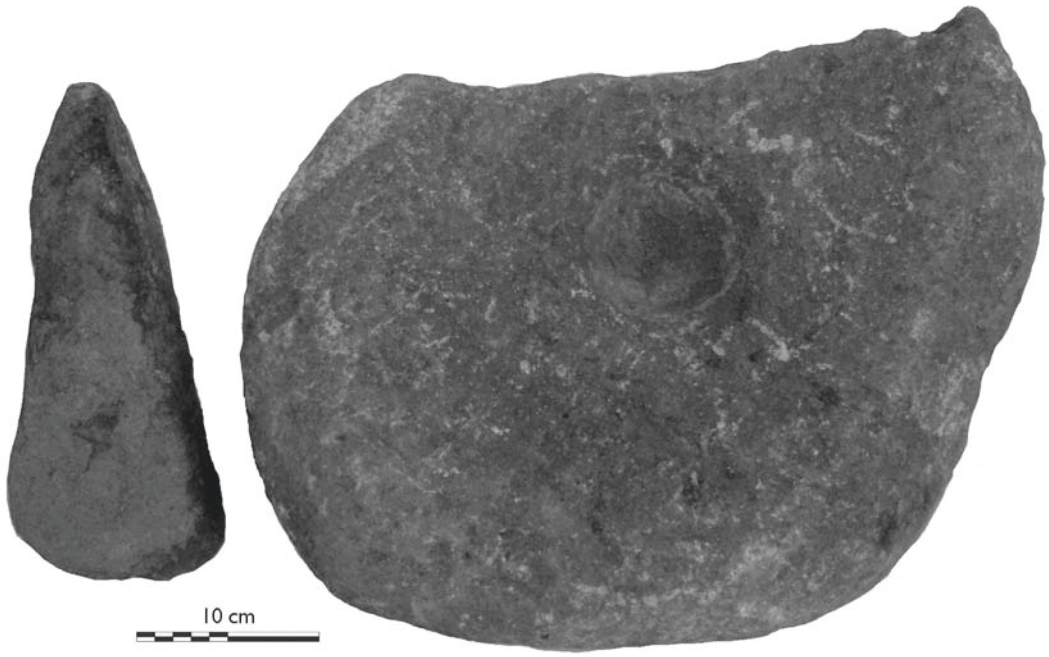


Fig. 3.20. Mortar stone and mining pick from Skouriotissa, in the collection of Hellenic Copper Mines (Vasiliki Kassianidou)

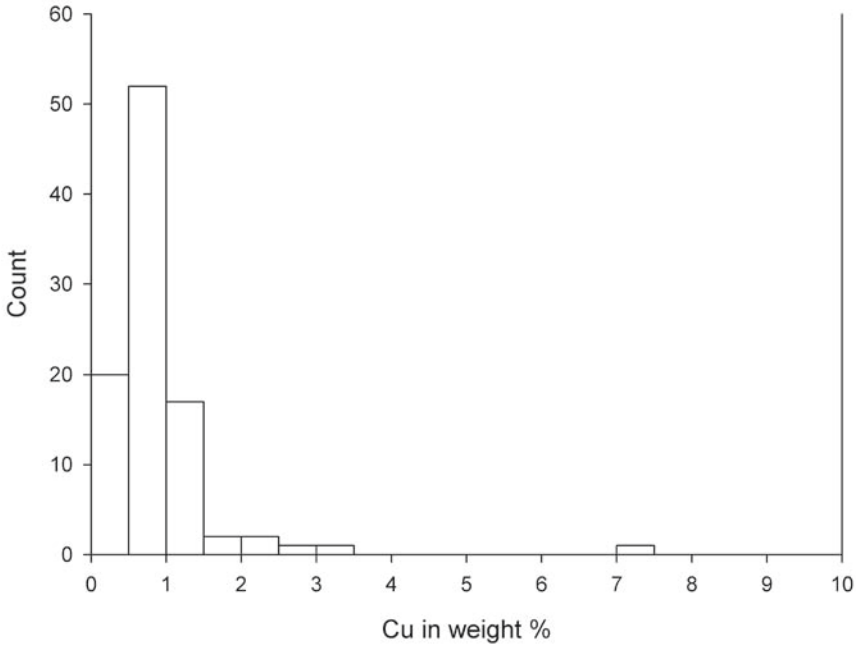


Fig. 3.21. Copper content in slags of the Roman period analysed by TAESP and SCSP. CuO concentrations are given in weight %

were clearly once part of a substantial smelting installation (Fig. 3.23). We also found large fragments of furnace material made of fired clay, which in many cases are also slagged (Fig. 3.24). One of the pieces has what looks to be a finished edge and may be interpreted as part of the furnace rim (Fig. 3.25).

It is unclear whether these are fragments of the upper structure of a furnace that had a stone-built base (as is the case with the Hellenistic smelting furnaces excavated at the site of Almyras (Fasnacht 2003, 125–28), or whether it derives from a metallurgical installation made entirely of clay and used in a different step of the process. Although no tuyère fragments were found in the Roman slag heaps, this does not mean they were not used (cf. Koucky and Steinberg 1974, 169). The nature of the slag indicates the use of a system of bellows and tuyères – otherwise it would have been impossible to reach the temperatures needed to melt the smelting charge and create two well-

Fig. 3.22. Skouriotissa Vouppes *(TP007): section of slag heap AU01. Stadia rod is 3.5 m high. (Chris Parks)*

separated phases. Considering the very small amount of furnace material found in the slag heaps, even though thousands of installations must have existed to produce this phenomenal amount of slag, it is really not surprising that tuyère fragments are absent from this material record.

To learn more about the smelting technology of the Roman period we must rely on the chemical and microscopic analysis of the slag, the results of which are presented next.

Methodology

The analytical study of the slag samples was undertaken at the Wolfson Laboratories of the Institute of Archaeology, University College London. Bulk chemical analyses were carried out with a polarizing energy dispersive X-ray fluorescence spectrometer ((P)ED-XRF: Spectro X-Lab Pro2000) using a calibration method developed specifically for iron-rich materials (Veldhuijzen 2003). Slag samples were prepared as pressed pellets and analysed three times. The tables given here present the average of the three analyses for each sample. The performance of the instrument was monitored at regular intervals by including, in each run, the following reference materials: the iron ore ECRM681-1, the manganese nodule USGS NOD-A-1, and the Swedish iron slag W-25:R (Kresten and Hjärthner-Holdar 2001), prepared into pressed pellets as for the samples. Table 3.38 gives a summary of the analytical performance of the instrument on the basis of these analyses with precision calculated as the relative standard deviation and accuracy estimated as $(x_{mean}-x_{cert})/x_{cert}*100$.

As expected, the precision and accuracy of the instrument are poor for the lighter elements, particularly when these are present in low amounts. For the rest of the elements both precision and accuracy are good, usually 5–10%, but degenerate drastically as the contents approach the detection limits of a particular element (see for example copper, zinc and chromium contents in the Swedish Slag sample W-25:R). Overall, for the purposes of this project, which aims at a broad characterization of these materials, the performance of the specific instrument and methodology was considered entirely adequate.

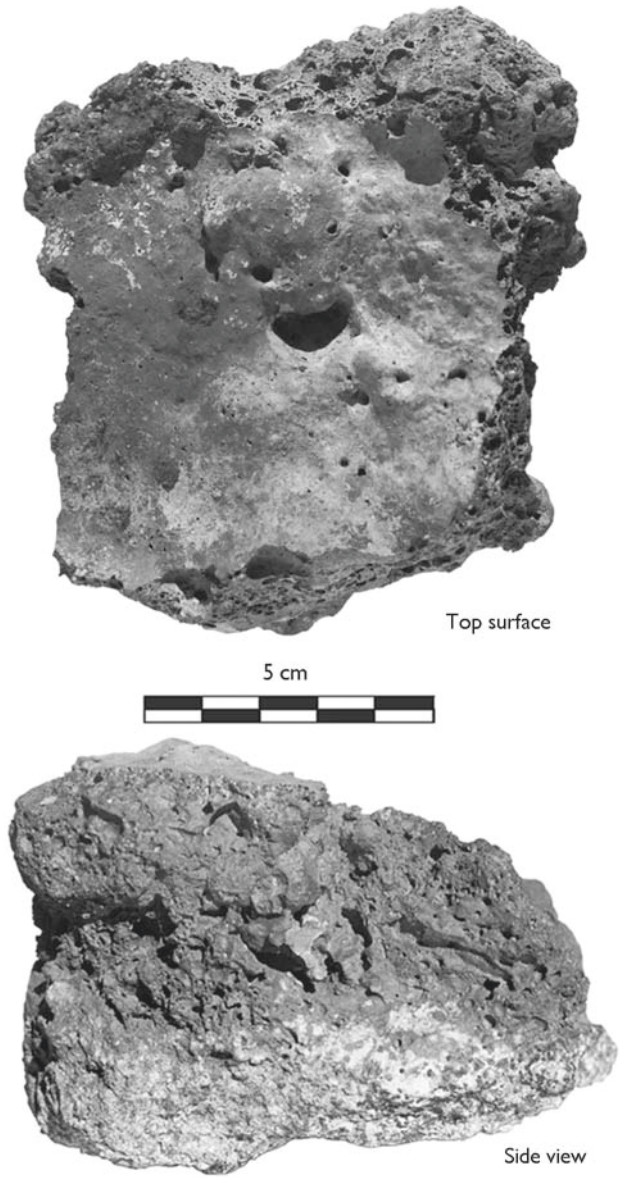


Fig. 3.23. Slagged stone once forming part of the furnace structure: upper surface and side view (TCA008, from Ayia Marina Mavrovouni *slag heap, TP006.PU01) (Chris Parks)*

For microstructural study, the slag samples were sectioned, mounted in resin, and subsequently ground and polished down to 1/4µm. All the samples were studied using a reflected light optical microscope, while a selection was additionally investigated for semi-quantitative characterization of specific phases using a scanning electron microscope (EDS-SEM: JEOL JSM-35CF). The analyses were carried out at 20 kV, using the ZAF correction procedure (ISIS analytical software by Oxford Instruments). The detector was calibrated at regular intervals against a cobalt standard.

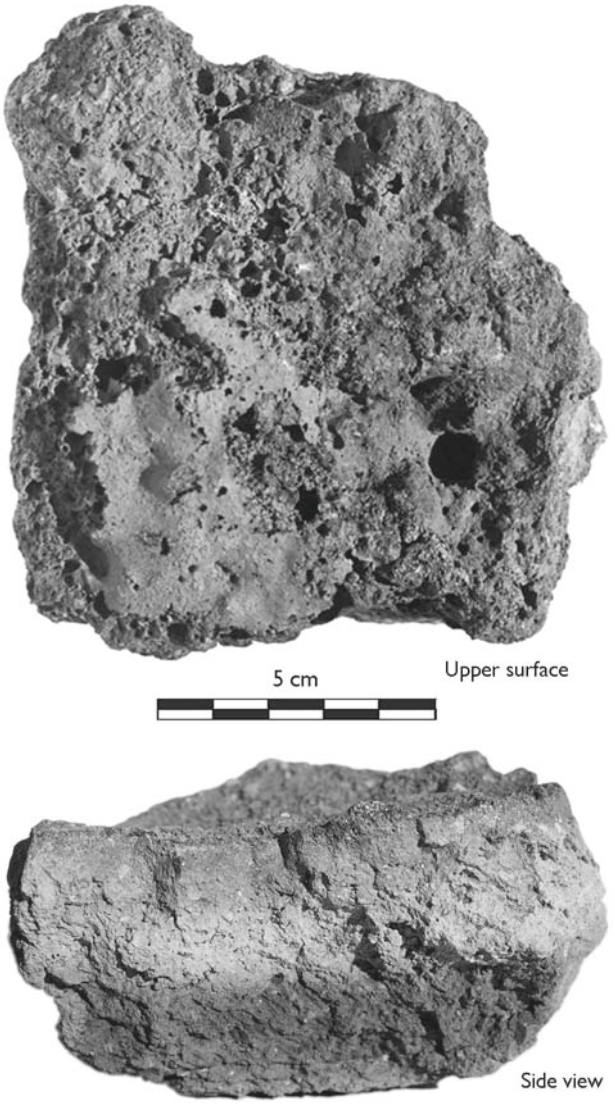


Fig. 3.24. Thick piece of slagged furnace wall (TCA009, from Ayia Marina Mavrovouni *slag heap, TP006.PU01) (Chris Parks)*

Fig. 3.25. Fragment of possible furnace rim (TCA017, from Skouriotissa Vouppes *slag heap, TP007.AU14.Y22) (Chris Parks)*

Results

Bulk chemical compositions are given in Table 3.39–Table 3.44, presenting slag samples separately from individual sections. It should be noted that all iron is reported as the divalent oxide, although microstructural examination showed that much of it is in a metallic form in the slag, as a constituent of metal or sulphidic phases. As a result, in some cases, overall totals may be overestimated. Furthermore, low totals are partly due to loss on ignition, which was not measured. A selection of chemical analyses of individual phases carried out on the EDS-SEM are given in Table 3.45, with a description of the phase analysed.

Phorades-type slag As noted above, AMT30 is the only sample that was identified, based on its morphology, as a 'Phorades-type' slag (Table 3.39). Its chemical and microstructural composition is in agreement with this proposed association (Kassianidou 2003b, 214–19; Knapp and Kassianidou 2008, 142–43). More specifically, and in comparison to the other slags of the survey, the sample has a medium iron to silicon ratio ($FeO:SiO_2$ c. 2.5:1), a manganese content in the trace levels and one of the lowest zinc contents encountered.

In terms of microstructure the sample consists of fayalite crystals (Fe_2SiO_4) with low (1–2%) magnesium and calcium contents, free iron oxides, and glass partially re-crystallised to minute iron silicates (Fig. 3.26). Spinels of a composition approaching that of hercynite could be discerned, usually associated with the fayalite. Copper-iron sulphides are dispersed across the sample, but they are not

Table 3.38. Summary of the results from the analyses of reference materials using (P)ED-XRF, showing mean, relative standard deviation (rsd), and an estimate of accuracy (acc.) based on the given certified value. bdl = below detection limits. Values are based on 21 repeats of ECRM681-1; 20 repeats of NOD-A-1; 23 repeats of W-25:R

	Na_2O	MgO	Al_2O_3	SiO_2	SO_3	K_2O	CaO	TiO_2	V_2O_5	Cr_2O_3	MnO	Fe_2O_3	CuO	ZnO	SrO	Ba
	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
ECRM681-1 mean	0.25	1.15	12.1	16.3	0.22	0.52	3.5	0.41	1301	627	0.3	44.3	20	426	1142	127
ECRM681-1 rsd	45.5	4.9	1.3	1.0	2.6	0.7	0.5	0.7	0.8	0.9	0.6	0.5	43.0	1.7	1.0	3.6
ECRM681-1 acc.	175	-22	14	-9	-13	-13	-11	-15	-5	5	-6	-7				
NOD-A-1 mean	0.70	4.27	2.7	1.8	bdl	0.55	13.2	0.46	1586	261	23.5	15.7	1466	660	1741	1565
NOD-A-1 rsd	13.7	1.9	1.4	3.0		1.6	0.7	1.6	2.2	5.5	0.6	0.5	1.1	1.3	0.5	2.9
NOD-A-1 acc.	-30	-10	-31	-53		-9	-14	-12	15		-2	0	6	-10	-16	4
W-25:R mean	0.94	0.20	6.9	21.4	0.14	0.97	1.3	0.26	265	135	2.7	60.3	22	26	81	925
W-25:R rsd	16.3	18.7	1.6	1.2	5.6	1.3	1.2	1.0	2.9	2.6	1.0	0.8	21.4	15.3	2.7	5.1
W-25:R acc.	54	-47	-4	-13	45	-5	-11	-20	-3	96	-10	-5	-38	-57	-27	16

circular, which is typical of formed matte, but rather of irregular shapes, indicating that these are probably partially reacted ore.

TP007.AU01 Three sections, AU01, AU05 and AU14, were sampled for analysis from TP007 (see Volume 2, Chapter 3.12). Below the results for each section are discussed separately.

Sixteen samples taken from ten different layers of AU01 were analysed with (P)ED-XRF and optical microscopy, while six of these were further examined with EDS-SEM. The majority of these were registered as tap slags, with two (AMT33 and AMT34) as furnace slags (Table 3.41). The latter two are from the same layer (Y33) and show some differences in terms of their bulk composition compared to the rest.

The slags show low to medium manganese contents ranging between 0.1% and 5% and averaging 1.1% (estimates as oxide). The two furnace slags were among the ones with the lowest manganese content. The ratio of iron and manganese versus silicon is between 3:1 and 4:1 for most of the tap slags, decreasing to 2.5:1 for AMTAEP32, while it is increased to 5:1 and 7:1 respectively for the two furnace slags. All of the tap slags show significant zinc contents (ZnO: 400–1600ppm), which are much lower in the case of the furnace slags. Calcium contents were lower in the two furnace slags than in the others.

Based on the optical and scanning electron microscope examination, the primary phases in all the slags are iron silicates of the olivine group ($(Fe_xMe_{1-x})_2SiO_4$), usually approaching the composition of fayalite (Fe_2SiO_4) (Fig. 3.27).

Significant contents of manganese are detected in the silicates of the manganese-richer samples AMT31 and AMT46, but still these fall closer to fayalite in the fayalite-tephroite series (Mn_2SiO_4) and could be identified as iron-rich knebelite ($(FeMn)_2SiO_4$). Low quantities of magnesium and calcium were invariably measured, as is typical in such silicates (Bachmann 1982b, 14). The abundance of free iron oxide crystals varies among the samples. They appear to be absent in sample AMT32, which was found to be poorer in iron, while the two furnace slags have the highest contents. For the rest of the samples, the free iron oxide contents lie between these two extremes. Spinel crystals were observed usually in lower quantities and were often associated with the silicates. Their analysis on the EDS-SEM showed that their composition approaches that of hercynite. Based on phase analyses, zinc, when elevated in the bulk composition, was detected in the spinel and glass phases. Iron oxide bands, indicating layers of oxidation from subsequent tapping episodes, are frequent in the tap slags (Fig. 3.28).

The majority of the slags bear large iron-copper sulphides that in most cases appear to be partially reacted primary ore instead of secondary formed matte. This is supported both by their non-rounded shape, as well as by the observation of eutectic formations within them and their association with iron oxides (Fig. 3.29). Matte prills are also present.

TP007.AU05 Seventeen samples taken from ten different layers of AU05 were analysed with (P)ED-XRF and optical microscopy, and four of these were further examined with EDS-SEM. All were registered as tap slags.

In terms of bulk composition (Table 3.41), samples from this section have overall higher silicon and aluminium, with correspondingly lower iron compared to those from AU01. Furthermore, zinc contents are consistently higher, in one sample (AMT66) exceeding 1%. The average sulphur is overall lower in AU05 samples, with several showing

Table 3.39. Chemical composition of TCA002 (SU2914.A001; sample no. AMT30)

Sample	Na_2O	MgO	Al_2O_3	SiO_2	S	K_2O	CaO	TiO_2	MnO	FeO	Cu	Sum	V_2O_5	Cr_2O_3	ZnO	SrO	Ba
	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm
AMT30	1.0	1.9	5.0	21.2	1.6	0.2	2.0	0.3	0.07	55.73	0.8	89.7	153	141	131	31	bdl

Table 3.40. Skouriotissa Vouppes *(TP007.AU01): chemical composition of slag samples. The 'Type' and 'Material' columns describe the majority of finds in the whole layer. bdl = below detection limits. FS = Furnace Slag. MS = Medium Slag. SC = Slag Cakes. SS = Small Slag. TS = Tap Slag*

Sample	Layer	Type	Material	Na_2O	MgO	Al_2O_3	SiO_2	S	K_2O	CaO	TiO_2	MnO	FeO	Cu	Sum	V_2O_5	Cr_2O_3	ZnO	SrO	Ba
				%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm
AMT43	Y28	TS	SC	0.8	0.8	3.9	15.7	3.4	0.2	3.4	0.2	2.6	59.3	1.3	92	225	136	718	95	25
AMT42	Y29	TS	SC	1.2	1.1	4.9	18.1	2.2	0.3	2.8	0.2	0.1	57.5	1.1	89	198	95	942	45	bdl
AMT31	Y30	TS	SC, MS	0.8	0.7	4.9	15.9	2.8	0.4	2.7	0.2	3.0	55.0	1.0	87	287	149	614	190	570
AMT32	Y30	TS	SC, MS	0.7	0.9	6.0	21.1	2.0	0.5	3.4	0.2	0.8	51.5	0.6	88	287	129	377	125	104
AMT44	Y31	TS	SC, SS	0.8	0.6	3.6	16.1	2.9	0.3	2.4	0.1	1.5	60.1	1.3	90	238	133	1560	134	289
AMT45	Y31	TS	SC, SS	0.7	0.7	4.0	17.1	2.9	0.3	2.6	0.1	0.5	59.0	1.1	89	187	159	1413	58	110
AMT33	Y33	FS	SS	0.4	0.5	2.9	10.7	2.8	0.2	1.0	0.1	0.1	74.5	1.4	94	83	92	135	bdl	bdl
AMT34	Y33	FS	SS	0.6	0.8	3.4	12.6	2.1	0.4	0.5	0.1	0.1	58.7	2.5	82	103	80	44	bdl	bdl
AMT40	Y37	TS	SC, SS	0.5	0.3	3.5	15.3	3.9	0.4	3.6	0.1	1.4	63.4	1.6	94	254	126	858	159	199
AMT41	Y37	TS	SC, SS	0.7	0.3	3.7	15.3	3.7	0.3	2.2	0.1	0.2	64.3	1.5	92	154	126	1622	43	bdl
AMT35	Y39	TS	SS	0.6	0.7	3.2	14.6	3.5	0.2	3.1	0.1	1.0	59.1	1.6	88	193	125	911	95	40
AMT36	Y39	TS	SS	0.9	0.6	4.7	19.0	2.4	0.3	2.0	0.2	1.7	55.6	0.9	88	237	137	555	96	181
AMT37	Y46	TS	SS	0.6	1.6	3.8	19.5	2.1	0.2	1.6	0.2	0.1	57.9	0.9	89	191	105	920	10	bdl
AMT38	Y46	TS	SS	0.5	0.6	3.2	20.8	2.0	0.3	2.0	0.1	0.2	58.5	0.8	89	218	144	1157	47	bdl
AMT39	Y47	TS	SC, SS	0.6	0.4	3.1	19.5	2.1	0.3	1.7	0.1	0.1	58.3	0.9	87	191	127	1100	37	bdl
AMT46	Y48	TS	SS	0.6	0.8	3.4	17.2	3.2	0.4	2.3	0.1	5.0	58.2	3.1	94	426	141	518	216	946

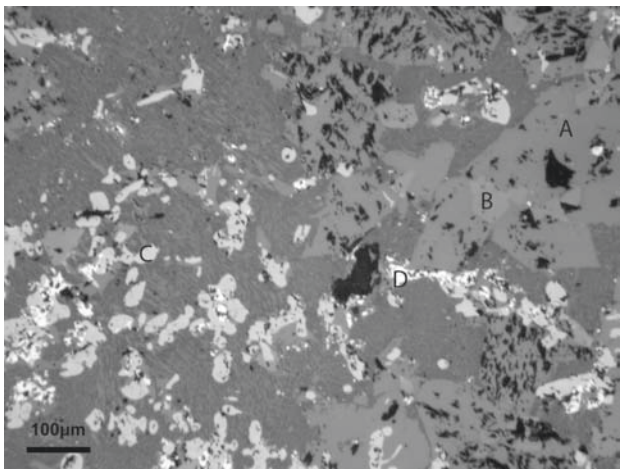


Fig. 3.26. Reflected light microphotograph of AMT30, showing fayalite (A, dark grey, polygonal), some enclosing spinels (B, lighter grey polygons within fayalite), wüstite (C, light grey, rounded), iron-copper sulphides (D, white, off-white), porosity (black) in a glass matrix with minute re-crystallised iron-silicates (Myrto Georgakopoulou)

contents at or below 1%. Manganese is again variable, between 0.1% and 39%. Only one sample reaches the upper extreme, while the majority have low contents (c. 0.1%) and few have medium (1–6%). Barium contents clearly rise with higher manganese contents. Looking back at previous analyses where barium was estimated (e.g. Kassianidou 2003b, 217, table 5.2; Rapp 1998, 178, table 2), a similar correlation between the two elements is noted.

The primary phase in all samples is again iron silicate crystals of the olivine group in a glass matrix, ranging in composition within the fayalite-tephroite series, depending on manganese content. The slags could be distinguished in two groups, based primarily on the presence or absence of free iron oxide crystals. These were not observed in the sections of samples for which the iron plus manganese ratios against silicon are below 2 in the bulk composition (AMT 58–59, 61, 66–70), while they are present in the rest. The former contain matte prills that often envelop copper metal prills, while in the latter the sulphidic phases are more consistent with being partially reacting ore of different shapes, showing eutectic textures and often associated

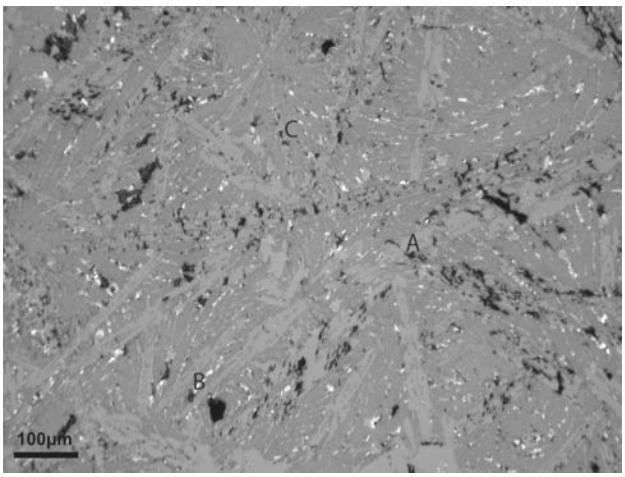


Fig. 3.27. Reflected light microphotograph of AMT32, showing fayalite (A, light grey, elongated), matte (B, white/off-white), porosity (black) in a glass matrix (C, dark grey) with minute re-crystallised iron-silicates (Myrto Georgakopoulou)

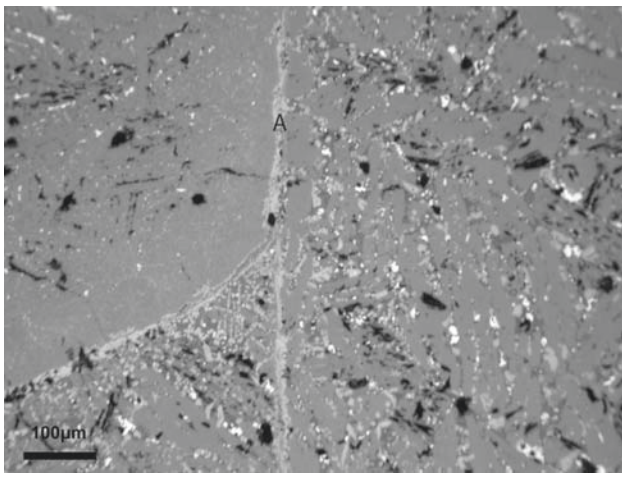


Fig. 3.28. Reflected light microphotograph of AMT38, showing iron oxide bands (A, 3 light grey elongated bands meeting at one point) indicating layers of oxidation from subsequent tapping episodes. Note the differences in microstructure between different sides of the band. (Myrto Georgakopoulou)

with iron oxides. The matte prills and the partially reacted sulphides are heterogeneous with different phases of the iron-sulphur-copper system observed in the larger ones under the microscope.

TP007.AU14 Eleven samples taken from six layers of AU14 were analysed with (P)ED-XRF (Table 3.42) and optical microscopy. Five of these were further examined with the EDS-SEM.

Similarly to section AU05, the samples selected from AU14 can be divided into two broad groups. Here, however, these correlate with their position within the section. Samples AMT51–57 collected from the bottom of the section have low iron plus manganese versus silicon and aluminium ratios (c. 1), while the samples from higher layers AMT47–50 have high ratios (≥3). Manganese contents are variable between 0.1% and 15%, but only two samples, both from the latter group, have manganese oxide above 1%. As before, barium is clearly increased in the manganese-rich samples. Zinc is high, at the same levels as for section AU01, but is lower than in AU05 samples.

The separation between two groups on the basis of the bulk composition is reflected in the microstructure of these samples, as observed in the AU05 slags. In the iron- and in some cases manganese-rich samples AMT47–50, iron (or iron-manganese) silicates of the olivine series prevail, but free iron oxides also abound, surrounded by a glass matrix. The samples have large, partially reacted copper-iron sulphides, often showing eutectic textures. The abundance of such phases in sample AMT49 is probably the primary reason for the high overall total in the bulk composition, given that all iron is estimated as the divalent iron oxide. In sample AMT50, rounded matte prills were also identified and these frequently enveloped a copper prill (Fig. 3.30).

The microstructure of the iron-poor samples AMT51–57 is dominated by iron silicates of the olivine series in a

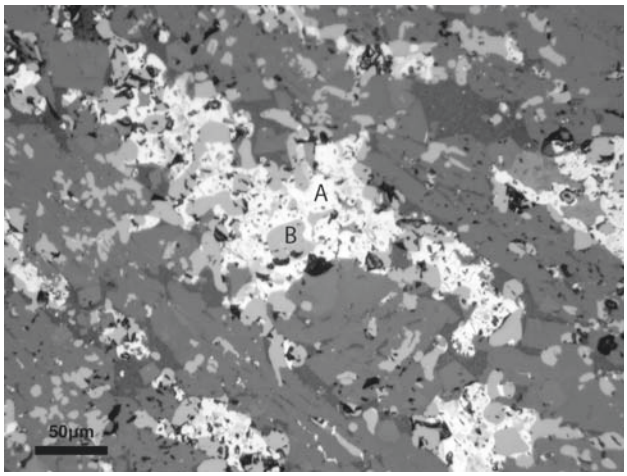


Fig. 3.29. Reflected light microphotograph of AMT40, showing partially reacted sulphidic ore (A, white) with associated iron oxides (B, light grey) (Myrto Georgakopoulou)

glass matrix. The olivine crystals have a composition approaching that of fayalite with significant magnesium and a little calcium substituting for the iron. Rounded matte prills are dispersed in the sections, usually including within them smaller copper metal phases where, as before, some iron was measured upon analysis (Fig. 3.31).

TP006 Two sections, AU03 and AU04, were sampled for analysis from TP006 (see Volume 2, Chapter 4.6). The samples from the two sections show general similarities and are thus discussed here together.

Ten slag samples from seven different layers of AU03 were analysed with (P)ED-XRF (Table 3.43) and optical microscopy. Two slags were registered as furnace slags on the basis of their morphology, while the rest are tap

Table 3.41. Skouriotissa Vouppes *(TP007.AU05): chemical composition of slag samples. The 'Type' and 'Material' columns describe the*
below detection limits. MS = Medium Slag. SC = Slag Cakes. SS = Small Slag. TS = Tap Slag

Sample	Layer	Type	Material	Na_2O	MgO	Al_2O_3	SiO_2	S	K_2O	CaO	TiO_2	MnO	FeO	Cu	Sum	V_2O_5	Cr_2
				%	%	%	%	%	%	%	%	%	%	%	%	ppm	pp
AMT58	Y01	TS	SS	0.8	1.6	5.7	29.6	1.1	0.4	4.5	0.2	5.6	38.8	0.4	89	456	
AMT59	Y01	TS	SS	0.6	1.2	5.9	28.1	1.6	0.3	2.6	0.3	1.4	45.7	0.6	88	327	
AMT60	Y24	TS	SS, MS	0.8	0.7	3.8	22.1	2.0	0.4	2.4	0.2	0.1	58.5	0.8	92	209	
AMT61	Y24	TS	SS, MS	0.9	1.9	7.9	27.4	1.1	0.6	8.2	0.3	39.2	4.2	0.4	92	1160	
AMT62	Y28	TS	SC	0.7	0.3	4.0	19.9	2.5	0.3	2.6	0.2	0.1	55.0	0.9	86	185	
AMT63	Y28	TS	SC	0.8	0.7	3.8	21.0	1.7	0.4	3.0	0.2	0.1	56.2	0.9	89	201	
AMT64	Y29	TS	SC	0.7	1.0	3.9	18.7	2.4	0.4	2.9	0.2	0.1	58.1	0.9	89	167	
AMT65	Y29	TS	SC	0.6	0.4	2.9	16.3	3.3	0.2	1.9	0.1	0.1	63.7	1.3	91	145	
AMT73	Y36	TS	SS	0.6	0.4	3.1	15.2	3.2	0.1	1.5	0.1	4.3	59.1	1.1	89	440	
AMT74	Y39	TS	SC	0.9	0.8	5.7	22.6	1.6	0.4	3.0	0.2	1.4	50.7	0.6	88	286	
AMT66	Y41	TS	SC	2.6	bdl	11.3	33.9	0.5	0.7	3.0	0.5	0.1	35.1	0.7	88	411	
AMT67	Y41	TS	SC	1.5	2.6	12.6	36.8	0.3	0.9	3.0	0.7	0.1	32.5	0.6	91	472	
AMT68	Y52	TS	SS	0.9	2.0	7.6	26.5	1.0	0.2	2.1	0.4	0.2	46.7	0.5	88	247	
AMT69	Y52	TS	SS	0.5	0.7	7.1	23.9	1.2	0.2	5.4	0.4	0.1	47.1	0.6	87	323	
AMT70	Y53	TS	SC	0.8	1.2	8.2	27.0	1.2	0.3	1.7	0.5	0.3	45.7	0.6	87	306	
AMT71	Y55	TS	SC	0.6	1.0	6.0	23.5	1.3	0.3	4.0	0.2	0.1	50.0	0.7	88	256	
AMT72	Y55	TS	SC	0.9	0.4	4.1	21.5	1.6	0.3	2.4	0.2	0.1	53.8	0.8	86	259	

Table 3.42. Skouriotissa Vouppes *(TP007. AU14): chemical composition of slag samples. The 'Type' and 'Material' columns describe t*
= below detection limits. MS = Medium Slag. SC = Slag Cakes. SS = Small Slag. TS = Tap Slag

Sample	Layer	Type	Material	Na_2O	MgO	Al_2O_3	SiO_2	S	K_2O	CaO	TiO_2	MnO	FeO	Cu	Sum	V_2O_5	Cr_2
				%	%	%	%	%	%	%	%	%	%	%	%	ppm	pp
AMT47	Y01	TS	SS	0.6	0.9	3.2	16.9	2.3	0.2	3.6	0.1	15.1	45.1	1.1	89	1323	
AMT48	Y01	TS	SS	0.1	0.2	3.3	15.6	0.6	bdl	0.2	0.2	1.3	60.7	0.4	83	663	
AMT49	Y15	TS	MS	0.5	0.9	2.2	15.4	4.6	bdl	1.2	0.2	0.1	88.3	2.4	116	866	
AMT50	Y15	TS	MS	0.4	0.9	3.1	15.1	2.7	0.1	2.7	0.3	0.5	62.3	1.2	89	668	
AMT51	Y16	TS	SS	1.1	2.4	10.1	35.4	0.4	0.6	4.2	0.5	0.1	37.0	0.4	92	438	
AMT52	Y16	TS	SS	0.8	2.5	10.3	33.4	0.6	0.3	4.4	0.5	0.8	38.5	0.5	92	436	
AMT53	Y19	TS	MS	1.3	3.2	9.3	30.7	0.8	0.4	3.6	0.5	0.4	41.7	0.5	92	329	
AMT54	Y20	TS	SS, MS	0.7	2.7	14.1	39.0	0.2	1.3	2.1	0.5	0.3	31.7	0.8	93	388	
AMT55	Y20	TS	SS, MS	1.5	2.8	11.9	36.0	0.3	0.6	3.4	0.7	0.4	33.0	0.6	91	471	
AMT56	Y24	TS	SC	1.0	1.7	11.1	31.1	0.7	0.6	3.5	0.4	0.1	40.3	1.1	92	366	
AMT57	Y24	TS	SC	0.8	2.5	8.4	33.4	0.8	0.9	3.0	0.5	0.2	43.6	0.6	95	356	

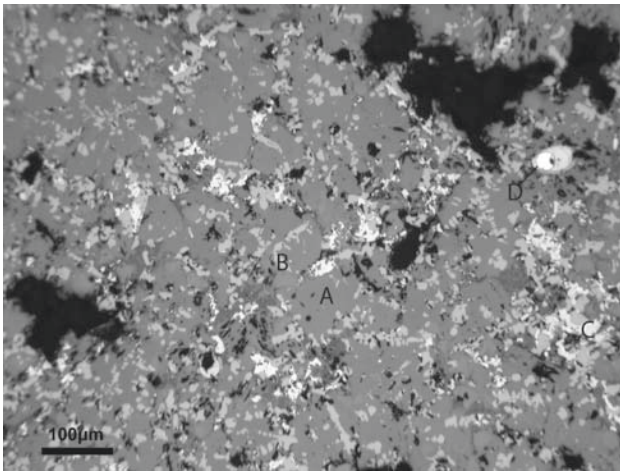


Fig. 3.30. Reflected light microphotograph of AMT50, showing fayalite (A, dark grey), magnetite (B, light grey), partially reacting ore (C, white/off-white), and one copper prill (D, circular, bright white on the right of the image) surrounded by blue copper sulphide (Myrto Georgakopoulou)

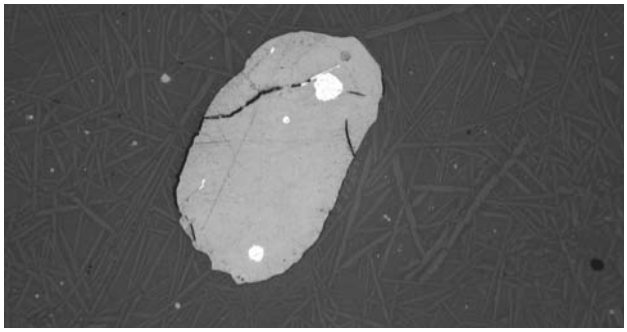


Fig. 3.31. Reflected light microphotograph of AMT55, showing elongated fayalite in glass matrix with several copper and matte prills. In the centre a large matte prill envelops smaller copper prills (bright white). (Myrto Georgakopoulou)

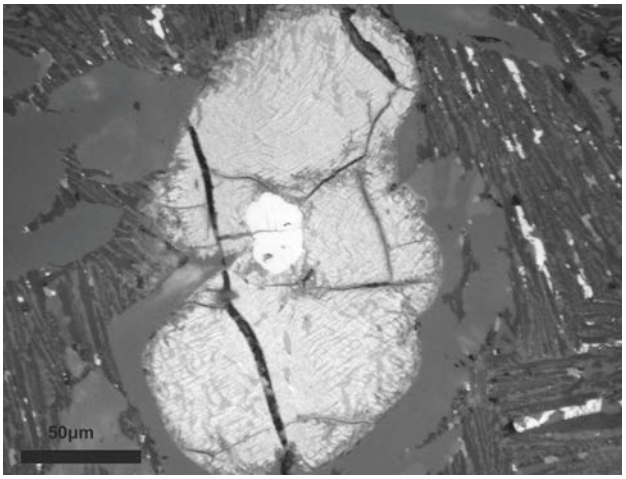


Fig. 3.32. Reflected light microphotograph of sample AMT1, showing large matte prill, enclosing smaller copper prill (bright white). The matte is composed of different sulphidic phases within the iron-copper-sulphur system, depicted by different shades of grey. (Myrto Georgakopoulou)

slags. Another sample (AMT6) was originally sampled as furnace slag, but was found upon analysis to be a weathered iron mineral mixed with quartz and minor amounts of copper. Only three samples from two layers were selected for analysis from the small section of AU04. Two were registered as tap and one as furnace. Five of the AU03 slags and two of the AU04 were further studied with the EDS-SEM.

Looking at the bulk composition analyses of the slags from TP006, it is immediately clear that, contrary to the TP007 sections, all the analysed samples show significant, although variable, manganese concentrations. More specifically, half of the slags from AU03 and one from AU04 had medium concentrations (MnO c. 4–6%), while the rest had high (MnO 15–40%). The barium contents are correspondingly increased. Zinc contents are high, but it is noteworthy that these decrease in the manganese-richer slags, reflecting the dilution of zinc originally present in the sulphidic ore as a result of the addition of the manganese flux.

In terms of microstructure, samples AMT1–4, 7, 9–10 from AU03 and AMT13–14 from AU04 are composed of elongated crystals of primarily iron-manganese silicates in a glass matrix. The ratio between the two elements reflects their relative contents in the bulk composition. Magnesium and to a lesser extent calcium are, as before, detected in these phases. Minor spinels were also identified, and again iron and manganese content is dependent on the overall composition. Matte prills, usually circular, are frequent and in some cases these contain enveloped copper metal prills or phases (Fig. 3.32). Iron oxide bands indicate different tapping episodes.

Sample AMT5 has a similar microstructure, but in addition iron/manganese sulphides are noted between the elongated silicate crystals. A barite inclusion was identified with EDS-SEM, suggesting that such inclusions may be responsible for the much higher barium contents (c. 2%) noted in the analysis of this sample. Returning to the bulk composition analyses of all the samples, it is noted that this particular sample had the highest sulphur content. Finally, AMT8, 11 and 12 are somewhat differentiated as, in addition to silicates, spinels and glass, free iron/manganese oxides are also present, in line with the slightly higher iron-manganese over silicon-aluminium ratios in the bulk composition. Their shape is rounded similarly to wüstite. Matte and copper metal prills were extremely rare in AMT8 and 11, while in AMT12 partially reacted sulphidic phases were observed.

TP172 Fourteen slags from eight layers were analysed from TP172, with four additionally submitted to EDS-SEM. An additional specimen (AMT20) was found upon analysis to be a siliceous rock with a weak secondary iron mineralization.

Table 3.43. Ayia Marina Mavrovouni *(TP006): chemical composition of slag samples. The 'Type' and 'Material' (Mat.) columns descri*
bdl = below detection limits. FC = Fe-Cu mineral. FS = Furnace Slag. LS = Large Slag. MS = Medium Slag. SC = Slag Cakes. SS = S

Sample	Layer	Section	Type	Mat.	Na_2O	MgO	Al_2O_3	SiO_2	S	K_2O	CaO	TiO_2	MnO	FeO	Cu	Sum	V_2O_5	Cr_2O_3
					%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm
AMT01	Y01	AU03	TS	LS	1.0	1.8	9.1	28.2	1.2	0.3	4.5	0.5	3.8	40.8	0.5	92	517	125
AMT02	Y01	AU03	TS	LS	0.9	1.8	9.3	28.5	1.2	0.3	4.5	0.5	4.2	41.0	0.5	93	519	168
AMT03	Y03	AU03	TS	LS	0.7	2.0	7.9	25.6	1.0	0.3	4.1	0.5	3.9	40.9	0.5	87	543	125
AMT04	Y05	AU03	TS	LS	0.8	1.4	7.7	25.0	1.1	0.3	4.2	0.4	3.9	42.1	0.6	87	553	129
AMT05	Y06	AU03	TS	SS	0.7	1.5	5.0	19.6	1.6	0.3	6.1	0.4	32.7	11.9	0.6	80	1028	310
AMT07	Y09	AU03	TS	MS	0.8	2.2	6.6	25.4	1.1	0.3	3.5	0.4	5.6	39.7	0.6	86	468	121
AMT08	Y09	AU03	TS	MS	0.4	0.8	2.2	21.8	1.0	bdl	1.4	0.2	30.8	21.8	1.4	82	855	250
AMT09	Y10	AU03	FS	SS	0.5	1.5	4.6	24.2	1.0	0.3	2.2	0.3	39.6	11.9	0.7	87	1125	291
AMT10	Y10	AU03	FS	SS	0.7	1.8	6.5	25.5	1.2	0.3	4.5	0.5	33.3	12.2	0.5	87	1016	250
AMT11	Y14	AU03	TS	SS	0.4	0.7	2.5	24.0	1.1	0.1	1.4	0.2	17.7	33.4	1.0	83	844	204
AMT06	Y07	AU03	FC	MS	0.2	2.6	9.2	23.0	0.1	0.1	0.2	0.4	0.6	48.4	1.6	86	298	63
AMT12	Y01	AU04	TS	SS	0.7	0.7	3.2	22.1	2.1	0.5	2.4	0.3	15.1	40.7	0.8	89	656	248
AMT13	Y01	AU04	TS	SS	0.8	1.6	6.7	25.1	1.3	0.3	4.3	0.5	6.1	40.0	0.5	87	669	104
AMT14	Y03	AU04	FS	LS	0.8	2.6	8.2	27.8	1.3	0.3	4.0	0.6	18.2	28.1	0.6	92	724	186

Table 3.44. Skouriotissa Kitromilia *(TP172): chemical composition of slag samples. The 'Type' and 'Material' columns describe the majo*
detection limits. LS = Large Slag. MS = Medium Slag. RF = Rock with Fe mineral. SC = Slag Cakes. SS = Small Slag. TS = Tap Slag

Sample	Layer	Type	Material	Na_2O	MgO	Al_2O_3	SiO_2	S	K_2O	CaO	TiO_2	MnO	FeO	Cu	Sum	V_2O_5	Cr_2
				%	%	%	%	%	%	%	%	%	%	%	%	ppm	pp
AMT15	Y08	TS	SS, MS	0.4	1.2	3.3	18.2	3.4	0.3	5.5	0.2	27.1	21.5	1.0	82.1	1717	2
AMT16	Y08	TS	SS, MS	0.4	0.9	5.7	19.8	1.7	0.3	5.3	0.3	12.6	33.3	0.9	81.2	511	1
AMT17	Y11	TS	LS	0.6	1.6	10.0	29.8	1.2	0.2	6.2	0.5	1.1	40.8	0.4	92.4	443	
AMT18	Y11	TS	LS	0.5	1.4	7.4	31.8	1.4	0.3	4.8	0.4	2.1	41.7	0.4	92.0	434	
AMT19	Y13	TS	SS	0.5	1.6	6.3	32.2	1.1	0.2	4.3	0.5	0.8	43.8	0.5	91.8	424	
AMT21	Y15	TS	LS	0.6	1.7	8.0	24.8	1.2	0.3	5.8	0.4	4.2	39.3	0.4	86.7	549	1
AMT22	Y15	TS	LS	0.5	1.7	8.4	25.3	1.1	0.3	6.0	0.4	4.4	37.7	0.4	86.2	556	1
AMT23	Y24	TS	MS	0.3	1.7	7.8	29.2	1.0	0.4	6.0	0.4	5.6	37.7	0.4	90.4	556	1
AMT24	Y24	TS	MS	0.9	1.3	3.4	18.1	5.2	0.5	2.4	0.1	38.5	18.9	3.0	92.2	2481	3
AMT25	Y29	TS	SS	0.5	1.5	7.9	28.2	1.2	0.3	5.9	0.4	3.9	39.8	0.5	90.1	498	1
AMT26	Y29	TS	SS	0.7	1.3	3.9	21.0	2.7	0.5	3.9	0.2	28.7	20.7	0.9	84.5	1356	2
AMT27	Y30	TS	SC	0.6	1.5	5.7	29.6	2.1	0.7	3.5	0.4	3.2	39.7	0.9	87.8	402	1
AMT28	Y31	TS	SS, MS	0.5	1.7	9.4	27.5	1.2	0.3	6.5	0.4	2.6	40.5	0.4	91.0	483	1
AMT29	Y31	TS	SS, MS	0.6	0.9	3.8	21.5	2.4	0.4	4.2	0.2	29.2	20.8	0.8	84.8	1585	2
AMT20	Y13	RF	SS	0.2	3.8	9.7	60.2	0.1	0.4	0.3	0.3	1.8	10.4	0.1	87.4	229	2

Table 3.45. Selection of individual slag phases analyses on the EDS-SEM (weight %). Note that sulphides should be read as elements

Sample	Phase	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	SO_3	K_2O	CaO	TiO_2	V_2O_5	Cr_2O_3	MnO	FeO	CuO	ZnO	SrO	BaO	Sum
AMT30A	Silicate		1.7		30.6				1.1					66.8					100
AMT30D	Spinel		1.6	48.6						0.6	0.2			48.9					100
TP007.AU01																			
AMT31B	Silicate		2.4		32.5				1.5				6.0	62.6					105
AMT31L	Spinel		2.8	49.5	2.1					0.5	0.4	0.3	2.0	47.2					105
AMT31E	Glass	5.4		18.6	40.3	0.4	2.0	4.0	10.6	0.2			1.5	25.2				0.8	109
AMT32B	Silicate		3.2		32.3				1.0				1.4	65.5					103
AMT32C	Glass	3.8		15.4	40.1	0.5	2.2	2.6	11.5	0.2			0.4	31.8					108
AMT33L	Silicate		2.1		31.6				0.5					68.6					103
AMT33D	Spinel		1.3	46.0						0.4				52.9					101
AMT33M	Glass	2.3	0.4	22.0	46.1		2.6	5.4	1.9					16.2					97
AMT42B	Silicate		4.1		32.1				1.1				0.2	64.6					102
AMT42I	Spinel			39.3	1.8				0.1	1.2				58.3		0.4			101
AMT42H	Glass	6.5		16.4	42.2		3.2	3.8	7.7					24.4	0.4				104
AMT46J	Silicate		2.6	1.4	29.5		0.7		1.8				9.3	54.6					100
AMT46Q	Glass	4.0		16.0	36.2		2.1	3.5	10.9				2.5	26.3				1.4	103
AMT46T	Spinel			36.7	0.9					1.0			2.8	55.0					97
TP007.AU05																			
AMT60B	Silicate		2.4		31.6				0.7					67.3					102
AMT60C	Spinel			30.7	0.7					3.2				64.2		0.7			100
AMT60D	Glass	3.9		17.3	37.6	0.6	1.7	3.8	10.4	0.7				28.8		0.3			105
AMT60L	Glass	2.6		12.2	33.9	0.4	1.9	2.3	12.2	0.9				38.3					105
AMT61F	Silicate		4.4		32.3				3.3				55.7	4.9					101
AMT61G	Glass	2.4	0.4	19.9	37.0		5.4	1.1	11.0	0.7			26.2	4.0				1.4	109
TP007.AU14																			
AMT47D	Silicate		0.4		30.9				6.0				22.8	40.3					100
AMT47K	Glass	3.6		15.1	34.9	1.2	0.8	4.0	6.6				6.4	19.4				8.2	100
AMT47E	Spinel			43.9	1.0	0.3				1.0	0.4		8.6	44.9		0.5			101
AMT48C	Silicate		1.2		31.8		0.4		1.0				4.6	57.3					96
AMT51F	Silicate		8.4		32.7				0.4					59.7					101
AMT55F	Spinel	1.0	3.1	52.0	1.1	0.2			0.1	0.7	1.0		0.3	41.0					101
AMT55O	Glass	2.4		21.5	48.1		0.6	1.1	5.3	1.3			0.3	21.1					101
TP006.AU03																			
AMT4A	Silicate		6.0		31.6				0.8				6.6	54.6					100
AMT4E	Glass	2.3		17.2	45.3	0.5	1.9	1.2	12.4	0.5			2.7	20.1		0.3			104
AMT4H	Spinel		1.4	48.4		0.4				1.4	0.7		2.6	44.9		1.3			101
AMT5T	Silicate		3.8	1.2	32.1		0.8		7.9				45.7	9.8					101
AMT5B	Glass	0.8	0.5	8.7	56.3		2.4	0.3	1.9				11.7	14.1	1.6			3.4	102
AMT5P	Iron-manganese			0.4	0.7		36.8		0.5				37.5	24.7	0.2				101
AMT5I	Barite inclusion?	0.8					16.7		0.1				0.4		0.2		10.8	74.1	103
AMT11I	Silicate		4.6		31.3				1.5				44.4	17.7					100
AMT11B	Iron-manganese			0.8	1.7					0.2			32.8	63.4					99
AMT11G	Iron-manganese			0.4	0.3					0.2			30.8	66.3					98
AMT11D	Glass		0.2		74.4		1.5						1.5	19.7	1.0				98
AMT11C	Spinel			48.8		0.4				0.9	0.8		20.7	30.3					102
TP006.AU04																			
AMT13A	Silicate		5.6		30.9				0.8				9.7	51.6					99
AMT13G	Glass	1.9		16.0	44.7		5.1	1.2	13.0	0.5			2.8	19.8		0.4		0.8	106
AMT13B	Spinel	1.4		47.5		0.6			0.8	1.0	1.0		3.2	39.8		1.4			97

Sample	Phase	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	SO_3	K_2O	CaO	TiO_2	V_2O_5	Cr_2O_3	MnO	FeO	CuO	ZnO	SrO	BaO	Sum
TP172.AU01																			
AMT23K	Silicate		5.0		32.1				0.8				0.6	62.6					101
AMT23B	Glass	0.9		16.5	44.0		2.3	0.6	11.5	0.7			0.3	27.4					104
AMT23H	Glass	1.2		17.0	41.8		1.8	0.9	12.0	0.8			0.3	29.1					105
AMT24M	Silicate		8.2		32.2				3.0				47.2	7.7					98
AMT24K	Glass	4.5		18.9	39.0		3.9	4.9	0.9				7.1	4.3	0.9			4.5	89
AMT24C	Mixed sulphide						38.1						26.9	15.0	26.7				107

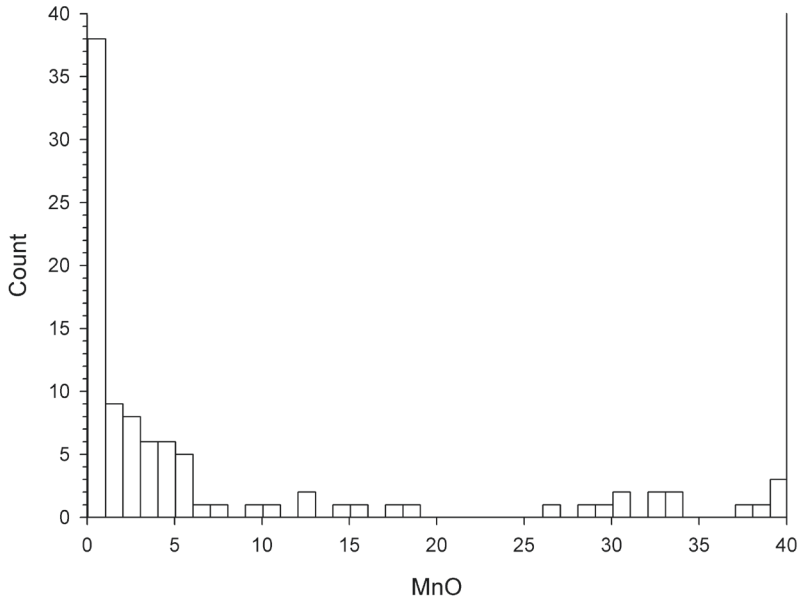


Fig. 3.33. Manganese content in slags of the Roman period analysed by TAESP and SCSP. MnO concentrations are given in weight %

Slags from TP172 again show variable manganese contents ranging between 0.8–38.5% with correspondingly variable barium (Table 3.44). It is notable that zinc contents are overall lower than in the other sections, indicating smelting of ores less rich in sphalerite. Most of the samples have iron plus manganese versus silicon plus aluminium ratios between 1 and 2, with a few higher between 2 and 3, an observation again reflected in their microstructure, on the basis of which they are divided, as before, into two broad groups.

Samples AMT16–19, 21–23, 25–26 and 28 are composed of elongated silicates in glass. They range in composition between that of fayalite and tephroite depending on the iron to manganese prevalence in the bulk composition. Circular matte prills are frequent, in many cases enclosing copper metal. Iron oxide bands separate between tapping episodes, but otherwise free iron oxides are rare or absent. In samples AMT15, 24, 27, 29 silicates, as above, are again the prevalent phases, but here irregularly shaped sulphides were identified instead of rounded matte, frequently associated with spinels or iron oxides, enriched in manganese in the manganese-rich samples. Again the shape of these phases suggests that this may be partially reacted ore. These phases are far more frequent in sample AMT24, which showed the highest sulphur contents in its bulk composition, as well as the highest iron and manganese versus silicon ratio among all samples.

Discussion of the Analytical Data

The systematic sampling and analyses of a large number of slag samples from different sections in the Skouriotissa *Vouppes* and Ayia Marina *Mavrovouni* areas have revealed interesting patterns that highlight the variability noted both between and within the slag heaps. As discussed below, this variability is indicative of different practices with respect to ore selection, use of fluxes and spatial separation of activities. Clear stratigraphic patterns were not revealed, but one reason may be the small number of samples analysed relative to the large volume of these heaps. The contrast between the top and bottom layers of section TP007.AU14 suggests that such differences may exist, at least in some cases.

The first observation is that manganese contents in the Mavrovouni sections and in TP172 are consistently significant, medium to high, while at Skouriotissa they range substantially and are overall much lower. The beneficial properties of fluxing with manganese, which in Cyprus was probably done by adding umber, have been discussed extensively in the past (e.g. Bachmann 1982a) and are associated with copper smelting in the Late Roman period (Kassianidou 2003b). Even during this period, however, the practice does not seem to have been consistent (Fig. 3.33).

The work presented here has highlighted spatial differences between Skouriotissa and Mavrovouni, while it is clear that the former shows considerable heterogeneity. At least on the basis of the present analysis, the distribution of manganese-rich slags does not follow the observed stratigraphy of the section. It is, for example, notable that in TP007.AU05, Layer Y24, one of the slags had 0.1% manganese and the other 39%. Increased barium contents are noted in the manganese-rich slags, the contents of the two elements showing remarkable correlation.

Another interesting element is zinc. It has been proposed that the increased contents of zinc seen in some of the Cypriot slags are due to the exploitation of sulphidic deposits richer in sphalerite (Kassianidou 2003b, 226). The observed differences between sections therefore signify exploitation of different ore occurrences. The presence of zinc in the smelting charge is indirectly shown by the comments of Galen, the ancient doctor, who in AD 166 visited Cyprus in order to collect minerals and plants to produce medicaments. Galen visited the mines of Soloi, which are either those of Skouriotissa or nearby Mavrovouni (not Ayia Marina *Mavrovouni*, the slag heap we recorded). According to Galen (*De Temp. Fac. Simp. Med.* 9):

> *Kadmeia* is produced during the production of copper in the kilns, where all the soil from which copper is produced during its firing sends upwards a kind of smoke or soot as one may call it. But if you wish not to call it soil but stone from which after disintegrating one part becomes copper, another part *kadmeia*, another *diphryges*, this does not make any difference. But during the firing of *khalkopyritis*, *kadmeia* is produced. But *kadmeia* is found in Cyprus even without firing and one may be right to call this *kadmeia* stone. At Soloi, during the period I stayed in Cyprus, there were small quantities of that kind of *kadmeia* which is produced by firing (Wallace and Orphanides 1990, 224).

Kadmeia is generally identified as a zinc mineral, perhaps zinc oxide, which occurred naturally or was produced (Agricola 1950, notes on pp. 112–13, 410). According to Galen, *kadmeia* was a by-product of the copper smelting process in the mines of Soloi. This material was much appreciated in antiquity for its medicinal properties. Indeed, Galen goes on to say: 'When I collected such stones…and I brought them to Asia and Italy my friends thought they had received a great present, because this was better than any other *kadmeia'* (Wallace and Orphanides 1990, 224).

Lastly, a broad pattern that is emerging is that the majority of slag samples analysed here fall into two main categories. The first have a high iron (and in some cases manganese) against silicon ratio, with free iron (manganese) oxides. In these slag samples large sulphidic phases are observed that appear to be partially reacted ore. The second group of slag usually has a lower iron (manganese) to silicon ratio, free oxides are absent, and smaller matte prills are seen, frequently enveloping copper prills. The two broad 'types' of slag are probably the result of different stages within the sequence of production of copper from the sulphidic ores. The first would correspond to primary smelting, the so-called 'matting stage' (Bachmann 1982b, 22), producing primarily matte, and the latter to secondary smelting, preceded by roasting of matte resulting in black copper.

Both types of slag were identified in TP007.AU05 and AU14, and in TP172.AU01. In both TP006 sections the samples examined were primarily of the second type, while in TP007.AU01 they were of the first. The picture suggests that during the Late Roman period the entire sequence of production from ore to copper metal was undertaken in the vicinity of the present slag heaps, with therefore limited spatial division of activities, at least in the broader Skouriotissa area. It is presently unclear whether the two TP006 sections and TP007.AU01 only include slag resulting from one of the two processes, given the small overall number of samples compared to the overall large volume of the heaps.

Scale and Organization of Copper Production in the Roman Period

Our work on the slag heaps has shown once more that the peak of the copper industry in this area, as in the area studied by SCSP, was the Roman period; more specifically the Late Roman period, namely after the 4th century AD. This point should be stressed because many have argued in the past that copper mining in Cyprus stopped in the 4th century AD (Bear 1963, 2; Bruce *et al.* 1937, 640; Davies 1928–30, 84; Raber 1984, 144). They base their argument on the absence of documentary references to these activities after this date. One of the latest references is found in Eusebius's *Palestinian Martyrs* (XIII.i.), where he mentions that a mining official was in charge of Cyprus, Lebanon and Palestine. Eusebius states that in AD 310, Christians from the mines in Palestine were brought to Cyprus, and Hill (1940, 238) argues that perhaps they were brought to work in the mines of the island. Slightly later, St Spyridon, bishop of Tremithus, was condemned to work in the mines, presumably of Cyprus (Hill 1940, 248).

Our work has shown, not only that the mines were not abandoned, but also that there was a real boom in the copper industry in the period between the 4th and 7th centuries AD. Indeed during this period production was of truly industrial scale. In a recently published monograph, Metcalf (2009, 363–66) notes that, in the period from the

5th to the 7th centuries AD, monumental edifices, such as early Christian basilicas, were elaborately adorned with mosaic pavements and monolithic columns of marble from Proconnesus; other archaeological evidence also shows that the island was prospering. We would suggest that the economic basis for this prosperity must have been the copper industry.

Considering the size of the slag heaps (the one at Skouriotissa has been estimated to consist of 2 million tons of slag), one can envision an extensive workforce that would have been employed in all the different stages of the operation, from mining to smelting. For example, in the mines of Carthago Nova in Iberia at the time of Polybius, 40,000 miners are said to have been employed, a number which according to Domergue (1990, 335) cannot be far from reality. What is surprising is that the written sources are silent about this important sector of the local economy (Metcalf 2009, 238).

In order to be exported, the copper produced in the smelting workshops, after a number of refining stages, would have been cast into ingots of standard shape and weight. Such copper ingots of the Roman period are known from the Western Mediterranean, where they have been recovered mostly from shipwrecks (Domergue 1990, 283–87; Klein *et al.* 2007, 205–209). Unfortunately not a single such ingot bearing an inscription indicating one of the Cypriot mines has yet been found. Provenance studies based on lead isotope analysis have not unexpectedly shown that the majority of the analysed copper ingots from the Western Mediterranean have an Iberian provenance (Klein *et al.* 2007, 214).

The issuing of coins made of copper alloys from the 3rd century BC onwards is probably what increased the demand for copper in general, and Cypriot copper in particular, especially in the Imperial period (Potter 2000, 847). Recent lead isotope analysis of copper based coins from the official mint in Rome have shown that the raw material largely came from the mining regions of south-east Spain and Sardinia (Klein *et al.* 2004, 479). Some copper from the mine of Limni in Cyprus, however, seems to have been used for the issuing of copper coins during the reign of Tiberius (Klein *et al.* 2004, 477). This, however, does not contradict the argument for the importance of Cypriot copper for the Roman Empire. The mint of Rome is one of hundreds of official mints of the Roman Empire. According to Parks (2004, 37), there were over 140 official mints in the eastern Mediterranean during the reign of Augustus. Unfortunately, there are no data available regarding the provenance of coins made of copper alloys from the eastern Mediterranean.

Lead isotope analysis data show the widespread use of western copper mines for the official mints of the capital, while the data recorded by both TAESP and SCSP show an intensification of copper production in the Late Roman period. We would suggest that the intensification of copper production on the island between the 4th and 7th centuries may be related to the split of the Roman Empire and to the eastern Empire's need to have access to large quantities of metal, having severed its ties with the copper-rich Iberian peninsula.

The intensity of the copper production in the Late Roman period must have been detrimental to the Cypriot environment. The huge amounts of fuel demanded for the smelters may eventually have led to the destruction of the forest and, perhaps, to the end of the copper production. Mattingly (2010, 167–202), has argued convincingly for similar widespread ecological disaster in the mining region of Feinan in Jordan. Perhaps this is what led, in time, to the demise of the Cypriot copper industry. We have detected no metallurgical sites that date after the 7th century AD.

3.10 Charcoal Analysis

Maria Ntinou

This report presents an analysis of the charcoal samples recovered by TAESP from various sections of slag heaps at Skouriotissa (TP007) and Ayia Marina *Mavrovouni* (TP006). For the charcoal data on these two slag heaps, see Volume 2, Chapters 3.12 and 4.6 respectively, and for a map see Plate 3.1. Archaeological evidence and radiocarbon dating of selected charcoal samples places the functioning of these smelting activities in the Late Roman period, from the 4th–7th centuries AD. The results of the charcoal study provide information on the fuel used in the smelting process in these particular workshops, and are discussed in relation to relevant studies carried out at metallurgical sites identified by the Sydney Cyprus Survey Project (SCSP) in the adjacent areas of Mitsero, Agrokipia and Politiko (Ntinou 2003). TAESP's extensive archaeological research provides the cultural and chronological framework for the integration of charcoal results in the broader discussion on archaeometallurgy in Cyprus.

The Vegetation of the Broader Area

The Survey Area is located at the transitional zone between the Mesaoria plain to the north and the pillow lavas at the foothills of the Troodos Mountains to the south (see also Chapter 4.2). This area lies within the thermomediterranean bioclimatic type, and the ombroclimatic conditions can be described as semi-arid mild in transition to dry mild. Therefore, the main climatic characteristics of the area are low rainfall (mean annual <400mm or 400–600 mm), a mean lowest temperature of the coldest month between 3 and 6º C, and dry, hot summers (Barber i Valles 1995; Pantelas 1996; Pantelas and Barber i Valles 1995).

The natural vegetation of the area has been very much altered by cultivation and other activities. The potential vegetation of the Mesaoria plain has been controversial since antiquity, and all evidence of former cover has been thoroughly removed by cultivation (Christodoulou 1959; Thirgood 1987). Zohary (1973) attributes the

plant communities of the plain to the Ziziphetum loti cyprium association, where *Z. lotus* is very common in batha formations together with *Thymus capitatus*, *Sarcopoterium spinosum*, *Asparagus*, *Onosma*, *Stipa*, etc. Batha is understood here as a formation of dwarf scrub c. 50 cm high of *Sarcopoterium spinosum*, *Thymus capitatus*, *Fumana* sp., *Teucrium polium* and *Galium suberosum* (Jones *et al.* 1958). A few small trees of *Crataegus azarolus* have survived cultivation and can be found in the fields (Pantelas 1996).

To the south of the plain, in the foothills of the Troodos range, the potential vegetation is ascribed to the Querco calliprini-Pinetum brutiae association (Barber i Valles 1995). *Pinus brutia*, *Quercus coccifera* ssp. *calliprinos*, *Olea europaea*, *Pistacia lentiscus*, *P. terebinthus*, *P. atlantica*, *Crataegus azarolus*, *Arbutus andrachne*, *Cistus* sp., *Calycotome villosa*, *Genista* sp., *Salvia fruticosa*, etc. grow on igneous rock and pillow lavas. *Pinus brutia* is the characteristic plant of these formations and constitutes dense woodland, with the other species as undergrowth.

Method

Wood charcoal is a very durable material and one of the most abundant remains in archaeological sites. In such contexts wood charcoal is the by-product of domestic or industrial activities, the remains of the fuel that people in the past used for different purposes. When these remains are collected from archaeological deposits they can be studied, providing information on the vegetation that existed in an area, the range of plants used for different purposes and the way in which long-term and/or intensive human activities transformed the local plant environments (Chabal *et al.* 1999).

Charcoal analysis is based on the identification of the woody plant species that were originally burned and reduced to charcoal. The xylem of all woody plants shows characteristic anatomical structures that vary between families, genera or species, and can be observed microscopically in three sections: transverse; longitudinal tangential; and longitudinal radial (Fahn 1990). The distribution and arrangement of the basic elements of wood structure are preserved when the wood is charred, and potentially every charcoal fragment can reveal the burnt plant. Wood charcoal fragments are broken in the three anatomical sections, which are observed under an incident light microscope. A reference collection of modern charred wood and wood anatomy atlases is used for comparison to aid in the identification of plant taxa. The presence and frequency of different plant taxa in consecutive habitation phases at a site, or chronological periods in a broader area, can provide important information about the vegetation and its management in the past (Chabal *et al.* 1999).

TAESP recorded several areas of metallurgical activity dated to the Late Roman period (Chapter 3.9). One of the aims of the archaeometallurgical part of project was the collection of remains that could provide information on the ancient vegetation of the area and the use of fuel in mining activities. Several sections of the Skouriotissa (TP007 and TP172) and Ayia Marina *Mavrovouni* (TP006) slag heaps were sampled, and 39 charcoal samples were recovered. The majority contained few charcoal fragments but there were also some samples with abundant material.

The samples were analyzed at the Laboratory of the Department of Prehistory, University of Valencia, Spain. For the identification of the plant taxa we used a Nikon Optiphot-100 dark field-bright field metallurgical microscope with lenses of x100 to x1000 magnifications, the laboratory's reference collection of modern burnt wood, and Schweingruber's (1990) *European Wood Anatomy* atlas. Photography of some of the identified taxa was carried out at the Department of Scanning Electron Microscopy of the University of Valencia. The frequency of the identified taxa is presented as percentages of fragment counts.

The Plant List

We analyzed a total of 204 charcoal fragments from the stratified sections of the Skouriotissa (TP007, TP172) and Ayia Marina *Mavrovouni* slag heaps (TP006). The identified taxa are: *Acer* sp. (maple), *Alnus orientalis* (oriental alder) (Fig. 3.34), Coniferae (conifers), cf. Labiatae (the mint family), *Olea europaea* (olive) (Fig. 3.34), *Pinus brutia* (Cyprus pine) (Fig. 3.34), *Pinus nigra*, *Pinus* sp., *Pistacia lentiscus* (lentisc), *Pistacia terebinthus/P. atlantica* (turpentine/Atlas pistachio), *Platanus orientalis* (plane tree), *Quercus* sp. evergreen type (evergreen oak), *Quercus* sp.

The taxon present in all locations is *Pinus brutia*, the Cyprus or Cretan pine. In the anatomy atlases the taxon is considered anatomically identical to *P. halepensis* (Schweingruber 1990). However, we mention here only the first of these species, since the comparison of archaeological charcoal with modern *Pinus brutia* specimens from the reference collection revealed very similar characteristics, especially in the radial section. Moreover, *Pinus brutia* is referred to as the aboriginal species in Cyprus (Meikle 1977) and *P. halepensis* is regarded as an introduction. We therefore consider the pine remains of the wood charcoal samples as pertaining to the Cyprus pine.

In one case *Pinus nigra* was identified in the samples. This is the mountain pine of Cyprus that grows on the Troodos range and succeeds *Pinus brutia* at higher altitudes. The taxon *Pinus* sp. was attributed to all the fragments that did not clearly present anatomical characteristics which could determine the species.

The taxon *Quercus* sp. evergreen type includes various species with similar anatomy that grow spontaneously on the island. *Quercus coccifera*, *Quercus coccifera* sp. *calliprinos* and *Quercus alnifolia* could equally be represented in our samples. When the anatomical characteristics in the transverse sections did not allow for the identification of the evergreen type of *Quercus* sp., the taxon was limited to the genus *Quercus* sp.

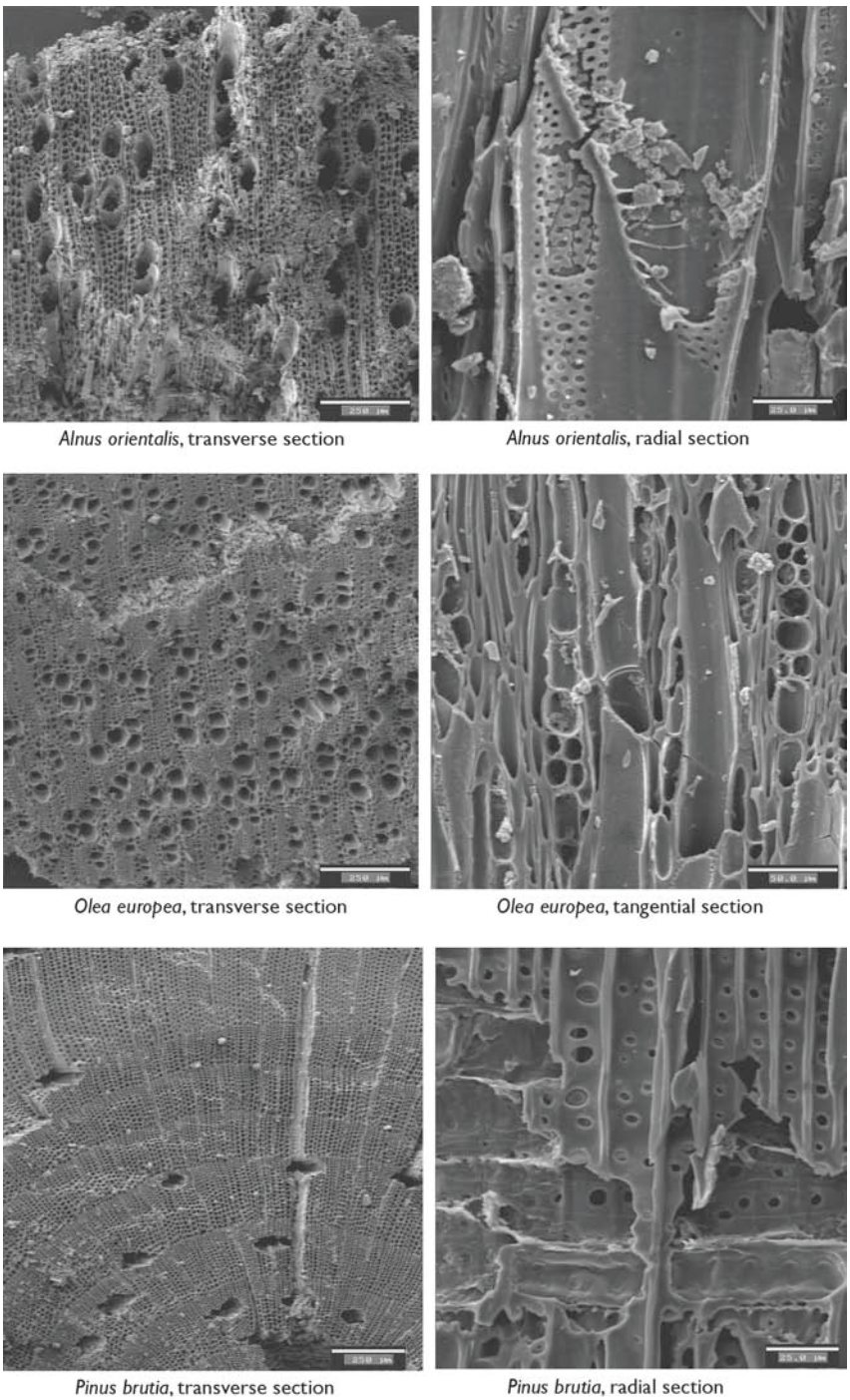


Fig. 3.34. Selected plant taxa identified in wood charcoal samples: Alnus orientalis; Olea europaea; Pinus brutia (Maria Ntinou)

The taxon *Pistacia terebinthus*/*P. atlantica* includes two different species, which both grow spontaneously in Cyprus and have very similar anatomy (Schweingruber 1990), making a more precise attribution to either of the two species difficult.

As far as *Olea europaea* is concerned, it is difficult to attribute the charcoal to the wild or the cultivated variety. It could either correspond to the pruning of olive trees grown in orchards or to wild trees forming part of the natural vegetation. According to Meikle (1985) there is no final conclusion as to whether the olive tree is an ancient and indigenous component of maquis in Cyprus. There is, however, charcoal (Thiébault 2003) and archaeobotanical (Hansen 1989) evidence from the earliest levels of the sites of Shillourokambos and Khirokitia that testifies to the presence and importance of the species in the plant formations of the island early in the Holocene, already in the 9th millennium cal BC.

Table 3.46. Slag heaps at Skouriotissa (TP007; TP172) and Ayia Marina Mavrovouni *(TP006): distribution and frequency of identified taxa from charcoal analysis*

Taxa	**Skouriotissa**			**Mavrovouni**		**Total**	
	TP007	*TP172*	*Both*	*TP006*			
	No.	*No.*	*%*	*No.*	*%*	*No.*	*%*
Acer sp.	1		1.3%	2	1.6%	3	1.5%
Alnus orientalis	4		5.1%	1		5	2.5%
Coniferae	1		1.3%			1	0.5%
cf. Labiatae	1		1.3%			1	0.5%
Olea europaea	1		1.3%	1	0%	2	1.0%
Pinus brutia	54	3	72.5%	109	87.0%	166	81.4%
Pinus nigra	1		1.7%			1	0.5%
Pinus sp.	2	1	3.0%	2	1.6%	5	2.5%
Pistacia lentiscus				3	2.4%	3	1.5%
Pistacia terebinthus/P. atlantica	1		1.7%			1	0.5%
Platanus orientalis	2		2.3%	1	0.8%	3	1.5%
Quercus sp. evergreen type				6	4.8%	6	2.9%
Quercus sp.	1		1.7%			1	0.5%
Not identifiable	1		1.7%			1	0.5%
Bark	5		6.3%			5	2.5%
TOTAL	**75**	**4**	**100%**	**125**	**100%**	**204**	**100%**

Fuel and Vegetation

The samples were recovered from successive layers of the stratigraphic sections at three slag heaps (TP007 and TP172 at Skouriotissa and TP006 at Ayia Marina *Mavrovouni*) (Table 3.46; Fig. 3.35). With few exceptions, they include a small number of charcoal fragments, and so quantification of the data per layer would be meaningless. It is, however, interesting to compare, as a whole, the different locations studied, and so we have created two broader assemblages, one for the Skouriotissa slag heaps, and another for the Ayia Marina *Mavrovouni* slag heap. The Skouriotissa assemblage includes both TP007 and TP172 as they are within the same mining area. The absolute and relative frequency of the identified taxa in the assemblages is shown in Table 3.46.

The most characteristic feature in both slag heaps is the predominance of the Cyprus pine, while all the other plant taxa are hardly represented. Pine timber would be the fuel mostly used in the smelting process, both in the case of the industrial production workshop of Skouriotissa and at the smaller workshop of Ayia Marina *Mavrovouni*. Other smaller trees and bushes, like maple, olive, oak, turpentine or lentisc, that usually form part of the pine woodland undergrowth are present in both assemblages (Fig. 3.35), but in very small numbers.

Given the almost exclusive use of Cyprus pine wood charcoal and the secondary role of other smaller trees, we should then consider whether that was a deliberate selection based on the properties of the pine wood, or was imposed by the abundance of those trees in the environment. Research on the flammability and calorific production (in kcal or joules/kg of burnt wood) of plant species shows that the composition, constitution and density of the wood vary between species and affect their combustion properties; but these can easily change depending on the humidity content of the wood, the size, the form and the state of the timber (Chabal 1988, 2001). This means that species with variable composition/constitution or density can be adapted to the needs of the user. A single species can serve many different purposes, and it is possible to use many kinds of different woody species for the same type of activity by modifying the humidity content of the wood or the calibre of the pieces to be used. By considering these, we believe that the Cyprus pine wood was not deliberately selected for specific combustion properties, since the wood of various other species could be equally used. Pine wood was probably used the most because it was dominant in the vegetation of the area, thus being easily accessible and providing abundant fuel for the smelting purposes.

Theophrastus (1990), when describing the type of wood required for charcoal heaps, points out that the billets should be smooth and straight in order to be laid as close as possible for the smouldering process (V.9.4). Branches and logs of pines growing in densely wooded areas would provide adequate timber for large numbers of charcoal heaps. The use of other broadleaved species

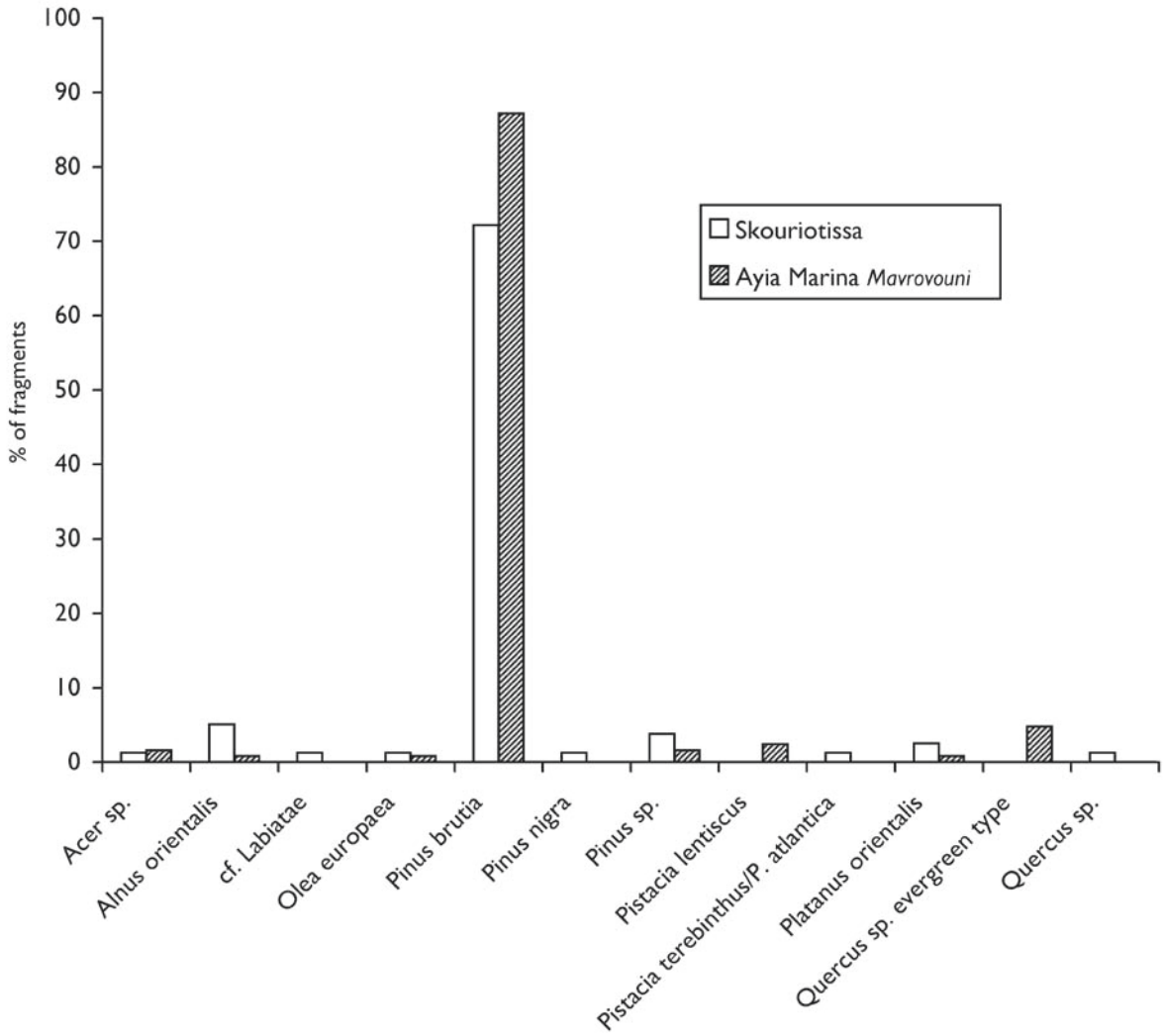


Fig. 3.35. Charcoal assemblages of Skouriotissa and Ayia Marina Mavrovouni *slag heaps during the Late Roman period: comparison of the relative frequency of the taxa identified in each assemblage*

was limited, certainly not because they could not provide good quality fuel, but because coppicing or felling smaller trees and bushes would be less effective than the big pine trees. Therefore, we may postulate that pine trees were intensively and extensively managed, or felled, to create abundant firewood stock for charcoal production for the metallurgical furnaces, while the wood of smaller shrubs and bushes was accidentally included with the bulk of pine timber in the charcoal kilns.

If deliberate selection is not the reason behind the abundance of the Cyprus pine, and given the similarities of the assemblages and the analogy with descriptions of the potential vegetation of the Troodos foothills (see above for the vegetation of the broader area), we believe that the total frequencies of the taxa (Table 9, Fig. 3.35) provide a coherent picture of the vegetation of the broader area for the Late Roman period (Fig. 3.36). The identified taxa represent different environments, namely pine woodland, riparian vegetation, and, given the presence of *Pinus nigra,* probably some higher altitude environments (Fig. 3.36). The Cyprus pine is the dominant taxon in all the samples and its presence and abundance correspond to the role of this tree in the plant formations of the Querco calliprini-Pinetum brutiae association of the Troodos area.

The charcoal results indicate the existence of pine woodland in the Troodos piedmonts that was intensively exploited for the metallurgical activities taking place in the same area. These forests would include other species in the understorey such as evergreen oaks, lentisc, maple, olive, members of the mint family, etc. The rare presence of these other species in the smelting sites is probably due to the preferential use of the most abundant species in the formations, Cyprus pine, which could provide easily accessible and abundant fuel. The presence of the oriental alder and the oriental plane indicate the existence of water courses and riverine environments near the metallurgical activity areas. The wood of those species was sporadically used, but its presence in the samples is in line with what we know about the demand for water in metallurgy. Therefore, the systematic exploitation of the pine woodland and the

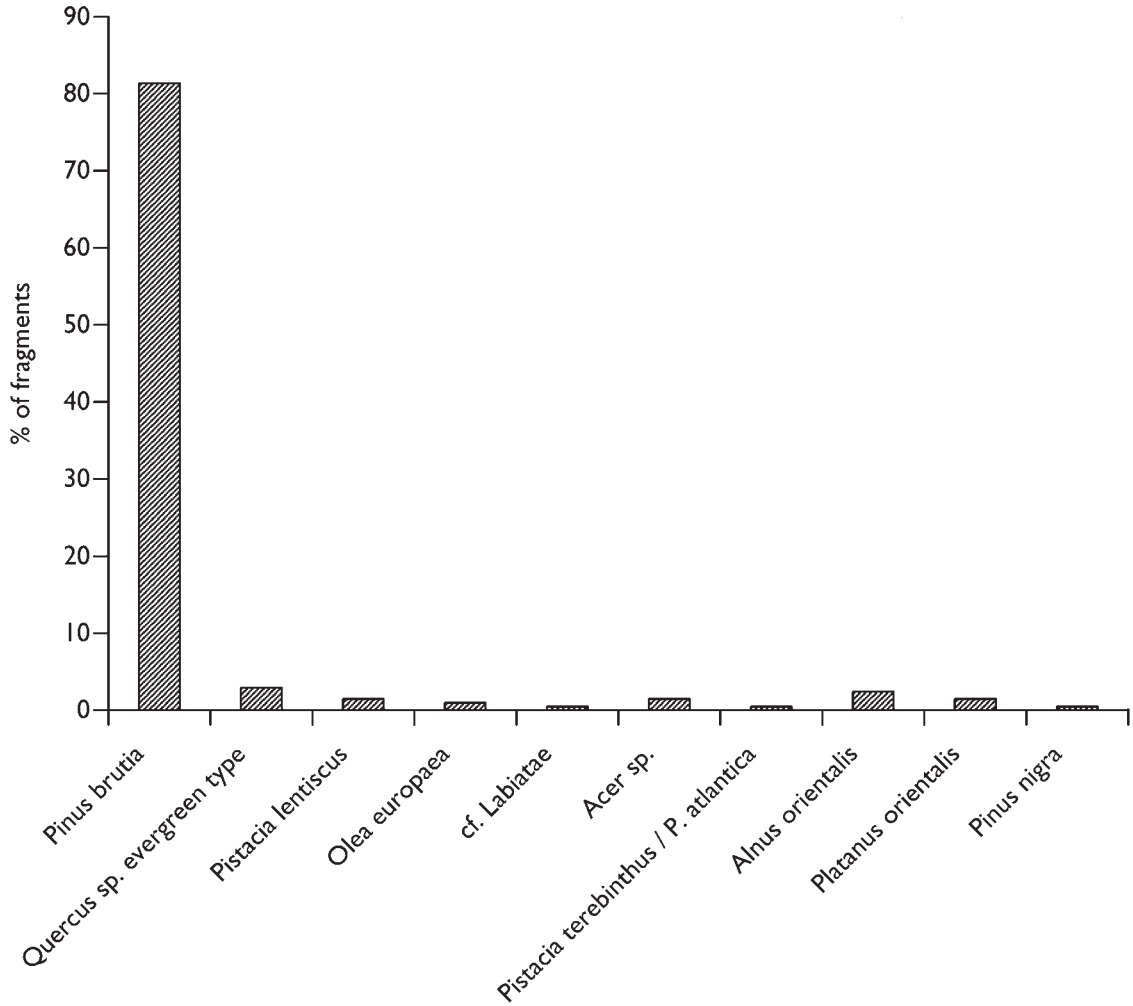


Fig. 3.36. Plant formations in the TAESP metallurgical activity area during the Late Roman period

presence of riverside species indicate the location of the activity areas in places where a combination of abundant fuel and water was available.

Finally, the dominant role of the Cyprus pine both at Ayia Marina *Mavrovouni* and at Skouriotissa is interesting for an additional reason: the location of the two smelting sites. The former is located in the foothills of the Troodos proper, while the latter is closer, almost at the transition to the Mesaoria plain. Given the present day distribution of pine woodland in the area we would expect it to be growing around Ayia Marina *Mavrovouni,* where local resources would be used for the smelting of the ores. In the case of Skouriotissa we may consider the possibility that pine woodland extended more to the north in the past and that metallurgy and cultivation through the centuries have masked this picture (see also Chapter 4.8).

We should consider another possibility, however, that pine charcoal was produced at some other location and transported to Skouriotissa if fuel was not abundant locally. There is evidence for the existence of a network connecting sites of diverse function during the Roman period. Roman farmsteads were probably linked to the contemporary intensive exploitation of copper resources at Skouriotissa (Volume 2, Chapter 2.7), and paths recorded around Alestos, or indicated by the sherd distribution to the south of Ayia Marina *Mavrovouni*, would make movements between the processing and mining sites relatively easy (Volume 2, Chapter 4.8). In line with the above, the operation of a fuel supply and transportation network from nearby forests to the south would probably be part of the mining exploitation at this big industrial site. In this context, we should see the single presence of mountain black pine in the Skouriotissa heap as a possible indication of charcoal production and transportation from further south.

Smelting Fuel and the Vegetation of the Troodos Foothills

Fuel was a prime necessity in metallurgical activities, and relevant research in Cyprus has shown that charred wood remains are a common find at metallurgical sites. Estimates of copper production over the last three millennia and the known need for abundant wood in such activities, suggest that various deforestation events took place in the Troodos pine forests where mines and smelting sites were located (Constantinou 1982; Wertime 1983), however, charcoal

Table 3.47. Plant taxa used for fuel at the metallurgical sites on the northern Troodos foothills. Figures refer to the relative frequency of the taxa in the wood charcoal assemblages of the corresponding sites, expressed as percentages. Unidentified fragments are not included in the table, but are included in the percentage calculations

	Pinus brutia	*Quercus* sp. evergreen type	*Olea europaea*	*Sarco-poterium spinosum*	*Pistacia lentiscus*	*Cistus sp.*	*Acer* sp.	*Pistacia terebinthus/ P. atlantica*	*Alnus orientalis*	*Platanus orientalis*	*Pinus nigra*
Politiko *Phorades* (ProBA smelting)	79		14								
Agrokipia *Kriadhis* (Geometric mine)	87	5	1	2					1		
Politiko *Kokkinorotsos* (Archaic smelting)	20	37	1	31		1		1			
Ayia Marina *Mavrovouni* (LR smelting)	87	5	1		2		2		1	1	
Skouriotissa (LR smelting)	72		1				1	1	5	3	1
Mitsero *Kouloupakhis* (LR smelting)	92			4			4				

analysis at archaeometallurgical sites that could provide relevant data has rarely been carried out (Fasnacht *et al.* 1991; Ntinou 2003). Charcoal samples from the TAESP archaeometallurgical area in the foothills of Troodos were recovered in order to partly fill this gap and, in conjunction with the SCSP charcoal material, to trace the use of the vegetation in industrial activities from the Late Bronze Age to the Late Roman period.

Previous research at archaeometallurgical sites in Cyprus has provided some information concerning the use of fuel. At the Archaic–Hellenistic site of Ayia Varvara *Almyras* in particular, charcoal analysis has shown that the wood of Cyprus pine was the main fuel used (Fasnacht *et al.* 1991). Moreover, charcoal analysis at the smelting workshops of Politiko *Phorades*, Politiko *Kokkinorotsos*, Agrokipia *Kriadhis*, Mitsero *Sykamies*, Mitsero *Kouloupakhis* (Ntinou 2003), Ayia Marina *Mavrovouni* and Skouriotissa (Table 3.47) has shown the use of the same species from the Late Bronze Age through to the Late Roman period. It is interesting to compare the charcoal analysis from these workshops. They are located in neighbouring areas of the Troodos foothills, but they correspond to metallurgical activities carried out in different chrono-cultural periods (Table 3.47). It is possible, therefore, to discuss the diachronic use of fuel in the broader area and the effect of mining activities on the natural vegetation.

In the charcoal samples from the Cypriot metallurgical sites presented here, various plants have been identified (Table 3.47). For the roasting and smelting of the ores the same species were mainly used, although their proportions at different sites and during different periods can be variable. Cyprus pine was mostly used during the Bronze Age, the Late Geometric period and the Late Roman period. Olive, oak, spiny burnet, maple, and *Pistacia* wood were only supplementary, as their proportion in the relevant charcoal assemblages shows. During the Archaic period, however, the charcoal results at Politiko *Kokkinorotsos* document a quite different picture: evergreen oak and spiny burnet are the main fuel source, while pine wood is used to a lesser degree. The proportions of the identified taxa seem to discriminate between the Bronze Age, Late Geometric and Late Roman sites on one hand and the Archaic site on the other. Do the different activities taking place in mines, roasting and smelting areas, impose the use of different types of fuel and wood species? Do the differences in the charcoal assemblages reflect different vegetation zones in relation to different environmental/bioclimatic factors? Could there be an indication of vegetation change due to long-term human pressure, i.e. constant metallurgical activities?

Roasting and smelting of the ores requires abundant fuel in order to produce a reducing atmosphere and to achieve high temperatures. The sites to which the charcoal assemblages correspond are either smelting workshops or mines. The Late Bronze Age smelting workshop at Phorades and the smelting sites of the Late Roman period show the predominant use of Cyprus pine in the furnaces. The Late Geometric site at Kriadhis shows similar charcoal results to the above-mentioned metallurgical workshops, despite the fact that it is mainly a mining area where roasting of the ores was taking place, probably an activity less demanding in fuel than smelting. The exception is Archaic Kokkinorotsos: although it is similar in function to the Bronze Age and Late Roman sites, it shows the use of different types of fuel where pine is only complementary (Table 3.47).

All the above seem to indicate that as far as the function of the sites is concerned this did not impose the use of specific plant species for firewood or charcoal production. At mines (Kriadhis) and smelting workshops or industrial sites (Phorades, Sykamies/Kouloupakhis, Mavrovouni, Skouriotissa) pine timber is almost exclusively used.

In line with such a conclusion, the use of other plant species at the roasting/smelting site of Kokkinorotsos cannot be explained in relation to its function, or the activities taking place there, since these are very similar

to the other sites, especially Kriadhis (Ntinou 2003). The Archaic period assemblage, for the same type of activities, documents the use of species other than pine, namely oak and spiny burnet, in greater proportions. Considering the advantages of exploiting neighbouring pine woodland for fuel, this change in the degree to which different plant species were used might indicate different environmental conditions, where pines where less abundant and other formations, with oaks and other shrubs, prevailed.

The Archaic assemblage closely resembles formations of a more open character, growing in continuation to the pine woodland, and towards the Mesaoria plain. Evergreen oaks, especially *Quercus coccifera*, grow in maquis, commonly on dry hillsides, together with junipers, hawthorns, various *Pistacia* species, rock-roses, spiny burnet and other Mediterranean shrubs of the pulse family; the majority of them identified in the charcoal samples. Such maquis formations, characterized by diversity of plant species, could be represented in the Archaic assemblage. Cyprus pine either grew as scattered trees in these open formations, or in pine woodland, constituting a different formation at some distance from the site, and for this reason was less used. We may then postulate that a different type of vegetation grew in the Politiko area during the Archaic period. Was this the natural vegetation of the area, or the result of human exploitation during various centuries? Some indications should be looked for at the nearby sites of Phorades and Agrokipia, which together with Kokkinorotsos, provide a diachronic view of fuel use in metallurgical activities in the area from the Late Bronze Age to the Archaic period.

The earliest archaeological evidence of relevant activities in the area comes from Politiko *Phorades*, a smelting workshop located on the bank of the Kouphos stream and dated to the beginning of the Late Bronze Age (Knapp *et al.* 1998; 1999). The charcoal results from the site show that Cyprus pine was mainly used in metallurgical activities, while olive wood was supplementary. The same fuel use is documented during the Geometric period at Agrokipia mine. From the 7th century onwards the city of Tamassos became a major centre in the area, with control over the metallurgical production which increased considerably (Kassianidou 2004a, 34–35). We should probably see Agrokipia mine, the workshop of Kokkinorotsos and others in the adjacent area (e.g. Almyras) operating in a broader network around Tamassos from the 7th to the 4th centuries, and leading, in some cases, to over-exploitation of the pine woodland and the consequent use of other plant formations. This might be the case with the charcoal assemblage from the Archaic site of Kokkinorotsos. The use of the Cypriot pine is constantly and/or exclusively documented in periods earlier than the Archaic, and it is during the latter when a shift towards other species (oak, spiny burnet) occurs.

In line with the above, the abundance of spiny burnet in the Archaic period assemblage could be seen as the result of long-term and intensive metallurgical activity in the area. According to the geobotanical survey in the area (Urwin 2003b), this species proliferates in disturbed, metal enriched soils, on top of slag accumulations and where no other species grow at present. Therefore, based on archaeological and palaeovegetation data we can postulate that long-lasting metallurgical activities taking place in the area since the Late Bronze Age, caused changes in the density of pine woodland. This would have progressively resulted in open maquis formations close to the metallurgical sites, regression of the original pine woodland limit further towards the Troodos foothills, and proliferation of plant species resistant to the accumulation of metalliferous residues in the soil.

Moreover, human pressure on the environment and subsequent change in the landscape has been proposed and supported by other lines of evidence. Adjacent to the Late Bronze Age and the Archaic sites are located the Kouphos badlands, largely stripped of soil and interpreted as the result of ancient deforestation (Urwin 2003b). Although there are no firm dates for the beginning of such processes, there is evidence that the Kouphos stream was aggrading by the time the Late Bronze Age smelting workshop of Phorades was operating on its bank. Studies on channel morphology and soil analysis rule out a significantly wetter climate and point to similar climatic conditions over the past 5000 years (Knapp *et al.* 2003, 131). Given that no climatic change can account for increased sediment yield, an alternative could be a change in the plant cover caused by human activities taking place in the area. It is postulated that the Late Bronze Age workshop operation and the landscape change were linked. Fuel provisioning for smelting activities would, in the long-run, have changed the vegetation cover and consequently precipitated the release of sediment, which would ultimately have buried the workshop materials (Urwin 2003b).

In later periods, the Late Roman times in particular, pine woodland seems to have provided abundant fuel to the mines, workshops and industrial sites of Mitsero, Ayia Marina *Mavrovouni* and Skouriotissa. Pine woodland management and exploitation for metallurgical activities is attested at all these sites during Roman times. Since in all of these areas, but especially Skouriotissa, copper production in the Roman period was of a truly industrial scale and was preceded by centuries of exploitation of local resources, both ores and fuel, it is possible that the picture we get from the charcoal results may not correspond solely

Table 3.48. Estimate of charcoal and coppice land required for copper production in Cyprus (after Wertime 1983)

Slag (tons)	4
Charcoal (estimated tons)	5–6
Coppice (estimated acres)	5–6
Production of copper (estimated tons)	0.2–0.4
Coppice for all pyrotechnology (estimated acres)	10

to the dominant vegetation in the vicinity of the sites. Most probably, it reflects the operation of an industrial network of charcoal production and fuel provisioning, that connected the Skouriotissa mine with the Troodos pine forests to the south.

Research at the metallurgical sites on the Troodos piedmont and their chronological attribution seem to indicate that there was a shift in the areas exploited. The wood charcoal results from these sites indicate the predominant use of the pine woodland for fuel, although possible phases of its regression might also be reflected in certain areas. The diachronic presence of pine woodland in different locations might, however, be explained by the above-mentioned shift of metallurgical activities that ultimately helped the Cypriot pine woodland to survive the fuel-demanding smelting processes over centuries.

An estimate of the quantities of charcoal and the area of coppiced woodland required for the production of copper in Cyprus according to Wertime (1983) can be seen in Table 3.48. Moreover, for Skouriotissa mine the amount of slag accumulated at this huge heap, mainly during the Roman period, has been estimated to be 2 million tons (see Volume 2, Chapter 3.12). This gives an idea of the amount of fuel required in the processing. Such data support the idea that mining activities would have caused episodes of vegetation change in the areas under intensive exploitation, especially affecting the pine woodland. Deforestation events would, however, have taken place at different areas during different periods, while cessation of mining activities and shifts to new sources (sometimes due to exhaustion of the ones exploited previously) would have permitted the regrowth of the woodland.

Conclusions

The firewood most frequently used for processing the ores at the Late Roman sites of Ayia Marina *Mavrovouni* and Skouriotissa was the Cyprus pine (*Pinus brutia*). Other plant species were used to a very limited degree. The abundant use of pinewood was probably more a response to the dominant role of the Cyprus pine in the formations of the Troodos foothills, than a matter of preference for the specific properties of its wood. Slag accumulation indicates that intensive metallurgical activities were taking place that would have required large quantities of firewood/charcoal. Pine woodland would have been a prime source, especially if it grew at a close distance to the metallurgical sites.

The use of pine woodland diachronically can be seen in the charcoal results from various metallurgical sites located at the northern foothills of the Troodos, and ranging chronologically from the Late Bronze age to the Late Roman period. Vegetation change caused by intensive exploitation has been postulated on the basis of the Archaic period charcoal data, and SCSP's geomorphological and geobotanical data (see also Chapter 6.4). Deforestation events may be less evident because of shifts towards new metallurgical sources that would allow some degree of regeneration of the vegetation in the previously exploited areas.

3.11 Architecture in the Landscape

Tracy Ireland (watermills), Ian Evans (building materials), Emmanuel Moutafov (epigraphy) and Charlotte Schriwer (watermills)

The architectural features of the Survey Area were recorded and analysed within the broader context of the landscape survey, combining the architectural evidence with information gained from historical research, oral histories, other material culture and environmental data (see Chapter 2.14 for methodology, and Plate 3.1 for a map of the Survey Area). The TAESP landscape yielded a wide-ranging array of built forms reflecting the human use, modification and occupation of the landscape. These included the remains of rural estates, villages and settlements, including features such as goatfolds, threshing floors, ovens, churches and shrines, agricultural shelters, bridges and roads.

This section provides an overview and discussion of local building materials, and an in-depth analysis of the important series of 24 watermills in the Survey Area. It concludes with a selection from the catalogue of Building Units recorded in the Survey Area (the online database with the whole catalogue can be downloaded from TAESPdata 2007). Other than the referenced documentary sources, most of the information comes from our own architectural recording and (especially for the Building Materials section) from TAESP interviews carried out by Marios Hadjianastasis (Chapter 2.14).

Volume 2 contains detailed analyses of the remains of two abandoned villages: Kato Koutraphas *Mandres*, which was interpreted as a satellite settlement for intensive agricultural production (Chapter 2.10), and Asinou village, a small, recently abandoned village in proximity to the World Heritage listed Asinou church (Chapter 5.5). Both of these abandoned villages also featured threshing floors, goatfolds and ovens, as well as buildings used as dwellings, for storage and to house livestock in winter.

Building Materials

Until well into the 20th century, village houses were, as far as possible, built with the use of materials found on or near the site. Building timber was in short supply near the villages and its use was thus limited; there are no buildings constructed entirely from timber in the Survey Area. But it was worked by village craftsmen to form doors, shutters and simple furniture. Stone and earth – the primary materials of domestic housing – were all freely available on or near the building site. The only cost was the labour required to gather and shape them, and to put them in place.

Fig. 3.37. Kato Koutraphas Mandres*: interior wall showing stone foundation with chinking, mudbrick superstructure and mud plaster finishing (BU0020). Lower doorway is 1.4 m wide. See also Volume 2, Chapter 2.10 and Fig. 2.13. (Chris Parks)*

Stone Stone used in building work in Cyprus includes sandstone, limestone and basalt. Washed from its bed and tumbled to roundness in mountain streams, stone from the rivers and fields of the Troodos region was used to build the walls of houses, churches, mills and monasteries, and for a variety of other purposes, including the construction of terraces and retaining walls, and for paving streets, paths, courtyards and threshing floors.

Rubble set in mud mortar forms the base courses of many mudbrick houses in the Troodos Mountains (Fig. 3.37). The base course or stone socle is typically taken up to about a metre above ground level, thus effectively providing a barrier that minimises the consequential effect of rising damp on a mudbrick wall. Interstices in the rubble are filled with 'chinking'. This is commonly composed of pieces of stone, or fragments of pottery. Chinking reinforces the mortar and adds strength, as well as another visual element to the structure. The materials used for chinking were commonly selected for their porosity and hence their ability to draw moisture from the mortar. They were placed with one end exposed to the air and thus served as a channel to conduct moisture from the interior of the wall to the outside atmosphere, helping the mortar to cure at an appropriate rate. The wall gained strength and solidity as the chinking carried moisture away. Chinking continues to serve in this way throughout the life of the wall, helping to keep it dry during rainy periods.

Worked stone for buildings of a more formal architectural nature came principally from two quarries located within the Survey Area, at Phoukasa Hill and Koronia. Phoukasa has been absorbed into the mining operation centred on Skouriotissa, and little or nothing remains of the quarries there. Koronia, 2.5 km south-west of Kato Koutraphas and the principal local source of limestone, has also been closed for many years.

Dressed stone from these quarries was used in the construction of schools, houses, watermills, churches and bridges. An account of the construction of the bridge over the Elaia River at Kato Koutraphas in 1900 (BU0114; Fig. 3.66), prepared by the engineer Hugh Nicolls, provides information on sources of stone at that time:

> It is constructed entirely of stone and consists of five arches of 20 feet & one of 10 feet span. The total length over all is 110 feet and the width outside to outside of parapet is 16 feet 6 inches. The stone was quarried from the hill called Koronia where a deposit of excellent hard white lime stone was found. This quarry unfortunately gave out just before the completion of the bridge & the coping of the parapets was finished in yellow stone brought from a quarry near Kyra, the contrast of the two colours however is not disagreeable & gives a finish to the structure. (SA1/1922/1899, Red 79; see also Chapter 3.13).

Building with dressed stone requires a ready supply of lime which is mixed with sand to make mortar, binding the individual blocks of stone into a unified structure. Lime is derived from calcium carbonate ($CaCO_3$) which is found as limestone in the Koronia deposit. When this is burnt in a kiln at a temperature of about 900º C the carbon dioxide

Table 3.49. Calculation of the volume of earth required for making mudbricks for a village of 100 houses

Average dimensions of a common mudbrick in Tembria: 450 × 300 × 50 mm	0.00675 m^3
Average number of bricks required for a small mudbrick house	15,000 bricks
Total amount of earth required for construction of one house	101.25 m^3
Total amount of earth required for construction of a village of 100 houses	10,125 m^3

is driven off. The rock is turned into calcium oxide in the form of lumps of lime and powdered lime, known as quicklime. To prevent the violent reaction when quicklime is mixed with water, lime kilns were commonly provided with shelter where the lime was removed from the kiln.

Builders obtained their quicklime well in advance of need. It was stored in a pit, or a box lined with boards and then hydrated in a process known as slaking. After slaking, the quicklime was stored in large vats for several months and turned over regularly before it was ready for building purposes.

Lime for agricultural use went direct from the kiln to the field, where it was used to break up heavy soils, making them more open, friable and easily worked, and to improve drainage. Lime reduces soil acidity, increasing the Ph level and thus improving the yield of olive trees. Other uses for lime in the Survey Area were in plaster and for making whitewash, a simple paint composed of a mixture of lime and water. The people of the Survey Area still use whitewash on village houses.

At least four lime kilns (Ionas 2002, 431–35) were set up on the slopes of Koronia, with another two several kilometres to the east. Two of the Koronia kilns were located and recorded (BU0141–42; Volume 2, Fig. 2.1). These are squat but imposing bottle-shaped structures, with exterior diameters of 9 m and 7 m respectively, set into the hillside 70 m south-west of the summit. Their massive build suggests prolonged use and substantial output: kilns intended for short-term purposes would be smaller and of much lighter construction. Their age is difficult to determine but they were probably in use in the 19th century and perhaps before. It is likely that these kilns, and the others which appear to have been destroyed, produced much of the lime needed for building and agricultural purposes in the Survey Area.

Fired bricks When British colonial engineers were constructing the road from Nicosia to Troodos in 1900, the introduction of British brickmaking techniques was forced by the lack of suitable stone in the Galata area, where a bridge had to be built over the Karkotis River. Their report suggests the establishment of a brickmaking industry in areas where cost ruled out the use of stone:

> The bridge was made 10 feet wide to allow for the passage of carts. It crosses the river in 1 span of 15 feet & is built of bricks three rings in thickness specially burnt for the work as there is no suitable stone in the neighbourhood & the cost of transport from the Phocassa and Koronia quarries was becoming prohibitive. These bricks were moulded & burnt to the same dimensions as English bricks 9″ × 4½ × 3″ & are, as far as I know, the first of their kind made in Cyprus. The Galata clay proves itself excellent for brickmaking & the experiment was a great success & might be worth trying elsewhere where building stone is far to fetch & brushwood near at hand. (SA1/1922/1899, Red 77)

The brickmaking tradition established in that part of the Troodos at that time, continued during the 20th century with the establishment of brickworks and tile kilns at Galata and Ayios Theodhoros (TP019). Bricks are still made from local clay at Ayios Theodhoros.

Earth In this area of Cyprus, earth has long been used to construct both the walls and roofs of houses. The availability of suitable building materials, whether earth or stones, would have been a significant factor in the siting of villages. The effects of this work on the landscape have clearly been considerable. A simple calculation reveals the enormous volume of earth required for the construction of a village of mudbrick houses, and conveys also some idea of the backbreaking task involved in the digging and mixing of the earth, the transport of the bricks by wheelbarrow or cart and the construction of the houses (Table 3.49).

The making of mudbricks is a process that commonly spans three days and takes place in May or June when the temperature is high, but not so high that rapid drying of the bricks occurs. The site selected must have access to a good supply of water, such as a water channel, and contain an adequate supply of suitable earth. An area of 40 × 50 m, if dug to a depth of half a metre, would yield 100 m^3 or about 15,000 bricks – enough for a small house.

On the first day work begins at dawn. The soil is turned over and broken into clods. Earth for mudbricks was generally not sieved and so they contain impurities such as stones and fragments of pottery (such as we documented at Mandres: Volume 2, Chapter 2.10), as well as straw. The straw, known as *kondila*, was added to provide strength to the brick and is the hard coarse straw from the threshing process which animals would not eat. The clods and earth are wetted, causing swelling and the breaking down of the clods.

On the second day the materials are mixed once more with a spade and then worked into a plastic state by treading them with bare feet. When the mixture is considered ready for use it is pressed into wooden frames, or moulds, which are set out ready for use by the side of the pit where the work takes place. The mixture should be firm, but easily worked when pressed into the frames and levelled by hand. The surface may be sprinkled with water before it is

Fig. 3.38. Asinou village: roof made of earth, spiny burnet and wooden beams (BU0047, TP081) (Chris Parks)

Fig. 3.39. Tile and brick kiln, Ayios Theodhoros (TP019): floor with vents leading from the firing chamber (Chris Parks)

smoothed into place. If the weather is hot the bricks may have set sufficiently by the end of the day to be taken out of the mould. If not, they are left overnight.

On day three the bricks are taken out of the mould and set out to dry. They are placed on their edge, leaning one against the other in pairs. The triangular arrangement this creates allows the air to circulate readily through the bricks and speeds the drying process. Mudbricks are carried on wooden planks with handles on each end. The size of mudbricks varies considerably, but one common size is about 450 × 350 × 50–60 mm. Other sizes noted in the Survey Area are 600 × 450 × 50 mm and 400 × 300 × 60 mm.

Walls The base of a mudbrick wall is commonly composed of a foundation of river cobbles and chinking, built up from a trench dug into the earth to reach firm ground, clay or rock. This base course may rise a metre or more above the surrounding earth and serves as a means of minimising the effects of damp on the mudbrick wall. Alternatively, the trench may be filled with small stones and the mudbrick wall built upon them.

The finished wall is plastered and painted with a wash to protect it from rain (Fig. 3.37). The finish selected for the exterior of a house depended largely on the owner's financial situation. In poor houses, the plaster was mud, while the better-off used a mix of lime and mud, or a thin coat of gypsum. Interior surfaces were commonly finished with a one centimetre-thick coat of gypsum which was renewed in a thin layer every year (Philokyprou 1998). Gypsum is found in extensive deposits at the locality Gypsos, 2.5 km west of Koronia and the location of two more lime kilns, as marked on cadastral map XXVIII/32.

Giovanni Mariti's 18th-century description could have been written at almost any time until the 1950s. The houses, he said, are

> built of bricks, made of earth taken anywhere and mixed with water and chopped straw. They are made in forms as in Italy, a *braccio* long and half a *braccio* wide: they are not burned but left to dry in the sun just where made. The same earth mixed with straw and used fresh is used to bind them together. This mode of building prevails throughout the island, except in the few villages which have stone handy, but they use the same mortar. Without the houses take on a melancholy look from the colour of the earth, but within they are airy and comfortable, and plastered with the whitest possible gypsum. (Mariti 1909)

Mudbrick houses are collapsing into ruin throughout the Survey Area, as every shower of rain takes its toll on neglected buildings. In the past this did not matter as much. New houses of the same materials were continually being built, and so a village hundreds of years old might be filled with houses, none of which was older than a couple of centuries. But no one builds in mudbrick today and the stock is steadily diminishing. The future of these traditional Cypriot houses is thus very uncertain.

Roofs No earth roofs were observed on occupied houses throughout the Survey Area. Some highly degraded earth roofs remained at the time of our survey, on four ruined houses at the seasonal settlement of Mandres (Volume 2, Chapter 2.10, Fig. 2.16), but these are in poor state and not likely to survive for long. Other surviving mud roofs, at the dying village of Kato Koutraphas and at the abandoned village of Asinou (Fig. 3.38; BU0047; Volume 2, Chapter 5.5), are in an equally poor condition.

Construction of mud roofs began by placing roughly trimmed timber poles of about 140 mm diameter on top of two opposing walls (Fig. 3.38). At right angles on top of these the builders placed trimmed olive and other branches, each of about 30–60 mm diameter. A thick mat of small twigs of spiny burnet (*Sarcopoterium spinosum*) went on top of the timbers and to this was added a layer of earth about 200 mm thick. The roof was completed with a coating of pale-coloured clay, known as white marl, which

served to waterproof the roof. Koronia was one source of this material. Other deposits are scattered around the Survey Area, including the locality known as Konnous 500 m south of Pano Koutraphas (Cadastral map XXVIII/32).

As the earth and clay were added to the roof it was compressed with a stone roller known as a *tchilindrin* (cylinder). The *tchilindrin*, about 80 cm long and 30 cm in diameter, had a cavity in each end to enable a wooden handle to be attached. Earth roofs were provided with a gentle slope that encouraged rain to run off, but did not produce a torrent which would have washed away the earth of the roof. They rarely leaked if properly constructed and provided with regular maintenance. Some of the cracks through which rain leaked into a house were self-healing. Giovanni Mariti wrote of the roofs being of earth mixed with clay, 'which during the winter rains plugs up the fissures caused by the summer heat'. But 'if the rains are long and continuous the inmates are obliged to make frequent repairs' (Mariti 1909).

The construction of an earth roof was observed in 1913 in the Katydhata area:

> The tall wild canes that grew in the valley swamps were stripped of leaves and laid at right angles across pole rafters. The stripped leaves were then spread on the canes and covered with a mixture of red clay and chopped straw. Much of the work, particularly shovelling, hod carrying, and spreading the clay, was done by women. (Lavender 1962, 85)

The canes referred to above were stems of the giant reed (*Arundo donax*). These were cut at the riverbanks in January when the plant was mature and the juice content low. This made them less attractive to termites. This plant, the largest grass of the region, grows on the margins of rivers and streams to a height of 6 m or more. Its stems resemble bamboo and achieve a thickness of up to 20 mm. It is widely used in the Mediterranean for matting, basket-making and for shading roofs and shelters (Blamey and Grey-Wilson 1993, 528).

Since at least the early 20th century, the roofs of village vernacular houses have been covered with clay tiles that are commonly a soft red-brown in colour. Half-round in shape, the tiles are laid alternately so that half of them are upside down. Waterproofing qualities are good, but the system is inefficient because the overlap, which is considerable, places a substantial load on the roof structure, necessitating the use of heavy beams.

Half-round roof tiles are made by placing clay in wooden moulds that produce flat, rectangular slabs. These are left to dry until the clay is leather hard. The upper surface is often scraped to reduce the thickness of the finished tile. The clay is then pressed onto 'ridges' or 'dykes' of fine white sand to achieve the right shape, and fired when dry. They are fired, when dry, in a kiln such as the 20th-century tile and brick kiln we recorded at Ayios Theodhoros (TP019; Fig. 3.39). This process produces a result which is easily recognisable: a smooth outer surface and an interior which retains the imprint of the sand used to make the tile.

Watermills

This section discusses the historical and regional context for the important group of 24 watermills recorded in the Survey Area (plus another five locations suggested by cartographic sources). The mills were located using a combination of techniques: recent cadastral maps (at the scales of 1:5000 and 1:2500), which record the location of some mills; Kitchener's one inch to a mile map of the area (1885); and 1960s aerial photographs. Some mills were located by fieldwalkers. The watermills were recorded as Building Units in the manner discussed in Chapter 2.14. Measured drawings were prepared for one example which had all its major functional aspects extant (Lachistos, BU0070; see Volume 2, Chapter 3.3), while the only remaining working flour mill was recorded in terms of its function and the associated cultural meanings as expressed and explained by the miller and his wife (Volume 2, Chapter 3.4).

The next section (Chapter 3.13) looks more broadly at water management in the TAESP landscape. In this section we consider the regional context for the Cypriot watermill, the historical documentation available and an overview of the characteristics and locations of the mills. The extant, recorded mills in the Survey Area appear to date largely to the Ottoman period, with many remaining in use into the British colonial period and indeed until the mid-20th century. The mills, however, show ample evidence for rebuilding and re-use and some may include earlier Medieval built fabric. The mills are considered in terms of their relationship to the broader human landscape of hydrological management and intensive agriculture, as evidence of the interplay of cultural and geomorphological aspects of landscape, and as a significant aspect of complex social and agricultural systems.

<u>Background and Comparisons</u> Medieval documentary references to the use of horizontal water wheels exist from as early as the 9th century AD, and a technical explanation and drawing of a horizontal watermill was provided by the Arab scientist al-Jazari in the 13th century (Al-Hassan and Hill 1992). Medieval mills in Europe (with the exception of Spain and Portugal) tended to use a vertical wheel and gearing of either the over-shot, under-shot or breast-shot variety, depending on the situation of the mill in relation to the river. This is almost certainly due to the greater availability of strong water currents from large rivers. There are exceptions in Europe, however; horizontally wheeled watermills, dating to the 7th century AD, are known in Ireland, and evidence of these have also been found in the British Isles, Denmark and Christian Spain, from as early as AD 800 (Glick 2005, 264; Lucas 2006, 39–41).

The horizontal watermills located in the Survey Area are in need of a constant, efficient water supply to maximise the potential of the milling device, and this can only be achieved through a network of water channels either linking the mills to each other, or linking them to a larger source of water. The sophistication of these channel networks

Fig. 3.40. Mill at Vyzakia Muttokambos *(BU0109): leat and five-tiered penstock, looking south-west down the slope (Chris Parks)*

may vary from country to country, but also from region to region. The primary function of the mill may also have had an influence on this complexity. Many of the channel networks supplying water to the mills were also used for irrigation purposes, frequently through small but effective alterations or additions to the channelling systems.

Watermills have been classified into three main categories: the horizontal-wheeled mill; the vertical-wheeled mill; and the drop-tower penstock mill (Hodge 1992; McQuitty 1995). The horizontal-wheeled mill, otherwise known as the 'Greek' or 'Norse' mill, can be the least efficient of these types of watermills because it operates by a flow of water hitting a horizontal wheel with protruding paddles (effectively a turbine wheel) to create a slow revolution. The water flows through a simple construction, such as a hollowed-out log, rather than a constructed tower (McQuitty 1995, 746). A more efficient type of turbine mill was also used in the Roman period, where the water enters a vertical shaft (similar to the drop-tower penstock), at the bottom of which is the wheel; an outflow is constructed below the wheel through which the water can exit. The millstones are connected to the water wheel by a spindle above the tower.

Vertical-wheeled mills are operated either through an under-shot, breast-shot or over-shot wheel. Examples of these are, however, unknown in Cyprus, perhaps because of the complexity of the gears, which require a strong current for motion.

The third type of watermill is the drop-tower penstock mill, another type of horizontal-wheeled mill. The water is guided along a channel and down a constructed penstock, exiting through an opening at the bottom (Fig. 3.40; Volume 2, Plate 3.4, Fig. 3.29). Attached to the penstock tower is a wheel chamber, which houses a horizontal wheel, attached to the millstone in a chamber above by the spindle (Gardiner and McQuitty 1987). The force of the water gains momentum as it flows through the constructed tower and a narrow outflow, causing the water to hit the wheel with greater force and the wheel to turn faster; considering the local water supply, this creates a quicker and more efficient way of milling the sugar or the grain than other methods.

The majority of Cypriot watermills have the drop-tower penstock not commonly found in Western European mills. The penstock and shaft are connected to a water channel, or millrace; the water flows through the channel and down the vertical shaft at the bottom of which is located an outflow through which the water can escape. The outflow leads into the wheel chamber, where the horizontal millwheel is located (Volume 2, Fig. 3.8). As the water enters through the outflow its force hits the paddle-like panels, or vanes, thus setting the wheel in motion. The wheel is usually made of wood, although more recently used mills feature metal wheels, with the paddles, made of sheet metal, resembling small scoops.

Above the wheel chamber is another room housing the millstones (Rizopoulou-Egoumenidou and Myrianthefs 2003). This is the millroom, where the grain is ground. In unmodified mills, the millwheel is attached by a wooden spindle to the millstones that grind the grain. In modified mills, the spindle attaches to a cogwheel, which in turn rotates an axle on which a series of cogwheels are mounted. Each of these then rotates a different pair of millstones via a belt. The complexity of the gears depends on the sophistication of the mill, but at the most basic level, the wooden wheel is attached to the millstones through a vertical pole or spindle; thus, when the water hits the wheel and sets it into motion, the grinding stones will also turn and grind the grain. The upper millstone, or runner stone, can be adjusted in relation to the lower millstone, or bed stone, to grind the grain more or less coarsely. The wheel can be controlled through the use of a lightening rod, which, if necessary, can be disengaged without stopping the flow of water into the wheel chamber.

The outflow from the penstock chute can vary in size, depending on the volume of flow from the water source directed through the water channel. Some watermills have adjustable outflows, usually fitted with wooden rings or metal nozzles of different sizes, depending on the time of year and the availability of water (Harverson 1993). There is an opening, usually in the form of an arched entrance, from the vaulted wheel chamber, to enable the water to leave the chamber as it turns the wheel (Volume 2, Fig. 2.8). Water exiting the wheel chamber was also used for irrigation purposes; there are usually channel networks in varying degrees of complexity near the watermills, frequently with sluice gates to regulate the flow of water (Chapter 3.12).

Historical Documents The landscape and history of Cyprus have been well documented since Medieval

times. Numerous records of commercial activity related to mills exist in Venetian archives, along with a wealth of historical accounts provided by travellers and historians from the Medieval period onwards. Earlier references to some villages in the Survey Area where watermills are still extant today do exist, suggesting they were of economic and political significance in Medieval Cyprus. Vyzakia, for example, where there are several later mills (Volume 2, Chapter 2.16), is mentioned by George Bustronios in the 15th century (Boustronios 1489, 27–28), and most villages where there are now mills appear in the Venetian village lists of the 15th century (de Mas Latrie 1852–61, vol. 3, 505–506; Grivaud 1998, 468–70) and on 16th-century maps (Stylianou and Stylianou 1980). Many of the mills which we assume date from the Ottoman period could quite feasibly have been built during the Lusignan or Venetian periods, and were adapted and re-used over the following centuries.

Ottoman-period sources refer regularly to the production of sugar and cereals on the island, as well as to the labour spent on maintaining the irrigation systems and wheel-wells (e.g. Cobham 1908, 193–94, 199). John Heyman, who visited Cyprus between 1700 and 1709, mentions the corn being ground by watermills, remarking that 'in a time of drought there is not only want of water, but also of bread' (Cobham 1908, 247). Later in the 18th century, the travelling monk Basil Bars'kyj refers to several mills and irrigation works, mostly related to the monasteries and churches he visited during his travels through the island (Bars'kyj 1996, 44). Michael de Vezin in the late 18th century noted the 32 watermills at Kythrea (Cobham 1908, 373), which played an important role in the Greek and Turkish revolts against Chil Osman in 1764 AD, when water was diverted from them in order to stop them milling grain for the capital, Nicosia (Given 2000, 227; Mariti 1909, 98–99).

A very useful source from the Early British colonial period is Lieutenant Horatio Kitchener's triangulated survey of the island, published in 1885, which includes watermills and wells, including a number in the Survey Area (Shirley 2001).

Official Documents Official documents provide insight into the legal and administrative procedures and rules regarding the use of watermills. Crusader charters, or cartularies, have also provided evidence for the importance of mills in other Crusader lands (Riley-Smith 1973), while treaties between the Mamluks and their Crusader counterparts addressed disputed sugar mills, or mills on disputed land (Holt 1995).

Similar treaties and ordinances were in use in Cyprus. Royal charters of the Crusader period refer occasionally to the existence of watermills, particularly in cases of dispute or regarding sale. The 14th-century Cartulary of Ayia Sophia in Nicosia, for example, refers to 'the Royal mills of Kythrea' which were owned by Alice, Queen of Cyprus, in the 13th century (Roberts 2000, 199).

There are a few documents from the Ottoman period related to religious endowments which concern the use of watermills. Some of these show that there was a system of mill-sharing, which involved having shares in a mill, as well as in the water that powered the mill. In Cyprus, this was particularly the case with regard to flour mills (Kyrris 1987, 143, 154).

Although the locations of specific mills are rarely mentioned, the numerous references throughout the Medieval and Ottoman periods to the presence of water-related structures, suggest that these were of primary importance within rural and urban communities. Despite the perceived economic and political decline of the Ottoman period expressed in many of the western sources, irrigation works and watermills were still being constructed and maintained, as attested by Drummond's account of Bekir Pasha's construction of an aqueduct and watermill in Larnaca in 1747 (Cobham 1908, 288). There are also frequent descriptions of watermills being part of religious institutions in Cyprus, such as a grain mill on a farm owned by Kykkos Monastery west of our Survey Area (Cobham 1908, 439), or Bars'kyj's accounts of watermills belonging to churches and monasteries (1996).

Watermills of the Survey Area The remains of 24 watermills were recorded in the Survey Area, exhibiting a broad range of construction techniques, building materials, architectural styles and locations in the landscape (Plate 3.8). The most intact system of mills is in the Karkotis Valley, and these examples are discussed and described in detail in Volume 2, Chapters 3.3, 3.4, 3.8 and 3.10. Most villages in the Troodos mountains have been supplied by open or semi-covered water channels since the Medieval period (Chapter 3.12). The main channels also fed, or helped to feed, existing watermills, as well as providing the main supply for crop irrigation.

The harvesting of precious water to generate power meant that this water needed to be returned to the community, either as irrigation water, or to the river it came from, to maximise its use and to reduce waste of a valuable resource. This is often reflected in the relationship between mills and water channels; the water used to power a mill usually poured directly back into the river if it was situated on the river banks. The majority of mills located in highland areas, such as the Karkotis Valley, were built against steep terraced hills to provide the drop in height needed to maximise the power of the water channelled through the penstock. In the TAESP landscape, however, there appeared to be no geomorphological constraints in terms of location for building mills: they are found built against bedrock high up in a valley, or resting on alluvium lower down in a valley. Studying local hydrology suggested that density and flow direction of streams would play a part in determining the size and location of a mill, but in reality that was not the case.

In addition, the irrigation paths around the mills were not always controlled by the natural hydrology and

Table 3.50. Watermills of the Survey Area. 'Mylos' means 'mill'. Figure numbers refer to Volume 1 unless otherwise stated

BU No.	Village *Locality*	Grid ref.	masl	Name	Summary
BU0002	Linou *Kapati*	490495/ 3881820	290	Mylos tou Ahmed Agha	Penstock and leat built of dressed ashlar and river cobbles, with whitewash. White plaster inside chute. Penstock 6m high. Fig. 3.43; Volume 2, Figs 2.34–35
BU0003	Linou *Dhendro-palloura*	490595/ 3881900	275	Mylos tou Ahmed Agha	Rubble construction with pink lime plaster on penstock with putlog openings on aqueduct. White plaster on now demolished rooms. Volume 2, Fig. 2.34
BU0004	Linou *Kokkinorotsos*	490755/ 3882060	270	Mylos tou Ahmed Agha	Masonry on bedrock foundations, with pink plaster. Pointed arch carrying leat behind penstock. Pink plaster on penstock. Fig. 3.44
BU0044	Katydhata *Mylos*	489335/ 3882065	255	Mylos tou Ahmed Agha (?)	Katydhata village. Masonry of river boulders and limestone, with pink plaster. Wheelhouse extant, and millstones intact above. Pointed arch carrying leat behind penstock. Designated Ancient Monument. Volume 2, Fig. 3.36
BU0046	Evrykhou *Deimma Kousoulioti*	490425/ 3877175	405	Mylos tou Koumna (Koumnas mill)	Basalt masonry with limestone quoins. Vaulted wheelhouse still extant. In use until 1936.
BU0049	Evrykhou Village	490780/ 3877205	440	Stylianides Mill or Mylos tou Stylli	Still in use, operated by Mr Styllis. Rebuilt 1878, renovated 1926. Rubble masonry with limestone quoins. Steel turbine (1950), two sets of millstones. Attached miller's house. Penstock 16 m high. Volume 2, Plates 3.6–7, Figs 3.11–18
BU0053	Katydhata *Skouriotissa*	491160/ 3882600	240	Mylos tou Ahmed Agha	Basalt rubble & cobbles, with lime plaster. Arched aqueduct for construction of road. Volume 2, Fig. 2.6
BU0054	Nikitari *Palaeomylos*	497850/ 3878390	445		Possible watermill, or for water management. Rubble basalt with crushed brick and lime plaster covering leat. Diagonal chute; possibly related to tannery. Volume 2, Fig. 5.32
BU0059	Katydhata	491425/ 3882700	214	Mylos tou Ahmed Agha	Basalt and limestone with tile and sandstone chinking. Leat collapsed.
BU0060	Kalliana	490415/ 3874555	530	Mylos tou Mylti	Built c. 1901, renovated 1947. Irregularly coursed basalt with limestone quoins. Turbine powers three machines; used for fish meal, cotton and grain. Fig. 3.54
BU0061	Kalliana	490430/ 3874535	520	Mylos (or Havrikas, i.e. factory) tou Spyrou	Cotton mill. Penstock of irregular coursed river boulders with tile chinking. Disused by 1947, when replaced by BU0060.
BU0062	Phlasou	489640/ 3879870	340	Krommidhos mill	Two-tiered penstock in dressed ashlar with limestone quoins; archway in leat. Two-tiered millhouse. Inscriptions over N upper millhouse door and on lower W pillar of penstock arch.
BU0064	Tembria	490270/ 3875425	510	Mylos ton Rotso	Irregular courses of basalt. Traces of wooden sloping chute in place of penstock.
BU0070	Evrykhou *Lachisto*	490055/ 3877965		Lachistos. Also Mylos tis Panayias ('of the Virgin Mary')	Basalt and tile. Four-tiered leat supported by buttresses every 3 m. Wheelhouse extant with wooden wheel in situ; partially surviving millhouse with intact window. Volume 2, Plates 3.4–5, Figs 3.6–10
BU0073	Nikitari *Mersinia*	500395/ 3882535	250		Courses of river boulders covered in lime plaster. Shaft 4.7 m deep; penstock 5.9 m high.
BU0074	Korakou	490200/ 3877525	390	Mylos tou Koumi	Penstock built of basalt with oil drums filled with earth and mortar extending shaft; millhouse is mudbrick *makrinari*. Lower millstone in situ with spindle directly over paddle. Abandoned 1970.
BU0075	Phlasou	489715/ 3879850	320	Shaban Bey mill	Basalt and limestone. Triple-arched leat (2 pointed, 1 round). Millhouse remains show irregular courses of river boulders and chinking, topped with courses of mudbrick. Fig. 3.46
BU0076	Phlasou *Molos*	489555/ 3880095	305	Mylos tou Molou	Penstock & millhouse: irregular basalt with limestone quoins. Top layers of millhouse rebuilt with mudbrick. Crude arch in leat wall. Limestone plaque with inscription on N wall of penstock: 1690. Restored 2000. Designated Ancient Monument. Figs 3.41–42
BU0095	Evrykhou *Paleomylos*	490500/ 3875900			Site of watermill (locality name means 'old mill'). Disused by 1926.
BU0096	Pano Koutraphas	499485/ 3883355	230	Not known	Field stones and limestone. Five-tiered penstock. Partially surviving millhouse and wheelhouse (16.3 x 4.9 m). Volume 2, Fig. 2.24
BU0097	Evrykhou	490760/ 3877245	430		Millhouse has stone foundations with mudbrick and fired brick additions. Penstock lost. Grain mill, then olive mill.

BU No.	Village *Locality*	Grid ref.	masl	Name	Summary
BU0099	Evrykhou *Varvara*	489745/ 3878340	365	Mylos tis Varvaras	Millhouse, penstock & leat. Irregular coursed river boulders with basalt and tile chinking. Different construction technique of splayed tiered buttresses supporting penstock; Venetian?
BU0104	Vyzakia Village	501095/ 3881280	275		Irregular coursed basalt with lime plaster; rough basalt quoins in five-tiered penstock. Leat partially destroyed. Millhouse has mudbrick courses, partially extant. Metal wheel in situ in vaulted wheelhouse. Volume 2, Fig. 2.23
BU0109	Vyzakia *Muttokambos*	501735/ 3880485	400		Five-tiered penstock of rough rubble masonry and plaster finish. Leat channel plastered. Wheelhouse with arched opening. Fig. 3.40
BU0123	Tembria Mesa Geitonia	490145/ 3875780	490	Mylos tou Papanikola	Site of former watermill, marked on cadastral map. Overgrown cavity in bedrock may be location of penstock.
BU0154	Evrykhou	490800/ 3876300		Mylos tou Jacoubou	Site of vanished watermill marked on cadastral plan, with network of channels.
BU0162				Mylonissa	Possible location of watermill, based on locality name ('woman miller') and local memory.
BU0164	Ayios Nikolaos *Argakin tis Evgenias*				Possible location of watermill. Millstones located on N edge of field.

geomorphology of the area. The outflow of water from the mills did not always lead directly back to the river. In the Linou mills, for example, the water flowed back into channels used to irrigate surrounding fields. Modern irrigation channels were built over older channel systems, suggesting a reasonably long history of irrigation paths, and the mills were always associated with old and new irrigated terraced agriculture. This may account for the fact that the water supplied to the watermills was diverted from the Karkotis over the watershed into the Atsas plain; another reason for this may also have been the ownership of the water and the water channels that fed the mills (Chapter 3.12).

Most watermills in the Survey Area were constructed from basalt and/or limestone, ranging from fine ashlar to rough rubble masonry using river cobbles, combined with extensive use of lime plasters and renders. Penstocks were usually constructed in a stepped design to ensure the structural stability of the tower, while massive leats or races, leading to the penstock, featured pointed arches. Several of the millhouses featured inscriptions; few remain legible, but Mylos tou Molou at Phlasou (BU0076; Fig. 3.41), has two inscriptions, one of which bears a construction or reconstruction date of 1690 (see below for discussion). At least one surviving mill is constructed of mudbricks on a stone socle (BU0097), while other ruined mills may have also featured the use of mudbricks, which have since weathered away. Only one example of the use of a hollowed log chute (*koudouka*) survives in the Survey Area (BU0064), a feature commonly found in some areas of Turkey (Danışman 1977; Donners *et al.* 2002). The miller of Mylos tou Stylli, Evrykhou (BU0049), however, reported the use of a *koudouka* at his mill prior to the reconstruction of the present penstock.

In general terms, the Ottoman-period mills are robustly and attractively constructed, using decorative features such as quoins, shaped voussoirs for the arches, tinted plasters, decorative effects achieved by expressing masonry through plasters, and the decorative use of chinking made from basalt, limestone or tile. The more recent mills, exemplified by Mylos tou Stylli at Evrykhou (BU0049), tend to be constructed of rubble masonry, with fewer decorative features. The more recent mills also make effective use of a sloping site to negate the need for the massive, supported leats characteristic of the earlier Ottoman-period mills, exemplified by the 'pink mills' of Linou (BU0002–0004) and the mill of Shaban Bey at Phlasou (BU0075). Evidence of intensive agricultural production in the Survey Area during the Ottoman period is provided by this linked group of mills between Linou and Katydhata (BU0002, BU0003 and BU0004; Volume 2, Chapter 3.10). These mills, constructed remotely from the river, utilized a complex

Fig. 3.41. Mylos tou Molou, Phlasou (BU0076): south wall of leat and penstock, with millhouse visible to the right. Height of leat in centre is 5 m. (Chris Parks)

network of channels carrying water in from higher up the Karkotis Valley. They are constructed of a range of basalt masonry styles, ranging from dressed ashlar blocks to rubble masonry, all covered with a distinctive pink-tinted lime plaster. This linked group represents considerable investment in construction and must have contributed to the production of a significant surplus product traded outside the region.

In contrast to the Karkotis Valley, the mills of the Asinou and Vyzakia catchments, in more marginal agricultural lands, had been abandoned for longer and were probably only able to be used in times of abundant water flow. For example, Paleomylos (BU0054), located on a terrace above the Asinou River, may have been built in response to the increase in cereal production in that region; the result of the establishment of the Medieval estate and monastery at Asinou. Due to climate change and reduced rainfall in the 19th century, however, Paleomylos was no longer viable and the grain had to be transported longer distances down the valley to be processed (Volume 2, Chapter 5.8).

The surviving fabric of the mills of the Survey Area also shows evidence for repair, reconstruction and alteration, suggesting their use over long periods of time. Alterations, including raising the height of the penstocks, changing the size and shape of the penstock water intake and changes to the width of water channels, were perhaps required to take account of changes in the availability of water. They also demonstrate concern for the efficiency of the function of the mill, with extensive use of lime plasters in the penstock and the water channels to reduce drag. There is also evidence for technological innovations being made to this essentially Medieval technology right up to the mid-20th century, with evidence for the introduction of steel turbines and imported French millstones (Rizopoulou-Egoumenidou and Myrianthefs 2003).

The watermills of the Survey Area are significant evidence for agricultural intensification, largely during the Ottoman and British colonial periods. They reflect the importance of the grain crop as not only a subsistence staple, but also a valuable commodity to be traded outside the region. This is also reflected in, for instance, the grain-producing seasonal settlement of Kato Koutraphas *Mandres*, which was not a village community, but a settlement designed to support intensive grain production, as demonstrated by the large number of threshing floors surrounding the settlement site (Volume 2, Chapter 2.10). The mills also exemplify the exploitation of the resources of the landscape and the opportunity to 'add value' to the crop through processing using hydraulic power. Over this period the mills gradually diversify into grinding crops other than wheat, for example, barley for pig meal (BU0049, BU0060), cotton (BU0049) and even powering a foundry and an olive press (BU0062).

Many of the watermills recorded are imposing and enduring structures, with aesthetic qualities more reminiscent of churches and public infrastructure than the family dwellings of the region. The significant investment required to develop such manufacturing infrastructure reflects the social and economic organisation required to support the development of a grain growing and processing industry. As discussed by Given (2000) and Given and Hadjianastasis (2010), such organisation was often achieved through the control of water rights by church and mosque (as discussed further in Chapter 3.12) and led to specialised irrigation, cash crops and milling in the water-rich Karkotis Valley, at the expense of subsistence production. The rural landscape pattern which developed through the Ottoman period was impacted upon in the later 19th century by changes wrought by the British colonial administration. New bridges, road and rail networks meant that milling and other forms of processing became more centralised, and many of the mills which could not diversify appear to have been abandoned in the early to mid-20th century. Employment of rural populations in public works projects, such as road and bridge building, as well as in the mining industry, also impacted upon rural economies and population distribution.

Cross and Cryptograms on Molos Watermill (BU0076)

The stone inscription on Molos watermill in Phlasou is weathered and damaged, which makes its deciphering even more difficult and complex. From the image of a Golgotha cross in the middle, however, it becomes clear that this is a soteriological symbol, which commonly include apotropaic letters and cryptograms. Fig. 3.42 shows the cross, with the common expression IC XC N[I] K[A], i.e. 'Jesus Christ vanquishes' in the middle, the year 1690, and the other letters and cryptograms.

On the upper part of the vertical arm of the Cross, one can see traces of the letters 'O E B'. From their position, these should be read as: **O** [των] **E**βραίων **B**ασιλεύς ('King of the Jews'), which is a variation on the familiar abbreviation INBI/INRI (for other variants see Karakatsanis 1997, 182, fig. 2.116; Lucco and Pontiani 1997, 111; Moutafov 2004, 246). Even more interesting, however, are the other letters on the cross, 'Φ K P Επκ', where the last word is clearly a mistake for 'Επί'. The preposition suggests that this is a sentence. We know of earlier inscriptions which quote from the Psalms, particularly in relation to the apotropaic function of water. Such an example is a baptismal cross from the 6th century, found in a paleochristian basilica in Epanomi, Greece, bearing this inscription on the reverse: 'Φωνή Κυρίου επί των υδάτων' ('The voice of the Lord is over the waters') (Papanikola-Bakirtzi 2002, 498). On this basis, the Molos inscription encodes the sentence '**Φ**ωνή **K**υ**P**ίου **επί** [των υδάτων]' ('The voice of the Lord is over the waters'), from Psalm 28 in the Septuagint (Psalm 29 according to the Western Bible).

On the same basis, the following letters, 'KK KK [ε] ις ρω[ν]α' – the last word being a common mistake for 'αιω[ν]α' – are clearly related to the next part of the same psalm: '**κ**ύριος τον **κ**ατακλυσμόν **κ**ατοικιεί και **κ**αθιείται

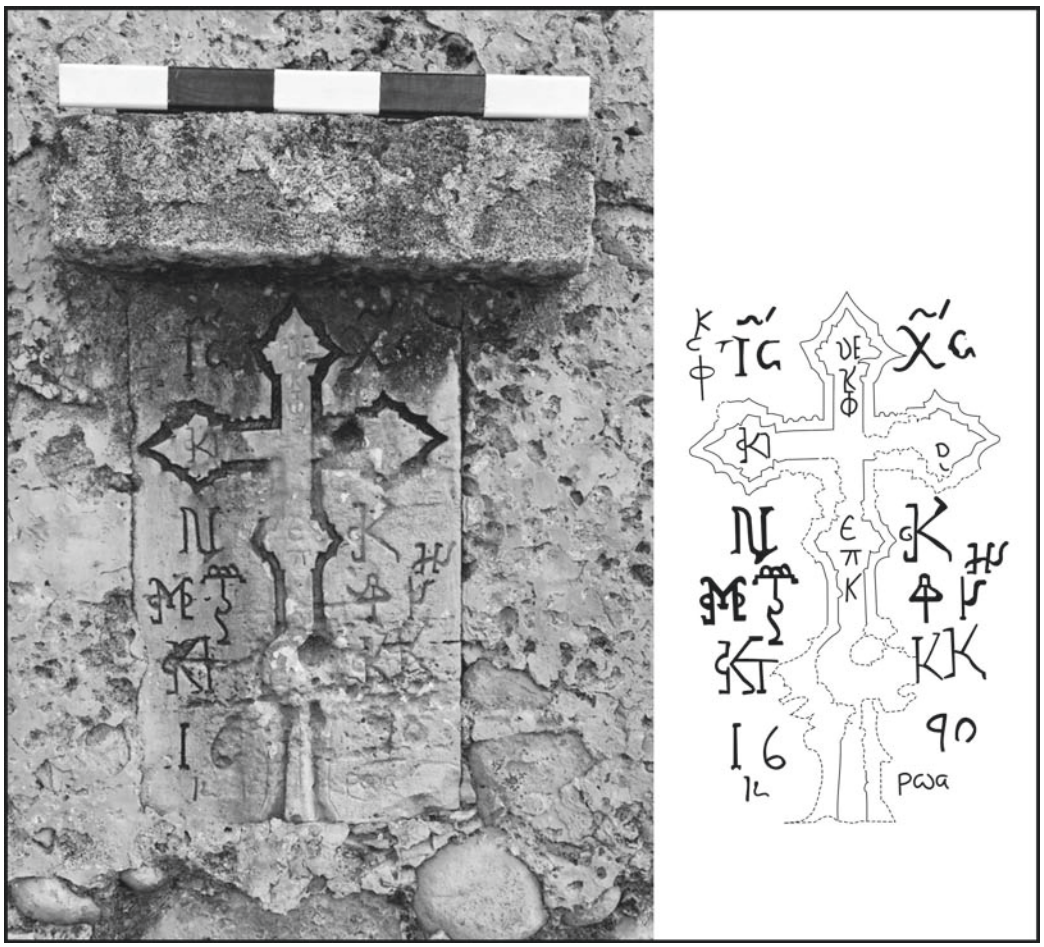


Fig. 3.42. Molos watermill, Phlasou (BU0076): photograph and transcription of cross and inscription (Photo: Kyriakos Humbert. Drawing: Luke Sollars)

κύριος βασιλεύς **εις** τον **αιώνα**' ('The Lord will settle the flood, and the Lord will sit as king forever'. An obviously important word in the last passage is **κ**ατακλυσμός (*kataklysmos*), which apart from deluge also means act of God in general. Such a reading of the encrypted message is directly related to the amuletic power of the cross and to the cleansing function of water in Christian cult, as in rites of consecrating water. The last verse of the psalm reveals the natural fear of the owners of the watermill regarding flooding of the river. We quote here Verses 3–10 of the psalm, which must have been redolent with meaning at the height of the Little Ice Age (see further Chapter 6.4):

3 The Lord's voice is over the waters;
the God of glory thundered,
the Lord, over many waters,
4 the Lord's voice in strength,
the Lord's voice in magnificence.
5 The Lord's voice, as he crushes cedars,
and the Lord will crush the cedars of Lebanon.
6 And he will pulverize them, as the bull calf, the Lebanon
and he that is beloved is like a son of unicorns.
7 The Lord's voice, as he divides flames of fire.
8 The Lord's voice, as he shakes a wilderness;
the Lord will shake the wilderness of Kades.
10 The Lord will settle the flood,
And the Lord will sit as king forever.
(Septuagint Psalm 28 [29 in Western numbering]; New English Translation of the Septuagint, http://ccat.sas.upenn.edu/nets/edition/)

A quote from the same psalm is used on a stone plate dated to the 6th century, which has been built in the altar of the church of Ayios Tychikos at Ayia Phylaxis, Limassol, and is now in Limassol District Museum (Nicolaou 1995, 226, pl. XXVI:19). The line is also inscribed in a stylized image of a cross: '+ Φωνή ΚΥ επί/ των υδάτων αν/τλήσατε πάντες/ μετ'ευφροσύνης+' ('The voice of the Lord upon the waters, you all draw of them and rejoice'). Ino Nicolaou suggests that this inscription must have been placed on a fountain, most probably near the baptistery of a basilica, and that a quotation from Psalm 28 (29): 3 is commonly found on water containers in Cyprus (1995, 226). Although it is not encrypted, which is a later development, this much earlier inscription plays a similar role to the Molos inscription.

The end of the cryptic inscription on the Molos mill is probably an invocation with information about the donor

or owner. I would, therefore, propose the following order of reading: 'K Cτ Φ M Τρ Φ Y HΓ 1690'. The first three elements are '**K**υρίου **Cτ**αυρός **Φ**ύλαξ' ('The cross of the Lord is a protector'). (For a 17th century parallel from the Vatopedi Monastery Mount Athos, see Oikonomaki-Papadoupoulou *et al.* 2000, 188). Because there is a date on this part of the cross, the abbreviations M Τρ Φ Y HΓ should be seen as the name, or names, of owners, constructors or donors, as it is in the cross from Vatopedi monastery. Bearing in mind that we have an encrypted text from the psalms, which shows significant theological learning, the abbreviations M Τρ Φ Y HΓ can be read, for instance, as **Μ**η**τρ**ο**φ**άνου**ς** **Η**γουμένου (the Abbot Metrophanos), though such an individual is not known from documentary sources.

The watermill could have been owned by one of the neighbouring monasteries, for instance Panayia Kousouliotissa about 2 km to the east, or Panayia Skouriotissa about 3 km to the north-east of the watermill. Watermills owned by monasteries are known in the Medieval period across the entire Byzantine Empire (Decker 2008, 403; Donners *et al.* 2002; Soustal 1991, 387–89; Thomas and Hero 2000). Even if the mill was not owned by a monastic community, the idea of abbreviations around the cross should still be related to the culture of priesthood, as the long-standing tradition of cryptic inscriptions in Cyprus is always associated with the high clergy.

Crosses with cryptograms exist in church art during the Middle Ages and they become particularly popular during the 13th and 14th centuries in the Balkans, the island of Cyprus and partly in the West (Babić 1979). They start appearing on objects for personal use, such as *encolpia* (reliquaries worn round the neck), but then acquired an apotropaic or symbolic function on church walls.

The oldest cryptic inscription in Cyprus that I know of, in the area of the Troodos mountains, is from the monastery of Panayia Phorviotissa at Asinou and dates from the 14th century (Gibraltar *et al.* 1933, 335–45; Moutafov and Rhoby 2012; Rhoby 2009, nos 232–40; Stylianou and Stylianou 1960, 97–99). There is another such inscription next to the image of St. John the Kalybitis, from the Church of the Holy Cross, in the village of Ayiasmati, near Platanistasa, from 1494 (Stylianou and Stylianou 1985, 210, fig. 120; Moutafov 2004, 236). This can be read in the following way: 'The Cross of God, the True Cross of Jesus Christ, son of the Israelites, the Cross of Christ (is) the Lamb of God. Honest sign (and) the beginning of light.' The same tradition was preserved on the island during the 16th century as well, as can be seen in an inscription in the Church of the Transfiguration of Jesus, in the village of Palaeokhorio, from the second decade of the 16th century (Stylianou and Stylianou 1985, 268, fig. 158; Moutafov 2004, 239).

From the point of view of epigraphy one can say that the inscription from 1690 stems from the earlier tradition of the stone plate and painted churches, but has developed that tradition further. The continuity is evident in the abbreviation 'N K' in all the examples from Cyprus, instead of 'NI KA', as it is in most cases from other Orthodox lands. Also noticeable are certain similarities in the way the letters Φ, K, Y and E are written on the three monuments. The difference in the material, however, imposes a different approach to the letters. In church images of crosses there are two dots around the letters, and above them a sign for abbreviation, but as this is difficult to achieve when inscribing the letters in stone, so the stonemason has entwined the dots into the letter itself. This is particularly visible in the writing of M, Τρ, Φ and K on the Molos inscription.

These examples from the area around the Troodos mountains suggest that there was a continuous tradition of writing apotropaic signs round crosses on church walls. In the 17th century this tradition expands so as to cover civic buildings, such as the Molos watermill in Phlasou. Since the end of the 18th century, crosses bearing the phrase 'IC XC NI KA' combined with other letters and images also appear as architectural elements on walls of houses (Egoumenidou 1984; Sinos 1976, 106, fig. 107) and on *pitharia* for storing wine and olive oil (Rizopoulou-Egoumenidou 1995). Of particular interest is an inscription from 1819 over the entrance of the wine cellar in the monastery of Machaeras, where 25 *pitharia* were stored with wine for the monks and worshipers. This reads, 'ΓΕΥCΑΤΑΙ ΚΑΙ ΙΔΕΤΑΙ ΟΤΙ XC O KC/ IC XC Y[ιός] Θ[εού] NIKA' ('Taste and see that Jesus the Lord, Jesus Christ, Son of God, is victorious', followed by the names of the Father Superior, the church donor, the village he came from and the construction date (Tsiknopoullou 1968, 106). The first part of the inscription is a quote from the Λειτουργία Προηγιασμένων Τιμίων Δώρων (the Liturgy of the Presentation of the Holy Gifts), the second one is apotropaic, and the last one is historical and dedicatory, as it is in the suggested reading of the Molos inscription.

These civic sites and objects for personal use have clearly been directly influenced by the tradition established by monks in Medieval church decoration. As time went on the inscriptions became more elaborate, and as well as abbreviations of liturgical formulae they included references to the names of patrons and donors. The reading of each abbreviation is conditional, because the original idea of orthodox encryption was to convey messages which could be interpreted in different ways, depending on the reader's background and expectations.

The apotropaic, or soteriological, invocation on the facade of the Molos watermill suggests that before 1690 a predecessor was carried away by the flooding of the Karkotis River – or at least that such an event was a real possibility. There is no architectural evidence as to whether the 1690 inscription marks the original construction or a rebuilding. Nevertheless, each of these inscriptions from Cyprus is unique and cannot be found in the rest of the orthodox world, even though the main principles of forming such messages are preserved – quoting passages from the psalms, hymnography, as well as the connection with Saints Constantine and Helen, the sacrifice on the Cross and the

Fig. 3.43. Linou Kapati *(BU0002): leat and plastered chute of watermill, looking east-north-east (Chris Parks)*

hope for salvation of the souls from sin and of the bodies from enemies and calamities (Moutafov 2004, 232). From this it is clear that between the 14th and 19th centuries these monuments in the Troodos Mountains played a major role in shaping the local cryptographic tradition.

Select Catalogue of Building Units

The following catalogue gives details of 25 out of our 169 recorded Building Units (BUs). The selection is intended to be both representative and to give the highlights of our architectural survey, with references to other parts of the publication where they are illustrated and discussed. The full database can be downloaded from our public data archive (TAESPdata 2007). Elsewhere in this publication we list all watermills (Table 3.50) and weirs (Table 3.51), and discuss in detail the village houses of Mandres (Volume 2, Chapter 2.10) and Asinou (Volume 2, Chapter 5.5). Grid references are in the UTM grid, and are followed by the elevation above sea level in metres.

BU0002 Linou *Kapati.* 490500/3881820. 290 m. Mylos tou Ahmed Agha (Fig. 3.43; Volume 2, Chapter 3.10, Figs 3.28–29)
Ruined watermill on channel from Phlasou to Petra. Floor of leat is lined with grey basalt river boulders. Three-tiered penstock 6 m high. Penstock exterior: dressed ashlar on upper north-east penstock face; changes half way down to river cobbles; some whitewash; substantial stone robbing. Pink plaster round the opening of the shaft; interior of shaft has white/grey plaster. Arched outflow at base of penstock.

BU0003 Linou *Dhendropalloura.* 490590/3881900. 280 m. Mylos tou Ahmed Agha (Volume 2, Chapter 3.10, Fig. 3.28)
Ruined watermill 130 m down Phlasou–Petra channel from BU0002. Aqueduct for leat 3 m wide, penstock 10 m high. Aqueduct: external skins of roughly coursed stone infilled with rubble, mortar, mud and some lime. Leat carried over arch, now collapsed, to penstock. Originally a complex of buildings along aqueduct, as shown by putlog holes, wall stubs, niches, arch base. Three-tiered penstock with pink plaster.

Fig. 3.44. Linou Kokkinorotsos *(BU0004): tiered penstock with remains of plaster, looking south-west (Chris Parks)*

Fig. 3.45. Evrykhou Kares *(BU0045): Ottoman and British colonial bridge (south face) (Chris Parks)*

BU0004 Linou *Kokkinorotsos.* 490760/3882060. 270 m. Mylos tou Ahmed Agha (Fig. 3.44)
Ruined watermill 240 m down Phlasou–Petra channel from BU0003. Masonry on bedrock foundations. Intact pointed arch through aqueduct behind penstock. Pink plaster on penstock. Putlog holes in masonry, showing evidence for associated structures (as BU0003).

BU0044 Katydhata *Mylos.* 489330/3882060. 250 m. Mylos tou Ahmed Agha (?) (Volume 2, Chapter 3.10, Fig. 3.30)
Ruined watermill, located in Katydhata village. Aqueduct for leat 29 m long, with putlog holes. Pointed arch with limestone voussoirs through aqueduct behind penstock. Masonry: basalt river boulders with limestone chinking; penstock covered in white plaster, though some basalt boulders are left showing through. Large ruined wheelhouse beneath mill with wooden turbine wheel in situ. Millstones in situ above wheelhouse. Designated Ancient Monument.

BU0045 Evrykhou *Kares.* 490450/3877160. 410 m. Deimma Kousoulioti (Fig. 3.45)
Abandoned bridge adjacent to ruined watermill (BU0046) close to Evrykhou. Buttressed on south side. North face of bridge is earlier, with pointed arch and unmargined voussoirs. South face shows the 1900 extension, with a round arch and margined voussoirs. The British period extension was designed with care to reflect the architectural features of the earlier bridge (cf. BU0126). Abandoned road has lime and gravel surface on west, tarmac on east. Road and bridge now redundant. Concrete sentry box dated 1963 on east side of bridge. Extensive modern concrete additions to approaches and river channel, to stabilize and strengthen the structure. Appears on Kitchener's 1885 map; extension of bridge and road construction described by Nicolls (1901).

BU0047 Asinou *Platanoudhi.* 497120/3877980. 480 m. (Chapter 3.11, Fig. 3.38; Volume 2, Chapter 5.5, Pls 5.11, Figs 5.17–19)
Central agglomeration of Asinou village, with complex history of modification and re-use. Seven phases of construction. Materials range from basalt with or without chinking, infill with re-used blocks, mudbrick additions and alterations, and recent additions in concrete. Originally planned as one or two dwellings, but new dwellings added opportunistically. Four corner hearths and one more elaborate hearth in centre of long wall. Flat roof of wooden beams, canes, brushwood and earth (Fig. 3.38).

BU0048 Evrykhou *Balies.* 490920/3877630. 440 m. Evrykhou Railway Station (Volume 2, Chapter 3.15, Fig. 3.51)
Abandoned railway station, Evrykhou. Dates to 1914 when Government Railway was extended from Morphou to Evrykhou. Standardized 'Class 2' station design (Turner 1979, 37). Closed in 1932 (see Volume 2, Chapter 3.15 for conflicting accounts of the reasons); subsequently hospital and forest office; burnt in 1974. Two-storey building, 21.0 × 6.3 m. Rusticated and margined ashlar blocks for foundation, quoins, and door and window surrounds; rest is mortared rubble, with sandstone string course above ground floor. Upper floor has terraces at each end, with brick extension on south terrace.

BU0049 Evrykhou Village. 490780/3877210. 440 m. Stylianides Mill/Mylos tou Stylli (Volume 2, Chapter 3.4, Pls 3.6–7, Figs 3.9–14)
Well-maintained stone-built mill with associated domestic quarters for the miller and his wife. Built in present form in 1878, renovated 1926. Plastered rubble masonry with limestone quoins. Penstock 16 m high; base 7.5 × 3.0 m; top 2.6 × 3.8 m. Turbine room of stone with barrel-vault. Mudbrick milling room above turbine room: 7.7 × 7.1 m; concrete floor was originally of stone; roof of terracotta tiles now supported by two rolled steel girders. Now has engine for periods of low water flow, in separate engine room measuring 3.4 × 2.1 m, with concrete base for engine. Volume 2, Chapter 3.4 has full description and discussion. (Morris 1984).

BU0054 Nikitari *Palaeomylos.* 497850/3878390. 440 m. (Volume 2, Chapter 5.8, Fig. 5.32)
Possible penstock of water-powered mill for grinding grain, though it may have been an intermediate building to bring water down to a lower level for entry to a penstock. Section of leat preserved, 1.1 m wide: floor is plastered with lime, crushed brick and soot. Penstock is 2.1 m wide. The chute runs diagonally at a slope of 15–20°; it has a square cross-section of 0.65 × 0.55 m and is plastered with pink plaster. Because of collapse it is now exposed at the front. Used to have metal grill at the top to catch debris as water flowed in from the race. Rotsos (BU0064) and Koumis (BU0074) mills also have sloping chutes.

BU0058 Asinou *Kapsalia.* 497560/3878160. 460 m. Panayia Phorviotissa (Volume 2, Chapter 5.5, Figs. 5.7–8)
Richly decorated Byzantine church, Asinou. Built and painted in 1105/6. Functioned as monastery church (see Volume 2, Chapter 5.5 for ruined structures probably related to the monastery). Narthex added and painted at end of 12th century, with apses on north and south; further narthex paintings added in 1332/3. 15.6 × 6.2 m. Walls of undressed local stone, with brick, tile and stone chinking. Originally plastered; fragments survive with masonry outlined in red. Three buttresses added in 14th century. Central dome hidden under modern pitched roof. Interior: arched recesses in side walls; transverse arches support vaulted roof; apse at east end. (Frigeriou-Zeniou 1997; Hadjichristodoulou and Marianthefs 2002; Stylianou and Stylianou 1985, 114–40; Winfield 1969).

BU0067 Tembria Village. 490170/3875720. 480 m. (Chapter 3.12, Plate 3.9)
Weir for water distribution, built in its current form out of concrete in 1951. Central square junction box, with main channel entering and leaving on same axis, with minor

Fig. 3.46. Shaban Bey watermill, Phlasou (BU0075): arched aqueduct and penstock behind, and millhouse in front (Marios Hadjianastasis)

Fig. 3.47. Church of Ayios Loukas (BU0089): west end (Michael Given)

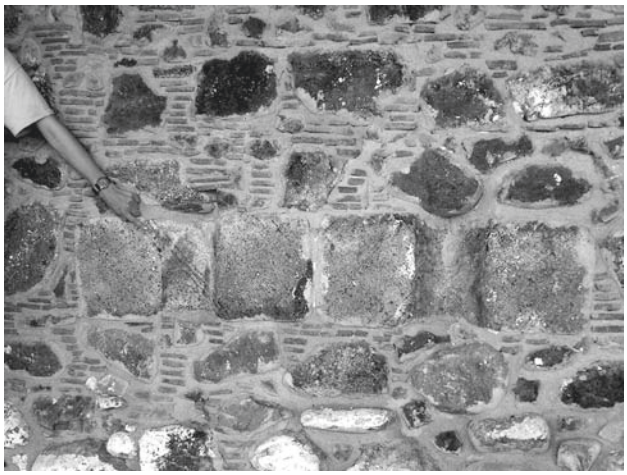


Fig. 3.48. Church of Ayios Loukas (BU0089): millstone cut in half and incorporated into south wall (Michael Given)

outflow at an acute angle. Both outflows have sluice gates; the original metal gates have been replaced with cane mats. Channels have square cross-section of c. 40 × 40 cm.

BU0070 Evrykhou *Lachistos.* 490050/3877970. 380 m. Lachistos (Volume 2, Chapter 3.3, Pls 3.4–5, Figs 3.5–7) Watermill, also known as Mylos tis Panayias ('Mill of the Virgin Mary'). Four-tiered aqueduct for leat, with supporting buttresses every 3 m. Height rises to c. 5.6 m beside penstock. Lower rows built of flat tiles, typically c. 4.5 × 45.0 × 38.0 cm. Penstock c. 5.6 m high, with carefully distinguished courses in smaller and larger basalt boulders. Large chute (diameter 2.17 m), set into rectangular floor at top of penstock with perimeter walls 0.80 m high. Millhouse partly destroyed, but south side survives, with latticed window. Outflow from turbine room has pointed arch with dressed voussoirs; earlier arch with dressed stones is visible inside (Volume 2, Fig. 3.7). Nozzle and wooden wheel visible inside turbine room.

BU0071 Kalliana *Tsappa.* 490440/3774560. 520 m Water separator and sluice gate, Kalliana. Channel walls and floor constructed of irregular basalt and limestone, with cement on exterior and interior. Inflow channel c. 0.65 m wide. Main outflow leads to Spyros mill (BU0061) and then to main water separator at Kalliana (BU0068). Smaller outflow leads to Myltis mill (BU0060). Metal sluice gate with central screw and wheel to raise gate, and maker's stamp: 'Mikhanopoieion o Atlas. E. Khasalakou, Lefkosia'.

BU0075 Phlasou *Shaabanbeys.* 489720/3879850. 320 m. Shaban Bey watermill (Fig. 3.46). (Volume 2, Chapter 3.8) Large watermill, Phlasou. Aqueduct carrying leat has 2 pointed and 1 round arch (because of rebuilding?). Basalt and lime construction, with triple-arched aqueduct carrying leat. Penstock: 4 tiers, with pronounced slope facing west (towards millhouse and river). Circular chute with metal grill; diameter c. 55 cm. Wall round top of penstock c. 50 cm high. Millhouse collapsed and overgrown; built of c. 14 courses of irregular river boulders of basalt, with basalt chinking, and topped with 6 rows of mudbricks, upon which the wooden beams of the roof rested. According to the miller of the Stylianides mill (BU0049), the Shaban Bey mill was famous as being the most productive in the area (see Chapter 3.12 for local rhyme celebrating this); it was still in use in the 1940s.

BU0076 Phlasou *Molos.* 489560/3880090. 300 m. Mylos tou Molou (Molos Mill) (Fig. 3.41, Fig. 3.42) Watermill, Phlasou. 250 m down the river from the Shaban

Fig. 3.49. Kalliana Tsappa *(BU0092): east facade of khan (Chris Parks)*

Fig. 3.50. Ayios Theodhoros Karterouni *(BU0129) looking north-east (Michael Given)*

Bey mill. Lavishly restored in 2000 as the centrepiece of a small community park. A water channel runs along the road and over a single pointed arch to enter the penstock, which has two tiers and dressed ashlar quoins on all four corners. Cylindrical chute with high balustrade around opening on top of the penstock. Millhouse heavily restored: grinding room above, with millstones; arched outflow, immediately below, from which the water emerges from the wheel room and runs into the Karkotis River. A date of 1690 is inscribed in one of the masonry blocks in the north wall of the penstock. Inscription on block in north wall of penstock, with cross, cryptograms and the date 1690 (see subsection above).

BU0084 Phlasou *Koutroullis tou Ayiou Yeoryiou.* 489940/3880190. 320 m. Ayios Yeoryios (Volume 2, Chapter 3.6, Fig. 3.21)
Church of Ayios Yeoryios (St. George), Phlasou. Supposedly dates to 1722 (Phlasou 1989), though very likely had Medieval predecessor. Simple rectangular plan. Walls of basalt boulders with limestone chinking; plaster originally covered the chinking. Ashlar limestone blocks round doors and windows, also in lower north-west corner. Originally had a barrel-vaulted roof with water spouts at west end; roof has relatively recently been raised and converted to a simple pitched roof. Small windows on east and south walls have been replaced with frames of red fired bricks. Small buttress on north-east corner. Windows on S and E walls have red-brick frames (the plaster around these is whiter and appears more recent). S wall of compound facing road has a small buttress.

BU0089 Korakou *Polydoros.* 490030/3877720. 410 m. Church of Ayios Loukas (Figs 3.47–48)
Church of Ayios Loukas (St. Luke), dated to 1697. Located on spur with extensive views down Karkotis Valley. Wide porticos on 3 sides with tiled roof: round arches on west, pointed arches on north, wooden posts on south. Originally had a barrel-vaulted roof; relatively recently it has been raised and converted to a simple pitched roof. Buttresses on north and south sides. Edge-runner olive millstone cut in half and both sides built into south wall (Fig. 3.48). Inscription over north door: 'This Holy Church of the Apostle Luke was founded on the 27th September in the year 1697 by the expenses of the priest Jacovos built by the hands of Constantine and Dimitri Gavriel' (Gunnis 1936, 283).

BU0092 Kalliana *Tsappa.* 490530/3875150. 500 m. (Fig. 3.49)
Khan (caravanserai) on main road along Karkotis Valley below Kalliana village. Main facade has two storeys, each with six very slightly pointed arches in two sections of two and four; voussoirs are of red fired brick, probably from the early 20th century. Ceilings of tied cane. Foundations of sand and large river boulders. Stable, oven and stone paving restored at the back. Some ground floor rooms functioned as shops and coffee shops. Fireplace in lower room has date 1921; upper arch column has date 1932. Used in early 20th century by mountain villagers taking produce to the Plains to sell, or taking grain to be ground at the watermills (Chapter 3.13). Part restored by Department of Antiquities in 1970s; rest under restoration by the same in 2002.

BU0094 Phlasou *Kousoulia.* 490690/3880080. 360 m. Panayia Kousouliotissa (Volume 2, Chapter 3.6, Fig. 3.19)
Church of Panayia Kousouliotissa, Phlasou. Rectangular plan with semicircular apse on the east, buttress on the south-west corner, an added brick bell tower on the north-east corner, and a corrugated iron porch on the east and north sides. Rubble masonry with chinking, now whitewashed. According to local tradition the Virgin Mary at this church can cure infants, and cloths and items of clothing are still tied on a eucalyptus tree beside the church (Volume 2, Fig. 3.19). This is presumably the church and monastery visited by Basil Bars'kyj in 1734–36: he describes it as small and unfinished, with a 'round' (barrel-vaulted?) roof, and entrances on the north and west; a third was being made on the south (Bars'kyj 1996, 40–41).

BU0114 Kato Koutraphas *Vouphas.* 497790/3884710. 190 m. (Chapter 3.13, Fig. 3.66)
Colonial period bridge for the Nicosia–Troodos road built in 1900. Three round arches carry a bridge over the main channel, with drafted voussoirs and keystones and three buttresses with pointed breakwaters. Basalt causeway over island, and another smaller sandstone arch across narrow channel on north. East face (downstream) also has three pointed buttresses, and stone spouts for draining the road surface.

BU0129 Ayios Theodhoros *Karterouni.* 493360/ 3873778. 700 m. (Fig. 3.50; Volume 2, Chapter 5.8)
Small two-storey house with three rooms on ground floor and one room, plus terrace, on the first floor. Four phases. (1) Single-storey *makrinari*-style house of large basalt blocks with basalt and pottery chinking. (2) Room added to west made of rough rubble masonry with much pottery chinking. (3) Room built on first floor: walls have some basalt masonry, with the rest of mudbrick. (4) First floor terrace floored with concrete slab, with steps leading up to it also made of concrete. The corrugated roof on the western extension and the roof of machine-cut joists and curved tiles over the upper room are also later replacements.

BU0130 Ayios Theodhoros *Karterouni.* 493340/3873390. 700 m. (Volume 2, Chapter 5.8)
Two-room village house, 7.9 × 5.8 m. 2 phases. (1) North room built of rubble masonry with chinking of small stones and sherds. Diagonal wooden shelf in the north-east corner. Fragment of roof made of cane ceiling, joists and Italian tiles. (2) Room added on south, with round stone oven (2.8 × 2.2 m) apparently built into and protruding from the outside of the south wall.

BU0132 Katydhata Village. 489770/3882350. 250 m. (Volume 2, Chapter 3.10, Fig. 3.26)
Hamam (Turkish bath). Walls of limestone and basalt masonry, with chinking of small stones. Carefully chosen blocks for quoins and two visible voussoirs of an arch which is now mostly destroyed and filled in. Stone-built domed roof with terracotta vent. Collapsed mudbrick room on south, 2.8 × 2.8 m, with hooks hanging from roof timbers. On the western side of the hamam is a collapsed stone-built room and a stone-built oven, now partially collapsed (diameter 2.0 m; height 2.0 m).

BU0141 Kato Koutraphas *Koronia.* 496080/3883070. 310 m. (Chapter 3.11; Volume 2, Fig. 2.1)
Lime kiln. Massively constructed, built into south-facing slope close to the peak of Koronia. No sign of a firing hole at the base. Walls are constructed in concentric skins of limestone chunks. Thickness of wall is 1.5 m at top, then 2.2 m from the interior face of the kiln to the first internal skin; then a further 1.9 m to the exterior face. The firing cavity inside has a diameter of 3.8 m and a current maximum depth of 3.8 m. There is another slightly smaller lime kiln 35 m to the east (BU0142).

BU0147/TP014 Xyliatos *Athassi.* 502910/3878800. 360 m. (Volume 2, Chapter 4.7, Figs 4.30–33)
Large two-storey house with four rooms, perhaps a small estate house. Central portion is rectangular house divided longitudinally into two ground floor rooms. Basalt rubble masonry with stone chinking. Upper floor, which is probably later, is built of 19 courses of fired brick below and mudbrick above, the corners strengthened with fired brick. Wide doorway with wooden lintel. At a later stage it was extended at both sides, with rooms made of rubble (north extension) and mudbrick (south). Poor condition: roof and floor of upper storey missing, and mudbrick walls badly eroded. Terrace wall along its western front; threshing floor (TP015) behind it.

3.12 The Archaeology of Water: Pre-industrial Water Networks

Sevina Floridou

The Karkotis Valley holds one of the last communal irrigation systems still functioning on the island. Our documentation of it, carried out in July 2001 and July 2002, aimed to record mills, weirs and other relevant features, and to investigate its spatial and social organization. We investigated how the communities along the river continue to distribute water amongst themselves today, as well as in the recent past. By examining features in their landscape context, this study aims to reveal how the scarcity of this precious resource created a system of values by which water was commodified and graded, in the face of both modernization and increasing drought.

The sharing of water between the two communities, Greek Cypriot and Turkish Cypriot, is evident in the Survey Area and is seen as a process that is dynamic, not just between individuals but within institutional structures or systems. These have their roots in the Medieval period and their development continues to the present day. These competing identities and relationships of power were expressed in the system of water-sharing over time, and are intertwined with other structures of social power such as class, gender, ethnicity and national identity.

The methods and limitations of this investigation are discussed in Chapter 2.14. The weirs and similar features are summarised in Table 3.51. See Chapter 3.11, Table 3.50 for watermills.

Topography

The river valley can be visually divided into four loosely adjoining zones, based on land use and altitude between 200 to 800 m asl (Fig. 3.51). Of the villages studied, Kalliana and Tembria are highest up in the mountains. Fruit unable

Table 3.51. Documented weirs in the Karkotis Valley

BU	*Name and village*	*Description*
BU0065	Gronthos Pera Geitonias, Tembria	Three parallel outflow channels, concrete. Metal sluices. 'GR 1951'. Plate 3.9. Fig. 3.52
BU0067	Tembria	Two angled outflow channels, concrete. 1951. Metal sluice replaced with cane mat. Plate 3.9
BU0068	Moirasia Kallianas	Two parallel outflow channels, concrete. Associated with cotton mill BU0061. Fig. 3.53. Led water to Gronthos in Tembria (BU0065) and Korakou BU0071.
BU0071	Kalliana	Water separator and sluice gate, Kalliana. Concreted 1953. Screw/wheel sluice gate with Nicosia foundry plaque. Feeds weir BU0068 & mills BU0060–61.
BU0072	Kalliana	Water channel, Kalliana, coming from BU0071. Side outlet with sluice gate. 1953.
BU0100	Deimma Kounergati, Phlasou	Weir, Phlasou. Earth channel leading NE out of river.
BU0101	Deimma Avrouliatis, Evrykhou	Two channels taking water E (to Phlasou) and W from river. Channels & steps cut in bedrock. Possibly pre-Ottoman. Concrete plaque: 'WSID 1951'.
BU0105	Deimma Asprallou Linopsa, Evrykhou	Channel leading from river to supply Ahmed Agha mills E of Katydhata & (via plastic pipe) BU0134. River channel now blocked. Fig. 3.56
BU0106	Deimma Ayiou Epiphaniou, Phlasou	Weir & gravel embankment forming the diversion channel, leading along W bank of Karkotis to supply Ayios Epiphanios.
BU0107	Deimma Selloshis, Phlasou	Weir & channel with sluice gates leading water off E bank, supplying mills BU0062, BU0075–76. Plate 3.9
BU0108	Deimma tou Roudhia, Evrykhou	Earth channel taking water off W bank.
BU0134	Deimma Karidi, Phlasou	Earth channel leading off river to W. Now supplied by plastic pipe from BU0105.
BU0148	Deimma Kourvelatis, Evrykhou	Channel leading W to supply mill BU0099. Now disused.
BU0149	Honi, Phlasou	Water distribution node associated with Molos mill (BU0076). Supplies Linou & Katydhata. Receives water from mill BU0075. Associated swimming spot and pool for soaking flax.
BU0160	Deimma Kousouliotis, Evrykhou	River bed and sides concreted, with staircase and metal bridge. 1960s. No outflow channel into river. Plate 3.9

to grow in the lowlands is grown here on steep terraced slopes. The villages of Evrykhou and Korakou constitute a second zone, with steep inaccessible banks towards the river and solitary mills located in individual surroundings. Facing each other across the river, Phlasou and Ayios Epiphanios are on the immediate lower slopes. Grain and vegetables, citrus groves (displacing the earlier flax, cotton, beans and sesame) and olives can be seen in small fields. The valley sides slope steeply down to the banks of the river, integrating mills in this zone within the nucleated settlement of Phlasou. The land of Linou and Katydhata slopes more gently towards the river bed, and olives, grain and some pastoralism (sheep) predominate today. Mills in this area appear again as individual isolated structures, though with a characteristic structural technique differing from all previous mills.

Water has always been a scarce commodity on the island. Even here where the river flows all year-round, there is a water shortage in the long dry summer months. Over time an ingenious water-sharing system (functioning as the *Koino Ardeftiko*) has developed in the Karkotis Valley and its intensively farmed slopes. Operating by natural flow and gravity, the water begins from numerous *piges* or springs, the chief two being Deimma Franjiko and Koufoelies on the north face of the Troodos range, north of Kakopetria. The morphology of this landscape is delineated by its natural water features such as rivers, springs and tributaries, but even more by its anthropogenic ones: weirs; rock-cut water channels; earth-cut leats; overground channels either of earth, or constructed in stone or cement (*avlachia*). This water distribution landscape extends northwards to Morphou Bay, and is administered by a parallel social system of community organization focusing on the distribution of water rights, enforced by village committees.

Flowing water is checked by weirs within the river bed, defining points along the river known as *deimmata*. They facilitate outflow in the direction of the river flow, at an acute angle to the river (Plate 3.9). Each *deimma* is an acknowledged landmark bearing a distinctive name. Each determines, according to water ownership rights, to which village water is primarily diverted and for how long. It is also significant which village territory it lies in, as that village is responsible for 'giving' water to other villages further downstream. Often a village downstream may own the weir upstream.

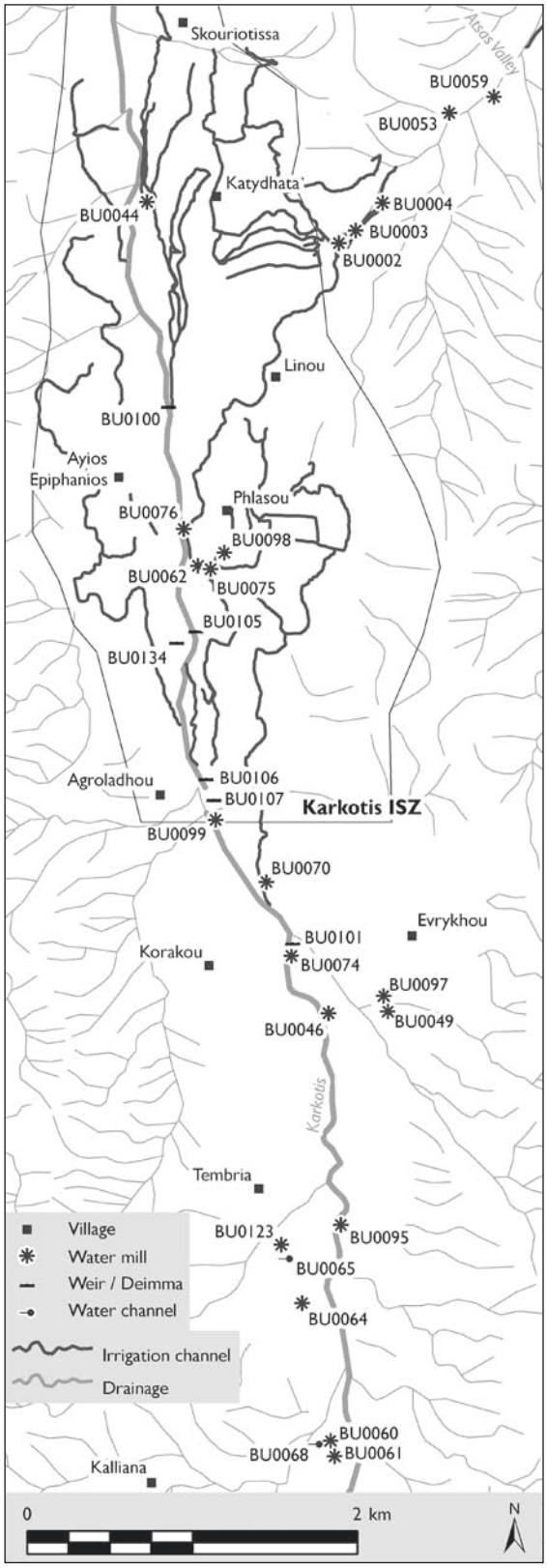


Fig. 3.51. Mills, weirs and principal water channels in the Karkotis Valley. Water channels are traced from 1:5000 cadastral plans; the many smaller channels and those outside the Intensive Survey Zone are not shown. In the north-east corner the water to supply BU0053, BU0059 and villages downstream was conveyed in the stream channel. (Luke Sollars)

Fig. 3.52. Separation node (koftousa) dividing into three channels (gronthi) at Tembria (BU0065) (Chris Parks)

Water for irrigation is channelled from the weirs towards nodes defined as either a *koftousa* or a *kopsa*, which lead water into further controllable openings known as *gronthi* or *moirasia* (e.g. BU0065, BU0068; Plate 3.9; Fig. 3.52). Water is diverted at these nodes through openings in the channels and led towards the next village, wherever the relief allows. From the 20th century, many such channels have been contained in concrete. Water is finally dispersed along a system of earthen channels, *ryshies*, soaking into each field. The channels generally appear to outline plot boundaries and are c. 0.3 m wide when watering fields, or 0.6–1.2 m wide when following field boundaries.

The Water-Sharing System

Water rights were never written down collectively, but were dispersed onto individual title deeds. In 1972 the Department of Water Development made a schematic map of water-sharing rights (see below). A complex system of sharing water appears to have evolved over generations; a system that has become an inextricable part of the social fabric and oral history of the villages in this valley that continue to use water in this way.

The measuring system which evolved is based on the rate of water flow permitted to pass through a variety of openings per unit of time (itself determined by natural

Table 3.52. Water rights in the Karkotis Valley (Solea Valley, Karyotis River: irrigation intakes and details of water rights, Water Development Department, 1972). GC = Greek Cypriot; TC = Turkish Cypriot; M = Mixed (based on Lands & Surveys 1:250,000 map of Cyprus, 1975). The figure for hours per week shows an equivalent figure based on a 100% water flow. Tsappa refers to the water overflow after the sluice gate has been closed (see below)

Village	*Water flow*	*Days & times*	*Hours/week*
Kakopetria (GC)	100% (6/6)	Sun, Mon, Wed, Thurs, Sat: midnight–6 am. Fri: 8 hours	32
Evrykhou (GC)	50% (3/6)	Sun, Mon, Wed–Sat: 6 am–3 pm. Sun, Mon, Wed–Sat: *tsappa* midnight–6 am	19
Petra (M)	100% (6/6)	Every other Sun, Tues, Thurs, Sat: 3 pm–midnight	13
Elia (M)	100% (6/6)	Every other Mon & Thurs (3 pm–midnight) & Tues (midnight–5 am)	11.5
Tembria (GC)	16.6% (1/6)	Every other Sun, Mon, Wed, Thurs, Sat (6 am–3 pm; *tsappa* midnight–6am) & Fri (8 am–midnight; *tsappa* midnight–8 am).	16.2
Korakou (M)	33.3% (2/6)	Sun, Mon, Wed, Thurs, Fri: 6 am–3 pm; *tsappa* midnight–6 am	14.3
Katydhata & Linou (M)	100% (6/6)	Every other Wed: 5 am–6 pm	6.5
Kalliana (GC)	Not calculable	Every other Sun, Mon, Wed, Sat: midnight–6 am. Every other Mon, Wed, Thurs: *tsappa apo pollyin,* midnight–6 am	
Phlasou (M), Linou (M), Ayios Epiphanios (TC)	Not calculable	Every other Mon: *tsappa* 3 pm–midnight. Every other Tues: midnight–4 pm (belongs to 3–4 people, & waters 4.5 donums of Government land)	

factors), rather than on a quantitative understanding of volume as constituted by the velocity of flow. A cyclical timetable determined the quantity of summer water flow, according to both communally and individually determined rights. The time allowed was checked against natural observations, while the points of diversion have become nodal landmarks in an orally defined landscape. Knowledge of the water system itself (although mapped onto cadastral plans) appears to be largely oral, memorized by local residents, particularly the *nerofori* or appointed water keepers for each area.

A systematic management of rivers was laid out in the Mejelle, the Ottoman code of civic law that was applied towards the end of Ottoman rule on the island and used in the early years of British rule (Mejelle 1901). It was compiled in 1874 by a commission specially appointed to separate Canon and Civil Law. It addresses practicalities of the religious Shari'a law, differentiating between the different Muslim sects, but also setting out guidelines for courts outside religious law. This includes laws concerning drinking water, land improvement and irrigation, standard weights and measures, shares in running water, moveable and immoveable property, rent, and the right to water crops and animals (Mejelle 1901, xxix–xxxx).

The Mejelle determines rivers as 'owned as a joint property' (1901, 198–99), and, more specifically, as a type of property which could provide separate benefit, termed as 'mulk'. This means that according to Ottoman law, a river like the Karkotis, although defined as public, could be 'harnessed' to create private benefit arising from its distribution:

> Water, grass and fire are free to be used by all. In those three things mankind are partners… Public rivers, which are not held as mulk property, are rivers, which are not divided, that is to say, which do not enter into channels, which are the mulk property of a number of persons… Rivers which are owned as mulk that is to say, rivers which enter into channels which are owned in shares, are of two kinds, [the first being] distributed and divided among the shareholders. (Mejelle 1901, 186–87, paragraphs 1234, 1238–39).

The Mejelle further stipulates that the shareholder who is lowest down the valley shares in the expense of the maintenance of the whole stretch from its source, proceeding downwards, while the owner highest up is responsible for only one fraction of the expense, the rest shared by the consecutive owners. The owner who is the second highest up, pays for two fractions and so on, each share increasing with descending order (1901, 199). This explains why owners lower down in the Karkotis Valley today 'own' (and are legal beneficiaries of) the water higher up in the valley.

According to the Department of Water Development's map of water-sharing rights of 1972, each village territory along the stretch of the river is defined by the extent of its water rights, how much water it takes, and where and how much it passes on. Table 3.52 summarises the main points of this highly complex diagram, but there are many exceptions. Every third Sunday, for example, the flow normally allotted to Petra is given to Hadji Moulla, who rents it back to the village.

The amount of water each village is allowed, as well as the length of time before it is diverted into the next territory, is strictly monitored by water keepers (*nerofori* or *nerofylakes*), who are specially appointed by the government and entrusted with making sure that water is distributed according to the complex system of communal

norms, as well as individual water rights. In the Kalliana to Katydhata stretch there are 13 of these. *Nerofori* are only appointed for the summer season and are hired by field owners to 'take them their water' ('*na tous parei to nero*'), i.e. to divert the water at the allotted time into the owner's land. During winter the water runs free (*adespoto*).

Contrary to the assumption that lower villages would receive more time since the water flow would be less, the water is in fact shared along a system determined by status. The most privileged villages at either end of the valley (Kakopetria and Evrykhou to the south, Petra and Elia to the north) are favoured with night-time and full capacity watering. Night-time watering, especially in summer, is beneficial because it conserves evaporation and also allows land to cool down, which is better for the crops. Daytime watering with gradually diminishing capacities is lower in the pecking order, with smaller quantities of water handed down to Tembria, Korakou, Katydhata and Linou. Even lesser units determine the lowest part of the hierarchy, for example Phlasou, Linou and Ayios Epiphanios.

Dating

Since the irrigation network supports associated structures such as mills and weirs, it can to some extent be dated by linking it to those structures, particularly the mills, for which we have historical references and a few inscriptions, including one of 1690 (BU0076). Due to continuous alterations over the centuries, however, further research is needed to establish a chronology of the irrigation network. It would also be very valuable to attempt a comparative model of the development of Medieval hydraulics, by comparing this network with other examples. As we will see below, the way in which the water supply was perceived and organized derives from Venetian models of the 15th and 16th centuries.

The Archaic–Byzantine city of Soloi and the Roman, and probably earlier, mining activities at Skouriotissa, suggest that the Karkotis Valley produced much of the food to sustain the concentrated populations in both the civic and mining centres (Chapter 5.3). It is likely that some form of irrigation dates back to the Roman period, where there is evidence for intensive soil management practices in the lower part of the Karkotis Valley (Volume 2, Chapter 3.16).

Irrigation networks are mentioned in documents dating to the Byzantine period elsewhere on the island, including Procopius' mid-6th century reference to the *agogos* (aqueduct or water channel) renewed by Ayios Kononas (Thomsen 1995, 29–30). A 12th-century inventory of properties owned by Panayia Theotokos monastery includes a mill at Potami, on the north-eastern edge of the Survey Area, though it is not clear what type of mill is meant: 'And a mill was built at the spring at the village of Potami, in the place of the milling workshop' (Darrouzès 1959, 48).

Byzantine water management and water-sharing rights refer to the 'Apocope ton psomion' of 1232, when lands

Fig. 3.53. Gronthos (sluice gate with fist-sized opening) at Kalliana (BU0068), with the previous mayor of Tembria village, Mr Georgios Herodotou (Sevina Floridou)

were divided into two categories, those watered during the winter and those also irrigated in the summer (Grivaud 1998, 11–12). To this day, summer and winter watering in the Karkotis is differentiated and governed by similar rules.

Greek etymology of place names such as Katydhata ('Kato ydata', or 'lower waters') suggests that the water channel system predated the Frankish feudal holding of Cattidata, recorded in 1523 as belonging to the Baliazzo delle Marathasse real (de Mas Latrie 1852–61, III, 506). Some sort of irrigation network at a higher altitude presumably provided water to Katydhata before the 16th century.

Water Management Features

Where the terrain allows water to gather into a pool, weirs are built to dam the river and create a small reservoir *(deimma),* from this two channels usually flow out along the banks on either side of the river. These weirs were originally built of wood, reeds or boulders. Nowadays almost all weirs have defined, geometrically cemented edges, with low retaining cement walls and sometimes steps leading down, but they act as a holding point in the same way as the traditional containment. Most cementing was

Fig. 3.54. Leat and penstock of Miltis mill in Kalliana, with sluice gate in the foreground (BU0060) (Chris Parks)

Fig. 3.55. Koftousa *(water separator) at Phlasou (BU0149), looking north. The left-hand channel leads to Molos mill (visible on the left) and from there to the river and ultimately to Katydhata village; the central and right hand channels supply Linou. (Sevina Floridou)*

created during colonial rule, marked by commemorative plaques recording construction, such as '1951, WSID' (Water Supply and Irrigation Department; BU0101). Some weirs use natural rock formations or river embankments to dam water, such as at Deimma Karydi (BU0134). One small impermanent weir uses boulders, earth and reed embankments to contain the water (Krevathkia; BU0063).

Sluice gates (*koftouses*) are set in the sides of the weirs to control, let through or divert water through canals. Today these are made of sheet metal slotted into metal U-shaped grooves that are vertically incised into the cemented channel sides (Fig. 3.53). Originally of earth or stone (now mostly concrete), canals may align into two or even three parallel troughs. Flow at such nodes is checked and water from the river is distributed to allotted areas further downstream.

The *kopsa*, an older term which is distinct from the newer metal sluice gates, referred to heaps of earth, reeds or stone used to bar earth channels (*ryshes*). One of the oldest outflow shutters documented was a wooden rectangular board with a carved round 'head' or handle on top (*aloupos*), at the escape hatch *(katarantin)* on the leat of Mylos tou Stylli mill (BU0049). A complex early industrial affair of rotated metal wheels and pulleys, from colonial times, was used to raise and lower some larger sluice gates, for example on the leat leading to the Miltis mill at Kalliana (BU0060; Fig. 3.54).

Adjacent to Molos watermill in Phlasou (BU0076), a triple trough *(honi)* with one inlet and three outlets is the main water distributor for the villages of Linou and Katydhata (BU0149). This is one of the sites where the *ahnaria* ritual is carried out (see 'Measurement' below). Of the three now cemented outlets, the westernmost feeds water to Molos mill, to the fountain on the south side of the mill (dated by an inscription to 1282 AH, i.e. AD 1865), and then back into the river. The middle outlet sends water to a sunken pool situated north of the mill. The easternmost outlet branches into two parallel channels which take water from Asprallou Linopsa weir (BU0105) to Linou and then across the watershed to Petra and Elia in the Atsas drainage to the north-east.

Passing the nodal diversion the water which a landholding receives is determined, not only by the width of the channel, but also by the amount of water flowing through it for a set period of time. A trickle (*tsappa*) permitted to continue flowing over or under the dropped sluice gate is further designated and allotted on title deeds. Overflow *(polyin)* indicates surplus water flowing over the top of the sluice gate after a canal full of water has been checked. Water trickling underneath the sluice gate after it is closed, is designated as *polyiman.* Other cement channels have openings situated in the channel floor just in front of the gates, allowing water to flow down through the trough base after the gate has been dropped. The size of this opening determines lesser units of water (see below).

Weirs with their major outflow channels provided water for a variety of uses other than irrigation, for example, powering grain mills, small-scale industrial processes such as candle making, drinking fountains, social activities such as bathing, and even Muslim funerary requirements (Simarski 1992). Several sunken pools (*moloi*) have been identified along the river's banks. The one beside Molos mill mentioned above was used to soak flax or for rope-making (BU0076). Another locality names a large puddle *(Lantos),* probably a natural seasonal weir, famed as a favourite swimming spot (BU0076, beside Molos mill). Further north, Linou mosque (Bağışkan 2009, 393–94) and Muslim cemetery, now both vanished, were located beside Kounergatis weir, confirming that weirs and similar diversion nodes were connected to important landmarks within the community.

Historical Development

Given the secure dating of the operation of most of the watermills to the 17th and 18th centuries, if not before, it is clear that weirs which fed the largest concentration of mills between Phlasou, Korakou and Evrykhou must have been both operational and highly significant under Ottoman administration. We also know, from historical records and our survey, that this was agriculturally a highly productive area throughout the Ottoman period (Volume 2, Chapter 3.1; Volume 1, Chapter 5.4).

A good example is Deimma Selloshi (BU0107), situated between Phlasou and Korakou. Even though now cemented, its importance in the Ottoman period is clear: it watered Phlasou and powered the three large mills of Krommidhos (BU0062), Shaban Bey (BU0075) and Molos (BU0076), while receiving discharge from the mill of Ayia Varvara. A rhyme recounted by Mr Styllis of 'Mylos tou Stylli' in Evrykhou (Volume 1, Chapter 3.4) described how Shaban Bey mill would grind all through the night when water was to be had (Panayiotou 2001). The bells probably refer to the noise of the water splashing against the water wheel. Sixty-two *gomarka* comes to about 9,500 kg, perhaps an exaggeration for effect:

> Ο μύλος του Σαπάμπεη π'ον
> με τα κουδουνάρκα
> αλέθει το μερόνυχτο εξήντα δκιό γομάρκα

> The mill of Shaban Bey
> bells a-jingling
> can grind in a day and night sixty-two *gomarka*

Colonial weir renovations of 1901–1951 indicate new organizational management. Milling factories (*havrikes*) were built by Greek Cypriots during the early 20th century (e.g. BU0060–61, BU0070) although the term *havrika*, derived from the Venetian 'fabrica', indicates a possible earlier use of the name. With farming and grinding methods becoming more mechanized, manual labour was absorbed into the nearby mines. A distinct re-organization of weirs emerges: some are left as earth embankments, while others are renovated in concrete and dated with plaques advertising the colonial authorities. Of the former, Roudhia weir (BU0108) and Deimma Karydi (BU0134) are earth-constructed weirs with earth canals and a gravel embankment to separate flow of water. Deimma Karydi, situated in a fork in the river south-west of the Shaban Bey mill (BU0075), used to receive water from Platania, but it was reported that one of its channels had been disused before the 1960s.

Abandonment or diversion of some weirs followed abandonment of settlements and fields after 1964. This is demonstrated by Deimma Asprallou Linopsa south of Phlasou (BU0105; Fig. 3.56). This is one of the most complex weirs in the valley: it has a long history of multiple uses, and manages one of the greatest water diversions in the course of the river. It lies just south of the stone bridge (BU0126) leading to the now abandoned Turkish Cypriot village of Ayios Epiphanios, and directed water to Ayios Epiphanios, Mylari mill (BU0098) and the seven ruined mills of Ahmed Aga, 3 km to the north-east (Fig. 3.51; Volume 2, Chapters 3.10). This diversion is indicated on Kitchener's 1885 map as an aqueduct which crosses the watershed into the Atsas Valley and continued on to Petra and Elia and into the Atsas River. Oral accounts indicate that none of these seven mills were functioning in the early 20th century, presumably causing the weir to lose its wider significance as it was increasingly absorbed into the immediate surrounding irrigation network.

Fig. 3.56. Deimma Asprallou Linopsa *(BU0105) looking south, with the mayor of Linou, Mr Petro Efthymiades. From left to right: the outflow channel; the kopsa (sluice gate) immediately in front of Mr Petro's left foot; the partial concrete dam to direct water in through the sluice gate; and the main river. (Sevina Floridou)*

According to local information, the water rights of Ayios Epiphanios were transferred to the village of Phlasou after the intercommunal strife of 1964. The main river, flowing onwards from Deimma Asprallou Linopsa to Deimma Ayios Epiphanios, from where that village was supplied, has been dammed. A cemented channel (*koftousa*) leads at an angle from the stagnated checked flow to Linou and to the portion of the aqueduct which leads towards Petra. A 'weir outflow' in the form of a separate black water pipe, observed in 2001 but since removed, passed through the cemented trough, taking water to Deimma Karydi by means of a diesel-powered pump, and from there to Phlasou. This clearly indicates lower water levels. Similarly, the weir feeding the abandoned settlement of Agroladhou has been omitted from the Department of Water Development map of 1972, but still figures on the circular diagram; it is unclear who now receives its meagre water rights.

Since 1974, water rights of villages in the occupied north have been transferred to the communal water-sharing system ('Koino Ardeftiko') of the Republic of Cyprus. Also, post 1974 'trans-boundary' water resource management indicates that rivers discharging off the Troodos mountains have been checked following the line of cease-fire (Hocknell 1998). This in effect has put out of use

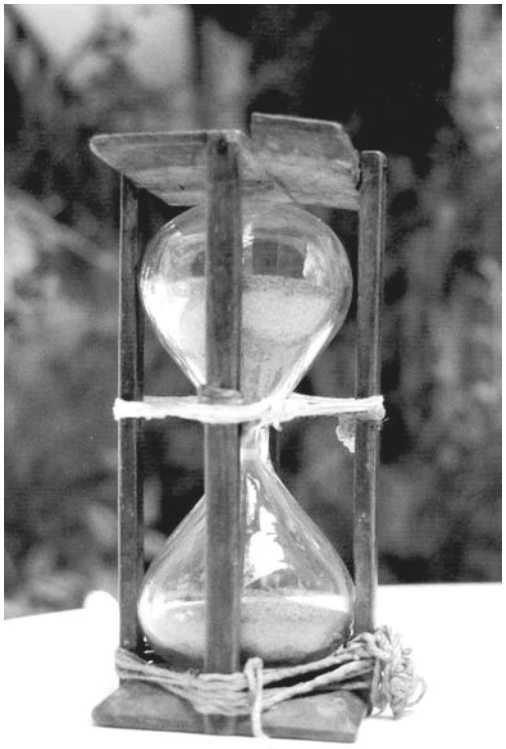


Fig. 3.57. Hourglass of the Ioannides family in Katydhata (Sevina Floridou)

all weirs which fed water to the villages below Katydhata. The once dominant function of some has been forgotten (e.g. BU0105), while others have visually vanished through disuse (e.g. BU0100, BU0167–69). By contrast, the southernmost weirs, which water the populated villages on Republic of Cyprus territory, are still functioning (e.g. Fig. 3.52, Fig. 3.53).

Measurements

In this water-sharing system, the flow is measured, not in units of volume as constituted by the velocity of flow, but by the diameter of the outlet and the duration of the flow. In descending order, the diameters are measured as follows. A *mylos* is the amount of water needed to drive a mill, assumed to mean a full penstock. On the title deed for Krommidos mill (BU0062), for example, water allowed for the mill is specified as being 'about two *myloi* of water' (Title deed No. 4377, plot 618, transfer copy of 1975, belonging to Mrs Evroulla Hadjidimitriou of Phlasou). An example of an aperture size which determines a landholding's water rights is an *ylari*, derived from the diameter of a flour sieve.

In water diversions to communities, one of the most commonly found diameters of channel openings for diverting water flow is *kefali*, literally meaning 'head'. Another is *tsappa*, which refers to a wedge-shaped opening made in the side of an earth channel when earth is raked back with one scoop of a hoe to let water flow out. A *gronthos* is a fist-sized opening (c. 12–15 cm) giving water from a distribution channel to a community (Fig. 3.53). *Thilia* is a unit of measurement equal to the diameter of the hole in a metal hoe into which the handle or *stelifi* fits (8.0–8.5 cm). The *stelifi* is also a measure of water allowed to flow through an aperture in the base of the channel once the sluice gate has been lowered. *Stelifi* refers to the diameter of the wooden hoe handle itself (slightly less than 8 cm).

Although today time is an easily determined and unquestioned entity, this was not so in the past. Until the last century privileged landowners would have owned an hourglass, such as the family heirloom showed to us in Katydhata (Fig. 3.57). This belonged to a priest's family and the status it carried is clear. The hourglass was taken to the field and used at night; pebbles being placed onto it to record the number of turns and thereby keep count.

At night the stars were used to determine the time for water diversion. Most water diversions began at midnight, determined by the *Oplia* constellation (the Pleiades) appearing above the highest peak of the Troodos range, visible from the valley, with the tail rising in the east. This was used from 18 May to 28 August, while *Poalteri* (Orion), recognized by its top seven stars in a row, was used from 28 August to 18 May.

Sunrise is determined as the sun showing above the highest visible mountain peak of the Troodos range. The hour before sunrise is determined by the rising of Venus above Porni, the tallest peak visible on the mountain range. Alternately, it was considered morning when one could distinguish the gender of a person at the distance of 200 paces or, alternatively, one skala (roughly explained as 'one field away').

During daytime, accounts describe a ritual involving the measuring of *ahnaria* (footprints) and shadow-length to determine the times of water diversions. This was carried out at a designated space within each village in the presence of water officials. The only place where the *ahnaria* are still officially practised, we were told, is in Linou. This ritual is carried out wherever the water is divided. One location is the top of the water tank and leat of Krommidos mill (BU0062), which is aligned in an almost east–west direction, or at Honi (BU0149; see above). A line is drawn on the ground. Seven steps are then taken, heel to toe, in an eastward direction and a second line is drawn. The person appointed to take the steps then stands back at the first line and when his shadow becomes long enough to touch the second line, it is time to divert water to his holding.

The accepted hour for water diversion is now 8 am (termed '8 *ahnaria* before midday' on the Department of Water Development map, 1972). The afternoon 'seven steps' shadow-length coincides with 3 pm, although the time is still referred to casually as '*Epta ahnaria*' and not 3 pm. Half way down the valley, Evrykhou, Korakou and Tembria also divert water at mid-afternoon. Sunset similarly refers to the time the sun sets westward, behind the mountain range.

Ahnaria time is not fixed, but varies according to the length of the day; the clock is therefore of little use.

Discussion and Conclusion

The irrigation and water supply network was at its peak during the last half of Ottoman rule and the Early British colonial period, which coincides with commercialization of agriculture here and in other areas of the island (Given and Hadjianastasis 2010). Before, during and after that period, the landscape of the Karkotis Valley has been written and rewritten through water flow. Prior to the Water Department's map of 1972 which collected all information into one chart, the spatial taxonomy lay in scattered title deeds and the collective picture relied almost entirely on oral propagation. This was expressed in the Cypriot dialect, using a substantial specialized terminology which today is used by fewer and fewer people. This information was shared and conducted by local administrators between themselves and a few surviving elders who had witnessed both the peak and decline of the system.

Locating and documenting each structure separately was possible within the area of each individual village, but scant information emerged concerning how each individual area connected into the wider irrigation scheme. Most watermills (and some weirs) were obsolete and in various stages of decay; the irrigation network, on the other hand, was still in use, but much altered. Furthermore, imminent plans for a regional dam through re-appropriation of water rights may render the entire existing water topography obsolete.

We were fortunate to tap into the memories of an obliging expert, the last miller, who provided a huge amount of information both on the disused part of the network and also on the functioning of his own mill (Volume 2, Chapter 3.4). He broke down and cried at the sight of the disused mills: 'Athropos en o topos chai o topos yierimos' ('Without man there is wasteland'), he lamented at Koumis's mill. He used the term 'man' as being the animator, central to setting the mill in motion.

The diminishing quantities of water are a source of deep concern. Oral accounts of people from Katydhata confirmed that in the 1940s and 1950s, night-time watering was popular, contrary to their watering rights as mapped in 1972. People would spend nights with their families and employees, waiting for their turn to water their fields, swimming in the river and lighting up the water with *daskia* (60-cm long pine torches stuck in the ground), as they fished for eels in over 1 m depth of water. The Evrykhou miller was frustrated in 2002 when he did not receive water as in the past; his village used to get water daily, every second week in the summer. Recently more daytime watering as opposed to night-time has perhaps evolved because of administrative practicalities. Water monitoring officials now answer to the Government department, showing that 'bringing the water' has itself evolved into a daytime government job.

Shared water rights are closely scrutinized by involved participants and often highly contested, down to the level of the right to the water escaping under a checked sluice gate, or the difference in diameter between a wooden mattock handle and the aperture this fits into. Generally, ownership of watering rights shows horizontal divisions along class lines, rather than vertical ethnic divisions (Given and Hadjianastasis 2010, 38–39). Tensions between unchecked bulk on the one hand and minute disseminations on the other, point to a considerable social hierarchy. An affluent powerful class received the right to the bulk of the commodity, 'until their whole field is watered'. Water rights belonged to the elite of both communities, with evidence of cross-communal transfer. A lower (yet still privileged) class, as opposed to those with no water rights, struggles with antagonistic definitions, often creating and maintaining strained relationships.

In some cases strained water relationships may have fueled the vertical/ethnic differences seen between villages that were of both mixed ethnicity and that held lesser water rights, e.g. Ayios Epiphanios, Linou, Korakou and Agroladhou. The characteristic siphoning off of the major river flow at the Asprallou Linopsa weir effectively barred milling further down the river and re-diverted it to the huge mills of Linou and Phlasou, as well as the older Ahmed Agha chain of mills towards the Atsas drainage (see above).

At the other end of the social scale, the architectural fabric of the tiny hamlets of Ayios Epiphanios and Agroladhou and the scrubland surrounding them, indicates the low social status, in water ownership, of a portion of the rural Turkish Cypriot population. Ayios Epiphanios was irrigated, by agreement, with water received from Linou and Phlasou for four hours every two weeks. This is explained in mythical terms via the story of a King in Ayios Epiphanios who was outwitted by a Queen in Linou into surrendering almost all his water rights (Chapter 5.4).

Our analysis of the oral descriptions of the water network and its components suggest that local perceptions of water management have been strongly influenced by Renaissance theories based on Euclid's *Geometry* and Vitruvius's *On Architecture*. The guiding principle is that water is divided into 'chunks' or sections: weirs separate it from the main river flow and it passes through a sequence of channels diminishing in size, in a system which is managed through continuous supervision, operation and maintenance. This clearly does not incorporate the theory of velocity which the inherently dynamic nature of water flow requires.

This model of water flow reflects a broad Renaissance discourse which used a platonic philosophical model, popular amongst certain groups of Venetian nobility around the mid-16th century (Cosgrove 1990). As observed in the notebooks of *periti* (engineers) like Christoforo Sorte, attempts were made to measure channel size and water volumes in carefully drawn cross-sections involving detailed calculations. Whether certain channels in the

Survey Area were indeed thus designed is uncertain, though we do know that Marco Cornaro, who was one of the driving forces behind the Venetian water and reclamation ministries, had an active presence in Cyprus (Cosgrove 1990, 38–40; Luttrell 1996, 166).

The same influence can be seen in the primarily visual concept of the *fabrica* (termed *havrikas* in the area), which articulates the parts of each construction, be it weir, diversion channel or mill, into a composition of separate parts. Together, they all constituted a form of perfection, created by human engineering. The *fabrica* as a concept is immobile until animated by spirit, attested to by the still functioning elements of the irrigation system, just as much as by the obsolete mills. The lament of the last miller standing in front of a derelict mill, as noted above, expresses the model of a macrocosmic world which is animated by the microcosmic human body and set in circular motion by time. But here again the thinking is static rather than dynamic: the mill is not conceived in terms of a mechanism for work, but rather as a body whose animating spirit came from outside itself, from 'man'. This historical cosmogony is a purely Renaissance personification of human reason and faith, and is preserved in the way the water channels continue to be used, and also in the Cypriot dialect of our Survey Area.

In the second half of the 16th century Venice began attempting to measure velocity. The proper handling of flow characteristics emerged in the 17th century with the discovery of calculus, and Dutch engineers went on to adopt a more dynamic environmental view in their river regulation schemes (Cosgrove 1990). It is clear that neither calculus nor flow velocity appeared in the Ottoman administration of water supply.

This is precisely where the Karkotis irrigation network diverges historically. Euclidian physics, together with the model of cosmic circular motion based on a humanist understanding, continued to structure water distribution and milling in the Karkotis Valley, even after the Ottoman conquest in 1571. Water management continued to retain a strong emphasis on flow, aperture and channel characteristics of each individual holding, rather than on a broader context of rivers and their drainage basins. This derives from the Venetian model of management, and can be seen today in our documentation of the oral history, as well as in the inability of the present day Water Department to quantify individual holdings.

The Ottomans took this principle of separation of the waters along the river and embedded it into the Mejelle law code and into legally binding title deeds of individual properties. In doing so they fossilized, by means of judicial application, a philosophical model of water management which informs modern land and water holdings to this day. This would explain the absence of a wider picture of water management of the whole river basin, save for the attempted documentation of 1972.

Now, for the first time in centuries, modernity through the Government's water re-appropriation dam now under construction, will in effect recreate the landscape, disregarding the cultural identity and heritage of the area. Yet in an attempt to apply reason and consistency, reductionist modern landscape engineering is still marked by contradiction – between separation and holism, analysis and synthesis (Cosgrove 1990).

Fig. 3.58. Path running along the base of mountain to the south-east of Asinou Church, Asinou Valley Intensive Survey Zone. Path is c. 1 m wide. (Erin Gibson)

3.13 Movement in the TAESP landscape

Erin Gibson

Roads, paths and communication routes are complex forms of material culture. While a new road may be built to facilitate movement, by its very nature its form structures and constrains this movement – how you move, your speed of travel, the route taken and where you are able to stop. The documentation and analysis of the material culture of roads, paths and communication routes helps to reassess human activity within landscapes where traditional survey material (pottery and lithics) is absent (Fig. 3.58). At the same time, it offers survey archaeologists a wider picture of how people went about the activities of everyday life – commuting from village to field or smelting site, gathering wood from the forest, transporting grain to the mills, herding goats and visiting neighbouring villages.

A mesh of interrelated places and landscapes exists within the Survey Area. While the careful analysis of pottery distributions, lithics and Places of Special Interest in Volume 2 illustrates the complexity of past human activity in this diverse area of Cyprus, distribution maps and discrete discussions of Intensive Survey Zones imply that these zones bound human activity. This section redresses any such misunderstandings.

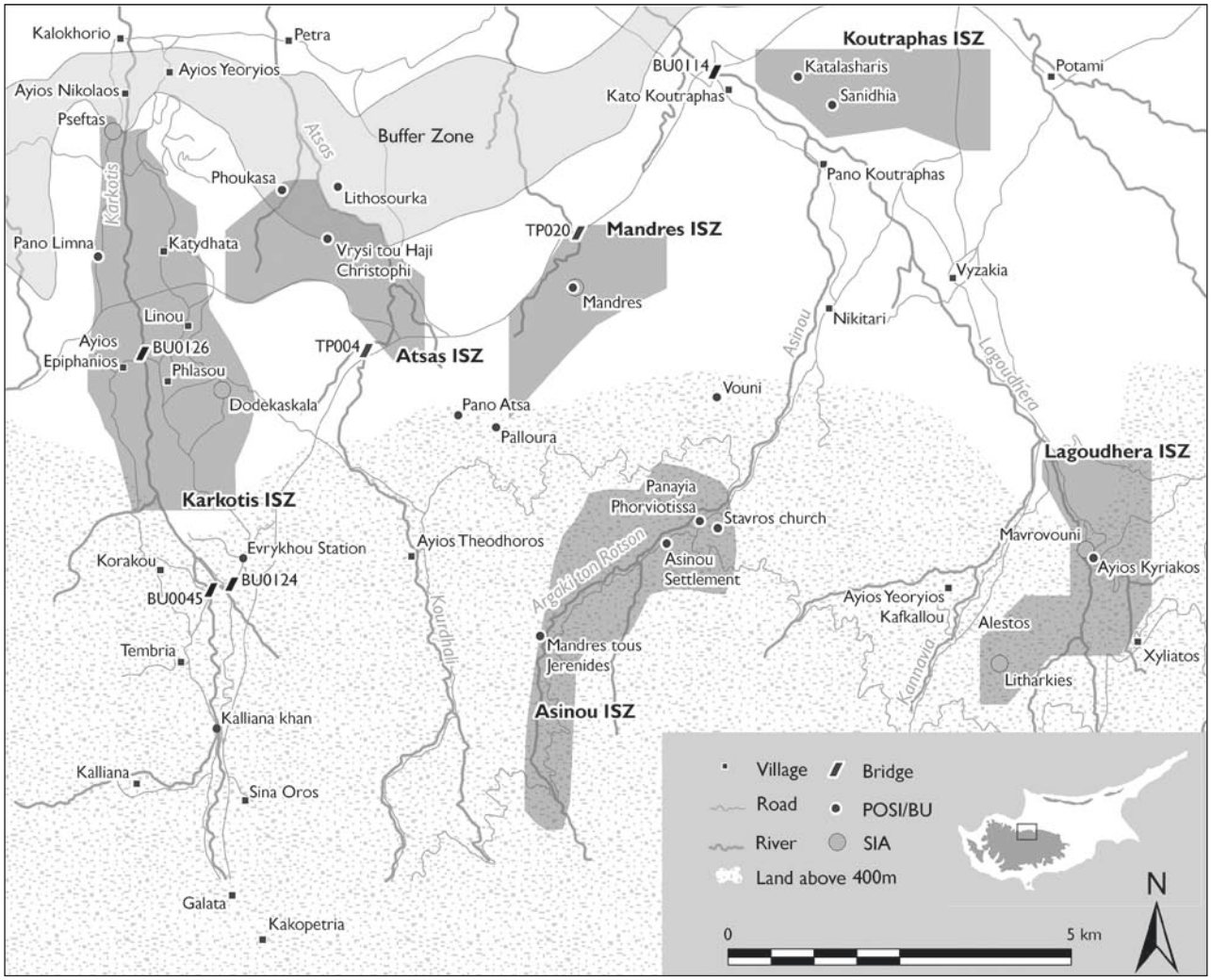


Fig. 3.59. Map of the Survey Area. See also Plate 3.1. (Luke Sollars)

This discussion is divided into four main thematic subsections. The first provides a brief overview of movement and social interaction in the TAESP Intensive Survey Zones, giving special attention to understanding interaction in valley systems. The second subsection looks, in detail, at paths located in the Lagoudhera Valley Intensive Survey Zone, in order to better understand how people moved through and lived within such mining landscapes. The third subsection highlights the dynamic nature of landscape and human activity, via the seasonal movement of people and populations between the mountains, plains and foothills. In the final subsection, archival accounts from the British colonial period are merged with data from the material remains of roads, bridges and trains, to address colonial ideology, monumentality, resistance and resource extraction. Some parts of the Survey Area are better represented than others within this section, due to inconsistent gathering of data on communication routes. Wherever possible, data from my own survey of communication routes augment TAESP data (Gibson 2005). Had movement data been collected more systematically throughout all regions it might have been possible to perform GIS analyses such as those undertaken by Llobera *et al.* (2011) on the emergence of order through movement. While such systems will never explain human behaviour on their own, they do offer new visions and alternative ways of understanding the dynamics of movement and human interaction.

Interaction and the Formation of the TAESP Landscape

This section is based on the understanding that social landscape and movement are interwoven concepts. How we move through, sense and interact with the people and places of the world – those habitual activities of daily life – forms the background, or landscape, that makes life understandable (Gibson 2007, 64; Thomas 2012). How we perceived the TAESP landscape and interpreted the past, therefore, was influenced by modern boundaries, borders and our method of moving.

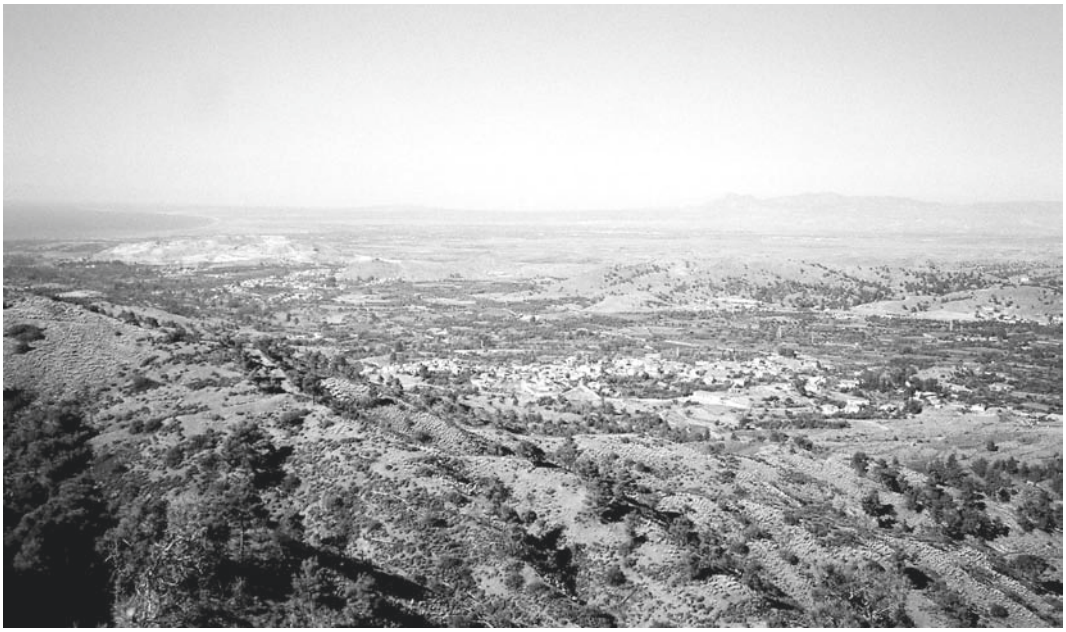


Fig. 3.60. The Karkotis Valley, looking north-east, with the Bay of Morphou on the left, Skouriotissa mine adjacent to it, the villages of Linou and Phlasou to its right, the village of Korakou in the middle/foreground, and the Kyrenia Mountains in the background (Yiannos Hadjidemetriou)

Throughout the survey project modern transportation had a dramatic impact on our perception of distance and our understanding of the survey landscape. A trip from base camp in Tembria to the Asinou Valley Intensive Survey Zone, for example, was via a circuitous route that took 30 minutes to drive and covered a distance of 20 km, while 'as the crow flies' the distance was 7 km (Fig. 3.59). This daily trip influenced our understanding of landscape by distorting our concept of distance. Travelling by car from base camp to individual survey zones fragmented the teams' experience of the larger landscape.

Villagers were always eager to share stories about how they moved through their landscape and the paths that they took as they herded goats, walked to school, collected firewood, etc. Their movement – how they moved and their routes – is an important part of the TAESP landscape, and so their accounts are integrated into this discussion as appropriate.

Through the practice of surveying – moving through, observing and recording the surroundings – teams working within Intensive Survey Zones gained intimate knowledge of smaller pockets of landscape. Producing this knowledge went hand in hand with forging group identity. The practice of survey – physical movement through survey zones, social relationships with fellow team members, the types of material culture located and how it was interpreted – was all intricately linked to team identity (for the habitus and practice theory that underlies this, see Bourdieu 1977; Dobres 2000; Lightfoot *et al.* 1998, 201; Silliman 2001).

The position of the Survey Area on the modern physical, political and ideological border separating and restricting movement between the Republic of Cyprus and Northern Cyprus had a strong influence on our perception of landscape. The 'Green Line' had an obvious impact on interaction in the Karkotis and Atsas Intensive Survey Zones, where permission was necessary to gain access to areas closest to the border. On a different level, this border was a geographical, political and ideological boundary that separated 'us' – the known and experienced landscape – from 'them' – that area to the north that we could see but not survey. Boundaries, no matter how dynamic, 'can emphasize a more exclusive sense of "us" versus "not us"' (Helms 1988, 28).

With this in mind, I turn the discussion to address movement within the Survey Area. Evidence for three different levels of interaction can be found within the Survey Area: daily, seasonal, and long-distance movement. The most secure and widespread evidence for interaction is from Medieval–Modern paths, most of which were used in the daily commute between villages and agricultural fields. In general this distance ranged between 1 and 3 km (Given 2000, 215).

There are obvious morphological differences between the roads and paths located by TAESP. Paths were identified by their surface compaction, characteristic rounded outer edge and width that rarely exceeded one metre. These paths could accommodate pedestrian travel and travel by donkey and mule. Roads were distinguished from paths by their prepared surface and width that exceeded one metre. In areas of the TAESP landscape where material remains of roads and paths were not located, settlement and land use data were used to infer routes of interaction.

The fertile Karkotis, Asinou and Lagoudhera Valleys are focal areas for settlement and interaction. There are no accounts of rivers being used as communication routes:

Fig. 3.61. Asinou Valley, looking north-north-west towards Nikitari village from Stavros church (TP033), with the Kyrenia mountains in the background (Michael Given)

seasonal variations in water levels in the past, as today, made movement via river difficult, if not impossible. Roads and paths run along these drainage systems forming larger communication networks that connect the people and resources of these valleys with those in the Troodos Mountains to the south. In general, paths belonging to these routes are best preserved above river channels or along the sides of the river valleys, where they follow the topographic contours of the mountains (Karkotis Valley: TP224–25, TP193–94; Asinou Valley: TP229–30, TP034, Road Units RU2331–33; Lagoudhera Valley: TP024, TP077, TP186, TP222–23). These paths range from 0.7 to 1.2 m wide, and several are cross-cut by modern roads and forestry firebreaks. Many of these paths continue to be used by today's hunters who leave shotgun cartridges, tinfoil and food tins on their surfaces.

The Karkotis Valley provides an excellent case through which to investigate river valleys as routes of communication. Its water, rich agricultural land and Skouriotissa's copper deposits have made it a place of long-term activity from the Chalcolithic to the Modern period (see Volume 2, Chapter 3.1) with the most dense settlement activity located within 600 m of the river.

Running northwards, from its headwaters in the Troodos Mountains, to flow into Morphou Bay, the Karkotis River acts as a corridor for movement connecting the sea with the mountains and their resources (Fig. 3.60; see Fig. 3.59 for a map). Obviously, our full understanding of interaction within this river valley was limited by lack of access to the mouth of the Karkotis at Morphou Bay to the north. The Kalliana khan (BU0092), located 2.5 km south of Evrykhou village and 4.5 km north of Kakopetria village, was one of three in the area that provided shelter for travellers and their animals moving along this communication route. Local villagers from Tembria, Sina Oros and Galata said that in the early 20th century farmers from Pitsilia and Marathas stayed at these khans when they travelled to the Morphou area to sell produce, or while they had their grain milled in the year-round watermills that stud the banks of the river (for watermills along the Karkotis River see Volume 2, Chapters 3.3–3.4, 3.8).

The only preserved segments of path belonging to this communication route were recorded in the upper reaches of the Karkotis Valley. They ran along the sides of the valley following the topographic contours of the mountain just below the ridgeline (see Volume 2, Chapter 3.15). While few material remains were identified, cadastral plans from 1926 show footpaths and carriage roads winding up the valley linking villages with churches, fields and mills along the valley floor. It is likely that new roads were built over these old roads and paths, as was the practice in the British colonial period (Nicolls 1901, Red 78).

A series of bridges cross the Karkotis River and provide evidence for interaction between the eastern and western sides of the valley. Two of the three bridges recorded by TAESP crossed the river between Evrykhou and Phlasou and had evidence of Ottoman-period foundations. In 1900 Hugh Nicolls, the engineer of the Nicosia to Troodos road, described BU0045 as an 'old bridge' (Nicolls 1901, Red 78). It was widened and repaired as part of this British road building campaign. It is likely that in the Ottoman to Modern periods this bridge served as an important means of interaction between the villages of Evrykhou, Korakou and those further south up the Karkotis Valley, while offering them access to its adjacent watermill (BU0046) for milling their grain.

While river valleys form corridors for communication within the Survey Area, movement between valleys via paths was also common. For example, a footpath (TP100) connects the Kourdhali Valley with the Asinou Valley to its east. While today this path is maintained by the forestry department and is open to tourists, in the recent past it was used to facilitate interaction between these two river valleys. This path was part of an important social and economic network. Trade among the villages of Ayios Theodhoros, Nikitari *Asinou* (TS03) and the settlement of Nikitari *Mandra tous Jerenides* (TP038) was common in the 19th and 20th centuries (see Volume 2, Chapter 5.5). Informants from the villages of Ayios Theodhoros, Galata, Nikitari, Sina Oros and Tembria said the village of Asinou sold *halloumi* cheese to Nikitari and other villages on the plains (Fig. 3.61), while Mandra tous Jerenides sold its cheese to the villages of Kakopetria, Galata, Ayios Theodhoros and Evrykhou. Marriage ties also existed between these villages. A villager from Ayios Theodhoros recounted travelling along this path to visit family and friends at Mandra tous Jerenides in the Asinou Valley.

River valleys are important activity areas within the TAESP landscape. Valley bottoms act as corridors for communication, while their agricultural fertility and water sources attract permanent habitation. While topography plays a role in choosing appropriate routes of moving and interacting, it does not constrain it. It is evident in the sections that follow that economic and social relationships are constructed and reconfirmed via the complex network

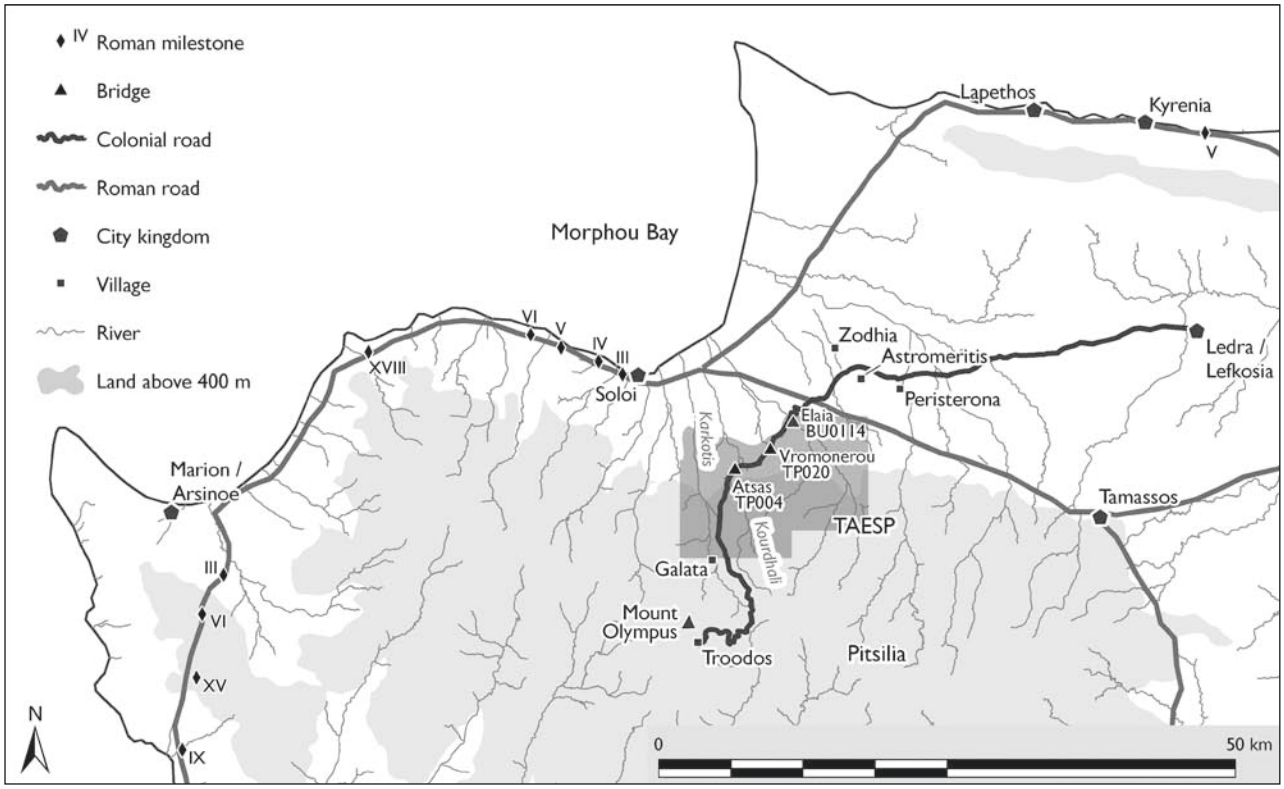


Fig. 3.62. Western and central Cyprus, with roads, milestones and places mentioned in the text (based on Bekker-Nielsen 2004, 142–45, 221, 223, 240–50, maps 5, 6, 14; Mitford 1980b, fig. 1) (Luke Sollars)

of roads and paths that make up the landscape investigated by TAESP.

Mining and Movement: Human Interaction in Industrial Landscapes

Data from the intensive survey of the Karkotis and Lagoudhera Valleys provide us with a better understanding of interaction in Roman industrial landscapes. Evidence from settlement data, milestones and historical documents helps us to understand how the Late Roman mining activity around Skouriotissa *Vouppes* (TS01) was entwined in large- and small-scale communication networks.

Roman-period settlement activity contemporary with smelting at Skouriotissa is evenly distributed throughout the Karkotis Valley (see Volume 2, Chapter 3.16). Just 7 km north-west of the Karkotis Valley Intensive Survey Zone lies the Hellenistic–Roman city of Soloi that played an important role in structuring interaction in this industrial landscape. Not only was Soloi a flourishing centre between the end of the 2nd century and the 4th century AD, but it also had a well established harbour (Graham *et al.* 2006, 361; Leonard 1995, 230–32; 1997, 164, 170–74; Raban 1995, 165). Its harbour is the most likely means through which copper was exported from Skouriotissa and the mines at Mavrovouni in the Lagoudhera Valley.

A coastal highway built by Augustus and Titus between 27 BC and AD 81 connected Soloi to other major cities and their territories (Mitford 1980b, 1337). Four milestone fragments ranging in date from between AD 198 and AD 360 were found along one part of this coastal road that connected Marion in the west to Soloi (Fig. 3.62; Bekker-Nielsen 2004, 242–50; Mitford 1939–40). Many of these milestones are from a period of renovation undertaken by Severus in AD 198, or from the 4th century when inscriptions on milestones were associated with statements of imperial loyalty rather than periods of repair (Mitford 1980b, 1336–37).

Indirect evidence for this large-scale road system comes from the *Tabula Peutingeriana,* a Medieval copy of a 4th-century AD table listing mileage between cities (Bekker-Nielsen 2004, 112). To Bekker-Nielsen (2004, 35–36, 210–11) the distances listed in the table between Soloi, Tamassos, Tremithus and Salamis indicate the first east–west Roman road through the Mesaoria. He also believes that by using this table as a historical source, a minor Roman road can be traced between Kourion and Soloi, through the Karkotis Valley to the west of the river (2004, 207–11).

While no archaeological evidence for this road has been located, settlement data suggest that a communication route existed along the lower reaches of the Karkotis Valley between high density Hellenistic–Roman activity areas such as Pano Limna (TS15), Pseftas (TS13), Dodekaskala (TS11) and the interspersed agricultural support communities (see Volume 2, Chapter 3.16).

Hellenistic–Roman tombs (TP129) lie on the western side of the Karkotis River along the sloping anthropomorphic terraces at Pano Limna (TS15; Volume 2, Chapter 3.11). It is possible that these tombs, and the cemetery in general, lie along a Roman road alignment. Elsewhere in Roman Cyprus, tombs and cemeteries are located along prominent routes. The most famous examples of roadways lined with burial monuments come from Italy where altars were inscribed with good wishes for wayfarers and benches for weary travellers to rest (Staccioli 2003, 30).

The small pockets of settlement in the Atsas Intensive Survey Zone differ from the broad and evenly distributed Roman presence in the Karkotis Valley. In Volume 2, Chapter 2.7, we suggest that the Roman-period farmsteads of Haji Christophi (TP206) and Phoukasa (TP221), located 2 km south-east of Skouriotissa, were probably dependent on the city-kingdom of Soloi. Their agricultural produce was exchanged through Lithosourka (TP216), a middle range settlement, which transported produce onwards to Soloi or directly to the labour force working at the mines near Skouriotissa.

Parallels may be drawn between settlement and communication at Roman-period Lithosourka and British colonial-period Kalokhorio. Settlements from both periods drew on, and developed from, a fruitful position on what was locally a major route of communication. The settlement of Kalokhorio is located in the Karkotis Valley c. 2 km north of Skouriotissa and just north of the Buffer Zone (see Fig. 3.59 for a map). In the early 20th century this settlement was a hub of commercial activity. It was on the end of the rail line, had a station building, station masters' house and grain stores (SA1/778/1921, Red 7–6). Its position was ideal for the collection and redistribution of resources from the Karkotis Valley. Not only were goods transported onwards to Skouriotissa and Mavrovouni mines from this base, it also provided a means by which these mines could export their products. Goods were primarily transported from Kalokhorio to elsewhere on the island via the rail network, rather than by sea through Karavostassi. It was only in the 1920s that a branch line of the railway was constructed for mineral traffic to connect Skouriotissa copper mine to the main line and with the sea at Karavostassi, a distance of 4 km (Luke and Jardine 1920, 184). The remains of this disused rail track were found at Skouriotissa *Pseftas* (TS13; Volume 2, Chapter 3.13).

While there is no direct archaeological evidence of roads and paths associated with Roman period interaction around Skouriotissa, Roman land surveyors such as Siculus Flaccus provide details about what types of roads may have been involved in communication in this period. It is likely that public roads were used for transportation and communication between Skouriotissa and Soloi, with responsibility for their upkeep lying with the city of Soloi (Campbell 2000, 374–75). A combination of smaller private roads, village and field roads were probably used to transport crops from the estate fields around Haji Christophi and Phoukasa to villages such as Lithosourka. In these cases the task for maintaining the roads belonged to the villages and their inhabitants (Bekker-Nielsen 2004, 84; Campbell 2000, 374–75).

While survey data, historic and classical sources give insight into possible routes of communication associated with Roman-period mining activity at Skouriotissa, there is little evidence of small-scale interaction within the mining community. The Lagoudhera Valley Intensive Survey Zone provides a unique opportunity to look more closely at daily movement within a mining landscape.

A series of well-preserved paths were located in the Lagoudhera Valley. Without excavation it is impossible to determine when these paths were first built, used, maintained and re-used. It is important to realise that while a path may be built to move ore from adits to smelting sites, that same path may be re-used in a different period for completely different purposes; what is preserved is its final stage of use. Many of the paths that I suggest were constructed during the Roman period are still used today by farmers travelling between their agricultural fields (Volume 2, Chapter 4.4). The following discussion examines what I believe to be the first period of path use in the Lagoudhera Valley, when paths were built and used for Roman-period mining.

Roman mining activity in the Lagoudhera Intensive Survey Zone is clustered in two main areas; the Lagoudhera Valley itself; and the area between this valley and the Kannavia River to the west (Volume 2, Plate 4.14). Activity in and around the Lagoudhera Valley, at the settlement and smelting site of Ayia Marina *Mavrovouni* (TS02) and its ancient adits at Xyliatos *Ayios Kyriakos* (TS10) predominantly dates to the Late Roman period, while the mine of Alestos and its associated settlement Xyliatos *Litharkies* (TS05) is mainly Early Roman in date (Volume 2, Chapter 4.4–4.6).

The Lagoudhera Valley was the main route of communication in this mining landscape. Topographically, this route was easier to traverse than the Kannavia River Valley to the west (Volume 2, Chapter 4.6). A modern dirt track that runs along a flat tread on the eastern side of the Lagoudhera Valley may obscure a much older road (Graham *et al.* 2006, 359). It is most likely that copper produced at Mavrovouni was transported via this river valley to link with larger communication routes that crossed the Mesaoria. Indirect evidence of a trans-Mesaoria route comes from the *Tabula Peutingeriana*, which depicts a road running from Kition to Tremithus and Tamassos, then onwards to Soloi (Volume 2, Chapter 2.15; Graham *et al.* 2006, 360).

While Mavrovouni may have been physically linked to Soloi via communication routes, there is evidence to suggest that it maintained some economic independence (Volume 2, Chapter 4.6). No imported transport amphorae were found at Mavrovouni, thus suggesting that local products were consumed rather than imported foodstuffs. Similarly, its remote location necessitated a strong local

infrastructure. There is little evidence of local agricultural production at Mavrovouni, and so we suggest that the mining settlement obtained agricultural produce from the Hellenistic–Roman farmsteads of Pano Koutraphas *Sanidhia* (TP245) and Pano Koutraphas *Katalasharis* (TP256), located on the plains just north of the Lagoudhera Valley (Volume 2, Chapters 2.15, 4.6).

Paths were an integral part of the Roman mining landscape, facilitating interaction in topographically challenging and often inaccessible areas. Several paths closely associated with mining activity in the Lagoudhera Valley are located between Mavrovouni (TS02) and Ayios Kyriakos (TS10) (for map see Volume 2, Plate 4.8). These are the only preserved cases where slag heaps, paths and adits are directly associated within the Survey Area. Three segments of path (TP024, TP086 and TP087) were found between Mavrovouni and Ayios Kyriakos. Segment TP024 is located to the north of Mavrovouni and runs southward past the slag heap and settlement, fording the river to join TP086, a path that runs across the river floodplain in an area of concentrated Hellenistic–Roman activity (Volume 2, Fig. 4.15). This path then splits and one segment (TP087) leads to an adit (TP088) near the river. TP086 runs towards the cluster of rock-cut shafts and adits that make up TS10. Another path segment (TP099) was found approximately 100 m west of TS10.

Associated with ancient adits, path segments TP087 and TP099 provide the best evidence for the construction and use of paths in Roman-period mining. Located in Roman-period contexts, the relationship between path TP087 and the adit TP088 is especially convincing. The only other evidence for mining in the area comes from the 20th-century adits and opencast mines at Alestos (see Volume 2, Chapter 4.3). While these path segments were not traced in their entirety, their close physical association and archaeometallurgical context suggests that they were part of the same path network. Ore may have been transported from the adits, via these paths, to be smelted downriver at Mavrovouni. Sure-footed animals like donkeys and mules would have been invaluable for mining in this uneven terrain. These animals could be easily accommodated in the Lagoudhera Valley where the majority of paths are stabilised with stone and measure over one metre in width.

A further path (TP077) connects Ayia Marina village to the north-east and the smelting site of Mavrovouni to the south-west. This 1.3 m-wide pathway has a hard-packed surface that is cut into the side hill. Like many other paths in the region, it is stabilised with angular basalt boulders on the downslope side. This path may have been constructed to access flux deposits at Ayia Marina (see Volume 2, Chapter 4.6).

Lining paths with stone is a construction technique that has been recorded elsewhere in the mountainous regions of Cyprus, where stable wide paths were necessary for the transportation of agricultural produce (Gibson 2005; 2007, 61–87). It has been argued elsewhere that similarities between the morphology of stabilised paths and stone armoured terracing of hillslopes are due to the selective adaptation of terracing technology to path construction (for variations in this pattern, see Gibson 2007). Path segments TP077, TP086, TP099 and TP223 are good examples of how terracing technology was applied to produce wide and stable surfaces. These paths are all stone armoured, between 1.0 and 1.5 m wide and built on risers ranging in height from c. 0.7 to 4.0 m.

While one needs to be careful not to confuse 20th-century adits and paths with those from earlier periods, the paths located to the west of the Lagoudhera Valley support the presence of a Lagoudhera communication route connecting the mining landscape with that of the plains. The segment of path TP223 was of similar composition to those found near Mavrovouni, made with retaining walls and reaching widths of 1.1 m. Some reconnaissance survey in the field suggested that this path linked with either TP086 or TP099 on the western side of the Lagoudhera Valley between Ayios Kyriakos and Mavrovouni (though any connection has been severed by a modern tarmac road and a dirt track). This path implies interaction between the two mining settlements of Litharkies and Mavrovouni. It is possible that ore was transported from Alestos mine to be smelted at Mavrovouni via this route as early as the Early Roman period.

The labour necessary to construct and maintain these paths shows that the people who mined this landscape had a long-term commitment to local and regional interaction. While only a few paths have been located in this Intensive Survey Zone, they provide vital information about the complexity of smaller scale path networks on which the Roman communication system was founded. Survey results from the Lagoudhera Valley raise many new research questions regarding communication and interaction in the Roman period. The possibility of a surveillance point at the Rock of Ayios Kyriakos (TP017) acting to control interaction between the settlement at Mavrovouni and the mines is especially compelling (see Volume 2, Chapter 4.4), and has parallels with activity elsewhere in the Eastern Roman Empire (Yekutieli 2006, 65–89).

Underlying the formalised public roads and wider island highways of the Roman period was a mesh of interlocking paths. It was only during the Roman period that copper production reached an industrial scale in Cyprus (Kassianidou 2004b, 99). Paths played an integral role in the extraction and smelting of copper and the support of mining communities.

Still missing from our picture of copper mining during this period is evidence of the transportation infrastructure necessary to acquire wood for charcoal to make the hot fires to smelt the copper in the Karkotis and Lagoudhera Valleys. While it is suggested that this wood may have been harvested in the mountains (see Chapter 3.10, Chapter 4.8), physical remains of such a communication network have not yet been recovered.

Fig. 3.63. Path between Mandres and Ayios Theodhoros, just south of Mandres, looking south-west towards Ayios Theodhoros. From the centre foreground it runs away and slightly to the right. (Chris Parks)

Seasonal Movement

The complexity of Ottoman to Modern movement is illustrated in the wider Karkotis, Mandres and Asinou Intensive Survey Zones where individuals moved seasonally between the forest-rich mountain valleys and the cereal-producing plains, thus drawing on resources from different ecozones. The foothills of the Adelphi Forest acted as a transitional area between these areas, while the proximity of cultivated fields, batha and forest made this an ideal area to settle (for map see Volume 2, Fig. 5.1).

A series of paths, found in the foothills, was associated with the abandoned settlement of Nikitari *Vouni* (Volume 2, Fig. 5.5; TP031), the structural remains at Ayios Theodhoros *Pano Atsa* (TP241), and Ayios Theodhoros *Palloura* (TP255) (see Fig. 3.59 for a map). These paths were constructed and used to facilitate interaction between the forest and the plains. Ethnohistorical accounts from Ayios Theodhoros, Nikitari and Kato Koutraphas *Mandres* discuss collecting wood from the forest to sell to villages on the plains. One informant who lived seasonally in Mandres remembered travelling from this village into the forest to collect pinewood, that he and his father then transported by donkey to be sold at Zodhia near Morphou.

While the structural remains of Ayios Theodhoros *Pano Atsa* (TP241) and Ayios Theodhoros *Palloura* (TP255) are known locally as the remains of *mandres* or goatfolds, I suggest that they were originally Medieval or Ottoman storage facilities that were later converted into *mandres* (see Volume 2, Chapter 5.3; Gibson 2005). Thus, the paths that are so closely associated with these structures had multiple functions: to access and transport forest resources from the mountains and/or agricultural produce from the plains, alongside providing access to grazing land in the forest.

In the late 19th century the physical act of moving and the ideological meaning of movement along these paths changed dramatically. In 1881 the British Forest Delimitation Commission passed the Forest Delimitation Law that marked out the boundaries of state forests and prohibited goat grazing, collecting wood and resin tapping within this new forest boundary (Given 2004a, 74–75). The structures of Pano Atsa and Palloura, like many other structures involved in pastoralism, were intentionally left outside the forest boundary.

Local villages resisted these new laws (Given 2004a, 80–83). As an archival account written by the Principal Forest Officer attests, many continued to collect forest resources and graze goats without permission:

> They come to the Forest, and break the Law to get for fuel material which should not, and must not, be used as fuel. The village judges, whose outlook is largely that of the peasants, condone the offences by nominal fines, and by overlooking the habitual offender. So the process has gone on till it has become a settled part of the rural life. (Minutes on Report from Principal Forest Officer, SA1/1922/1).

In the early years of the Forest Law many individuals continued to travel into the forest to extract resources; daily movement along these paths became acts of daily resistance. In other cases paths, settlements, structures, enclosures and pitch kilns located in the forest were abandoned (see Volume 2, Chapter 5.8). There is some evidence that new paths were constructed to enable access to the forest without detection. One such path located north-west of the village of Ayios Theodhoros skirts the forest boundary between the cultivated land to the north and the mountains to the south. Just to the south of the remains of Pano Atsa, the path disappears under a forestry road that moves south into the forest and was constructed within the last 50 years (Gibson 2005). This route is still used today to move goats into the forest.

The village of Mandres is located on cereal-producing alluvial soil at a transitional point between the Troodos foothills and the Mesaoria plain (Volume 2, Chapter 2.10–11). Local informants suggest that from the 18th or 19th century onwards, villagers from Galata, Tembria, Ayios Theodhoros and Kalliana used this settlement seasonally for the cultivation, harvest and processing of grain (Given 2000, 218; Ionas 1988, 20; TAESP interviews in 2001). Combining ethnohistorical information with survey data provides an intriguing glimpse into the complexity of social interaction in this landscape. Farmers came from villages in the upper Karkotis Valley and Kourdhali Valley to plough and sow their fields at Mandres between October and December. Whole families moved there to harvest and process grain between June and August. Once harvested and threshed, on family-based threshing floors, grain was transported to permanent settlements for storage and milling. Two informants from Tembria and Galata remembered as youths leaving Mandres at 3 am to take grain to Galata (9 km distant) and returning to Mandres the same day. The villagers travelling to and from Galata, Tembria and Kalliana used the British colonial road that parallels the current Nicosia–Troodos road on its southern side. Resurfaced in the middle of the 20th century, sparks

Fig. 3.64. Cross-section of British colonial road in the Mandres Intensive Survey Zone, showing road metal covered with tarmac. Width of section is c. 1 m. (Erin Gibson)

Fig. 3.65. Colonial bridge (constructed 1900) over the Atsas River and steep river bank, looking east-south-east (TP004) (Chris Parks)

from iron donkey shoes could be seen at night as villagers transported their grain along this road.

A network of paths connected Ayios Theodhoros and Mandres (Fig. 3.63). One 380-m segment of path was located on the plains in the vicinity of Mandres. This path had a stable surface, was worn to 10 cm deep and was 60 cm wide. Although only a small segment of this path is preserved, a villager from Ayios Theodhoros remembers it as part of a route villagers used to travel between Ayios Theodhoros and Mandres.

Such studies of 19th and 20th century interaction broaden our understanding of the TAESP landscape. They highlight the complexity of those social relationships that were played out through the everyday activities of people dwelling, farming and interacting in this rural landscape.

Colonising the Cypriot Landscape: Roads, Resistance and Railways

Road building in Cyprus during British colonial rule can be divided into two main periods: 1879–1900; and 1900–1920. Roads, bridges and train lines from the Survey Area are entwined in the shifting relationships of power in Cyprus during this period.

British road building must be seen as part of the larger colonial project to make the island 'a model of prosperity and good government in the Near East' (Georghallides 1979, 7). Establishing a system of roads was seen by the colonial powers as essential to the 'extension of civilization and to the settlement, pacification, and subsequent administration of any country' (Bellamy 1903, 3). Therefore the first road building project was started in 1880 to connect Nicosia to the Government buildings in the Troodos Mountains, geographically the highest point on the island. Built in three stages, this road used 6,000 labourers over a period of 20 years from 1880 to 1900 (SA/1922/1899, Red 81–76).

In the early stages of road building some villagers volunteered their labour. A preserved section of road

Fig. 3.66. Colonial bridge over the Elaia River (BU0114), proudly described on its construction in 1900 as the longest bridge in Cyprus, looking north-east (Chris Parks)

belonging to the one-mile stretch constructed by volunteer labour from Evrykhou village was found in the Mandres Intensive Survey Zone (SA1/1922/1899, Red 79). The road is preserved by a tarmac surface overlaying a layer of road metal (Fig. 3.64).

This road played an important role in the British negotiation of power on the island during these initial years of rule. As the first real point of contact with the native Cypriot population, the physical appearance of the road and its bridges was just as important as their functional ability. The route needed to look monumental, powerful and impressive – 'British'. Bridges constructed along this important road were monuments to British rule, technology and civilization. The Atsas River's steep, high river banks provided road engineers with an opportunity to construct a bridge (TP004) that would show off their technology in overcoming the challenging local geography (Fig. 3.65; SA1/1922/1899, Red 79).

At the same time, the Elaia River Bridge was constructed as the longest bridge in Cyprus (BU0114; Volume 2, Chapter 2.16). The appearance of this bridge was as important as any practical aspects of its construction, such as its height, width or load capacity (Fig. 3.66). Archival

accounts relate how the mixing of yellow and white limestone concerned the District Engineer; yet, once the bridge was finished he was pleased with its appearance: 'the contrast of the two colours … is not disagreeable and gives a finish to the structure' (SA1/1922/1899, Red 79).

This mixture of power and artistic harmony was essential within the British ideology (see also Zeller 1999). The Nicosia–Troodos road was a British stamp on the Cypriot countryside. Hugh Nicolls, the Divisional Engineer in charge of building this road, played an important role in making it not only functional but also aesthetically pleasing:

> The ascent by this route is infinitely prettier than by the old Bridle track which happened to ascend one of the driest & most uninteresting sides of the mountain. The new road on the contrary passes close to streams & springs continually & opens up most splendid & diversified views of mountain & woodland scenery (Nicolls 1901, Red 70).

Images of technological prowess were combined with images of nature and harmony to communicate a new sense of Britishness, and British control on the island.

Bridges embodied and expressed British colonial technology and identity, and a result they became the focus for acts of resistance. Stone was robbed from the parapets of the Argakin tou Vromonerou Bridge (TP020; Volume 2, Chapter 2.11) and Atsas River Bridge (TP004; Volume 2, Chapter 2.7), while similar acts took place on the road between Lefka and Kythrea. Hugh Nicolls writes, 'much wilful damage is always being done to bridge parapets etc on this road…. the shepherds in this neighbourhood appear to be more mischievous than in other places' (SA1/9/1904). Dismantling bridges was a quiet reminder to the British that the Cypriots were not accepting their rule.

While the first stage of road building on the island was meant to establish control and foster an understanding of 'Britishness', the second stage focused on the construction of roads to link villages and their populations with regional markets and British administration. Many villagers saw the economic value of being connected to new markets, and bombarded District Engineers with petitions for new roads and/or the renovation of old roads. New roads were constructed to facilitate communication and exchange between villages such as Peristerona, Astromeritis, Kato Koutraphas, Evrykhou and Kakopetria (SA1/1922/1899, Red 73). As in any colonial relationship, 'there is never a single, unitary, subordinate' (Ortner 1995, 175), nor is there one single category of 'colonizers'. Both British and Cypriots negotiated their power through the acts and policies of road building.

New roads were built with more readily available materials. Slag was extracted from Mavrovouni to metal roads, possibly as early as the British colonial period, and in the Karkotis Valley slag was used to metal roads as it produced an 'excellent surface' (SA1/412/1912; Volume 2, Chapter 3.12). Slag was consistently found distributed across the Karkotis Valley Intensive Survey Zone, with heavy concentrations in a north-west/south-east band paralleling the current extent of the spoil heaps at Skouriotissa. Its distribution across the floodplain, but concentration in the northern part of the valley, is likely a result of its use as an expedient road building material.

The Cyprus Government Railway, constructed in 1904, reached the village of Evrykhou in 1915 (Luke and Jardine 1920: 184, see also Volume 2, Chapter 3.15). This rail line further expanded British access to markets, while transforming the way in which resources were extracted and transported within the Karkotis and Asinou Valley Intensive Survey Zones. New roads were built to extract timber from the Troodos and Adelphi Forests, many of which were built over, or adjacent to, older roads and paths (Gibson 2005). Grain and timber were the main resources transported from the train stations at Evrykhou (Volume 2, Chapter 3.15) and Phlasou. Fuel and grain demands increased with the First World War, and by 1918–1919, 'Evrykhou itself loaded 7270 tons of firewood…together with 3290 tons of timber' (Turner 1979, 106). Tithes paid on cereals in kind were also transported via this rail network (Georghallides 1979, 314, 363).

While the railway was able to transport bulky resources quickly, it was only as good as the roads and paths that connected it to these resources. The rail line continued to be used throughout the 1920s. In 1932 the section of rail line running through the Karkotis Valley was closed along with the stations at Evrykhou and Phlasou, due to reductions in forest extraction and the abolition of tithes on cereals in 1926 (Georghallides 1979, 314, 363; Turner 1979, 38).

Communication and Interaction

Networks of interwoven roads, paths and routes criss-cross the TAESP landscape. They offer the contextual framework through which to understand the material remains of past human activity. This overview of interaction in the Survey Area has focused on four main themes: interaction in valley systems; interaction in mining landscapes; seasonal movement; and the entwined relationships between road building and colonisation in the British colonial period. While examples were drawn from specific periods and areas, these themes are relevant to, and overlap within, any given landscape. The strong relationship between communication routes, settlement, resource extraction and agricultural production, illustrated through TAESP data, pertain to all environments and periods.

Roads and paths are not just lines used to connect the dots of settlement scattered throughout the landscape: they are the means through which people lived their lives. A social approach to regional archaeological survey is one that accepts that communication routes play an essential role in understanding the landscape and the social relationships that formed, and were formed by, that landscape (Knapp and Given 2003, 319–20). Highlighting the complex, interwoven and dynamic nature of movement and social interaction, this holistic approach to landscape provides alternative interpretations of boundaries, distance, power, settlement, permanence and isolation.

4. The Environmental Record of the TAESP Landscape

Jay Noller and Neil Urwin

4.1 Introduction

This chapter focuses on the environmental context for the project data, and the reconstruction of the changes in this context since the deposition or abandonment of the cultural materials and features. Except for Sections 4.7 on geobotany and 4.8 on olive trees by Neil Urwin, this chapter is authored by Jay Noller. During this project, we documented key parts of the natural landscape and, mainly through geomorphological study, developed interpretations of past landscapes (the palaeoenvironment). While much of the effort of the geomorphologist was to record the modern context for the archaeological Survey Units in the field, we also endeavoured to collect a range of earth science information, which we used to constrain our estimates of the depositional and formative processes related to each unit of discovery as well as the entire Survey Area.

Wilkinson (2003, 8) describes this effort as 'landscape taphonomy', in which natural and cultural processes 'selectively remove' elements of the landscape. One may view this erosion of landscape elements as biasing the record, which would be construed as bias if one's construct is to examine a fully accumulative and non-obliterative (burial by accumulation) stratigraphic record. Put another way, this type of stratigraphic record requires a certain (potentially great) amount of mass to bury, but not remove landscape elements. One example is the ruin of Pompeii in Italy and its burial by volcanic tephra deposits while still occupied by its citizens.

Our approach in examining the environmental record involves principally the application of geological laws, theories related to geology and geomorphology, state factor theory and state-and-transition theory. We recognize both the cultural features on the landscape and the landscape elements acted upon by culture, the so-called *c-transforms* of Schiffer (1988). What we cannot explain on the landscape as abiding by biophysical factors, or *n-transforms* (Schiffer 1988), we identify as being, potentially, of cultural origin.

Human agency in landscape change, indeed global change, is of paramount interest to the archaeologist and geomorphologist alike. Cyprus offers investigators of both disciplines a view of human action on a landscape, in which the effects of human processes are at similar scale. Discerning those effects as wholly anthropogenic is a difficult enterprise, and thus it is important to consider the theories, concepts and methods that support the geomorphological and geoarchaeological research.

Much interpretation of the human landscape record is concerned with differentiating what nature did, compared to what humans did. Key geomorphological and geoarchaeological concepts used in our arguments are discussed here. Foremost amongst these are the concepts of systems and the hierarchies of spatial-temporal scales. By systems, we mean the interactions of multiple static and working components of the natural or ecological landscape, of which we recognize subsets called subsystems. Subsystems of note for this study relate to flowing water (hydrology) and transformations of earth materials (geomorphology and soils). By hierarchies of scales, we mean the conceptually and physically nested relationships of different elements of the earth system, which are resolved at different scales, from local to global. Put another way, cause and effect vary in resolution, depending on the scale at which we observe the natural systems that contain them.

From first principles of geomorphology and hydrology, anthropogenic landscape alteration (disturbance) along a stream causes geomorphic change both up and down stream. Stanley *et al.* (1997) argue that a point of disturbance is obvious after only a few decades. For most ancient events, it may be necessary to consider the

entire length of a stream, because sufficient time will have elapsed for the effects to propagate across the watershed. That is, point disturbances will ripple across landscapes and are not solely dependent on the channelized flow of water. The histories and characteristics of land cover (vegetation), soils, landforms, and geological formations within the watershed must be considered together, because of their systemic relationships. Finally, we must consider a deep span of time (temporal scale) for the origins of the earth materials moved by people and the long duration required for other environmental processes to shape the natural landscape. We will rely on State Factor Theory to keep all this straight, particularly as much of our survey is looking at the relationship of humans with soil (Amundsen and Jenny 1991).

As regards hydrological theory, the natural setting of most archaeological sites, near the channel and floodplain of a river, requires special attention to the principles that govern the movement and organization of fluid (water and sediment) across a landscape. Infiltration of water into soil and bedrock, as well as plant uptake of water in Cyprus, has been quantitatively measured (Lenthe *et al.* 1981; Lüken and Krone 1989), and indeed similar plant cover, soils and bedrock have been in the area for the duration of the Holocene, though we need only concern ourselves with the magnitude of change. Basically, the more plant and soil cover present over bedrock, the more precipitation is intercepted and thereby (1) lesser quantities of soil erosion, (2) less sediment moving to streams, and (3) less water and sediment (particularly bed-load sand and gravel) flow in streams (Langbein and Schumm 1958). Hillslopes under Mediterranean climates in particular show the greatest sensitivity and response to changes in land cover (Langbein and Schumm 1958), as a relatively small decrease in precipitation could lead to less vegetative cover and thereafter lead to increased erosion and movement of soil to streams.

Humans can affect how rain is collected and routed through a watershed by removing vegetation (decreasing land cover) through fire, harvest (e.g. deforestation), grazing animals (e.g. van Andel and Runnels 1987), tilling soil (e.g. van Andel *et al.* 1990), obstructing stream flow by building dams, weirs and diversions (e.g. Vita-Finzi 1969), and removing or adding materials from/to stream channels. Single to multiple processes can occur within a watershed at different times and over different durations. This can lead to physical effects recorded in landforms, soils and deposits within the watershed. The interpretation of this record must be carefully considered as there may be many potential causes for the same field observation (Ferring 2001; Frederick 2001; Wells 2001). Hence, the methods used in this study were selected to reduce the uncertainties in results and to limit the number of potential causative agents.

Last but not least, where is all of this taking place? This section relates the internal landscape diversity to environmental records across Cyprus and beyond. Several of the environmental factors at play here have spatial and temporal scales of record and analysis beyond those of the archaeological survey. Thus, our approach and methods are analogous across scales: from the Geomorphological Unit (GU) that encompasses the archaeological Survey Unit (SU), to the entire archaeological survey that is within a larger 'area of interest' for environmental studies (AOI). Using approach and nomenclature familiar to the field of remote sensing, our AOI is the area encompassed by a line drawn 1.0 km beyond the official Survey Area (see Chapter 2.2), the same distance as the interval between our extensive survey transects and twice that of our intensive survey transects. This means that the area of our AOI comes to 22,274 ha, and the 1-km border provides a buffer for spatial analyses that form a major focus of this chapter. For example, for most analyses that average within a given window of inspection, we want the centre of that window to 'see' up to the edges of the Survey Area boundary (as we set it early during our study). This use of an AOI also rids us of the nuisances of (1) edge effects on our statistics and (2) unnaturally shaped map units with their biases towards reduced area and related calculations, which result in abnormally high or low values. In this section, the proportions of land types and classes are ratios with respect to the AOI, unless otherwise noted. The geobotanical model initially used a differently positioned AOI, though somewhat similar in shape and location except for the southern boundary. We extended the geobotanical survey to infill these areas of mismatch.

4.2 Physiography

The Survey Area and its AOI lie astride the two largest physiographic regions of Cyprus (Noller 2010), the Mesaoria and the Troodos (Fig. 4.1). These regions consist of several provinces. Physiographic regions and provinces are defined and recognized on the basis of four environmental factors – landforms, geology, vegetation and soils – and thus provide a synthetic view of the environmental layout of the Survey Area and its greater regional similarities and differences.

Troodos Region

Cyprus is centred around the Troodos Region, being the highest area and dominant source of hydrological activity. In the area round the Survey Area, the Troodos Region consists of three provinces – Kykkos, Kyperounda and Olympus. Bedrock core of the Troodos is dome-shaped, with originally deep-seated layers exposed at the centre and highest elevation, and younger bedrock layers forming the periphery. Numerous rivers radiate from the core of the Troodos with dendritic to parallel-dendritic pattern. Here, the drainage density is greatest for all of Cyprus with a high value of 3.9 km/km^2. Potential natural vegetation ranges from Open Mediterranean Forest at lower elevations to Mediterranean (Cedar-Coniferous) Forest at higher

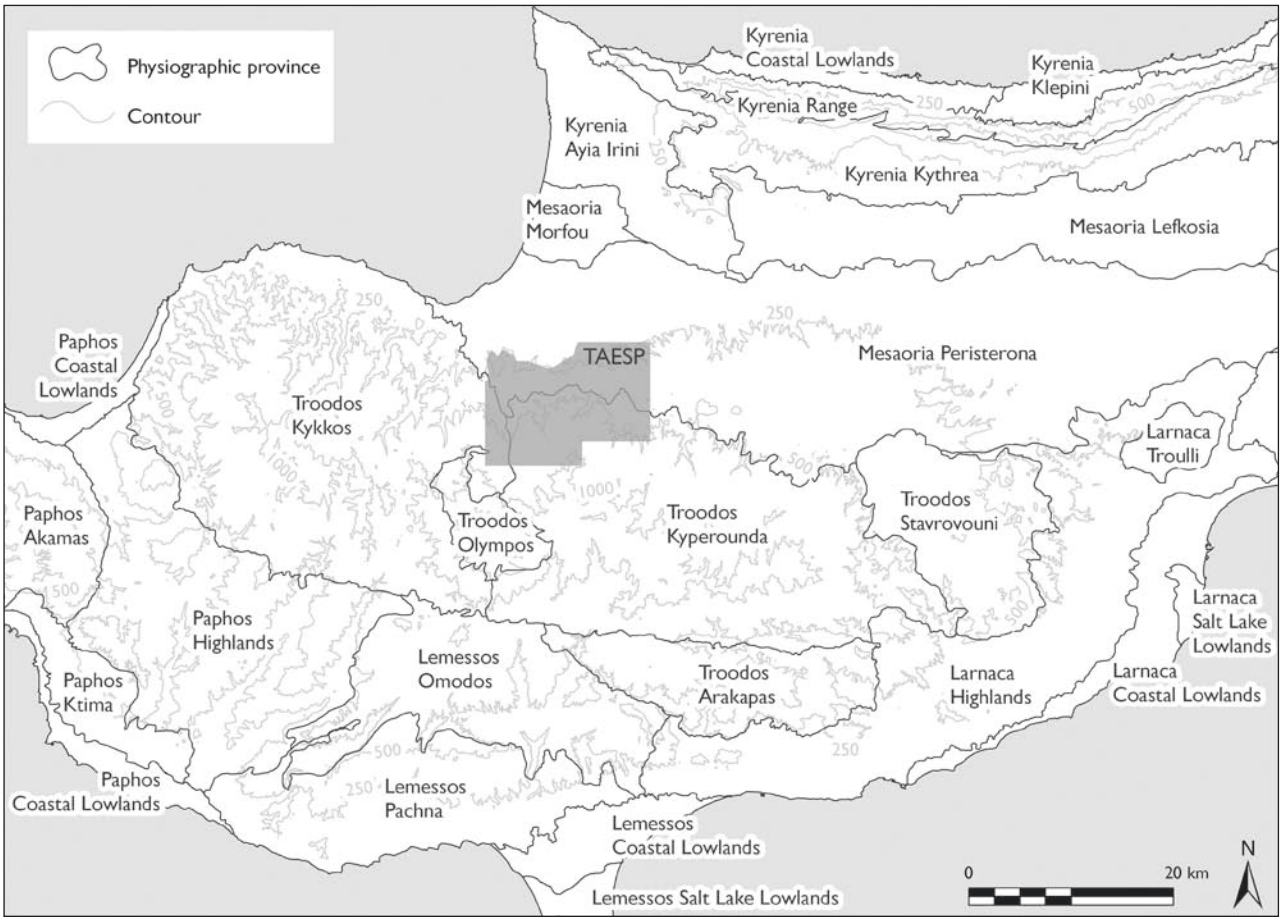


Fig. 4.1. Map of central Cyprus physiographic provinces, distinguished on the basis of their geology, landforms and drainage characteristics. The first word of each label is the region; the other words refer to the province. The Survey Area straddles the Mesaoria and the Troodos regions. (Jay Noller, finalised by Luke Sollars)

elevations. This region is long famed for its forests and long held as an example of soil erosion due to deforestation.

Mesaoria Region

Meaning 'between the mountains,' the Mesaoria Region lies between the Kyrenia Range on the north and the Troodos Mountains to the south. The region consists of three provinces – Lefkosia, Morphou and Peristerona. It is a broad, east–west plain of sediments accumulated from the wasting of bedrock in the adjoining mountains. Major rivers in the study region, the Karkotis and the Serakis (north of the Survey Area), drain a broad, dissected plain composed of coalesced alluvial fans fronting the two ranges. Overall, the region is saddle-shaped, with generally smooth topographic expression. The Mesaoria Region has the median drainage density on Cyprus at 2 km/km^2, and exhibits a dendritic to parallel drainage pattern. Along the margins of the plain, and in areas of apparent neotectonic activity, rivers are dissected deeply into Early to Middle Pleistocene alluvial fans. The coastal areas along Morphou Bay (west) are fronted with an inset series of sub-parallel strands of beach ridges, marine terraces and shorelines. The oldest extant, uplifted marine terrace is present just north of the Survey Area. Potential natural vegetation is Sub-Saharan grasslands, which has been put to agronomic use over thousands of years. The principal crop is dryland winter barley, with irrigated citrus concentrated from our western Intensive Survey Zone down across the plain to Morphou Bay.

4.3 Geology and Tectonism

The Peloponnesos, Crete, Rhodes and Cyprus all share the exact same geotectonic setting – lands uplifted out of the Mediterranean Sea along the southern front of the Alpine-Himalayan Mountain Belt. Here in the Cyprean Arc, the emergent part of which is known as the island of Cyprus, we find the results of millions of years of plate collision and side-slipping of the globally extensive African and Eurasian tectonic plates, forming a geological 'crossroads'. A closer look at the plate margins reveals microplates in nested hierarchies, depending on distance to each plate boundary. Geological study of Cyprus shows four of these microplates (or terranes) that underlie the principal physiographic features of the island: the Keryneia

Terrane, the Troodos Terrane, the Mamonia Terrane and the Arakapas microplate. These microplates are overlain by layers of marine and non-marine sedimentary rocks that act to smooth out the differences between these deep-basement rocks under the island. The following discussion focuses on the Troodos Terrane, the relevant one for TAESP, and its covering rocks and sediments.

The Survey Area is underlain by the Troodos Terrane, better known as the Troodos ophiolite, which formed 92 million years ago at the bottom of the now-extinct Tethyan Ocean. This ophiolite consists of a layered sequence of rocks from below (deep Earth mantle) to top (ocean-floor sedimentary rocks). For Cypriot archaeology, knowing this sequence of rock (lithology) is important because of the strong relationship between lithology and cultural uses for building stones, tools, ores and locations of most villages in the Survey Area. Because of the flexure of the once flat-lying Tethyan Ocean crust into the Troodos Mountains and subsequent exposure by erosion of the peak areas, the deepest mantle rocks are exposed around Cyprus' highest topographical point, Mount Olympus. The mantle lithologies are of ultramafic (low Si, high Fe+Mg) composition, with names such as dunite, gabbro, harzburgite, plagiogranite, pyroxenite, serpentinite and wehrlite. The uppermost part of this mantle 'layer' of rock is exposed along the southern edge of the Survey Area. Overlying the mantle rocks is a complex of layered microcrystalline diabase/dolerite lithologies that compose what geologists call the sheeted dyke complex. This complex is the source for most of the ground stone tools found on the island. These dykes represent the molten rocks that did not erupt on the sea floor in the volcanic sequence of mostly pillowed basalt lava flows (Upper and Lower Pillow Lavas). The reactions of sea water with these eruptions and subsequent seafloor hot-spring activity led to the formation of a blanket of iron- and manganese-rich hydrothermal sediments (umbers) and altered basalt impregnated with metal-rich sulphide ores.

In the Survey Area, the Troodos Terrane is covered by sedimentary rocks (also known as the Circum-Troodos sedimentary succession), the oldest of which is the Pachna Formation (Plate 4.1). Pachna carbonaceous sediments are buff-coloured chalks and marls, in large contrast to the white chalks of the older Lefkara Formation prevalent on the southern island slopes. The Pachna Formation is known to host chert beds of varying qualities, which have been exploited over time, from prehistoric stone tools to threshing sledge blades. Prominent foothill peaks along the north flank of the Troodos are underlain by the Koronia Member of the Pachna Formation, a Miocene reef limestone and surrounding marine carbonaceous sedimentary rocks that are more resistant to weathering than the surrounding lithologies. Localized outcrops of gypsum of the Kalavasos Formation crystallized as the Mediterranean evaporated away during the Miocene Messinian Salinity Crisis. Following refilling of the Mediterranean Sea some 5 million years ago, deposition across the Troodos Terrane has been limited to concentric zones of upland fluvial gravel deposits that inter-finger with sandy coastal zone deposits (sand dunes, beaches and marine shallows), which in turn inter-finger with deeper marine silty, calcareous mud deposits. The earliest set of such deposits is mapped as the Nicosia Formation, with progressively younger formations identified closer to the modern shoreline.

The transition from the solely marine geological realm, to the terrestrial sub-aerial realm, is marked by the appearance of the Kalavasos Formation in the stratigraphic section. From this time onwards the evidences of geological events are more localized and a different, more complex means of stratigraphic description and analysis is applied. This means of addressing the younger, more culturally relevant geological landscape is, for the excavator-archaeologist, thankfully quite familiar.

4.4 Palaeoenvironment

Currently, the paucity of palaeoenvironmental records originating from Cyprus severely limits what we may say and conclude about past changes in climate and vegetation (Noller 2010). In adjoining areas of the eastern Mediterranean, such records are commonplace and of sufficient areal and temporal density to provide fairly accurate pictures of the climate; useful for interpretations both geomorphological (Almogi-Labin *et al.* 2009; Enzel *et al.* 2008; Robinson *et al.* 2006) and archaeological (Berger and Guilaine 2009; Finné *et al.* 2011; Mercuri *et al.* 2011; Mithen and Black 2011; Roberts *et al.* 2011). Thus, for Cyprus, our approach is to interpolate regional terrestrial and marine records as well as their interpretations. Where such an approach is employed by Berger and Guilaine (2009) and Finné *et al.* (2011) more broadly for the eastern Mediterranean region, we employ this same idea in order to provide a palaeoenvironmental record temporally relevant to TAESP. This compilation is presented in Fig. 4.2.

The Cypriot Climate

Before explaining the climatic record, we look to the planetary scale influences on climate and microclimates in the Survey Area. We begin with astronomical records of solar variability, namely insolation. Insolation is the amount of incoming solar radiation at the top of the atmosphere and is measured in watts per square metre (W m^{-2}). Insolation influences, among many things, air temperature and living conditions, soil heating and drying, plant productivity and ultimately crop yields. Values for insolation were calculated using the method of Laskar *et al.* (2004), which is based on the Earth's orbit and other astronomical variables. As such values are latitudinally dependent (we calculated for 35 deg. N), the seasonal insolation values vary on cycles, or non-linear trends of thousands of years. The northern hemisphere reached a peak insolation 6000 years BP (during the Chalcolithic), which is our arbitrary starting point for the following discussion.

Geological Epoch	TAESP Chronology	Millennium	Century	Cal. year	Year BP	Paleoclimate Reconstruction: Europe Period	Paleoclimate Reconstruction: Cyprus / Eastern Mediterranean Period	A	D	I	M	W	Seasonal Solar Insolation W (m²) V	S	A	W	Ann
Anthro			21	2000	0								360	482	354	193	1610
	Modern	2nd AD	20		50												
				1900	100												
	Ottoman		19		150	Little Ice Age	Late Ottoman Dry										
				1800	200												
			18		250												
				1700	300												
			17	1700	350		Early Ottoman Wet										
				1600	400												
	Franco-Medieval		16		450	Early Little Ice Age	Venetian Dry										
				1500	500								358	482	356	192	1609
			15		550												
				1400	600												
			14		650												
				1300	700												
			13		750	Medieval Climatic Anomaly											
				1200	800												
	Byzantine		12		850												
				1100	900												
			11		950												
				1000	1000		Byzantine Wet						356	482	358	192	1609
		1st AD	10		1050												
				900	1100												
			9		1150												
				800	1200												
			8		1250												
				700	1300												
			7		1350												
	Roman			600	1400												
			6		1450												
				500	1500								354	483	360	191	1609
			5		1550	Roman Climatic Anomaly	Roman Dry										
				400	1600												
			4		1650												
				300	1700												
			3		1750												
				200	1800												
			2		1850												
				100	1900												
			AD1		1950												
				0	2000								352	484	361	191	1609
	Hellenistic	1st BC		100	2100												
				200	2200												
				300	2300												
	Classical			400	2400												
	Archaic			500	2500												
				600	2600												
				700	2700												
	Geometric			800	2800												
				900	2900												
				1000	3000												
	Bronze Age			1200	3200		LBA Climatic Event						349	487	365	189	1612
				1400	3400												
		2nd BC		1600	3600	Santorini											
				1800	3800												
				2000	4000												
				2200	4200	4.2 ka Climatic Event							346	491	368	187	1615
		3rd BC		2400	4400												
				2600	4600												
	Chalcolithic			2800	4800												
				3000	5000	5 ka Climatic Event							345	496	370	184	1619
		4th BC		3500	5500												
Middle Holocene				4000	6000								344	502	370	182	1624

Anthro — Anthropocene – the latest, newest stratigraphic age

Palaeoclimate — Relative precipitation
- A — Arid
- D — Dry
- I — Intermediate
- M — Moist
- W — Wet

Solar insolation calculated based on Laskar et al. (2004) for Cyprus (35N latitude)

Seasons
- V — Vernal equinox
- S — Summer solstice
- A — Autumnal equinox
- W — Winter solstice
- Ann — Annual insolation in KW-hour /m²

Fig. 4.2. Chart of palaeoclimate interpolated from European and Eastern Mediterranean records for the past 6000 years for the Survey Area. Columns display geological and archaeological chronologies, in calendar years, relative soil moisture, and seasonal and annual inputs of solar radiation to the upper atmosphere over Cyprus (insolation)

Fig 4.2 provides our calculations of insolation for the past six millennia at 500–1000 year intervals for each of the seasons – equinoxes and solstices. The annual daylight-hour totals for insolation show a decrease of about 1% since the Chalcolithic Period, matched by decreases in summer and autumn (dormant period) insolation, and increases in winter and spring (growing period) insolation. The difference in insolation over Cyprus between these two semi-annual periods, without accounting for clouds or atmospheric haze, was an estimated 18% greater during the Chalcolithic Period than today. The amount of solar radiation for the growing period has increased by 6% since the Chalcolithic, which ought to translate to greater crop yields in modern times. This assumes clear skies always and that other factors affecting crop yields are constant – which they most certainly are not. We may conclude that, all other factors being equal, compared to today the Chalcolithic had insolation favourable for brighter (warmer, drier?) summers and autumns, and less bright (cooler, moister?) winters and springs. This long-term trend applies for the past two millennia, since the Early Roman period, albeit at a slower rate of change than that between the Chalcolithic and the beginning of the Early Roman period.

Cyprus's climate is significantly affected by the seawater surrounding it. The Mediterranean Sea exerts a strong dampening on climate change that more significantly affects the interior of nearby continental areas (Robinson *et al.* 2006). Furthermore, the behaviour of storm fronts approaching Cyprus is invigorated by orographic (mountain-based) mixing that increases precipitation intensity over Cyprus and areas downwind (Trigo *et al.* 1999). This phenomenon is stationary in the earth's atmosphere and is known as the Cyprus Low (CL) – a major storm centre for the south-west of Asia, including the whole of the Levant (Enzel *et al.* 2008; Lionello *et al.* 2006). We would expect storminess on Cyprus (intensification of CL) to have increased with a more vigorous jetstream blowing across the Mediterranean or greater northern incursion of Indian Ocean monsoon (Enzel *et al.* 2008; Larrasoana *et al.* 2003; Lionello *et al.* 2006). Thunderstorm activity in the Troodos would increase proportionally with greater insolation and warmer sea surface temperatures (Trigo *et al.* 1999).

Local conditions or microclimates of the Survey Area would differentially respond to the regional and hemispheric climate factors discussed above. The mountains' environmental zone would be most vulnerable to wider world climate changes because of their exposure to the north and higher altitude air masses. Our mountain areas are susceptible to diurnal and annual temperature extremes unmatched at the lower elevations. For smaller areas, cool pockets develop in some mountain valleys while aspect-dependent and shadowed slopes have cool, moist microclimates. Such cool pockets may also limit the length of the growing season leading to lower yields than in sunny locations, and harbour crop-destroying freezes. Valleys are influenced by heavier dews, especially when rivers are flowing and there are adiabatic breezes (cool, sinking mountain-born air masses) that cool at night. Yet, of all the environmental zones, the valleys are least vulnerable to strong winds or to sunlight during drought periods, due to the shadows of the surrounding mountains. Plains are exposed to long, sunny days, which is good for crops during good years, but not so good during heatwaves and droughts. Plains are exposed to strong, drying or crop-destroying winds, from summer thermals to storms. Because of their lower elevation, they receive less rainfall, have warmer temperatures and lie within, or close to, the upper limits of the marine boundary layer – that is, the altitude below which the air is directly influenced by marine evaporation. This atmospheric layer is often observed as fog in the lower valleys and plains, which clears out by afternoon due to solar warming. Fogs are of concern as they may aid the dispersal of pathogens through crops, vineyards and orchards, leading to disease-related collapse of the harvest.

Interpolated Palaeoclimate of the Survey Area

Just prior to the period of time when survey work reveals strong evidence of people living on this part of Cyprus, that is during the Chalcolithic Period, the north-eastern Mediterranean region was in transition from what is known as its Early Holocene Wet Period (EHWP), a period of increased lake levels and moister soils (Verheyden *et al.* 2008). Departures recognized broadly in many palaeoclimate records, particularly of different climate proxies, are labelled *events* or *climatic anomalies* by authors. The temporal period, if it coincides with a geological or cultural period or is well-dated to a particular century, is appended to this label, e.g. the *EHWP*. We shall now consider these in order, from oldest to most recent. The EHWP is coincident with the deposition of marine sapropel layer S1 in the eastern Mediterranean, an extensive red-clay-rich layer across the seafloor (Rossignol-Strick 1999). From the S1 stratigraphic interval in cores offshore from Cyprus, a mix of pine, shrubs and salt- and drought-tolerant herbaceous plant pollen, indicate a mean annual precipitation range of about 80–130 cm for Cyprus. This is roughly twice the range of modern values.

The EHWP was terminated by the global '8.2 ka Cold Event', which we refer to here as the '8kCE event' (Robinson *et al.* 2006; Verheyden *et al.* 2008). The 8kCE event seems to have occurred after the deposition of marine sapropel layer S1, as 'normal' marine deposition resumes on the seafloor during this time. This event has recently generated interest, particularly as to how it might relate to broader societal impacts observed across the eastern Mediterranean and south-west Asia (Berger and Guilaine 2009). For Cyprus, this is about the time of the boundary between the Aceramic and Ceramic Neolithic (c. 5500 Cal BC).

The general trend for the north-eastern Mediterranean region since the S1 layer and the 8kCE is simply one of drying out. Looking at the broader trend over the past six millennia (Fig. 4.2) this region's climate, by any measure,

declines from relatively wetter to relatively drier. Along this trend are sharp to gradual departures towards wetter or drier conditions (typically resolved around soil moisture).

During the Chalcolithic Period, the north-eastern Mediterranean region was affected by the 5 ka Climatic Event (5 kCE), a period of shifts in soil moisture between maxima in dry and wet (Bar-Matthews and Ayalon 2011). Scholars believe these excursions occurred between about 5500 to 5000 years BP, though opinions vary as to the magnitude and climate-proxy response to these changes (Finné *et al.* 2011; Robinson *et al.* 2006; Verheyden *et al.* 2008).

Climatic conditions of the Bronze Age are drying from the peak of 5 kCE, reaching minimum moisture during the arid 4.2 ka Climatic Event (4 kCE). The 4 kCE is characterized as a hemispheric event of about three centuries duration that deleteriously impacted on both the environment and various societies from the Indus to Anatolia (Finné *et al.* 2011; Staubwasser and Weiss 2006). For Cyprus, we may infer a drop in precipitation, but not necessarily down to modern values. The eruption of Santorini during the 17th century Cal BC marks the beginning of what is known as the Late Bronze Age Climatic Event, which is defined by staggered shifts between intensified dry and moist conditions (Bar-Matthews and Ayalon 2011; Schilman *et al.* 2001; Verheyden *et al.* 2008).

In the 1st millennium BC, the climate initially swings through considerable variations in precipitation, before it stabilizes for several centuries, including the Early Roman period. It is not until the Roman Dry begins during the early 4th century AD that the future arid climate makes an abrupt appearance. Broadly known globally, and specifically in Europe, as the Roman Warm or Roman Climatic Anomaly (Vollweiler *et al.* 2006), this climatic event is both warm and intensely dry, leading to extensive drying of soils, rivers and lakes of the north-eastern Mediterranean region (Kuzucuoğlu *et al.* 2011), including Cyprus (Devillers 2005).

By the 6th century AD, the north-eastern Mediterranean region climate had adjusted to more moist conditions. This progressively led to the peak of this transition known as the Byzantine Wet. Lakes reached what would be their new and highest level for the 2nd millennium AD (Kuzucuoğlu *et al.* 2011). More broadly speaking, this is the beginning of the Medieval Climatic Anomaly (MCA) (Bakker *et al.* 2011), which proved to be a slow decline from moist to dry climates. On Cyprus, the Early Byzantine encroachment of villages on a narrowed, dry floodplain of the Gialias River in the eastern Mesaoria Plain, was met with sizeable floods of the Byzantine Wet and depositional burial of churches and other structures (Devillers 2005). Shortly after the end of the MCA, the effects of the Early Little Ice Age were being felt in the north-eastern Mediterranean region with persistent declines in soil moisture. Aridity advanced to the point of annually endangering crops, peaking during the early 16th century with the Venetian Dry (Devillers 2005; Finné *et al.* 2011; Kuzucuoğlu *et al.* 2011).

The Little Ice Age (LIA) is a period of enhanced moisture availability and reduced mean annual temperature in the north-eastern Mediterranean region, similar to much of Europe (Grove 1988). On Cyprus, Devillers and Lécuyer (2008) note that the nature of sedimentation (river flow) changes on the Gialias River during the LIA. Flashy river discharge (intermittent stream flow marked by short bursts of floodwaters) during the Venetian Dry is replaced, due to a wetter climate, with higher base flow of rivers and greater sedimentation rates (the base flow is the portion of the stream flow due, not to runoff, but to seepage from surrounding soils; it is the primary source of running water during the dry season). The boulder deposits of the lower terraces in the Karkotis and Lagoudhera Valleys of the Survey Area (Volume 2, Chapters 3.2, 4.2) are remnants of the enhanced LIA river discharge. Soil moisture would have increased due to greater precipitation and the likely lower evapotranspirative soil water loss. Storage of water in snow fields in the Troodos would have enhanced stream base flow and thus supported year-round supplies of irrigation water (see Volume 2, Chapter 3.2).

During the 19th century, the LIA is followed by a decline of precipitation (and likely increased mean annual temperature) into the Late Ottoman Dry. The decline in precipitation, warmer temperatures and attendant loss of the Troodos snow fields, served to increase the likelihood of drought-stricken crops on Cyprus. Once-reliable irrigation waters from mountain streams would be replaced by seasonal stream flows, with late summer to autumn low-to-no flow. About the time Cyprus becomes a British Protectorate, the arid Late Ottoman Dry is advancing towards the modern dry climate.

4.5 Geomorphology

Geomorphological study was integrated with the archaeological investigation throughout the project, and is particularly carefully detailed in Chapter 2.3 of this volume and throughout Volume 2. Here, we take mile-high views of the hierarchy of landforms and related geology of the Survey Area. First, we examine the scale of landform classes that are intermediate to the Geomorphological Units and the whole Survey Area. This is followed by an even more distant view of these landforms aggregated in large groups within the three environmental zones.

Landform Groups

The distribution of landforms within the environmental zones follows an inherent trend, with mountains chiefly of ridge and hillslope landform groups, and the plains with plain and hillslope landform groups. We recognize seven classes of general landform groups at the scales of the Intensive Survey Zones and Survey Area (Table 4.1). These are called groups of landforms because they share a similar process of origin and slope position on the landscape; because of the scale of that observation

Table 4.1. Distribution of landform groups by environmental zone. 'Constructed' includes the rare 'road-cut' landform

Landform Groups	Mountains	Valleys	Plains
	Percent of area	Percent of area	Percent of area
Ridge	14.4	7.7	2.0
Hillslope	75.5	47.0	44.0
Drainage	5.1	4.9	11.3
Plain	2.0	12.0	39.2
Terraced	2.9	25.3	0.7
Constructed	0.1	3.1	2.8
Total	100.0	100.0	100.0

Table 4.2. Correlation matrix of landform connectedness

Landform Group	Ridge	Hillslope	Drainage	Plains	Terrace	Constructed
Ridge	–	45%	3%	5%	29%	20%
Hillslope	100%	–	85%	90%	92%	73%
Drainage	6%	63%	–	89%	71%	53%
Plains	7%	58%	55%	–	21%	60%
Terrace	14%	31%	7%	10%	–	7%
Constructed	6%	11%	12%	8%	8%	–

(1:25,000 to 50,000), this is as fine-scale as map unit design allowed. This is not to be confused with the finer-scale, smaller area scoped for landform class in the GUs. The GUs have their own classes of landforms (see Chapter 2.3) which generally ought to nest hierarchically within the landform group classes.

Landform groups are defined here generally in order, from the highest to lowest slope positions. Regardless of relief, the *ridge* class of landform includes the summit and shoulder positions along the crests of hills, spur ridges and mountain ridges, and are generally 50–200 m wide and trend for kilometres in length. *Hillslopes* are those slope positions between shoulder and footslope, with declivity of greater than c. 5%. *Drainages* are mapped where fluvial channels are of sufficient width (>c. 50 m) to meet minimum map unit size; typically this means higher order streams. *Plain* refers to broad, contiguous landforms of less than c. 5% slope. Anthropogenically created landforms – terraced, constructed and road-cut – were mapped across the entire Survey Area, showing the persistent imprint of historic and modern land uses for agriculture, urban-industrial and transportation, respectively.

From this 'mile-high' vantage, we consider the patterns of connections in geomorphological features, most prominently drainages and ridgelines, because of the natural structure these present to humans and animals in their habitat and movements (Corenbilt *et al.* 2008). Plate 4.1 shows the drainage network and positions of landform groups as they were at the time of our study. Land levelling for agricultural terraces impacts on much of the valley, particularly the Karkotis. Mining has disturbed, largely, hillslopes in the two major valleys. Other than where disturbed by the formation of one of the two aforementioned landforms, the ridgeline networks remain unchanged since humans first visited this landscape. This is not necessarily true for all drainages; deeply incised channels in the mountains are unmoved over the Holocene (at least in map view), whereas channels in the major valley bottoms are quite different in elevation and position today when compared with previous millennia. The vegetation is altogether a different matter and is not considered here.

Connections between Landforms

The lay of this rugged landscape presents a challenge to mobility and communications across the Survey Area. Table 4.2 portrays an analysis of the connectedness of landforms across the Survey Area, in order to determine if this quality of connectedness in the landscape is random or structured. If it is random, then any path or view would be equally good. If structured, then some routes or views are going to be easier or more useful than others.

We begin with a tabulation of the percentage of individual map polygons, or delineations, that touch a landform group of another type somewhere along its perimeter. We assume for this analysis that a landform group is fairly regular internally and among its class, and that ways into and out of a landform group are more important than size of an individual delineation (some hillslope delineations are one or two orders greater than constructed landforms). Hypothetically, should a landform group class 'Gamma' be randomly associated with all landform groups, then it will have a connectedness of up to 100% for each and every other class. On the other end of the possible cases, should class 'Alpha' only touch one

other class 'Beta', then it will be noted in column 'Alpha' that it has 100% connection with 'Beta' and nil connection with all others.

This latter case is fairly close to that of landform group 'ridges', which are largely isolated from other landforms, having significant connection only with adjoining 'hillslopes'. Ridges terminate locally in drainages or plains, though more commonly mines or agricultural terraces are built across them. Hillslopes are broadly connected to all other landforms, with 63% connected to a sizeable drainage. This may also be read as 37% of hillslope delineations *do not* abut a mappable drainage, as would be the case if the drainage were too small or if a plain landform group separated the two. The latter is likely the case as we can see that 90% of the plains are connected to a hillslope and/or drainage. Nearly one-third of the agricultural terraces are constructed up to a ridgeline, yet more commonly to a drainage. Mining and other human constructions nearly equally connect with the landform groups of hillslopes, plains and drainages, which in terms of area are dominant. Anthropogenic landform groups least favour ridgeline positions.

Analysis of the connectedness of landform groups offers us insight into the natural boundaries that might influence cultural uses of landscape. We know by separate analysis that agricultural practices dominate the plains landform group. We know from connectedness that this activity occurs within the limits of drainages and where slope is too great to till reliably, or the soil is too thin, or both. This is intuitive, of course, but what of other land uses over time? We see that agricultural terraces are on hillslopes, of course, and that nearly three-quarters of them are formed at a drainage, but rarely (21%) at a plain. Agricultural terraces are not a common extension of a plain-based cropping system; their connectedness is evidence of a differently organised development and cropping activity.

Our examination of the geomorphology of the survey transects is considered in some detail in Volume 2, but this misses a survey-wide view of the obvious places where people have congregated – the villages and settlements of the Survey Area. Here we will look at a compilation of the existing and abandoned villages by environmental zone and geomorphological setting (Table 4.3; Plate 4.1). Villages and settlements tend to be in one of two places: 1) on top of a knoll with agricultural lands surrounding; or 2) built at the confluence of at least two drainages, and typically between them and upstream of their confluence.

The mountain villages are predominantly sited on bedrock residuum and colluvium. Only three of the locations are founded on Pleistocene fluvial deposits. Asinou is on bedrock originally shaped by fluvial action during the Pleistocene; topographically prominent as a knoll above surrounding younger fluvial deposits. Kalliana and Xyliatos are built on fluvial terraces in the valley floor widening at a confluence of streams. The surface of the fluvial terrace deposits is above the stream channel due to river incision, presumably of pre-settlement age. Ayios Yeoryios Kafkallou is situated on a Pleistocene alluvial fan that has long since deeply incised to its current position (see Volume 2, Chapter 4.2).

Table 4.3. Distribution of villages and settlement by environmental zones and geomorphic setting

Environment Zone/ Village Name	Geomorphic Setting
Mountains	
Aspri	Bedrock residuum and colluvium
Jerenides	Bedrock residuum and colluvium
Karterouni	Bedrock residuum and colluvium
Khalospitia	Bedrock residuum and colluvium
Laxia tou Laona	Bedrock residuum and colluvium
Mutallia	Bedrock residuum and colluvium
Palloura	Bedrock residuum and colluvium
Pano Atsa	Bedrock residuum and colluvium
Trimitheri	Bedrock residuum and colluvium
Vouni	Bedrock residuum and colluvium
Asinou	Bedrock knoll in Pleistocene deposits
Ayios Theodhoros	Bedrock knoll in Pleistocene deposits
Kalliana	Pleistocene confluence terrace
Xyliatos	Pleistocene confluence terrace
Ayios Yeoryios Kafkallou	Ridge in eroded Pleistocene fan
Valleys	
Ayios Epiphanios	Bedrock knoll in Pleistocene deposits
Evrykhou	Bedrock knoll in Pleistocene deposits
Phlasou	Bedrock knoll in Pleistocene deposits
Katydhata	Bedrock knoll in Pleistocene deposits
Korakou	Bedrock knoll in Pleistocene deposits
Linou	Bedrock knoll in Pleistocene deposits
Tembria	Bedrock knoll in Pleistocene deposits
Vyzakia	Pleistocene fan apex – mountain front
Skouriotissa	Pleistocene fluvial terrace
Agroladhou	Side-valley fan
Galata	Side-valley fan
Sina Oros	Side-valley fan
Plains	
Pano Koutraphas	Pleistocene confluence terrace
Potami	Pleistocene confluence terrace
Nikitari	Pleistocene fan apex – mountain front
Kato Koutraphas	Pleistocene fluvial terrace
Mandres	Ridge in eroded Pleistocene fan

Villages in the rest of the Survey Area share proximity to fluvial deposits, be they of Holocene or Pleistocene age. Vyzakia is embedded in the hillslope below the apex of an Early Pleistocene fluvial fan of the Lagoudhera River. Skouriotissa is on a stream-parallel fluvial terrace of the Karkotis. Agroladhou is an example of a village sited on an alluvial fan sourced by a tributary stream, and built out on older fluvial terraces and the valley floor of a major river.

Geomorphology of the Environmental Zones

The following sections are organized by environmental zone, with emphasis on the survey-wide landforms and land-shaping processes. In Volume 2, details of the surficial geology and geomorphology (e.g. geomorphological maps), as well as interpretations of landscape evolution, are provided in descriptions of the environmental setting of each of the major Intensive Survey Zones. The distribution of landform groups by environmental zone is provided in Table 4.1.

Mountain Geomorphology Foothills, mountains and intermontane valleys in the mountains environmental zone make up more than half of the Survey Area. Landforms of the mountains are predominantly erosional in origin (Table 4.1), being cut into the ophiolitic bedrock of Troodos (Plate 4.2). Locus of the modern bare-earth firebreaks, the ridges offer a branching network of dominantly continuous, irregular corridors. These extensive narrow tracts of land are rocky with traces of soil. Soils are thicker and less rocky in the less-abundant saddles and other concave landforms (e.g. where spur ridges join with major ridges). Ridges of the mountains command unmatched viewsheds and offer corridors for the migration of animals and humans. Ridges are the obvious divides in the flow of energy (namely water and air) across the landscape. Channels, with associated thin covers of sediments in transport, amount to c. 5% of the mountain zone. Purely depositional landforms of the mountain zone are rare with c. 2% mapped as plains. Terraced landforms, mainly created by bulldozer, account for c. 3% of the mountains zones. Traces of other anthropogenic landforms are also present here.

Valley Geomorphology Two major rivers drain the mountains environmental zone, the Lagoudhera (Plate 4.3) and the Karkotis (Plate 4.4); both form unique geomorphological settings. Landforms of the valleys are predominantly erosional in origin (Table 4.1), with thin deposits and soils over the fluvially terraced ophiolitic bedrock of Troodos. Valleys represent a fragmented, minor (c. 12% of area) environmental zone in the Survey Area. The significant geomorphological feature of the valleys is the predominance of agricultural terraces and plains, which amount to more than one-third of the area. Constructed landforms cover an area equivalent to the plains environmental zone and represent a factor of 30 times greater area than the mountains. As discussed in sections on the Karkotis and Lagoudhera Intensive Survey Zones (Volume 2), the relatively narrow valley bottoms are flanked by hillslopes and ridges (more than half of the zone, together) that rise up into the surrounding mountain zone.

Plains Geomorphology Eponymously, the plains zone is chiefly plains, although nearly half (44%) of the area is low-sloping hillslopes. The near equal mix of erosional and depositional landforms is extensively covered with soils that escaped the anthropological terracing of the valley zone (Table 4.1). One important reason for this difference in landforms is that the bedrock changes from the hard crystalline rocks of the Troodos Ophiolite in the mountains, to the relatively soft sedimentary rocks of the Circum-Troodos Succession in the plains (Plate 4.5). The plains are underlain by a succession of erosional surfaces and depositional fans created by rivers of the north Troodos.

In this area, it is locally difficult to identify if one is standing on substrate, which in many cases is compact but uncemented Tertiary sedimentary rocks, very like the much more recent deposits of the Troodos rivers. Usually it is the character of the weathered stones and the surface soils that give the strongest clue about where one is in this geological stratigraphy. This modern geomorphologist's conundrum is relevant to our study of lithic artefacts. Outside the obvious major river valleys, procurement on the Plains of rounded rocks for construction purposes and raw material for stone tools is stratified by landscape position. Although they may look appropriately sized and of proper ophiolite lithology, the stones of the Nicosia Formation and Early Pleistocene fan deposits, in particular, commonly crumble after being manipulated or struck. Stones arising from the calcareous subsoil are riddled with calcium carbonate or iron-manganese veins in fractures; these pedogenic accumulations weaken the rocks, making them unusable except for field stone walls or similar constructions. The best tool rocks found on the plains are *not* those procured from the B horizon of Late Pleistocene or younger soils. This would be a general rule applicable to the other parts of the landscape.

4.6 Geoarchaeology

Anthropogenic Landforms and Deposits

On Cyprus, five styles of extensive earth movements by humans are recognized: urban centres and fortifications, industrial mining, check dams, terraces and land levelling (Noller 2010). All of these are present in the Survey Area, with particularly good, if not the best, examples of all but the first listed. The Survey Area's position at a key ecotone provides this more-than-adequate sample of land-forming activities of the people who lived here. In this section, particular attention will be paid to land-forming activities related to mining and agriculture, ostensibly the key long-term drivers of the local economy. Interestingly, mining and agriculture share in the practices of excavation, transport and tipping of earth materials, therefore the resultant landforms, deposits and features, all conditioned by human activities, share many characteristics.

At the AOI scale the total area of human-conditioned land surface is about 85% of the Survey Area – according to our geobotanical and geomorphological survey efforts. This value contrasts with what the CORINE land use survey (CORINE 2006) characterizes as 'forests and semi-natural areas' over about three quarters of the Survey Area. This

mismatch is in part due to which parts of a forest are considered 'semi-natural' or 'human-conditioned'. It is also the result of a comparison of two different systems and scales of observation. In general, we clearly see a much more profound human impact on the forested landscape than what the map units of the CORINE (2006) census portray. We explore this 'unaccounted' human impact in Volume 2, Chapter 5, particularly the abandoned mountain villages and hamlets.

Mining Landscapes

The scope of copper mining activities over thousands of years left few unaffected watersheds around the Troodos. Geoarchaeological features associated with mining are buildings, mines and quarries, processing areas, smelting sites and waste-rock disposal. These features are typically all necessary products of mining activities and thus we may assume them to be coeval. If not re-used or otherwise disturbed, the likely longest surviving industrial features (at the surface) are those built on or excavated in the landscape, such as stone buildings and quarries. Those with the least potential for preservation (unless buried) are the ore benefaction and smelting features, though ore rock and smelting debris can broadly contaminate soils and sediments of ancient mining areas (Grattan *et al.* 2007). In Cyprus, as well as in southern Europe and south-west Asia, ancient industrial features may be well preserved on the landscape (Craddock 1995; Given *et al.* 1999; Rothenberg and Blanco Freijeiro 1981; Rothenberg 1996; Tylecote 1987). Hence, in the Survey Area we should expect to be able to recognize mining features, if they have not been obliterated by human or geological processes. Later historical and modern mining activities around the Mediterranean have removed much of the evidence for ancient mining, leaving only remnants with which to piece together the earlier workings (Given and Knapp 2003; Grattan *et al.* 2007; Rothenberg and Blanco Freijeiro 1981).

Slag heaps of Early Bronze Age to Roman periods persist where deposited in abundance (Given and Knapp 2003; Given *et al.* 1999; Rothenberg and Blanco Freijeiro 1981). Where placed so that they disturb surface water courses, slag heaps impound sediment, alter shape and topology of gully and stream networks, narrow or widen stream valleys, and/or deepen or raise stream beds. Field and experimental studies show that dense gravels preferentially armour stream banks and beds, which decreases erosion and leads to channel immobility (Parker and Klingeman 1982). In most cases, one would expect to find most if not all of these geomorphic responses present along affected stream reaches.

In our survey of GUs, we consider the key landform features of mineral activity to be uniquely tied to quarries (hq) and tailings (hm), and to contribute to the creation of fill sediments (hf) and walls (hw). Along our survey transects, the number of GU descriptions that recorded industrial landforms hq and hm, is 1 and 2, respectively, equating to 0.8% of the GU areal total (Table 4.4). Such activities would have left imprints on the landscape in the form of soil disturbance features that we interpreted in the field — these include anthropogenically eroded (Push) and built up (Cons). The latter terms could develop by means, and for reasons, other than mineral extraction, processing and transport. We did not survey extensively the modern open pit mines, with their quarries, tailings piles and benefaction facilities. Although these account for approximately 300 ha or 1% of the Survey Area, and are corroborated by CORINE (2006), they nonetheless represent an important part of its economy.

Agricultural Landscapes

The potential geomorphological host landscapes for agriculture would, theoretically, be the entire Survey Area, including the areas of bare rock (which incidentally amounts to at least one-third of 1% of the Survey Area), as they would be useful for stone to build terrace walls. Yet where we see evidence of landscapes with proper agricultural soils, even those marginal for multi-year fallow cropping, these are limited to colluvial and alluvial deposits, and rarely to bedrock areas with residual (i.e. in situ) soils, or what we refer to as *residuum*. In terms of surface area and percentage of the AOI, *potential* agricultural or arable land (for crops, orchards and pasture) comprise 40% of it. This appropriately exceeds the 2000 NATURA agricultural census (Cyprus Lands and Surveys Department) that puts land actually used for agricultural purposes at 27% of the AOI. Currently, some of the best land for agriculture is being pulled out of production for community development, enlarged rural communities and EC directives to reduce the agricultural sector of the economy. Cypriot agriculture is structured on naturally deposited plains, small plains deposited behind check dams, and land-levelled fields benched into hillslopes (i.e. agricultural terraces). In the Survey Area, more than 80% of agriculture is rooted in these natural plains (including the originally natural plains in the Karkotis Valley, which were subsequently levelled) and were recorded by GIs by class of Morphostratigraphic Unit with the words alluvial, alluvial-colluvial or alluvium. Within these units, modern land use classes include grain crops, fallow, pasture, orchard and other cultivation. People transformed agricultural lands beyond these natural contexts into fields by means of land levelling.

Field levelling for hillslope terraces and check dam construction is obviously a labour-intensive activity. Their construction is dependent on the determination that suitable gains of arable lands are potentially available, and that there are suitable earth materials that may be conditioned for a seed bed and a relative abundance of stone for construction of dry-stack walls to impound the soils from downslope loss. We can look at this economically as opportunity (gain of arable land) against cost (materials and energy, plus loss of other land uses). Let us look first at the cost side of the equation.

Table 4.4. Distribution and basic statistics of Morphostratigraphic Units by environmental zone

Morpho-stratigraphic Units	ENVIRONMENTAL ZONE					
	Plains		Valleys		Mountains	
	No. of GUs	Area % of Zone GUs	No. of GUs	Area % of Zone GUs	No. of GUs	Area % of Zone GUs
Ac	8	4.3%	3	4.0%	3	1.4%
Af	2	0.3%	4	4.5%	2	0.9%
Ai	19	14.4%	4	10.1%	0	0.0%
Al	7	2.4%	4	1.5%	0	0.0%
Ap	68	45.0%	1	0.2%	4	2.2%
As	1	0.1%	2	1.7%	0	0.0%
At	34	11.1%	19	11.9%	7	1.1%
Ca	0	0.0%	4	9.2%	9	1.7%
Cc	0	0.0%	0	0.0%	4	1.8%
Cf	4	0.6%	7	4.2%	20	5.9%
Cg	19	5.7%	31	24.5%	99	41.6%
Cr	0	0.0%	3	0.0%	5	0.4%
Ct	0	0.0%	1	0.2%	7	2.6%
Fc	0	0.0%	0	0.0%	2	0.3%
Ff	0	0.0%	0	0.0%	1	0.1%
Fg	19	7.3%	4	3.7%	15	5.4%
Fr	0	0.0%	1	1.7%	0	0.0%
Hf	0	0.0%	2	0.2%	0	0.0%
Hh	0	0.0%	0	0.0%	1	0.0%
Hl	0	0.0%	5	5.9%	1	0.1%
Hm	0	0.0%	2	0.5%	0	0.0%
Hq	0	0.0%	0	0.0%	1	0.3%
Ht	18	4.9%	297	0.0%	94	25.6%
All Surficial	*199*	*96.2%*	*394*	*84.2%*	*275*	*91.5%*
Bob	0	0.0%	0	0.0%	8	1.6%
Bod	0	0.0%	0	0.0%	1	0.0%
Bop	6	2.3%	1	0.2%	6	2.9%
Bul	3	1.5%	0	0.2%	0	2.9%
All Substrate	*9*	*3.8%*	*1*	*0.5%*	*15*	*7.5%*
Indeterminate	*0*	*0.0%*	*13*	*15.3%*	*1*	*1.1%*
Total	208		408		291	

Two disparate anthropogenic landforms for the creation and or augmentation of arable land are recognized on Cyprus: they are earth retention features constructed largely of field stone (Noller 2010). Terrace walls are those constructed with a finished grade, and they rarely cross a drainage (although with time they may coalesce across a drainage). Walls built across drainages, especially ephemeral drainages that abound on Cyprus, are called check dams. To capture the anticipated gamut of these features, we had 13 classes of earth retaining features on our recording sheets (see Chapter 2.3 for details). We recorded earth retention features as an important feature of only 54 GUs out of 962 total, or 6% of surveyed units. Slopes for these GUs ranged from 0–65° (150%), with all classes of stability more or less equally represented. Of these earth retaining features, we noted subsets such as a wooden check dam, 55-gallon steel barrel terrace walls, and eight bulldozed forestry tree farm terraces. All classes of terrace

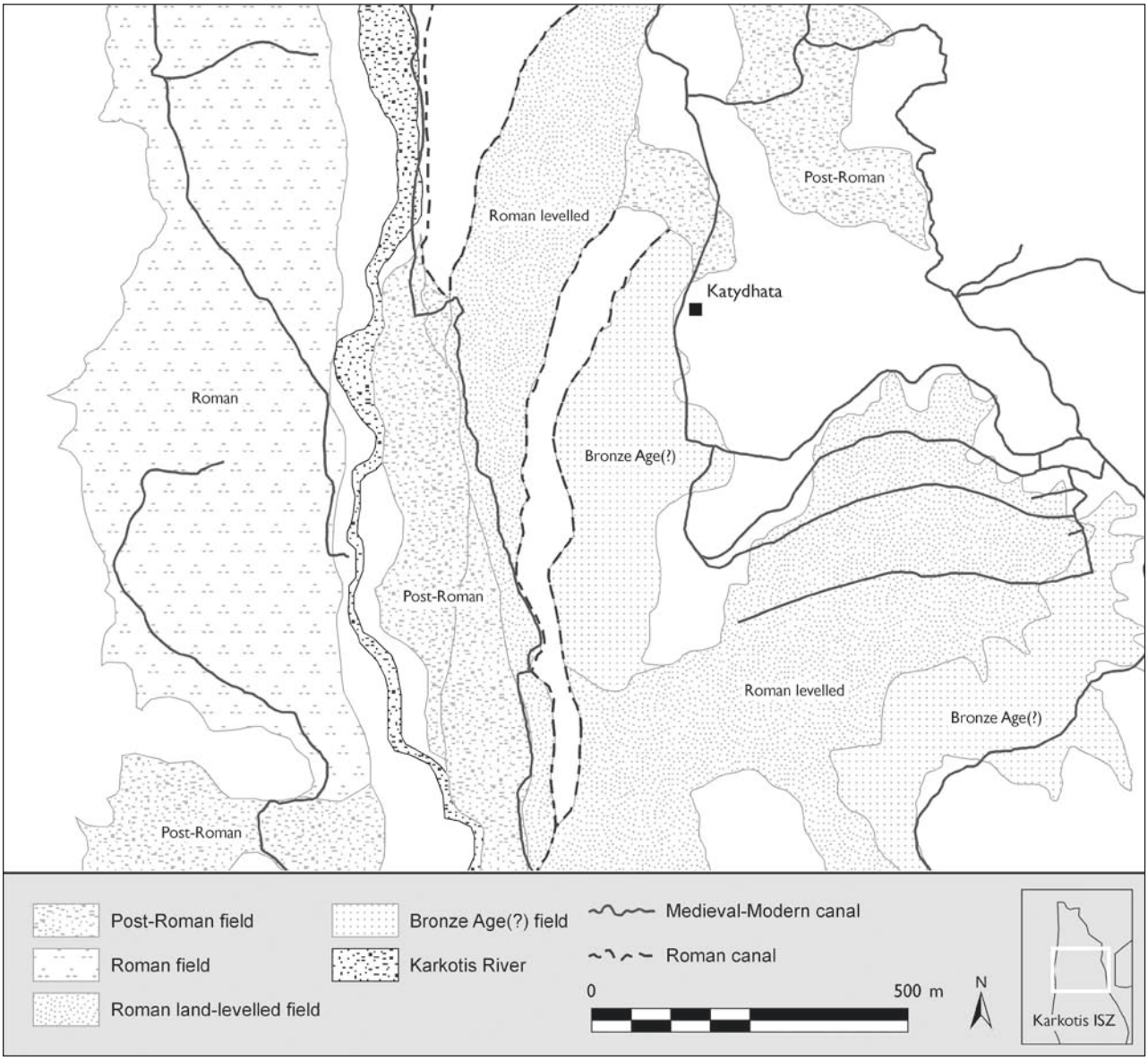


Fig. 4.3. Map of ranks of terraces in the middle Karkotis Valley. See also Volume 2, Plate 3.13. (Jay Noller, finalised by Luke Sollars)

walls were documented, whereas only dry-stack check dams (Cds) were noted. The eight forestry terraces were recorded as modern miscellaneous features (Fm), and no pre-modern (Fpm) examples of this class were noted as such.

We found with time that earth retention features are actually rare (as final results confirm) when encountered along a transect line. Lines of stones along a field edge were noted as rubble piles, or not at all, if it looked as though just a few stones had been tossed to the field's edge. As we learned from the Sydney Cyprus Survey Project and the Troodos-Mesaoria Geomorphological Project (Noller and Wells 2004), earth retention features, particularly check dams, are so efficient and persistent that they become buried within the sediments and soils that they trap and protect from erosion (Whitehill 1999). Because they present an obstacle to tilling, seeding and harvesting, they are also where shrubs and trees are allowed to grow and hide the underlying (stone) feature. In conclusion, fields with bounding earth retention features are very difficult to distinguish from natural landscape. As much as we intended to record these features during our survey, we were unable to capture fully the expected number due either to data overload (i.e. too many to mention), or to visibility (hidden from view).

In addition to terraces and check dams, we documented a series of broad surfaces along the Karkotis River that have a unique geomorphological signature, as well as a network of irrigation canals, especially unusual for Cyprus (Noller 2010). In terms of Morphostratigraphic Units recorded in the GUs, we find that over two-thirds of Valley GUs were

on anthropogenic terraces. The proportions of such terraces are one-tenth and one-quarter the total found in the Plains and Mountains zones respectively (Table 4.4). The Valleys are more significantly sculpted into agricultural terraces than are the other environments. Terrace surfaces are highly productive agricultural fields. Beneath the surface, the terraces consist largely of fluvial deposits of the original geological (fluvial) terraces of the major rivers (e.g. Karkotis River) and their stratigraphically related side-valley alluvial fans of the tributary streams. These terrace surfaces are all broadly plane-parallel, but not everywhere with the original geological deposits beneath. This discordance is documented in exposures along the Karkotis, most notably at Phlasou *Langouphes* (see Fig. 4.5).

The fields around Katydhata best exemplify this unusual relationship of morphology and internal stratigraphic composition. The terraces are proposed to be cultural in construction by means of land levelling techniques. Individual farmers' fields are physically organized into broad, topographically related field surfaces bounded by steep and, in places, high steps or risers in the overall valley floor topography. These groups of fields are called 'ranks', a term devised for this project (Fig. 4.3). Here, the fields are divided into ranks of levels or terraces that contour *away* from the river channel. An individual plot or field is a subset of an agricultural terrace. Groups of agricultural terraces developed by land levelling, bounded by high cut-and-fill slopes, with attendant irrigation canals, form a rank. These can be considered as large sets of terraces with equivalent water grades, including intakes and outlets. Each terrace rank tapers upstream to meet the straight wall of the channel. This is close to the point where the irrigation canal intake is located within the channel.

The terraces along the Karkotis River between Katydhata and Sina Oros/Kakopetria are broadly separated by earthen, not stone, risers. This is unusual for the Survey Area and for most of pre-modern Cyprus, where stone earth retention features are what demarcate the terrace edges (Noller 2010). The back edges (upslope borders) of the ranks have irrigation canals that feed the fields and Ottoman (and possibly earlier) mills, thus establishing a minimum age for irrigation networks (see Chapter 3.11–12). If chiefly natural in origin the ranks are highly unusual topographically. To explain this morphology in natural, rather than anthropogenic, terms would require very unusual circumstances of river channel migration and accretion of floodplain sediments.

While mapping alluvial terraces between the spur at Koutroullis and the Karkotis river, a geomorphological team discovered a recently excavated (bulldozed) back edge of a narrow terrace immediately east of the Karkotis River channel and c. 300 m south-west of Koutroullis. Visible in this cut was a cross-section of fluvial deposits composed of discrete layers containing pottery, lithics and picrolite from the Chalcolithic period to the Prehistoric Bronze Age (Fig. 4.4; Volume 2, Chapter 3.5). The base of the exposed section is 11.5 m above the level of the current river channel bottom. Four lithostratigraphic units were recognized, the lower three units or layers being of obvious fluvial origin. The uppermost layer is poorly sorted, lacks consistent bedding like the subjacent layers, and contains artefacts and rip-up fragments from the lower units, especially the carbonate-encrusted basalt of Unit I (Fig. 4.4) that is interpreted to have the overprint of a buried soil horizon (Crkb). Initially we considered Unit V to be colluvium, but the slope and position so far distant from an upland area makes this a difficult origin for the deposits. Moreover, the nearly 200 cm separation from the basal carbonate accumulations in the Crkb horizon in Unit I, to the shallow depth of Unit V, requires a mechanism for the deep uprooting of bedrock and palaeosol. Materials originating from the 4R and 4Crk soil layers could be brought to the surface through deep, anthropogenic excavation and deposition.

These fragments of a deep soil layer indicates that some sort of excavation has disrupted this layer and spread it out on the surface. Given its position within an agricultural terrace it may simply be concluded that these earth materials were involved in levelling the land to form broad treads to be used for food production. Placing this section within the context of its host hillslope (Fig. 4.5), we can see that the soils available for tillage (no pattern) above the bedrock (patterned) is generally limited to less than 1 m, even in this vertically exaggerated figure. Along the downslope (river) side of the treads, the soil and underlying earth fill is significantly thicker. Perhaps more important than this, Fig. 4.5 shows how thin and limited the soils and fluvial deposits are on the valley floor. There is precious little sediment to hold ground water. All water resources are most likely to flow along the surface of tight and dry bedrock formations. Placement of any deep wells will be lucky to strike fractured rock and its limited capacity to hold groundwater.

The land levelling hypothesis explains the stratigraphic and map based evidence for anthropogenic changes to the land surface in the middle Karkotis Valley. A model is proposed by which the hillslopes around the Karkotis are benched at elevations that would maximize arable lands and allow for efficient transport of irrigation water. Fig. 4.6 demonstrates the before and after cross-sections of a typical hillslope graded in this scheme. The original (pre-levelling) land surface (3) and underlying soil (2) and its culturally sterile substrate (ancient sediments or bedrock) (1) are shown with a slope to the left. Benching to form terraces involves excavation of a prism shape of earth materials (4), down and into the hill, to reach the level of the future terrace tread (dashed lines). This cut-prism of materials (4) is displaced downslope to build a convex, prism-shaped pile (5). The upper quarter metre or so of this new surface is mixed by tillage to form an anthropogenic soil (6). This is repeated along the slope. After land levelling is completed, the only areas where pre-levelling cultural materials lying on the surface (3) or old soil (2) would be still present within the plough zone, are in a narrow band demarcated by (7) in Fig. 4.6.

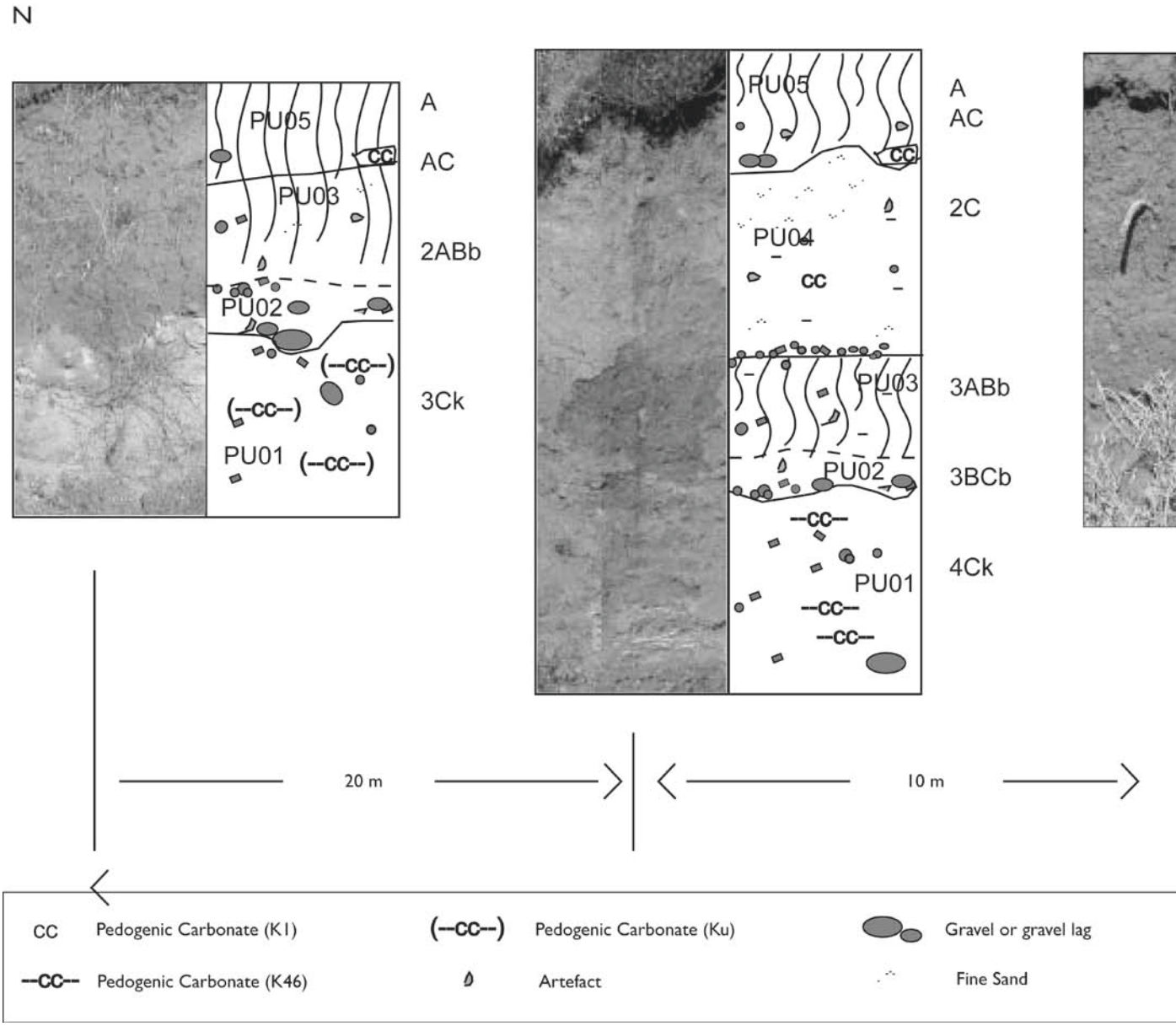


Fig. 4.4. Phlasou Langouphes *(TP246): three photographs of the outcrop with accompanying interpretations of the stratigraphy, display*
and Colin Robins)

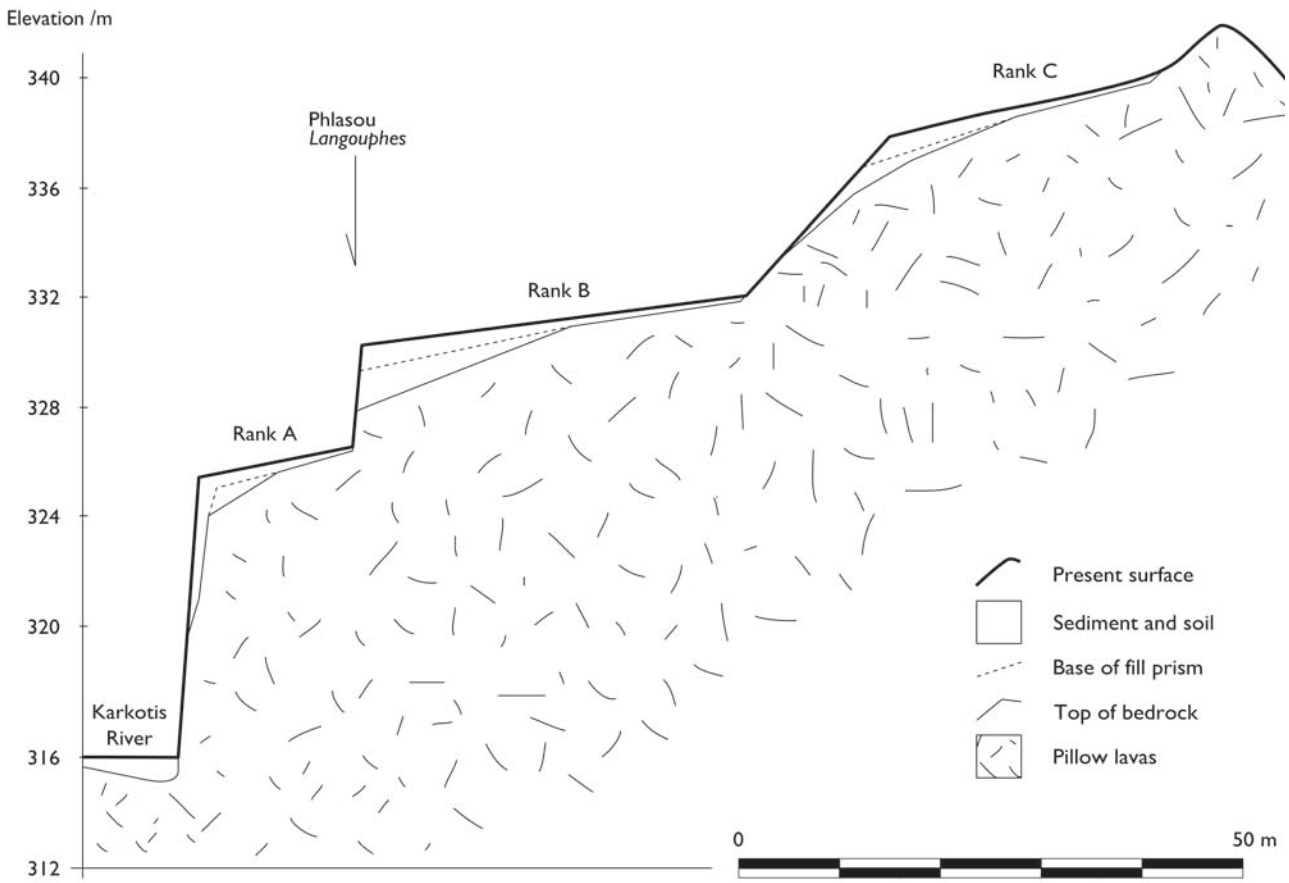


Fig. 4.5. East-west-oriented cross-section of eastern side of the Karkotis valley floor, passing through the stratigraphic section of TP246 Phlasou Langouphes *(Jay Noller, finalised by Luke Sollars)*

Roman and post-Roman dominance of artefacts, as well as some circumstantial evidence (demand for food to supply copper workers, availability of labour to hand construct the ranks of terraces), indicate the timing of land levelling. Given the scope and depth of land levelling, measuring c. 5 m between treads at Phlasou *Langouphes*, the probability is very low for any predating cultural materials to survive at the surface with all this digging and depositing. Thus the oldest prevalent materials we find at the surface ought to relate to the time of land levelling. The preponderance of Roman artefacts, the oldest found, points to this as the period of levelling activity. The ranks would need irrigation water, otherwise what is the point of creating slopes that most efficiently carry water for distances away from the river? It then follows that the irrigation scheme of the Karkotis was set during the Roman period. Earlier artefacts, cultural materials and sites now lie buried, some more in situ than others, within a double-thick layer in the lower half of each terrace and rank (Fig. 4.5). Since the Roman period, cultural materials have accumulated on the Roman fields assured of little disturbance by overland erosion or transport away because of the near-level and isolated fields and terraces of the equally level and isolated ranks.

Context for the Roman and later materials is excellent, some of the best in the Survey Area. The olive trees present in the mosaic of terraced fields provide additional evidence for the post-Roman stasis in the construction and elevational level of agricultural fields in the main valley of the Karkotis. For any wholesale changes in land levels would have meant obliteration of the many stands of these ancient trees. Wholesale changes in land levels would have also meant the burial of Roman period artefacts and/or the emergence of pre-Roman artefacts from newly excavated buried soils.

4.7 Spatial Distribution of Old Olive Trees

Neil Urwin

Investigations into the spatial distribution of olive trees of various ages contribute to our understanding of diachronic settlement patterns and agricultural land use (Fig. 4.7; see Chapter 2.11 for background and methodology, and Volume 2, Chapter 3.16 for more detailed discussion of olive trees in the Karkotis Valley). From an extensive survey of olive trees in the Survey Area, we tabulated field

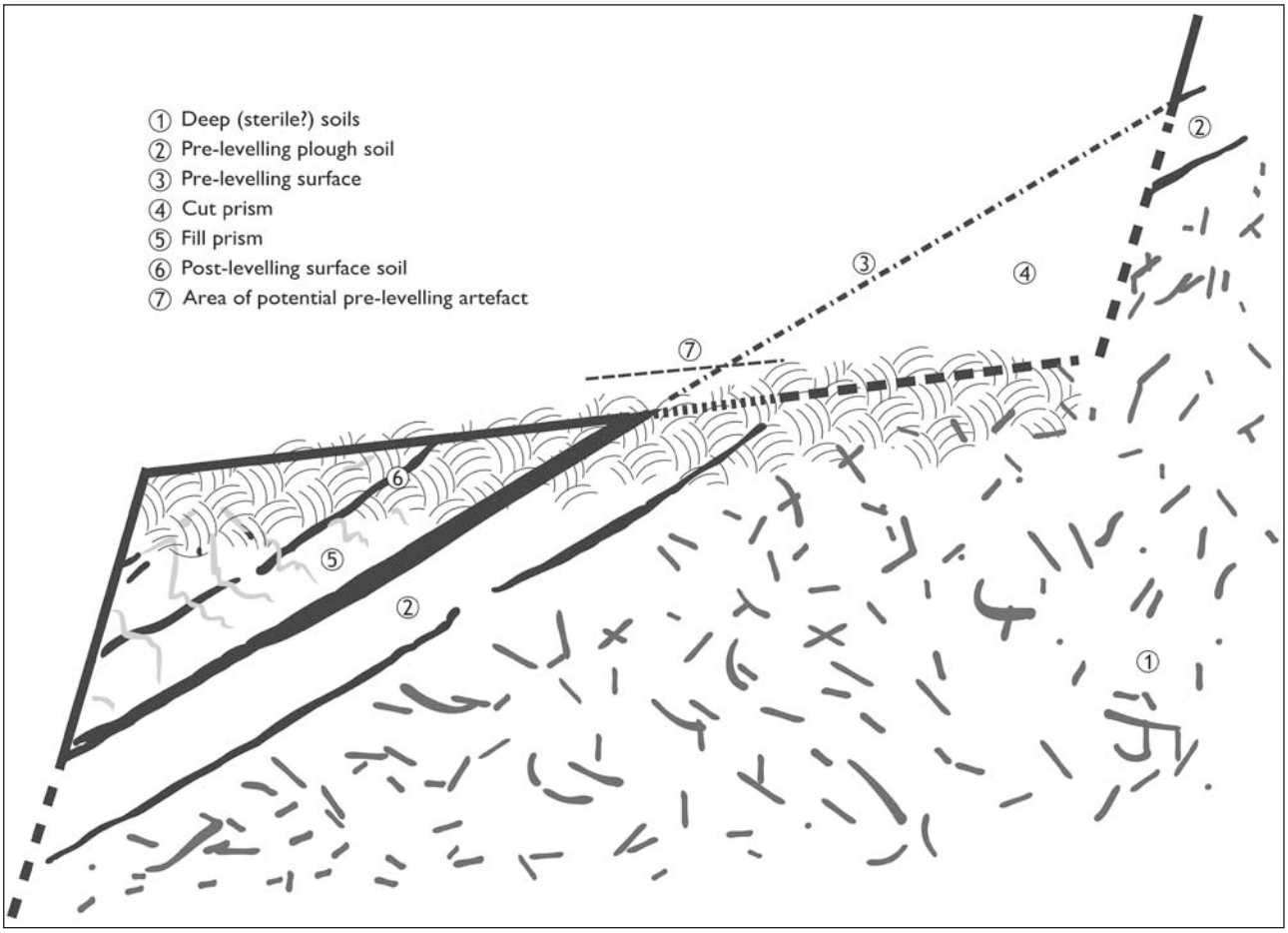


Fig. 4.6. Model cross-section drawn to explain the stratigraphic section of TP246 Phlasou Langouphes*, showing the evolution of the land levelling to form terraces (Jay Noller, finalised by Luke Sollars)*

Fig. 4.7. Olive tree 600 m south of Xyliatos Ayios Kyriakos *(TS10), with extensive internal hollowing and a breach in its circumference (Chris Parks)*

observations that correlated the 'known' ages of selected trees with measurements of their trunk girth. We record these correlations as scatter plots.

The 'known' ages of 32 trees were derived from annual growth rings, where only cut stumps existed, or from historical/anecdotal data on individual plantings, in the case of standing trees. Annual growth rings are present in olive trees (see, for example, Burnet 2004, Michelakis 2002 and Arnan *et al.* 2012), but are only useful in young trees, before the trunk distorts and growth becomes uneven. In our survey, growth ring data were collected from only 13 recently cut stumps. The ages of older trees were often reported as a specific historical period (e.g. 'Venetian') and therefore gave rise to an age range. To accommodate this, we produced two scatter plots, one for minimum (Fig. 4.8) and one for maximum age (Fig. 4.9). A sinusoidal line of best fit was added to each plot to allow extrapolation from the known correlations. We selected this curved shape because it is common to the growth of most organisms; an initial period of consolidation, followed by rapid growth, then slowing to minimal incremental growth with increasing senescence.

The correlation between tree size and growth stage established in this way does not account for the common phenomenon of hollowing in older olive trees. Where internal rot in the trunk had reached the outside and the tree's circumference was breached (Fig. 4.7; Fig. 4.10), we assumed that yearly girth was discontinuous. Our field observations indicated that the point of breaching occurred

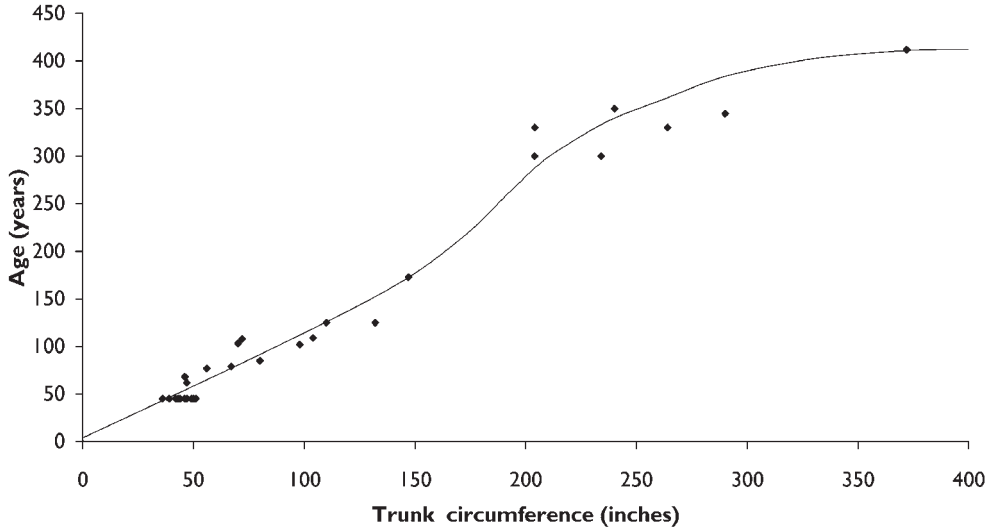


Fig. 4.8. Scatter plot showing minimum ages of olive trees

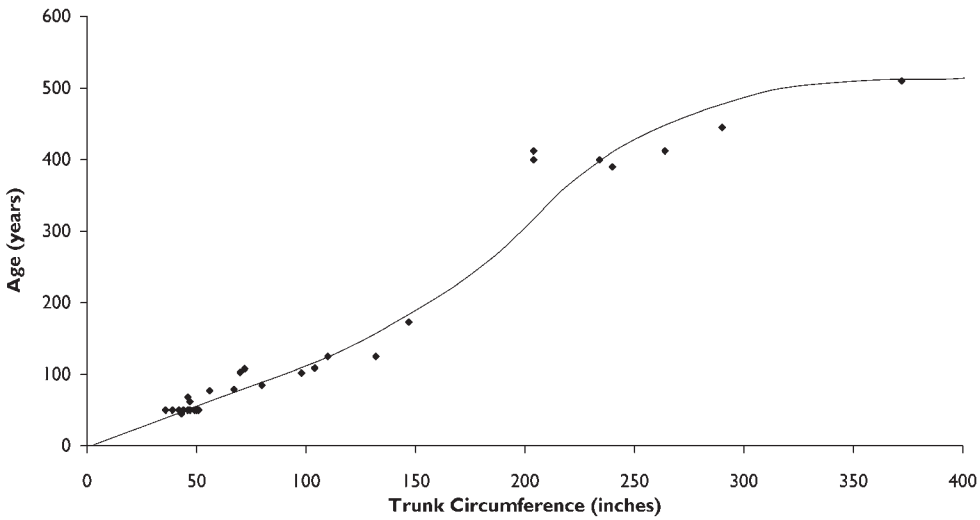


Fig. 4.9. Scatter plot showing maximum ages of olive trees

when internal trunk hollowing was well advanced, at about 50/65% hollowing. The final 50/35% hollowing then occurred over a long period, to the point where the olive was no longer a single tree form, but a number of 'relic' fragments of the trunk, which had taken on the form of individual shoots.

We therefore took hollowing from 65%–100% as a period in which the tree continues to age, but does not increase appreciably in girth. The literature, relying on anecdotal evidence, reports that complete hollowing can take up to 100 years (Christodoulou 1959; Holmboe 1914). We regard this as an indicative time only, but in the absence of any hard data we have used it to provide a constant to modify the age/girth correlation for older trees. The degree of hollowing was estimated, and the proportional part of 100 years added to the minimum and maximum ages read off the line of best fit in the scatter plots. We developed and applied methodological rules to assist the field identification of hollowing (Fig. 4.10). We recognize that for completely hollowed-out trees there will be an inherent underestimation, because the length of time the tree has been hollow will not be known.

The final formulae for deriving maximum and minimum ages for individual trees are:

$A_{final}max = A_{girth}\,max + H$

$A_{final}min = A_{girth}min + H$

Where 'A_{girth} max' and 'A_{girth}min' are the ages (in years) read off the scatter plot graphs of maximum and minimum ages, respectively, for the measured girth of a standing tree; H is the constant of hollowing (between 0 and 100 years). We devised a suite of methodological rules to ensure that the field methods were standardized and comparable. Even so, the relationship between these factors is wholly based on samples of trees growing under the climatic, edaphic and cultural conditions of the Karkotis and Lagoudhera

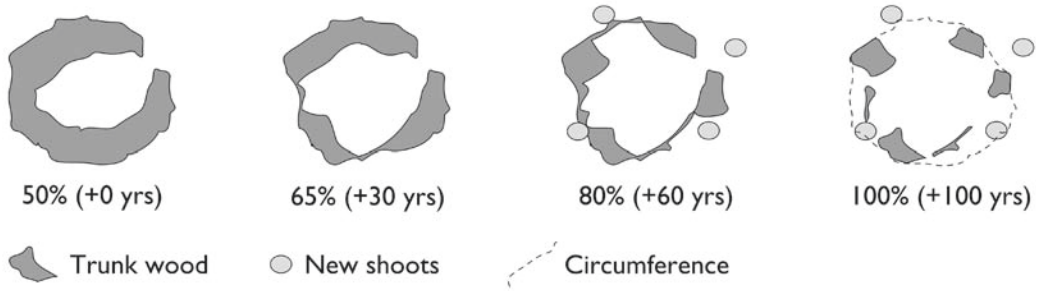


Fig. 4.10. Cross-sections of olive trunks illustrating increasing internal hollowing (Neil Urwin, finalised by Luke Sollars)

Valleys, and its application beyond these geographical areas would not be valid.

In this way we assembled a database of the ages of 186 trees (ranging in ages from 600 to 45 years old). They were located in the field by GPS coordinates and added to the GIS. Only three old olive trees were recorded in the Lagoudhera valley. The majority are located in the Karkotis Valley and it was here that we were able to concentrate our spatial analysis (for full analysis and conclusions see Volume 2, Chapter 3.16).

The results of these analyses show that the earliest extant olive plantings were late 14th and early 15th century, and are limited to a small triangular area on the eastern side of the river defined by Katydhata, Linou and Phlasou in the Karkotis Valley. None are within 250 m of the current watercourse (Volume 2, Chapter 3.16, Plate 3.26).

By the early 16th century, olives had been planted over a much wider area (north to Skouriotissa and south to Korakou and Evrykhou). Significantly, trees of this age were then adjacent to the current Karkotis watercourse, but across the river on the west bank. By the late 16th century this distribution extended farther south of Evrykhou and adjacent to the watercourse at Katydhata and Phlasou. By this period too, the current spatial distribution of olive plantations in the Karkotis Valley had been established.

The spatial distribution of estimated age classes of surviving olive trees has allowed us to speculate on the patterns of olive plantings over time in the Karkotis Valley, and the relationship of these patterns to settlement growth, successive land husbandry regimes and the geomorphological processes of the valley (see Volume 2, Chapter 3.16).

4.8 Modelling Fuel Resources for Past Smelting Operations

Neil Urwin

The question of fuel requirements for all levels of copper smelting activities carried out in Cyprus from the third millennium BC to the end of the Roman period has been the subject of much discussion and speculation. The denudation of Cyprus' forests in antiquity is often referred to in the literature, primarily as evidence of the scale of the smelting and shipbuilding industries, and later as an example of the unsustainable use of natural resources.

Stebbing (1926) suggested that copper mining might have ended in Cyprus through lack of timber (drawing a parallel with iron foundries in England). Thirgood (1987) quotes Eratosthenes (275–195 BC) in Strabo's *Geography*, stating that: 'In ancient times the plains were thickly overgrown with forests, and therefore they were covered with woods and not cultivated; that the mines helped a little against this, since the people would cut down the trees to burn the copper and the silver' (Strabo 14.6.5, translated Jones 1924, 383). Meiggs (1982), writing earlier, takes this ancient account further, implying that although Eratosthenes recorded that the first inroad into the forests of the Cypriot plains was the result of mining, later demands for shipbuilding and agriculture were as important and that despite the total demands on the forests the production of copper continued to be a major industry in Cyprus, with ample reserves of timber on the mountains in the Late Roman period (Meiggs 1982, 397).

Christodoulou is equivocal on the subject, providing a reconstruction of climax vegetation zones of Cyprus which includes a 'Hypothetical Mesaoria Forest' over the central lowlands where all evidence of former tree cover is absent (1959, 230). He does, however, raise doubts on the climatic conditions of the central lowlands and their ability to support a dense forest (Christodoulou 1959, 46). Other researchers refer to the clearing of the Cypriot forests to support the copper industry, using it as an example of the environmental impact of exploiting the region's resources (Craddock 1995; Sallares 1991).

The archaeometallurgy display in Nicosia's Cyprus Museum includes a summary panel indicating that for the production of the estimated 4 million tons of slag on the pillow lavas of the lower Troodos (for the smelting of more than 200,000 tons of copper), a total of 60 million tons of charcoal would have been required. The summary goes on to speculate that 150,000 km^2 of forest would have been needed to provide the charcoal, and that the Cypriot forest resource would, therefore, have been destroyed 16 times over in the course of this smelting history.

This simple calculation includes assumptions of a number of crucial internal factors, including the changing techniques and efficiencies of the smelting process; the

array of plant species used; the density of different wood species; the conversion efficiency of wood to charcoal; the past distribution of Cypriot forests, its climate and edaphic determinants; the stocking rates of Cypriot forests; and the degree of past forest management. It also includes, as we shall see, a significant over-estimation of the amount of charcoal needed and forests consumed for the copper smelting industry.

The slag deposits at Skouriotissa account for over half of the total slag in Cyprus. Its main slag heap derives from a period of intensive copper smelting over a (roughly) definable period. An examination of this large, concentrated deposit allows us to investigate a number of these crucial factors pertaining to fuel dynamics.

The slag heap at Skouriotissa has been estimated to contain two million tons of slag. At the reopening of the Skouriotissa mine in the 1920s the slag heap was measured at about 800 m in length, 30–90 m in width and 20 m in height (Lavender 1962, 63). Although mining at Skouriotissa dates back to at least the Archaic period, the period of stockpiling which resulted in the huge slag heap is Late Roman (Volume 2, Chapter 3.12). This is primarily based upon the identification of pottery sherds mixed in with the slag. Carbon dating of charcoal samples within the slag heap also confirms this. The oldest charcoal thus dated is from layer Y.27 of Archaeometallurgical Unit AU01 at Skouriotissa *Vouppes* (TP007; Volume 2, Chapter 3.12). This fragment of pine charcoal dates to AD 220–350 (94.3% main range). Layer Y.27 is a lower level of the slag face of AU01 (10 m down from the surface of the slag heap and 2 m from the bottom, where talus deposits prevent further sampling), and is thus representative of an earlier smelting period contributing to the massed slag. The latest radiocarbon dating of a charcoal sample is from layer Y.20 of AU03, with a date of AD 595–665 (94.3% main range). This layer is within 1.0–1.5 m of the surface of the slag heap. Using these two dates we can identify an approximate 450-year period during which the majority of the two million tons of slag at Skouriotissa was accumulated.

Table 4.5. Taxa frequencies of charcoal samples from the slag heap at Skouriotissa Vouppes *(TP007)*

Taxa	No. of Samples	% of Total
Pinus brutia	63	81.8%
Pinus sp.	3	3.9%
Alnus orientalis	3	3.9%
Platanus orientalis	2	2.6%
Pinus nigra	2	2.6%
Olea europaea	1	1.3%
Acer sp.	1	1.3%
Quercus sp.	1	1.3%
Pistacia terebinthus	1	1.3%
Total	**77**	**100%**

The botanical taxa used to provide charcoal for smelting copper ore during this period have been identified by the Laboratory of the Department of Prehistory, University of Valencia, Spain, using the reference collection of modern burnt wood and Schweingruber's (1990) wood anatomy atlas (Chapter 3.10). The taxa frequencies of the 77 charcoal samples identified for Skouriotissa are analysed in Table 4.5.

The unrecognized *Pinus* species is also likely to be the common *Pinus brutia*. This taxon, therefore, constitutes between 81.8% and 85.7% of the charcoal collected from all levels of the slag heap. As discussed below, the low wood density of *Pinus brutia* is a relatively inefficient charcoal for the smelting process. The almost exclusive preference for *Pinus brutia* at Late Roman-period smelters at Skouriotissa is likely to have been based upon availability of supply, rather than charcoal quality.

The other species present fall into two categories. One group (*Olea europaea, Quercus* sp., *Pistacia terebinthus* and *Pinus nigra*) comprises taxa that regularly occur in *Pinus brutia* forests as minor co-dominants or understorey (*Pinus nigra* is restricted to the upper reaches of the *Pinus brutia* forest). These would have been exploited on an opportunistic basis as the *Pinus brutia* forest was used. The other group (*Alnus orientalis, Platanus orientalis* and *Acer* sp.) are trees limited to the waterways and gullies coming down onto the plains from the Troodos Mountains. These riverine trees still mark the course of the Karkotis River, which flows past the Skouriotissa site, and its tributaries.

Charcoal of *Pinus brutia* and taxa of the *Pinus brutia* forest group are found at all levels (layers) of the slag heap. Taxa from the riverine group are all found in the same layers as the *Pinus brutia* forest group (see Chapter 3.10). In the limited charcoal sampling undertaken at the Skouriotissa slag heap, there is no clear indication of any phase where riverine species were used exclusively, or to the exclusion of the forest group.

The amount of charcoal required for smelting operations that produce a known amount of slag differs significantly in the literature (Table 4.6). Such differences can be attributed to a number of factors, operating either singly or in combination: they include location, wood species, smelting efficiencies, purity of ore, degree of refining and

Table 4.6. Differing estimates for the proportions of copper to fuel to slag in the smelting process

	Copper	Fuel	Slag
Archaeometallurgy Display, Cyprus Museum	1	300 (charcoal)	20
Bronze Age Wadi Faynan: all sites	–	160 (wood)	20
Bronze Age Faynan	–	180 (wood	20
Cyprus (after Wertime)	1–2	25–30 (charcoal)	20

smelting organisation. It is estimated that for the whole period of smelting over all of Cyprus, 200,000 tons of copper were produced using 60 million tons of charcoal and leaving a residue of 4 million tons of slag (Cyprus Museum). This covers almost 4000 years of smelting from the Prehistoric Bronze Age to the Late Roman period, and would necessarily involve a wide range of environmental and technological variations.

Similar calculations for other smelting regions, outside Cyprus, are uncommon in the literature, due to lack of accurate data on copper production from an identifiable location, or more likely, the disappearance, scattering or burial of substantial amounts of the slag residue. An exception is the comprehensive study of Bronze Age smelting sites at Faynan, Jordan (Hauptmann 2007). Slag from three sites (Khirbet en-Nabas, Khirbet el-Javiye and Faynan) totalled 100,000–130,000 tons, suggesting a 'wood' consumption of over 800,000 tons over 800–1000 years (Hauptmann 2007, 53). At Faynan alone, 1000 years of smelting was calculated to have produced 5000 tons of slag, 'which would point to a required volume of wood of about 45,000 tons' (Hauptmann 2007, 52).

Wertime (1983) undertook a synoptic study of smelting and its effects on deforestation in the Mediterranean. The only purely copper smelting activity he considered was that of Cyprus, where he estimated that 200,000–400,000 tons of copper were produced using 5–6 million tons of charcoal, resulting in a residue of 4 million tons of slag.

The Faynan studies only cite wood volumes as fuel. Horne (1982, 5–13) has reviewed data from the Iranian Plateau where mining and smelting have a long history, stretching as far back as at least the 5th millennium BC. She points out that copper oxides need an atmosphere only slightly reducing to smelt and that although 'undoubtedly wood was sometimes used, the bulk of the evidence indicates charcoal as first choice' (Horne 1982, 8). This brings us to the question of the conversion of wood to charcoal.

Worldwide, there are a lot of data on the charcoal-making experience. Charcoal-making has been an important livelihood phase of many cultures, past and present. Currently in Malaysia, Thailand and Vietnam (ESCAP 1991), the conversion rate of rainforest softwoods to charcoal using earth kilns is between 35% (2.8:1) to 40% (2.5:1). In Zambia, the conversion rate is 23% (4.3:1) for hardwood (Chidumayo 1994). In the 1860s, Oregon iron foundries (Goodall 1958) provided their own charcoal from pine forests with a conversion rate of 10.25 to13.00% (9.7:1 to 7.7:1). Contemporary studies on the conversion of long-stick wood to charcoal in a partial combustion metal kiln in rural India, report a conversion ratio of 33% (3:1). This average rate is also reported from a survey of current conversions in the Caribbean region (Wartluft and White 1984).

Traditional rural charcoal-making techniques in the 1950s in the Shiraz and Tabas areas of Iran are reported to have an average conversion efficiency of 14% (7:1); Horne (1982, 9) also reported European rates of 20% (5:1) to 30% (3.3:1). In the 1960s when charcoal-making was widely practised in Cypriot forests, a report on the industry in the Paphos Forest quoted in Thirgood (1987) suggested a conversion rate of 18.2% (5.5:1).

In the archaeometallurgical display at the Cyprus Museum, the documentation assumes a pinewood density of 550 kg/m^3 and a conversion rate of 9.1% or 11:1 (60 million tons of charcoal required 1200 x 10^6 m^3 of pinewood). This conversion rate is among the lowest (least efficient) in the literature for both past and present charcoal-making activities. Moreover, the measure of pinewood density used in the display documentation is low. Burnet (2004) made a detailed study of forest resources in the northern Troodos Mountains, which includes the potential fuel area for smelting at Skouriotissa, and determined the wood densities of forest species under local conditions. Her *Pinus brutia* samples ranged from 628 kg/m^3 to 770 kg/m^3, with a mean density of 677 kg/m^3 (Burnet 2004, 51–52).

The wood taxa used at Faynan have been identified as *Juniperus, Quercus, Olea* and *Pistacia* in the earlier operations, with increasing *Tamarix, Retama* and *Acacia* in the later period. All of these taxa have higher wood densities that the *Pinus brutia* used at Skouriotissa. In particular, *Juniperus, Quercus, Olea* and *Pistacia* are double the density of the pine.

Although the proportions listed above are based upon weight (not volume, where density would have a significant effect), it may be that the higher density of woods provide a different quality charcoal with practical benefits in the smelting processes employed in that environment. A study of the production of charcoal from different wood species (Shi *et al.* 2007) concluded that the selection of a particular species does not make a meaningful difference in the quantities of charcoal produced.

Although investigations of some smelting sites in Cyprus have found selective use of hardwood species such as *Olea* and *Arbutus* for charcoal (Fasnacht 1989; Fasnacht *et al.* 1991; 1996; 1997), the use of pine has been found to be much more widespread (Fasnacht and Northover 2001; Knapp *et al.* n.d.). In the discussion of the dominance of pine in the charcoal species list from the excavation of a smelting workshop at Politiko *Phorades*, Knapp *et al.* provide insights into the properties of pinewood and its use in smelting (n.d.). Due to the particular properties of pine (resiniferous, highly combustible and readily shaped for specific needs), pines would almost certainly have been preferred in metallurgical activities, which required higher quantities of fuel than domestic purposes. At *Phorades*, Knapp *et al.* concluded that abundance of pinewood in their samples resulted primarily from wood selection to accomplish specific purposes, and only secondarily from the area's vegetation. This is an interesting conclusion to draw, when the surrounding forest is dominated by pine, and choice of fuel would have been limited. The point about the particular qualities of pine for the *Phorades* operation is, however, well made and adds support for the almost

Table 4.7. Revised estimates for the proportions of copper to fuel to slag in the smelting process

	Copper	Charcoal	Slag
Archaeometallurgy Display, Cyprus Museum	1	300	20
Bronze Age Wadi Faynan: all sites	0.66	23	20
Bronze Age Faynan	0.75	26	20
Cyprus (after Wertime)	1–2	25–30	20

exclusive use of pine for the much larger Skouriotissa smelting.

Of all the charcoal conversion rates surveyed, those reported by Horne (1982) seem the best fit for Cyprus in terms of environment and technology. Using a 14% (7:1) conversion rate the Faynan wood data can be converted into charcoal amounts. The missing copper production data for the Faynan smelting sites can also be roughly estimated from Tylecote's smelting experiments, using the technology of the Timna furnaces in the southern Levant (Tylecote and Boydell 1978). These experiments indicated a charcoal to copper ratio for smelted oxide ores of 40:1. Horne (1982, 9) also notes 'a few studies' of European historic records which report a charcoal to copper ratio of 20:1. Choosing a mean ratio between the two reported ratios would ignore the conditions at Timna, which more closely resemble those at the Faynan sites. We have thus chosen a compromise ratio closer to Tylecote's for the Faynan conversions of 35:1. The revised copper:charcoal:slag ratios for all four examples cited above are shown in Table 4.7.

It is apparent that the ratios from the two Faynan sites and Cyprus (after Wertime) are of the same order of magnitude. The ratio provided by the archaeometallurgy display in the Cyprus Museum (based on Constantinou 1982) agrees with the others in ratios of copper to slag, but the charcoal amount exceeds the others by a factor of 10 and appears to be anomalous. We have accordingly selected a copper:charcoal:slag ratio of 1:30:20. This is the ratio in the range contemplated by Wertime, which fits most closely with Tylecote's experiments at Timna.

Using this ratio at Skouriotissa, with an estimated 2 million tons of slag, a maximum of 3 million tons of charcoal would have been used during the more than 450-year accumulation of the slag heap. To determine the volume of wood that would have been needed to provide this much charcoal, we need to select a conversion rate of wood to charcoal for the Troodos area pine forests.

The previous discussion has revealed the variability of wood to charcoal conversion rates. Unfortunately, no data exist on the conversion rate of charcoal-making in the Late Roman period in the northern Troodos, so for our model of fuel resources it is necessary to adopt an estimated conversion rate of 14% (7:1). This is the conversion rate calculated from wood to charcoal yield in rural Iran and reported by Horne (Horne 1982; after Uhart 1952); it appears to be a reasonable medium value for conversion from a variable and necessarily incomplete data set. It is lower (more inefficient) than the 1960s conversion rate for Paphos pine forests reported by Thirgood (1987), so may be regarded as a conservative estimate for the locality. Additionally, the higher mean density of 677 kg/m^3 for *Pinus brutia* in the study area, cited in Burnet (2004), will be used.

Using a 14% (7:1) conversion rate for charcoal-making and the corrected pinewood density of 677 kg/m^3, the maximum volume of pinewood required for the Late Roman smelting operations at Skouriotissa can be calculated as 31,019,200 m^3 of pinewood (3,000,000 x 7 x 1/0.677). The question of what area of forest this would require brings us to the consideration of forest stocking rates. Stocking rates vary with environmental conditions and forest management, but more importantly, they also vary with the ultimate purpose to which the timber is to be put.

Stocking rates are usually calculated (and published) by forestry authorities, and address the capacity of a forest to supply saw-logs for building. In this context, Thirgood (1987) chronicled a gradual improvement for Cypriot pine forests since the Second World War, from an average of 23 m^3/ha in 1954 (with a yearly increment of 0.28 m^3/ha) to 49.45 m^3/ha for the Paphos forests in 1963. He estimated that with optimum management the stocking rate could increase to 63.5 m^3/ha (compared with a figure of 80 m^3/ha in the Cyprus Museum archaeometallurgical display).

Unlike the saw-log industry, charcoal-making uses almost the entire tree. Small branches down to a few centimetres diameter have been found in smelting sites. In order to obtain relevant measures of the charcoal-making we undertook a survey of forest densities and wood biomass in the watershed of the Karkotis valley and on the Troodos slopes near Asinou (Table 4.8). Useable wood from a pine tree was calculated from field measurements of felled trees in the Asinou pine forest as the volume of the trunk (taken as a regular cone with a height of 80% of the tree height) plus an additional 1/3 of the trunk volume to account for branch wood. The results of the survey are shown in the following table.

The Asinou sample at 636 m^3/ha is an example of *Pinus brutia* forest growing in optimum conditions: low alkalinity soils of the Troodos massif, on elevations above 650 m asl where the rainfall varies between 400 and 900 mm per annum (Burnet 2004). The lower densities are regrowth forest or forests maturing in less optimal conditions. The sample west of Ayios Epiphanios at 252 m^3/ha is an example of the good stocking rates achievable in lower rainfall zones (but still on Troodos massif soils).

Constantinou (1982) suggests a 50- to 80-year harvesting and regeneration cycle in the long history of the use of Cypriot forests for smelting and other uses. A 50-year cycle may have been possible in the high quality, fast

Table 4.8. Survey of tree density and wood biomass in the Karkotis Valley watershed and on the Troodos slopes at Asinou. Pole height for pines is calculated as 0.8 of total height

Location	Grid reference	Tree density	Average tree girth at base	Average pole height	Species	Wood volume per tree (incl. branches)	Wood volume per unit area
Karkotis Valley slopes W of Katydhata	489302 3878572	1 tree/150 m^2 66 trees/ha	1.8 m	8 m	*Pinus brutia*	0.9165 m^3	60.49 m^3/ha
Karkotis Valley slopes W of Skouriotissa	489008 3882906	1 tree/25 m^2 310 trees/ha	0.8 m	14 m	*Pinus brutia*	0.3169 m^3	98.25 m^3/ha
Karkotis Valley slopes W of Katydhata	488686 3881938	1 tree/50 m^2 200 trees/ha	0.8 m	8 m	*Pinus brutia*	0.1811 m^3	36.22 m^3/ha
Karkotis Valley slopes W of Katydhata	488593 4882247	1 tree/55 m^2 182 trees/ha	0.5 m	4 m	*Pinus brutia* (stunted)	0.0353 m^3	6.42 m^3/ha
Karkotis Valley slopes W of Ayios Epiphanios	489010 3883155	1 tree/22.5 m^2 440 trees/ha	0.9 m	20 m	*Pinus brutia*	0.5729 m^3	252.08 m^3/ha
Karkotis Valley slopes E of Kakopetria	–	1 tree/100 m^2 100 trees/ha	1.0 m	12 m	*Pinus brutia* *Quercus alnifolia* *Pistacia terebinthus*	0.4243 m^3	42.43 m^3/ha
Upstream of Memi mine	–	1 tree/49 m^2 210 trees/ha	1.0 m	20 m	*Pinus brutia* *Quercus alnifolia*	0.7072 m^3	148.51 m^3/ha
Asinou slope E of church	–	1 tree/25 m^2 400 trees/ha	1.5 m	20 m	*Pinus brutia*	1.5904 m^3	636.16 m^3/ha

Table 4.9. Estimates of forest area required to service copper smelting at Skouriotissa on an 80-year regrowth cycle at different stocking rates

Location	Grid reference	Wood volume per unit area (m^3/ha)	80-year cycle (5,514,524 m^3)
Asinou slope E of church	–	636.16	87 km^2
Karkotis Valley slopes W of Ayios Epiphanios	489010/3883155	252.08	219 km^2
Upstream of Memi mine	–	148.51	371 km^2
Karkotis Valley slopes opposite (W of) Skouriotissa	489008/3882906	98.25	561 km^2
Karkotis Valley slopes W of Katydhata	489302/3878572	60.49	912 km^2
Karkotis Valley slopes E of Kakopetria	–	42.43	1,300 km^2
Karkotis Valley slopes W of Katydhata	488686/3881938	36.22	1,523 km^2
Karkotis Valley slopes W of Katydhata	488593/3882247	6.42	8,590 km^2

growing forests of the upper Troodos slopes. An 80-year (or longer) cycle would be more appropriate for the forests growing in less optimal conditions. The incremental growth rate of the Paphos pine forest in 1954 cited by Thirgood (1987) approximates an 80-year replacement cycle. Burnet (2004, 36) noted that successional regrowth of a depleted area occurs in three broad stages; 5–10 years for grasses and other herbs, followed by about 30 years of dominant shrub species before *Pinus brutia* begins to colonize. Allowing 40+ years for pine seedlings to grow to early maturity, this sequence also supports a minimum 80-year regeneration cycle.

From the total of 31,019,200 m^3 of pinewood required for the 450 years of smelting which produced the Skouriotissa slag heap, an 80-year cycle would provide 5,514,524 m^3 of wood for each cycle. Aligning these yields from harvesting cycles to the forest densities observed in the Survey Area (Table 4.8), we can estimate the areas of forest required to service Skouriotissa under a range of ecological circumstances (Table 4.9).

The most dense and productive pine forest type in the scenarios illustrated above is the Asinou-type forest (636.16 m^3/ha on a 80-year harvesting cycle), requiring a forested area of only 87 km^2 to supply Skouriotissa. Such high

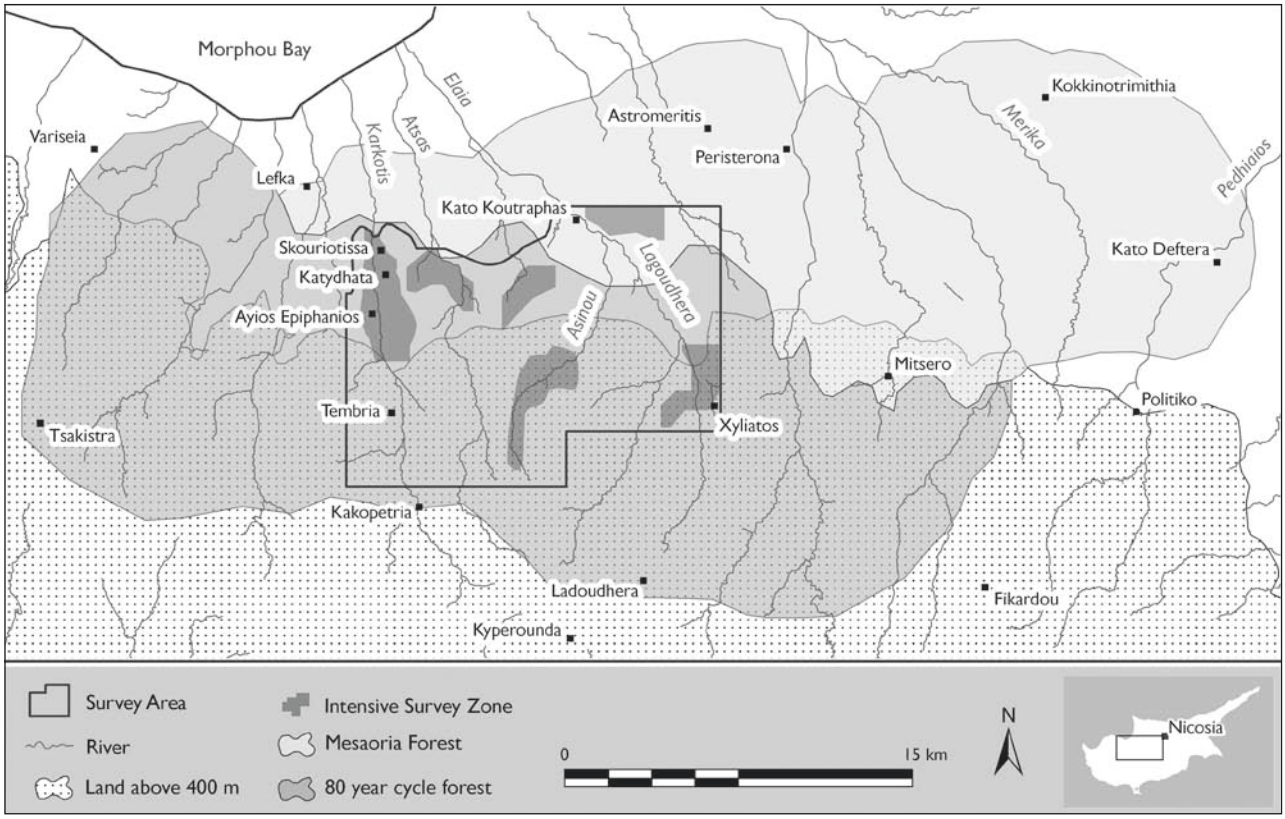


Fig. 4.11. Fuel harvest area for servicing copper smelting at Skouriotissa (based on 80+ year cycle)

quality old growth forest, however, is relatively restricted in its distribution, confined largely to small valleys among the less accessible upper slopes. The more likely forests to be targeted regularly by the Skouriotissa smelters would be on the lower slopes and edges of the plain, where the pines grow at much lower stocking rates.

This forest habit and condition is covered by a number of the sample sites of forest density in Table 4.3, specifically the forests on the Karkotis slopes west of Katydhata and Ayios Epiphanios. The forest areas required for an adequate 80-year regrowth volume on these sites range from 219 km^2 to 912 km^2. A mean area from these sample sites is 516 km^2. This notional area is mapped at Fig. 4.11. It is bounded in the south by the upper slopes of the Troodos where *Pinus nigra* becomes more common as a forest co-dominant. In the north it is bounded by the edge of the pillow lavas, which is also the boundary of the hypothetical climax vegetation zone of the Troodos slopes *Pinus brutia* forest (with *Quercus* and *Olea* as sub-dominants). Skouriotissa is midway along this northern boundary. The east and west boundaries of the area are provided by the limits of transport of charcoal by mule. Burnet (2004) notes field experimentation that showed that a donkey could carry a load of 200 pounds a distance of 27 km in a 10-hour day. The mapped extent of the area also takes account of the topographic constraints to large-scale haulage travel, which would necessitate predominantly east–west routes along the lowlands and north–south routes along the valleys in the mountains.

Fuel might also have been sourced from forest or woodland growth on the western Mesaoria Plain on areas above the alluvial fan behind Morphou Bay. This is batha and grain country now, with occasional stunted pine regrowth. It is sub-optimal for pines in both rainfall and soil temperature, and in the past might only have supported a sparse, low forest or woodland of a much lower stocking rate and with a longer harvesting cycle. Even so, harvesting on the plain would have been opportunistic and unsustainable, given the availability of higher quality forest on the slopes of the Troodos. After any tree cover was harvested from the plains areas there would have been little incentive for silvicultural management of the land, since a more productive use would have been cropping – with yearly returns rather than an 80+-year production cycle. This notional area of non-sustained clearing on the plain is also illustrated in Fig. 4.11.

The remaining question is whether such a distribution of forest and woodland was possible in the Late Roman period. There is agreement in the literature that an ancient forest dominated by conifer species existed on the Troodos slopes above the pillow lavas and that this same forest persists to the present day. Christodoulou (1959, 229) includes a vegetation reconstruction that typifies these as 'Forest of *Pinus brutia* with *Quercus calliprinos* and

Olea europaea' and 'Forest of *Pinus brutia* and *Quercus alnifolia*'. The batha-dominated lands above 100 m asl on the western Mesaoria Plain are also considered by both Christodoulou (1959) and Meikle (1977) to be the result of a degradation gradient, passing from some degree of forest or woodland cover to garrigue and finally to the low, stunted batha formed by excessive grazing over a long period. Soils of the western Mesaoria Plain are depositional, arising from the basic igneous conglomerates and fanglomerates found all around the Troodos massif. The fertility and structure of these soils is not inconsistent with pine forest growth.

The major factor determining past pine forest or woodland growth in this lowland region would have been climate. Both Christodoulou and Meikle point out that there is little likelihood of the re-establishment of forest on these lowland areas in the current low rainfall and high soil temperature conditions. Climatic conditions in the eastern Mediterranean in the Roman period were, however, different and these differences would have been more favourable to forest growth on the plain than present conditions. As noted in Chapter 4.4 above, a more humid, potentially cooler climate in the Early to Middle Roman period would have favoured the establishment, growth and consolidation of pine forests in Cyprus at lower elevations. By the Late Roman period the Eastern Mediterranean region was entering the Roman Dry, a drier, warmer period (Chapter 4.4), which may have triggered a retreat of any remaining forest (surviving the charcoal-makers' activities) in the lowlands.

Our model has shown that the land around Skouriotissa could have, in total, provided the required fuel resource – but we can only speculate on the logistics needed to exploit that resource in such an intensive way and over such a long period for the day-to-day smelting operations.

In order to provide fuel over the 450 years of Late Roman smelting at Skouriotissa, the forest would need to have provided about 18 tons of charcoal per day. This would have required in the order of 200 individual donkey trips per day. Such a level of haulage would exceed the type of small-scale charcoal-making operations likely employed in localized smelting activities such as that at Politiko *Phorades*. Instead, organisation and concentration of effort may have developed.

When forest and woodland resources close to the smelting site were being exploited, it may have proved cost-effective to transport timber to a central charcoal-making facility at the smelting site itself and perhaps to stockpile charcoal. As the cyclic use of wood resources moved further away from Skouriotissa, it may have been easier to transport charcoal in bulk rather than wood. This would have necessitated satellite charcoal-making facilities using resources from the surrounding area and dispatching product along dedicated haulage routes. Evidence of Ottoman or modern charcoal-making has been found in the Asinou forests (Volume 2, Chapter 5.7), but to date no evidence from the Roman period has been found.

The important conclusion that can be drawn from the results of this fuel resource model, is that the entire fuel needs for smelting at Skouriotissa during the Late Roman period could have been provided by 80+-year rotation pine forests, growing on an area between the lower pillow lavas and the upper slopes of the Troodos massif. While the existence of a western Mesaoria Plain forest or woodland in the Roman period is contemplated, this is only in the context of opportunistic clearing rather than long-term forest management.

5. Prehistory and History in the TAESP Landscape

The four sections of this chapter give overviews and interpretations of the four main period groupings we use to analyse the TAESP material: Prehistoric; Iron Age–Classical; Hellenistic–Roman; and Byzantine–Modern. These overviews are intended to give a useful entry point for a reader interested in a particular period, and so include comprehensive cross-references to more detailed discussions of specific landscapes and material culture in both volumes. They also put the Survey Area into its wider context, in Cyprus and beyond. Other than that, they are not intended to be uniform in approach or content, partly because of the very different materials, survival rates and relevant themes for each period, and partly because of the different research interests of the specialists who have authored or co-authored them.

For a briefer chronological overview, with cross-references, see Volume 2, Chapter 6. For an analysis of pottery by period, see the first five sections of Volume 1, Chapter 3.

5.1 Prehistoric Landscapes

A. Bernard Knapp

This section examines the TAESP landscape within the context of the long-term prehistory and cultural history of Cyprus and the surrounding eastern Mediterranean world. The intention is (1) to examine the social, cultural and communication patterns that emerge from the TAESP data, and (2) to consider the TAESP landscape in its broader context, both within and beyond the island. The distribution patterns of chipped stone, ground stone, pottery and archaeometallurgical remains are assessed as evidence for settlement trends and inter-regional interactions during all prehistoric periods (Early Aceramic Neolithic to Late Bronze Age). Evidence from other Cypriot prehistoric sites (excavations and surveys) is presented in the attempt to enhance archaeological understanding of these periods and to consider any differences or similarities with the patterns seen in the TAESP region.

The nature, scale and development of industrial and agriculture factors are crucial for understanding the TAESP landscape, and they are explored here in order to bring the Survey Area to bear on wider island economic and social developments. The long-term agricultural and mineral exploitation of this region is readily apparent in the materials TAESP collected. By investigating the temporal, technical and social aspects of such activities we can understand better how they relate to each other and to the subsistence, settlement and communications networks that characterize not just our Survey Area, but also the world that lies beyond it. The following proceeds in chronological order, not least in order to enable specialists to consult information relevant to their own period(s) of interest.

Early Prehistory: Late Epipalaeolithic to Ceramic Neolithic

On the plains of the Survey Area, chipped stone material from Nikitari *Kambos tou Lemonari* (TP095) and across the Koutraphas plateau more broadly may be either Late Epipalaeolithic or Early Aceramic Neolithic in date (Volume 2, Chapter 2.13). If the latter, it is most likely contemporary with activity areas identified by the Sydney Cyprus Survey Project (SCSP) at Agrokipia *Palaeokamina* and Politiko *Kelaïdhoni*, and by McCartney at Ayia Varvara *Asprokremnos* (Given and Knapp 2003, 182–86; Manning *et al.* 2010; McCartney 2005; McCartney *et al.* 2007; 2008; 2009). Indeed, the ad hoc character of activity at Nikitari *Kambos tou Lemonari* – simple core technology using local raw materials; prevalence of chipped stone tools and tested modules rather than core reduction debris

and unworked blanks – is similar to the patterns seen at Palaeokamina and Kelaïdhoni.

The production of utilized flake tools on local jasper found at TP095 suggests the cutting and shredding of plant materials by mobile foragers or small, more permanently settled agriculturalists, the latter perhaps best indicated by the abundant sample of ground stone implements (querns, rubbers, grinders, one mortar). Nonetheless, specific tools from this site (e.g. a prismatic blade segment, a *pièce esquillée*), as well as the systematic exploitation of jasper and the absence of any obsidian, might also point to an association with Late Epipalaeolithic, fisher-forager sites (Ammerman 2010; Knapp 2010; McCartney 2005; McCartney and Todd 2005). Only one utilized flake of obsidian – common on Early Aceramic Neolithic but not on Late Epipalaeolithic sites – was found in the Survey Area, in the Karkotis Valley (SU1035).

Whether the site of Nikitari *Kambos tou Lemonari* belongs to the Late Epipalaeolithic or some phase of the Aceramic Neolithic, its existence is crucially important as inland examples of such sites are exceedingly rare in the Cypriot archaeological record. Amongst these few sites, only Ayia Varvara *Asprokremnos* has been excavated, and it lies very early in the Aceramic Neolithic, in the first half of the 9th millennium Cal BC (Manning *et al.* 2010; McCartney *et al.* 2007; 2008; 2009). Most known or presumed Late Epipalaeolithic sites are situated on the eastern, southern or western coasts of Cyprus (Ammerman *et al.* 2006; 2007; 2008; Simmons 1999), exactly where we might expect to find traces of the early fishers or foragers who explored the island. The best known Early Aceramic Neolithic [EAN] sites also lie on or very near the sea: Parekklesia *Shillourokambos*, north-east of Limassol c. 5 km from the current south coast; Kissonerga *Mylouthkia*, north of Paphos, about 100 m from the current west coast shoreline; and Kalavasos *Tenta*, on the south coast, in the lower Vasilikos Valley, some 3 km from the sea. All these sites were settled by the island's earliest agriculturalists; they reveal cultivated and/or domesticated plants and animals nearly contemporary with the earliest such finds in the Levant and Anatolia (Guilaine and Briois 2006; Guilaine and Le Brun 2003; Knapp 2010; various papers in Peltenburg and Wasse 2004).

Elsewhere in the Survey Area, we can see a thin spread of chipped stone (from cutting and chopping tools) over the entire Koutraphas Intensive Survey Zone on the plains, and a small number of ground stone implements in the same area (Volume 2, Chapter 2.13). Together, these indicate that grains, cereals, fruits and plants have been processed on the plains, most likely on a seasonal basis, since the Neolithic. Most of these lithics were recorded on the largely stable surfaces at Pano Koutraphas *Katalasharis* (TP256) and Pano Koutraphas *Sanidhia* (TP245); other items come from eroded and unstable surfaces east of Sanidhia. The majority of these tools and implements also reveal an ad hoc technology, one whose cores, blanks and trimming elements, at least, were similar to those found at Nikitari *Kambos tou Lemonari* and other Aceramic Neolithic sites in Cyprus (e.g. McCartney and Gratuze 2003; McCartney and Todd 2005). Thus they too suggest the presence of either mobile foragers or small, agricultural working groups.

No sites belonging to the Late Aceramic Neolithic (LAN), or Khirokitia Culture (c. 7000/6500–5500 Cal BC) have been identified in the Survey Area. Most known sites of the LAN are distributed along or near the southern (e.g. Khirokitia *Vouni*, Kalavasos *Tenta*) or north and north-eastern coasts (e.g. Cape Andreas *Kastros*, Limnitis *Petra tou Limniti*), and in areas where the lowlands (agriculture) and uplands (hunting) meet (e.g. Kataliondas *Kourvellos*, Dhali *Agridhi*, Kholetria *Ortos*, the last an upland site). The following period, termed the Ceramic Neolithic or Sotira Culture (c. 5500–3900 Cal BC), is also unrepresented in the TAESP material record. Ceramic Neolithic sites are found along the northern and south-eastern coasts, in the western part of the central plain, and on the southern chalklands (Peltenburg 1978).

Chalcolithic

The earliest pottery found in the Survey Area belongs to the Chalcolithic period (c. 3900–2800 BC). Two sherds, one of Red-on-White ware, the other a form of Red Monochrome, were found near Memi (SU1626), later to become a key source of copper ores, one of the defining elements of the TAESP landscape. Although this is the period when the earliest, cold-hammered copper objects appear on Cyprus (Kassianidou and Knapp 2005), there is no evidence that the ores at Memi, or anywhere else in the Survey Area, were exploited before the very end of the Chalcolithic. In the Mandroudhes area, on the plains, TAESP also recovered from Survey Units a handful of very worn Chalcolithic sherds – primarily Red-on-White and Red Monochrome – but their condition makes it impossible to assign them to a specific phase of the Chalcolithic; these sherds were not found in direct association with the later, Prehistoric–Protohistoric Bronze Age site at Mandroudhes (TP239, see below).

Also in the plains area, on the deep soils of fluvial terraces along the Atsas River, and just north of the Ottoman–Modern settlement of Lemonas, there is a light but obvious concentration of Chalcolithic to Protohistoric Bronze Age material (SU2171–74, SU2177), including light densities of chipped stone. In all cases, the ranges assigned to Chalcolithic pottery are based on published evidence for Red Monochrome and Red-on-White wares, and could fall anywhere in the Chalcolithic period (Early, Middle or Late). In cases where we have clear Late Chalcolithic/Philia wares (Red Monochrome/Red Polished hybrid; see discussion of Koutroullis below), we may be dealing exclusively with the Late Chalcolithic period.

Elsewhere on the island during the Chalcolithic period, or Erimi Culture (c. 3900–2700/2600 BC), the number of settlements increased and the location of sites became much more diverse (Held 1992). Key excavated sites

like Erimi *Pamboula*, Lemba *Lakkous* and Kissonerga *Mosphilia* were all inhabited over a long period. Although one may question whether Chalcolithic sites generally have yielded good evidence for structural changes in society, the distinctive Chalcolithic buildings at Kissonerga *Mosphilia* (Peltenburg 1991) may point to some form of 'rudimentary social rank' amongst elders. At the very least, the distinctive burial grounds around the village of Souskiou hint at social, economic and perhaps even ideological changes unprecedented on prehistoric Cyprus (Crewe *et al.* 2005; Peltenburg 2006). Amongst the principal material features of the Chalcolithic (Bolger 1988) are curvilinear architecture, communal storage facilities, Red-on-White pottery with distinctive designs, elaborate stone bowls, and finely carved picrolite figurines, beads and pendants. In the TAESP area, we have very little evidence that could shed dramatic new light on the Chalcolithic period in general, but that situation changes strikingly when we come to the latest phase of the Chalcolithic.

Prehistoric Bronze Age (Late Chalcolithic–Philia phase–Early Cypriot I–II)

In the lower Karkotis Valley, on a distinct ridge above the course of the river, lies a concentration of pottery, chipped stone and ground stone artefacts at a site named Phlasou *Koutroullis* (TS06; Volume 2, Chapter 3.5). The material overall indicates the presence of a Late Chalcolithic/Philia phase rural settlement, a rare occurrence in the Cypriot archaeological record. Even more important, Koutroullis harbours material markers of both agricultural and industrial activities, key factors in our wider understanding of the TAESP landscape.

Koutroullis divulged a distinctive corpus of Red-on-White and Red Monochrome pottery. The complex interactions evident between older (Chalcolithic) pottery-making traditions and those of the Philia-phase Red Polished Wares are discussed in Chapter 3.1. Here it must be emphasized that Koutroullis is also notable for its chipped stone and ground stone artefacts, the latter the largest number (70) in the Survey Area, as well as the occurrence of a few pieces of picrolite, used for making cruciform figurines throughout the Chalcolithic and ornaments in both the Chalcolithic and PreBA 1 periods. Compared to other known Late Chalcolithic or PreBA 1 sites on Cyprus, the prominent number of grinding and pounding tools, along with storage jars and Table Wares, points to the existence of a settlement, very rare for this key transitional period. These same objects also hint at the possibility of a link with copper ore processing and early mining activities, not unexpected in this liminal zone between the Pillow Lavas and the sedimentary plain. The rich copper ore source near Skouriotissa, some 3 km north of Koutroullis, may have served in part to determine the latter's location.

The Late Chalcolithic phase (c. 2700/2600–2500 BC) elsewhere on Cyprus has revealed evidence for new burial traditions, intensified agricultural production and perhaps centralised storage, as well as an increase in external contacts, all of which have been taken as signs for possible structural changes in society (Peltenburg 2007; Peltenburg *et al.* 1998). Some indicators of wealth and surplus do suggest that growth was possible, but the Chalcolithic way of life – well reflected in the remains at Koutroullis – remained rural and self-sufficient, factors that would have inhibited the emergence of central places or hierarchical social relationships. At the site of Kissonerga *Mosphilia*, for example, the final occupation levels revealed smaller structures, the disappearance of cruciform figurines, and a new, standardized type of pottery (Monochrome). Material, cultural and social factors were to become much more complex during the second half of the 3rd millennium BC, in a completely transformed set of political and economic circumstances.

Like their Neolithic to Late Chalcolithic forebears, the people of Prehistoric Bronze Age (PreBA) Cyprus (c. 2500–1650 BC) relied on a mixed agro-pastoral economy. Some substantial changes nonetheless become evident in the material record (Swiny 1997): sub-rectangular, frequently multi-cellular architecture; the re-introduction of cattle to the island, and the earliest appearance of the plough and equids; new and distinctive pottery wares (especially Red Polished); a variety of mould-cast copper tools, weapons and ornaments (Balthazar 1990); an expanded use of spindle whorls and loom weights (Crewe 1998). With a rise in the use of cattle and the introduction of screw-horned goats, there was a decline in the reliance on deer in the subsistence economy. Compared to the Chalcolithic period, the size of settlements as well as the actual number of sites increased, and it is assumed that population did too. Settlement expanded into areas previously unoccupied, and people now lived almost everywhere on the island. On the coasts and plains, plough agriculture intensified, while in Lower Pillow Lavas of the Troodos foothills people increasingly exploited the abundant copper deposits available there.

The TAESP area has long been known for its Bronze Age human presence, mainly from mortuary remains and (presumed) mineral exploitation, much less so from settlement evidence. From the late 19th to the late 20th century, in and around the modern villages of Katydhata, Linou and Skouriotissa, archaeologists such as Ohnefalsch-Richter, Markides, Flourentzos and Georgiou excavated hundreds of tombs dated from the PreBA to the Hellenistic period. Markides kept a notebook, now in the Cyprus Museum, commenting on his excavations of Bronze Age tombs at Katydhata and detailing other useful information on the area (Åström 1989). Accordingly, our primary aims for the PreBA included: (1) to locate more precisely the various tombs excavated over the past century; (2) to reassess what factors dictated the location of these mortuary deposits in the landscape; (3) to determine the location of any settlement(s) associated with all these tomb deposits; (4) to date more precisely and to document as fully as

Fig. 5.1. Katydhata Laonarka *(TS09) in the foreground, looking south-east across the Karkotis River's alluvial terraces that form part of the site's core territory. The edge of Linou can be seen in the distance on the right. (Chris Parks)*

possible diachronic changes in the technologies of metals exploitation and production at Skouriotissa, and in the areas around Alestos and Mavrovouni. In each case, we have realised these aims, to differing degrees, not least in singling out the locality Laonarka (TS09; Volume 2, Chapter 3.9) as a part of the PreBA settlement and mortuary complex in and around Katydhata village.

Through both transects and block survey, as well as geophysical survey and gridded collections of selected units to the south and east of the Katydhata Park Ridge (just east of the modern village), it seems clear that the settlement associated with Laonarka was nearby. Parts of it may well be located beneath the modern village, as two nearly contemporary tombs have also been found there (Kassianidou 2008, 255–56). Most of the predominantly Red Polished III ware sherds recovered – small incised juglets, fine ware bowls, large bowls or basins, Heavy and Light Utility wares – could indicate either a mortuary assemblage or the scattered remains of domestic activities. Although the chipped stone and ground stone objects collected in and around Laonarka are not clearly diagnostic of the Bronze Age, all major categories of chipped stone were represented, suggesting that tools indicative of a Bronze Age industry were produced in this area. While the lack of a large number of agricultural tools like rubbers and querns must be noted, the ground stone assemblage overall resembles that of other well-known Bronze Age settlement contexts (e.g. Frankel and Webb 2006, 197–241; Swiny *et al.* 2003, 221–87).

Like other PreBA villages such as Marki *Alonia* (Frankel and Webb 2006), Politiko *Troullia* (Falconer *et al.* 2005; Fall *et al.* 2008) and Alambra *Mouttes* (Coleman *et al.* 1996), Laonarka was situated on high ground close to a major watercourse, bordering on good agricultural land. The broad alluvial fan between Katydhata and Linou villages, along with the terraces east of the Karkotis River (Fig. 5.1), represents a 'core territory' not dissimilar to those of other PreBA village sites, in particular that seen at Politiko *Troulia*. There, systematic surface and subsurface survey, as well as stratigraphic testing, has identified a discontinuous distribution of Bronze Age material over approximately 20 ha. This 'core territory' is situated on a stable clay and siltstone saddle – in effect a 'fan delta' – that stretches between the Pedhiaios River on the east and Kamares Creek, which now forms a steep ravine on the west (Fall *et al.* 2008, 184–87, figs 2–4).

Another 'core territory' may be seen around Marki *Alonia*, itself located on a river terrace – a former elevation of its flood plain – along the course of Alykos River. Perched today on a 10 m-high cliff above the Alykos River's deeply-cut course, the remains of Alonia extend over 5–6 ha to the south of the river, with near-contemporary cemeteries to the north-east and south-east (Frankel and Webb 1996, 16; 2006, 1, text fig. 1.1, fig. 1.1). At Laonarka, the dense and broad halo of prehistoric pottery and chipped stone found in and around the site suggests the presence of a settled village; however, without excavations to resolve the issue we can, at this stage, only say that the remains recovered there form at least one part of a PreBA 2 settlement and mortuary complex, a 'core territory' that finds echoes elsewhere in Cyprus's PreBA landscape.

Prehistoric–Protohistoric Bronze Age

Work at Laonarka also produced some sherds of Protohistoric BA (ProBA) date (c. 1650–1050 BC): Base Ring,

White Slip, Red Slip, Monochrome and Red Lustrous Wheelmade wares, all of which probably came from tombs in the area. Some of the PreBA 2 tombs that Markides excavated remained in use into the LC IIC phase of the ProBA. All of this indicates that the area around the modern village of Katydhata was inhabited and exploited throughout the Bronze Age.

Elsewhere, at the interface between the Troodos Mountains and the fluvial plains, a TAESP team conducting regular transect survey identified, on the slope of a gentle hill, a Bronze Age rural settlement, now termed Kato Koutraphas *Mandroudhes* (TP239; Volume 2, Chapter 2.9). Here we recovered a considerable amount of PreBA Red Polished and pithos sherds (60% of all sherds collected in a gridded sample) as well as 25 ground stone tools. Amongst the latter are two distinct types of rubber also found at the ProBA site of Aredhiou *Vouppes* (Given and Knapp 2003, 179–82), and at Maa *Palaeokastro* (McCartney's personal observation; Karageorghis and Demas 1988, I, 418). 27% of the pottery collected at Mandroudhes was ProBA in date, and belonged exclusively to the LCI period: Proto-White Slip (2 sherds), White Slip, Plain White Handmade wares, and distinctive pithoi with 'pie-crust' and banded decoration. Only two pieces of chipped stone were recovered at this site, but the ground stone assemblage included 21 items – rubbers, querns, slabs – commonly used for processing cereals. The existence of a small rural village at the interface of the sedimentary and igneous zones, with a distinctive component of fine Table Wares, may prove to be of more than simply local significance, as may be the case for Aredhiou *Vouppes* (originally located by the Sydney Cyprus Survey Project and now the object of ongoing excavations by a British team: Steel and Janes 2005; Steel and McCartney 2008; Steel and Thomas 2008).

Also on the plains, Bronze Age activities are attested in and around the site of Nikitari *Petrera* (TP242; Volume 2, Chapter 2.14). Petrera itself contained a concentration of ground stone equipment (querns, pounding stones and rubbers) that points to intensive cereal production; the same is suggested by ground stone collected from Survey Units close to Petrera, and by the general location on a stable surface whose thick sediments are made up of organically rich soils. We also recovered at Petrera one fragment of a 'gaming stone' (senet board: TCL323), an object quite common at other Bronze Age sites in Cyprus (Falconer *et al.* 2005, 74; Swiny 1980; 2003, 231–33). Petrera's Bronze Age date is supported not just by the chipped stone, which has much in common with ProBA concentrations at Kato Koutraphas *Mandroudhes* and Katydhata *Laonarka* (see above), but also by the somewhat generic Bronze Age pottery. The pottery assemblage consists largely of Light and Heavy Utility wares made in a poorly known coarse fabric with no preserved finish. The utilitarian functions of the pottery may well indicate that Petrera was a specific activity site rather than a permanent settlement.

Overall, the ProBA is very thinly represented in the Survey Area, although the distinctive fine wares of this period are attested in limited numbers almost everywhere (see Chapter 1.3). With respect to the Karkotis Valley specifically, the absence of Bronze Age sites is understandable: fluvial aggradation in this area – c. 12 m after about 2600 BC – means that most Bronze Age materials will either be too deeply buried to be overturned by ploughing, or else will have been eroded away by the river's action. Alternatively, or perhaps in addition, land levelling in the valley during the Roman period would have resulted in deep (sub-plough) burial and erosion, so the impact on our ability to detect Bronze Age sites is much the same. Beyond the Karkotis Valley, we can only assume that the paucity of Late Bronze Age material results from the region's remoteness, well beyond the catchment of any urban centre, most of which were not situated inland.

Large urban centres arose along the coasts of Cyprus during the ProBA (c. 1650–1100 BC), from the east and south-east through the south-west; a distinctive settlement hierarchy indicates that society was changing rapidly (Knapp 1997). We see little evidence of such developments in the Survey Area, where agro-pastoral activities that had crystallised during the PreBA continued apace. Elsewhere economic activities were more town-centred, and increasingly became industrial in nature, oriented to the wider Mediterranean and Levantine worlds, and to the exchange of bulk goods, luxury items, organic products and raw materials, especially copper. Other striking changes that appear in the archaeological record of the ProBA include burial practices with clear social distinctions, the advent of writing (Cypro-Minoan), extensive regional and inter-regional trade, and material indicators of less peaceful activities (e.g. fortifications, weaponry in burials, warriors depicted on pottery). All these changes show that Cypriot society was no longer egalitarian or village-oriented but rather socially stratified, town-centred and international in outlook (Keswani 1996; Knapp 2008, 153–59; Webb 2005). The commercially successful exploitation, production and trade of Cyprus's copper resources, together with the generation of agricultural surpluses, also indicate that political authority had become thoroughly centralised (Knapp 2008, 324–41; Peltenburg 1996).

Eventually, the intensified production and trade of copper made Cyprus the key purveyor of this metal throughout the Mediterranean region, if not the Levant and parts of the Near East – a situation that continued for some two thousand years, until the fall of the Roman Empire. With TAESP, we had hoped to be able to document, one way or another, the ProBA exploitation and production of copper ores, especially in the area around Skouriotissa (Volume 2, Chapter 3.12) and specifically at Phoukasa Hill. This area, once catacombed with mining galleries both ancient and modern, is now completely covered by modern spoil heaps, and the hill itself has virtually disappeared as the result of opencast mining. Some traces of Bronze Age activity, however, were recovered in areas both to the east (north of Lemonas, SU2171–74, SU2177) and west of Skouriotissa, and from the tombs at Laonarka.

The entire area from Ambelikou *Aletri* (some 6 km north-west of Skouriotissa), Mavrovouni and Apliki (some 3 km north-west of Skouriotissa) through Skouriotissa itself and east to Alestos and Xyliatos *Ayios Kyriakos* (some 10 km south-east of Skouriotissa) has been exploited for its copper resources from at least the PreBA 2 period onward. Several tombs in the area contained metal objects, and one (Tomb 5, Linou) also divulged a hoard of bronze weapons (Flourentzos, in Åström 1989, 66–67), as did Linou *Ayii Saranta*. Bronze weapons were also recorded in the ProBA 1 cemetery at Kalliana *Manjapierides* in the upper Karkotis River valley (Catling 1962, 144, 164). It is likely that some of the people who worked in extracting or smelting copper ores would have lived in the villages within the Survey Area, and we would also expect that the small agricultural villages of both the PreBA and ProBA provided subsistence and support to the miners and metalworkers who produced Cyprus's most important and valuable export, copper. As it happens, we found little evidence beyond Katydhata village and the fields surrounding it to support this assumption.

5.2 Iron Age and Classical Landscapes

Sarah Janes and Kristina Winther-Jacobsen

The Iron Age is perhaps the period with least representation in the TAESP survey record. Moreover, the quantity of data recovered for the Geometric, Archaic and Classical periods varies, with the majority of Iron Age finds dating to the Archaic period. Only seven Iron Age POSIs were identified during the survey: two sanctuaries (TP119, TP215), three burial areas (TP101, TP139, TP248) and two possible settlements (TP085, TP118), all with corresponding but limited pottery scatters. The only broad pottery scatter found was in the lower Karkotis Valley, but even this had an extremely low density of no more than 2 sherds/100 m^2.

Geometric

Lack of visibility of the Early Iron Age (Cypro-Geometric period) is an island-wide phenomenon, and in the Survey Area the Cypro-Geometric period (CG) remains typically elusive. The inclusion of the CG in three pottery period designations, PoBAR, GA and GAC (Table 5.1), may appear to exacerbate the problem, particularly as the CG does not have a stand-alone pottery period of its own. This lack of CG designation, however, is a result of our poor understanding of the pottery and a lack of excavated contexts across the island. As a consequence, it is extremely difficult to identify the material remains of the Early Iron Age. None of the seven Iron Age POSIs can be specifically dated to the CG period, although there is some argument for the sanctuary at Pano Limna dating from the end of the CG period, based on the sub-circular anomalies picked up in resistivity survey, and their comparison with sanctuary architecture in the CGIII period at similar sites, such as the sanctuary of Anat-Aphrodite in Idalion (Gjerstad *et al.* 1935, 821).

Archaic

One major contribution to the scholarship of the Iron Age has been the exploration of the Archaic sanctuaries of Evrykhou *Khalospitia* and Katydhata *Pano Limna* (Volume 2, Chapters 2.4, 3.11). The former is a new discovery, while the latter is a re-discovery, first investigated by Max Ohnefalsch-Richter in 1882 (Myres and Ohnefalsch-Richter 1899, 4–5; Ohnefalsch-Richter 1893, 20–21, 218, 255, 351, pl. XVI; Reinach 1891, 185). The longevity of these two sanctuaries, along with their size and the highly varied finds, testifies to their importance to the local communities – these sites are a valuable addition to the corpus of known sanctuaries on the island. Furthermore, despite their fragmentary nature and the fact that 30% of the corpus is unidentifiable, the figurines from Pano Limna exhibit a wide range of manufacturing techniques and stylistic developments and, as a discrete corpus of material, are worthy of further investigation.

Both sanctuaries had different architectural forms, and the figurines recovered at each site suggest different cult associations. Pano Limna, with circular temenoi and a large number of ring dancers, suggests an affinity with the cult at Apollo Hylates (Buitron-Oliver 1996), while Khalospitia, with its rectangular temenos and chariot/rider figurines, mirrors cults such as that of Ayia Irini (Gjerstad *et al.* 1935, 642–824). The sanctuaries are situated relatively close to each other in the landscape, but their relationship to each other and their role within the community remains unclear. There are precedents across the island for close relationships between cult activities and metal working

Table 5.1. Pottery periods used for the Iron Age

Code	Period	Date
PoB	Protohistoric Bronze Age	1650–1050 BC
PoBAR	Late Bronze Age to Archaic	1600–475 BC
GA	Cypro-Geometric to Archaic	1050–475 BC
GAC	Cypro-Geometric to Classical	1050–312 BC
AC	Cypro-Archaic to Classical	750–312 BC
CLH	Classical to Hellenistic	475–31 BC
HA	Historical Antiquity (Archaic to Late Roman)	750 BC–AD 650

Fig. 5.2. Location of the Cypro-Archaic sanctuary of Katydhata Pano Limna *(TS15), looking north-east to Skouriotissa mine. The sanctuary itself is in trees immediately to the left of the photo. The slag heap is behind the cypress trees and buildings towards the right of the photo. (Michael Given)*

centres (e.g. Kition; Karageorghis and Demas 1985, 253–54), and it could be hypothesized that one, or both, of these sanctuaries had a close relationship with Skouriotissa mine. Phlasou appears to be an important centre within Soloi's hinterland, and to have controlled Skouriotissa mine (Georgiou 2005, 132). The sanctuary of Pano Limna is just 2 km to the north-west of Phlasou and immediately across the valley from the mine itself, and so could easily have been closely involved in the mining operation.

The Iron Age mortuary landscape is visible in the TAESP record, but, again, the data are relatively limited across the Survey Area and only relate to the Cypro-Archaic period or later. Whether this reflects a decline in settlement activity across the Survey Area, as suggested for the Karkotis Valley (Volume 2, Chapter 3.14), or whether burials remain elusive through chance of excavation is unclear.

The tombs share certain cultural elements – architecture and burial goods – with Archaic tombs across the island. The most interesting facet of the Iron Age mortuary landscape in the Survey Area is the position the tombs held within the natural and human-made landscapes. Tombs in this area were often built at the edges of the valleys or in prominent positions such as Kamilares (TP248), indicating that rural mortuary practices mirrored those of the larger centres, of which our knowledge is far greater; the tombs were part of the island-wide shift to extramural burials and the practice of employing burials as physical markers of territory and community identities from the Cypro-Geometric period onwards (Janes 2008, section 7.2.1). The views across to Skouriotissa and Morphou Bay from Khalospitia are particularly striking.

Our reliance on Gjerstad's (1960) typologies for the classification of Iron Age pottery is highlighted by the difficulties identifying Iron Age materials and the Iron Age cultural horizon in the TAESP survey record (see also Smith 2009, 23–25). Archaeological investigations focusing on the Iron Age are far more numerous on the island than ever before, and inroads have been made into rectifying the compressed dates relied on since 1960 (e.g. Steel 1996). The Cypro-Geometric period is particularly elusive and will remain so until undecorated, utilitarian wares can be discerned from stratified contexts. Materials from surveys and excavations across the island need to be brought together to develop nuanced typologies. The TAESP pottery record contributes to the growing corpus of potential data for the Iron Age, and the recording method lends itself to future study when more information becomes available.

Classical

Our basis for discussing the development of the landscape in the Survey Area during the Classical period is poor. The methodological difficulties discussed for the Geometric period also apply to the Classical period. Material from the Classical period is included in four pottery periods: HA, GAC, AC, CLH (Table 5.1). Only three chronotypes are exclusive to the Classical period: Black on Red, Black Slip ware and Red Slip ware, and they occur rarely. The painted and so-called Plain White Wares of the Iron Age are very difficult to identify among the surface material. A very few rolled and thickened rims or horizontal handles appear among the Light and Heavy Utility wares fired in a reducing atmosphere to achieve a pale surface. The otherwise ubiquitous handle fragments of sturdy Cypriot horizontal-handled amphorae appear extremely rarely in the Survey Area, and of course it is impossible to distinguish the different developments of the form, during its long period of production, among small surface fragments.

The main reference points have changed little since the publication of the Sydney Cyprus Survey Project in 2003: the Phoenician levels at Kition (Karageorghis 1999; Karageorghis *et al.* 1981), and more specifically the Classical-period drains of Kition *Bamboula* (Salles 1983), as well as some Classical-period finds from the Sanctuary of Apollon Hylates (Buitron-Oliver 1996). The various imported amphorae and red- and black-slipped Table Wares associated with the Classical period in Kition, as demonstrated by these excavations, were only rarely recorded in the Survey Area. The best example was an almost complete late 5th-century Chian amphora in the office of the former school at Katydhata, presumably originating in the area.

Several Archaic cemeteries were recorded by the Cyprus Survey Records in the Survey Area before 2002, but only three tombs date to the Archaic–Classical periods. Evrykhou tombs 1–2 are located east of the modern village and tomb 3 is located inside the village. They are all unpublished (Nicolaou 1984, 234, note 2). None of the tombs excavated at Katydhata or Apoti date to the Archaic–Classical periods (Markides 1916, 4–16). North of the Survey Area, however, another unpublished Classical tomb was recorded by the Cyprus Survey records at Petra *Ayiorkoubeia* (CS 2082).

Further away a Late Archaic to Early Hellenistic period tomb at Deneia north-east of the Survey Area (Georgiou 2005) serves as a published illustration of the common re-use of tombs from the Archaic to the Late Classical/Early Hellenistic period, when new funerary customs appear to have developed gradually all over the island (Parks 1999). In the area of Evrykhou two Hellenistic–Roman tombs were also excavated (see Chapter 5.3). Although the location of the associated settlement could not be identified, together the tombs do suggest the existence of a settlement of long continuity in the area of Evrykhou.

None of the pottery from the sanctuary at Pano Limna can be dated specifically to the Classical period, though a few figurines may date to the Classical or Hellenistic periods.

While the data for the Iron Age are few and mainly site-related, TAESP has significantly increased our cumulative knowledge of Iron Age rural landscapes, particularly in terms of cult and mortuary activities. Furthermore, the survey has successfully placed the Iron Age population back into the landscape, outside the well documented urban centres, highlighting the strength of our intensive survey methodology.

5.3 Hellenistic and Roman Landscapes

Kristina Winther-Jacobsen

This section summarises and explores the patterns of pottery distribution and other archaeological finds as evidence for regional exchange and settlement hierarchies in the Survey Area during the Hellenistic–Roman period, and how this compares with the evidence from other parts of Cyprus and the evidence from literary sources. This involves an examination of the nature and development of the exploitation of natural resources, such as mining, agriculture, pastoralism and forestry, and of how these relate to social and economic structures.

The Artefact-Based Landscape

Very few ancient structural remains have been identified in the Survey Area, and the reconstruction of the material landscape is based primarily on the distribution of ceramics and slag. The finds dated to the Hellenistic–Roman period make up 17% of all the collected pottery from the Survey Area. Among these, finds dated to the Late Roman period are by far the most common ones, and this is also the only period when a full functional assemblage could be identified. The specific problems of dating survey finds are discussed in Chapter 3.3, but the imported wares continue to play a defining role in our established chronology. The lack of detailed, stratified and comprehensive excavation data from this region makes it difficult to establish a typology of 'locally' produced pottery, such as the utility wares. Keeping in mind regional variations, there is still a rich body of published Hellenistic–Early Roman pottery from the southern, and to some extent, central part of the island, but pottery from this period is relatively elusive in the Survey Area compared to the Late Roman period.

Table 5.2. Proportional distribution of Hellenistic–Roman Table Wares (percentages rounded to nearest integer)

Code	Period	Sherds	%
Hel	Hellenistic	200	18%
LH	Late Hellenistic	8	1%
HER	Hellenistic–Early Roman	13	1%
LHER	Late Hellenistic–Early Roman	302	27%
ER	Early Roman	108	10%
ROM	Roman	57	5%
MR	Middle Roman	9	1%
LR	Late Roman	441	39%
	Total	**1138**	**100%**

The Hellenistic–Early Roman settlement pattern is obscured by the abundant Late Roman material, and since only Table Wares have been recorded from all sub-periods it seems prudent to compare these numbers only. This comparison demonstrates that the percentage of Table Wares from the Late Hellenistic to Early Roman periods is the same as that from the Late Roman (Table 5.2), however, small fragments cannot be dated closely, and there will certainly be a overlap between shorter and longer periods, making individual periods rather fuzzy. For instance the ROM group (which could only be dated to the Roman period in general) consists mainly of African Red Slip fragments which could increase both the Mid and Late Roman groups. The high number of Late Hellenistic–Early Roman Table Wares is probably inflated by the many tombs of this period in the Karkotis Valley and the absence of Table Wares in Late Roman burial customs (Plate 5.1). Many tombs identified in the lower Karkotis Valley, for example at Laonarka, Pseftas and Pano Limna (Volume 2, Chapter 3.14), reveal a dominance of the earlier rather than later Table Wares: however, other areas such as Pano Phlasou in the central Karkotis Valley and Litharkies and Ayios Kyriakos in the Lagoudhera Valley (Volume 2, Chapter 4.4, 4.5) reveal the same dominance.

Surveys in Cyprus and the Aegean have identified an increase in the number of rural sites during the Late Roman period. This is basically argued from absence. All the surveys in Greece investigated by Alcock showed that 'sites occupied in the Early Roman period tend to remain in operation though Late Roman times' (1993, 58). The increase is created by sites with Late Roman pottery, but no identifiable Hellenistic to Early Roman finds. This is not the case in the TAESP area where all the Late Roman sites identified included a Hellenistic and/or Early Roman component, and consequently there is no real evidence for a change in the overall settlement pattern.

Caraher *et al.* (2006, 21–26) and Pettegrew (2007) argued that the increase in Late Roman sites is exaggerated by the more diagnostic nature of the artefacts of this period. Not only our knowledge of the pottery itself, but also formation processes conspire to push the Late Roman pottery to our attention. This is confirmed by the TAESP data, although the ancient Cypriot funerary custom of depositing large numbers of pots in the tombs, which survived well into the Roman period, conspires to counter this pattern at a general level. In addition, the high visibility of Late Roman sites in Cyprus is partly due to a resettlement at new locations in the Medieval period (Papageorgiou 1993).

Looking at the overall distribution of Hellenistic–Roman pottery in the Survey Area and breaking it into sub-periods clearly reveals the correlation between Hellenistic, Late Hellenistic–Early Roman and Late Roman sites (Plate 5.2). Although the evidence from the earlier periods is scanty in quantity, it does suggest settlement continuity at all the identified sites, although the occupation may well be broken by shorter, or longer, periods of hiatus. There is no real evidence for a change in the overall settlement pattern in the Hellenistic–Roman period. Of course the landscape is much more than a series of sites. The artefact-based survey allows us to look at the landscape as a contiguous distribution of artefacts, interpreted through an analysis of the cultural and environmental data. However, the sites provide us with rich data sets to analyse, and at the scale of individual sites there is a clear correlation between the number of collected sherds and the number of periods identified.

The overall distribution of Hellenistic–Roman pottery in the Karkotis and Koutraphas Intensive Survey Zones appears as a contiguous low density distribution pattern with dispersed high density clusters (Plate 5.2). The pottery distributions in the Atsas and Mandres Intensive Survey Zones are much more heterogeneous, a combination of low and high density clusters, with a clear tendency to clustering. In the Lagoudhera Valley several patterns merge. The area is dominated by two high density clusters, but there is also a low density distribution running contiguously up the valley, as well as low density clusters. The Asinou Valley is, in general, much sparser, though with a single notable concentration round the later church.

These patterns are to some extent produced by post-depositional processes, illustrating the importance of assessing the stability of each individual Geomorphological Unit. Generally, the surveyed surfaces in the Koutraphas, Atsas and Mandres zones are stable. In the remaining zones the topography is more diverse and stability varies considerably; the sites identified, however, tend to be located on stable surfaces. The lower Karkotis Valley provides the most challenging distribution of pottery, which is highly affected by extensive land levelling, probably coinciding with mining activities at Skouriotissa. Furthermore, this zone is the most intensively inhabited since the Roman period, which also serves to obscure pre-Medieval settlement patterns.

The Industrial Landscape

Slag is the main indicator of ancient metallurgical activity. Since it can only be dated roughly, the chronology mostly derives from the association with pottery. To some extent the distribution of slag in the Survey Area correlates with the distribution of Hellenistic–Roman pottery (Plate 5.2). The distribution is rather diffused in the Karkotis Valley, although it tends to increase with proximity to Skouriotissa. Of course the diffusion of slag may have very little relation with the ancient settlement patterns. Today the slag heaps are protected, but previously they were used as quarries for road works and wall building, which can still be observed. In the Lagoudhera Valley the slag is clustered around the slag heap, with a trail running up the valley toward Litharkies where there is a small cluster. In the remaining areas there are a few, very small clusters, mainly related to sites. In the Koutraphas and Atsas areas, the only Roman site where slag was found was Petra *Phoukasa*, close to Skouriotissa mine.

There are two main Roman copper extraction sites within the Survey Area, though they are very different from each other. Skouriotissa mine on Phoukasa Hill is a large-scale industrial site comparable to the great mines of Spain, Jordan and Egypt (Volume 2, Chapter 3.12). In comparison to these, the Lagoudhera Valley mine is very small-scale (Volume 2, Chapters 4.5–4.7). Unfortunately, Skouriotissa has been almost completely destroyed by modern mining, and now only the enormous Roman slag heap, with an estimated 2 million tons of slag, testifies to the original scale of the site. The minescape of the Lagoudhera Valley and comparisons with other copper mines and written and epigraphical sources, however, provide us with evidence to attempt a reconstruction. The metallurgical evidence and its wider implications is discussed in Chapter 3.9 – in this chapter I focus on the distribution patterns of pottery and other finds.

The scatter of pottery and slag up the valley from Mavrovouni seems to confirm movement between Litharkies on the south slope of Alestos, where the copper was mined, and the smelting site at Mavrovouni (Plate 5.2). The site for smelting activities was probably chosen because of the natural resources required for the smelting: water, fuel, crushing material and, not least, space (Fig. 5.3). The location of the settlement at Mavrovouni is suggested by the high pottery density just south of the slag heap; people living and eating here would have been greatly affected by the pollution associated with metal processing (Volume 2, Chapter 4.6, Fig. 4.39). Pottery densities were even higher at Litharkies and the main settlement may have been located in this less polluted area; the pottery collected from both areas is very similar in types, range and proportions (for a detailed discussion of the types, range and proportions of ceramics at Mavrovouni and Litharkies, see Winther-Jacobsen 2010, 82–97).

The largest functional group of pottery at Mavrovouni and Litharkies, by both weight and count, consists of the Heavy Utility wares, reflecting the permanent storage of

Fig. 5.3. Ayia Marina Mavrovouni *(TS02) looking south-west towards Alestos mine (the double-peaked mountain in the background), with the slag heap in the centre, just above the orchard of small trees (Michael Given)*

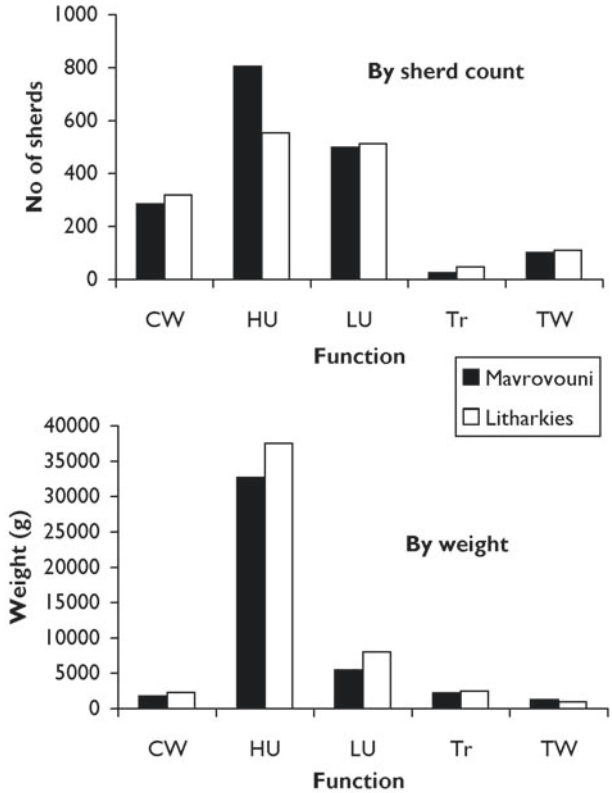


Fig. 5.4. Proportional distribution of pottery by function at Mavrovouni (TS02) and Litharkies (TS05), by sherd count (above) and weight (below). CW = Cooking Ware, HU = Heavy Utility, LU = Light Utility, TR = Transport, TW = Table Ware

foodstuffs presumably to support the workforce, at least at Mavrovouni, where they were unlikely to produce their own crops due to pollution (Fig. 5.4). In fact, the proportion of Heavy Utility is under-represented in the Survey Units because of the systematic field clearance shown by the many large stone heaps, which are mixed with larger ceramic fragments, particularly of tile and pithos. Relatively few transport amphorae were found at both sites. This suggests that either the foodstuffs were decanted upon arrival on Cyprus and transported inland in alternative vessels, or the food supply came from within the region and transport amphorae were not used for these short distances.

The high proportion of Cooking Wares at Mavrovouni indicates that the pollution did not prevent people eating boiled, braised and fried food prepared on site; however, the scarcity of transport amphorae prevents us from estimating the range of foodstuffs consumed. The high ratios of Cooking Ware to Table Ware at both sites may reflect the presence of a large workforce of relatively low status, although they need not have been slaves. They obviously had cooked meals, but the low ratio of slipped Table Ware may indicate that a larger proportion of food was eaten off Light Utility vessels. The wide distribution of Late Roman slipped Table Wares in Cyprus indicates that this was a widely accessible type of pottery, but even so it apparently did not reach mining labourers or slaves.

Tiny fragments of glass were collected at all the major Roman sites, Skouriotissa (Volume 2, Chapter 3.12), Mavrovouni (4.6), Litharkies (4.4) and Lithosourka (2.7), but in very small numbers. Apart from a single copper coin no metal artefacts, or remains of elite Roman architecture, were found in the Lagoudhera Valley, and there is no evidence for a positive link between pottery and social status differentiation in the Hellenized world. The collection of a glass inkpot cover at the heart of the Mavrovouni site suggests literacy, but this too has no real social significance.

Although the TAESP minescape is greatly disturbed by modern mining, the survey data reveal that the rich resources of copper and medicinal minerals were heavily exploited during the Late Roman period (Volume 2, Chapters 3.12, 4.5–4.7). The overall tendency for Hellenistic pottery to cluster in the lower Karkotis Valley around Skouriotissa, as well as the Early Roman amphora dump, provides archaeological evidence for the mining of Phoukasa Hill during this period (Plate 5.2), even if only a total of three sherds from the slag heap could be dated to the Early and Mid Roman periods. Clusters of Hellenistic and Early Roman pottery were also found at Mavrovouni and especially Litharkies, suggesting that mining also took place in this area during this period.

The Agricultural Landscape

Metals were not the only natural resources exploited during the Hellenistic–Roman period. The TAESP area provides ample opportunity for agriculture. Today cereals are grown in all our Intensive Survey Zones, and vegetables and fruits are also grown, especially in the valleys. Quernstones provide direct evidence for agriculture, but only seven out

of total of 14 found in the Survey Area were associated with Roman pottery. Of these just four appear to have been associated with agriculture: one fragment from Sanidhia (Volume 2, Chapter 2.15); two fragments from Vrysi tou Haji Christophi (2.5); and one from Psevtades (3.13). In comparison, quernstones appear to be much more common at the Late Roman farmsteads in the hinterland of Kourion (Swiny and Mavromatis 2000). The ceramic evidence for agricultural production during the Hellenistic–Roman period comes mainly from the plains, but only Koutraphas has clear evidence for the diffused spread of pottery sometimes associated with manuring (Given 2004c; Volume 2, Chapter 2.15, Fig. 2.36). Only the eastern edge of the Atsas around Lemonas appears to give evidence of the same phenomenon, even if there is no evidence for Hellenistic–Roman occupation at Lemonas itself (Volume 2, Chapter 2.7, Fig. 2.9). The aerial photograph reveals that this is, in fact, the only area of the Atsas Valley with large fields, an area topographically comparable to the Koutraphas zone with its broad plateau suitable for dry cropping.

The best evidence for farming in the Survey Area, namely a diffused spread of pottery and a quern fragment, comes from the Koutraphas Intensive Survey Zone (Volume 2, Chapter 2.15; see Fig. 2.36). The spread of pottery includes two small clusters at Sanidhia and Katalasharis. They are both ploughsoil assemblages greatly affected by tilling, producing the smallest average-size sherds at any of the identified Hellenistic–Roman sites. Surprisingly no pithos fragments were collected and almost no tiles, a pattern repeating itself all over the Koutraphas zone (for a detailed discussion of the types, range and proportions of ceramics at Sanidhia and Katalasharis, see Winther-Jacobsen 2010, 80–82, 86–97). The near absence of pottery types which normally produce the largest fragments may reflect post-depositional history, but if the large fragments were removed for reasons of land use one would still expect small fragments to be collected. In fact there is no positive evidence for land clearance.

The only other zone within the Survey Area revealing a consistent off-site pattern of very low numbers of tile and no pithoi is the eastern edge of the Atsas, and the general similarities between these two areas suggests similar land use. It is tempting to interpret the absence of pithoi and tiles as evidence for seasonal habitation; however, at the only published excavated Late Roman farm (Pyrgouthi, Greece), the absence of large storage vessels was interpreted as a sign of self-sufficiency and diversified production (Hjohlman 2002, 117). The Pyrgouthi farm incorporated a tiled Hellenistic tower, but the surrounding rooms appear not to have been tiled (Hjohlman 2005, 244–50). Self-sufficiency and diversified production may also be the case at Sanidhia and Katalasharis. Another possibility is that these sites were part of a supply network supporting non-agricultural sites in the area, such as Litharkies and Mavrovouni where Heavy Utility wares make up the largest group of pottery.

A similar pottery distribution pattern may be reconstructed for the central part of the Mandres Intensive Survey Zone, although it is less clearly preserved (Volume 2, Chapter 2.11). There is a diffused spread of pottery on the terrace of the village of Mandres and on the terrace to the east of this. In the area of the village, however, consistently low numbers of tile were found spilling into the fields. This suggests that there may have been a Hellenistic–Roman site at the location of the later seasonal village of Mandres. No evidence has been found in the village for the re-use of ancient cut building blocks, but the presence of tiles does suggest something more substantial compared to Sanidhia and Katalasharis.

Fig. 5.5. Looking north-east across the well-watered Karkotis Valley to Katydhata village and Skouriotissa mine. This area was intensively cultivated in the Hellenistic–Roman period as well as today. The slag heap lies behind the tall cypress trees on the far left. (Michael Given)

Today the Karkotis Valley is intensively cultivated with cereals, vegetables and fruits (Fig. 5.5). The almost continuous spread of Hellenistic–Roman pottery in the valley bottom indicates that this was also the case in the Hellenistic–Roman period (Plate 5.2; for more detail see Volume 2, Figs 3.28, 3.58, 3.79). In the central part of the valley where the transects extended up onto the valley sides there was virtually no pottery; this was not due to unstable surfaces. On the western side of the valley a series of well-preserved treads running along the river produced no ancient pottery and no likely settlements. Bekker-Nielsen (2004, 210–11), due to the Medieval churches and a khan at Kalliana, places the Roman road on the western side of the river. North of modern Evrykhou, however, traffic up and down the valley is more likely to have run on the eastern side of the river, where there are Hellenistic–Roman settlements and tombs.

In the lower Karkotis Valley the pollution from the smelting at Skouriotissa would have prevented agriculture in its immediate surroundings (Volume 2, Chapters 3.12, 4.6), which may be why there was no Roman settlement at Katydhata. Instead the area from Katydhata to Skouriotissa seems to have been filled with tombs (see below; Plate 5.2). The lower Karkotis Valley has the most heterogeneous distribution of pottery in the entire Survey Area, including multiple small and large clusters; however, this is also the

most extensively levelled area. Generally, the Hellenistic–Roman settlement pattern in this area seem to correlate poorly with the Medieval–Modern pattern. Large clusters of higher densities are located at Pseftas, north-west of Skouriotissa across the river (Volume 2, Chapter 3.13), at Pano Limna, across the river from Katydhata (Volume 2, Chapter 3.11), and south of Katydhata, behind the Laonarka Hill as seen from Skouriotissa.

The area surveyed south of Katydhata consists of cultivated fields with stable surfaces. They produced some of the most multi-period pottery collections in the Survey Area, starting from prehistory and including one of the densest clusters of Iron Age material. The very high proportion of Hellenistic–Roman Table Wares, combined with the occurrence of otherwise rare unguentaria and lamps, suggests the possible presence of tombs in this area during this period. The settlements at Pano Limna and Pseftas are both located on the edge of the valley and may have cultivated the fields in the valley bottom. At Pseftas we recorded a large millstone and a pink plastered cistern, as well as a possible adit, and this site may well have changed function during the Hellenistic–Roman period. At Pano Limna there are remains of Hellenistic–Roman architecture (TP252) and tombs (TP129 and TP197) in the area of high density pottery south of the Archaic sanctuary, but there is no specific evidence for farming.

South of Linou there are a few Hellenistic–Roman pottery clusters, for example at Dodekaskala (Volume 2, Chapter 3.6), but the diffused spread of pottery continues south. Unfortunately as the valley bottom becomes increasingly narrow it also becomes increasingly occupied with modern settlements and gardens which could not be investigated. Consequently, survey stopped before it reached the area where the rich Hellenistic–Roman tombs were excavated.

The relatively high density of the diffused pottery distribution pattern in the Karkotis Valley obscures small clusters such as the ones identified in the Koutraphas and Atsas zones. Only larger settlements would be clearly visible, though even these are difficult to locate due to the destructive post-depositional history of the valley.

Other Resources

Although there is very little firm archaeological evidence, recent 'traditional' practices have been used to suggest that agriculture was commonly combined with pastoralism (Forbes 1994; Halstead 1987, 77). Pastoralism is believed to have exploited marginal areas, and thin scatters of ancient sherds collected in remote marginal areas, such as the Akamas, have been interpreted as evidence for pastoralism (Lund 2002). Of course, pastoralism need not have been restricted to such areas. Even in the cultivated zones there are marginal areas, such as slopes and ravines, well suited for grazing animals all year around, and after the harvest the cultivated fields could also been grazed.

The scatter of Roman pottery in the Asinou Valley is very diffuse, but it does for the first time support a definite Roman presence in the mountains (Volume 2, Fig. 5.7). This is confirmed by the secure association between pottery and structural remains at Nikitari *Trimitheri* and possibly at Nikitari *Khalospita*, *Mandres ton Rotson* and *Khandakia* (Volume 2, Chapter 5.4; Sollars 2005, 134–35). At the three last sites, however, the Roman evidence comes in the form of tiles, and since there is no previous knowledge of Roman tile production in this area, which is wetter than other parts of Cyprus, it may be a case of re-use or hanging on to old traditions.

Evidence for the Roman presence at Trimitheri and around the Asinou settlement consists of a wide range of pottery, yet the quantities are relatively low and do not provide a reliable basis for the interpretation of the sites. The structural remains at Trimitheri appear inconsistent with transient activities such as pastoralism. Instead they may have been associated with harvesting the rich resources of the Troodos Mountains, even if this was probably a seasonal activity. Lund (2002) suggested that frying pans with wishbone handles were used by shepherds roaming the Akamas; similar vessels have been found at Khalospities and several other sites in the Survey Area. One of the rare fragments of African Red Slip was found in the small concentration of Roman pottery in the area below the Asinou church, so imports also penetrated the Troodos range. The area around the Asinou settlement was resettled during the Medieval period and it is not unlikely that this has destroyed, or buried, most of the Roman remains. Trimitheri appears to have been saved from destruction because of its remoteness. Nonetheless the Asinou Valley provides us with a first glimpse of Roman life in the mountainous zone of Cyprus.

Stone is another available resource within the Survey Area. The river beds provide plenty of raw materials for the ground stone tools collected all over the area, tools associated with both mining and agriculture (see above). More surprising is the correlation between the chipped stone tool industry and Hellenistic–Roman pottery at and around Phoukasa and elsewhere (Volume 2, Chapter 2.6), suggesting the use of chipped stone technology during this period (Volume 1, Chapter 3.8). There is no reason why chipped stone should not have been used during the Hellenistic–Roman period, but the evidence from Phoukasa and elsewhere in the Survey Area is, to our knowledge, the first to be published in detail. At Kopetra the only chipped stone was found in a small heap believed to have come from a threshing sledge of recent times (Rautman *et al.* 2003, 30). No chipped stone tools were identified at the Hellenistic–Roman village of Panayia Ematousa in southern Cyprus (Jacobsen 2006c).

Sacred and Mortuary Landscapes

None of the artefacts collected by TAESP and specifically associated with sacred activities can be dated to the Hellenistic–Roman period; however, these artefacts are

terracotta figurines, a type of artefact which appears to have dramatically decreased in number in Cyprus during the Hellenistic period. According to Hayes (2000) and Maier (2000), ritual assemblages of the Roman period in Cyprus are impossible to identify due to the almost complete absence of the terracotta figurines so common during the earlier periods; this is not only a Cypriot phenomenon. Late Roman occupation of the ancient Sanctuary of Aphrodite at Palaepaphos, Cyprus, has been inferred from the presence of artefacts datable to the 5th and 6th centuries, artefacts of the same types as found in domestic contexts (Maier 2000, 502–504). Based on the same type of evidence, cult continuity may be suggested at the Archaic sanctuary at Pano Limna (Volume 2, Chapter 3.11), although this site spreads over a large area, which is unlikely to be all associated with cultic activities. A few Roman sherds and tiles were collected in a single unit at the Archaic sanctuary at Evrykhou *Khalospitia* on the Atsas Plain, which may also be associated with cult continuity (Volume 2, Chapter 2.4).

A law of AD 391 prohibited pagan worship in the Roman Empire, but during the Late Roman period pagan worship continued alongside Christian worship. Christian worship is evidenced by basilicas in all the cities and towns, and a number of churches have been identified in the hinterland. Compared to the number of isolated rural churches dating from the Medieval period, Late Roman rural Christian worship is more difficult to identify. Within the Survey Area there are 13 current extramural churches (including non-parish churches on the edge of villages), and a further 10 ruined ones, some of which were associated with monasteries. No real evidence for cult continuity has been collected at any of these sites, although the churches at Kousouliotissa and Mavrovouni, and to some extent the monasteries at Skouriotissa and Asinou, are located in areas of dense Roman pottery distribution.

Studies made by the Danish Akamas project in western Cyprus, based on the excavations at Ayios Kononas, suggested that large clusters of tiles are indicative of churches (Fejfer 1995, 86). In the lower Vasilikos Valley tiles were also mainly associated with churches (Manning and Manning 2002, 11). According to this interpretation, the very high proportion of tiles (50%) in its Survey Units may suggest that Vrysi tou Haji Christophi in the Atsas Valley (Volume 2, Chapter 2.5) was a church. The millstone there is indicative of agricultural processing, but that does not disallow a religious context. Many monasteries were dependent on the labour and practical skills of the monks to provide for themselves (Brenk 2004). The earliest Christian evidence of agriculture firmly associated with sanctuaries consists of the oil press associated with the Ayia Varvara basilica, Amathus, abandoned in the middle of the 7th century, and the oil press in the atrium of the Chrysopolitissa basilica, Nea Paphos, dated to the Late Roman–Early Byzantine period (Hadjisavvas 1992, 45–49).

Of the known Hellenistic–Roman tombs in the Survey Area, virtually all are concentrated in the lower Karkotis Valley from Katydhata to Skouriotissa, on both sides of the river, and north of Evrykhou on the eastern side of the river (Volume 2, Chapter 3.14). The excavated ones are generally simple, rock-cut chamber tombs with platforms or niches, consistent with the types of tombs found everywhere on the island (Parks 1999). Grave goods are rich, consisting of jewellery, glass, lamps, Table Wares, Cooking Wares, some utility wares and transport amphorae. At Evrykhou Tomb 5 a sigillata inkpot was excavated, not a common find; a glass inkpot cover was also collected at Mavrovouni (TP104).

Wherever possible a vantage point seems to have been the preferred location, such as on a slope along a communication route. Evrykhou tomb 5 (TP065) and the group of tombs located behind the mayor's house in Katydhata (e.g. TP127) represent the clearest examples of this practice. A candlestick unguentarium suggests that Evrykhou tomb 5 was used into the 2nd–3rd centuries AD. Both of the excavated tombs from Evrykhou are large Hellenistic tombs re-used during the Early Roman period (Jacobsen 2007; Nicolaou 1984). Due to the sparse finds it is impossible to determine if the Roman tombs identified by TAESP were also re-used. Late Roman tombs are very difficult to date since they include almost no grave goods apart from a lamp and a few pieces of jewellery or coins (for a rich Late Roman tomb see Parks *et al.* 1998, 262).

The Hellenistic–Early Roman Landscape

As mentioned above, the Hellenistic–Early Roman settlement pattern is obscured by the Late Roman pattern, but they seem to correlate closely (see below). There is no evidence for Hellenistic or Early Roman settlements abandoned during the Late Roman period. In 1962 the survey record of the Department of Antiquities registered a Hellenistic settlement at Ayia Marina Xyliatou *Marathefti* (CS 1343), but this site was not revisited by TAESP. Apart from the excavated tombs, no evidence for consumer wealth and elite settlements could be associated with this period, suggesting that the wealth from the rich natural resources was not redistributed locally.

An Antonine inscription honouring the patron who employed a local company of mining contractors from Phlasou and two additional villages provides evidence for Roman communities in the Karkotis Valley (Markides 1915, 17, no. 7; Mitford 1950, 12–13, note 2; 1980b, 1298, 1327, note 177; Michaelides 1996, 144). In another study, Mitford restored the name Phlasou in a Hellenistic graffito from Kafizin (Mitford 1980a, 254). A third possible mention of Phlasou is a fragmented inscription from Soloi collected by Westholm (Mitford 1950, 12–13, note 2). Although the core of the current village could not be surveyed, there is a continuous spread of Hellenistic–Roman pottery south of Pano Phlasou, which is also one of the areas with the high proportion of Hellenistic–Early Roman Table Wares mentioned above. Over the years the Cyprus Survey has registered several tombs at Phlasou dated from the Iron Age to the Late Roman period, and it is tempting to identify

Pano Phlasou as one of the three villages referred to in the inscription. Very little Hellenistic–Roman pottery was recorded around Kato Phlasou and there was probably no settlement there during this period.

The Late Roman Landscape

The Late Roman period has revealed the most complete settlement pattern in the Survey Area, revealing a hierarchy of settlements exploiting the different available resources: the land, copper and other minerals in the foothills, and possibly timber in the mountains. The plains seem to be dominated by agriculture and smaller settlements, probably farmsteads and small nucleated settlements. The distribution of diagnostic Late Roman Table Wares suggests a small decline from the 5th to the 6th century, with 53% of it dating to the late 4th and 5th centuries and 47% from the 6th and early 7th centuries. This, however, is not necessarily indicative of a general economic decline (Chapter 3.3). During the Late Roman period imported Table Wares penetrated to the remotest hinterland areas such as at Asinou, albeit in small numbers. The rarity of imported and regional transport amphorae, however, clearly denotes a difference between the pottery distributed to city centres (e.g. Hayes 1980; Hayes and Megaw 2003), villages close to the city centres such as Panayia Ematousa (Sørensen and Jacobsen 2006), market villages such as Kopetra (Rautman *et al.* 2003), and the rural TAESP area.

The absence of evidence for consumer wealth and elite settlements continued during the Late Roman period. In general there is a wider dissemination of imported transport amphorae and Table Wares into remote rural areas during the Late Roman period compared to earlier periods; actual numbers in the Survey Area, however, are small. The few local or imported transport amphorae collected indicate that not much produce was coming in from and or going out to the extra-island market, reflecting a localized agricultural economy. Large parts of the Survey Area are very fertile, especially the Karkotis Valley, which must have produced a substantial agricultural surplus. The explanation is not that the Survey Area was cut off from the extra-regional world. The Late Roman Tables Wares found in the area come mainly from south-western Cyprus and Asia Minor, but also from Africa and Egypt.

In the Survey Area access to imported Table Wares is not associated with access to imported foodstuffs. The pattern suggests a centralized economy where surpluses produced were not redistributed in the rural areas producing it. Another characteristic of the Survey Area is the existence of large-scale industry, such as the copper mines at Skouriotissa and Litharkies, which would have required a considerable workforce. This suggests the possibility that the agricultural surplus was soaked up by the copper production, and that although local contractors and labourers were most probably involved even during the Late Roman period, the profit mainly went to the absent owners of the mines. In 655 a man named Ioannis single-handedly paid for the rebuilding of the basilica in Soloi after its destruction in an Arab raid (Papageorgiou 1993, 43). It is tempting to associate his wealth with the exploitation of the Soloi mines.

Even if the Soloi hinterland is rich in natural resources, the people living there do not appear to have been part of the rural elite, with a craving for a greater diversity and quantity of imported foods. Articles on Late Roman Cyprus speak of the general prosperity of the province during this period (e.g. Bakirtzis 1995; Michaelides 1996; Papacostas 2001; Papageorgiou 1993; Rautman *et al.* 2003). Apart from the testimonies of the written sources (e.g. John Lydus, *De Mag*. 2.29), the evidence for this is seen in the construction of public buildings and richly decorated houses in the urban centres, and the most diffused settlement pattern in the ancient history of the island. The assumption of rural wealth is based on the diffused settlement pattern frequently associated with small churches (Rautman 2000, 318). Certainly in the post-Roman period, however, rural church building is often associated with personal patronage, such as the early 12th-century Church of Panayia Phorviotissa at Asinou (Volume 2, Chapter 5.5; Stylianou and Stylianou 1985). Consequently, rural churches and monasteries cannot be used as evidence for the general dissemination of wealth in the rural hinterland.

Our investigations indicate that Skouriotissa was mined into the 7th century AD. The pottery distribution maps show that the widest range of imported types, in all the Survey Area, originate from the slag heap. Skouriotissa was clearly a major economic nucleus within this area during the Hellenistic–Roman period. TAESP's results suggest that to some extent the exploitation of all other natural resources in the area were co-dependent on the mining industry. The land would have supplied the food and at least some of the labour essential to enable the large-scale copper exploitation.

5.4 Byzantine–Modern Landscapes

Michael Given, Ruth Smadar Gabrieli, Tracy Ireland, Jay Noller and Joanita Vroom

The post-Roman periods in the TAESP landscape are characterized by a wealth of material, not just in its quantity and variety but also, and more importantly, in the range of analytical issues that it raises. This chapter does not try to give a blow-by-blow account of this long and varied period, or to make long lists of sites and artefacts. Rather, it highlights the most important and interesting interpretative issues that have come out of our research, with examples, brief case studies and cross-references as appropriate. These issues include the possible relationships between pottery (or its absence) and human activity, seasonality, community territory, communication routes as habitual practice, the affective links between people and their landscape, the impact of imperialism on people's landscape experience, and the role of landscape features

such as water, sound and soil. We begin the discussion with an analysis of a complex chronological and archaeological issue, that of the supposed lack of material and information in the Byzantine period.

Chapter 1.3 gives the archaeological and historical context for these periods, and Chapters 3.4 and 3.5 discuss the utility wares and fine wares respectively. For a summary of our fieldwork results see Volume 2, Chapter 6. Elsewhere we have published a dedicated study of the changing organisation of the settlement of Phlasou in the Karkotis Valley, as an exercise in dialogue between archaeologist and historian (Given and Hadjianastasis 2010).

The Byzantine Period

The article 'Where have all the farmers gone? The Cypriot countryside in the seventh to tenth centuries' (McClellan and Rautman 1995) encapsulates in its title the problem of the apparent lack of material culture and, following a frequent assumption, population in the Byzantine period in Cyprus. Studies of this 'gap period' follow two main approaches: attempting to explain the depopulation from the mid-7th century onwards; or arguing that the absence is one of perception, stemming from inadequate understanding of the period and its material culture; while population may have decreased, the landscape was nevertheless not as empty as the archaeological record appears to indicate. The two articles that discuss this problem extensively were written over 25 and 13 years ago (Megaw 1986 and Rautman 1998). The fact that they are still relevant today speaks volumes: our understanding of the settlement pattern and material culture of the period is still woefully lacking, in spite of subsequent publications of site reports (e.g. Megaw 2007; Rautman *et al.* 2003).

Rautman and McClellan suggest that the gap can be attributed, at least in part, to changes in land use strategies. These brought about more ephemeral agricultural settlement and reduced production as a result of the collapse of regional and extra-regional markets; to this is added a change in pottery types that is not easily recognized by archaeologists. This suggestion is supported in recent years by accumulating evidence for the increased use of handmade pottery in the second half of the 7th century, for example in Kalavasos *Kopetra* (Rautman *et al.* 2003), Maroni *Petrera* (Manning and Manning 2002), Kourion (Megaw 2007), and Ayioi Pente in Paphos (Gabrieli *et al.* 2007). Handmade pottery would quite likely be considered in survey collections, and sometimes even in excavations, to be prehistoric.

Understanding of the material culture of the period has also progressed within the wider context of the eastern Mediterranean, through re-evaluation of dates for Late Roman pottery. A final production date of Late Roman pottery in the mid-7th century has been increasingly challenged in recent years, in line with Hayes's prediction that modification would eventually be necessary, as archaeological data accumulated for the 7th–9th centuries (Hayes 1972, 2). Particularly pertinent to Cyprus is a recent article by Armstrong, in which she presents an argument for extending the production of some shapes of Cypriot Red Slip Ware (such as Hayes forms 9B and 9C) at least into the 8th century (Armstrong 2009, 160–61, 178). She also supports Catling's conclusions that production at Dhiorios continued into the 8th century (Armstrong 2009, 165–67; Catling 1972, 79–80).

In addition, different shapes of Cypriot Red Slip Ware (among them 'Anemurium well form' dishes and a closed vessel) from contexts associated with 8th- and 9th-century finds at Limyra have now been published (Vroom 2007, figs 5a–b, 7a; 2011, 151–52). Finally, late shapes of African Red Slip (form 105), Egyptian Red Slip and Cypriot Red Slip Ware (form 9C) have been recognized in deposits of the last occupation and demolition phases at Kourion, where they were dated by Hayes from the mid- to late 7th century onwards (Hayes 2007, 436, figs 14.5, 14.9–10).

The presence of exactly the same late shapes of Cypriot Red Slip Ware (TCP705, form 9B; TCP255, form 9C or 10?), African Red Slip Ware (TCP341, form 105) and Egyptian Red Slip Ware (TCP470, TCP541, TCP701) in the TAESP collection shows that we should take into account the possibility that Late Roman fine wares probably continued in use for longer than previously assumed. It would therefore be safer to define these shapes in survey material in terms of broader periods, such as 'Late Roman/ Early Byzantine period' (rather than exclusively Late Roman), as we do not know when and how long these vessels were produced and used in the past.

A similar pattern can also be identified in TAESP's unglazed coarse wares and amphorae, reinforcing the suggestion that the Byzantine period 'gap' in the Survey Area begins later than the mid-7th century. We have already seen that 49% of Late Roman transport amphorae are LR1 (Chapter 3.3). Some shapes of this amphora type (such as TCP546) have now been recognized in Kourion and at the Kornos Cave as belonging to late 7th- and even 8th-century contexts (Catling and Dikigoropoulos 1970, pl. XXIXa; Hayes 2007, fig. 14.16 P2; for a summary see Armstrong 2009, 163–64, 174–76). More late amphora fragments in the TAESP material include possible body fragments of LR2/13 amphorae of the late 7th–8th centuries (TCP424–25), as well as a rim fragment of an imitation of a bag-shaped LR 5/6 (a so-called 'Abu Mina amphora') of the late 7th–8th centuries (cf. Egloff 1977, no. 187). In fact, we must be aware that the majority of Early Byzantine pottery finds (c. 7th–9th centuries) in the eastern Mediterranean consist of unglazed coarse wares and amphorae (often deriving from Late Roman shapes; see Vroom 2011, 145–50, 154–55, figs 1, 6, 9a).

In addition, we have base fragments of Late Roman *unguentaria* of the 7th century (e.g. TCP012), and several rim fragments of later cooking pots (e.g. TCP001, TCP600). These last also include a twisted handle fragment of a 7th-century cooking pot from Constantinople (TCP699, a type also found in Salamis, Paphos, Ayios Georghios

and on the Akamas peninsula), as well as a rim fragment of a 7th-century Dhiorios cooking pot (cf. Hayes 2007, fig. 14.5, E6, E8). Finally, various fragments of *pithoi* (e.g. TCP451, TCP460, TCP482) and tiles (e.g. TCP527, TCP693) continue into Byzantine times. These pan and cover tiles (often with finger groove decoration) were, in the Byzantine world, not only used on roofs, but also on floors and in graves. They were in use until at least the 11th century, as can be seen on sites in Greece and Turkey (e.g. Roodenberg 2009, figs 6–7; Rosser 1983; Witte-Orr 2007, figs 5–8).

We should also consider the period from the perspective of the newly produced glazed wares that were imported to Cyprus from Byzantium, such as Glazed White Ware I, which makes its first appearance in the 7th and 8th centuries, followed by the first products of Glazed White Ware II manufactured in the 9th and 10th centuries (Vroom 2005, 62–63, 74–77). The absence of these from the Survey Area is not surprising, since Glazed White Ware I, for instance, was not widely distributed during the Early Byzantine period in the Mediterranean (Vroom 2011, 139, 145–46; 2012, 379–80, fig. 2). Furthermore, fragments of Glazed White Ware I are most often found on large, coastal urban sites (Paphos, Salamis). When found inland, they are usually associated with urban sites along important land routes (Vroom 2011, 139). Finally, even in excavated layers of large urban sites, small fragments of Glazed White Ware I are difficult to recognize, and may have been missed during the collection of survey finds on the surface. Apart from small pieces of Glazed White Wares, it is clear that fragments of unglazed fine wares, coarse wares and amphorae show minor changes in shape from their Late Roman predecessors, and so are difficult to recognize in excavation contexts – let alone in survey assemblages. In the TAESP material, the Byzantine gap appears to be limited to the 9th and 10th centuries.

It is clear from this discussion that the 9th and 10th centuries should be the focus of future research. As data accumulate and studies of 8th- to 12th-century amphorae and coarse wares in the Eastern Mediterranean continue to change our understanding of this material, the Byzantine gap can be expected to narrow further. As a contribution to this, our presentation of pottery, and in particular the amphorae, coarse ware, pithoi and tiles, should prove useful for future studies of the Byzantine archaeological record in Cyprus.

Pottery in the Landscape

When we consider the distribution of the pottery in the landscape, we examine separately the fine wares and the utility wares, as well as the range and association of types within each category (see Chapters 3.4 and 3.5 for details). By doing this we can investigate landscape use and settlement pattern through time, as well as the function of individual sites. Identification of chronological trends in the distribution of Medieval and post-Medieval pottery through the landscape is largely dependent on the fine wares, since the details that allow distinction between the utility wares of the Early Phase (13th–14th centuries) and later ones are often not preserved in survey collections, while the Byzantine utility wares are hardly known. The sample of fine wares in the Survey Area is, unfortunately, small. Nevertheless some trends may be suggested.

Vroom's graph of diagnostic glazed sherds (Chapter 3.5, Fig. 3.3) shows nearly double the amount of pottery in the Middle Phase (15th–16th centuries), both in relation to the Early and the Late Phases. When the centre of production moved from the south-western workshops of Paphos and Lemba to Lapithos in the north during the 14th century, there was a considerable increase in the proportion and absolute quantities of Cypriot Table Wares. This is hardly surprising, given the closeness of the production centre to the Survey Area (Chapter 3.5). The increase and subsequent decrease in overall quantity of Table Wares is curious, and even more so the decrease in the proportion of locally produced wares in relation to imports in the Late Phase (see Fig. 3.3). The sample size of the Late Phase is too small to draw conclusions, but it is a phenomenon that should be explored as more data accumulate in relation to studies of production and trade.

The imports in the Early Phase are from the Byzantine empire, possibly from the Constantinople area, and from Syria (Chapter 3.5). The emphasis on sources of imports moves, in the Middle Phase, which post-dates the fall of the Frankish Levant, to the west. The subsequent Ottoman conquest does not seem to sever these ties completely, and wares continue to arrive from Italy as well as from areas under Ottoman control.

Noteworthy is the differential distribution within the Survey Area. About a third of all Byzantine and Medieval fine wares are concentrated in the Karkotis Valley. Whether such a concentration is applicable also to the utility wares, which would imply higher settlement densities in that period, rather than a different economic position, cannot be determined, since we could not narrow the range of dates for utility wares in that area.

It is a widespread principle of surface survey that the intensity of pottery can be used as evidence for the location of settlement focuses, for the increase or decrease in settlement size, and for the range of activities the pottery represents, which has implications for the character and economic standing of settlement. In Volume 2, Chapter 5, Gibson questions this reliance on pottery as the principal proxy for settlement pattern. In the following paragraphs we develop and further nuance this argument, concentrating on areas for which historical documents povide additional evidence. This is intended as a contribution to the methodological aspects of interpreting survey collections.

The Asinou area is a good example of the nuances that surface pottery can add to the interpretation of the landscape. The finds around the Asinou Monastery (Volume 2, Chapter 5.5), Nikitari *Khalospities* (Chapter 5.5), and

those at Ayios Yeoryios *Aspri* (Fig. 5.6; Chapter 5.9), are all compatible with permanent households, using cooking, storage and Table Wares. The assemblage around the monastery, however, is distinct from that of the villages in the relatively high proportion of Table Wares, and the presence of imports, which indicate a higher economic standing. Gibson draws on documentary evidence to suggest that what we see here reflects a relationship between a centre of administration and control at the Monastery and its tributaries, and possibly secondary administration centres. At the same time she warns against over-reliance on pottery as a proxy for settlement, since, as she points out, there is plenty of evidence for activity in the mountains, where pottery is scarce, and sometimes absent.

It is indeed an important warning, but we would like to give her discussion regarding the relationship between pottery and other proxies of human activity a slightly different perspective, that of the evidence of absence. Absence of pottery during the Medieval and post-Medieval period, unlike that of the Byzantine period, should, we believe, be taken at face value, since the assemblage is well-known, utility wares – even if their dating is crude – as well as fine wares.

Explanations for the absence of specific types of pottery, such as the paucity of glazed wares in the Survey Area and the absence of Early Phase Levantine cooking wares and Middle–Late Phase long-neck utility wares (Chapter 3.4), is not too controversial: it is plausible to suggest that trade and exchange routes did not always extend from the coast to the mountains. More difficult is the issue of the complete absence of ceramics in areas where there are other indicators of intensive activity.

Gibson points out that parts of the upper slopes above Asinou, where Medieval ceramics are absent, nevertheless exhibit other tangible evidence of landscape use, in the shape of roads, terraces, check dams and more (which are often though not always datable; Volume 2, Chapter 5.5–5.7). It is perhaps possible to shift perspective slightly, and suggest that in spite of the fact that evidence of absence is notoriously unreliable, when intensive survey produces a range of evidence, local absence may be quite eloquent. In this case, the evidence of roads and resource extraction throughout the landscape, in conjunction with zones where pottery is absent, could be used to refine our interpretation of specific human activities, and distinguish areas of seasonal or transient occupation.

In her study of Aetolia, Vroom (1998a, 152–53) found different patterns of ceramic use in low-lying villages and in those above 400 m, where remains of villages were sherdless. Interviews in 400 existing villages confirmed that pottery was not used in the mountain villages in the early 20th century. In her conclusions, Vroom refers to the difficulty of transportation of goods and the option of transhumance in the Aetolian mountains as part of the explanation for the absence of ceramics (1998a, 158). While a straightforward relationship between the topography and ceramic use does not seem applicable in the Troodos, we believe that Vroom's suggestion of the possible association between seasonal shift of habitation and ceramic finds should be followed.

Fig. 5.6. The Medieval village of Aspri, on the spur beyond the water tank in the centre of the photo, looking north from Ayia Paraskevi church. In the distance are the Mesaoria Plain and the Kyrenia Mountains. (Michael Given)

This argument is well illustrated by Mandres and Lemonas, two villages which we know were used seasonally. Even though there are extensive architectural remains, and pottery sherds were incorporated in the mudbricks of the houses at Mandres, the pottery density in the halo round it is low, below 1.0 sherds/100 m^2 in Mandres (Volume 2, Chapter 2.10), and never above 0.8 sherds/100 m^2 for any specific period at Lemonas (2.7). The concentration around villages in the Karkotis Valley, on the other hand, is 1–5 sherds/100 m^2 (3.8) . In other words, two principal proxies of occupation, architecture and ceramics, present conflicting evidence, demonstrating the complexity of this issue. In this case, external knowledge provides a possible explanation: though Mandres and Lemonas were occupied on a regular basis over an extended period, this occupation was seasonal, and more than that, part of the time the community was abnormal, in that for most of the seasonal period of occupation only adult men resided there. We suggest therefore, that using pottery as a principal source of evidence for landscape use is appropriate, as long as the full range of finds is taken into consideration. When this is done, even the apparently unexplainable absence of pottery may acquire meaning.

Experience and Community

Until the early 20th century, the main principle that informed people's structuring of their lives and landscape was agriculture. This ranged from the intensive estates in the rich Karkotis Valley during the Medieval period, to the hamlets of peasant farmers scattered across our Survey Area in the Ottoman and Early Colonial periods. Even

Fig. 5.7. Probable location of the Medieval estate at Kato Koutraphas, taken from the east end of the church looking north-east over easily irrigable land towards the escarpment and the Koutraphas plateau (Michael Given)

within these periods, the range of landscape experience was immense. A serf working on a substantial Medieval estate such as at Phlasou or Linou in the 14th and 15th century was engaged in organised labour across high quality land on the broad valley floor, working with major irrigation systems, large-scale cash crops and centralized storage structures. The single structures in the mountains above the Asinou Valley and their arable pockets on terraces and check dams saw much more diverse and dispersed activity by smaller groups of workers. Similarly, there were still plantation-style estates or *çiftliks* in the Ottoman period, though none in our area, and very diverse patterns of activity depending on the organisation of the local landscape.

One way of analysing these local landscapes is by using survey data to reconstruct patterns of human activity within what can be termed 'community areas' (Kuna 2000, 31) or 'community territories'. Documentary sources suggest that people had a very strong sense of a specified area of landscape which in some broad sense 'belonged' to a particular community, regardless of the legal status of the land ownership. According to the 19th-century Ottoman code of civil law, for example, there was a zone around the outside of the settlement reserved for grazing, threshing floors and collecting firewood (Mejelle 1901, 191). The preservation of clusters of threshing floors on village outskirts means that this area is easily identifiable on the ground at, for example, Mandres (Volume 2, Chapter 2.10, Plate 2.9) or Katydhata (Volume 2, Chapter 3.10, Fig. 3.26).

This can also be seen at the Medieval feudal estate of Kato Koutraphas (Fig. 5.7; Volume 2, Chapter 2.16). According to an enquiry into its revenues that took place in 1512 (Grivaud 1998, 370–71), this estate, recently acquired by the royal domain, was operated by 26 *parici* (serfs), one *francomato* (free peasant farmer), a scribe, two salaried workers and a castellan (manager). The manor house consisted of a large courtyard with a mudbrick wall, and contained a barn, three sheds, two stables, a storeroom, two mudbrick houses and the custodian's house. Nothing of these remain, unfortunately, as they have been built over by the later village, but an 18th-century church contains architectural elements from a Medieval predecessor (Gunnis 1936, 293).

Table 5.3. Land use in the estate of Koutraphas in 1512 (figures from Grivaud 1998, 370)

Land	Hectares	%
Cultivated, irrigated, reserved for estate	21.8	9.2
Cultivated, irrigated, held by peasants	33.6	14.2
Cultivated, not irrigated, reserved for estate	3.3	1.4
Cultivated, not irrigated, held by peasants	8.4	3.5
Fallow land, irrigable	19.3	8.1
Fallow land, not irrigable	34.2	14.4
Land unusable for cultivation	116.5	49.1
TOTALS	**237.1**	**100**

The enquiry of 1512 also recorded the land owned and worked by the estate. In that year, of the total of 237 ha, 55 ha were irrigated, 12 ha were dry cropped, 54 ha were left fallow, and 117 ha were uncultivable (Table 5.3). Time and access meant that we were unable to carry out fieldwalking in this area, but geomorphological analysis provides an insight into the location, organisation and suitability of these different zones (Plate 5.3). For the purposes of this analysis we have assumed that the arable land was contiguous and that it immediately surrounded the estate itself, which as we argue below was almost certainly on the site of the modern village. The only non-geomorphological boundary on Plate 5.3 is the northern one, which we have assigned arbitrarily as halfway between Kato Koutraphas and Angolemi, which was also an estate in the 16th century (Grivaud 1998, 469).

The irrigated lands would have been down on the fluvial terraces along the Elias River, where the water resource was obvious and did not require an extensive infrastructure to import. The uncultivable land could certainly have incorporated the escarpment or mega-riser above the river on the east, but most likely included the river channel itself and the gullies in the calcareous bedrock to the south-west, as shown in Plate 5.3. The position of the channel in 1512 is the most uncertain landform here, though most likely it would have been within the bounds of the current channel. In 1512 the Little Ice Age had yet to occur, with its significantly greater discharge and ability to carve a wider channel with larger boulders, which is the one that we see largely preserved today.

The older, Pleistocene pediments are remnants of wide-floored, gravelly sandy sediments of a valley floor carved out by the glacial period Elias river. These sediments have weathered into the highest quality soils on the estate, though only useful for dry cropping, particularly of cereals. It is striking that these three geomorphological units very nearly coincide with the 1512 record of land division and use in the estate. The areas outside the main agricultural production lands would have been invaluable for fuel, wild food, grazing, medicinal plants and all the other products of so-called 'wasteland' (Forbes 1997). This range of agricultural activities and the hierarchical workforce show

a striking diversity of landscape experiences and attitudes to the land.

The obvious location for the estate is on the spur in the river valley where the modern village lies; the church is at the tip of the spur with an excellent view up and down the valley floor (Fig. 5.7). Serfs working in the irrigated fields, as opposed to the dry cropped areas on the plateau to the east, would have been both in view and earshot of the estate buildings. For the irrigated fields, daily journeys would have been short distances up and down the valley floor through fields and across irrigation channels; for the dry cropped areas, a sharp climb up the escarpment and then over the rolling plateau. The experiences of these different areas can be further broken down according to who was getting the fruit of the peasants' labour: 39% of the irrigated land and 28% of the dry cropped land was farmed for the estate; the rest was for the peasants' own subsistence, and so was much more closely tied to their identities as providers for their families and autonomous individuals.

These different activity zones were experienced bodily and perceived by all the senses. This is very clear from examining their characteristic sounds. The grinding of millstones and the noise of the turbines of the huge mills along the Karkotis signified productivity and nourishment, if also the extraction of the miller's or landlord's share. A popular rhyme about the mill of Shaban Bey (BU0075) suggests that bells were hung on the mechanism, or perhaps the people heard the grinding as the music or clamour of bells (Chapter 3.12). The persistent swishing of the threshing sledge also carried the sense of the family's main food production for the year – or, again, the loss of a third of it in taxes.

Further out from the settlement were the noises of agriculture: ploughing, shouting, reaping with the sickle (which, again, often had bells on them). Our pottery haloes of relatively light densities that surround the major settlements in better agricultural areas are archaeological correlates of the sounds and human activities that structured people's experience of this highly important section of the community landscape. Beyond that again are the uncultivated lands used for gathering of wild foods, medicines and forest resources, and, above all, for grazing. As survey archaeologists, we record the goatfolds, paths and pitch kilns (Volume 2, Chapter 5). But a former goatherd interviewed by TAESP remembers the community admiration for the owner of 1000 goats being expressed in the awarding of a golden bell: 'When they hang it on the animal, it sounded better than all the rest. And people said, "Ah, he has the gold bell."'

It is interesting that the Mejelle defines the zone reserved for grazing, threshing and collecting firewood acoustically, extending as far as 'the sound of a person who has a loud voice cannot be heard from the houses which are at the extreme limit of the town or village' (Mejelle 1901, 191). There are many well documented examples across Europe of church bells being used to define their parish acoustically; if part of the parish could not hear the bells, the only solution was to recast them to be larger and louder (Corbin 1998). The situation in Cyprus is complicated by mixed villages which had muezzins as well as church bells. In Phlasou, for example, the now demolished mosque was 450 m from the 17th-century church and 300 m from its 1901 successor (Volume 2, Chapter 3.8; Given and Hadjianastasis 2010). Depending on the political context, the zone of acoustic overlap could stress intercommunal differences or, much more commonly, the normal rhythms, dissonances and syncopations of community life.

One of the most stimulating outcomes of collaboration between archaeologists and oral historians is an appreciation of the affective links that bound people to their landscape and the various features and artefacts that we record (Forbes 2007b, 204–205, 322–25). Check dams are, of course, to prevent erosion and create a small plot of arable land; but a farmer points to one and tells us that he built it when his daughter was born, so that by the time she married it would have filled with sediment and could be part of her dowry. Similarly, the 18th-century traveller Mariti observed fathers sealing a *pithari* of commanderia and burying it when a child is born, so that it could be served matured at their wedding feast (Mariti 1909, 116). The identification of a personal biography with the life of a physical structure comes across very clearly in the moving story of the elderly miller of Evrykhou facing his irreparably worn millstones: if they could not be replaced, what was the future for his mill, the last working watermill in Cyprus, and for himself as a miller (Volume 2, Chapter 3.4)? In all these cases, check dams, storage jars, watermills, and every other feature and artefact that we as archaeologists record are intimately bound up with people's sense of identity, family and community.

Communication and Interaction

Focusing on human interaction is the key to understanding the landscape: interaction within a community, between communities, and with the state or colonial authorities. This is a lesson that has become clear over the course of the project, not just from oral histories and documentary sources but from the artefacts, materials, paths and the organisation of the entire landscape (see also Chapter 6). The richness of the material from the Medieval–Modern periods makes this particularly evident.

One immediate approach to understanding interaction across the landscape is by identifying the origins of the artefacts that we record. The sources of Glazed Table Ware, for example, show clear shifts in time, as discussed by Joanita Vroom in Chapter 3.5. In the 15th and 16th centuries most of it came from Lapithos, 35 km to the north-west. From the late 16th to the 20th century there was a much higher proportion of imports, particularly from Italy, the Aegean and north-west Turkey. All this constituted interaction on a specific, interpersonal basis, such as in the markets in the port towns of Cyprus where

glazed dishes from Çanakkale were sold in large numbers in the late 19th century, many of them ending up in our Survey Area (Ionas 2000, 81 and 241, appendix 1). These artefacts also carried a broader cultural interaction, as new habits such as smoking tobacco and drinking coffee (Baram 1999; Vroom 1996) spread first to the towns and then to the villages of our Survey Area. This is expressed in a chibouk style of tobacco pipe probably from Istanbul (TCP571) and a sherd of coffee cup from Kütahya (TCP325).

In a similar way we can detect patterns of interaction by examining the materials and manufacture of *dhoukani* flakes, the chipped stone inserts in threshing sledges used widely across the Medieval–Modern period. The analysis of this by Carole McCartney appears in Chapter 3.8. Two-thirds of these tools in the Survey Area are made of non-local chert, and also there is very little manufacturing debris. Clearly they were imported ready made, presumably as complete threshing sledges; oral accounts show that they were normally bought in markets in Kyrenia (and presumably Nicosia as well). The small amounts of manufacturing debris suggest that itinerant knappers did visit with their own raw material to repair sledges; crude work in rough local jaspers also shows that inbetween visits villagers made their own attempts to fill the gaps in their sledges. Here, then, is a complex set of interactions, with sledge sellers in the big markets, who could be either the manufacturers or middlemen, and with visiting knappers. These interactions constituted one element of the technological, agricultural and social landscape.

Potsherds and chipped stones have the great advantage of being readily visible to an archaeological survey, but they obviously form a tiny proportion of the material and social interaction that took place. An informant who grew up in the now abandoned village of Asinou (Volume 2, Chapter 5.5) remembered his goatherd father taking his *halloumi* and *anari* cheeses to Galata and Kakopetria, as well as even more distant fairs, because the price was too low in the nearest villages which also specialised in goatherding (for map see Fig. 1.2). In another regular axis of movement and interaction he took donkey loads of pinewood to the villages of Petra, Zodhia and Morphou on the treeless plain and sold them there. In exchange, remembered his son, he brought back bread that was eagerly awaited by the children whose main diet was cheese... Stories like this show how closely interlinked the so-called 'remote' mountain settlements were into the wider landscape (Volume 2, Chapter 5.10).

These and many other regular patterns of movement and interaction can be seen on the ground in the intricate systems of paths, tracks and roads, as demonstrated by Erin Gibson in Chapter 3.13. The more intact parts of the TAESP landscape, particularly valley sides and mountains, are criss-crossed by networks of paths and tracks, typically 0.7 to 1.2 m wide and contouring along the hillside or following a river terrace. Though some can be related to the massive Late Roman mining operation, most can clearly be dated by their context to the Ottoman and Early colonial periods.

Some paths show daily movement, between village and fields, while many are used for regular movement between the mountains and the plains, such as those described by our informant above. One contribution that our archaeological investigation can make is to extend our understanding of the way in which distribution, trade and exchange functioned. Storage facilities were identified in the foothills that were probably used for grain going up or forest products going down. These regular movements and interactions constituted an elaborate system of communications with a developed infrastructure. These may be associated with another complex system of interaction, that of summer settlements in the plains and foothills which mountain villagers used for producing their grain crops. Our best documented example, Mandres (Volume 2, Chapter 2.10), was an interesting example of a seasonal community constituted by people from a variety of highland villages: they travelled regularly along the paths up and down the north face of the Troodos range, and did their ploughing, reaping and threshing side by side, as elsewhere was only done by co-villagers.

On a wider scale, more substantial roads with Ottoman-period bridges supported longer distance travel, as did the khans or inns such as at Kalliana (BU0092; Fig. 3.49). Local informants told us that these were used by longer-distance travellers and their animals, and by mountain villagers who were travelling down to Morphou and the plains to sell their produce there.

We were also told that khans were used by people carrying their grain to the mills to be ground. The Survey Area is in the ideal zone for watermills: the force and volume of the water are still high, particularly in the Karkotis Valley, whose river has the largest and highest catchment in Cyprus; and it has not yet slowed down and suffered losses through evaporation in the heat of the plains. For this reason, mills were often focuses of inter-village interaction, like the seasonal settlements mentioned above. This was important for passing on news and making contacts, for example finding a spouse for son or daughter (Given 2000, 226–27). Again, this travel ran perpendicular to the main trend of the contours, constantly connecting mountains with plains through the mediation of the villages in the major valleys and foothills.

Water is another commodity that was the focus of intense interaction and, often, argument. As well as powering watermills it was essential for irrigation and domestic supply. This can be clearly seen in the complexity of the water rights system and its corresponding weirs, channels and diversion nodes, as discussed by Sevina Floridou in Chapter 3.12. The control that powerful and wealthy communities and landowners had over lesser ones was not just an abstract or structural concept: it was enacted on a daily basis by diverting water from one channel to another. At the major weir of Deimma Asprallou Linopsa (BU0105; Fig. 3.56) near Phlasou, for example, the water was continually diverted away from the smaller villages of the lower Karkotis and sent over the watershed into the

Fig. 5.8. View from Ayios Epiphanios looking east to Katydhata (left, below Skouriotissa mine), the watershed where the channel took water out of the Karkotis Valley to Petra, and Linou (right) (Chris Parks)

Atsas drainage, first to power the mills of Ahmed Agha, and then to supply drinking and irrigation water for the substantial village of Petra on the plains. This, and a second major channel taking water to Petra round the north side of Skouriotissa mine, was done under the eyes of the hamlets of Agroladhou and Ayios Epiphanios, who only gained a fraction of the riches of the Karkotis River (Fig. 5.8).

These unequal relationships were even expressed in the local folklore. In a story that we heard several versions of, the water used to be directed to the western side, and was controlled by the 'King' of Ayios Epiphanios. He fell in love with a 'Queen' who lived across the river in Linou, and promised her one *ilari* of water – a very substantial amount every week. 'It is for this reason,' one narrator explained, 'that Linou possesses all the water on Tuesdays'. When the King claimed his due, depending on the version, she bit him on the thumb (which may be a euphemism) or sent her maid under cover of darkness instead. In the version where the Queen lived in Katydhata not Linou, the King angrily exclaimed, '*Kato ta ydhata!*' ('Down with the waters!', i.e. 'No more water!'); hence the name of the village, 'Katydhata'.

Imperialism and Modernity

The British colonial period (1878–1960), and the inevitable involvement of the Survey Area in an imperial, global economic system, impacted upon, but did not completely transform, the pre-existing agricultural landscape of the TAESP region. Medieval- and Ottoman-period ways of knowing and perceiving the landscape persisted through continuity of practice and cultural knowledge, shaped by, and reinforced through, the interaction of people, material culture and landscape. As has been discussed above, pre-modern ways of moving through the landscape, of understanding territory, ownership and community relationships through sound, topography and landscape features, have persisted to the present day, albeit often only in the memories of older community members. Our research has also shown, however, that significant cultural and environmental change was wrought in the relationship between community and landscape through the impact of industrialization and colonial rule.

The impact of the British colonial experiment in Cyprus is the subject of ongoing debates in history and anthropology (Bryant 2004; Varnava 2009). Rebecca Bryant suggests that the administrative structures put in place so rapidly by the British, including education systems, industry and infrastructure, fundamentally altered the social hierarchies of Cyprus, eventually leading to two competing and conflicting 'imaginations of modernity' (Bryant 2004). Our survey provides some tantalizing, but often enigmatic, glimpses into the landscapes and material worlds of these rural communities during this tumultuous period of local and global change.

As discussed by Gibson in Chapter 3.13, roads, railways and bridges were one of the clearest manifestations of the impact of the new British colonial administration in the TAESP landscape. These were the physical expression of the imperial ideologies of industrialization and commerce as key requirements for progress and modernization. As Gibson recounts, villagers in the Survey Area appeared to welcome this investment by volunteering their labour for road construction and petitioning the administration for the construction of new roads to their villages; however, as in other sites of colonial policy implementation, such as the forests of the Troodos mountains (Given 2004a), demarcation cut across pre-existing understandings of the cultural landscape, resulting in what the administration saw as ongoing major and minor acts of resistance or lawlessness, as new rules of access and use were flouted.

The colonial administrators clearly took pride in their public works, and Gibson discusses how they were concerned about the perception of the engineering and aesthetic qualities of these new constructions. While the new bridge over the Elaia River (BU0114) exhibited typical British colonial design, the little bridge (BU0045) across the Karkotis, for communication between the villages of Korakou, Tembria and Evrykhou, and the more elaborate, multiphase bridge (BU0126) on the Ayios Epiphanios–Linou road, both retained their Ottoman humped arch sections. The new construction, designed to widen and lengthen these bridges, was carefully designed to blend in with the aesthetics of the earlier Ottoman architectural forms. Such care and pride in achievement must have made the filching of the beautifully cut stone from the parapets of local bridges by 'mischievous shepherds' doubly insulting to the British civil servants: were these quiet acts of resistance by the locals, or opportunistic thefts of expensive building materials?

Roads and transport obviously had an important impact on both social life and the cultural landscape in the first half of the 20th century. With the increased efficiency of transport and communication, field shelters, many small watermills and satellite or seasonal settlements were no

longer needed for agricultural production, so they fell into disuse and disrepair. Intermarriage between regions was facilitated and stories of the money to be earned working in construction, factories, and, most significantly in our area, the expanding mining industry, circulated amongst young people looking for an alternative to the rural lifestyle of their parents. Systems of mainly subsistence agriculture, producing small surpluses for trade and taxes, including the seasonal occupation of key resource production areas, changed slowly through the late 19th and 20th centuries.

Our research on the seasonal village of Mandres (Volume 2, Chapter 2.10) most clearly illustrates these changes. In an interview in July 2001, a former resident reflected on how life at Mandres changed in the period leading up to the Second World War. He remembered the impact of the new asphalt roads built by the British, and how they changed the sounds and smells of the landscape: he recalled for us how the metal shoes of the donkeys would make sparks at night on the asphalt, and how motorized vehicles on the road were so rare around Mandres that people would lie on the asphalt in order to hear one approaching, so they could beg a ride. He recalled life at Mandres as one of hardship and poverty. Neither he nor his father had shoes; they would drink two glasses of *zivania* (a distillation of the by-products of making wine) before going out to work in the fields to reduce their need for food; 'our trousers were like a map of Europe, they had so many patches'!

Memories of poverty, however, were balanced with accounts of community cohesiveness and closeness, which is also reflected in the architectural remains of Mandres village: a close-knit cluster of small stone dwellings surrounded by a vast array of threshing floors, where families would have laboured, side by side, summer after summer. The agricultural life of the region was not, however, completely displaced by mining and industry: the two co-existed, with many families doing mining jobs at the same time as working their fields or vines.

The contrast between the traditional form of the rural villages of the Survey Area and the ordered regimes of social control of the colonial mining companies is most clearly illustrated by the remnants of the Skouriotissa mining settlement (TP107). This now abandoned workers' housing complex consists of a grid of freestanding, duplex workers' houses, known locally simply as 'Spitia' or 'Exinda Spitia' ('The 60 Houses'), occupied from the 1920s to the 1970s. Even though occupied for around 50 years, this settlement did not develop into a living community territory, despite the creation by the British of a new 'Skouriotissa territory' in 1931: the surrounding traditional village territories persisted, continuing to define concepts of belonging in the Karkotis Valley landscape (Given 2005b).

What was perhaps transformed irrevocably in this period was people's perceptions of the quality of their previous rural, often largely subsistence lifestyle, with little access to cash or a broad range of material possessions. What in other parts of the colonial world is described by archaeologists as an explosion of 'things' (goods, commodities, material culture) brought about by the expansion of global market capitalism, leaves but subtle and enigmatic traces in our Survey Area. Two of the most significant modern commodities consumed throughout the Ottoman empire from the 17th to well into the 20th century are tobacco and coffee. The key material correlates of these, as identified by Baram (1999), are chibouk tobacco pipes and Kütahya coffee cups. Only one fragment of each of these items was found in our Survey Area. In the SCSP survey area nearby, only three tobacco pipe fragments and no Kütahya coffee cup sherds were found. While we might expect to find these items in larger numbers associated with the excavation of urban sites, they are also known from surveys (e.g. Saidel 2008).

As discussed earlier, the meaning of this absence is a tantalising problem. Perhaps it needs to be taken at face value, as suggested above, and the role of material culture as an archaeological indicator in these rural environments needs to be more carefully interrogated. Do behaviours change in this period, creating a different archaeological signature? As we discussed in relation to the Asinou Valley, areas of seasonal occupation may not yield the usual density of pottery simply because a different lifestyle was practised there, which did not involve the use or transport of ceramics. There is little evidence in the survey record of an expansion, or major change, in access to a wide range of material culture forms and commodities that might have occurred under British administration in the late 19th and early 20th centuries; however, a heavier reliance on imported wares (from the nearby region) than local products is noted. Even today, we observe that in these rural contexts, material culture items, such as glass bottles, are often not thrown away, but re-used for purposes such as food storage or votive offerings at the dozens of small local shrines. A fertile field for future research will be the exploration of commodities and material culture, and in particular their interrelationship with changes in identity formation and social structures, in the context of British colonial rule and the experiences of modernity and globalisation in the eastern Mediteranean.

6. Conclusions: Interactions in the Cypriot Landscape

Michael Given

In the course of two volumes we have engaged with a highly complex landscape, exploring human practices and society across ten millennia, and unpicking the intricate networks of interaction that embrace people and every aspect of the landscape in which they live. This chapter explores these more theoretical research themes, using brief examples and cross-references to substantiate them. It is not a period conclusion: see Chapter 5 for period-specific overviews and analyses, and Volume 2, Chapter 6 for a brief chronological summary. Similarly, see Chapter 3 for summaries and analyses of the different classes of material culture, and Chapter 4 for an environmental analysis.

This conclusion provides one specific perspective on the TAESP landscape. It cannot, however, represent the full range of landscape immersion and engagement experienced by our 94 team members over five years of fieldwork and some seven years of reflection and analysis. TAESP in the broadest sense consists of the complex patterns created by the interaction of our team members with each other, with the many others who have contributed to the project, with the archaeological and environmental material, and above all with the landscape. That is best demonstrated in the multi-authored area chapters of Volume 2, which are fully grounded in our fieldwork, landscape experience, and interaction in the field.

This chapter begins by reflecting on the social role of the material culture which surface survey engages with, particularly slag and surface artefacts, and builds on that to interpret past human practices and experiences in the landscape. We then focus more specifically on movement and interaction as the key to understanding the relationship between landscape and society, and develop that into an analysis of the interaction between people and environment. We finish with our own evaluation of the project, asking how well it has answered its initial research questions, and assessing what we have contributed to the knowledge and understanding of the landscape, in Cyprus or anywhere else.

6.1 The Material Culture of Survey

Even more than excavation, surface survey deals with the detritus of human society: broken pots, debris from making chipped stone tools, slag from copper smelting, and all manner of fragmented material culture. This material can of course be very illuminating about the changing character and organisation of human society, and throughout these volumes we use straightforward functional analysis to reconstruct specific human activities in the landscape. Variation in the pottery across the small Bronze Age settlement of Mandroudhes, for example, suggests different areas for storage, food processing and eating (Volume 2, Chapter 2.9).

But is 'discard' the end of the social life of these materials? Studies of prehistoric accumulation of 'waste', such as British Mesolithic middens (Cummings 2003; Warren 2005) or South Indian Neolithic ash mounds (Johansen 2004) suggest not. Ongoing discard practices gradually accumulate and become striking structures in their own right, composed of materials that come directly from the social and material life of the community. They become 'visible histories of actions' (Warren 2005, 124), and continuing deposition makes them into 'persistent places' (Cummings 2003, 79) that create and maintain community identities and values.

The most striking parallel to such discard practices in the Cypriot landscape consists of the massive Late Roman slag heaps, particularly Skouriotissa, which originally held some 2 million tons of copper slag (Fig. 6.1; Volume 2, Chapter 3.12). Our analysis of the surviving

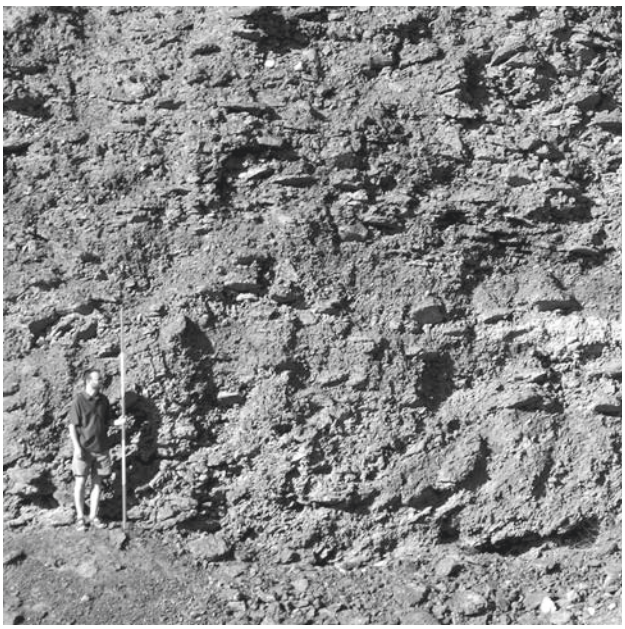


Fig. 6.1. Skouriotissa Vouppes *slag heap (TP007.AU01) (Michael Given)*

sections shows the very substantial effort that went into controlling and maintaining these monumental structures, from breaking up slag cakes or using them for retaining walls, to levelling out workshop floors on the debris from previous smelts. But the interpretation of the materials and debris of ancient metallurgy cannot be limited to an easy functionalism (Topping and Lynott 2005, 187–88). Each individual slag cake, along with the lump of matte that would have been separated out from it, is the direct result of the hard labour and skilful practices of a team of smelters. Quite literally, they build on the efforts of their predecessors, and each team makes another contribution to the growing slag heap that is the consequence of their work. This stands as a monument to the teamwork, pride, labour relations, physical oppression and coercion that have constructed it. Its very existence constrains future workers to the same pattern of work and production, unless they can resist its pressure and develop new technologies and new relationships.

Like all monuments, the slag heap has a continuing agency and biography. It gave a name and identity to the neighbouring church and monastery of Panayia Skouriotissa ('Our Lady of the Slag Heap'). It provided a very characteristic building material to mark out threshing floors, and to create local terrace walls for agriculture, or retaining walls for the 20th-century mining headquarters that replaced the monastery. Today, when painted army-white, slag cakes and slag walls help to maintain both the military uniformity and the local character of the mining headquarters' successor, the United Nations San Martin Camp immediately opposite the slag heap.

Surface pottery is the bread and butter of Mediterranean survey projects, and is used ubiquitously throughout these volumes in the attempt to interpret and understand human activities in the landscape, from intensive agriculture and cooking to seasonal settlements and long-distance exchange. As with the slag heaps, pottery is more than just an indicator of its pre-depositional function. Sherds on the surface or turned up by the plough have their own materiality and social relevance.

The 'core territories' and 'community territories' that we have detected from the Prehistoric Bronze Age (Chapter 5.1) to the Medieval and Ottoman periods (Chapter 5.4) are marked out by the pottery discarded across the fields, as domestic waste or in manure, as accidental breakage or any number of other informal or intentional phenomena. These sherds reveal themselves not just to survey archaeologists but to any agricultural society closely engaged with the land and the soil. Several villagers told us about seeing distinctive pottery in their fields; one could even distinguish her own land by recognising her family's discards from years before. As a striking example from Roman Bossington in southern England shows, this process of 'entexturing' the ploughsoil can be a direct means of social expression (Evans 2007). By seeding your arable land with recognisable fragments of your household, you are using them to propagate that household's continuing growth and development.

In a world not yet saturated by modern synthetic dyes and coloured lights, the colour of material culture played a major and active role in society (Hurcombe 2007, 539; Young 2006, 174). The strong colours of Medieval–Modern glazed pottery stand out clearly in the ploughsoil, and play a strong role in creating the community territories that were so important in these periods (Chapter 5.4; Given 2004b, 175–80). The glazed and painted Table Ware sherds that marked the fields round the Medieval–Ottoman monastery at Asinou create a striking contrast to the earth-coloured storage and food processing wares of the poorer settlement of Khalospities, just 700 m up the valley (Volume 2, Chapter 5.5). The local poor quality red jasper that was used for ad hoc stone tools in the Roman period clearly distinguishes this set of local skills and practices from their prehistoric predecessors (Chapter 3.8), while the strikingly red jasper quarries and manufacturing debris are a strong feature of the Atsas landscape (Volume 2, Chapter 2.7). The walls of basalt river boulders used for the houses at the 19th–20th-century satellite settlement at Mandres are given additional visual structure and impact by the horizontal bands of white calcrete chinking, interspersed by the deep translucent red of jasper (Volume 2, Chapter 2.10).

6.2 Human Practice and Experience

Sherds, slag, lithics, watermills and all the other material remains that archaeological survey teams engage with are the instruments and products of human practice. During almost all periods since the Neolithic, the Survey Area has been a busy landscape full of skilful doing: knapping, pot turning, cooking, ploughing, harvesting, grinding,

Fig. 6.2. Ayios Yeoryios church (BU0088; visible top centre) overlooking the Karkotis Valley, with the Karkotis river channel full of reeds in the foreground. The photo looks to the north-west. (Michael Given)

cutting, mining, smelting and much more. These skills and practices, and the relationship between their various agents, human or natural, are what constitute the landscape and society of the Survey Area. Rather than assigning archaeological identifiers such as 'site' or 'sherd scatter' or even 'settlement', we have tried to focus on interpreting the actual human practices, a process we term elsewhere 'verbing the landscape' (Given *et al.* 2007, section 2).

We have already seen the impact that the accumulation of such practices can have on the landscape, in the form of the massive slag heap at Skouriotissa and the smaller versions elsewhere. Moving some 13 million tons of earth to improve fields, soils and water management in the Karkotis Valley is another example of the characteristic imperial Roman control of human practices on a massive scale (Chapter 4.6). Other sets of practices are at the smaller scale of a community or household, such as the repeated use of saddle querns at Bronze Age Petrera and Mandroudhes, visible in the wear in the stone (Chapter 3.8), or the scratches on the threshing floor at the Medieval–Modern estate of Athassi, evidence of the endless circuits of the threshing sledge (Volume 2, Chapter 4.7). Some sets of practices actually create material culture from scratch, such as a path that develops organically, with people choosing to follow the traces left by those who travelled before them, and ultimately formalizing these practices with retaining walls and shaped surfaces (Chapter 3.13).

These practices are not just the means to a functional end: they connect the different people who carry them out in a complex symbiosis that constitutes social groupings such as household, community and society. Emotions, experiences and personal identities are bound up in habitual practices, and threatened or consolidated by unaccustomed or unexpected ones. At Mylos tou Stylli, for example, the miller felt his own life to be bound up in the fabric, equipment and repeated operations of his mill, and so threatened by the irreparable wear on his millstones (Volume 2, Chapter 3.4). Favourite tools and utensils, a check dam built to provide for a newborn daughter's future dowry, the sense of security that a child gains from hearing the daily grinding of the grain: in each case the practices embody, create and reaffirm identity, memory and belonging, just as they shape human relations and society.

Focusing on human practices gives us an entry point into understanding the past human experience of the landscape. TAESP was not specifically designed as a phenomenological project. But our close engagement with the landscape and careful interpretation of the material and the habitual practice that it represents allow us to investigate the landscape experience of the farmers, miners, dwellers and travellers within the Survey Area: we can begin to characterize their 'complete bodily immersion in the world' (Thomas 2012, 175). For a smelter at Roman Skouriotissa, this world consists of the nauseating stink and blast of heat from the furnace, his aching muscles from pumping the bellows, the texture of the water jug on his lips, the contrast with the lives of his managers and foremen, his dependence on the supply chain of mass-produced grain

and oil. For a serf on the Medieval estate of Phlasou, her immersion is in the soil and water that dominated each day – the rich alluvium and water channels of the estate's land on the valley floor, and the thin colluvial soils in vestigial terraces on the hillslopes that she used for her family's subsistence (Volume 2, Chapter 3.3).

Part of the sensory experience of the landscape was of course visual. At one level colours and materiality play an important role in creating experience, as discussed in the previous section. Visuality, like routine practices, could also be controlled. The Roman copper production landscape in the Lagoudhera Valley was very distinctive for its vantage points covering all major working areas, both smelting and mining (Volume 2, Chapter 4.4; see similar studies by Mattingly 2010, 193; Yekutieli 2006). A feature of the Karkotis Valley in the Medieval–Modern period is the series of churches on spurs along both sides of the valley: they overlook the productive landscape of estates, terraces, fields and watermills (Fig. 6.2), and are in clear contrast to the estate churches on the valley floor, which in the course of the Late Medieval and Ottoman period developed into village churches. Like the hilltop landmark sites of 12th century BC Crete, they disperse monumentality across the entire region, rather than restricting it to centralised elite settlements, giving a broader sense of security and regional identity (Wallace 2007, 259–61).

Our own experience of the TAESP landscape, supported by an extensive theoretical literature (e.g. Rainbird 2008; Skeates 2010), stressed the importance of the non-visual senses in interpreting human experience of the landscape. The importance of the 'acoustic community' as a unit of analysis (Smith 1999, 46) is particularly clear. In Chapter 5.4 we reconstruct the different activity zones that make up community territories in the Medieval–Modern periods, using their characteristic background sounds. The same could be done for the quernstones of the Bronze Age settlement of Petrera (Volume 2, Chapter 2.14), or for the peripheral section of Prehistoric Bronze Age Koutroullis used for the manufacture of chipped stone (Volume 2, Chapter 3.5). As well as background sounds, specific sound-marks impinge on the consciousness more immediately, such as the bells on Catholic churches, or the metal or wooden bars used for the same purpose in Orthodox churches, or the muezzin's call to prayer. For mixed villages such as Phlasou, the acoustic community is formed by the syncopation of several of these (Given and Hadjianastasis 2010, 58).

As with sounds, background smells play a very different role to acute or dynamic smells (Bartosiewicz 2003, 188), and can form an important part of household and community identity. Freshly ploughed earth, freshly ground flour and freshly cooked food carry strong associations of nourishment and security. Settlements are distinguished from outfields and grazing land by the smell of cooking fires, faeces and penned animals. This makes the isolated farmsteads of the Atsas Valley in the Roman period stand out from the empty, semi-arid land around them, and provides a great olfactory contrast with the much more densely settled Karkotis Valley over the watershed to the west (Volume 2, Chapter 2.7). The richness and power of the perennial Karkotis River, which form a central theme throughout these two volumes, is strongly evoked by the smell of myrtle and moisture in the river channel (Fig. 6.2), and contrasts powerfully with poorer valleys, including the Atsas, or the Mesaoria Plain.

Acute or dynamic smells, by contrast, can push people outside their familiar social frame of household or community: a house burning down, major illness in a family, the stench of roasting and smelting copper ore. These in turn help to distinguish different social roles: to the visiting doctor Galen the smell of the mining galleries was 'stifling and oppressive'; but to the 'naked slaves' who carried the amphorae it had become a background smell which contributed to their own very different identity and social position (Volume 2, Chapter 3.12).

6.3 Movement and Interaction

Human mobility is fundamental to our understanding of the TAESP landscape. What Forbes (2007a, 132) terms the 'ethos of mobility and impermanence of residence' for 19th century Methana in Greece is now widely recognized as characteristic of Mediterranean landscapes across many periods (Horden and Purcell 2000, 266–67; Knapp and van Dommelen 2010). This makes the material culture of movement, in the form of roads and paths, an essential part of our analysis (Chapter 3.13). Oral history also helps to dispel assumptions of 'isolation' or 'remoteness', for example the many stories of mountain dwellers continually on the move with their goats, or taking cheese and firewood down to sell in the villages on the plains (Volume 2, Chapter 5.7). At an industrial scale, we estimate that providing the charcoal for copper smelting at Mavrovouni required some 660,000 donkey journeys (Volume 2, Chapter 4.6).

The significance of mobility in the Mediterranean landscape means that traditional 'settlement pattern' analysis, with its implications of static, unchanging and precisely delimited settlements, is wholly inadequate (Wandsnider 2004, 50–53). Rather, these settlements formed nodes in complex and flexible networks of movement and interaction. The community territories that we discuss above are the zones in which the most intensive communication and movement take place, but there are many other nesting zones of interaction: river valley, foothills, the northern Troodos, central and northern Cyprus, the island, the Mediterranean. Even settlements themselves can move, gradually shifting as they expand, contract and change focus. Medieval–Modern Phlasou is our main case study of that phenomenon (Volume 2, Chapter 3.8; Given and Hadjianastasis 2010).

Seasonal rhythms of movement are particularly significant in the Survey Area, from the Aceramic Neolithic to the mid-20th century. These are very evident on the drier plains; we give an overview in Volume 2, Chapter 2.17.

Most striking are the Late Ottoman and early 20th-century satellite settlements such as Mandres, Lemonas and Ayios Georghios Kafkallou (Volume 2, Chapters 2.7, 2.10, 4.9). People from a variety of mountain villages made use of these satellite settlements during the ploughing, sowing, reaping and threshing seasons to produce their grain. They made up very different communities from the standard village, with their own practices, relationships and material culture. Lemonas has very little Cooking Ware, for example, and so the homely smell of cooking was that much rarer (Volume 2, Chapter 2.7; see also Volume 1, Chapter 3.4). Other examples are the Aceramic Neolithic summer cereal harvesting area of Kambos tou Lemonari (Volume 2, Chapter 2.13), and perhaps mines and smelting workshops such as Alestos in our area, and Protohistoric Bronze Age Phorades to the east (Volume 2, Chapter 4.3; Knapp 2003, 569).

All of this movement and connectivity implies interaction, within and between households, communities and regions. Paradoxically, it is only by investigating these flows and interactions that we can understand how particular places are constituted by the people who engage with them (Rowlands 2010, 234). The Skouriotissa slag heap, for example, is a product not just of the workers' labour but of the mining, ore transporting, collection of flux and fuel, provisioning through the many estates and farmsteads in the Karkotis and Atsas Valleys, and ultimately of the network of interactions that converts the matte into copper, casts it as bronze statues or coins and distributes it across the Mediterranean. Interactions are material: they are enacted through meaningful artefacts, structures and places; out of these engagements new identities and relationships are constantly being formed (Knapp and van Dommelen 2010, 5–6). Survey archaeology, with its particular sensitivity to spatial relations and connections, is ideally placed to interpret the landscape as a complex network of interaction (Smith 2003, 77).

At the most basic level, imported artefacts are witnesses to the long chain of interaction and connection that brought them to their final destination: the imported high quality Lefkara chert used for tools even from the Neolithic (Chapter 3.8); a piece of African Red Slip in the supposedly isolated mountains at Asinou (Chapter 5.3); a tobacco pipe from Istanbul and a coffee cup sherd from Kütahya (Chapter 3.6, TCP571, TCP325). Our earliest identified settlement, Koutroullis, is clearly well connected to surrounding regions, particularly in its acquisition of Lefkara chert (Volume 2, Chapter 3.5). The complexity of all these linkages is abundantly clear in the Bronze Age, with a well-connected network of activity areas with different roles and functions (Chapter 5.1): this is much more meaningful than dots on a map of 'settlements'.

Interaction leaves its traces not just in artefacts but in an elaborate infrastructure, which itself brings about further interaction. Medieval–Modern paths are intertwined with terraces, field houses and settlements, and so facilitate communication between travellers, dwellers and cultivators

Fig. 6.3. Track entering the Ottoman–Modern satellite settlement of Kato Koutraphas Mandres *(TS07), looking south-west towards the Troodos foothills. On the left a eucalyptus tree shades a threshing floor (Patricia Anderson)*

(Fig. 6.3). The practices involved in their maintenance can construct cooperation and community, or alternatively they may embed an estate's hierarchy and labour structure into the landscape (Volume 2, Chapter 5.6). Travellers are also 'wayfinders': their bodily experience of the route is an immersion in a world of landmarks, sound-marks, even smell-marks (Ingold 2000, 242; Witmore 2006, 276–77). The Ottoman-period *khan* or inn provides such markers to villagers carrying produce down the Karkotis Valley to the plains (Chapter 3.11); so too do bridges (Chapter 3.11) and storage facilities (Volume 2, Chapter 5.3).

Other interactions are embedded in the immensely complex Medieval–Modern system of irrigation channels, which structured relations between communities, mill owners and landowners, and needed constant negotiation and attention (Chapter 3.12). Some agricultural structures and fields are explicitly relational, in that they demonstrate relationships between different members of a family (Forbes 2007b, 286–342; Thomas 2012, 177). Examples are fields divided between heirs (Given 2002, 18–19), or the check dam mentioned above, built at the birth of a daughter to provide her future dowry.

An important principle of using interaction to interpret a landscape is that not everyone has the same opportunities to interact (Smith 2003, 71). Not just social structures but also the landscape itself can constrain movement and interaction. As we have already seen, the existing slag heap at Skouriotissa strongly constrained the actions and decisions of the smelters: this obviously affects functional issues of managing the pile, but it also creates and maintains the inequalities between smelters, foremen and managers. Similarly, paths are often created organically by a series of walker's choices, and as their imprint becomes stronger they direct future walking. Different actors have

different capacities to transform these existing paths: local cultivators can build a retaining wall, or an estate can reroute it entirely. The British colonial road of 1900 cut across the paths that characteristically ran along the river valleys, and set up a new set of communications and interactions that suited their control of the land better than the daily practices of its inhabitants (Chapter 3.13).

Weirs, bridges, mills, settlements, viewpoints, tombs, estates, sanctuaries, military posts and churches are all strategic spaces for controlling communication and labour: they channel the practices and interactions that create those spaces, but also provide focuses for the ongoing negotiations and contests which challenge those spaces, and so change future practices and interactions. This is how the Medieval estate chapel at Phlasou – and many other such chapels – was gradually transformed by local workers and inhabitants into a church that maintained and represented the entire community (Volume 2, Chapter 3.8).

This last example shows how these networks of interaction cross time as well as space (Witmore 2007). In a continual recursive development, practices shape space, the space then shapes the practices, which reshape the spaces, and so on (Smith 2003, 72). This is very clear in the richness of references carried by the copper slag, from extraction processes and industrial relations to the monastery of Panayia Skouriotissa, colonial road metalling and white United Nations walls. Prehistoric ground stone shapes Ottoman and Modern house walls at Lemonas and Mandres (Volume 2, Chapters 2.7, 2.10), while at the latter water jugs and Shell oil cans become chimneys. A former goatherd tells us about sheltering in the ruins of Medieval Aspri; Roman mountain structures such as Trimitheri are reworked in the Ottoman period as goatfolds (Volume 2, Chapter 5.4). The material remains of the past suddenly enter a new network of relationships, thus connecting what we would separate as different periods (Witmore 2007, 204–205). Our own archaeological encounter with these remains does the same thing, and draws us too into yet another new network of interactions.

6.4 People and Environment

Another player in these networks of interactions is clearly the environment. In the language of our initial research aims, written in 2000, our full integration of archaeological and geomorphological research allowed us to investigate and understand the dynamic two-way relationship between people and environment (Chapter 1.1). This we have certainly done. The impact of human society on the landscape is abundantly clear during all periods, as seen, for example, in Bronze Age clearances for agriculture, or the massive reconfiguration of the hydraulic system of the Karkotis Valley in the Medieval period.

Most striking is the dual Roman project of industrial scale copper mining (Volume 2, Chapter 3.12) and land levelling (Volume 1, Chapter 4.6). The land levelling operation to create fields for the mass production of food to support the mining operation moved some 13 million tons of earth, a project on the scale of Khufu's pyramid. The environmental impact of the mining, smelting and fuel supply activities represented by 2 million tons of slag at Skouriotissa is abundantly clear from the local pollution it caused (Chapter 4.8; Volume 2, Chapter 4.8; Pyatt 2001). The same applies to charcoal production: our species analysis shows that the exploitation of fuel sources for charcoal had clearly caused substantial deforestation by the Archaic period, hence the use of maquis species. This was only solved for the even larger scale Roman period production by a much more extended supply chain (Chapter 3.10). As at the contemporary, and much smaller scale, mining operation at Wadi Faynan in Jordan, the landscape was 'systematically organised and comprehensively despoiled by the Romans' (Mattingly 2010, 193).

Similarly, the impact of the environment on people is clear at all periods. The most striking example of this is the contrast between the water-rich Karkotis Valley and the much poorer valleys to the east. The Karkotis River supported riverside settlements in the early phases of the Prehistoric Bronze Age (Volume 2, Chapter 3.5), the industrialised agricultural system just mentioned, and commercial cash cropping during the Ottoman period (Chapter 5.4). Agriculture in the adjacent Atsas Valley was typically limited to isolated farmsteads dependent on springs, such as at Vrysi tou Haji Christophi, or seasonal settlements where most of the living and water use actually took place in mountain villages (Volume 2, Chapter 2.7). Many other examples appear throughout both of these volumes.

Twelve years of engaging with the landscape and with newer theoretical developments suggest that this 'two-way relationship' indicates a very restricted understanding of the landscape: on one side a thin account of what people have done to the land (Thomas 2012, 167–68); on the other a thinly-veiled environmental determinism that still underlay much GIS analysis in the 1990s (Conolly and Lake 2006, 179–80; Gaffney and van Leusen 1995). The core problem here is the continuing power of the nature/culture dichotomy that still underlies so much of the landscape literature. Notions of 'culture' and 'intentionality' imply that only humans can have agency, with 'nature' as a passive backdrop, the object of that human agency (Plumwood 2006). It is much more productive to transcend that binary opposition and investigate the close and continual relations and interactions between humans, animals, plants, environmental processes and even colours (Baldwin 2006, 15; Thomas 2012, 172; Young 2006, 181).

Landscape, then, is relational. It cannot be limited to landforms and habitats, or settlement patterns and field systems, or human perceptions and imaginations: it is rather the complex of relations and interactions that knit together all of those (Smith 2003, 75–77). Humans are important players, for the sheer physical impact they can have on the others, and because of the power of their imagination and interpretation. But so are

animals, which have their own social complexities and cultures, and environmental processes, from floods and earthquakes to soil creep, plant decay, prevailing winds. Our aim is to allow agency to all of these, to investigate the complex web of interactions that knit them together, and, in particular, to follow the mutuality, co-agency and 'collaborative landscapes' that these relationships often produce (Baldwin 2006; Plumwood 2006, 125).

The northern face of the Troodos Range has some powerful environmental agents, from the slow forces of erosion and channel incision to catastrophic landslides, such as the one that collapsed a mountain top in what is now the Asinou Valley (Volume 2, Chapter 5.2). One such agent is the thick deposit of marine and terrestrial sediments that filled the Lagoudhera Valley's much larger predecessor, and supported the development of unusually rich and fertile soils, compared to those formed on the surrounding ophiolite (Volume 2, Chapter 4.2). Much of this deposit was subsequently scoured out by another powerful agent, namely erosion. By the time of the mid-Holocene, the results of these two processes were interacting with different groups of people in very different ways: the erosion laid bare the underlying pillow lavas, which miners could exploit for copper production, while the areas to the west and north that escaped the worst of the erosion supported crops with a higher yield and greater resistance to drought. These interactions are further complicated by necessary relations between farmers and miners, the control that check dams and terraces held over erosion, the pollution of agricultural land by the smelting process, and a host of other such agents.

Water is another powerful agent in the TAESP landscape, driving agricultural production, family life, watermills, copper production and religious belief (Fig. 6.4). Even so, it is itself constrained by a range of other agents, from physical relief and evaporation to landownership and theft. The water landscape is dominated by the perennial Karkotis River, with its large and steep catchment on Mount Olympus. From the Roman period onwards, settlements jostled to acquire its water; the further they were from it, the higher up they had to tap into it, with channels and canals even crossing into adjacent drainages (Volume 2, Chapters 2.2, 2.17). By the Late Medieval period, this had evolved into a hugely complex water-sharing system that is still partially in force today, with different settlements and landowners taking different quantities at different times of day or night, on a fortnightly rota (Chapter 3.12). The interaction that constituted this system was carried out orally and physically: it was played out in constant negotiation and contestation, interleaved with the material culture of channels, weirs, sluice gates and ad hoc aperture measures such as hoe handles; but the most significant player was the water itself.

The agency of environmental processes, fauna and flora, and the constant interaction that humans have with them, is not just a modern theoretical construct. Countless human cosmologies have conceptualized animals, plants, water and climate events as spirits or deities with whom people must interact in certain ways. In the Australian Aboriginal Dreaming, for example, there is no conception that 'nature' is a passive object on which human 'culture' leaves its mark (Bowie 2006, 107–32). The deforestation in the Cypro-Archaic period, discussed above, clearly coincides with a massive resurgence in the cult of the vegetation god, closely related to the Phoenician Baal. Terracotta groups showing masked figures dancing round sacred trees were dedicated at sanctuaries such as Pano Limna, immediately opposite one of the mines that caused the deforestation (Volume 2, Chapter 3.11, with references to parallels across Cyprus). The complex interaction between charcoal production and vegetation change has been recast as the actions of a god who can be angered or appeased by human action.

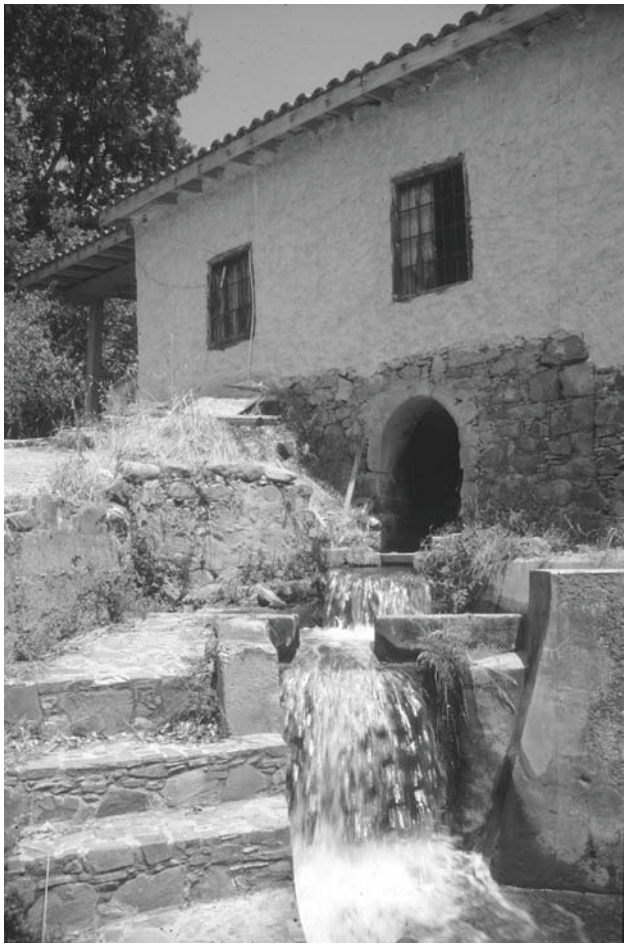


Fig. 6.4. Water outflow from Mylos tou Stylli (BU0049) (Michael Given)

One of the most dramatic ways in which non-human agency can be demonstrated is in extreme weather events such as storms and floods – all the more dramatic when climate change increases their frequency and severity. As boulder bars and flood deposits show, this was certainly one of the effects of the Little Ice Age in the Survey Area. Just 150 m downstream from one of these boulder bars

deposited by an enormously powerful flash flood in the Little Ice Age, Molos watermill stands right on the banks of the Karkotis River (Chapter 3.11). Its vulnerability to such floods becomes vividly clear in its dedicatory inscription, dated to 1690, the peak of the Little Ice Age. Using cryptograms on either side of an incised cross to increase its apotropaic power, it quotes from Septuagint Psalm 28 (29 in Western numbering): 'The voice of the Lord is over the waters'; and 'The Lord will settle the flood' (Chapter 3.11). Just as in Early Medieval Europe, this was 'a world in which "aery demons", the agents of Satan, were an ever-present reality' (Moreland 1999, 196). The demons were not just in the air but the water, as is emphasised by Orthodox exorcism texts (Stewart 1991, 217–18). This is more than a network of interaction: this is an all-out war between the demons who ride the flash floods and the god whose voice is 'over the waters', summoned to help by the cross and cryptograms of the mill's inscription.

The agents of the TAESP landscape range from valleys and fills with their slow biographies to cataclysms such as floods and landslides; from wild plants providing food or fodder to the donkeys that carried charcoal to the smelting workshops; and from the empires of Rome or Istanbul to villagers cooking bread for their families. There are clearly some major dissonances in these interactions: the copper that poisoned the soil round Skouriotissa and Mavrovouni; or the flash floods that wiped out bridges and houses. But more often we see 'collaborative landscapes' (Baldwin 2006; Plumwood 2006, 125), particularly when we adopt the long-term view that archaeology, geomorphology and our other disciplines give us. All of these agents have interacted to provide a relatively productive co-existence over millennia, led by water, soil, food and human society.

6.5 Evaluation and Conclusion

A core part of any research project is the evaluation of its success, in particular its success in addressing the initial research questions. In this section we first evaluate our methodology, and then assess how well we have been able to address our initial aims, as laid out in Chapter 1.1. We then make some suggestions about how future research might build on what we have achieved.

In general our core methods of intensive fieldwalking, fully integrated geomorphological analysis, the collection of a representative sample of artefacts, and GIS analysis are well-tried in Mediterranean survey archaeology (Chapter 2.1–2.3). We have found that testing our methods with ploughsoil and in particular seeding experiments has been extremely helpful: working them into our artefact density analysis has made a considerable improvement over the methodology of the Sydney Cyprus Survey Project, our previous field undertaking (Chapter 2.8–2.10). The value of integrated geomorphological analysis can be seen throughout the landscape interpretations of Volume 2; a specific example is the discovery of Roman settlements by identifying soils composed of melted mudbrick (Volume 2, Chapter 3.11).

Our nuanced GIS analysis has allowed us to detect, among many other examples, the very faint traces of a network of small Bronze Age agricultural settlements on the Plains (Volume 2, Chapter 2.11). Similarly, it has given us an idea of the level at which sherd densities can be termed significant in our area. In the Prehistoric Bronze Age, densities of just 1 sherd/100 m^2 contributed to the identification of the network just mentioned (Volume 2, Chapter 2.11, Plate 2.10). In the Iron Age the Karkotis Valley has a maximum of 5.6 sherds/100 m^2 – worryingly low by later standards, but clearly meaningful for the Iron Age. In the Roman period, by contrast, 5 or 10 sherds/100 m^2 often represents intensive cultivation, manuring or dumping outside settlements, while over 20 sherds/100 m^2 implies more concentrated human activity such as a settlement. The peak is a massive (for our area) 235 sherds/100 m^2 at Mavrovouni (Volume 2, Chapter 4.6).

One area that presented particular methodological challenges was the mountains, with steep terrain, thin soils and thick coverings of pine needles. Our various experiments with raking away needles to expose the ground were not a success (Volume 2, Chapter 5.1), and led to a rethinking of our work in the mountains. Land use practices such as pastoralism, cultivation in pocket terraces, and resin tapping, along with their material remains, were starkly different from those located in the often heavily cultivated fields on the valley floor. A sherd found on a mountain slope in the Asinou Valley held a very different meaning in the lifeways of the person who deposited it than one located in the cultivated fields of the fertile Karkotis Valley. In response we shifted our gaze from the steep ground covered in pine needles and from our search for surface artefacts and turned to the surrounding landscape and its other material indications of past human interaction. We therefore propose a mountain methodology consisting of intensive survey in targeted areas, systematic recording of the many other traces of human activity, such as check dams, isolated structures, paths and resin scars, and intensive bodily engagement with the mountain landscape (Volume 2, Chapter 5.10).

One of the biggest challenges to Mediterranean intensive survey projects is the contentious claim that they cover such small areas that they can only ever provide local descriptions, rather than regional analyses (Blanton 2001; Kantner 2008; Kowalewski 2008). Tartaron (2008, 89–93) has given a very persuasive critique of that position, and our own response is explained in Chapter 2.2. Our results show that careful sampling and attention to a broad range of analytical scales does indeed make it possible to use intensive survey for regional analysis. This is clear from our analysis of social development in the northern Troodos and in Cyprus as a whole during prehistoric periods (Chapter 5.1), or of regional exchange in the Hellenistic–Roman periods (Chapter 5.3), or from our analysis of regional

variation in the organisation of threshing sledge flake production across Cyprus (Chapter 3.8).

So how have these methods enabled us to answer our initial research aims, set out in Chapter 1.1? Looking back at them after some twelve years, the main observation is how much our understanding has moved on. Those aims used the language of 'landscape factors' versus 'environmental factors', with the former glossed as 'settlement patterns, site hierarchies, land use patterns' – such terms are themselves far too static to do justice to our current analysis. As discussed in the previous section, this binary division is totally at odds with our interactive and relational view of landscape where environmental processes have as much agency as human individuals. In other words, we have transcended the landscape understanding of our first three research aims, as can be seen in the analysis of irrigation, control and the experience of the serfs in the Medieval estate of Kato Koutraphas (Chapter 5.4), or the power and agency of water discussed in the previous section.

The last three research aims are more specific (Chapter 1.1). The social role of resource exploitation is discussed throughout the two volumes, for example seasonal foraging and ad hoc tool manufacture on the plains in the Aceramic Neolithic (Volume 2, Chapter 2.13), copper mining in the Roman period (Volume 2, Chapter 4.8), and forest products in the Ottoman and Modern periods (Volume 2, Chapter 5.7). The relationship between landscape and imperialism is particularly striking in the massive copper mining and land levelling operations in the Karkotis Valley during the Roman period (above; Chapter 5.3), and in the British colonial period, where much of it was played out on the roads, paths and bridges of the Survey Area (Chapters 3.13, 5.4). As this demonstrates, our analysis of communications is not just limited to trade and exchange based on the distribution of imported materials such as lithics (Chapter 3.8) and pottery (Chapter 3.1–3.5), but on people's bodily experience and interaction on the roads and paths that are the material culture of communication (Chapter 3.13). Communication and interaction have developed from being one of six research aims to a core insight providing an analytical focus across all areas and periods.

There have of course been some disappointments. We found only the slightest indications of Bronze Age copper production, even though Lead Isotope Analysis indicates that the region around Skouriotissa may be the source of many of the known ingots (Chapter 3.9). Our intentions to pin down the relationship between low density sherd scatters and manuring practices were not realised, though we have plenty of good candidates, particularly in the Roman period in the Karkotis Valley (Volume 2, Chapter 3.16). In spite of several attempts we were unable to draw an ethnographer into the project to examine the relationship between our team and the wider community and landscape. Our database worked very well for data entry, management and export, but we did not use it as fully as we might have for queries, which tended to be few and rather unsophisticated. This is not an uncommon experience (Llobera 2011, 206); part of the problem is that specialists are often not used to creating complex queries, particularly when comparing their own data to other data sets.

On the other hand, we have had plenty of unexpected results. Highlights include areas of seasonal foraging and ad hoc tool manufacture in the Aceramic Neolithic period (Volume 2, Chapter 3.13); a securely identified Roman chipped stone tool industry (Chapter 3.8); and the sheer complexity of seasonal activity across our landscape (Volume 2, Chapter 2.17). Indeed, one of our key conclusions, which we were not at all expecting, is the common dislocation between agricultural production and settlement: at many different periods the landscape was organised in terms of different and often distant activity areas, satellite settlements, production centres and distributional systems. This required extensive, continual and systematic mobility. The stereotype of the static settlement that concentrates all of people's activities is wholly inadequate at any period – in spite of the appearance of 'settlement patterns' and 'site hierarchies' in our research aims.

There is much still to do. Our mountain methodology could be developed to carry out more targeted or higher altitude survey. Our data and that of the Sydney Cyprus Survey Project (Given and Knapp 2003) could be combined with data from other survey projects to do a landscape interpretation of the entire island (in the spirit of Alcock and Cherry 2004). The Bronze Age needs more work on patterns of mobility and connectivity, while the Iron Age needs further study of utility wares, to address the question of why we have seem to have so little in our Survey Area, in spite of the proximity of the city of Soloi (Chapter 5.2). Even though our area has escaped the worst of the construction and development seen on the southern and western coasts of Cyprus, these still form a major threat, as they do throughout the Mediterranean (Cherry 2004, 31), particularly in the form of the bulldozer (Volume 2, Chapter 4.2). In the relatively undisturbed United Nations Buffer Zone, by contrast, our geobotanical analysis worked particularly well, so far as we were able to ground truth it. In a transformed political environment, this could be an excellent cultural resource management tool for this sizeable and uniquely well-preserved stretch of Cypriot landscape.

And, for those who wish, there are plenty of potential opportunities for very rewarding excavation projects: Phlasou *Koutroullis*, a well-defined and significant settlement from the Late Chalcolithic/Prehistoric Bronze Age transition (Volume 2, Chapter 3.5); Kato Koutraphas *Mandroudhes*, a very small Bronze Age agricultural settlement (Volume 2, Chapter 2.9); Katydhata *Pano Limna*, a Cypro-Archaic sanctuary undisturbed by ploughing, with geophysical results suggesting an oval temenos (Volume 2, Chapter 3.11); Linou *Vrysi tou Haji Christophi*, an undisturbed Roman farmstead (Volume 2, Chapter 2.5); Nikitari *Kapsalia*, structures that seem to be the monastery associated with the well-known church at Asinou (Volume

Fig. 6.5. Creating memories and significant places in the TAESP landscape: planting the Cypriot flag; 20 fieldwalkers in an olive tree (Michael Given)

2, Chapter 5.5); Ayios Epiphanios *Arabajis*, a Medieval house with intact floor layers, plentiful pottery and animal bones (Volume 2, Chapter 3.7); and many more.

Looking for excavation sites, of course, was not even an ancillary aim of TAESP. Our key contributions to scholarship consist of our multifaceted engagement with this rich and hitherto little-known Cypriot landscape; our integration of a broad range of interdisciplinary perspectives to offer a more holistic understanding of the landscape; and our insights into the infinitely complex network of movements, interactions and relationships that ties human and environmental agents together and constitutes the landscape. Our team fully participated in this network of interaction, and so has itself become part of the landscape, with its own material traces, memories attached to places, and of course these two volumes (Fig. 6.5). We fully expect that players old and new will continue the communication, movement and engagement that constitute this rich and vibrant landscape of interaction.

Appendix: Pottery Chronotypes

Kristina Winther-Jacobsen, Ruth Smadar Gabrieli, Mara T. Horowitz, Sarah Janes, Luke Sollars and Joanita Vroom

Summary by period

Period – Associated Type Codes

PH – Prehistoric – HU, Sla

CHAL – Chalcolithic – HU, RM, RMCL, RMCS, RMOL, RMOS, ROW, ROWOL, Un

LChPh – Late Chalcolithic/Philia – RM, RMP

BA – Bronze Age – BRX, BS, CW, LU, RS, TW, Un

PeB – Prehistoric Bronze Age – BPO, LU, RM, RMP, RP, RPC, RPC, RPIC, RPIO, RPIOS, RPO, RPOL, RPOM, RPOS, RPS, RPT, RPTC, RPTO, RPTOM, RPTOS, RS

PoB – Protohistoric Bronze Age – BR, BRI, BRII, BRIIC, BRIIO, BRW, BS, BSC, HU, LU, Mo, Pit, RLU, RLUC, RS, WP, WPBC, WS, WSCL, WSCS, WSO, WSOS

PoBAR – Late Bronze Age to Archaic – BS, CW, HU, LU, Pit19, Pit20, RS

GA – Cypro-Geometric to Archaic – BORC, HU, LU, WPC, WPO

GAC – Cypro-Geometric to Classical – Am, Bc, BcB, BcBO, BOR, BORC, BORO, BS, BSC, BSO, CAm, CAmS, CW, CWP, EGAm, HU, LU, LUB0sd4, LUR16, LUR17, LUR18, Per, Pit12, RS, RS, Sh, TW, WP, WPC, WPO

AR – Cypro-Archaic – Am, BS

AC – Cypro-Archaic to Classical – BcC, BORBc, BORC, BORO, CW, HU, LU, Pit, RSO, WPC

HA – Historical Antiquity – Am, Am11, Brk, BS, CW, HU, HUB03, HUR09, HUR16, HUR26, HUR32, HUR33, HUSW, LU, LUR14, (Archaic to Late Roman) LUSW, Pit21, RS, Ti, TiC, TiCS, TiP, TW, U, Un

CL – Cypro-Classical – BOR, BS, RS

CLH – Classical to Hellenistic – BC, BG, BS, Chi, RS, TW

HEL – Hellenistic – Am, BG01, BS, BS01, BS02, CC, CWPR03, CWPR07, CWPR10, FP, Koan, La03, Lag, RB, Rho, RS, TW, Ug, Ug01, Un01

LH – Late Hellenistic – CS18A, CS20, CWFPWh02, CWL03, ESA15B, ESA16, ESA18, ESA20

HR – Hellenistic to Roman – Am, Am01, Am03, Am04, Am06, Am07, Am11, BS, CW, CWFPWh, CWJ04, CWPR, CWPR02, CWPR08, CWPR09, CWPR15, CWPR16a, HU, HUB01, HUB02, HUH01, HUL01, HUR02, HUR03, HUR07, HUR11, HUR12, HUR13, HUR14, HUR15, HUR17, HUR18, HUR19, HUR23, HUR31, La, LU, LUB02, LUR04, LUR06, LUR08, LUR09, LUR11, LUR12, LUR19, Mav, Mav01, Mav02, Mav03, Pit14, Pit16, Pit17, Pit23, RS, SRS, Ti, TiC, TiP, TW, UN02

HER – Hellenistic to Early Roman – Am, BS, CS, CW, KoaP, RS, SRS

LHER – Late Hellenistic to Early Roman – CC, CS, CS01, ESA, ESA04A, ESA22A, ESB, RS, Sig, Sig01, TW

ER – Early Roman – CS04B, CS06, CS10, CS11, CS12, CS22A, CS28, CS29, CS31A, CS40, CS58, CW, CWC, CWJ02, CWJ03, CWPR04a, CWPR04b, CWPR04c, CWPR05, ESA35, ESA48, ESB, ESB09, ESB80, Jug, La01, La02, La04, LU, SigW

ROM – Early to Late Roman – Am, Am05, Am12, Am13, AmSk01, AmSk02, AmSk03, ARS, CW, CWC, CWCR02a, CWCR02b, CWCR04, CWFPWh01, CWPR01, CWPR04, CWPR08a, CWPR17, HU, HUR01, HUR06, HUR08, HUR10, La, La05, LU, LUR01, Pit07, RS, SRS, Ti, TiAn, TiC, TiCA, TiCS, TiP, TW, WaP

MR – Mid Roman – Am02, ARS45, ARS50, Pin

LR – Late Roman – Am, Am08, Am09, Am10, ARS105, CRS, CRS01, CRS02, CRS02X, CRS05, CRS08, CRS09, CRS09A, CRS09B, CRS09C, CRS09X, CRS10, CRS10A, CRS11, CRS13, CRSK01, CRSK01/03, CW, CWCR01, CWCR01a, CWCR02c, CWCR03, CWCR05, CWCR06, CWJ01, CWL01, CWL02, CWL04, CWPDh, CWPR06, CWPR11, CWPR12, CWPR13, CWPR14, CWPR16, ERSAI, ERSAP, Gaz, HU, HUR01a, HUR01b, HUR05, HUR08, HUR10a, HUR10b, HUR20, HUR21, HUR22, HUR24, HUR28, HUR35, LR1, LRC, LRC01A, LRC01B, LRC02A, LRC03, LRC03D, LRC03F, LRC10, LRC10A, LRC10B, LRCA1kn5, LU, LUB03, LUR05, LUR07, LUR13, Mor, Pal, Pit01, Pit10, Pit22, Pit24, RS, Ti, TiC, TiCS, TiP, TiSk01, TiSk02, TiSk03, TiSk04, TiSk05, TiSk06, TiSkC01, TiSkC02, TiSkC03, TiSkC04, TiSkC05, TW, Un

RM – Roman to Modern – Brk, CW, CWB01, HU, HU01, HUC, HUR30, LU, LUR10, Pit, Pit08, Pit09, Pit11, Pit13, Pit15, Ti, TiC, TiCS, TiP, TW, U

HIS – Historical (Archaic to Modern) – Am, CW, HU, HUR25, HUR34, La, LU, LUB01, LUR02, LUR15, Pit, Pit12a, RS, Ti, TiC, TiCA, TiCS, TiP, Tri, TW, U, Un, WaP

BYZ – Byzantine – G02, G03, G06, G07, GS02

MED – Medieval – BGW, CGS02, CGS03, CGS05, CGS07, G01, G02, G03, G04, G05, G07, GS01, GS05, GS07, MP01, Ug, UJa04

MEDOTT – Medieval to Ottoman – BGW, G01, G02, G04, G05, G06, MP01

MM – Medieval to Modern – BGW, Brk, BuH, BuHK, BUJaK, BuL, BuLK, BUPSJa, CW, G, G01, G02, G03, G04, G05, GS, HU, HU04, HUR04, HUR29, ID, ID02, ID04A, LU, LUR03, LUS, MG, MP, MP01, Pit, Pit02, Pit03, Pit18, Ti, Tia, TiC, TiCA, TiF, Tri, Tta, Tta02, TtaB, TW, U, UFB01, Ug, Uja, UJa03, UJa04, Uju, UL02, UL03, Un, Un01, UPSJa, UPSJu

MEDB – Byzantine to Medieval – CGS01, CGS02, CGS03, CGS05, CSP02, G02, G03, GS01, GS02, GS05, MP06, SP02, SP03

MEDF – Medieval-Frankish – CG02, CGS, CGS02, CGS03, CGS04, CGS05, CGS06, CGS07, G01, G03, G04, G05, GS03, GS07, MP01, MP04, SP03

MEDUI – Medieval utility period I – BuLR01, Tta02, TtaB, UAA98, UBR02, UFR02, UJ01, UJ02, Uja, UJa04, UJa06, UL01

MEDUII – Medieval Utility Period II – BGWCC, ID02, ID02A, ID03, ID04, IDWF, Tia, Tia02, Tia03, Tia04, Tta,

MEDUIII – Medieval Utility Period III – Tta02, TtaB, Uja, Uja02, UPSJ01, UPSJa, UPSJu

OTT – Ottoman – G, G01, G02, G03, G04, G05, G06, G07, MP, MP01, MP02, MP03, MP04, MP06, Pipe, Por, PP01, PP05, PP06, SP03, Ug

OTTMODI – Ottoman to Modern I – BGW, BuH, BuL, CGS06, CGS07, G, G01, G02, G03, G04, G05, G06, G07, GS06, GS07, HU, ID02, ID04A, IDSS, IDWF, LU, LUBW, MP01, MP02, MP05, PP06, SP01, SP02, Tia02, Tia03, TiaB, UBR01, UBRB, UFB02, UFR01, Ug, UJa07, Uju, ULSJ01, UPL03, URB01

MEDVOTT – Medieval-Venetian to Early Ottoman – BGW, CG06, CGS06, CGS07, CMP01, G01, G02, G03, G04, G05, G06, G08, GS01, GS05, GS07, GS08, MP, MP01, MP02, MP03, MP04, MP05, PP03

OTTMODII – Ottoman to Modern II – BGW, BGW02, BuH, BuL, BuP, BUPSJa, CGS, G, G01, G02, G03, G04, G05, G06, G07, GS01, HU, ID01, ID02, LU, LUBW, MP, MP01, MP02, MP04, MP07, Pit, Por, PP, PP02, PP06, PP07, SP01, SP02, SP03, Ug, UPL01

MOD – Modern – BG, BGW, BGW01, BGW02, Brk, BuH, BuL, CW, CYW, Dana, G, G01, G02, G03, G04, G05, G06, G07, HU, LU, LUB01, MP, MP01, MP06, Pit03, Pit04, Pit05, Pit06, Por, PP, PP02, PP06, SP, SP01, SP02, SP03, Ti, Tia, Tia02, TiaB, TiCh, TiGr, TiLi, TiMa, Tta, TW, U, UFR01, Uju, WaP

UN – Unknown – CW, G01, G05, HU, LU, Pit, RP, RS, Sla, Ti, TW, U, Ug, Un, Un04

List of Chronotypes

Am01-HR-Tr – Transport Amphora type 1 – Hellenistic to Roman. Solid out-tapering toe with small depression. Fabric related to the Skouriotissa & Mavrovouni amphorae. (TCP010)

Am02-MR-Tr – Transport Amphora type 2 – Mid Roman. Globular amphora from Ras el Basit & environs (Hayes 1991, fig. 69:12; Reynolds 2005, 567, figs 35–36). Form & fabric suggest date from mid-3rd–4th c. AD (Reynolds 2005, 567). (TCP555)

Am03-HR-Tr – Transport Amphora type 3 – Hellenistic to Roman. Out-tapering neck & vertical handles with two vertical ridges. Form & fabric related to Mavrovouni amphorae.

Am04-HR-Tr – Transport Amphora type 4 – Hellenistic to Roman. Narrow base with out-tapering toe with depression. Date suggested by form, fabric & context.

Am05-ROM-Tr – Transport Amphora type 5 – Early to Late Roman. Wide base with small twisted button-toe. Twisted or ribbed style is common (mainly later) Roman phenomenon, especially in East (Peacock and Williams 1986, 198, 204, 206). (TCP542)

Am06-HR-Tr – Transport Amphora type 6 – Hellenistic to Roman. Overfolded rim with elongated angular section. Handle attached below rim. Date suggested by fabric & context. (TCP702)

Am07-HR-Tr – Transport Amphora type 7 – Hellenistic to Roman. Narrow neck & coarse thickened rim in distinctive orange spotted fabric. Form similar to Rautman *et al*. 2003, fig. 5.13 no. 168 of Late Roman period. (TCP245)

Am07-HR-Tr – Transport Amphora type 7 – Hellenistic to Roman. Narrow neck & coarse thickened rim in distinctive orange spotted fabric. Form similar to Rautman *et al*. 2003, fig. 5.13 no. 168 of Late Roman period. (TCP461, TCP597)

Am08-LR-Tr – Transport Amphora type 8 – Late Roman. Out-tapering neck & convex shoulder. Vertical handles with irregular vertical groove similar to LR1, but different fabric. Date suggested by context. (TCP537)

Am09-LR-Tr – Transport Amphora type 9 – Late Roman. Thin-walled, with narrow out-tapering neck & high plain interior & exterior offset rim. Tendency to corrugation. Date suggested by fabric & context. Similar rim of cream coloured clay from Late Roman Resafe (Mackensen 1984, fig. 12: 20). (TCP562)

Am10-LR-Tr – Transport Amphora type 10 – Late Roman. Cylindrical neck with high mushroom rim with concave exterior. North Palestinian amphora of late 5th–7th c. AD (Reynolds 2005, 571–72, fig. 116). (TCP563)

Am11-HA-Tr – Transport Amphora type 11 – Historical Antiquity. Pointed base with pointed solid button-toe/knob.

Am11-HR-Tr – Transport Amphora type 11 – Hellenistic to Roman. Pointed base with pointed solid button-toe/knob. Form similar to Riley 1979, 143: D90, fig. 72, but fabric is different. Possibly Hellenistic. (TCP011)

Am12-ROM-Tr – Transport Amphora type 12 – Early to Late Roman. Self Slip fabric with angular rim, large handles with two vertical grooves just below rim, cylindrical neck. Shape similar to the Roman Beirut amphora type 3 (Reynolds 2005, fig. 68–70), but of different fabric. (TCP297)

Am13-ROM-Tr – Transport Amphora type 13 – Early to Late Roman. Thick-walled & short necked, with heavy short curved vertical handles with a tendency to two vertical ribs. Date suggested by form, fabric & context. (TCP691)

Am-AR-Tr – Transport Amphora – Cypro-Archaic.

Am-GAC-Tr – Transport Amphora – Cypro-Geometric to Classical. (TCP381)

Am-HA-Tr – Transport Amphora – Historical Antiquity.

Am-HEL-Tr – Transport Amphora – Hellenistic.

Am-HER-Tr – Transport Amphora – Hellenistic to Early Roman.

Am-HIS-Tr – Transport Amphora – Historical.

Am-HR-Tr – Transport Amphora – Hellenistic to Roman.

Am-LR-Tr – Transport Amphora – Late Roman.

Am-ROM-Tr – Transport Amphora – Early to Late Roman.

AmSk01-ROM-Tr – Skouriotissa amphora type 1 – Early to Late Roman. From Skouriotissa, with heavy square everted rim, vertical handles with two grooves & solid cylindrical toe/base (Bruce *et al*. 1937, fig. 327). Date suggested by fabric & contexts. Possible rim fragments. (TCP639, TCP661–82)

AmSk02-ROM-Tr – Skouriotissa amphora type 2 – Early to Late Roman. Small, from Skouriotissa. Square everted rim, vertical handles with two grooves & solid cylindrical toe/base. Base diameter <4 cm. Date suggested by fabric & contexts. (TCP357, TCP683, TCP684, TCP685, TCP686)

AmSk03-ROM-Tr – Skouriotissa amphora type 3 – Early to Late Roman. From Skouriotissa, with high, thin, slightly convex rim with flattened top. Date suggested by fabric & contexts. (TCP418, TCP687)

ARS105-LR-TW – African Red Slip ware, form 105 – Late Roman. (Bonifay 2004, 183–85, fig. 98: late 6th–7th century AD; Hayes 1972, 166–69, fig. 32). (TCP341)

ARS45-MR-TW – African Red Slip ware, form 45 – Mid Roman. (Hayes 1972, 62–65, fig. 11: 2nd quarter of 3rd–mid 4th c. AD).

ARS50-MR-TW – African Red Slip ware, form 50 – Mid Roman. (Hayes 1972, 69–73, fig. 12: 2nd quarter of 3rd–into 5th c. AD). (TCP277, TCP300)

ARS-ROM-TW – African Red Slip ware – Early to Late Roman (Hayes 1972, 13–309: late 1st–mid-7th c.). (TCP561)

BcB-GAC-LU – Bichrome Ware, burnished – Cypro-Geometric to Classical. (TCP129)

BcBO-GAC-TW – Bichrome Ware, burnished, open – Cypro-Geometric to Classical. (TCP081)

BcC-AC-LU – Bichrome Ware, closed – Cypro-Archaic to Classical.

BC-CLH-TW – Bichrome Ware – Classical to Hellenistic. (TCP214)

Bc-GAC-LU – Bichrome Ware – Cypro-Geometric to Classical. (TCP360)

Bc-GAC-TW – Bichrome ware, any/unknown.

BG01-HEL-TW – Black Gloss Ware, form 1 – Hellenistic. Small dish with interior offset thickened rim & ring-base. Exterior diameter c. 16 cm. (Giudice *et al*. 2001, fig. 1: 4 (A4); Salles 1993b, fig. 227: 490). (TCP206)

BG-CLH-TW – Black Gloss Ware – Classical to Hellenistic.

BG-MOD-CW – Black Gloss Ware – Modern. Cooking Ware with plain brown, transparent glaze.

BG-MOD-TW – Black Gloss Ware – Modern. Table Ware with plain brown, transparent glaze.

BGW01-MOD-CW – Brown Glazed Ware – Modern. Casserole, with transparent glaze, from Siphnos.

BGW01-MOD-TW – Brown Glazed Ware – Modern. Plain Table Ware, with transparent glaze, from Siphnos.

BGW02-MOD-CW – Brown Glazed Ware – Modern. Casserole, with transparent glaze, imitation. (TCP006, TCP093)

BGW02-MOD-TW – Brown Glazed Ware – Modern. Plain Table Ware, with transparent glaze, from South France?

BGW02-OTTMODII-TW – Brown Glazed Ware – Ottoman to Modern II. Plain Table Ware, with transparent glaze, from South France.

BGWCC-MEDUIII-CW – Brown Glazed Ware with plastic decoration – Medieval utility period III. Vertical handle, glazed, with round section & fine decorative ridge along centre. (TCP298)

BGW-MEDOTT-CW – Brown Glazed Ware – Medieval to Ottoman. Casserole, with transparent glaze.

BGW-MED-TW – Brown Glazed Ware – Medieval. Plain Table Ware, with transparent glaze.

BGW-MEDVOTT-LU – Brown Glazed Ware – Medieval-Venetian to Early Ottoman. Plain Light Utility ware, with transparent glaze.

BGW-MM-CW – Brown Glazed Ware – Medieval to Modern. Casserole, with transparent glaze.

BGW-MM-HU – Brown Glazed Ware – Medieval to Modern. Plain Heavy Utility, with transparent glaze.

BGW-MM-LU – Brown Glazed Ware – Medieval to Modern. Plain Light Utility ware, with transparent glaze.

BGW-MM-TW – Brown Glazed Ware – Medieval to Modern. Plain Table Ware, with transparent glaze.

BGW-MOD-CW – Brown Glazed Ware – Modern. Casserole, with transparent glaze.

BGW-MOD-HU – Brown Glazed Ware – Modern. Plain Heavy Utility, with transparent glaze.

BGW-MOD-LU – Brown Glazed Ware – Modern. Plain Light Utility ware, with transparent glaze.

BGW-OTTMODI-CW – Brown Glazed Ware – Ottoman to Modern I. Casserole, with transparent glaze.

BGW-OTTMODII-CW – Brown Glazed Ware – Ottoman to Modern II. Casserole, with transparent glaze.

BGW-OTTMODII-TW – Brown Glazed Ware – Ottoman to Modern II. Plain Table Ware, with transparent glaze.

BGW-OTTMODI-LU – Brown Glazed Ware – Ottoman to Modern I. Plain Light Utility ware, with transparent glaze.

BGW-OTTMODI-TW – Brown Glazed Ware – Ottoman to Modern I. Plain Table Ware, with transparent glaze.

BORBc-AC-TW – Black on Red bichrome closed – Cypro-Archaic to Classical.

BORC-AC-LU – Black on Red Ware, closed – Cypro-Archaic to Classical.

BORC-GAC-HU – Black on Red Ware, closed – Cypro-Geometric to Classical. (TCP520)

BORC-GAC-LU – Black on Red Ware, closed – Cypro-Geometric to Classical.

BORC-GA-LU – Black on Red Ware, closed – Cypro-Geometric to Archaic. Black-on-red, closed, medium.

BOR-CL-TW – Black on Red – Cypro-Classical. (TCP209)

BOR-GAC-HU – Black on Red – Cypro-Geometric to Classical. (TCP348, TCP358)

BOR-GAC-LU – Black on Red – Cypro-Geometric to Classical. (TCP192, TCP261, TCP351)

BOR-GAC-TW – Black on Red – Cypro-Geometric to Classical. (TCP118)

BORO-AC-LU – Black on Red Ware, open – Cypro-Archaic to Classical.

BORO-AC-TW – Black on Red Ware, open – Cypro-Archaic to Classical.

BORO-GAC-LU – Black on Red Ware, open – Cypro-Geometric to Classical. (TCP091)

BORO-GAC-TW – Black on Red Ware, open – Cypro-Geometric to Classical. (TCP397, TCP478, TCP638)

BPO-PeB-TW – Black Polished ware, open – Prehistoric Bronze Age. Black polished ware, open vessel.

BRIIC-PoB-TW – Base Ring II Ware, closed – Protohistoric Bronze Age. Base Ring II, closed. (TCP241)

BRIIO-PoB-TW – Base Ring II Ware, open – Protohistoric Bronze Age. Base Ring II, open. (TCP260)

BRII-PoB-TW – Base Ring II Ware – Protohistoric Bronze Age.

Decorated with washy white paint on matt surface. (TCP046)
BRI-PoB-TW – Base Ring I Ware – Protohistoric Bronze Age. Well made & burnished, decorated with applied ropes & knobs. (TCP392)
Brk-HA-Ar – Brick – Historical Antiquity.
Brk-MM-Ar – Brick – Medieval to Modern.
Brk-MOD-Ar – Brick – Modern.
Brk-RM-Ar – Brick – Roman to Modern.
BR-PoB-LU – Base Ring Ware – Protohistoric Bronze Age. Medium.
BR-PoB-TW – Base Ring Ware – Protohistoric Bronze Age. Small.
BRW-PoB-TW – Base Ring Ware – Protohistoric Bronze Age. Base Ring-like fabric.
BRX-BA-LU – Base Ring-like Ware – Bronze Age. Base ring-like fabric, medium.
BRX-BA-TW – Base Ring-like Ware – Bronze Age. Base ring-like fabric, table quality.
BS01-HEL-TW – Black Slip ware type 1 – Hellenistic. Black slipped bowl with horizontal handles & plain rim with pointed lip. (TCP135)
BS02-HEL-TW – Black Slip ware type 2 – Hellenistic. Small black slipped bowl with incurving rim (Dray & du Plat Taylor 1937–39, 86: type 4, fig. 40: 5. Jehasse 1978, 61: 445, fig. 35). (TCP240)
BS-AR-TW – Black Slip ware – Cypro-Archaic.
BS-BA-LU – Black Slip ware – Bronze Age. Medium.
BS-BA-TW – Black Slip ware – Bronze Age. Table quality.
BSC-GAC-LU – Black Slip ware, closed – Cypro-Geometric to Classical. (TCP193)
BS-CLH-TW – Black Slip ware – Classical to Hellenistic. (TCP239)
BS-CL-TW – Black Slip ware – Cypro-Classical.
BSC-PoB-LU – Black Slip ware, closed – Protohistoric Bronze Age.
BS-GAC-HU – Black Slip ware – Cypro-Geometric to Classical.
BS-GAC-LU – Black Slip ware – Cypro-Geometric to Classical.
BS-GAC-TW – Black Slip ware – Cypro-Geometric to Classical.
BS-HA-TW – Black Slip ware – Historical Antiquity.
BS-HEL-TW – Black Slip ware – Hellenistic. (TCP319, TCP473, TCP475)
BS-HEL-TW – Black Slip ware – Hellenistic. (TCP476, TCP477, TCP492)
BS-HER-TW – Black Slip ware – Hellenistic to Early Roman.
BS-HR-TW – Black Slip ware – Hellenistic to Roman. Table quality.
BSO-GAC-TW – Black Slip ware, open – Cypro-Geometric to Classical. (TCP194)
BS-PoBAR-LU – Black Slip ware – Late Bronze Age to Archaic.
BS-PoB-LU – Black Slip ware – Protohistoric Bronze Age. Medium.
BS-PoB-TW – Black Slip ware – Protohistoric Bronze Age. Table quality.
BuHK-MM-HU – Burnished Ware, Heavy Utility, light dull brown surface, seemingly burnished – Medieval to Modern.
BuHK-MM-U – Burnished Ware. Heavy Utility, light dull brown surface, seemingly burnished – Medieval to Modern.
BuH-MM-HU – Burnished Ware, Heavy Utility – Medieval to Modern. Burnished appearance to surface.
BuH-MOD-HU – Burnished Ware, Heavy Utility – Modern. Burnished appearance to surface.
BuH-OTTMODI-HU – Burnished Ware, Heavy Utility – Ottoman to Modern I. Seemingly burnished surface.
BuH-OTTMODII-HU – Burnished Ware, Heavy Utility – Ottoman to Modern II. Seemingly burnished surface. (TCP288)
BUJaK-MM-U – Burnished Ware, Utility jar, light dull brown surface, seemingly burnished – Medieval to Modern. (TCP040, TCP310)
BuLK-MM-LU – Burnished Light Utility ware, light dull brown surface, seemingly burnished – Medieval to Modern.
BuLK-MM-U – Burnished Utility ware, light dull brown surface, seemingly burnished – Medieval to Modern.
BuL-MM-LU – Burnished Ware, Light Utility ware – Medieval to Modern. Seemingly burnished surface.
BuL-MOD-LU – Burnished Ware, Light Utility ware – Modern. Burnished appearance to the surface.
BuL-OTTMODII-LU – Burnished Ware, Light Utility ware – Ottoman to Modern II. Seemingly burnished surface.
BuL-OTTMODI-LU –
– Burnished Ware, Light Utility ware – Ottoman to Modern I. Seemingly burnished surface.
BuLR01-MEDUI-LU – Burnished Ware, Light Utility ware, cooking pot rim type 1 – Medieval utility period I. (TCP039)
BuP-OTTMODII-HU – Burnished Ware, Pithos – Ottoman to Modern II. (TCP125)
BUPSJa-MM-LU – Burnished utility pinched spouted jar – Medieval to Modern. Seemingly burnished surface. (TCP041)
BUPSJa-MM-U – Burnished utility pinched spouted jar – Medieval to Modern. Seemingly burnished surface.
BUPSJa-OTTMODII-U – Burnished utility pinched spouted jar – Ottoman to Modern II. Seemingly burnished surface.
CAm-GAC-Tr – Cypriot amphora with horizontal handles – Cypro-Geometric to Classical. Transport amphora (Jacobsen 2002).
CAmS-GAC-HU – Small Cypriot amphora with horizontal handles – Cypro-Geometric to Classical.
CAmS-GAC-LU – Small Cypriot amphora with horizontal handles – Cypro-Geometric to Classical.
CC-HEL-TW – Colour Coated Ware – Hellenistic. (Hayes 1991).
CC-LHER-TW – Colour Coated Ware – Late Hellenistic to Early Roman. Colour coated ware (Hayes 1991, 23–31). (TCP383, TCP633)
CG02-MEDF-TW – Cypriot Monochrome Glazed – Medieval-Frankish. (Pale) green glaze.
CG06-MEDVOTT-TW – Cypriot Monochrome Glazed – Medieval-Venetian to Early Ottoman. Turquoise/blue.
CGS01-MEDB-TW – Cypriot Sgraffito Ware, monochrome glazed – Byzantine to Medieval.
CGS02-MEDB-TW – Cypriot Sgraffito Ware, monochrome glazed & incised – Byzantine to Medieval. (TCP219, TCP254, TCP488)
CGS02-MEDF-TW – Cypriot Sgraffito Ware, monochrome glazed & incised – Medieval-Frankish. TCP287)
CGS02-MED-TW – Cypriot Sgraffito Ware, monochrome glazed & incised – Medieval.
CGS03-MEDB-TW – Cypriot Sgraffito, one colour & incised – Byzantine to Medieval. (TCP274, TCP302, TCP304)
CGS03-MEDF-TW – Cypriot Sgraffito, one colour & incised – Medieval-Frankish.
CGS03-MED-TW – Cypriot Sgraffito, one colour & incised – Medieval. (TCP187)
CGS04-MEDF-TW – Cypriot Sgraffito, brown & green, incised – Medieval-Frankish.
CGS05-MEDB-TW – Cypriot Sgraffito, brown & green (white/

cream glaze) – Byzantine to Medieval.

CGS05-MEDF-TW – Cypriot Sgraffito, brown & green (white/cream glaze) – Medieval-Frankish. (TCP014, TCP059, TCP060, TCP103, TCP140, TCP143, TCP183, TCP212, TCP220, TCP276, TCP283)

CGS05-MED-TW – Cypriot Sgraffito, brown & green (white/cream glaze) – Medieval.

CGS06-MEDF-TW – Cypriot Sgraffito, green painted – Medieval-Frankish. (TCP145)

CGS06-MEDVOTT-TW – Cypriot Sgraffito, green painted – Medieval-Venetian to Early Ottoman. (TCP043, TCP050, TCP052, TCP055, TCP130, TCP138, TCP149, TCP155, TCP322, TCP382, TCP399, TCP709–11)

CGS06-OTTMODI-TW – Cypriot Sgraffito, green painted – Ottoman to Modern I.

CGS07-MEDF-TW – Cypriot Sgraffito, worn/abraded – Medieval-Frankish.

CGS07-MED-TW – Cypriot Sgraffito, worn/abraded – Medieval.

CGS07-MEDVOTT-TW – Cypriot Sgraffito, worn/abraded – Medieval-Venetian to Early Ottoman.

CGS07-OTTMODI-TW – Cypriot Sgraffito, worn/abraded – Ottoman to Modern I. Cypriot Sgraffito Ware?

CGS-MEDF-TW – Cypriot Sgraffito – Medieval-Frankish.

CGS-OTTMODII-TW – Cypriot Sgraffito – Ottoman to Modern II.

Chi-CLH-Tr – Chian Transport Amphora – Classical to Hellenistic. (Whitbread 1995, 135–44).

CMP01-MEDVOTT-TW – Cypriot Monochrome Painted Ware – Medieval-Venetian to Early Ottoman. Green paint.

CRS01-LR-TW – Cypriot Red Slip ware, form 1 – Late Roman. (Hayes 1972, 372–73, fig. 80; Meyza 2007, 44–48, pl. 1–3: late 4th–5th century AD). (TCP179)

CRS02-LR-TW – Cypriot Red Slip ware, form 2 – Late Roman. Form 2 (Hayes 1972, 373–76, fig. 80; Meyza 2007, 51–53, pl. 4: early 5th–middle/3rd quarter 6th c. AD). (TCP504)

CRS02X-LR-TW – Cypriot Red Slip ware, form 2X – Late Roman. Imitation of Cypriot Red Slip ware, form 2 (Hayes 1972, 373–76, fig. 80; Meyza 2007, 51–53, pl. 4: early 5th–middle/3rd quarter 6th c. AD). (TCP165)

CRS05-LR-TW – Cypriot Red Slip ware, form 5 – Late Roman. (Hayes 1972, 377, fig. 81; Meyza 2007, 56–57, early 6th–early 7th c. AD). (TCP188)

CRS08-LR-TW – Cypriot Red Slip ware, form 8 – Late Roman. (Hayes 1972, fig. 81; Meyza 2000, 519, fig. 6; 2007, 60–61, pl. 6, 19: 5th century–2nd half 7th century AD). (TCP169, TCP584)

CRS09A-LR-TW – Cypriot Red Slip ware, form 9A – Late Roman. (Hayes 1972, 379–82, fig. 81–82; Meyza 2007, 66–67: 530/540–625 AD). (TCP601)

CRS09B-LR-TW – Cypriot Red Slip ware, form 9b – Late Roman. (Hayes 1972, 379–82, fig. 81–82; Meyza 2007, 67–68: 550–680 AD). (TCP042)

CRS09C-LR-TW – Cypriot Red Slip ware, form 9c – Late Roman. (Hayes 1972, 379–82, fig. 81–82; Meyza 2007, 68–70: mid-6th–end-7th c. AD).

CRS09-LR-TW – Cypriot Red Slip ware, form 9 – Late Roman. (Hayes 1972, 379–82, fig. 81–82; Meyza 2007, 66–70: 530/540–end 7th c. AD; Armstrong 2009, 164: possibly into the 9th century AD). (TCP025, TCP026, TCP430, TCP705)

CRS09X-LR-TW – Cypriot Red Slip ware, form 9X – Late Roman. Imitation of Cypriot Red Slip ware, form 9 (Hayes 1972, 379–82, figs 81–82; Meyza 2007, 66–70: 530/540–end 7th c. AD). (TCP433)

CRS10A-LR-TW – Cypriot Red Slip ware, form 10A – Late Roman. (Hayes 1972, fig. 82; Meyza 2000, 521, fig. 9:1–2; Meyza 2007, 70–71: last quarter of 6th–end 7th c. AD). (TCP170)

CRS10-LR-TW – Cypriot Red Slip ware, form 10 – Late Roman. (Hayes 1972, fig. 82; Meyza 2000, 521, fig. 9: 600–700 AD?). (TCP255)

CRS11-LR-TW – Cypriot Red Slip ware, form 11 – Late Roman. (Hayes 1972, 383, fig. 83; Meyza 2007, 72, pl. 10–12: mid-5th–end-7th c. AD). (TCP162)

CRS13-LR-TW – Cypriot Red Slip ware, form 13 – Late Roman. (Meyza 2000, 515–17, fig. 5:5; 2007, 79–80, pl. 14: late 5th–early 7th c. AD). (TCP372)

CRSK01/03-LR-TW – Cypriot Red Slip ware, Kourion, form 1/3 – Late Roman. (Meyza 2007, 65–66, pl. 8: 5th–6th c. AD). (TCP385)

CRSK01-LR-TW – Cypriot Red Slip ware, Kourion, form 1 – Late Roman. (Meyza 2000, 511–12, fig. 1:5; 2007, 50–51, pl. 2: early variant of CRS09 of 380–450 AD; hard to distinguish from CRS09B of late 5th–mid-6th c. AD. (TCP024)

CRS-LR-TW – Cypriot Red Slip ware – Late Roman. (Hayes 1972; Meyza 2000; 2007: 4th–7th c. AD). (TCP152, TCP502)

CS01-LHER-TW – Cypriot Sigillata, form 1 – Late Hellenistic to Early Roman. Form P 1 (Hayes 1985, 81, tav. XVIII:5: 1st century BC). (TCP222)

CS04B-ER-TW – Cypriot Sigillata, form 4B – Early Roman. Form P 4B (Hayes 1985, 81, tav. XVIII:9: early–mid 1st c. AD). (TCP171)

CS06-ER-TW – Cypriot Sigillata, form 6 – Early Roman. Form P 6 (Hayes 1985, 82, tav. XVIII:11: early–mid 1st c. AD).

CS10-ER-TW – Cypriot Sigillata, form 10 – Early Roman. Form P 10 (Hayes 1985, 82, tav. XIX:1: 1st c. AD). (TCP034)

CS11-ER-TW – Cypriot Sigillata, form 11 – Early Roman. Form P 11 (Hayes 1985, 82–83, tav. XIX:3: 2nd half 1st c.–1st half 2nd c. AD). (TCP431, TCP455)

CS12-ER-TW – Cypriot Sigillata, form 12 – Early Roman. Form P 12 (Hayes 1985, 83, tav. XIX:4–5: 2nd half 1st c.–1st half 2nd c. AD). (TCP158, TCP436, TCP437, TCP456)

CS18A-LH-TW – Cypriot Sigillata, form 18A – Late Hellenistic. Form P 18A (Hayes 1985, 83–84, tav. XIX:8–9: 1st c. BC).

CS20-LH-TW – Cypriot Sigillata, form 20 – Late Hellenistic. Form P 20 (Hayes 1985, 84, tav. XIX:12: early 1st c. BC). (TCP453)

CS22A-ER-TW – Cypriot Sigillata, form 22A – Early Roman. Form P 22A (Hayes 1985, 84–85, tav. XIX:14–15: late 1st–early 2nd c. AD). (TCP211)

CS28-ER-TW – Cypriot Sigillata, form 28 – Early Roman. Form P 28 (Hayes 1985, 85–86, tav. XX:6–7: 1st c. AD).

CS29-ER-TW – Cypriot Sigillata, form 29 – Early Roman. Form P 29 (Hayes 1985, 86, tav. XX:8: 1st half 2nd c. AD). (TCP321, TCP432, TCP454)

CS31A-ER-TW – Cypriot Sigillata, form 31A – Early Roman. Form P 31A (Hayes 1985, 86, tav. XX:10: 2nd c. AD). (TCP233)

CS40-ER-TW – Cypriot Sigillata, form 40 – Early Roman. Form P 40 (Hayes 1985, 88, tav. XXI:4–5: 100 AD–mid 2nd c. AD). (TCP205, TCP697)

CS58-ER-TW – Cypriot Sigillata, form 58 – Early Roman. Form X 58 (Hayes 1985, 90, tav. XXII:4: late 1st–2nd c. AD). (TCP448, TCP696)

CS-HER-TW – Cypriot Sigillata – Hellenistic to Early Roman.

CS-LHER-TW – Cypriot Sigillata – Late Hellenistic to Early Roman. (Hayes 1985, 79–96: 1st c. BC–early 3rd c. AD). (TCP438, TCP689)

CSP02-MEDB-TW – Cypriot Slip-painted – Byzantine to Medieval. Yellow glaze.

CW-AC-CW – Cooking Ware – Cypro-Archaic to Classical. (TCP708)

CWB01-RM-CW – Cooking Ware base type 1 – Roman to Modern. Flat exterior offset base.

CW-BA-CW – Cooking Ware – Bronze Age. Non-specific Bronze Age fabric.

CWC-ER-CW – Cooking Ware, casserole – Early Roman.

CWCR01a-LR-CW – Cooking Ware, casserole, rim type 1a – Late Roman. Spherical body with corrugated walls, overfolded rim with rounded lip with vertical exterior. Cf. CWCR01. (TCP565)

CWCR01-LR-CW – Cooking Ware, casserole, rim type 1 – Late Roman. Spherical body with corrugated walls, overfolded rim with rounded lip, small horizontal handle. (Giudice *et al*. 2000, fig. 10:5 (D11)). (TCP022, TCP442)

CWCR02a-ROM-CW – Cooking Ware, casserole, rim type 2a – Early to Late Roman. Flat rim-band with grooves on top & slightly everted neck. (Jacobsen 2006a, 235–36, CW5b:17, fig. 125: probably Early Roman). (TCP156)

CWCR02b-ROM-CW – Cooking Ware, casserole, rim type 2b – Early to Late Roman. Overfolded square rim with two grooves on top. (Jacobsen 2006a, 235, CW5a:16, fig. 125: probably Early Roman). (TCP426)

CWCR02c-LR-CW – Cooking Ware, casserole, rim type 2c – Late Roman. In-turned rim with flattened top with two grooves, carinated shoulder & horizontal handle on the rim. Exterior diameter 15 cm. (Catling 1972, 38:P125, fig. 23, 48:P436, fig. 29; Giudice *et al*. 2000, fig.10:6 (D12); Jacobsen 2006a, 236, CW5d:20, fig. 125). (TCP688)

CWCR03-LR-CW – Cooking Ware, casserole, rim type 3 – Late Roman. Spherical body & corrugated upper wall, everted rim with interior & exterior offset lip. Exterior diameter 17.5 cm. Apparently an eastern tradition of Late Roman period; quite common at Dhiorios (Catling 1972, figs. 8 & 28). (TCP618)

CWCR04-ROM-CW – Cooking Ware, casserole, rim type 4 – Early to Late Roman. Everted angular rim & vertical handle with oval section. Rim & handle similar to Leonard 1987, fig. 54:Q.

CWCR05-LR-CW – Cooking Ware, casserole, rim type 5 – Late Roman. Casserole (or lid) with flaring corrugated walls & plain rim. (Catling 1972, fig. 36:P287). (TCP564)

CWCR06-LR-CW – Cooking Ware, casserole, rim type 6 – Late Roman. Everted horizontal rim with wide groove on top. Form similar to Bonifay 2004, 231 culinaire type 19, fig. 123 of end 4th–5th c. AD. (TCP231)

CWC-ROM-CW – Cooking Ware, casserole – Early to Late Roman.

CW-ER-CW – Cooking Ware – Early Roman.

CWFPWh01-ROM-CW – Cooking Ware, frying pan with wishbone handle type 1 – Early to Late Roman. Completely flattened wishbone handle & overfolded thickened rim. (Giudice *et al*. 2000, fig. 9:6 (D6)). Similar to Evrykhou Tomb 5, piece 120 (unpublished). (TCP268)

CWFPWh02-LH-CW – Cooking Ware, frying pan with wishbone handle type 2 – Late Hellenistic. Completely flattened wishbone short out-tapering handle & interior offset high everted rim with rounded lip. Form same as Hayes 1991, 167:17–18, fig. XXXIII:1–2, but with wishbone handles. Paphos casseroles come from deposit dated to the 1st half of 1st c. BC (Hayes 1991, 166). (TCP487)

CWFPWh-HR-CW – Cooking Ware, frying pan, wishbone handle – Hellenistic to Roman. (Hayes 1991, 81–82; Lund 2002, 45). (TCP015, TCP105, TCP369)

CW-GAC-CW – Cooking Ware – Cypro-Geometric to Classical.

CW-HA-CW – Cooking Ware – Historical Antiquity.

CW-HER-CW – Cooking Ware – Hellenistic to Early Roman.

CW-HIS-CW – Cooking Ware – Historical.

CW-HR-CW – Cooking Ware – Hellenistic to Roman.

CWJ01-LR-CW – Cooking Ware jug type 1 – Late Roman. Everted overfolded flattened rim. Context suggests Late Roman date. (TCP552)

CWJ02-ER-CW – Cooking Ware jug type 2 – Early Roman. Overfolded slightly concave rim. Flattened handle with two grooves attached to rim. (TCP501)

CWJ03-ER-CW – Cooking Ware jug type 3 – Early Roman. Slightly overfolded convex rim with groove. Rounded handle with two grooves attached to rim. Form, fabric & firing suggest date in Early Roman period. (TCP489)

CWJ04-HR-CW – Cooking Ware jug type 4 – Hellenistic to Roman. Interior & exterior offset thickened square rim with groove on top. Date suggested by form & fabric. (TCP427)

CWL01-LR-CW – Cooking Ware lid type 1 – Late Roman. High lid with convex walls & thickened rounded rim. Possibly North Tunisian Late variant of Hayes type 196 dated to 4th–5th c. AD (Bonifay 2004, 225, sig. 121:8). (TCP566)

CWL02-LR-CW – Cooking Ware lid type 2 – Late Roman. Conical lid with corrugated walls & everted rim. (Rautman *et al*. 2003, 175, 199:177, fig. 5.14). (TCP558)

CWL03-LH-CW – Cooking Ware lid type 3 – Late Hellenistic. Solid twisted knob of conical lid. Somewhat similar to Hayes 1991, 164:11, fig. XXVII:2 & Quilici 1971, 82:13, fig. 25.I: Hellenistic–Early Roman). (TCP490)

CWL04-LR-CW – Cooking Ware lid type 4 – Late Roman. Flat lid with disk-shaped knob. Somewhat similar to Rautman *et al*. 2003, fig. 5.10:139–40. (TCP207)

CW-LR-CW – Cooking Ware – Late Roman.

CW-MM-CW – Cooking Ware – Medieval to Modern.

CW-MOD-CW – Cooking Ware – Modern.

CWPDh-LR-CW – Cooking Ware Dhiorios pot – Late Roman. High convex rim (Rautman *et al*. 2003, 176, 203:199–200, fig. 5.16: 6th–7th c. AD; Gabrieli *et al*. 2007, 795–96: continues with some modifications into the 8th century AD; Armstrong 2009: 8th century AD). (TCP692, TCP703)

CWP-GAC-CW – Cooking Ware, pot. – Cypro-Geometric to Classical.

CW-PoBAR-CW – Cooking Ware – Late Bronze Age to Archaic. (TCP398)

CWPR01-ROM-CW – Cooking Ware, pot, rim type 1 – Early to Late Roman. Interior offset, over folded thickened rim with rounded lip. Rim similar to deep casserole from North Africa (Ikäheimo 2003, pl. 10:52). (TCP038)

CWPR02-HR-CW – Cooking Ware, pot, rim type 2 – Hellenistic to Roman. Flaring neck, everted rim with deep central groove on top. Date suggested by fabric & context. (TCP180)

CWPR03-HEL-CW – Cooking Ware, pot, rim type 3 – Hellenistic. Thin-walled, with interior offset high everted rim with elongated angular section (Nicolaou 1984, fig. 4:63: 325–150 BC). (TCP064)

CWPR04a-ER-CW – Cooking Ware, pot, rim type 4a – Early

Roman. Rounded body, interior offset everted rim with thickened overfolded lip. (Hayes and Megaw 2003, 479: 187, fig. 19: c. late 1st/early 2nd century AD; Quilici 1971, 146:175, fig. 95.V: Hellenistic–Early Roman; Tomber 2002, 146: 12, fig. 6.1: 2nd century AD). (TCP186, TCP235, TCP248)

CWPR04a-ER-CW – Cooking Ware, pot, rim type 4a – Early Roman. Rounded body, interior offset everted rim with thickened overfolded lip. (Hayes and Megaw 2003, 479: 187, fig. 19: c. late 1st/early 2nd c. AD; Quilici 1971, 146:175, fig. 95.V: Hellenistic–Early Roman; Tomber 2002, 146: 12, fig. 6.1: 2nd c. AD). (TCP457, TCP540)

CWPR04b-ER-CW – Cooking Ware, rim type 4b – Early Roman. Rounded body, convex interior offset everted rim with thickened overfolded lip (Giudice *et al*. 2001, fig. 11.3 (D3): 120–175 AD; Harper 1980, 335:53, fig. C: 1st c. AD; Hayes and Megaw 2003, 479:186, fig. 18: c. late 1st c. AD). (TCP441)

CWPR04c-ER-CW – Cooking Ware, rim, type 4c – Early Roman. Rounded body, high interior & exterior offset collar rim with overfolded lip. Vertical handle on rim. (Hayes 1991, 194:21, fig. XXXVI:1: from deposit dated c. 100–120 AD). (TCP466, TCP659)

CWPR04-ROM-CW – Cooking Ware, pot, rim type 4 – Early to Late Roman. Rounded body, high interior & exterior offset collar rim with overfolded lip. Vertical handle on rim. Early Roman fabric & finish. Exterior diameter: 170 mm. (cf. Nicolaou 1984, no. 44: 325–150 BC).

CWPR05-ER-CW – Cooking Ware, pot, rim type 5 – Early Roman. Thin-walled; very wide body, bulging profiled neck & flaring rim with rounded lip. (Hayes 1991, 81, fig. 31:5 dated to the Augustan period & later). (TCP174)

CWPR06-LR-CW – Cooking Ware, pot, rim type 6 – Late Roman. In-turned thickened rim with flattened top. (Orssaud 1980, 248 type 5b, fig. 307). (TCP388)

CWPR07-HEL-CW – Cooking Ware, pot, rim type 7 – Hellenistic. Everted elongated angular rim; this may be regional preference, as several similar Hellenistic pots were found in Evrykhou Tomb 4 (Nicolaou 1984, fig. 4). (TCP157, TCP159)

CWPR08a-ROM-CW – Cooking Ware, pot, rim type 8a – Early to Late Roman. Horizontal rim with elongated angular section & vertical handle.

CWPR08-HR-CW – Cooking Ware, pot, rim type 8 – Hellenistic to Roman. Short horizontal rim with angular section & vertical handle. (Salles and Rey 1993, 247, 249:458, fig. 225). (TCP244, TCP386)

CWPR09-HR-CW – Cooking Ware, pot, rim type 9 – Hellenistic to Roman. Everted thickened rim with horizontal groove on exterior lip. (Nicolaou 1984, fig. 4:28: Hellenistic; Hayes 1991, fig. 31:4: Augustan & later; Hayes and Megaw 2003, fig. 6:61: 1st c. BC). (TCP637, TCP181)

CWPR10-HEL-CW – Cooking Ware, pot, rim type 10 – Hellenistic. Interior offset, slightly convex rim with rounded lip. (Hayes and Megaw 2003, 454:10, fig. 2: Early Hellenistic). (TCP474)

CWPR11-LR-CW – Cooking Ware, pot, rim type 11 – Late Roman. Interior & exterior offset slightly everted high rim with rounded lip. (Form similar to Hayes 1980, fig. 13:2). (TCP001)

CWPR12-LR-CW – Cooking Ware, pot, rim type 12 – Late Roman. Thick-walled; ribbed convex shoulder & everted rim. (Hayes 1983, fig. 8:97: 4th to early 5th c. AD). (TCP547)

CWPR13-LR-CW – Cooking Ware, pot, rim type 13 – Late Roman. Elongated rim with oval section & vertical handle. (Catling 1972, 46:P93, fig. 27). Found with CRS09 similar to TP220 & Dhiorios pot at construction level of potters' house. (TCP176, TCP439, TCP592, TCP600)

CWPR14-LR-CW – Cooking Ware pot, rim Type 14 – Late Roman. Thin-walled; in-turned rim with interior thickening lip & corrugated walls. (Hayes and Megaw 2003, 511:376, fig. 35). (TCP530)

CWPR15-HR-CW – Cooking Ware, pot, rim type 15 – Hellenistic to Roman. Overfolded rim with thickened rounded profile. Date suggested by fabric & form. (TCP428)

CWPR16a-HR-CW – Cooking Ware, pot, rim type 16a – Hellenistic to Roman. Corrugated walls & everted thickened rim with pointed lip. Date suggested by fabric & context. (TCP440)

CWPR16-LR-CW – Cooking Ware, pot, rim type 16 – Late Roman. Corrugated walls & everted thickened rim. (Catling 1972, 13:P89, fig. 7; Giudice *et al*. 1999, fig. 3.c:6: 6th–7th c. AD). (TCP175)

CWPR17-ROM-CW – Cooking Ware, pot, rim type 17 – Early to Late Roman. Interior & exterior offset collar rim with overfolded lip. Vertical handle on rim. Late Roman fabric & finish, but similar vessels dated to the 3rd–4th c. AD at Paphos (pers. comm. S. Gabrieli). (TCP275)

CWPR-HR-CW – Cooking Ware, Pot – Hellenistic to Roman. Rim.

CW-RM-CW – Cooking Ware – Roman to Modern.

CW-ROM-CW – Cooking Ware – Early to Late Roman.

CW-UN-CW – Cooking Ware – Unknown.

CYW-MOD-LU – Contemporary Yogurt Ware – Modern.

Dana-MOD-HU – Dana, wine/oil collector – Modern. Large Heavy Utility basin with plain rim with horizontal lip. (Ionas 1998, 56). (TCP141)

EGAm-GAC-Tr – East Greek transport amphora – Cypro-Geometric to Classical. Probably Ionian/Milesian. (TCP635)

ERSAI-LR-TW – Egyptian Red Slip ware A, form I – Late Roman. Dish with heavy upright overhanging rim (Hayes 1972, 389, fig. 86: 6th–7th c. AD; Hayes 2007, 436: into the later 7th century AD). (TCP701)

ERSAP-LR-TW – Egyptian Red Slip ware A, form P – Late Roman. Bowl of almost hemispherical shape with heavy rolled rim & low ring-base (Hayes 1972, 392, fig. 86: 6th c. AD; Hayes 2007, 436: into the later 7th century AD). (TCP541)

ESA04A-LHER-TW – Eastern Sigillata A, form 4A – Late Hellenistic to Early Roman. (Hayes 1985, 15–16, tav. I:9–10: End of 2nd c. BC–1st quarter of 1st c. AD). (TCP521)

ESA15B-LH-TW – Eastern Sigillata, form 15B – Late Hellenistic. (Hayes 1985, tav. III:2: 1st half of 1st c. BC). (TCP246)

ESA16-LH-TW – Eastern Sigillata, form 16 – Late Hellenistic. (Hayes 1985, 21, tav. III:3: mid-2nd c. BC).

ESA18-LH-TW – Eastern Sigillata, form 18 – Late Hellenistic. (Hayes 1985, 22, tav. III:5: late 2nd–early 1st c. BC). (TCP204)

ESA20-LH-TW – Eastern Sigillata, form 20 – Late Hellenistic. (Hayes 1985, 22–23, tav. III:8: 2nd half of 2nd c. BC).

ESA22A-LHER-TW – Eastern Sigillata A, form 22A – Late Hellenistic to Early Roman. (Hayes 1985, 23–24, tav. III:10–11: late 2nd c. BC–AD 10).

ESA35-ER-TW – Eastern Sigillata, form 35–37 – Early Roman. (Hayes 1985, 30, tav. V:8–13: 40–100 AD).

ESA48-ER-TW – Eastern Sigillata Ware A, form 48 – Early Roman. (Hayes 1985, 36, tav. VI:16: 40–70 AD). (TCP349)

ESA-LHER-TW – Eastern Sigillata A – Late Hellenistic to Early Roman. (Hayes 1985, 9–48: mid-2nd c. BC–mid-2nd c. AD). (TCP005)

ESB09-ER-TW – Eastern Sigillata B1, form 9 – Early Roman. (Hayes 1985, 55, tav. XII:1: 50–75 AD). (TCP452)
ESB80-ER-TW – Eastern Sigillata B2, form 80 – Early Roman. (Hayes 1985, 69–70, tav. XV:15: 80–150 AD). (TCP210)
ESB-ER-TW – Eastern Sigillata B – Early Roman. (Hayes 1985, 49–70: 1st–mid 2nd c. AD).
ESB-LHER-TW – Eastern Sigillata B – Late Hellenistic to Early Roman.
FP-HEL-TW – Fish plate – Hellenistic. (Hayes 1991, 9, nos. 19–21). (TCP353, TCP500)
G01-MEDF-TW – Monochrome Glazed Ware – Medieval-Frankish. Worn/abraded.
G01-MEDOTT-TW – Monochrome Glazed Ware – Medieval to Ottoman. Worn/abraded.
G01-MED-TW – Monochrome Glazed Ware – Medieval. Worn/abraded.
G01-MEDVOTT-TW – Monochrome Glazed Ware – Medieval-Venetian to Early Ottoman. Worn/abraded.
G01-MM-TW – Monochrome Glazed Ware – Medieval to Modern. Worn/abraded.
G01-MOD-TW – Monochrome Glazed Ware – Modern. Worn/abraded.
G01-OTTMODI-TW – Monochrome Glazed Ware – Ottoman to Modern I.
G01-OTTMODII-TW – Monochrome Glazed Ware – Ottoman to Modern II.
G01-OTT-TW – Monochrome Glazed Ware – Ottoman.
G01-UN-TW – Monochrome Glazed Ware – Unknown.
G02-BYZ-TW – Monochrome Glazed, Pale green – Byzantine. (TCP262)
G02-MEDB-TW – Monochrome Glazed, Pale green – Byzantine to Medieval.
G02-MEDOTT-TW – Monochrome Glazed, Pale green – Medieval to Ottoman.
G02-MED-TW – Monochrome Glazed, Pale green – Medieval. (TCP202)
G02-MEDVOTT-TW – Monochrome Glazed, Pale green – Medieval-Venetian to Early Ottoman.
G02-MM-TW – Monochrome Glazed, Pale green – Medieval to Modern.
G02-MOD-TW – Monochrome Glazed, Pale green – Modern.
G02-OTTMODI-TW – Monochrome Glazed, Pale green – Ottoman to Modern I.
G02-OTTMODII-TW – Monochrome Glazed, Pale green – Ottoman to Modern II.
G02-OTT-TW – Monochrome Glazed, Pale green – Ottoman.
G03-BYZ-TW – Monochrome Glazed, Yellow – Byzantine. Pale yellow. (TCP216)
G03-MEDB-TW – Monochrome Glazed, Yellow – Byzantine to Medieval. Worn/abraded. (TCP191, TCP225)
G03-MEDF-TW – Monochrome Glazed, Yellow – Medieval-Frankish. Worn/abraded.
G03-MED-TW – Monochrome Glazed, Yellow – Medieval. Worn/abraded. (TCP267)
G03-MEDVOTT-TW – Monochrome Glazed, Yellow – Medieval-Venetian to Early Ottoman. Pale yellow.
G03-MM-TW – Monochrome Glazed, Yellow – Medieval to Modern. Pale yellow.
G03-MOD-TW – Monochrome Glazed, Yellow – Modern. Pale yellow
G03-OTTMODI-TW – Monochrome Glazed, Yellow – Ottoman to Modern I. Pale yellow.
G03-OTTMODII-TW – Monochrome Glazed, Yellow – Ottoman to Modern II. Pale yellow.
G03-OTT-TW – Monochrome Glazed, Yellow – Ottoman. Pale yellow.
G04-MEDF-TW – Monochrome Glazed – Medieval-Frankish. Brown.
G04-MEDOTT-TW – Monochrome Glazed – Medieval to Ottoman. Pale yellow.
G04-MED-TW – Monochrome Glazed – Medieval. Brown.
G04-MEDVOTT-TW – Monochrome Glazed – Medieval-Venetian to Early Ottoman. Brown.
G04-MM-TW – Monochrome Glazed – Medieval to Modern. Brown.
G04-MOD-TW – Monochrome Glazed – Modern. Brown.
G04-OTTMODI-CW – Monochrome Glazed – Ottoman to Modern I. Brown
G04-OTTMODI-TW – Monochrome Glazed – Ottoman to Modern I. Brown
G04-OTTMODII-TW – Monochrome Glazed – Ottoman to Modern II. Brown. (TCP525)
G04-OTT-TW – Monochrome Glazed – Ottoman. Brown.
G05-MEDF-TW – Monochrome Glazed – Medieval-Frankish. White/cream.
G05-MEDOTT-TW – Monochrome Glazed – Medieval to Ottoman. White/cream.
G05-MED-TW – Monochrome Glazed – Medieval. White/cream.
G05-MEDVOTT-TW – Monochrome Glazed – Medieval-Venetian to Early Ottoman. White/cream.
G05-MM-TW – Monochrome Glazed – Medieval to Modern. White/cream.
G05-MOD-TW – Monochrome Glazed – Modern. White/cream.
G05-OTTMODI-TW – Monochrome Glazed – Ottoman to Modern I. White/cream.
G05-OTTMODII-TW – Monochrome Glazed – Ottoman to Modern II. White/cream.
G05-OTT-TW – Monochrome Glazed – Ottoman. White/cream.
G05-UN-TW – Monochrome Glazed – Unknown. Worn/abraded.
G06-BYZ-TW – Monochrome Glazed – Byzantine. Turquoise/blue.
G06-MEDOTT-TW – Monochrome Glazed – Medieval to Ottoman. Turquoise/blue.
G06-MEDVOTT-Ar – Monochrome Glazed – Medieval-Venetian to Early Ottoman. Turquoise/blue; tile?
G06-MOD-TW – Monochrome Glazed – Modern. Turquoise/blue.
G06-OTTMODI-TW – Monochrome Glazed – Ottoman to Modern I. Turquoise/blue.
G06-OTTMODII-TW – Monochrome Glazed – Ottoman to Modern II. Turquoise/blue.
G06-OTT-TW – Monochrome Glazed – Ottoman. Turquoise/blue. (TCP315)
G07-BYZ-TW – Monochrome Glazed – Byzantine. Ochre. (TCP221, TCP285)
G07-MED-TW – Monochrome Glazed – Medieval. Ochre.
G07-MOD-TW – Monochrome Glazed – Modern. Ochre.
G07-OTTMODI-LU – Monochrome Glazed – Ottoman to Modern I. Ochre.
G07-OTTMODI-TW – Monochrome Glazed – Ottoman to Modern I. Ochre.
G07-OTTMODII-CW – Monochrome Glazed – Ottoman to Modern II. Ochre.
G07-OTTMODII-LU – Monochrome Glazed – Ottoman to

Modern II. Ochre.
G07-OTTMODII-TW – Monochrome Glazed – Ottoman to Modern II. Ochre.
G07-OTT-TW – Monochrome Glazed – Ottoman. Ochre.
G08-MEDVOTT-TW – Monochrome Glazed – Medieval-Venetian to Early Ottoman. Purplish.
Gaz-LR-Tr – Gazan Transport amphora – Late Roman. (Majcherek 1995, 4th–6th c. AD). (TCP208)
G-MM-CW – Glazed Ware – Medieval to Modern. Cooking Ware.
G-MM-LU – Glazed Ware – Medieval to Modern. Light Utility.
G-MM-TW – Glazed Ware – Medieval to Modern. Table Ware.
G-MOD-LU – Glazed Ware – Modern. Light Utility.
G-MOD-TW – Glazed Ware – Modern. Table Ware.
G-OTTMODI-TW – Glazed Ware – Ottoman to Modern I
G-OTTMODII-TW – Glazed Ware – Ottoman to Modern II. Table Ware.
G-OTT-TW – Glazed Ware – Ottoman. Table Ware.
GS01-MEDB-TW – Sgraffito Ware, Monochrome glazed – Byzantine to Medieval.
GS01-MED-TW – Sgraffito Ware, Monochrome glazed – Medieval.
GS01-MEDVOTT-TW – Sgraffito Ware, Monochrome glazed – Medieval-Venetian to Early Ottoman.
GS01-OTTMODII-TW – Sgraffito Ware, Monochrome glazed – Ottoman to Modern II.
GS02-BYZ-TW – Sgraffito Ware, Monochrome glazed & incised – Byzantine. (TCP264)
GS02-MEDB-TW – Sgraffito Ware, Monochrome glazed & incised – Byzantine to Medieval. (TCP366, TCP368)
GS03-MEDF-TW – Sgraffito Ware, one colour & incised – Medieval-Frankish.
GS05-MEDB-TW – Sgraffito Ware, Brown & Green – Byzantine to Medieval. Brown and green painted.
GS05-MED-TW – Sgraffito Ware, Brown & Green – Medieval. Green painted.
GS05-MEDVOTT-TW – Sgraffito Ware, Brown & Green – Medieval-Venetian to Early Ottoman. Green painted. (TCP223)
GS06-OTTMODI-TW – Sgraffito Ware, Green Painted – Ottoman to Modern I.
GS07-MEDF-TW – Sgraffito Ware? Worn/Abraded – Medieval-Frankish.
GS07-MED-TW – Sgraffito Ware? Worn/Abraded – Medieval.
GS07-MEDVOTT-TW – Sgraffito Ware? Worn/Abraded – Medieval-Venetian to Early Ottoman.
GS07-OTTMODI-TW – Sgraffito Ware? Worn/Abraded – Ottoman to Modern I.
GS08-MEDVOTT-TW – Sgraffito Ware, Green & Blue Painted, from Italy – Medieval-Venetian to Early Ottoman. (TCP053)
GS-MM-TW – Sgraffito Ware, Monochrome glazed (general) – Medieval to Modern.
HU01-RM-HU – Heavy Utility rim type 1 – Roman to Modern. Large basin with plain rim with pointed lip & flat base. Date suggested by fabric. (TCP411–12)
HU04-MM-HU – Heavy Utility type 4 – Medieval to Modern. Stamped decoration: circle with cross & dots. (TCP581)
HU-AC-HU – Heavy Utility – Cypro-Archaic to Classical. Non-specific.
HUB01-HR-HU – Heavy Utility base Type 1 – Hellenistic to Roman. String cut base. Date suggested by context. (TCP596)
HUB02-HR-HU – Heavy Utility base type 2 – Hellenistic to Roman. Closed spout c. 45 mm above the base. Date suggested by context. (TCP446)
HUB03-HA-HU – Heavy Utility base type 3 – Historical Antiquity. Large solid toe of very thick-walled vessel with depressions in it. Date suggested by fabric & context. (TCP627)
HU-CHAL-HU – Heavy Utility – Chalcolithic. Non-specific.
HUC-RM-HU – Heavy Utility with combed decoration – Roman to Modern. Date suggested by fabric & decoration. (TCP390, TCP424–25, TCP451)
HU-GAC-HU – Heavy Utility – Cypro-Geometric to Classical.
HU-GA-HU – Heavy Utility – Cypro-Geometric to Archaic.
HUH01-HR-HU – Heavy Utility handle Type 1 – Hellenistic to Roman. Heavy horizontal utility handle with irregular circular section & two horizontal ridges. Date suggested by context.
HU-HA-HU – Heavy Utility – Historical Antiquity.
HU-HIS-HU – Heavy Utility – Historical.
HU-HR-HU – Heavy Utility – Hellenistic to Roman.
HUL01-HR-HU – Heavy Utility lid type 1 – Hellenistic to Roman. Lid with convex rim, completely flat downside with sand embedded. Date suggested by context. (TCP616)
HU-LR-HU – Heavy Utility – Late Roman.
HU-MM-HU – Heavy Utility – Medieval to Modern. (TCP712)
HU-MM-U – Heavy Utility – Medieval to Modern.
HU-MOD-HU – Heavy Utility – Modern. (TCP018, TCP519)
HU-OTTMODI-HU – Heavy Utility – Ottoman to Modern I.
HU-OTTMODII-HU – Heavy Utility – Ottoman to Modern II.
HU-PH-HU – Heavy Utility – Prehistoric. Coarse Heavy Utility, CHAL or PeB.
HU-PoBAR-HU – Heavy Utility – Late Bronze Age to Archaic.
HU-PoB-HU – Heavy Utility – Protohistoric Bronze Age. (TCP376)
HUR01a-LR-HU – Heavy Utility rim type 1A – Late Roman. Large deep basin with thickened slightly flattened everted rim with grooves near the upper & lower edge (Catling 1972, 57:P244, fig. 33). (TCP629)
HUR01b-LR-HU – Heavy Utility rim type 1B – Late Roman. Large basin with everted rim with flattened top & pie-crust ledge handle. (Rautman *et al*. 2003, 191:98, fig. 5.8; Catling 1972, 69:P581, fig. 38). (TCP468)
HUR01-ROM-HU – Heavy Utility, rim type 1 – Early to Late Roman. Large basin with flaring sides & thickened everted flattened rim with grooves near the upper & lower edge. Pie-crust ledge handle. (Bonifay 2004, Commune type 31 267 no. 2, fig. 148: 5th c. AD; Catling 1972, 69 no. P581, fig. 38; Hayes 1991, 66, fig. 24:7: 1st–2nd c. AD). (TCP153, TCP154)
HUR02-HR-HU – Heavy Utility, rim type 2 – Hellenistic to Roman. Jar with everted thickened rim with almost vertical exterior lip. Date suggested by context. (TCP444)
HUR03-HR-HU – Heavy Utility, rim type 3 – Hellenistic to Roman. Large basin with interior offset overfolded rim with almost horizontal top & distinctive groove on the lower side. (Quilici 1971, 143:77, fig. 93.III: Hellenistic–Early Roman period). (TCP080)
HUR04-MM-HU – Heavy Utility, rim type 4 – Medieval to Modern. Large basin with rim profile offset on the inside & vertical outside. (TCP101)
HUR05-LR-HU – Heavy Utility, rim type 5 – Late Roman. Large basin with thickened rim with angular section & deep central groove. Somewhat similar to North African basin of Punic tradition, 3rd–5th c. AD (Bonifay 2004, 260: Commune type 119, fig. 261). (TCP106)
HUR06-ROM-HU – Heavy Utility, rim type 6 – Early to Late

Roman. Large Heavy Utility basin with a rounded overfolded rim. (Hayes 1991, fig. 26.1–4: mid-1st–mid-2nd c. AD). (TCP136)

HUR07-HR-HU – Heavy Utility, rim type 7 – Hellenistic to Roman. Large closed vessel with concave shoulder & thickened rolled up rim. Date suggested by fabric & context. (TCP178)

HUR08-LR-HU – Heavy Utility, rim type 8 – Late Roman. Large basin with interior offset thickened rounded rim. Similar unpublished basin (AK115x418) from Late Roman dump at Ayios Kononas. (TCP266)

HUR08-ROM-HU – Heavy Utility, rim type 8 – Early to Late Roman. Large basin with interior offset thinkened rounded rim. Date suggested by fabric & distribution.

HUR09-HA-HU – Heavy Utility, rim type 9 – Historical Antiquity. Large basin with flaring sides & interior offset thickened rolled rim. Date suggested by form & fabric. (TCP257)

HUR10a-LR-HU – Heavy Utility rim type 10a – Late Roman. Slightly in-tapering sides & everted rim. Combed wavy pattern below rim. For even smaller version see LUR13. For decoration see HUR10. (TCP529)

HUR10b-LR-HU – Heavy Utility rim type 10b – Late Roman. Cylindrical neck & thickened rim with flattened top. Combing design on exterior below rim. For decoration see HUR10. (TCP387)

HUR10-ROM-HU – Heavy Utility, rim type 10 – Early to Late Roman. Large Self Slip vessel with slightly in-tapering sides & everted rim. Combed wavy patter below the rim & under this horizontal combed lines.

HUR11-HR-HU – Heavy Utility, rim type 11 – Hellenistic to Roman. Out-tapering neck & everted rounded rim. Date suggested by fabric & context. (TCP589)

HUR12-HR-HU – Heavy Utility, rim type 12 – Hellenistic to Roman. Large vessel with interior offset horizontal rim with distinctive grooves on lower side. Date suggested by fabric & context. (TCP594)

HUR13-HR-HU – Heavy Utility rim type 13 – Hellenistic to Roman. Out-tapering neck & overfolded rim with rounded lip. Date suggested by fabric & context. (Quilici 1971, 76:164, fig. 18:VI: Hellenistic–Early Roman). (TCP595)

HUR14-HR-HU – Heavy Utility rim type 14 – Hellenistic to Roman. Large bowl with exterior offset thickened rim with concave exterior. Date suggested by fabric & context. (TCP587)

HUR15-HR-HU – Heavy Utility rim type 15 – Hellenistic to Roman. Large jar with out-tapering neck & thickened rolled rim. Handle attached below rim. Date suggested by fabric & context. (TCP598)

HUR16-HA-HU – Heavy Utility rim type 16 – Historical Antiquity. Very large open vessel with overfolded rim with rounded rim. Date suggested by context.

HUR17-HR-HU – Heavy Utility rim type 17 – Hellenistic to Roman. Out-tapering neck & thickened rim with rounded lip. Date suggested by fabric & context. (TCP611)

HUR18-HR-HU – Heavy Utility, rim type 18 – Hellenistic to Roman. Closed vessel with everted rim with angular lip. Date suggested by fabric & context. (TCP604)

HUR19-HR-HU – Heavy Utility, rim type 19 – Hellenistic to Roman. Basin with rolled rim & heavy horizontal handle. Date suggested by fabric & context. (TCP605)

HUR20-LR-HU – Heavy Utility, rim type 20 – Late Roman. Form similar to Cypriot Red Slip ware form 12. (Catling 1972, 78:P307, fig. 38). (TCP249)

HUR21-LR-HU – Heavy Utility, rim type 21 – Late Roman. Large basin with interior & exterior offset everted almost horizontal rim. Date suggested by fabric & context. (Orssaud 1980, 241 type 5, fig. 305). (TCP548)

HUR22-LR-HU – Heavy Utility, rim type 22 – Late Roman. Large basin with flaring walls & angular horizontal rim. Date suggested by fabric & context. (TCP549)

HUR23-HR-HU – Heavy Utility, rim type 23 – Hellenistic to Roman. Basin with ribbed exterior body & almond shaped rim. Date suggested by fabric & context. (TCP445)

HUR24-LR-HU – Heavy Utility, rim type 24 – Late Roman. Basin with thickened rim with horizontal groove. (Rautman *et al*. 2003, fig. 5.8 no. 100; Catling 1972, 33:P229, fig. 20, 67:P220A, fig. 38, 70:P289 & P442, fig. 37). (TCP423, TCP459, TCP462)

HUR25-HIS-HU – Heavy Utility, rim type 25 – Historical. Bowl/lid with plain rounded rim with blackened exterior. (Quilici 1971, 147:205, fig. 95.V: Hellenistic–Early Roman period). (TCP636)

HUR26-HA-HU – Heavy Utility, rim type 26 – Historical Antiquity. Closed vessel with exterior offset high in-turned concave rim with thickened rounded lip. Blackened exterior. Similar to Archaic–Classical large jars with bulging neck (Jacobsen 2006b, 290, UC95:214, fig. 152; see also Quilici 1971, 158:155, fig. 103:VI: Hellenistic–Early Roman). (TCP642)

HUR28-LR-HU – Heavy Utility, rim type 28 – Late Roman. Closed vessel with high in-turned concave rim with flare & flattened top. Date suggested by form, fabric & context. (TCP482)

HUR29-MM-HU – Heavy Utility, rim type 29 – Medieval to Modern. Large cylindrical thick-walled vessel of unknown purpose. (TCP580, TCP583)

HUR30-RM-HU – Heavy Utility, rim type 30 – Roman to Modern. Large basin with plain rim with embedded pie-crust decoration. Date suggested by fabric & decoration. (TCP414)

HUR31-HR-HU – Heavy Utility, rim type 31 – Hellenistic to Roman. Everted thickened rim with rounded exterior similar to LRC10. Date suggested by form, fabric & context. (TCP410)

HUR32-HA-HU – Heavy Utility, rim type 32 – Historical Antiquity. Large basin with straight flaring walls & slightly thickened angular rim. Date suggested by fabric. (TCP375)

HUR33-HA-HU – Heavy Utility, rim type 33 – Historical Antiquity. Persian bowl-like basin but with slightly in-turned rim with pointed lip. Fabric, form & context suggest Iron Age date. (TCP318)

HUR34-HIS-HU – Heavy Utility, rim type 34 – Historical. Large open vessel with everted rim. Fabric related to Mavrovouni amphora fabrics. Possible traces of red slip?

HUR35-LR-HU – Heavy Utility, rim type 35 – Late Roman. Handmade jar (?) with slight convex neck & interior thickened rim. Date suggested by fabric & context. (TCP539)

HU-RM-HU – Heavy Utility – Roman to Modern.

HU-ROM-HU – Heavy Utility – Early to Late Roman. (TCP004)

HUSW-HA-HU – Heavy Utility sandwich ware – Historical Antiquity. Well levigated fine clay with brick red core & grey interior & exterior surfaces.

HU-UN-HU – Heavy Utility – Unknown.

ID01-OTTMODII-HU – Incised decoration type 1 – Ottoman to Modern II. Incised decoration of interconnected rows of double arches with rosettes (Kornos style). (TCP097)

ID01-OTTMODII-U – Incised decoration type 1 – Ottoman to Modern II. Incised decoration of interconnected rows of double arches with rosettes (Kornos style).

ID02A-MEDUIII-LU – Incised decoration type 2A – Medieval utility period III. Incised decoration of oblique strokes interspersed with other motifs. (TCP407)

ID02-MEDUIII-U – Incised decoration type 2 – Medieval utility period III. Incised decoration of diagonal, multi-lined strokes. (TCP047)

ID02-MM-LU – Incised decoration type 2 – Medieval to Modern. Incised decoration of diagonal, multi-lined strokes.

ID02-MM-U – Incised decoration type 2 – Medieval to Modern. Incised decoration of diagonal, multi-lined strokes. (TCP299)

ID02-OTTMODI-U – Incised decoration type 2 – Ottoman to Modern I. Incised decoration of diagonal, multi-lined strokes.

ID02-OTTMODII-U – Incised decoration type 2 – Ottoman to Modern II. Incised decoration of diagonal, multi-lined strokes.

ID03-MEDUIII-U – Incised decoration type 3 – Medieval utility period III. Decorative ridge. (TCP021, TCP301, TCP496)

ID04A-MM-HU – Incised decoration type 4A – Medieval to Modern. Incised decoration of straight or wavy lines.

ID04A-MM-LU – Incised decoration type 4A – Medieval to Modern. Incised decoration of straight or wavy lines.

ID04A-MM-U – Incised decoration type 4A – Medieval to Modern. Incised decoration of wavy or straight lines. (TCP314)

ID04A-OTTMODI-U – Incised decoration type 4A – Ottoman to Modern I. Incised decoration of straight or wavy lines.

ID04-MEDUIII-U – Incised decoration type 4 – Medieval utility period III. Incised decoration of straight or wavy lines. (TCP044)

IDSS-OTTMODI-U – Incised decoration on self-slipped pottery – Ottoman to Modern I. White slip & incised decoration. (TCP324)

IDWF-MEDUIII-LU – Incised decoration, white fabric – Medieval utility period III. Light coloured fabric, usually jugs. (TCP498)

IDWF-OTTMODI-U – Incised decoration, white fabric – Ottoman to Modern I. Light fabric, incised decoration. (TCP057)

Jug-ER-LU – Jug with ring-base & very slim vertical handle with two vertical ribs in Self Slip fabric – Early Roman. Ring-base with thickened everted lip, ovoid body, concave shoulder, wide neck & vertical handle with wide shallow groove from shoulder. (Dray and du Plat Taylor 1937–39, 32: type 3, fig. 3:B–C). (TCP660)

Koan-HEL-Tr – Koan amphora – Hellenistic. Transport amphora (Papuci-Władyka 1997, 52–54: App. 270: 1st c. BC)

KoaP-HER-Tr – Pseudo-Koan transport amphora – Hellenistic to Early Roman. Imitation of Koan transport amphora (Papuci-Władyka 1997, 53: late 2nd c. BC–2nd c. AD). (TCP009)

La01-ER-La – Lamp type 01, Vessberg, form 10–12 – Early Roman. Mouldmade slipped lamp of Loeschcke types IV–V (Bailey 1988, 295–96: 50–150 AD). (TCP203, TCP309, TCP626)

La02-ER-La – Non-slipped lamps – Early Roman. Mouldmade non-slipped lamp of Loeschcke type VIII (Bailey 1988, 296: 2nd half of 1st c.–3rd c. AD). (TCP232)

La03-HEL-La – Lamp type 3 – Hellenistic. Biconical wheelmade lamp (Bruneau 1965, 20, pl. 1–6: 4th–1st c. BC). (TCP250)

La04-ER-La – Lamp type 4 – Early Roman. Mouldmade slipped lamp of Loeschcke type IV (Bailey 1988, 295: 15–120 AD). (TCP238)

La05-ROM-La – Mouldmade unslipped lamp – Early to Late Roman.

Lag-HEL-TW – Lagynos – Hellenistic. Lagynos with twisted handle (Dray and du Plat Taylor 1937–39, 100: Type D, fig. 49; Hayes 1991, 20 no. 14, fig. X: 2nd–1st c. BC; Hennessy 1954, 36–37, fig. 8:3). (TCP699)

La-HIS-La – Lamp – Historical.

La-HR-La – Lamp – Hellenistic to Roman.

La-ROM-La – Lamp – Early to Late Roman.

LR1-LR-Tr – Late Roman 1 transport amphorae – Late Roman. Type 1 (Demesticha 2003; Armstrong 2009, 164: possibly into the 9th century AD). (TCP531, TCP546, TCP554, TCP591)

LRC01A-LR-TW – Phocaean Red Slip ware, form 01A – Late Roman. (Hayes 1972, 325–27, fig. 65: late 4th–early 5th c. AD). (TCP603)

LRC01B-LR-TW – Phocaean Red Slip ware, form 1B – Late Roman. Phocaean Red Slip ware form 1B (Hayes 1972, 325–27, fig. 65: Early–3rd quarter 5th c. AD). (TCP499)

LRC02A-LR-TW – Phocaean Red Slip ware, form 2A – Late Roman. (Hayes 1972, 327–29, fig. 66: last quarter 4th–mid 5th c. AD).

LRC03D-LR-TW – Phocaean Red Slip ware, form 3D – Late Roman. (Hayes 1972, 329–38, fig. 69: late 5th c. AD). (TCP467)

LRC03F-LR-TW – Phocaean Red Slip ware, form 3F – Late Roman. (Hayes 1972, 329–38, fig. 69: 1st half 6th c. AD). (TCP023)

LRC03-LR-TW – Phocaean Red Slip ware, form 3 – Late Roman. (Hayes 1972, 329–38, fig. 67–69: mid-5th–mid-6th c. AD). (TCP429)

LRC10A-LR-TW – Phocaean Red Slip ware, form 10A – Late Roman. (Hayes 1972, 343–46, fig. 71: late 6th–early 7th c. AD). (TCP016)

LRC10B-LR-TW – Phocaean Red Slip ware, form 10B – Late Roman. (Hayes 1972, 343–46, fig. 71: late 6th–early 7th c. AD). (TCP553)

LRC10-LR-TW – Phocaean Red Slip ware, form 10 – Late Roman. (Hayes 1972, 343–46, fig. 71: late 6th–early 7th c. AD). (TCP027)

LRCA1kn5-LR-TW – Phocaean Red Slip ware, form A1kn5 – Late Roman. (Vaag 1999, tav. 1: 370–450 AD, from Iatrus; von Bülow and Schieferdecker 1991, pl. 50.712). (TCP166)

LRC-LR-TW – Phocaean Red Slip ware – Late Roman. Hayes 1972, 323–70: late 4th–early 7th c. AD). (TCP167, TCP172, TCP213, TCP263, TCP470)

LU-AC-LU – Light Utility ware – Cypro-Archaic to Classical.

LUB01-HIS-LU – Light Utility ware, base type 1 – Historical. Self Slip, high conical base ring with profiled lip. Exterior diameter 17 cm. Thickness measured on bottom & body where it sets off is 1.4 cm. Date suggested by form & fabric. (TCP163)

LUB01-MOD-LU – Light Utility ware, base type 1 – Modern.

LUB02-HR-LU – Light Utility ware, base type 2 – Hellenistic to Roman. High base ring with profiled exterior foot. Date suggested by fabric & context. (Quilici 1971, 150:325, fig. 97.VI: Hellenistic–Early Roman). (TCP449)

LUB03-LR-LU – Light Utility ware, base type 3 – Late Roman. High base ring with flaring foot (Quilici 1971, 84:70, fig. 27:III: Hellenistic–Early Roman. (Hayes and Megaw 2003, 485:225, fig. 22: late 5th–early 6th c. AD; Orssaud 1980, 262 type 9, fig. 321: 2nd half 7th c. AD). (TCP352)

LUB04-GAC-LU – Light Utility ware, base type 4 – Cypro-Geometric to Classical. Small closed biconical vessel. (Gjerstad

1948, fig. XLV: 3/8, fig. LVII: 9/4d, fig. LXVIII:14/9d). (TCP700)

LU-BA-LU – Light Utility ware – Bronze Age. Non-specific Bronze Age fabric. (TCP395)

LUBW-OTTMODII-LU – Light Utility ware bowl – Ottoman to Modern II. (TCP469)

LUBW-OTTMODI-U – Light Utility ware bowl – Ottoman to Modern I.

LU-ER-LU – Light Utility ware – Early Roman.

LU-GAC-LU – Light Utility ware – Cypro-Geometric to Classical. Plain white. (TCP110)

LU-GA-LU – Light Utility ware – Cypro-Geometric to Archaic. (TCP363–64)

LU-HA-LU – Light Utility ware – Historical Antiquity.

LU-HIS-LU – Light Utility ware – Historical.

LU-HR-LU – Light Utility ware – Hellenistic to Roman.

LU-LR-LU – Light Utility ware – Late Roman.

LU-MM-LU – Light Utility ware – Medieval to Modern.

LU-MOD-LU – Light Utility ware – Modern.

LU-OTTMODII-LU – Light Utility ware – Ottoman to Modern II.

LU-OTTMODI-LU – Light Utility ware – Ottoman to Modern I.

LU-PeB-LU – Light Utility ware – Prehistoric Bronze Age.

LU-PoBAR-LU – Light Utility ware – Late Bronze Age to Archaic.

LU-PoB-LU – Light Utility ware – Protohistoric Bronze Age.

LUR01-ROM-LU – Light Utility ware, rim type 1 – Early to Late Roman. Out-tapering neck with concave sides, overfolded rim with horizontal groove below lip, interior ledge for lid, handle attached to rim. (Hayes and Megaw 2003, 462:77, fig. 8: 2nd c. BC–1st c. AD). (TCP631)

LUR02-HIS-LU – Light Utility ware, rim type 2 – Historical. Self Slip, basin with flaring sides & thickened interior offset flaring rim. Date suggested by form & fabric.

LUR03-MM-LU – Light Utility ware, rim type 3 – Medieval to Modern. (TCP252)

LUR04-HR-LU – Light Utility ware, rim type 4 – Hellenistic to Roman. Large bowl with thickened overfolded rim. Date suggested by fabric & context. (TCP590)

LUR05-LR-LU – Light Utility ware, rim type 5 – Late Roman. Thin-walled bowl with horizontal rim with vertical exterior. Date suggested by fabric & context. (TCP567)

LUR06-HR-LU – Light Utility ware, rim type 6 – Hellenistic to Roman. Self Slip, thin-walled basin with inverted thickened angular rim with flat top. Date suggested by form & fabric. (TCP028)

LUR07-LR-LU – Light Utility ware, rim type 7 – Late Roman. Small shallow bowl with flat string cut base & interior offset elongated horizontal rim with rounded lip. Date suggested by fabric & context. (TCP528)

LUR08-HR-LU – Light Utility ware, rim type 8 – Hellenistic to Roman. Self Slip bowl with flaring sides & offset everted rim. (du Plat Taylor and Megaw 1981, 245:463, fig. 60). (TCP067)

LUR09-HR-LU – Light Utility ware, rim type 9 – Hellenistic to Roman. Closed vessel with cylindrical neck with high interior & exterior offset collar rim with concave exterior. (Quilici 1971, 150:305, fig. 97:VI: Hellenistic–Early Roman). (TCP189)

LUR10-RM-LU – Light Utility ware, rim type 10 – Roman to Modern. Shallow bowl with exterior offset thickened rim with pointed lip. Exterior shaved body. Date suggested by technique, form & fabric. (TCP503)

LUR11-HR-LU – Light Utility ware, rim type 11 – Hellenistic to Roman. Thin-walled amphora with concave neck & overfolded rim with concave exterior vertical handles with wide central shallow groove. Date suggested by fabric & context. (TCP173)

LUR12-HR-LU – Light Utility ware, rim type 12 – Hellenistic to Roman. Large closed vessel with thickened angular rim. Date suggested by fabric & context. (TCP588)

LUR13-LR-LU – Light Utility ware, rim type 13 – Late Roman. Inclination uncertain. Closed vessel with thickened rim with flattened top or bowl with thickened rim? Wavy combed pattern below the rim. Miniature version of HUR10a. (Catling 1972, 13, 70 no. P21, fig. 6). (TCP434)

LUR14-HA-LU – Light Utility ware, rim type 14 – Historical Antiquity. Small closed thin-walled vessel with overfolded flattened rim & handle with central groove just below rim. Date suggested by form & fabric.

LUR15-HIS-LU – Light Utility ware, rim type 15 – Historical. Bowl with convex sides & interior thickened rounded rim. Fabric related to Mavrovouni amphora fabrics.

LUR16-GAC-LU – Light Utility ware, rim type 16 – Cypro-Geometric to Classical. Everted thickened rim of Plain White Ware with deep horizontal groove on exterior lip. Very thin-walled.

LUR17-GAC-LU – Light Utility ware, rim type 17 – Cypro-Geometric to Classical. Small Plain White Ware bowl with high exterior offset slightly concave rim with rounded lip. Bowl of similar form dated to Late Roman period by Rautman *et al*. (2003, fig. 5.9 no. 116). (TCP380)

LUR18-GAC-LU – Light Utility ware, rim type 18 – Cypro-Geometric to Classical. Small Plain White Ware bowl with in-turned rim. (TCP384)

LUR19-HR-LU – Light Utility ware, rim type 19 – Hellenistic to Roman. Closed small thin-walled Light Utility vessel of Cooking Ware. Bulging neck & thickened rim with concave exterior. Date suggested by fabric & context. (TCP493)

LU-RM-LU – Light Utility ware – Roman to Modern.

LU-ROM-LU – Light Utility ware – Early to Late Roman.

LUS-MM-LU – Light Utility ware, slashed handle – Medieval to Modern. Sandwich ware (TCP107)

LUSW-HA-LU – Light Utility sandwich ware – Historical Antiquity. Well levigated fine clay with brick red core & grey interior & exterior surfaces.

LU-UN-LU – Light Utility ware – Unknown.

Mav01-HR-Tr – Mavrovouni Amphora, form 1 – Hellenistic to Roman. Hard-fired compact Self Slip fabric. Pointed base with solid toe added, handles with two vertical ridges. Date suggested by fabric & contexts. (TCP311, TCP356, TCP479, TCP586, TCP607–608, TCP615, TCP619)

Mav02-HR-Tr – Mavrovouni Amphora, form 2 – Hellenistic to Roman. Hard-fired compact Self Slip fabric with pointed twisted toe. Date suggested by fabric & contexts. (TCP133, TCP593, TCP602)

Mav03-HR-Tr – Mavrovouni Amphora, form 3 – Hellenistic to Roman. Hard-fired compact Self Slip fabric with high profiled convex rim. Date suggested by fabric & contexts. Similar fragment from SCSP (0105-1-1) dated to the PWV (Gjerstad 1948, fig. 24–25). (TCP609)

Mav-HR-Tr – Mavrovouni transport amphora – Hellenistic to Roman. Mavrovouni amphora of hard-fired compact Self Slip fabric. Date suggested by fabric & contexts.

MG-MM-TW – Monochrome glazed – Medieval to Modern. Monochrome glazed Table Ware.

Mo-PoB-TW – Monochrome Ware – Protohistoric Bronze Age.

Monochrome ware. (TCP393)

Mor-LR-HU – Mortarium – Late Roman. Mortarium with spout & overfolded rim with flare. (Catling, 1972, 69:P578–79, fig. 40; Rautman *et al*. 2003, 191:103, fig. 5.8). (TCP690)

MP01-MEDF-TW – Monochrome Painted Ware, Green – Medieval-Frankish.

MP01-MEDOTT-TW – Monochrome Painted Ware, Green – Medieval to Ottoman.

MP01-MED-TW – Monochrome Painted Ware, Green – Medieval.

MP01-MEDVOTT-TW – Monochrome Painted Ware, Green – Medieval-Venetian to Early Ottoman. (TCP029, TCP035, TCP037, TCP151, TCP269–70, TCP323, TCP515, TCP522–23)

MP01-MM-TW – Monochrome Painted Ware, Green – Medieval to Modern. Light Utility.

MP01-MOD-TW – Monochrome Painted Ware, Green – Modern.

MP01-OTTMODI-TW – Monochrome Painted Ware, Green – Ottoman to Modern I.

MP01-OTTMODII-TW – Monochrome Painted Ware, Green – Ottoman to Modern II. (TCP002, TCP516–17, TCP524, TCP526, TCP570)

MP01-OTT-TW – Monochrome Painted Ware, Green – Ottoman.

MP02-MEDVOTT-TW – Monochrome Painted Ware, Brown – Medieval-Venetian to Early Ottoman.

MP02-OTTMODII-TW – Monochrome Painted Ware, Brown – Ottoman to Modern II. (TCP054, TCP066, TCP096, TCP326, TCP511, TCP518)

MP02-OTTMODI-TW – Monochrome Painted Ware, Brown – Ottoman to Modern I.

MP02-OTT-TW – Monochrome Painted Ware, Brown – Ottoman.

MP03-MEDVOTT-TW – Monochrome Painted Ware, Blue – Medieval-Venetian to Early Ottoman.

MP03-OTT-TW – Monochrome Painted Ware, Blue – Ottoman.

MP04-MEDF-TW – Monochrome Painted Ware, Purple – Medieval-Frankish.

MP04-MEDVOTT-TW – Monochrome Painted Ware, Purple – Medieval-Venetian to Early Ottoman.

MP04-OTTMODII-TW – Monochrome Painted Ware, Purple – Ottoman to Modern II.

MP04-OTT-TW – Monochrome Painted Ware, Purple – Ottoman.

MP05-MEDVOTT-TW – Monochrome Painted Ware, Worn/Abraded – Medieval-Venetian to Early Ottoman. Monochrome painted ware?

MP05-OTTMODI-TW – Monochrome Painted Ware, Worn/Abraded – Ottoman to Modern I.

MP06-MEDB-TW – Monochrome Painted Ware, Yellow – Byzantine to Medieval. (TCP282)

MP06-MOD-TW – Monochrome Painted Ware, Yellow – Modern.

MP06-OTT-TW – Monochrome Painted Ware, Yellow – Ottoman.

MP07-OTTMODII-TW – Monochrome Painted Ware – Ottoman to Modern II.

MP-MEDVOTT-TW – Monochrome Painted Ware (general) – Medieval-Venetian to Early Ottoman.

MP-MM-CW – Monochrome Painted Ware (general) – Medieval to Modern. Cooking Ware.

MP-MM-LU – Monochrome Painted Ware (general) – Medieval to Modern. Light Utility.

MP-MM-TW – Monochrome Painted Ware (general) – Medieval to Modern. Table Ware.

MP-MOD-TW – Monochrome Painted Ware (general) – Modern.

MP-OTTMODII-TW – Monochrome Painted Ware (general) – Ottoman to Modern II.

MP-OTT-TW – Monochrome Painted Ware (general) – Ottoman.

Pal-LR-Tr – Palestinian transport amphora – Late Roman. Palestinian 'bag-shaped' amphora (Reynolds 2005, 573–74: 5th–7th c. AD). (TCP342, TCP365)

Per-GAC-HU – Persian Bowl – Cypro-Geometric to Classical. Coarse ware basin (Jacobsen 2006b, 267–71, UC47–50, fig. 139–40). (TCP182, TCP630, TCP632)

Pin-MR-Tr – Tranport amphorae with pinched handles – Mid Roman. (Hayes 1991, 91: type III, pl. 24:3–4: 2nd–3rd c. AD). (TCP228, TCP491)

Pipe-OTT-PO – Pipe – Ottoman. (TCP256, TCP571)

Pit01-LR-HU – Pithos, rim type 1 – Late Roman. Pithos with overfolded rim with triangular section & ridge below the rim. (Jacobsen 2006b, 291–93, UC101:226, fig. 153). At Kopetra a similar pithos rim is dated to the mid-7th c. (Rautman *et al*. 2003, 77, fig. 3.21: I-3-2). (TCP177)

Pit02-MM-HU – Pithos, rim type 2 – Medieval to Modern. Beet-shaped with in-turned rounded rim. (TCP137)

Pit03-MM-HU – Pithos rim type 3 – Medieval to Modern.

Pit03-MOD-HU – Pithos rim type 3 – Modern. (TCP142)

Pit04-MOD-HU – Pithos rim type 4 – Modern. (TCP146)

Pit05-MOD-HU – Pithos rim type 5 – Modern. (TCP147)

Pit06-MOD-HU – Pithos rim type 6 – Modern. (TCP144)

Pit07-ROM-HU – Pithos rim type 7 – Early to Late Roman. Very large in-turned rim with vertical exterior lip decorated with 2 pie-crust bands. Comes in 2 sizes: regular & large (Tomber 2002, 55:124, fig. 6.7: 300–450 AD; Rautman *et al*. 2003, 105, fig. 3.41: II-11-1: mid-7th c. AD). (TCP599, TCP694)

Pit08-RM-HU – Pithos rim type 8 – Roman to Modern. Slightly in-turned triangular rim. Form similar to Rautman *et al*. 2003, 205–209, fig. 5.17, but no pie-crust decoration. Date suggested by fabric & context. (TCP606)

Pit09-RM-HU – Pithos rim type 9 – Roman to Modern. Flat exterior offset pithos base. Date suggested by fabric & context. Similar to Jacobsen 2006b, 299–300, UC111:259, fig. 158. (TCP617)

Pit10-LR-HU – Pithos rim type 10 – Late Roman. In-turned rounded rim with out-turned lip & shallow grooves below the rim. Date suggested by fabric & context. Form related to Rautman *et al*. 2003, 81, fig. 3.23: I-28-5: mid-7th c. AD. (TCP610)

Pit11-RM-HU – Pithos rim type 11 – Roman to Modern. Pithos with almost plain rim with angular lip & horizontal ridge on the exterior. Date suggested by fabric & context. Rautman *et al*. 2003, 205:214, fig. 5.17. (TCP161, TCP614)

Pit12a-HIS-HU – Pithos type 12a – Historical. Pithos with in-turned rolled rim. Date suggested by the context. (TCP413)

Pit12-GAC-HU – Pithos rim type 12 – Cypro-Geometric to Classical. Pithos with in-turned rounded rim. (TCP624)

Pit13-RM-HU – Pithos type 13 – Roman to Modern. Pithos with vertical neck & rolled rim. Combed wavy pattern below the rim. Date suggested by the decoration, fabric & context. (TCP293)

Pit14-HR-HU – Pithos type 14 – Hellenistic to Roman. Pithos with in-turned thickened angular rim. black surface. Date suggested by fabric & context. Form somewhat similar to Tomber 2002, 54:119, fig. 5.17. Jacobsen 2006b, 296–97, UC109:254, fig. 157. (TCP422)

Pit15-RM-HU – Pithos type 15 – Roman to Modern. Pithos with in-turned triangular rim with almost vertical exterior ridge under the rim. The exterior rim is decorated with an incised circle pattern. Date suggested by fabric & context. (TCP460)

Pit16-HR-HU – Pithos type 16 – Hellenistic to Roman. Pithos with high overfolded rim with vertical exterior. Date suggested by fabric & context. (TCP464)
Pit17-HR-HU – Pithos type 17 – Hellenistic to Roman. Pithos with in-turned large thickened angular rim. Date suggested by fabric & context. Form similar to Jacobsen 2006b, 293–94, UC102c:234, fig. 154. (TCP465)
Pit18-MM-HU – Pithos type 18 – Medieval to Modern. Pithos with intapering shoulder with overfolded rim with flattened top & rounded exterior. Handmade. (TCP582)
Pit19-PoBAR-HU – Pithos type 19 – Late Bronze Age to Archaic. Pithos fabric. (TCP343)
Pit20-PoBAR-HU – Pithos type 20 – Late Bronze Age to Archaic. Pithos fabric. (TCP344)
Pit21-HA-HU – Pithos type 21 – Historical Antiquity. Pithos with slightly everted rolled elongated shaped rim with horizontal exterior groove (Catling 1972, P270, fig. 38.). (TCP370)
Pit22-LR-HU – Pithos type 22 – Late Roman. Pithos with in-turned rim with ribbed vertical exterior. Form similar to Rautman *et al*. 2003, 84, fig. 3.23: I-32-9: mid. 7th c. AD. (TCP371)
Pit23-HR-HU – Pithos type 23 – Hellenistic to Roman. Pithos with vertical thickened rim with two shallow grooves below the rim. Incised wavy pattern below grooves. (TCP421)
Pit24-LR-HU – Pithos rim type 24 – Late Roman. Pithos with heavy triangular rim similar to Rautman *et al*. 2003, 205:213, fig. 5.17. (TCP695)
Pit-AC-HU – Pithos – Cypro-Archaic to Classical. Pithos fabric.
Pit-HIS-HU – Pithos – Historical.
Pit-MM-HU – Pithos – Medieval to Modern.
Pit-OTTMODII-HU – Pithos – Ottoman to Modern II.
Pit-PoB-HU – Pithos – Protohistoric Bronze Age.
Pit-RM-HU – Pithos – Roman to Modern.
Pit-UN-HU – Pithos – Unknown.
Por-MOD-Tr – Porcelain – Modern. Porcelain, industrialised.
Por-MOD-TW – Porcelain – Modern. Porcelain, industrialised.
Por-OTTMODII-TW – Porcelain – Ottoman to Modern II.
Por-OTT-TW – Porcelain – Ottoman. Porcelain, industrialised.
PP01-OTT-TW – Polychrome Painted, Maiolica – Ottoman. Maiolica. (TCP032, TCP185, TCP218)
PP02-MOD-TW – Polychrome Painted, Faenza – Modern. Maiolica.
PP02-OTTMODII-TW – Polychrome Painted, Faenza – Ottoman to Modern II. Maiolica.
PP03-MEDVOTT-TW – Polychrome Painted, Berettina – Medieval-Venetian to Early Ottoman. Maiolica from Italy.
PP05-OTT-TW – Polychrome Painted, Marbled Ware – Ottoman. (TCP265)
PP06-MOD-TW – Polychrome painted ware, from Grottaglie in Italy – Modern.
PP06-OTTMODII-TW – Polychrome painted ware, from Grottaglie in Italy – Ottoman to Modern II.
PP06-OTTMODI-TW – Polychrome painted ware, from Grottaglie in Italy – Ottoman to Modern I.
PP06-OTT-TW – Polychrome painted ware, from Grottaglie in Italy – Ottoman.
PP07-OTTMODII-TW – Polychrome Painted Ware, Kütahya – Ottoman to Modern II. (TCP325)
PP-MOD-TW – Polychrome Painted – Modern.
PP-OTTMODII-TW – Polychrome Painted – Ottoman to Modern II.
RB-HEL-TW – Relief-decorated (Megarian) bowl – Hellenistic. (Neuru 1991, 13–14). (TCP215, TCP480)
Rho-HEL-Tr – Rhodian amphora – Hellenistic. Rhodian transport amphora (Hayes 1991, 85). (TCP347)
RLUC-PoB-LU – Red lustrous Ware, closed – Protohistoric Bronze Age. Red lustrous wheelmade ware, closed vessel. (TCP119)
RLU-PoB-LU – Red lustrous Ware – Protohistoric Bronze Age. Red lustrous wheelmade ware. Light Utility. (TCP079)
RLU-PoB-TW – Red lustrous Ware – Protohistoric Bronze Age. Red lustrous wheelmade ware. Table Ware
RM-CHAL-HU – Red Monochrome Ware – Chalcolithic, large. Heavy Utility. (TCP328–31, TCP377, TCP650–51, TCP653)
RM-CHAL-LU – Red Monochrome Ware – Chalcolithic, medium. Light Utility. (TCP335, TCP339, TCP654, TCP657–58)
RM-CHAL-TW – Red Monochrome Ware – Chalcolithic. Table Ware. (TCP643)
RMCL-CHAL-HU – Red Monochrome Ware, closed large – Chalcolithic. Heavy Utility. (TCP272, TCP652)
RMCS-CHAL-LU – Red Monochrome Ware, closed small – Chalcolithic. Light Utility. (TCP332, TCP333)
RM-LChPh-HU – Red Monochrome Ware – Late Chalcolithic/ Philia. Heavy Utility.
RM-LChPh-TW – Red Monochrome Ware – Late Chalcolithic/ Philia. Table Ware.
RMOL-CHAL-HU – Red Monochrome Ware, open large – Chalcolithic.
RMOS-CHAL-TW – Red Monochrome Ware, open small – Chalcolithic.
RM-PeB-HU – Red Monochrome Ware – Prehistoric Bronze Age. Heavy Utility.
RMP-LChPh-HU – Red monochrome or polished – Late Chalcolithic/Philia, Heavy Utility. (TCP340, TCP644–46)
RMP-LChPh-LU – Red monochrome or polished – Late Chalcolithic/Philia. Light Utility. (TCP648)
RMP-LChPh-TW – Red monochrome or polished – Late Chalcolithic/Philia. Table Ware.
RMP-PeB-HU – Red monochrome or polished – Prehistoric Bronze Age. Heavy Utility.
RMP-PeB-LU – Red monochrome or polished – Prehistoric Bronze Age. Light Utility.
ROW-CHAL-LU – Red on White Ware – Chalcolithic. (TCP378, TCP379)
ROWOL-CHAL-LU –
– Red on White Ware, open large – Chalcolithic. (TCP273)
RPC-PeB-CW – Red Polished ware, closed – Prehistoric Bronze Age. Cooking Ware.
RPC-PeB-HU – Red Polished ware, closed – Prehistoric Bronze Age. Heavy Utility. (TCP098, TCP120, TCP295, TCP337)
RPC-PeB-LU – Red Polished ware, closed – Prehistoric Bronze Age. (TCP068, TCP074, TCP111, TCP196–98, TCP278, TCP338, TCP649)
RPC-PeB-TW – Red Polished ware, closed – Prehistoric Bronze Age. Table Ware. (TCP576)
RPIC-PeB-LU – Red Polished incised ware, closed – Prehistoric Bronze Age. Light Utility.
RPIC-PeB-TW – Red Polished incised ware, closed – Prehistoric Bronze Age. (TCP076, TCP113)
RPIO-PeB-TW – Red Polished incised ware, open – Prehistoric Bronze Age.
RPIOS-PeB-TW – Red Polished incised ware, open. Exterior diameter: >15 cm – Prehistoric Bronze Age. Table Ware. (TCP069)

RPOL-PeB-HU – Red Polished ware, open. Exterior diameter: <35 cm – Prehistoric Bronze Age. (TCP071–72, TCP073, TCP078, TCP086–87, TCP121)
RPOL-PeB-LU – Red Polished ware, open. Exterior diameter: <35 cm – Prehistoric Bronze Age. (TCP088)
RPOL-PeB-TW – Red Polished ware, open. Exterior diameter: <35 cm – Prehistoric Bronze Age.
RPOM-PeB-LU – Red Polished ware, open. Exterior diameter: 15–35 cm – Prehistoric Bronze Age. (TCP647)
RPO-PeB-HU – Red Polished ware, open, size unknown – Prehistoric Bronze Age.
RPO-PeB-LU – Red Polished ware, open, size unknown – Prehistoric Bronze Age. (TCP483)
RPO-PeB-TW – Red Polished ware, open, size unknown – Prehistoric Bronze Age.
RPOS-PeB-LU – Red Polished ware, open. Exterior diameter: >15 cm – Prehistoric Bronze Age. (TCP117, TCP128)
RPOS-PeB-TW – Red Polished ware, open. Exterior diameter: >15 cm – Prehistoric Bronze Age.
RP-PeB-HU – Red Polished ware – Prehistoric Bronze Age. Heavy Utility. (TCP099, TCP195, TCP199)
RP-PeB-LU – Red Polished ware – Prehistoric Bronze Age. Red Polished ware, all (Philia, I–IV, drab, mottled, punctured). (TCP124, TCP336)
RP-PeB-TW – Red Polished ware – Prehistoric Bronze Age. Table Ware. (TCP334)
RPS-PeB-HU – Red Polished ware, slashed handle – Prehistoric Bronze Age. (TCP289)
RPS-PeB-LU – Red Polished ware, slashed handle – Prehistoric Bronze Age. (TCP290, TCP484)
RPTC-PeB-TW – Red Polished Table Ware, closed – Prehistoric Bronze Age.
RPTOM-PeB-LU – Red Polished Table Ware, open. Exterior diameter: 15–35 cm – Prehistoric Bronze Age. Red Polished, fine wares, open, medium.
RPTOM-PeB-TW – Red Polished Table Ware, open. Exterior diameter: 15–35 cm – Prehistoric Bronze Age. (TCP077, TCP085, TCP123)
RPTO-PeB-TW – Red Polished Table Ware, open. Exterior diameter: >15 cm – Prehistoric Bronze Age.
RPTOS-PeB-TW – Red Polished Ware, Table Ware, open small – Prehistoric Bronze Age. (TCP070, TCP075, TCP114)
RPT-PeB-TW – Red Polished Table Ware – Prehistoric Bronze Age. (TCP112, TCP655, TCP656)
RP-UN-U – Red Polished ware – Unknown.
RS-BA-HU – Red Slip ware – Bronze Age. Heavy Utility.
RS-BA-LU – Red Slip ware – Bronze Age. Light Utility. (TCP115, TCP116)
RS-BA-TW – Red Slip ware – Bronze Age. Table Ware. (TCP354)
RS-CLH-TW – Red Slip ware – Classical to Hellenistic.
RS-CL-TW – Red Slip ware – Cypro-Classical.
RS-GAC-HU – Red Slip ware – Cypro-Geometric to Classical.
RS-GAC-LU – Red Slip ware – Cypro-Geometric to Classical.
RS-GAC-TW – Red Slip ware – Cypro-Geometric to Classical.
RS-HA-TW – Red Slip ware – Historical Antiquity.
RS-HEL-TW – Red Slip ware – Hellenistic.
RS-HER-TW – Red Slip ware – Hellenistic to Early Roman.
RS-HIS-LU – Red Slip ware – Historical.
RS-HR-TW – Red Slip ware – Hellenistic to Roman. (TCP013)
RS-LHER-TW – Red Slip ware – Late Hellenistic to Early Roman.
RS-LR-TW – Red Slip ware – Late Roman.
RSO-AC-LU – Red Slip Open – Cypro-Archaic to Classical. Open vessel.
RS-PeB-TW – Red Slip ware – Prehistoric Bronze Age.
RS-PoBAR-LU – Red Slip ware – Late Bronze Age to Archaic. Wheelmade.
RS-PoB-HU – Red Slip ware – Protohistoric Bronze Age. Red/black slip.
RS-PoB-LU – Red Slip ware – Protohistoric Bronze Age. Red/black slip.
RS-PoB-TW – Red Slip ware – Protohistoric Bronze Age. Red/black slip. (TCP394)
RS-ROM-TW – Red Slip ware – Early to Late Roman.
RS-UN-HU – Red Slip ware – Unknown. Red slipped, Heavy Utility of pre-Hellenistic date.
Sh-GAC-HU – Shaved vessel – Cypro-Geometric to Classical. Shaved plain white Heavy Utility. (TCP361)
Sig01-LHER-TW – Sigillata rim type 1 – Late Hellenistic to Early Roman. Thin-walled sigillata bowl with plain rim with flattened top.
Sig-LHER-TW – Sigillata – Late Hellenistic to Early Roman. Unidentified sigillata. (TCP234, TCP251, TCP391, TCP450)
SigW-ER-TW – Possible Western Sigillata – Early Roman. According to Hayes (1991, 51–52) Western sigillatas only arrive in Cyprus during the Augustan period. (TCP168, TCP190, TCP236, TCP247, TCP345, TCP447, TCP481)
Sla-PH-CW – Slashed handles ware – Prehistoric. Slashes either parallel or irregular, from cooking vessel. (TCP242)
Sla-PH-HU – Slashed handles ware – Prehistoric. Slashes either parallel or irregular, from Heavy Utility vessel. (TCP509)
Sla-PH-Un – Slashed handles ware – Prehistoric. Slashes either parallel or irregular. (TCP374, TCP505)
Sla-UN-LU – Slashed handles ware – Unknown. Slashes either parallel or irregular.
SP01-MOD-TW – Slip-painted, Green – Modern.
SP01-OTTMODII-TW – Slip-painted, Green – Ottoman to Modern II. (TCP031)
SP01-OTTMODI-TW – Slip-painted, Green – Ottoman to Modern I.
SP02-MEDB-TW – Slip-painted, Yellow – Byzantine to Medieval.
SP02-MOD-TW – Slip-painted, Yellow – Modern.
SP02-OTTMODII-TW – Slip-painted, Yellow – Ottoman to Modern II. (TCP164, TCP217, TCP510)
SP02-OTTMODI-TW – Slip-painted, Yellow – Ottoman to Modern I.
SP03-MEDB-TW – Slip-painted, White – Byzantine to Medieval. (TCP104, TCP150, TCP327)
SP03-MEDF-TW – Slip-painted, White – Medieval-Frankish.
SP03-MOD-TW – Slip-painted, White – Modern.
SP03-OTTMODII-TW – Slip-painted, White – Ottoman to Modern II.
SP03-OTT-TW – Slip-painted, White – Ottoman.
SP-MOD-TW – Slip-painted – Modern.
SRS-HER-TW – Sigillata or Red Slip Ware – Hellenistic to Early Roman.
SRS-HR-TW – Sigillata or Red Slip Ware – Hellenistic to Roman.
SRS-ROM-TW – Sigillata or Red Slip Ware – Early to Late Roman.
Tia02-MEDUIII-CW – Tianistra with decorated rim – Medieval utility period III. Bowl or pan with in-turned rim & lug handle. Plastic decoration.
Tia02-MOD-CW – Tianistra with decorated rim – Modern. Bowl or pan with in-turned rim & lug handle. Plastic decoration.

Tia02-OTTMODI-CW – Tianistra with decorated rim – Ottoman to Modern I. Bowl or pan with in-turned rim & lug handle. Plastic decoration.
Tia03-MEDUIII-CW – Tianistra type 3 – Medieval utility period III. Bowl or pan with in-turned rim & lug handle. Insiced decoration.
Tia03-OTTMODI-CW – Tianistra type 3 – Ottoman to Modern I. Bowl or pan with in-turned rim & lug handle. Incised decoration. (TCP090)
Tia04-MEDUIII-CW – Tianistra type 4 – Medieval utility period III. Bowl or pan with in-turned rim & indentation line at base of rim. (TCP095, TCP303)
TiaB-MOD-CW – Tianistra, Burnished – Modern. Bowl or pan with in-turned rim & lug handle. Surface seemingly burnished.
TiaB-OTTMODI-CW – Tianistra, Burnished – Ottoman to Modern I. Bowl or pan with in-turned rim. Internal surface well smoothed.
Tia-MEDUIII-CW – Tianistra – Medieval utility period III. Bowl or pan with in-turned rim. (TCP127, TCP139)
Tia-MM-CW – Tianistra – Medieval to Modern. Lug-handled bowl or pan with in-turned rim. (TCP402, TCP405)
Tia-MOD-CW – Tianistra – Modern. Bowl or pan with in-turned rim.
TiAn-ROM-Ar – Tile, pan, angular corners – Early to Late Roman.
TiCA-HIS-Ar – Tile, Cover, Angular – Historical.
TiCA-MM-Ar – Tile, Cover, Angular – Medieval to Modern.
TiCA-ROM-Ar – Tile, Cover, Angular – Early to Late Roman. (TCP065, TCP628)
TiC-HA-Ar – Tile, cover – Historical Antiquity.
TiC-HIS-Ar – Tile, cover – Historical.
TiCh-MOD-Ar – Tile, Choletrota – Modern. Ferrous semicircular tile with scraped convex surface & gritty concave surface.
TiC-HR-Ar – Tile, cover – Hellenistic to Roman.
TiC-LR-Ar – Tile, cover – Late Roman.
TiC-MM-Ar – Tile, cover – Medieval to Modern. (TCP253)
TiC-RM-Ar – Tile, cover – Roman to Modern.
TiC-ROM-Ar – Tile, cover – Early to Late Roman.
TiCS-HA-Ar – Semicircular cover tile – Historical Antiquity.
TiCS-HIS-Ar – Semicircular cover tile – Historical.
TiCS-LR-Ar – Semicircular cover tile – Late Roman.
TiCS-RM-Ar – Semicircular cover tile – Roman to Modern.
TiCS-ROM-Ar – Semicircular cover tile – Early to Late Roman. (TCP389)
TiF-MM-Ar – Tile, pan, small flat – Medieval to Modern. (TCP577–79)
TiGr-MOD-Ar – Tile, Greece – Modern. Modern tile from Greece.
Ti-HA-Ar – Tile, pan – Historical Antiquity. (TCP625, TCP640)
Ti-HIS-Ar – Tile, pan – Historical. (TCP134, TCP573)
Ti-HR-Ar – Tile, pan – Hellenistic to Roman. (TCP100, TCP458, TCP514, TCP575)
TiLi-MOD-Ar – Tile, Limassol – Modern. Modern tile from Limassol.
Ti-LR-Ar – Tile, pan – Late Roman.
TiMa-MOD-Ar – Tile, Marseilles – Modern. Modern tile from Marseilles.
Ti-MM-Ar – Tile, pan – Medieval to Modern. (TCP271)
Ti-MM-U – Tile, pan – Medieval to Modern.
Ti-MOD-Ar – Tile, pan – Modern.
TiP-HA-Ar – Pan Tile – Historical Antiquity.
TiP-HIS-Ar – Pan Tile – Historical.
TiP-HR-Ar – Pan Tile – Hellenistic to Roman. (TCP415–17, TCP419)
TiP-HR-Ar – Pan Tile – Hellenistic to Roman. (TCP585, TCP613, TCP621–22)
TiP-LR-Ar – Pan Tile – Late Roman. (TCP184)
TiP-RM-Ar – Pan Tile – Roman to Modern.
TiP-ROM-Ar – Pan Tile – Early to Late Roman.
Ti-RM-Ar – Tile, pan – Roman to Modern.
Ti-ROM-Ar – Tile, pan – Early to Late Roman.
TiSk01-LR-Ar – Tile, Skouriotissa, type 1 – Late Roman. Coarse ferrous fabric, irregular square high (<2.5 cm) rim, burnished? Date suggested by fabric & context. (TCP557)
TiSk02-LR-Ar – Tile, Skouriotissa, type 2 – Late Roman. Self Slip fabric, low square rim, fingermarks. Date suggested by fabric & context. Similar to type Z from Apollo Hylates Sanctuary (2nd half 1st c. AD?) (Huffstot 1987, figs 185–86). (TCP003, TCP373, TCP533, TCP693)
TiSk03-LR-Ar – Tile, Skouriotissa, type 3 – Late Roman. Self Slip fabric, soft squarish rim on 3 sides with soft angular corners, fingermarks. On 4th short side rim ends c. 10 cm from corner. Date suggested by fabric & context. (TCP544, TCP568–69)
TiSk04-LR-Ar – Tile, Skouriotissa, type 4 – Late Roman. Overfired coarse fabric, soft squarish high rim. Short side with ridge 2.5 cm from edge, 2 cm high. Date suggested by fabric & context. Similar to type X from Apollo Hylates Sanctuary (1st–4th c. AD) (Huffstot 1987, fig. 179) & LR tiles from Kalavasos *Kopetra* (Rautman *et al*. 2003, 205:221, fig. 5.18). (TCP550)
TiSk05-LR-Ar – Tile, Skouriotissa, type 5 – Late Roman. Self Slip fabric which also fires pale pink. Soft squarish rim with curved outer edge, fingermarks. Date suggested by fabric & context. (TCP534)
TiSk06-LR-Ar – Tile, Skouriotissa, type 6 – Late Roman. Coarse Self Slip fabric, soft rim with rounded corner, fingermarks. Date suggested by fabric & context. (TCP551)
TiSkC01-LR-Ar – Tile, Skouriotissa, Cover type 1 – Late Roman. Self Slip/mixed fabric, semicircular with very rough edges. Low ridge 7.5 cm from edge at one end. Convex side faces down in the form; inside is scraped. Date suggested by fabric & context. Similar to type C-14 from Apollo Hylates Sanctuary (Hufftot 1987, fig. 195). (TCP527, TCP535, TCP545, TCP559)
TiSkC02-LR-Ar – Tile, Skouriotissa, Cover type 2 – Late Roman. Coarse red fabric, angular with coarsely scraped interior in continuous profile. Date suggested by fabric & context. (TCP532, TCP572)
TiSkC02-LR-Ar – Tile, Skouriotissa, Cover type 2 – Late Roman. Coarse red fabric, angular with coarsely scraped interior in continuous profile. Date suggested by fabric & context. (TCP574, TCP698)
TiSkC03-LR-Ar – Tile, Skouriotissa, Cover type 3 – Late Roman. Red fabric. Angular & well defined outside, interior in smoothed continuous profile. Date suggested by fabric & context. Similar to type C-9 from Apollo Hylates Sanctuary (Hufftot 1987, fig. 195). (TCP420, TCP560, TCP612, TCP641)
TiSkC04-LR-Ar – Tile, Skouriotissa, Cover type 4 – Late Roman. Self Slip/Mixed fabric. Angular outside with very low rim, inside in one straight line. Date suggested by fabric & context. Similar to type C-10 from Apollo Hylates Sanctuary (Hufftot 1987, fig. 195). (TCP536)
TiSkC04-LR-Ar – Tile, Skouriotissa, Cover type 4 – Late Roman. Self Slip/Mixed fabric. Angular outside with very low rim, inside in one straight line. Date suggested by fabric & context. Similar to type C-10 from Apollo Hylates Sanctuary (Hufftot

1987, fig. 195). (TCP634)

TiSkC05-LR-Ar – Tile, Skouriotissa, Cover type 5 – Late Roman. Form similar to Choletrota (semicircular with scraped exterior), but wider, more open & inside not sandy. Rim with shallow indentations. Date suggested by fabric & context. Similar to LR cover tile from Kalavasos *Kopetra* (Rautman *et al*. 2003, 205:220, fig. 5.18). (TCP538, TCP623)

Ti-UN-Ar – Tile, pan – Unknown. Tile of unknown period.

Tri-HIS-HU – Tripod – Historical.

Tri-MM-HU – Tripod – Medieval to Modern. (TCP704)

Tta02-MEDUI-CW – Ttavvas type 2 – Medieval utility period I. Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with indentation line.

Tta02-MEDUII-CW – Ttavvas type 2 – Medieval utility period II. Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with an indentation line.

Tta02-MEDUIII-CW – Ttavvas type 2 – Medieval utility period III. Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with an indentation line. (TCP092)

Tta02-MM-U – Ttavvas type 2 – Medieval to Modern. Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with an indentation line. (TCP497)

TtaB-MEDUI-CW – Ttavas, burnished – Medieval utility period I, Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with an indentation line. Inside surface finely smoothed. (TCP286)

TtaB-MEDUIII-U – Ttavas, burnished – Medieval utility period III. Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with an indentation line. Well smoothed on inside.

TtaB-MM-CW – Ttavas, burnished – Medieval to Modern. Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with an indentation line. Inner surface finely smoothed. (TCP258)

Tta-MEDUIII-CW – Ttavas – Medieval utility period III. Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with an indentation line. (TCP089)

Tta-MM-CW – Ttavas – Medieval to Modern. Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with an indentation line. (TCP259)

Tta-MOD-CW – Ttavas – Modern. Cooking pot with in-turned rim. Rim thickened at its base; resulting ridge often decorated with an indentation line. (TCP409)

TW-BA-TW – Table Ware – Bronze Age. Table Ware.

TW-CLH-TW – Table Ware – Classical to Hellenistic.

TW-GAC-TW – Table Ware – Cypro-Geometric to Classical. (TCP367)

TW-HA-TW – Table Ware – Historical Antiquity. (TCP355)

TW-HEL-TW – Table Ware – Hellenistic.

TW-HIS-TW – Table Ware – Historical.

TW-HR-TW – Table Ware – Hellenistic to Roman.

TW-LHER-TW – Table Ware – Late Hellenistic to Early Roman.

TW-LR-TW – Table Ware – Late Roman.

TW-MM-TW – Table Ware – Medieval to Modern.

TW-MOD-TW – Table Ware – Modern.

TW-RM-TW – Table Ware – Roman to Modern.

TW-ROM-TW – Table Ware – Early to Late Roman.

TW-UN-TW – Table Ware – Unknown.

UAA98-MEDUI-U – Utility rim type AA98 – Medieval utility period I. Flat vessel with thin base from which rim rises directly. Part of series of vessels with in-turned rim, but with upright lip because of absence of wall. cf. *gastra* (Bakirtzis 1989: 131, pl. 11, 3–4). (TCP062, TCP313)

UAA98-MEDUII-U – Utility rim type AA98 – Medieval utility period II. Flat vessel with thin base from which rim rises directly. Part of series of vessels with in-turned rim, but with upright lip because of absence of wall. cf. *gastra* (Bakirtzis 1989, 131, pl. 11, 3–4). (TCP308)

UBR01-OTTMODI-U – Utility bowl rim type 1 – Ottoman to Modern I. Utility bowl with vestigial in-turned rim & pie-crust decoration. (TCP291)

UBR02-MEDUI-U – Utility bowl rim type 2 – Medieval utility period I. Bowl with flattened rim (& possibly lug handle) decorated on the upper face of rim with decoration like the UL01-MEDUI lids. (TCP030)

UBRB-OTTMODI-U – Utility bowl – Ottoman to Modern I. Utility bowl with flattened rim (& lug handle). (TCP036, TCP048–49, TCP094)

UFB01-MM-U – Utility ferrous base type 1 – Medieval to Modern. Utility ferrous flat handmade base. (TCP020)

UFB02-OTTMODI-U – Utility ferrous base type 2 – Ottoman to Modern I. Utility ferrous flat wheelmade base. (TCP008, TCP061)

UFR01-MOD-LU – Utility ferrous rim type 1 – Modern. Globular pot/jar with simple rim & horizontal handle.

UFR01-OTTMODI-U – Utility ferrous rim type 1 – Ottoman to Modern I. Globular pot/jar with simple rim & horizontal handle. (TCP296)

UFR02-MEDUI-U – Utility ferrous rim type 2 – Medieval utility period I. Small globular vessel. Short neck, thickened rounded rim, vertical handle.

Ug01-HEL-PO – Unguentarium Type 1 – Hellenistic. Unguentarium with offset flaring base (Hayes 1991, 68, pl. XIV:9–17: 2nd c. BC). (TCP346)

Ug-HEL-PO – Unguentaria – Hellenistic. Fusiform unguentarium (Anderson-Stojanović 1987). (TCP012, TCP463)

Ug-UN-PO – Unguentaria – Unknown. Unglazed unguentarium.

U-HA-U – Utility Ware – Historical Antiquity.

U-HIS-U – Utility Ware – Historical.

UJ01-MEDUI-U – Utility jar/pot type 1 – Medieval utility period I. Jar/pot with thick everted rim. (TCP305)

UJ02-MEDUI-U – Utility jar/jug type 2 – Medieval utility period I. Jar/jug with short neck & indentation ridge at base of rim. (TCP306)

UJa02-MEDUIII-U – Utility jar/pot type 2 – Medieval utility period III. Utility jar with short neck & rim thickened on outside to a triangular section with slight overhanging pie-crust edge. (TCP279, TCP284)

UJa03-MM-U – Utility jar type 3 – Medieval to Modern. Utility jar with simple everted rim & round body: thin-walled & of extremely coarse fabric. (TCP317)

UJa04-MED-U – Utility jar/pot type 4 – Medieval. Jar/pot with globular body. Rim thickened & rounded on the outside. Indentation lines along rim outside at point of maximum diameter.

UJa04-MEDUI-U – Utility jar/pot type 4 – Medieval utility period I. Jar/pot with globular body. Rim thickened & rounded on outside. Indentation lines along rim outside, at point of maximum diameter. (TCP063)

UJa04-MM-U – Utility jar/pot type 4 – Medieval to Modern.

UJa06-MEDUI-U – Utility jar/pot type 6 – Medieval utility period I. Jar/pot with thin rim everted to horizontal, with pie-crust decoration on its outside edge. (TCP056)

UJa07-OTTMODI-U – Utility jar type 7 – Ottoman to Modern I. Fairly heavy storage jar with short concave neck. Rim thickened & rounded outwards. (TCP495)
UJa-MEDUI-U – Utility jar – Medieval utility period I. Two handles. (TCP486)
UJa-MEDUIII-U – Utility jar – Medieval utility period III. Two handles. (TCP406)
UJa-MM-U – Utility jar – Medieval to Modern. Two handles. (TCP007, TCP401)
UJu-MM-U – Utility jug – Medieval to Modern. One handle.
UJu-MOD-LU – Utility jug – Modern. One handle.
UJu-OTTMODI-U – Utility jug – Ottoman to Modern I. One handle.
UL01-MEDUI-U – Utility lid type 1 – Medieval utility period I. Large flat utility lid. Coarse incised decoration on upper face. (TCP280, TCP312, TCP443)
UL02-MM-U – Utility lid type 2 – Medieval to Modern. Large flat undecorated utility lid.
UL03-MM-U – Utility lid type 3 – Medieval to Modern. Lid with central loop handle & incised decoration. (TCP494)
ULSJ01-OTTMODI-U – Utility long spouted jug, handmade – Ottoman to Modern I. (TCP294, TCP403, TCP408)
U-MM-U – Utility Ware – Medieval to Modern.
U-MOD-U – Utility Ware – Modern.
Un01-MM-Ar – Unknown type 1 – Medieval to Modern.
Un02-HR-HU – Unknown type 2 – Hellenistic to Roman. Ring of tile-like fabric.
Un04-UN-CW – Unknown type 4 – Unknown. Prehistoric-(polished?) looking pottery with grooves.
Un-BA-HU – Unknown – Bronze Age. Heavy Utility.
Un-BA-LU – Unknown – Bronze Age. Light Utility.
Un-BA-TW – Unknown – Bronze Age. Table Ware. (TCP201)
Un-BA-Un – Unknown – Bronze Age. Unknown fabric.
Un-CHAL-LU – Unknown – Chalcolithic, Light Utility.
UnG-MED-TW – Unglazed – Medieval.
UnG-MM-TW – Unglazed – Medieval to Modern.
UnG-OTTMODI-TW – Unglazed – Ottoman to Modern I.
UnG-OTTMODII-TW – Unglazed – Ottoman to Modern II.
UnG-OTT-TW – Unglazed – Ottoman.
Un-HA-Un – Unknown – Historical Antiquity.
Un-HIS-Ar – Unknown – Historical.
Un-HIS-Un – Unknown – Historical.
Un-LR-Un – Unknown – Late Roman. (TCP543)
Un-MM-TW – Unknown – Medieval to Modern. Table Ware.
Un-MM-Un – Unknown – Medieval to Modern.
Un-UN-Ar – Unknown – Unknown. Architectural.
Un-UN-LU – Unknown – Unknown. Light Utility.
Un-UN-U – Unknown – Unknown. Utility.
Un-UN-Un – Unknown – Unknown.
UPL01-OTTMODII-U – Utility – Ottoman to Modern II. Utility plate or shallow dish with simple rim not distinctly separated from the body. May have incised decoration. (TCP281, TCP307, TCP404)
UPL03-OTTMODI-U – Utility plate type 3 – Ottoman to Modern I. Shallow dish with thick slightly flaring walls & thick flat base. Sometimes with pie-crust decoration. (TCP033)
UPSJ01-MEDUIII-U – Utility pinched spouted jar or jug type 1 – Medieval utility period III. (TCP400)
UPSJa-MEDUIII-U – Utility pinched spouted jar with two handles – Medieval utility period III. (TCP058)
UPSJa-MM-U – Utility pinched spouted jar with two handles – Medieval to Modern. (TCP512, TCP513)
UPSJu-MEDUIII-U – Utility pinched spouted jug – Medieval utility period III. (TCP292)
UPSJu-MM-U – Utility pinched spouted jug – Medieval to Modern.
URB01-OTTMODI-U – Utility ring-base type 1 – Ottoman to Modern I. Handmade. (TCP160, TCP316)
U-RM-U – Utility Ware – Roman to Modern.
U-UN-U – Utility Ware – Unknown.
WaP-HIS-Ar – Water pipe – Historical. (TCP556)
WaP-MOD-Ar – Water pipe – Modern.
WaP-ROM-Ar – Water pipe – Early to Late Roman.
WPBC-PoB-LU – White Painted burnished Ware, closed – Protohistoric Bronze Age. White painted bichrome. (TCP108–109)
WPC-AC-LU – White Painted Ware, closed – Cypro-Archaic to Classical. Cypriot. (TCP707)
WPC-GAC-HU – White Painted Ware, closed – Cypro-Geometric to Classical. Cypriot. (TCP350, TCP359, TCP471–72)
WPC-GAC-LU – White Painted Ware, closed – Cypro-Geometric to Classical. Cypriot. (TCP131–32, TCP200, TCP227, TCP362)
WPC-GAC-TW – White Painted Ware, closed – Cypro-Geometric to Classical. Cypriot.
WPC-GA-HU – White Painted Ware, closed – Cypro-Geometric to Archaic. Heavy Utility. (TCP229)
WPC-GA-LU – White Painted Ware, closed – Cypro-Geometric to Archaic. Light Utility. (TCP230)
WP-GAC-HU – White Painted Ware – Cypro-Geometric to Classical. Cypriot.
WP-GAC-LU – White Painted Ware – Cypro-Geometric to Classical. Cypriot. (TCP082–84, TCP122)
WP-GAC-TW – White Painted Ware – Cypro-Geometric to Classical. Cypriot. Table Ware.
WPO-GAC-LU – White Painted Ware, open – Cypro-Geometric to Classical. Cypriot. Light Utility.
WPO-GAC-TW – White Painted Ware, open – Cypro-Geometric to Classical. Cypriot. Table Ware. (TCP396)
WPO-GA-LU – White Painted Ware, open – Cypro-Geometric to Archaic. Light Utility.
WP-PoB-HU – White Painted Ware – Protohistoric Bronze Age.
WSCL-PoB-TW – White Slip Ware, closed large – Protohistoric Bronze Age.
WSCS-PoB-TW – White Slip Ware, closed small – Protohistoric Bronze Age.
WSO-PoB-TW – White Slip Ware, open – Protohistoric Bronze Age. (TCP706)
WSOS-PoB-TW – White Slip Ware, open small – Protohistoric Bronze Age. (TCP045)
WS-PoB-TW – White Slip Ware – Protohistoric Bronze Age. (TCP224, TCP226, TCP485)

Bibliography

Agricola, G.
1950 *De re metallica: translated from the first Latin edition of 1556*. New York: Dover Publications.

Al-Hassan, A.Y., and D.R. Hill
1992 *Islamic technology: an illustrated history*. Cambridge: Cambridge University Press.

Alcock, S.E.
1993 *Graecia capta: the landscapes of Roman Greece*. Cambridge: Cambridge University Press.

Alcock, S.E., and J.F. Cherry
2004 Introduction. In S.E. Alcock and J.F. Cherry (eds.), *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*, 1–9. Oxford: Oxbow Books.

Allen, M.J.
1991 Analysing the landscape: a geographical approach to archaeological problems. In A.J. Schofield (ed.), *Interpreting artefact scatters: contributions to ploughzone archaeology*, 39–58. Oxford: Oxbow.

Almogi-Labin, A., M. Bar-Matthews, D. Shriki, E. Kolosovsky, M. Paterne, B. Schilman, A. Ayalon, Z. Aizenshtat, and A. Matthews
2009 Climatic variability during the last ~90 ka of the southern and northern Levantine Basin as evident from marine records and speleothems. *Quaternary Science Reviews* 28, 2882–96.

Ammerman, A.J.
1985 Plow-zone experiments in Calabria, Italy. *Journal of Field Archaeology* 12, 33–40.
2010 The first argonauts: towards the study of the earliest seafaring in the Mediterranean. In A. Anderson, J. Barrett, and K. Boyle (eds.), *The global origins and development of seafaring*, 81–92. Cambridge: McDonald Institute for Archaeological Research.

Ammerman, A.J., P. Flourentzos, R. Gabrielli, T. Higham, C. McCartney, and T. Turnbull
2008 Third report on early sites on Cyprus. *Report of the Department of Antiquities, Cyprus*, 1–32.

Ammerman, A.J., P. Flourentzos, R. Gabrielli, C. McCartney, J.S. Noller, D. Peloso, and D. Sorabji
2007 More on the new early sites on Cyprus. *Report of the Department of Antiquities, Cyprus*, 1–26.

Ammerman, A.J., P. Flourentzos, C. McCartney, J. Noller, and D. Sorabji
2006 Two new early sites on Cyprus. *Report of the Department of Antiquities, Cyprus*, 1–22.

Amundsen, R., and H. Jenny
1991 The place of humans in the state factor theory of ecosystems and their soils. *Soil Science* 151, 99–109.

Anastassiades, A.
2003 Cyprus under the Ptolemies: royal ideology and cultural innovation. In S. Hadjisavvas (ed.), *From Ishtar to Aphrodite: 3200 years of Cypriot Hellenism. Treasures from the museums of Cyprus*, 115–19. New York: Alexander S. Onassis Public Benefit Foundation (USA).

Anderson-Stojanović, V.R.
1987 The chronology and function of ceramic unguentaria. *American Journal of Archaeology* 91, 105–122.

Anderson, P.C.
1999 Experimental cultivation, harvest, and threshing of wild cereals: their relevance for interpreting the use of Epipalaeolithic and Neolithic artefacts. In P.C. Anderson (ed.), *Prehistory of agriculture: new experimental and ethnographic approaches*, 118–44. Los Angeles: UCLA Institute of Archaeology.

Anderson, P.C., and J. Chabot
2001 Functional analysis of glossed blades from Northern Mesopotamia in the Early Bronze Age (3000–2500 BC): the case of Tell ‘Atji. *Cahiers d’archéologie du CELAT* 10, 257–76.

Anderson, P.C., J. Chabot, and A. van Gijn
2004 The functional riddle of ‘glossy’ Canaanean blades and the Near Eastern threshing sledge. *Journal of Mediterranean Archaeology* 17, 87–130.

Armstrong, P.
2001 From Constantinople to Lakedaimon: impressed white wares. In J. Herrin, M. Mullett, and C. Otten-Froux (eds.), *Mosaic. Festschrift for A.H.S. Megaw* 57–67. British School at Athens Studies 8. London: British School at Athens.
2009 Trade in the east Mediterranean in the 8th century. In M.M. Mango (ed.), *Byzantine trade, 4th–12th centuries: the archaeology of local, regional and international*

exchange, 157–78. Society for the Promotion of Byzantine Studies 14. Farnham: Ashgate.

Arnan, X., B.C. Lopez, J. Martinez-Vilalta, M. Estorach, and R. Poyatos
2012 The age of monumental olive trees (*Olea europaea*) in northeastern Spain. *Dendrochronologia* 30, 11–14.

Åström, P.
1989 *Katydhata: a Bronze Age site in Cyprus*. Studies in Mediterranean Archaeology 86. Partille: Paul Åströms Förlag.

Athanassopoulos, E.F.
2010 Landscape archaeology and the Medieval countryside: settlement and abandonment in the Nemea region. *International Journal of Historical Archaeology* 14, 255–70.

Avissar, M., and E.J. Stern
2005 *Pottery of the Crusader, Ayyubid and Mamluk periods in Israel*. Israel Antiquities Authority Reports 26.

Babić, G.
1979 Les croix à cryptogrammes, peintes dans les églises serbes des XIIIe et XIVe siècles. In S. Dufrenne (ed.), *Byzance et les Slaves: études de civilisation; mélanges Ivan Dujcev*, 1–13. Paris: Association des amis des études archéologiques des mondes byzantine-slaves et du christianisme oriental.

Bachmann, H.-G.
1982a Copper smelting slags from Cyprus: review and classification of analytical data. In J.D. Muhly, R. Maddin, and V. Karageorghis (eds.), *Early Metallurgy in Cyprus 4000–500 B.C.*, 143–52. Nicosia: Pierides Foundation.
1982b *The identification of ancient slags from archaeological sites*. Occasional Publication 6. London: Institute of Archaeology, University of London.

Bağışkan, T.
2009 *Ottoman, Islamic and Islamised monuments in Cyprus*. Nicosia: Cyprus Turkish Education Foundation.

Bailey, D.M.
1988 *A catalogue of the lamps in the British Museum III: Roman provincial lamps*. London: British Museum Publications.

Baird, D.
1991 Independent variables? A flexible classification of Late Neolithic and Chalcolithic pottery. In J.A. Barlow, D. Bolger, and B. Kling (eds.), *Cypriot ceramics: reading the prehistoric record*, 21–28. Philadelphia: University of Pennsylvania Press.

Baker, C.M.
1978 The size effect: an explanation of variability in surface artefact assemblage content. *American Antiquity* 43, 288–93.

Baker, C.M., and M.B. Schiffer
1975 Archaeological evidence for the size effect. In C.M. Baker (ed.), *Arkansas Eastman Archaeological Project*, 117–22. Arkansas Archaeological Survey Research Reports 6.

Bakirtzis, C.
1989 *Byzantini tsoukalolayina*. Arkhaioloyikon Dheltion, Dhimosievmata 39. Athens: Tameion Arkhaioloyikon Poron kai Apallotrioseon.
1995 The role of Cyprus in the grain supply of Constantinople in the Early Christian period. In V. Karageorghis and D. Michaelides (eds.), *Cyprus and the Sea: Proceedings of the International Symposium, Nicosia 25–26 September 1993*, 247–53. Nicosia: University of Cyprus.

Bakker, J., D. Kaniewski, G. Verstraeten, V. De Laet, and M. Waelkens
2011 Numerically derived evidence for late-Holocene climate change and its impact on human presence in the southwest Taurus Mountains, Turkey. *The Holocene* 22(4), 425–38.

Baldwin, J.
2006 The culture of nature through Mississippian geographies. *Ethics and the Environment* 11(2), 13–44.

Balfet, H.
1984 Methods of formation and the shape of pottery. In S.E. van der Leeuw (ed.), *The many dimensions of pottery: ceramics in archaeology and anthropology* 171–201. Cingula 7. Amsterdam Universiteit van Amsterdam.

Balthazar, J.W.
1990 *Copper and bronze working in Early through Middle Bronze Age Cyprus*. Studies in Mediterranean Archaeology and Literature, Pocketbook 84. Göteborg: P. Åström's Förlag.

Banning, E.B., A.L. Hawkins, and S.T. Stewart
2006 Detection functions for archaeological survey. *American Antiquity* 71, 723–42.
2011 Sweep widths and the detection of artifacts in archaeological survey. *Journal of Archaeological Science* 38, 3447–58.

Bar-Matthews, M., and A. Ayalon
2011 Mid-Holocene climate variations revealed by high-resolution speleothem records from Soreq Cave, Israel and their correlation with cultural changes. *The Holocene* 21(1), 163–71.

Baram, U.
1995 Notes on the preliminary typologies of production and chronology for the clay tobacco pipes of Cyprus. *Report of the Department of Antiquities, Cyprus*, 299–309.
1999 Clay tobacco pipes and coffee cup sherds in the archaeology of the Middle East: artifacts of social tensions from the Ottoman past. *International Journal of Historical Archaeology* 3, 137–51.
2009 Above and beyond ancient mounds: the archaeology of the modern periods in the Middle East and Eastern Mediterranean. In T. Majewski and D. Gaimster (eds.), *International handbook of historical archaeology*, 647–62. New York: Springer.

Barber i Valles, A.
1995 *Contribution to the knowledge of the bioclimate and vegetation of the island of Cyprus*. Nicosia: Cyprus Forestry College.

Barker, G.
1991 Approaches to archaeological survey. In G. Barker and J. Lloyd (eds.), *Roman landscapes: archaeological survey in the Mediterranean region*, 1–9. London: British School at Rome.
2000 Hidden prehistoric landscapes: an Italian perspective. *Journal of Mediterranean Archaeology* 13, 100–102.

Barker, G., R. Adams, O.H. Creighton, P. Daly, D.D. Gilbertson, J.P. Grattan, C.O. Hunt, D.J. Mattingly, S.J. McLaren, P. Newson, C. Palmer, F.B. Pyatt, T.E.G. Reynolds, H. Smith, R. Tomber, and A.J. Truscott
2000 Archaeology and desertification in the Wadi Faynan: the fourth (1999) season of the Wadi Faynan landscape survey. *Levant* 32, 27–52.

Barlow, J.A.
1991 New light on Red Polished ware. In J.A. Barlow, D. Bolger, and B. Kling (eds.), *Cypriot ceramics: reading the prehistoric record*, 51–57. University Monographs. Philadelphia: University of Pennsylvania Press.

Barrowman, C.
2003 Lithic scatters and dynamic archaeology. In N. Moloney and M.J. Shott (eds.), *Lithic analysis at the millennium*, 99–102. London: Institute of Archaeology, University College London.
Bars'kyj, B.
1996 *A pilgrim's account of Cyprus: Bars'kyj's travels in Cyprus. Essay, translation, and commentaries*. Altamont, New York: Greece and Cyprus Research Center.
Bartosiewicz, L.
2003 'There's something rotten in the state...': bad smells in antiquity. *European Journal of Archaeology* 6, 175–95.
Bartu, A.
2000 Where is Çatalhöyük? Multiple sites in the construction of an archaeological site. In I. Hodder (ed.), *Towards reflexive method in archaeology: the example at Çatalhöyük*, 101–109. Cambridge: McDonald Institute.
Bats, M.
1988 *Vaisselle et alimentation à Olbia de Provence (v. 350–v. 50 av. J.-C.): modèles culturels et catégories céramiques*. Paris: Éditions du Centre National de la Recherche Scientifique.
Bear, L.M.
1963 *The mineral resources and mining industry of Cyprus*. Bulletin 1. Nicosia: Geological Survey Department.
Bekker-Nielsen, T.
2004 *The roads of ancient Cyprus*. Copenhagen: Museum Tusculanum.
Bellamy, C.V.
1903 *The economic construction and maintenance of roads in the island of Cyprus*. London: The Institution of Civil Engineers.
Berger, J.-F., and J. Guilaine
2009 The 8200 cal BP abrupt environmental change and the Neolithic transition: a Mediterranean perspective. *Quaternary International* 200, 31–49.
Berggren, A., and I. Hodder
2003 Social practice, method, and some problems from field archaeology. *American Antiquity* 68, 421–34.
Berlin, A., and J. Pilacinski
2003 Appendix: the pottery of the Early and Middle Hellenistic period. *Report of the Department of Antiquities Cyprus*, 201–37.
Bevan, A., and J. Conolly
2002–2004 GIS, archaeological survey, and landscape archaeology on the island of Kythera, Greece. *Journal of Field Archaeology* 29, 123–38.
Bintliff, J.L., P. Howard, and A. Snodgrass
2000 Rejoinder. *Journal of Mediterranean Archaeology* 13, 116–20.
Birkeland, P.W.
1984 *Soils and geomorphology*. New York: Oxford University Press.
Birkeland, P.W., K.M. Haller, and M.N. Machette
1991 *Soils as a tool for applied Quaternary geology*. Utah Geological Survey Miscellaneous Publication MP-91-3. Salt Lake City: Utah Geological Survey.
Blamey, M., and C. Grey-Wilson
1993 *Mediterranean wild flowers*. London: Collins.
Blanton, R.E.
2001 Mediterranean myopia. *Antiquity* 75, 627–29.
Blázquez Martínez, J.M., and J. Remesal Rodríguez
2001 Las campañas de 1991 y 1992. In J.M. Blázquez Martínez and J. Remesal Rodríguez (eds.), *Estudios sobre el Monte Testaccio (Roma). Volume II*, 11–43. Collecio Instrumenta 10. Barcelona: Universitat de Barcelona.
Böhlendorf-Arslan, B.
2004 *Glasierte byzantinische Keramik aus der Türkei: Teil I–III*. Istanbul: Ege Yayınları.
Bolger, D.
1988 *Erimi-Pamboula: a Chalcolithic settlement in Cyprus*. BAR International Series 443. Oxford: British Archaeological Reports.
Bonifay, M.
2004 *Etudes sur la céramique romaine tardive d'Afrique*. BAR International Series 1301. Oxford: Archaeopress.
Bourdieu, P.
1977 *Outline of a theory of practice*. Cambridge: Cambridge University Press.
Boustronios, G.
1489 *The chronicle of George Boustronios 1456–1489*. Melbourne: University of Melbourne Cyprus Expedition.
Boutin, A., A.B. Knapp, I. Banks, M. Given, and M.T. Horowitz
2003 Settlement and cemetery in and around Katydhata village: from prehistory to the Roman era. *Report of the Department of Antiquities, Cyprus*, 335–49.
Bowie, F.
2006 *The anthropology of religion: an introduction*. 2nd edn. Oxford: Blackwell.
Bradley, R.
2000 *An archaeology of natural places*. London: Routledge.
2005 *Ritual and domestic life in prehistoric Europe*. London: Routledge.
Braemer, F.
1988 Prospections archéologiques dans le Hawran. II. Les réseaux de l'eau. *Syria* 65, 99–137.
Brenk, B.
2004 Monasteries as rural settlements: patron dependence or self-sufficiency. In W. Bowden, L. Lavan, and C. Machado (eds.), *Recent research on the Late Antique countryside*, 413–45. Late Antique Archaeology 2. Leiden: Brill.
Briois, F.
2003 Nature et évolution des industries lithiques de Shillourokambos. In J. Guilaine and A. Le Brun (eds.), *Le Néolithique de Chypre*, 121–34. Bulletin de Correspondance Hellénique Supplément 43. Athens: École Française d'Athènes.
Briois, F., B. Gratuze, and J. Guilaine
1997 Obsidiennes du site néolithique précéramique de Shillourokambos (Chypre). *Paléorient* 23, 95–112.
Bronk Ramsey, C.
1995 Radiocarbon calibration and analysis of stratigraphy: the OxCal program. *Radiocarbon* 37, 425–30.
2001 Development of the radiocarbon calibration program OxCal. *Radiocarbon* 43, 355–363.
2009 Bayesian analysis of radiocarbon dates. *Radiocarbon* 51, 337–60.
Bronk Ramsey, C., T.F.G. Higham, and P. Leach
2004 Towards high-precision AMS: progress and limitations. *Radiocarbon* 46, 17–24.
Bronk Ramsey, C., T.F.G. Higham, D.C. Owen, A.W.G. Pike, and R.E.M. Hedges
2002 Radiocarbon dates from the Oxford AMS system: archaeometry datelist 31. *Archaeometry* 44 (3 Supplement 1), 1–149.
Bronk Ramsey, C., J. van der Plicht, and B. Weninger
2001 'Wiggle matching' radiocarbon dates. *Radiocarbon* 43, 381–89.
Brooks, R.R., and D. Johannis
1990 *Phytoarchaeology*. Leicester: Leicester University Press.

Brown, A., and H.W. Catling
1980 Additions to the Cypriot Collection in the Ashmolean Museum, Oxford. *Opuscula Atheniensia* 13.7, 134–37.
Brown, A.G.
1997 *Alluvial geoarchaeology: floodplain archaeology and environmental change*. Cambridge: Cambridge University Press.
Bruce, J.L., C.P. Manglis, and D.M. Creveling
1937 Antiquities in the mines of Cyprus. In E. Gjerstad, J. Lindros, E. Sjöqvist, and A. Westholm (eds.), *The Swedish Cyprus Expedition: finds and results of the excavations in Cyprus, 1927–1931. Volume 3*, 639–71. Stockholm: Swedish Cyprus Expedition.
Bruneau, P.
1965 *Exploration archéologique de Délos faite par l'École française d'Athènes 26: les lampes*. Paris: E. de Boccard.
Bryant, R.
2004 *Imagining the modern: the cultures of nationalism in Cyprus*. London: I.B. Tauris.
Buchholz, H.-G.
1991 Tamassos – Frangissa (1885). *Centre d'Études Chypriotes, Cahier* 16, 3–15.
Buitron-Oliver, D.
1996 *The sanctuary of Apollo Hylates at Kourion: excavations in the archaic precinct*. Studies in Mediterranean Archaeology 109. Jonsered, Sweden: P. Åström.
Bull, W.B.
1991 *Geomorphic responses to climate change*. Oxford: Oxford University Press.
2000 Lichenometry: a new way of dating and locating prehistorical earthquakes. In J.S. Noller, J.M. Sowers, and W.R. Lettis (eds.), *Quaternary geochronology: methods and applications*, 521–26. American Geophysical Union Reference Shelf Series. Washington DC: American Geophysical Union.
Burnet, J.E.
2004 *Forest bioresource utilisation in the Eastern Mediterranean since antiquity: a case study of the Makheras, Cyprus*. BAR International Series 1243. Oxford: Archaeopress.
Butzer, K.W.
2005 Environmental history in the Mediterranean world: cross-disciplinary investigation of cause-and-effect for degradation and soil erosion. *Journal of Archaeological Science* 32, 1773–1800.
Callot, O.
1993 Les fragments d'architecture. In J.-F. Salles (ed.), *Kition-Bamboula IV. Les niveaux hellénistiques* 149–64. Paris: Editions Recherche sur les Civilisations.
Campbell, B.
2000 *The writings of the Roman land surveyors: introduction, text, translation and commentary*. Journal of Roman Studies Monograph 9. London: Roman Society.
Caraher, W.R., D. Nakassis, and D.K. Pettegrew
2006 Siteless survey and intensive data collection in an artifact-rich environment: case studies from the Eastern Corinthia, Greece. *Journal of Mediterranean Archaeology* 19, 7–43.
Catling, H.W.
1962 Patterns of settlement in Bronze Age Cyprus. *Opuscula Atheniensia* 4, 129–69.
1972 An early Byzantine pottery factory at Dhiorios in Cyprus. *Levant* 4, 1–82.
Catling, H.W., and A.I. Dikigoropoulos
1970 The Kornos cave: an early Byzantine site in Cyprus. *Levant* 2, 37–62.
Caubet, A., ed.
1998 *L'art des modeleurs d'argile: antiquités de Chypre coroplastique. Musée du Louvre Départment des Antiquités Orientales*, Vol. Paris: Éditions de la Réunion des Musées Nationaux.
Cavanagh, W.G., J. Crouwel, R. Catling, and G. Shipley
2002 *Continuity and change in a Greek rural landscape: the Laconia Survey. Volume 1: methodology and interpretation*. Athens: British School at Athens.
Chabal, L.
1988 Pourquoi et comment prélever les charbons de bois pour la période antique: les méthodes utilisées sur le site de Lattes (Hérault). *Lattara* 1, 187–222.
2001 Les potiers, le bois et la forêt à Sallèles d'Aude (I–IIIe s. ap. J.-C.). In F. Laubenheimer (ed.), *Vingt ans de recherches à Sallèles d'Aude: le monde de potiers gallo-romains, colloque 27–28 sept. 1996, Sallèles d'Aude*, 93–110. Série Amphores, Les Belles Lettres. Besançon: Presse Universitaires Franc-Comtoises.
Chabal, L., L. Fabre, J.-F. Terral, and I. Théry-Parisot
1999 L'Anthracology. In C. Bourquin-Mignot, J.-É. Brochier, L. Chabal, S. Crozat, L. Fabre, F. Guibal, P. Marinval, H. Richard, J.-F. Terral, and I. Rhéry (eds.), *La Botanique*, 43–104. Paris: Editions Errance.
Charitonidou, A.
1983 Stoikheia paradosiakis keramikis 19ou kai 20ou aiona: Epirus, Kerkyra, Zakynthos. *Epeirotika Chronika* 25, 287–94.
Cherry, J.F.
2003 Archaeology beyond the site: regional survey and its future. In J.K. Papadopoullos and R.M. Leventhal (eds.), *Theory and practice in Mediterranean archaeology: Old World and New World perspectives*, 137–59. Cotsen Advanced Seminars 1. Los Angeles: Cotsen Institute of Archaeology, University of California, Los Angeles.
2004 Cyprus, the Mediterranean, and survey: current issues and future trends. In M. Iacovou (ed.), *Archaeological field survey in Cyprus: past history, future potentials*, 23–35. Athens: British School at Athens.
Chidumayo, E.N.
1994 *Inventory of wood used in charcoal production in Zambia: report prepared for the World Wildlife Fund*. Lusaka: University of Zambia.
Christodoulou, D.
1959 *The evolution of the rural land use pattern in Cyprus*. World Land Use Survey, Regional Monograph 2. Bude: Geographical Publications.
Claridge, A.
1998 *Rome: an Oxford Archaeological Guide*. Oxford: Oxford University Press.
Clarke, J., P. Croft, and C. McCartney
2007 The 1940's excavations at Kalavasos-Kokkinoyia and Kalavasos-Pamboules. *Report of the Department of Antiquities*, 45–86.
Cobham, C.D., ed.
1908 *Excerpta Cypria: materials for a history of Cyprus*. Cambridge: Cambridge University Press.
Coleman, J.E., J.A. Barlow, M.K. Mogelonsky, and K.W. Schaar
1996 Alambra: a Middle Bronze Age Settlement in Cyprus. Archaeological investigations by Cornell University 1974–1985. Studies in Mediterranean Archaeology 118. Jonsered: Paul Åströms Förlag.
Compton, R.R.
1962 *Manual of field geology*. New York: John Wiley.

Connolly, A.
1992 Part B: The 1991 study season classification of ore dressing stone tools from Almyras. *Report of the Department of Antiquities, Cyprus*, 71–72.
Conolly, J., and M. Lake
2006 *Geographical information systems in archaeology*. Cambridge: Cambridge University Press.
Constantinou, G.
1982 Geological features and ancient exploitation of the cupriferous sulphide ore bodies of Cyprus. In J.D. Muhly, R. Maddin, and V. Karageorghis (eds.), *Early metallurgy in Cyprus, 4000–500 BC*, 13–24. Nicosia: Pierides Foundation and Department of Antiquities.
Cook, H.K.A., and J.R. Green
2002 Medieval glazed wares from the theatre site at Nea Pafos, Cyprus: preliminary report. *Report of the Department of Antiquities, Cyprus*, 413–26.
Corbin, A.
1998 *Village bells: sound and meaning in the nineteenth-century French countryside*. New York: Columbia University Press.
Corenbilt, D., A.M. Gurnell, J. Steiger, and E. Tabacchi
2008 Reciprocal adjustments between landforms and living organisms: extended geomorphic evolutionary insights. *Catena* 73(3), 261–73.
CORINE
2006 *CORINE Land Cover 2006*. (accessed 16 April 2012). Copenhagen: European Environment Agency.
Cosgrove, D.E.
1990 Platonism and practicality: hydrology, engineering and landscape in sixteenth-century Venice. In D.E. Cosgrove and G. Petts (eds.), *Water, engineering and landscape: water control and landscape transformation in the modern period*, 33–53. London: Belhaven Press.
Cotterell, B., and J. Kamminga
1990 *Mechanics of pre-industrial technology*. Cambridge: Cambridge University Press.
Craddock, P.
1995 *Early metal mining and production*. Edinburgh: Edinburgh University Press.
Crewe, L.
1998 *Spindle whorls: a study of form, function and decoration in prehistoric Bronze Age Cyprus*. Studies in Mediterranean Archaeology and Literature, Pocket-book 149. Jonsered: Paul Åstroms förlag.
2004 *Social complexity and ceramic technology on Late Bronze Age Cyprus: the new evidence from Enkomi*. PhD dissertation. University of Edinburgh.
Crewe, L., C. Lorentz, E. Peltenburg, and S. Spano
2005 Treatments of the dead: preliminary report of investigations at Souskiou Laona Chalcolithic cemetery, 2001–2004. *Report of the Department of Antiquities, Cyprus*, 41–67.
Cummings, V.
2003 The origins of monumentality? Mesolithic world-views of the landscape in western Britain. In L. Larsson, H. Kindgren, K. Knutsson, D. Loeffler, and A. Åkerlund (eds.), *Mesolithic on the move*, 74–81. Oxford: Oxbow.
D'Amico, E.
2007 Glazed White Ware in the Italian Peninsula: Proposals for a study. In B. Böhlendorf-Arslan, A.O. Uysal, and J. Witte-Orr (eds.), *Çanak. Late Antique and Medieval pottery and tiles in Mediterranean archaeological contexts*, 215–38. Byzas 7. Istanbul: Deutsches Archäologisches Institut, Abteilung Istanbul.
Danışman, H.H.G.
1977 A survey of turbine-type water-mills in the Bolu region of the central Anatolian plateau. *METU Journal of the Faculty of Architecture* 3, 17–37.
Darrouzès, J.
1959 Notes pour servir à l'histoire de Chypre (quatrième article). *Kypriakai Spoudhai* 23, 27–56.
Davies, M., and K. Buckley
1987 *Port Arthur Conservation and Development Project archaeological procedures manual*. Occasional Paper 13. Hobart: Department of Lands Parks and Wildlife, Tasmania.
Davies, O.
1928–30 The copper mines of Cyprus. *Annual of the British School at Athens* 30, 74–85.
Davis, J.L.
2004 Are the landscapes of Greek prehistory hidden? A comparative approach. In S.E. Alcock and J.F. Cherry (eds.), *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*, 22–35. Oxford: Oxbow Books.
Davis, J.L., S.E. Alcock, J. Bennet, Y.G. Lolos, and C.W. Shelmerdine
1997 The Pylos Regional Archaeological Project. Part 1: Overview and the archaeological survey. *Hesperia* 66, 391–494.
de Mas Latrie, M.L.
1852–61 Histoire de l'Ile de Chypre sous le règne des princes de la maison de Lusignan. Paris: Imprimerie Impériale.
De Vaumas, E.
1959 The principal geomorphological regions of Cyprus, *Annual Report of the Geological Survey Department for the Year in 1958*, 39–42. Nicosia: Cyprus Geological Survey.
Decker, M.
2008 Agriculture and agricultural technology. In E. Jeffreys, J. Haldon, and R. Cormack (eds.), *The Oxford Handbook of Byzantine Studies*, 339–411. Oxford: Oxford University Press.
Deckers, K.
2005 Post-Roman history of river systems in Western Cyprus: causes and archaeological implications. *Journal of Mediterranean Archaeology* 18, 155–81.
Demesticha, S.
2000 The Paphos kiln: manufacturing techniques of LR1 amphorae. *Rei Creteriae Romanae Fautores Acta* 36, 549–54.
2003 Amphora production on Cyprus during the Late Roman period. In C. Bakirtzis (ed.), *Actes de VIIe Congrès International sur Céramique Médiévale en Méditerranée. Thessaloniki, 11–16 October 1999*, 469–76. Athens: Édition de la Caisse des Recettes Archéologiques.
des Gagniers, J., L.G. Kahil, R. Ginouvès, and V. Tram Tan Tinh
1967 Trois campagnes de fouilles à Soloi. *Report of the Department of Antiquities, Cyprus*, 50–58.
Destrooper-Georgiades, A.
2006 The coins. In L.W. Sørensen and K.Winther Jacobsen (eds.), *Panayia Ematousa I. A rural site in south-eastern Cyprus*, 369–86. Monographs of the Danish Institute at Athens 6.1. Athens: Danish Institute at Athens.
Devillers, B.
2005 *Morphogenèse et anthropisation holocènes d'un bassin versant semi-aride: le Gialias, Chypre*. PhD thesis, Université Aix-Marseille.
Devillers, B., and N. Lécuyer
2008 Le Petit Âge Glaciaire en milieu semi-aride: le bassin versant du Gialias (Chypre) et ses relations avec l'occupation des sols. *Zeitschrift für Geomorphologie* 52, 207–24.

Devos, G., P. de Paepe, and F. Vermeulen
1999 The pithoi from the ancient Anatolian city of Pessinus: an integrated archaeological and petrographical analysis. *BABesch* 74, 79–110.
Diacopoulos, L.
2004 The archaeology of modern Greece. In E. Athanasopoullou and L. Wandsnider (eds.), *Mediterranean archaeological landscapes: current issues*, 183–98. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology.
Diederichs, C., J. Pouilloux, and G. Roux
1980 *Salamine de Chypre*. Paris: de Boccard.
Dikigoropoulos, A.I., and A.H.S. Megaw
1940–48 Early glazed pottery from Polis. *Report of the Department of Antiquities of Cyprus*, 77–93 (published 1958).
Dobres, M.-A.
2000 *Technology and social agency: outlining a practice framework for archaeology*. Oxford: Blackwell.
Domergue, C.
1990 *Les mines de la péninsule ibérique dans l'antiquité romaine*. Rome: Ecole française de Rome.
Donners, K., M. Waelkens, and J. Deckers
2002 Water mills in the area of Sagalassos: a disappearing technology. *Anatolian Studies* 52, 1–17.
Dray, E., and J. du Plat Taylor
1937–39 Tsambres and Aphendrika: two classical and Hellenistic cemeteries. *Report of the Department of Antiquities, Cyprus*, 24–123.
du Plat Taylor, J.
1938 Medieval graves in Cyprus. *Ars Islamica* 5, 55–86.
1980 Excavations at Ayios Philon, the Ancient Carpasia I: the Classical to Roman periods. *Report of the Department of Antiquities, Cyprus*, 152–211.
du Plat Taylor, J., and A.H.S. Megaw
1937–39 Cypriot Medieval glazed pottery: notes for a preliminary classification. *Report of the Department of Antiquities of Cyprus*, 1–13.
1981 Excavations at Ayios Philon. The ancient Carpasia. Part II. The Early Christian building. *Report of the Department of Antiquities, Cyprus*, 209–50.
Ducloz, C.
1965 Revision of the Pliocene and Quaternary stratigraphy of the central Mesaoria. *Annual report of the Geological Survey Department for the year 1964*, 31–42.
Egloff, M.
1977 *Kellia: la poterie copte: quatre siècles d'artisanat et d'échanges en Basse-Égypte*. Recherches suisses d'archéologie copte 3. Geneva: Georg.
Egoumenidou, F.
1984 Lithanaghlifa 'filakta' spition tou khoriou Lazania. *Report of the Department of Antiquities, Cyprus*, 375–388.
Elliot, C.
1985 Appendix V: ground stone tools from Kition Areas I and II. In V. Karageorghis (ed.), *Excavations at Kition, vol. V: the pre-Phoenician levels, Part II*, 295–315. Nicosia: Department of Antiquities, Cyprus.
1988 Ground stone from Maa-Palaeokastro. In V. Karageorghis and M. Demas (eds.), *Excavations at Maa-Palaeokastro 1979–1986*, 415–26. Nicosia: Department of Antiquities of Cyprus.
1998 The ground stone industry. In E.J. Peltenburg (ed.), *Excavations at Kissonerga-Mosphilia 1977–1995. Lemba Archaeological Project II.1A*, 168–87. Studies in Mediterranean Archaeology LXX:II. Jonsered: Paul Åströms Förlag.
Enzel, Y., R. Amit, U. Dayan, O. Crouvi, R. Kahana, and B. Ziv
2008 The climatic and physiographic controls of the eastern Mediterranean over the late Pleistocene climates in the southern Levant and its neighboring deserts. *Global and Planetary Changes* 60, 165–92.
Eriksson, K.
1991 Red Lustrous Wheelmade Ware: a product of Late Bronze Age Cyprus. In J.A. Barlow, D. Bolger, and B. Kling (eds.), *Cypriot ceramics: reading the prehistoric record*, 81–97. Philadelphia: University of Pennsylvania Press.
1993 *Red Lustrous Wheel Made Ware*. Studies in Mediterranean Archaeology 103. Göteborg: Paul Åströms Forlag.
2001 Cypriot PWS and WSI: chronological beacons on relations between LCI Cyprus and contemporary civilizations of the Eastern Mediterranean. In V. Karageorghis (ed.), *The White Slip Ware of Late Bronze Age Cyprus*, 51–62. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
ESCAP
1991 *Economic and Social Commission for Asia and the Pacific, Annual Report*. New York: United Nations.
Evans, J.G.
2007 Styles of Roman pottery deposition at a Roman rural site in Hampshire. In R. Hingley and S. Willis (eds.), *Roman finds: context and theory*, 176–85. Oxford: Oxbow Books.
Everard, C.E.
1963 Contrast in the form and evolution of hill-side slopes in the central Cyprus. *Transactions of the Institute of British Geographers* 32, 31–47.
Fahn, A.
1990 *Plant anatomy*. 4th edn. Oxford: Pergamon Press.
Falconer, S.E., P.L. Fall, T.W. Davis, M.T. Horowitz, and J. Hunt
2005 Initial archaeological investigations at Politiko-Troullia, 2004. *Report of the Department of Antiquities, Cyprus*, 69–85.
Fall, P.L., S.E. Falconer, M.T. Horowitz, J. Hunt, M. Metzger, and D. Ryter
2008 Bronze Age settlement and landscape at Politiko-Troullia, 2005–2007. *Report of the Department of Antiquities, Cyprus*, 183–208.
Fasnacht, W.
1989 Excavations at Ayia Varvara-Almyras. *Report of the Department of Antiquities, Cyprus*, 59–76.
2003 Antike Kupfertechnologie: Das Beispiel der Kupferverhüttungsstätte Agia Varvara-Almyras auf Zypern. In A. Kyriatsoulis (ed.), *Althellenische Technologie und Technik*, 121–29. Weilheim/Obb: Verein zur Förderung der Aufarbeitung der Hellenischen Geschichte e.v.
Fasnacht, W., and G. Georgiou
2006 An ancient copper smelting furnace at the modern gold mine of South Mathiatis, Cyprus. *Report of the Department of Antiquities, Cyprus*, 199–211.
Fasnacht, W., J. Kunz, C. Deslex, K. Zubler, P.O. Boll, A. Connolly, and T. Maradi
1996 Excavations at Ayia Varvara-Almyras: fifth preliminary report. *Report of the Department of Antiquities, Cyprus*, 95–125.
Fasnacht, W., R.S. Morris, and K. Zubler
1991 Excavations at Ayia Varvara-Almyras. Third Preliminary Report. *Report of the Department of Antiquities, Cyprus*, 97–108.
Fasnacht, W., and P.J. Northover
2001 Ancient raw copper from primary smelting sites in Cyprus, *Materials Research Society fall meeting: materials and society*. Boston: Materials Research Society.

Fasnacht, W., S. Schwarzländer, and P. Boll
1997 The Sia-Mathiatis-Agia Varvara Survey Project (SMASP). Second preliminary report. *Report of the Department of Antiquities, Cyprus*, 219–24.
Feissel, D.
1987 Bulletin épigraphique: inscriptions chrétiennes et byzantines. *Revue des Études Grecques* 100, 347–87.
Fejfer, J., ed.
1995 *Ancient Akamas: settlement and environment*. Aarhus: Aarhus University Press.
Ferring, C.R.
2001 Geoarchaeology in alluvial landscapes. In P. Goldberg, V.T. Holliday, and C.R. Ferring (eds.), *Earth sciences and archaeology*, 77–106. New York: Kluwer Academic/Plenum.
Finlayson, B., and C. McCartney
1998 Chipped stone report. In E. Peltenburg (ed.), *Excavations at Kissonerga-Mosphilia 1979–1992, Lemba Archaeological Project, Cyprus, Vol. II.1B (Part 2)*, 249–94. Occasional Paper 19. Edinburgh: University of Edinburgh, Department of Archaeology.
Finné, M., K. Holmgren, H.S. Sundqvist, E. Weiberg, and M. Lindblom
2011 Climate in the eastern Mediterranean, and adjacent regions, during the past 6000 years: a review. *Journal of Archaeological Science* 38, 3153–73.
Flourentzos, P.
1989 A group of tombs of Middle Bronze Age date from Linou. In P. Åström (ed.), *Katydhata: a Bronze Age site in Cyprus*, 61–70. Studies in Mediterranean Archaeology 86. Göteborg: P. Åströms Förlag.
1994 *A hoard of medieval antiquities from Nicosia*. Nicosia: Department of Antiquities.
Forbes, H.
1994 Pastoralism and settlement structures in ancient Greece. In P.N. Doukellis and L.G. Mendoni (eds.), *Structures rurales et sociétés antiques. Actes du colloque de Corfou (14-16 mai 1992)*, 187–96. Centre de recherches d'Histoire Ancienne 126. Paris: Belles Lettres.
1997 A 'waste' of resources: aspects of landscape exploitation in lowland Greek agriculture. In P.N. Kardulias and M.T. Shutes (eds.), *Aegean strategies: studies of culture and environment on the European fringe*, 187–213. Lanham: Rowman and Littlefield.
2007a Early modern Greece: liquid landscapes and fluid populations. In S. Davies and J.L. Davis (eds.), *Between Venice and Istanbul: colonial landscapes in early modern Greece*, 111–35. Hesperia Supplement 40. Athens: American School of Classical Studies at Athens.
2007b *Meaning and identity in a Greek landscape: an archaeological ethnography*. Cambridge: Cambridge University Press.
Fox, W.A.
1984 Dhoukani flake blade production in Cyprus. *Lithic Technology* 13, 62–67.
Fox, W.A., and D.A. Pearlman
1987 Threshing sledge production in the Paphos District, Cyprus. In D.W. Rupp (ed.), *Western Cyprus: connections*, 227–34. Göteborg: Paul Åströms Förlag.
François, V.
1995 Byzantine ou Ottomane? Une céramique peinte à l'engobe découverte en méditerranée orientale. *Anatolia Antiqua* 3, 203–17.
François, V., and L. Vallauri
2001 Production et consommation de céramiques à Potamia (Chypre) de l'époque franque à l'époque ottomane. *Bulletin de Correspondance Hellénique* 125, 523–46.
Frankel, D., and J.M. Webb, eds.
1996 *Marki Alonia: an Early and Middle Bronze Age town in Cyprus: excavations 1990–1994*. Studies in Mediterranean Archaeology, Vol. 123:1. Jonsered: Paul Åströms Förlag.
1999 Excavations at Marki-Alonia, 1998–1999. *Report of the Department of Antiquities, Cyprus*, 87–110.
2000 Excavations at Marki-Alonia, 1999–2000. *Report of the Department of Antiquities, Cyprus*, 65–94.
2006 *Marki Alonia: an Early and Middle Bronze Age town in Cyprus: excavations 1995–2000*. Studies in Mediterranean Archaeology 123.2. Jonsered: Paul Åströms Forlag.
Frederick, C.
2001 Evaluating causality of landscape change: examples from alluviation. In P. Goldberg, V.T. Holliday, and C.R. Ferring (eds.), *Earth sciences and archaeology*, 55–76. New York: Kluwer Academic/Plenum.
Frigeriou-Zeniou, S.
1997 Moni ton Phorvion à Asinou de Chypre. In A.D. Lazarides, V. Barras, and T. Birchler (eds.), *Boukoleia: mélanges offerts à Bertrand Bouvier*, 191–99. Geneva: Editions des Belles-Lettres.
Gabrieli, R.S.
2004 Under the surface: decoration and shape in the coarse ware of Medieval and post-Medieval Cyprus. *Mediterranean Archaeology* 17, 287–98.
2007 A region apart: coarse ware of Medieval and Ottoman Cyprus. In B. Böhlendorf-Arslan, A.O. Uysal, and J. Witte-Orr (eds.), *Çanak: Late Antique and Medieval pottery and tiles in Mediterranean archaeological contexts*, 399–410. Byzas 7. Istanbul: Deutschen Archäologischen Instituts Istanbul.
2008 Towards a chronology: the Medieval coarse wares from the tomb at Icarus Street, Kato Pafos. *Report of the Department of Antiquities, Cyprus*, 423–54.
Gabrieli, R.S., M.P.C. Jackson, and A. Kaldelli
2007 Stumbling into the darkness: trade and life in post-Roman Cyprus. In M. Bonifay and J.-C. Treglia (eds.), *LRCW 2. Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry* 791–801. BAR International Series S1662. Oxford: Archaeopress.
Gaffney, V., and M. van Leusen
1995 Postscript – GIS, environmental determinism and archaeology: a parallel text. In G. Lock and Z. Stancic (eds.), *Archaeology and Geographical Information Systems*, 367–82. London: Taylor and Francis.
Gale, N.H.
1999 Lead isotope characterization of the ore deposits of Cyprus and Sardinia and its application to the discovery of the sources of copper for Late Bronze Age oxhide ingots. In S.M.M. Young, M.A. Pollard, P. Budd, and R.A. Ixer (eds.), *Metals in antiquity*, 110–21: BAR IS 792.
Gale, N.H., and Z.A. Stos-Gale
2005 Zur Herkunft der Kupferbarren aus dem Schiffswrack von Uluburun und der spätbronzezeitliche Metallhandel im Mittelmeeraum. In Ü. Yalçin, C. Pulak, and R. Slotta (eds.), *Das Schiff von Uluburun*, 117–32. Bochum: Deutsches Bergbau-Museum.
Galimberti, M., C. Bronk Ramsey, and S.W. Manning
2004 Wiggle-match dating of tree ring sequences. *Radiocarbon* 46, 917–24.
Gamble, C.
2008 Hidden landscapes of the body. In B. David and J.

Thomas (eds.), *Handbook of landscape archaeology*, 256–62. World Archaeological Congress Research Handbooks in Archaeology. Walnut Creek: Left Coast Press.

Gardiner, M., and A. McQuitty
1987 A water mill in Wadi el Arab, North Jordan, and water mill development. *Palestine Exploration Quarterly* 119, 24–32.

Gaudry, A.
1855 *Recherches scientifiques en Orient entreprises par les ordres du Gouvernement, pendant les années 1853–1854. Partie agricole*. Paris: Imprimerie Impériale.

Georghallides, G.S.
1979 *A political and administrative history of Cyprus, 1918–1926*. Nicosia: Cyprus Research Centre.

Georgiou, G.
2005 I agnosti Deneia: ena taphiko synolo ton istorikon khronon. *Report of the Department of Antiquities, Cyprus*, 117–47.

Gero, J.M.
1983 Gender bias in archaeology: a cross-cultural perspective. In J.M. Gero, D.M. Lacy, and M.L. Blakey (eds.), *The socio-politics of archaeology*, 51–57. Research Report 23. Amherst: Department of Archaeology, University of Massachusetts.
1996 Archaeological practice and gendered encounters with field data. In R.P. Wright (ed.), *Gender and archaeology*, 251–280. Philadelphia: University of Pennsylvania Press.

Gibraltar, H., V. Seymer, W.H. Buckler, and G. Buckler
1933 The church of Asinou, Cyprus and its frescoes. *Archaeologia* 83, 327–50.

Gibson, E.
2005 *Negotiating space: routes of communication in Roman–British Colonial Cyprus*. PhD, University of Glasgow.
2007 The archaeology of movement in a Mediterranean landscape. *Journal of Mediterranean Archaeology* 20, 61–87.

Giudice, F., G. Giudice, E. Guidice, D. Malfitana, G. Narbone, V.G. Rizzone, R.A. Oliveri, A. Privitera, G. Guzzetta, G. Cacciaguerra, and P. Puppo
2001 Pafos, Garrison's Camp. VIIIa Campagna. *Report of the Department of Antiquities, Cyprus*, 255–90.

Giudice, F., G. Giudice, E. Guidice, D. Malfitana, G. Narbone, V.G. Rizzone, R.A. Oliveri, A. Privitera, G. Guzzetta, G. Cacciaguerra, G. Reganati, P. Zafarama, and P. Puppo
2000 Pafos, Garrison's Camp. VIIa Campagna. *Report of the Department of Antiquities, Cyprus*, 259–98.

Giudice, F., G. Giudice, R.A. Olivieri, S. Pafumi, A. Privitera, E. Giudice, D. Malfitana, G. Narbone, G.A. Bruno, and G. Guzzetta
1996 Paphos, Garrison's Camp, Campagna 1991. *Report of the Department of Antiquities, Cyprus*, 171–267.

Giudice, F., E. Guidice, G. Guzzetta, D. Malfitana, G. Narbone, R.A. Oliveri, A. Privitera, P. Puppo, and V.G. Rizzone
1999 Pafos, Garrison's Camp. VIa Campagna. *Report of the Department of Antiquities, Cyprus*, 279–314.

Giudice, F., E. Maugeri, S. Pafumi, D. Malfitana, and M. Sgarlata
1992 Paphos, Garrison's Camp, Campagna 1988. *Report of the Department of Antiquities, Cyprus*, 205–50.

Giudice, F., S. Pafumi, D. Malfitana, G.A. Bruno, and G. Guzzetta
1994 Paphos, Garrison's Camp, Campagna 1990. *Report of the Department of Antiquities, Cyprus*, 215–68.

Giudice, F., M. Sgarlata, S. Pafumi, D. Malfitana, and G. Guzzetta
1993 Paphos, Garrison's Camp, Campagna 1989. *Report of the Department of Antiquities, Cyprus*, 279–327.

Given, M.
2000 Agriculture, settlement and landscape in Ottoman Cyprus. *Levant* 32, 215–36.
2002 Maps, fields and boundary cairns: demarcation and resistance in colonial Cyprus. *International Journal of Historical Archaeology* 6, 1–22.
2004a *The archaeology of the colonized*. London: Routledge.
2004b From density counts to ideational landscapes: intensive survey, phenomenology and the Sydney Cyprus Survey Project. In E. Athanasopoullou and L. Wandsnider (eds.), *Mediterranean archaeological landscapes: current issues*, 165–82. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology.
2004c Mapping and manuring: can we compare sherd density figures? In S.E. Alcock and J.F. Cherry (eds.), *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*, 13–21. Oxford: Oxbow Books.
2005a Architectural styles and ethnic identity in Medieval to Modern Cyprus. In J. Clarke (ed.), *Archaeological perspectives on the transmission and assimilation of culture in the Eastern Mediterranean*, 207–13. Levant Supplementary Series 2. London: Council for British Research in the Levant.
2005b Mining landscapes and colonial rule in early 20th century Cyprus. *Historical Archaeology* 39(3), 49–60.

Given, M., D. Coleman, S. Moore, and J. Noller
2003a Agricultural landscapes. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 305–11. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Given, M., H. Corley, and L. Sollars
2007 Joining the dots: continuous survey, routine practice and the interpretation of a Cypriot landscape (with interactive GIS and integrated data archive). *Internet Archaeology* 20. http://intarch.ac.uk/journal/issue20/taesp_index.html

Given, M., I. Evans, T. Ireland, V. Kassianidou, A.B. Knapp, C. McCartney, N. Meyer, J. Noller, P. Pelosi, L. Sollars, N. Urwin, K.Winther Jacobsen, and S. Zesimou
2003b TAESP: Troodos Archaeological and Environmental Survey Project, fourth season, 2003: field manual. http://www.gla.ac.uk/schools/humanities/research/archaeologyresearch/projects/taesp/publications/

Given, M., and T.E. Gregory
2003 Medieval to modern landscapes. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 284–94. Monumenta Archaeologica 21. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Given, M., and M. Hadjianastasis
2010 Landholding and landscape in Ottoman Cyprus. *Byzantine and Modern Greek Studies* 34, 38–60.

Given, M., and A.B. Knapp
2003 *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*. Monumenta Archaeologica 21. Los Angeles: Cotsen Institute of Archaeology, University of California at Los Angeles.

Given, M., A.B. Knapp, N. Meyer, T.E. Gregory, V. Kassianidou, J. Noller, L. Wells, N. Urwin, and H. Wright
1999 The Sydney Cyprus Survey Project: an interdisciplinary investigation of long-term change in the North Central Troodos, Cyprus. *Journal of Field Archaeology* 26, 19–39.

Given, M., N. Meyer, and C. Whitehill
2003c Mapping and fieldwalking procedures. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 30–36. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Given, M., and K. Seretis
2003 Strangers in the landscape. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, xx–xxvi. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Given, M., and J.S. Smith
2003 Geometric to Classical landscapes. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 270–77. Monumenta Archaeologica 21. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Gjerstad, E.
1948 *The Swedish Cyprus Expedition: finds and results of the excavations in Cyprus 1927–1931. Volume IV.2: The Cypro-Geometric, Cypro-Archaic and Cypro-Classical periods*. Stockholm: The Swedish Cyprus Expedition.
1960 Pottery types, Cypro-Geometric to Cypro-Classical. *Opuscula Atheniensa* 111, 105–22.

Gjerstad, E., J. Lindros, E. Sjöqvist, and A. Westholm
1935 *The Swedish Cyprus Expedition: finds and results of the excavations in Cyprus, 1927–1931. Volume 2*. Stockholm: Swedish Cyprus Expedition.
1937 *The Swedish Cyprus Expedition: finds and results of the excavations in Cyprus, 1927–1931. Volume 3*. Stockholm: Swedish Cyprus Expedition.

Glick, T.F.
2005 *Islamic and Christian Spain in the Early Middle Ages: the Medieval and Early Modern Iberian world*. Leiden: Brill.

Gomez, B., J. Hansen, and M. Wagstaff
1987 The Vasilikos valley. In I. Todd (ed.), *Vasilikos Valley Project 6: excavations at Kalavasos-Tenta, volume I*, 3–10. Göteborg: Paul Åströms Förlag.

Goodall, D.W.
1954 Objective methods for the classification of vegetation III: an essay in the use of factor analysis. *Australian Journal of Botany* 2, 304–24.

Goodall, M.
1958 *Oregon's iron dream: a story of Old Oswego and the proposed iron empire of the West*. Portland: Binfords and Mort.

Graf, B.
2001 Türkische Tabakpfeifen 'Chibouk' aus Kouklia. Appendix in Marie-Louise von Wartburg, Types of imported table ware at Kouklia in the Ottoman period. *Report of the Department of Antiquities, Cyprus*, 390–96.

Graham, A., K. Winther Jacobsen, and V. Kassianidou
2006 Agia Marina-Mavrovouni: preliminary report on the Roman settlement and smelting workshop in the central northern foothills of the Troodos Mountains, Cyprus. *Report of the Department of Antiquities, Cyprus*, 345–67.

Grattan, J.P., D.D. Gilbertson, and C.O. Hunt
2007 The local and global dimensions of metalliferous pollution derived from a reconstruction of an eight thousand year record of copper smelting and mining at a desert-mountain frontier in southern Jordan. *Journal of Archaeological Science* 34, 83–110.

Gregory, T.E.
1987 Circulation of Byzantine and Medieval pottery in southwestern Cyprus. In D.W. Rupp (ed.), *Western Cyprus: connections*, 199–213. Göteborg: Paul Åströms Förlag.
1993 Byzantine and Medieval pottery. In L.W. Sørensen and D.W. Rupp (eds.), *The land of the Paphian Aphrodite, Volume 2. The Canadian Palaipaphos Survey Project: artifact and ecofactual studies*, 157–176. Göteborg: Paul Åströms Förlag.
2003 The Byzantine problem. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 283–84. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Grivaud, G.
1998 *Villages désertés à Chypre (fin XIIe–fin XIXe siècle)*. Meletai kai Ipomnimata 3. Nicosia: Archbishop Makarios III Foundation.

Grove, J.M.
1988 *The Little Ice Age*. London: Routledge.

GSD
2008 *Hydrology geodatabase*. Nicosia: Cyprus Geological Survey Department.

Guilaine, J., and J.F. Briois
2006 Shillourokambos and the Neolithization of Cyprus: some reflections. *Eurasian Prehistory* 4(1–2), 159–75.

Guilaine, J., and A. Le Brun
2003 *Le néolithique de Chypre*. Bulletin de Correspondance Hellénique, Supplément 43. Athènes: École Française d'Athènes.

Gunnis, R.
1936 *Historic Cyprus: a guide to its towns and villages, monasteries and castles*. London.

Hadjichristodoulou, C., and D. Marianthefs
2002 *The church of Our Lady of Asinou*. Guides to the Byzantine Monuments of Cyprus. Nicosia: The Bank of Cyprus Cultural Foundation and The Holy Bishopric of Morphou.

Hadjichristophi, F.
1989 Les tuiles de la basilique (Traveaux de l'Ecole Francaise à Amathonte en 1988). *Bulletin du Correspondance Hellénique* 113, 875–78.

Hadjikyriacou, A.
2011 *Society and economy on an Ottoman island: Cyprus in the eighteenth century*. London: School of Oriental and African Studies.

Hadjisavvas, S.
1992 *Olive oil processing in Cyprus from the Bronze Age to the Byzantine period*. Studies in Mediterranean Archaeology, vol. 99. Nicosia: P. Åströms Förlag.

Halstead, P.
1987 Traditional or ancient rural economy in Mediterranean Europe: plus ça change? *Journal of Hellenic Studies* 107, 77–87.

Hansen, J.
1989 Khirokitia plant remains: preliminary report (1980–1981, 1983). In A. Le Brun (ed.), *Fouilles récentes à Khirokitia (Chypre) 1983–1986*, 235–50. Etudes Recherche sur les Civilisations 81. Paris: ADPF.

Harper, R.P.
1980 Athis – Neocaesareia – Qasrin – Dibsi Faraj. In J.C. Margueron (ed.), *La moyen Euphrate zone de contacts et d'échanges. Acte du colloque de Strasbourg 10–12 Mars 1977*. Travaux du Centre de recherche sur le Proche-Orient et la Grèce antiques 5. Leiden: E.J. Brill.

Harris, E.C.
1989 *Principles of archaeological stratigraphy*. 2nd edn. London Academic Press.

Harverson, M.
1993 Watermills in Iran. *Iran* 31, 149–77.

Hauptmann, A.
2007 *The archaeology of copper: evidence from Faynan, Jordan.* Berlin: Springer.
Hawkins, A.L., S.T. Stewart, and E.B. Banning
2003 Interobserver bias in enumerated data from archaeological survey. *Journal of Archaeological Science* 30, 1503–12.
Hayes, J.W.
1972 *Late Roman pottery*. Corrected edn. London: British School at Rome.
1980 Problèmes de la céramique des VIIème–IXème siècles à Salamine et à Chypre, *Salamine de Chypre: histoire et archéologie. État des recherches Lyon 13–17 mars 1978*, 375–80. Colloques internationaux du CNRS 578. Paris: CNRS.
1983 The Villa Dionysos excavations, Knossos. *Annual of the British School at Athens* 78, 97–169.
1985 Sigillate orientali, *Enciclopedia dell'arte antica: classica e orientale. Atlante delle forme ceramiche II. Ceramica fine romana nel bacino mediterraneo (tardo ellensimo e primo impero)*, 1–96. Rome: Instituto della Enciclopedia Italiana.
1991 *Paphos. Vol. 3: the Hellenistic and Roman pottery*. Nicosia: Department of Antiquities, Cyprus.
1992 *Excavations at Saraçhane in Istanbul, Vol. II: the pottery*. Princeton: Princeton University Press.
2000 The current state of Roman ceramic studies in Mediterranean survey, or, handling pottery from surveys. In R. Francovich and H. Patterson (eds.), *Extracting meaning from ploughsoil assemblages*, 105–109. Oxford: Oxbow.
2007 Pottery. In A.H.S. Megaw (ed.), *Kourion: excavations in the episcopal precinct*, 435–75. Washington DC: Dumbarton Oaks.
Hayes, J.W., and A.H.S. Megaw
2003 Hellenistic and Roman pottery deposits from the 'Saranda Kolones' castle site at Paphos. *Annual of the British School at Athens* 98, 447–516.
Hayes, P.P.
1995 The field survey: its role and methodology. In J. Fejfer (ed.), *Ancient Akamas: settlement and environment*, 171–186. Aarhus: Aarhus University Press.
Held, S.O.
1992 Colonization and extinction on Early Prehistoric Cyprus. In P. Åström (ed.), *Acta Cypria 2: Acts of an International Congress on Cypriote Archaeology, Göteborg, 22–24 August 1991*, 104–64. Studies in Mediterranean Archaeology and Literature, Pocket-book 117. Jonsered: Paul Åströms Förlag.
Helms, M.W.
1988 *Ulysses' sail: an ethnographic odyssey of power, knowledge and geographical distance*. Princeton: Princeton University Press.
Hennessy, J.B.
1954 Excavations at Sphagion in Cyprus. *Papers of the British School at Rome*. 22, 22–38.
Hennessy, J.B., K.O. Eriksson, I.C. Kehrberg, and J.R.B. Stewart
1988 *Ayia Paraskevi and Vasilia: excavations by J.R.B. Stewart*. Studies in Mediterranean Archaeology 82. Göteborg: Paul Åströms Förlag.
Herrin, J.
1973 Kouklia 1972 – The Medieval pottery, appendix in F.G. Maier, Excavations at Kouklia (Palaeopaphos). Sixth preliminary report: Seasons 1971 and 1972. *Report of the Department of Antiquities, Cyprus*, 199–201.
1974 Old Paphos, 1972. The Medieval pottery. *Archäologischer Anzeiger*, 48–51.
Hill, G.
1940 *A history of Cyprus, vol. 1: To the conquest by Richard Lion Heart*. Cambridge: Cambridge University Press.
Hjohlman, J.
2002 *Farming the land in Late Antiquity: the case of Berbati in the northeastern Peloponnese*, University of Stockholm.
2005 Pyrgouthi in Late Antiquity. In J. Hjohlman, A. Penttinen, and B. Wells (eds.), *Pyrgouthi: a rural site in the Berbati Valley from the Early Iron Age to Late Antiquity: excavations by the Swedish Institute at Athens, 1995 and 1997*, 127–266. Skrifter utgivna av Svenska institutet i Athen 4°. Stockholm: Svenska Institutet i Athen.
Hocknell, P.
1998 Cooperation, coexistence or conflict?: rethinking transboundary resource management in Nicosia. *Journal of Mediterranean Studies* 8, 223–51.
Hodder, I.
1999 *The archaeological process: an introduction*. Oxford: Blackwell.
2000 Developing a reflexive method in archaeology. In I. Hodder (ed.), *Towards reflexive method in archaeology: the example at Çatalhöyük*, 3–14. Cambridge: McDonald Institute.
2003 Archaeological reflexivity and the 'local' voice. *Anthropological Quarterly* 76, 55–69.
Hodder, I., and C. Cessford
2004 Daily practice and social memory at Çatalhöyük. *American Antiquity* 69, 17–40.
Hodge, A.T.
1992 *Roman aqueducts and water supply*. London: Duckworth.
Holmboe, J.
1914 *Studies on the vegetation of Cyprus: based upon researches during the spring and summer 1905*. Bergens Museums Skrifter Ny Rekke I.2. Bergen John Griegs.
Holt, P.M.
1995 *Early Mamluk diplomacy, 1260–1290: treaties of Baybars and Qalāwūn with Christian rulers*. Leiden: Brill.
Horden, P., and N. Purcell
2000 *The corrupting sea: a study of Mediterranean history*. Oxford: Blackwell.
Horne, L.
1982 Fuel for the metal worker. *Expedition* 25, 6–13.
Hornell, J.
1930 The Cypriote threshing sledge. *Man* 30, 135–39.
Huffstot, J.
1987 Roof tiles. In D. Soren (ed.), *The sanctuary of Apollo Hylates at Kourion, Cyprus*, 263–99. Tucson: University of Arizona Press.
Hurcombe, L.M.
2007 A sense of materials and sensory perception in concepts of materiality. *World Archaeology* 39, 532–45.
Hutchins, D.E.
1909 *Cyprus: Report on Cyprus forestry*. London: No publisher given.
Iacovou, M.
2002 From ten to naught: formation, consolidation and abolition of Cyprus' Iron Age polities. *Cahier du Centre d'Études Chypriotes* 32, 73–87.
2008 Cultural and political configurations in Iron Age Cyprus: the sequel to a protohistoric episode. *American Journal of Archaeology* 112, 625–57.

Ikäheimo, J.P.
2003 *Late Roman African cookware of the Palatine east excavations, Rome: a holistic approach*. BAR International Series 1143. Oxford: Archaeopress.
Ingold, T.
2000 *The perception of the environment: essays on livelihood, dwelling and skill*. London: Routledge.
Ionas, I.
1988 *La maison rurale de Chypre (XVIIIe–XXe siècle): aspects et techniques de construction*. Nicosia: Cyprus Research Centre.
1998 *Pottery in the Cyprus tradition*. Publications of the Cyprus Research Centre 23. Nicosia: Cyprus Research Centre.
2000 *Traditional pottery and potters in Cyprus: the disappearance of an ancient craft industry in the 19th and 20th centuries*. Birmingham Byzantine and Ottoman Monographs 6. Birmingham: Centre for Byzantine, Ottoman and Modern Greek Studies, University of Birmingham.
2002 Fours et techniques de combustion. *Epetirida tou Kentrou Epistimonikon Erevnon* 28, 425–38.
Jackson, A.
2003 The ground stone industry. In E.J. Peltenburg (ed.), *The colonization and settlement of Cyprus: excavations at Kissonerga-Mylouthkia 1976–1996*, 35–40. Studies in Mediterranean Archaeology LXX:4. Sävedalen: Paul Åströms Förlag.
Jacobsen, K. Winther
2002 Cypriote transport amphorae of the Archaic and Classical period. *Acta Hyperborea* 9, 169–84.
2006a Cooking wares. In L.W. Sørensen and K.Winther Jacobsen (eds.), *Panayia Ematousa I. A rural site in south-eastern Cyprus*, 231–43. Monographs of the Danish Institute at Athens 6.1. Athens: Danish Institute at Athens.
2006b Utility ceramics. In L.W. Sørensen and K.Winther Jacobsen (eds.), *Panayia Ematousa I. A rural site in south-eastern Cyprus*, 244–302. Monographs of the Danish Institute at Athens 6.1. Athens: Danish Institute at Athens.
2007 Pots for the dead: pottery and ritual in Cypriote tombs of the Hellenistic and Roman period. In D. Malfitana, J. Poblome, and J. Lund (eds.), *Old pottery in a new century: innovating perspectives on Roman pottery studies. Proceedings of the International Workshop, Catania 22–24 April 2004*, 389–96. Monografie dell'Istituto per i Beni Archeologici e Monumentali CNR. Rome: L'Erma di Bretschneider.
Jacobsen, L.K.
2006c The ground stone industry. In L.W. Sørensen and K.Winther Jacobsen (eds.), *Panayia Ematousa I. A rural site in south-eastern Cyprus*. Monographs of the Danish Institute at Athens 6.1. Athens: Danish Institute at Athens.
Janes, S.
2008 *The Cypro-Geometric horizon, a view from below: identity and social change in the mortuary record*. PhD, University of Glasgow.
Jehasse, L.
1978 *La céramique a vernis noir du rempart méridional*. Salamine de Chypre 8. Paris: de Boccard.
Johansen, P.G.
2004 Landscape, monumental architecture, and ritual: a reconsideration of the South Indian ashmounds. *Journal of Anthropological Archaeology* 23, 309–330.
Jones, D.K., L.F.H. Merton, M.E.D. Poore, and D.R. Harris
1958 *Report on pasture research, survey and development in Cyprus*. Nicosia: Government of Cyprus.
Jones, H.L., ed.
1924 *The Geography of Strabo*. London: Heinemann.
Joyce, R.A.
2002 *The languages of archaeology: dialogue, narrative, and writing*. Oxford: Blackwell.
Kantner, J.
2008 The archaeology of regions: from discrete analytical toolkit to ubiquitous spatial perspective. *Journal of Archaeological Research* 16, 37–81.
Karageorghis, V.
1977 A 'favissa' at Kakopetria. *Report of the Department of Antiquities, Cyprus*, 178–201.
1983 *Palaepaphos-Skales: an iron age cemetery in Cyprus*. 2 vols. Ausgrabungen in Alt-Paphos auf Cypern 3. Konstanz: Universitätsverlag Konstanz.
1995 *The coroplastic art of ancient Cyprus IV: the Cypro-Archaic period. Small male figurines*. Nicosia: Imprinta.
1999 *Excavations at Kition 6: the Phoenician and later levels*. Nicosia: Department of Antiquities, Cyprus.
Karageorghis, V., J.N. Coldstream, P. Bikai, A.W. Johnston, M. Robertson, and L. Jehasse
1981 *Excavations at Kition 4: the non-Cypriote pottery*. Nicosia: Department of Antiquities, Cyprus.
Karageorghis, V., and M. Demas
1985 *Excavations at Kition 5: the pre-Phoenician levels*. Nicosia: Department of Antiquities, Cyprus.
1988 *Excavations at Maa-Palaeokastro 1979–1986*. Nicosia: Department of Antiquities.
Karakatsanis, A.A., ed.
1997 *Treasures of Mount Athos*. Thessaloniki Ministry of Culture, Museum of Byzantine Culture.
Kassianidou, V.
2000 Hellenistic and Roman mining in Cyprus. In G.K. Ioannides and S.A. Hadjistilli (eds.), *Acts of the Third International Congress of Cypriot Studies*, 745–56. Nicosia: Society of Cyprus Studies.
2003a Archaeometallurgical procedures. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 44–48. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.
2003b Archaeometallurgy: data, analyses, and discussion. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 214–21, 223–27. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.
2004a 'And at Tamassos there are important mines of copper...' (Strabo 14.6). In S. Fourrier, A. Hermary, and N. Lécuyer (eds.), *Actes du Colloque international 'Frontières et territoires au centre de Chypre: la région d'Idalion, de l'Antiquité au XIXe siècle', Aix-en-Provence, 3–5 Juin 2004*, 33–46. Cahier du Centre d'Etudes Chypriotes 34. Nanterre: Association Centre d'Etudes Chypriotes.
2004b Recording Cyprus's mining history through archaeological survey. In M. Iacovou (ed.), *Archaeological field survey in Cyprus: past history, future potentials*, 95–104. Athens: British School at Athens.
2007 Ground stone tools from Apliki Karamallos. In B. Kling and J.D. Muhly (eds.), *Joan du Plat Taylor's excavations at the late Bronze Age mining settlement at Apliki Karamallos, Cyprus*, Studies in Mediterranean Archaeology 134. Sävedalen: Paul Åströms Förlag.
2008 The formative years of the Cypriot copper industry. In I. Tzachili (ed.), *Aegean metallurgy in the Bronze Age*, 249–67. Athens: Ta Pragmata.

Kassianidou, V., and A.B. Knapp
2005 Archaeometallurgy in the Mediterranean: the social context of mining, technology and trade. In E. Blake and A.B. Knapp (eds.), *The archaeology of Mediterranean prehistory*, 215–51. Blackwell Studies in Global Archaeology. Oxford: Blackwell.

Katzev, M.
1969 The Kyrenia shipwreck. *Expedition* 11, 55–59.
1970 Kyrenia 1969: a Greek ship is raised. *Expedition* 12, 6–14.

Keswani, P.S.
1996 Hierarchies, heterarchies, and urbanization processes: the view from Bronze Age Cyprus. *Journal of Mediterranean Archaeology* 9, 211–49.
2004 *Mortuary ritual and society in Bronze Age Cyprus*. Monographs in Mediterranean Archaeology. London: Equinox.

Keswani, P.S., and A.B. Knapp
2003 Bronze Age boundaries and social exchange in north-west Cyprus. *Oxford Journal of Archaeology* 22, 213–23.

Kingsnorth, A.
1996 Chipped stone. In J.E. Coleman, J. Barlow, M. Mogelonsky, and K.W. Schaar (eds.), *Alambra: a Middle Bronze Age settlement in Cyprus: archaeological investigations by Cornell University*, 178–96. Studies in Mediterranean Archaeology 118. Göteborg: Paul Åströms Förlag.
2003 The knapped stone. In S. Swiny, G.R. Rapp, and E. Herscher (eds.), *Sotira Kaminoudhia: an Early Bronze Age site in Cyprus*, 289–368. CAARI Monograph Series 4. Boston: American Schools of Oriental Research.

Kitchener, H.H.
1885 *A trigonometrical survey of the island of Cyprus, executed and published ... under the direction of ... H.H. Kitchener*. London: E. Stanford.

Klein, S., Y. Lahaye, G.P. Brey, and H.-M. von Kaenel
2004 The Early Roman imperial AES coinage II: tracing the copper sources by analysis of lead and copper isotopes – copper coins of Augustus and Tiberius. *Archaeometry* 46, 469–80.

Klein, S., C. Rico, Y. Lahaye, H.-M. von Kaenel, D. Domergue, and G.P. Brey
2007 Copper ingots from the Western Mediterranean Sea: chemical characterization and provenance studies through lead and copper isotope analyses. *Journal of Roman Archaeology* 20, 202–21.

Knapp, A.B.
1997 *The archaeology of Late Bronze Age Cypriot society: the study of settlement, survey and landscape*. Glasgow: Department of Archaeology, University of Glasgow.
2003 The archaeology of community on Bronze Age Cyprus: Politiko Phorades in context. *American Journal of Archaeology* 107, 559–80.
2008 *Identity, insularity and connectivity: prehistoric and protohistoric Cyprus*. Oxford: Oxford University Press.
2010 Cyprus's earliest prehistory: seafarers, foragers and settlers. *Journal of World Prehistory* 23, 79–120.

Knapp, A.B., S. Bain, D. Coleman, P. Grave, V. Kassianidou, S. Manning, N. Meyer, R.S. Moore, J. Noller, E. Ribeiro, J. Smith, N. Urwin, S. Van Lokeren, and H. Wright
2003 SIA 7: Politiko Kokkinorotsos. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 130–46. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Knapp, A.B., M. Donnelly, and V. Kassianidou
1998 Excavations at Politico-Phorades 1997. *Report of the Department of Antiquities, Cyprus*, 247–68.

Knapp, A.B., and M. Given
2003 Conclusion. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 315–20. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Knapp, A.B., and V. Kassianidou
2008 The archaeology of Late Bronze Age copper production: Politiko Phorades on Cyprus. In Ü. Yalçin (ed.), *Anatolian Metal IV: frühe Rohstoffgewinnung in Anatolien und seinen Nachbarländern*, 135–47. Die Anschnitt 21; Veröffentlichungen aus dem Deutschen Bergbau-Museum 157. Bochum: Deutsches Bergbau-Museum.

Knapp, A.B., V. Kassianidou, and M. Donnelly
1999 Excavations at Politiko-Phorades 1998. *Report of the Department of Antiquities, Cyprus* 1999, 125–46.

Knapp, A.B., V. Kassianidou, P. Duffy, M. Donnelly, and J. Noller
n.d. *The excavations at Politiko Phorades (1996–2000): the archaeology and archaeometallurgy of a Bronze Age smelting site*. Unpublished.

Knapp, A.B., and P. van Dommelen
2010 Material connections: mobility, materiality and Mediterranean identities. In A.B. Knapp and P. van Dommelen (eds.), *Material connections in the ancient Mediterranean: mobility, materiality and identity*, 1–18. London: Routledge.

Knappett, C.
2000 The Provenance of RLWmW: Cyprus, Syria, or Anatolia? *Internet Archaeology* 9. http://intarch.york.ac.uk/journal/issue9/knappett/toc.htm

Kontogiannis, N.D.
2003 Kypriaki Mesaioniki keramiki sto mousio ton Sevron. *Report of the Department of Antiquities, Cyprus*, 311–25.

Korre-Zographou, K.
1995 *Ta keramika tou ellinikou chorou*. Athens: Melissa.
2000 *Ta keramika tou Tsanak Kale: 1670–1922*. Athens: Idhryma Meizonos Ellinismou.

Kosmas, C., N. Danalatos, L.H. Cammeraat, M. Chabart, J. Diamantopoulos, and R. Farand, and 17 others
1997 The effect of land use on runoff and soil erosion rates under Mediterranean conditions. *Catena* 29, 45–59.

Koucky, F.L., and A. Steinberg
1974 Ancient mining and mineral dressing on Cyprus. In T.A. Wertime and S.F. Wertime (eds.), *Early pyrotechnology: the evolution of the first fire using industries*, 149–80. Washington DC: Smithsonian Institution Press.

Kowalewski, S.A.
2008 Regional settlement pattern studies. *Journal of Archaeological Research* 16, 225–85.

Kresten, P., and E. Hjärthner-Holdar
2001 Analyses of the Swedish ancient iron reference slag W-25:R. *Historical Metallurgy* 35, 48–51.

Kuna, M.
2000 Surface artefact studies in the Czech Republic. In J.L. Bintliff, N. Venclova, and M. Kuna (eds.), *The future of surface artefact survey in Europe*, 29–44. Sheffield Archaeological Monographs 13. Sheffield: Sheffield Academic Press.

Kuzucuoğlu, C., W. Dörfler, S. Kunesch, and F. Goupille
2011 Mid- to late-Holocene climate change in central Turkey: the Tecer Lake record. *The Holocene* 21(1), 173–88.

Kyrris, C.P., ed.
1987 *The Kanakaria documents 1666–1850: sale and donation deeds*. Texts and Studies in the History of Cyprus, Vol. 14. Nicosia: Cyprus Research Centre.

Langbein, W.B., and S.A. Schumm
1958 Yield of sediment in relation to mean annual precipitation. *Transactions of the American Geophysical Union* 39, 1076–84.

Larrasoana, J.C., A.P. Roberts, E.J. Rohling, M. Winklhofer, and R. Wehausen
2003 Three million years of monsoon variability over the northern Sahara. *Climate Dynamics* 21, 689–98.

Laskar, J., P. Robutel, F. Joutel, M. Gastineau, A. Correia, and B. Levrard
2004 A long-term numerical solution for the insolation quantities of the Earth. *Astronomy and Astrophysics* 428, 261–86.

Lavender, D.
1962 *The story of the Cyprus Mines Corporation*. San Marino: Huntington Library.

Le Brun, A.
1981 *Un site néolithique précéramique en Chypre: Cap Andreas-Kastros*. Recherche sur les grandes civilisations; mémoire no. 5. Paris: Editions ADPF.
2001 At the other end of the sequence: the Cypriot Aceramic Neolithic as seen from Khirokitia. In S. Swiny (ed.), *The earliest prehistory of Cyprus: from colonization to exploitation*, 109–18. Cyprus American Archaeological Research Institute, Monograph 2. Boston: American Schools of Oriental Research.

Lécuyer, N., G. Grivaud, D. Michaelides, A. Nicolaides, H. Amouric, L. Decock, B. Devillers, V. Francois, F. Hadjichristofi, M. Loiseau, B. Simon, and L. Vallauri
2002 Potamia-Agios Sozomenos (Cyprus): la constitution des paysages dans l'Orient médiévale. *Bulletin de Correspondance Hellenique* 126(2), 598–614.

Lenthe, H.-R., F. Krone, and G. Schmidt
1981 *Soil erosion losses on various geological deposits case study, Vol. C2, Part C: Pedology – ecological land survey in key areas of Cyprus*. Technical report of the Cypriot-German Geological and Pedological Project. Hannover: Federal Institute for Geosciences and Natural Resources.

Leonard, A.J.
1987 A brief survey. In D. Soren (ed.), *The Sanctuary of Apollon Hylates at Kourion, Cyprus*, 80–116. Tucson: The University of Arizona Press.

Leonard, J.R.
1995 Evidence for Roman ports, harbours and anchorages. In V. Karageorghis and D. Michaelides (eds.), *Cyprus and the Sea: Proceedings of the International Symposium, Nicosia 25–26 September 1993*, 228–46. Nicosia: University of Cyprus.
1997 Harbor terminology in Roman periploi. In S. Swiny, R.L. Hohlfelder, and H.W. Swiny (eds.), *Res Maritimae: Cyprus and the Eastern Mediterranean from prehistory to Late Antiquity. Proceedings of the second international symposium 'Cities on the Sea', Nicosia, Cyprus, October 18–22, 1994*, 163–200. Atlanta: Scholars Press.

Lightfoot, K.G., A. Martinez, and A.M. Schiff
1998 Daily practice and material culture in pluralistic social settings: an archaeological study of culture change and persistence from Fort Ross, California. *American Antiquity* 63, 199–222.

Lionello, P., J. Bhend, A. Buzzi, P.M. Della-Marta, S.O. Krichak, A. Jansà, P. Maheras, A. Sanna, F. Trigo, and R. Trigo
2006 Cyclones in the Mediterranean region: climatology and effects on the environment. In P. Lionello, P. Malanotte-Rizzoli, and R. Boscolo (eds.), *Mediterranean climate variability*, 325–72. Developments in Earth and Environmental Sciences 4. Amsterdam: Elsevier.

Llobera, M.
2011 Archaeological visualization: towards an Archaeological Information Science (AISc). *Journal of Archaeological Method and Theory* 18, 193–223.

Llobera, M., P. Fábrega-Álvarez, and C. Parcero-Oubiña
2011 Order in movement: a GIS approach to accessibility. *Journal of Archaeological Science* 38, 843–51.

Lolos, Y.A., B. Gourley, and D.R. Stewart
2007 The Sikyon Survey Project: a blueprint for urban survey? *Journal of Mediterranean Archaeology* 20, 267–96.

London, G.
1989 On fig leaves, itinerant potters, and pottery production locations in Cyprus. In P.E. McGovern and M.D. Notis (eds.), *Cross-craft and cross-cultural interactions in ceramics. Ceramics and Civilization 4*, 65–80. Westerville, OH: American Chemical Society.
2000 Continuity and change in Cypriot pottery production. *Near Eastern Archaeology* 63, 102–10.

Loulloupis, M.C.
1989 A rural cult place in Soloi area. In V. Tatton-Brown (ed.), *Cyprus and the East Mediterranean in the Iron Age*, 68–95. London: British Museum Publications.

Lucas, A.
2006 *Wind, water, work: ancient and medieval milling technology*. Leiden: Brill.

Lucas, G.
2001 *Critical approaches to fieldwork: contemporary and historical archaeological practice*. London: Routledge.

Lucco, M., and A. Pontiani
1997 Greek inscriptions on two Venetian Renaissance paintings. *Journal of the Warbourg and Courtauld Institutes* 60, 111–29.

Ludwig, J.A., and J. Reynolds
1988 *Statistical ecology: A primer on methods and computers*. New York: John Wiley.

Luke, H.C., and D.J. Jardine, eds.
1920 *The handbook of Cyprus*. 8th ed. London: Macmillan.

Lüken, H., and F. Krone
1989 *Five years erosion measurements (1981–1986): calcareous soils of Cyprus, pedology*. Technical Report of the Cypriot-German Geological and Pedological Project. Hannover: Federal Institute for Geosciences and Natural Resources.

Lund, J.
1993 Pottery of the Classical, Hellenistic and Roman periods. In L.W. Sørensen and D.W. Rupp (eds.), *The Land of the Paphian Aphrodite II*, 79–155. Studies in Mediterranean Archaeology 104:2. Göteborg: Paul Åströms Förlag.
2002 Frying pans and other cooking wares from the Akamas (Western Cyprus). In F. Blondé, P. Ballet, and J.-F. Salles (eds.), *Céramiques hellénistiques et romaines. Productions et diffusion en Méditerranée orientale (Chypre, Égypte et côte syro-palestinienne)*, 43–58. Travaux de la Maison de l'Orient Méditerranéen 35. Lyon: Maison de l'Orient Méditerranéen.

Luttrell, A.
1996 The sugar industry and its importance for the economy of Cyprus during the Frankish period. In V. Karageorghis and D. Michaelides (eds.), *The development of the Cypriot economy from the prehistoric period to the present day*, 163–73. Nicosia: University of Cyprus.

Mackensen, M.
1984 *Resafa I. Eine befestigte spätantike Anlage vor den Stadtmauern von Resafa*. Mainz am Rhein: Verlag Philip von Zabern.
Maier, F.G.
2000 The Sanctuary of the Paphian Aphrodite in the Roman Period. In G.K. Ioannides and S.A. Hadjistylli (eds.), *Third International Congress of Cypriot Studies, Nicosia 16–20 April 1996*, 495–505. Nicosia.
Majcherek, G.
1995 Gazan amphorae: typology reconsidered. In H. Meyza and J. Młynarczyk (eds.), *Hellenistic and Roman pottery in the Eastern Mediterranean: advances in scientific studies. Acts of the II Nieborów Pottery Workshop. Nieborów, 18–20 December 1993*, 162–77. Warszaw: Research Center for Mediterranean Archaeology, Polish Academy of Sciences.
Makhzoumi, J.M.
1997 The changing role of rural landscapes: olive and carob multi-use tree plantations in the semiarid Mediterranean. *Landscape and Urban Planning* 37, 115–22.
Malone, C., and S. Stoddart
2000 The current state of prehistoric ceramic studies in Mediterranean survey. In R. Francovich and H. Patterson (eds.), *Extracting meaning from ploughsoil assemblages*, 94–104. Oxford: Oxbow.
Mandel, R.D., and E.A.I. Bettis
2001 Use and analysis of soils by archaeologists and geoscientists: a North American perspective. In P. Goldberg, V.T. Holliday, and C.R. Ferring (eds.), *Earth sciences and archaeology*, 107–41. New York: Kluwer Academic/Plenum.
Manen, C.
2003 La vaisselle de pierre pré-céramique de Shillourokambos (Parekklisha): approche technique et typologique des secteurs 1, 2 et 4. In J. Guilaine and A. Le Brun (eds.), *Le Néolithique de Chypre*, 187–202. Bulletin de Correspondance Hellénique Supplément 43. Athens: École Française d'Athènes.
Manning, S.W., and A. Manning
2002 *The late Roman church at Maroni Petrera: survey and salvage excavations, 1990–1997, and other traces of Roman remains in the lower Maroni Valley, Cyprus*. Nicosia: A.G. Leventis Foundation.
Manning, S.W., C. McCartney, B. Kromer, and S.T. Stewart
2010 Recognition and dating of Pre-Pottery Neolithic A period occupation on Cyprus. *Antiquity* 84/325, 693–706.
Manning, S.W., S.J. Monks, D.A. Sewell, and S. Demesticha
2000 Late Roman type 1a amphora production at the Late Roman site of Zygi-Petrini, Cyprus. *Report of the Department of Antiquities, Cyprus*, 233–57.
Mariti, G.
1909 *Travels in the island of Cyprus*. Cambridge: Cambridge University Press.
Markides, M.
1915 Excavations at Skouriotissa and Katydhata. *Annual Report of the Curator of Antiquities*, 15–18.
1916 Excavations at Skouriotissa and Katydhata. *Annual Report of the Curator of Antiquities*, 4–20.
Mason, R.B., and M.M. Mango
1995 Glazed tiles of Nikomedia in Bithynia, Constantinople and elsewhere. In C. Mango and G. Dragon (eds.), *Constantinople and its Hinterland*, 253–63. Aldershot: Variorum.
Mattingly, D.J.
2000 Methods of collection, recording and quantification. In R. Francovich, H. Patterson, and G. Barker (eds.), *Extracting meaning from ploughsoil assemblages. The archaeology of Mediterranean landscapes 5*, 5–15. Oxford: Oxbow Books.
2010 *Imperialism, power, and identity: experiencing the Roman Empire*. Princeton: Princeton University Press.
Mazzeo Saracino, L.
1985 Terra sigillata nord-italica, *Enciclopedia dell'arte antica, classica e orientale: atlante delle forme ceramiche II: ceramica fine romana nel bacino mediterraneo*, 175–230. Rome: Istituto della Enciclopedia italiana.
McCartney, C.
1993 An attribute analysis of Cypriot dhoukani 'teeth': implications for the study of Cypriot chipped stone assemblages. *Report of the Department of Antiquities, Cyprus*, 349–64.
2003 The chipped stone. In E. Peltenburg (ed.), *The colonisation and settlement of Cyprus: investigations at Kissonerga-Mylouthkia, 1976–1996*, 203–220. Lemba Archaeological Project 3.1. Studies in Mediterranean Archaeology 70.4. Sävedalen: Paul Åströms Förlag.
2005 Preliminary report on the re-survey of three Early Neolithic sites in Cyprus. *Report of the Department of Antiquities, Cyprus*, 1–21.
2007 Prehistoric chert use in Cyprus. In C. Delage (ed.), *Chert availability and prehistoric exploitation in the Near East*, 304–26. British Archaeological Reports, International Series 1615. Oxford: John and Erica Hedges.
2008 Chipped stone. In P. Flourentzos (ed.), *The Neolithic settlement of Paralimni*, 55–77. Nicosia: Department of Antiquities of Cyprus.
McCartney, C., P. Croft, S.W. Manning, and S. Rosendahl
2009 Preliminary report on the 2008 EENC excavations at Ayia Varvara-Asprokremnos and regional field survey. *Report of the Department of Antiquities, Cyprus*, 1–16.
McCartney, C., and B. Gratuze
2003 The chipped stone. In E.J. Peltenburg (ed.), *The colonisation and settlement of Cyprus: excavations at Kissonerga-Mylouthkia, 1976–1996*, 11–34. Studies in Mediterranean Archaeology 70:4. Sävedalen: Paul Åströms Förlag.
McCartney, C., S.W. Manning, S. Rosendahl, and S.T. Stewart
2008 Elaborating Early Neolithic Cyprus (EENC) preliminary report on the 2007 field season: excavations and regional field survey at Agia Varvara-Asprokremnos. *Report of the Department of Antiquities, Cyprus*, 67–86.
McCartney, C., S.W. Manning, D. Sewell, and S.T. Stewart
2006 Elaborating Early Neolithic Cyprus (EENC). *Report of the Department of Antiquities, Cyprus*, 39–61.
2007 The EENC 2006 field season: excavations at Agia Varvara Asprokremnos and survey of the local early Holocene landscape. *Report of the Department of Antiquities, Cyprus*, 27–44.
McCartney, C., and I. Todd
2005 Chipped stone, *Excavations at Kalavasos-Tenta 2. Vasilikos Valley Project 7*, 177–264. Studies in Mediterranean Archaeology LXXI:7. Sävedalen: Paul Åströms Förlag.
McClellan, M.C., and M.L. Rautman
1995 Where have all the farmers gone? The Cypriot countryside in the seventh to tenth centuries. In W.W. Paul (ed.), *Visitors, immigrants and invaders in Cyprus*, 85–86. Albany: Institute of Cypriot Studies, University at Albany.
McQuitty, A.
1995 Water mills in Jordan: technology, typology, dating

and development. *Studies in the History and Archaeology of Jordan* 5, 745–51.

Megaw, A.H.S.
1937–39 Three Medieval pit-groups from Nicosia. *Report of the Department of Antiquities, Cyprus*, 145–68, 224–26.
1947 *Catalogue of a loan exhibition of Medieval Cypriot pottery from the collection of Mr. Christakis Loizides*. Nicosia: Cyprus Museum.
1971 Excavations at 'Saranda Kolones', Paphos. Preliminary report on the 1966–67 and 1970–71 seasons. *Report of the Department of Antiquities, Cyprus*, 117–46.
1972 Supplementary excavations on a castle site at Paphos, Cyprus, 1970–1971. *Dumbarton Oaks Papers* 26, 322–44.
1982 Saranda Kolones 1981. *Report of the Department of Antiquities, Cyprus*, 210–16.
1984 Saranda Kolones: Ceramic evidence for the construction date. *Report of the Department of Antiquities, Cyprus*, 351–53.
1986 Betwixt Greeks and Saracens. In V. Karageorghis (ed.), *Acts of the international archaeological symposium 'Cyprus between the Orient and the Occident', Nicosia, 8–14 September 1985*, 505–19. Nicosia.
2007 *Kourion: excavations in the episcopal precinct*. Washington, D.C.: Dumbarton Oaks.

Megaw, A.H.S., and E.J.W. Hawkins
1977 *The Church of the Panagia Kanakariá at Lythrankomi in Cyprus. Its Mosaics and Frescoes*. Dumbarton Oaks Studies 14. Washington: Dumbarton Oaks Center for Byzantine Studies.

Megaw, A.H.S., and R.E. Jones
1983 Byzantine and allied pottery: a chemical analysis. *Annual of the British School at Athens* 78, 235–63.

Meiggs, R.
1982 *Trees and timber in the ancient Mediterranean world*. Oxford: Clarendon Press.

Meikle, R.D.
1977 *Flora of Cyprus* 1. Kew: Bentham-Moxon Trust, Royal Botanic Gardens.
1985 *Flora of Cyprus* 2. Kew: Bentham-Moxon Trust, Royal Botanic Gardens.

Mejelle
1901 *The Mejelle*. Translated by D.G. Demetriades and Ismail Haqqi Effendi. Nicosia: Government Printing Office.

Mercuri, A.M., L. Sadori, and P. Uzquiano Ollero
2011 Mediterranean and north-African cultural adaptations to mid-Holocene environmental and climatic changes. *The Holocene* 21(1), 189–206.

Meskell, L.
2000 Cycles of life and death: narrative homology and archaeological realities. *World Archaeology* 31, 423–41.

Metcalf, D.M.
2009 *Byzantine Cyprus 491–1191*. Texts and studies in the History of Cyprus 62. Nicosia: Cyprus Research Centre.

Meyer, N., D. Coleman, L. Diacopoulos, M. Given, T.E. Gregory, V. Kassianidou, A.B. Knapp, R. Schon, K. Seretis, N. Urwin, S. Van Lokeren, L. Wells, and C. Whitehill
2003a Methodology and analytical procedures. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 25–59. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Meyer, N., L. Diacopoulos, M. Given, V. Kassianidou, A.B. Knapp, K. Seretis, N. Urwin, S. Van Lokeren, and L. Wells
2003b Contributions to regional survey archaeology. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 7–24. Monumenta Archaeologica 21. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Meyer, N., T.E. Gregory, and R. Schon
2003c Pottery collection, pottery analysis and GIS mapping. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 48–57. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Meyer, N., and R. Schon
2003 Experimental data. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 52–57. Monumenta Archaeologica 21. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Meyza, H.
2000 Cypriot Red Slip: development of the ware (an attempt at refinement). In G.K. Ioannides and S.A. Hadjistyllis (eds.), *Acts of the Third International Congress of Cypriot Studies (Nicosia, April 1996). Vol. A, Ancient Section*, 507–529. Nicosia: Society of Cypriot Studies.
2007 *Cypriot Red Slip ware: studies on a Late Roman Levantine fine ware*. Nea Paphos 5. Warsaw: Polish Academy of Science.

Miall, A.D.
1996 *The geology of fluvial deposits*. Berlin: Springer.

Miatev, K.
1936 *Die Keramik von Preslav*. Sofia: Staatsdruckerei.

Michaelides, D.
1996 The economy of Cyprus during the Hellenistic and Roman periods. In V. Karageorghis and D. Michaelides (eds.), *The development of the Cypriot economy from the prehistoric period to the present day*. Nicosia: University of Cyprus; Bank of Cyprus.

Michaelides, D., and J. Młynarczyk
1988 Tombs P.M. 2520 and 2737 from the Eastern Necropolis of Nea Paphos. *Report of the Department of Antiquities, Cyprus* 1988 II, 149–69.

Michelakis, N.
2002 Olive orchard management: advances and problems. 4th International ISHS Symposium on Olive Growing. *Acta Horticulturae* 586, 239–45.

Mitford, T.B.
1939–40 Milestones in western Cyprus. *Journal of Roman Studies* 29–30, 184–98.
1950 New inscriptions from Roman Cyprus. *Opuscula Archaeologica* 6, 1–95.
1980a *The Nymphaeum of Kafizin: the inscribed pottery*. Hawthorne, N.Y.: de Gruyter.
1980b Roman Cyprus. In H. Temporini and W. Haase (eds.), *Aufstieg und Niedergang der Römischen Welt: Geschichte und Kultur Roms im Spiegel der neurern Forschung*, 1285–1384. Berlin: Walter de Gruyter.

Mithen, S.J., and E. Black, eds.
2011 *Water, life and civilisation: climate, environment and society in the Jordan Valley*. Cambridge: Cambridge University Press.

Mogabgab, T.
1937–1939 Excavations and researches in Famagusta. *Report of the Department of Antiquities, Cyprus*, 188–189.

Mogelonsky, M.
1996 Ground stone. In E. Coleman, J.A. Barlow, M.K. Mogelonsky, and K.W. Schaar (eds.), *Alambra: a Middle Bronze Age settlement in Cyprus: archaeological*

investigations by Cornell University, 143–77. Studies in Mediterranean Archaeology CXVIII. Göteborg: Paul Åströms Förlag.

Moody, J.A., H.L. Robinson, J. Francis, L. Nixon, and L. Wilson
2003 Ceramic fabric analysis and survey archaeology: the Sphakia Survey. *Annual of the British School at Athens* 98, 37–105.

Moore, R.S.
2003 Hellenistic to Roman landscapes. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 277–82. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.

Moreland, J.
1999 The world(s) of the cross. *World Archaeology* 31, 194–213.

Morris, C.E., and A.A.D. Peatfield
1987 Pottery from the Cyprus underwater survey, 1983. *Report of the Department of Antiquities, Cyprus*, 199–212.

Morris, H.J.
1977 *Chipped stone implements from Phaneromeni, Cyprus: A preliminary catalog and analysis*. MA dissertation. Kent State University.

Morris, R.S.
1984 The Stylianides Mill – Evrykhou. *Kipriakes Spoudhes* 57, 161–72.

Moutafov, E.
2004 Epigrafikata na Sv. Krast i Krastat kato epigrafski znak. *Trudove na katedrite po istoria i bogoslovie na Shoumenskia Universitet "Episkop Konstantin Preslavski"* 6, 230–46.

Moutafov, E., and A. Rhoby
2012 New ideas about the deciphering of the cryptic inscription in the narthex of the Panagia Asinou (Phorbiotissa) church (Cyprus). *Medioevo Greco: Rivista di Storia e Filologia Bizantina* 12, 181–87.

Muhly, J.D., R. Maddin, and T.S. Wheeler
1980 The oxhide ingots from Enkomi and Mathiati and Late Bronze Age copper smelting in Cyprus. *Report of the Department of Antiquities, Cyprus*, 84–99.

Myres, J.L., and M. Ohnefalsch-Richter
1899 *A catalogue of the Cyprus Museum: with a chronicle of excavations undertaken since the British occupation*. Oxford: Clarendon Press.

Neuru, L.L.
1991 Megarian relief ware. In J.W. Hayes (ed.), *Paphos III. The Hellenistic and Roman pottery*, 13–17. Nicosia: Department of Antiquities, Cyprus.

Nicholson, R.J.
1980 Modern ploughing techniques. In J. Hinchcliffe and R.T. Schadla-Hall (eds.), *The past under the plough*, 114–122. DoE Occasional Paper 3. London: HMSO.

Nicolaou, I.
1984 A Hellenistic and Roman tomb at Eurychou-Phoenikas. *Report of the Department of Antiquities, Cyprus*, 234–56.
1995 Inscriptiones Cypriae Alphabeticae XXXIV, 1994. *Report of the Department of Antiquities, Cyprus*, 221–227.

Nicolls, E.
1901 *Report on Nicosia-Troodos carriage road*: Unpublished document in Cyprus State Archives, SA1/1922/1899.

Noller, J.S., ed.
2010 *Study of the geomorphology of Cyprus: final technical report to the Geological Survey Department, Republic of Cyprus*. Nicosia: Geological Survey Department.

Noller, J.S., and W.W. Locke
2000 Lichenometry. In J.S. Noller, J.M. Sowers, and W.R. Lettis (eds.), *Quaternary geochronology: methods and applications*, 261–272. American Geophysical Union Reference Shelf Series. Washington DC: American Geophysical Union.

Noller, J.S., and L.E. Wells
2004 Troodos-Mesaoria Geomorphological Project. In A.A. Chatzipetros and S.B. Pavlides (eds.), *Proceedings of the 5th International Symposium on Eastern Mediterranean Geology*. Thessaloniki.

Ntinou, M.
2003 *Charcoal analysis at the SCSP archaeometallurgical sites*: Unpublished manuscript.

Ohnefalsch-Richter, M.H.
1893 *Kypros, the Bible and Homer: Oriental civilization, art and religion in ancient times*. London: Asher.

Oikonomaki-Papadoupoulou, G., B. Pitarakis, and K. Loberdou-Tsigarida
2000 *Iera megisti moni Vatopaidiou*. Ayion Oros: I.M. Vatopaidi.

Orssaud, D.
1980 La céramique. In J.P. Sodini (ed.), *Déhès (Syrie du Nord) Campagnes I–III (1976–1978) Recherches sur l'habitat rural*, 234–66. Syria. Revue d'art oriental et d'archéologie 57.

Ortner, S.B.
1995 Resistance and the problem of ethnographic refusal. *Comparative Studies in Society and History* 37, 173–93.

Panayiotou, M.
2001 O teleftaios alevromylos doulevei me nero, stou Stylli tou Mylona. *Selides Magazine*.

Pantelas, V.S.
1996 The Cypriot bioclimate and the climax vegetation (in Greek), *Proceedings of the Sixth Botanical Scientific Conference, Hellenic Botanical Society and Biological Society of Cyprus, Paralimni, Cyprus*, 194–99. Paralimni: Hellenic Botanical Society and Biological Society of Cyprus.

Pantelas, V.S., and A. Barber i Valles
1995 *Bioclimatic classification of Cyprus*. Nicosia: Private publication.

Papacostas, T.C.
2001 The economy of Late Antique Cyprus. In S. Kingsley and M. Decker (eds.), *Economy and exchange in the East Mediterranean during Late Antiquity: proceedings of a conference at Somerville College, Oxford – 29th May, 1999*, 107–28. Oxford: Oxbow Books.

Papademetriou, E.
2005 *Modern glazed pottery of Cyprus. Lapithos Ware*. Nicosia: En Tipis.

Papageorgiou, A.
1993 Cities and countryside at the end of Antiquity and the beginning of the Middle Ages in Cyprus. In A.A.M. Bryer and G.S. Georghallides (eds.), *The sweet land of Cyprus: papers given at the Twenty-Fifth Jubilee Spring Symposion of Byzantine Studies, Birmingham, March 1991,* 27–51. Birmingham: Centre for Byzantine, Ottoman and Modern Greek Studies, University of Birmingham.
2001 I Episkopi ton Solon. *Epetiridha Kendrou Meleton Ieras Monis Kykkou* 5, 9–41.

Papanikola-Bakirtzi, D.
1984a I taftotita enos angeiou sto Mouseio Benaki. *Report of the Department of Antiquities, Cyprus*, 351–53.
1984b Kypriaka mesaionika agneia stin Patra. *Archaiologika Analecta ex Athenon* 15, 228–37.

1989 *Medieval Cypriot Pottery in the Pierides Foundation Museum*. Larnaca: Pierides Foundation Museum.
1996 *Mesaioniki ephyalomeni keramiki tis Kiprou: ta ergastiria Paphou kai Lapithou*. Thessaloniki: Anastasios G. Leventis Foundation.
2002 *Kathimerini zoi sto Byzantio*. Athens: Greek Ministry of Culture.
2004 *Colours of Medieval Cyprus through the Medieval ceramic collection of the Leventis Municipal Museum of Nicosia*. Nicosia: Anastasios G. Leventis Foundation; Leventis Municipal Museum.

Papuci-Władyka, E.
1997 A research report on Hellenistic pottery: Cos amphoras. *Studies in Ancient Art and Civilization* 8, 47–54.

Parker, G., and P.C. Klingeman
1982 On why gravel bed streams are paved. *Water Resources Research* 18, 1409–23.

Parks, D.A.
1999 *Burial customs of Roman Cyprus: origin and development*. PhD dissertation, University of Missouri, Columbia.
2004 *The Roman coinage of Cyprus*. Nicosia: Cyprus Numismatic Society.

Parks, D.A., M. Given, and N.E.M. Chapman
1998 Excavations at Kourion's Amathus Gate cemetery, 1997. *Report of the Department of Antiquities, Cyprus*, 171–85.

Patterson, H.
2000 The current state of early medieval and medieval ceramic studies in Mediterranean survey. In R. Francovich, H. Patterson, and G. Barker (eds.), *Extracting meaning from ploughsoil assemblages*, 110–20. Oxford: Oxbow Books.

Peacock, D.P.S.
1982 *Pottery in the Roman World: an ethnoarchaeological approach*. London: Longman Archaeology Series.

Peacock, D.P.S., and D.F. Williams
1986 *Amphorae and the Roman economy: an introductory guide*. London: Longman.

Pearlman, D.A.
1984 *Threshing sledges in the East Mediterranean: ethnoarchaeology with chert knappers and dhoukanes in Cyprus*, University of Minnesota.

Peltenburg, E.J.
1978 The Sotira Culture: regional diversity and cultural unity in Late Neolithic Cyprus. *Levant* 10, 55–74.
1991 Kissonerga-Mosphilia: a major Chalcolithic site in Cyprus. *Bulletin of the American Schools of Oriental Research* 282/283, 17–35.
1996 From isolation to state formation in Cyprus, c. 3500–1500 B.C. In V. Karageorghis and D. Michaelides (eds.), *The development of the Cypriot economy: from the prehistoric period to the present day*, 17–44. Nicosia: Bank of Cyprus, University of Cyprus.
2006 *The Chalcolithic cemetery of Souskiou-Vathyrkakas, Cyprus: investigations of four missions from 1950 to 1997*. Nicosia: Department of Antiquities, Cyprus.
2007 East Mediterranean interactions in the 3rd millennium BC. In S. Antoniadou and A. Pace (eds.), *Mediterranean crossroads*, 141–61. Athens, Oxford: Pierides Foundation, Oxbow Books.

Peltenburg, E.J., D. Bolger, and E. Baxevani
1998 *Lemba Archaeological Project II.1A. Excavations at Kissonerga-Mosphilia, 1979–1992*. Studies in Mediterranean Archaeology 70:2. Jonsered: P. Åströms Förlag.

Peltenburg, E.J, and A. Wasse, eds.
2004 *Neolithic revolution: new perspectives on southwest Asia in light of recent discoveries in Cyprus*. Levant Supplementary Series 1. Oxford: Oxbow.

Pettegrew, D.K.
2007 The busy countryside of Late Roman Corinth: interpreting ceramic data produced by regional archaeological surveys. *Hesperia* 76, 743–84.
2010 Regional survey and the boom-and-bust countryside: re-reading the archaeological evidence for episodic abandonment in the Late Roman Corinthia. *International Journal of Historical Archaeology* 14, 215–29.

Philokyprou, M.
1998 Building materials and methods employed in prehistoric and traditional architecture in Cyprus. In E. Karpodini-Dimitriadi (ed.), *Ethnography of European traditional cultures: arts, crafts and techniques of heritage*, 150–64. Athens: Institute of Cultural Studies of Europe and the Mediterranean.

Phlasou
1989 Phlasou. In A. Paulides (ed.), *Megali Kypriaki Enkyklopaideia 13*, 258–59. Nicosia: Philokypros.

Pilides, D.
2000 *Pithoi of the Late Bronze Age in Cyprus: types from the major sites of the period*. Nicosia: Department of Antiquities, Republic of Cyprus.

Piltz, E.
1996 *The von Post collection of Cypriote late Byzantine glazed pottery*. Studies in Mediterranean Archaeology 119. Jonsered: P. Åströms Förlag.

Plumwood, V.
2006 The concept of a cultural landscape: nature, culture and agency in the land. *Ethics and the Environment* 11(2), 115–50.

Potter, D.
2000 I Kypros eparkhia tis Romaikis Aftokratorias. In T. Papadopoulos (ed.), *Istoria tis Kyprou, Vol. 2.2*, 763–864. Nicosia: Archibishop Makarios III Foundation.

Prokopiou, E., I. Nikolaou, and A. Destrooper
1997 Lemesos. Odos Zig-Zag. Ekthesi apotelesmaton sostikis anaskafikis erevnas 1993. *Report of the Department of Antiquities, Cyprus*, 285–322.

Pucci, G.
1985 Terra sigillata italica, *Enciclopedia dell'arte antica: classica e orientale. Atlante delle forme ceramiche II: Ceramica fine romana nel bacino mediterraneo (tardo ellensimo e primo impero)*, 359–99. Rome: Instituto della Enciclopedia Italiana.

Pyatt, F.B.
2001 Copper and lead bioaccumulation by Acacia retinoides and Eucalyptus torquata in sites contaminated as a consequence of extensive ancient mining activities in Cyprus. *Ecotoxicology and Environmental Safety* 50, 60–64.

Quilici, L.
1971 Lo scavo all'intorno della cinta urbana, I. *Studi Ciprioti e Rapporti di Scavo* 1, 63–162.

Raban, A.
1995 The heritage of ancient harbour engineering in Cyprus and the Levant. In V. Karageorghis and D. Michaelides (eds.), *Cyprus and the sea: proceedings of the international symposium, Nicosia 25–26 September 1993*, 139–89. Nicosia: University of Cyprus.

Raber, P.A.
1984 *The organization and development of early copper*

metallurgy in the Polis region, Western Cyprus. PhD dissertation, Pennsylvania State University.

Rainbird, P.
2008 The body and the senses: implications for landscape archaeology. In B. David and J. Thomas (eds.), *Handbook of landscape archaeology*, 263–70. World Archaeological Congress Research Handbooks in Archaeology. Walnut Creek: Left Coast Press.

Rapp, G., and C.L. Hill
1998 *Geoarchaeology*. New Haven: Yale University Press.

Rapp, G.J.
1998 Composition and softening/fluid temperatures of some ancient Cypriot slags. In T. Rehren, A. Hauptmann, and J.D. Muhly (eds.), *Metallurgica Antiqua*, 177–82. Der Anschnitt. Bochum: Deutsches Bergbau-Museum.

Raptou, E.
2006 The built tomb in Icarus Street, Kato Pafos. *Report of the Department of Antiquities, Cyprus*, 317–42.

Rautman, M.
1998 Handmade pottery and social change: the view from Late Roman Cyprus. *Journal of Mediterranean Archaeology* 11, 81–104.
2000 The busy countryside of Late Roman Cyprus. *Report of the Department of Antiquities, Cyprus*, 317–31.

Rautman, M., M.C. McClellan, L.V. Benson, S.C. Fox, M.D. Glascock, B. Gomez, H. Neff, W. O'Brien, and D.S. Reese
2003 *A Cypriot village of late antiquity: Kalavasos-Kopetra in the Vasilikos Valley*. Supplementary Series 52. Portsmouth, R.I.: Journal of Roman Archaeology.

Rautman, M., H. Neff, B. Gomez, S. Vaughan, and M.D. Glascock
1999 Amphoras and rooftiles from Late Roman Cyprus: a compositional study of calcareous ceramics from Kalavasos-Kopetra. *Journal of Roman Archaeology* 12, 377–391.

Reimer, P.J., M.G.L. Baillie, E. Bard, A. Bayliss, J.W. Beck, C.J.H. Bertrand, P.G. Blackwell, C.E. Buck, G.S. Burr, K.B. Cutler, P.E. Damon, R.L. Edwards, R.G. Fairbanks, M. Friedrich, T.P. Guilderson, A.G. Hogg, K.A. Hughen, B. Kromer, G. McCormac, S.W. Manning, C. Bronk Ramsey, R.W. Reimer, S. Remmele, J.R. Southon, M. Stuiver, S. Talamo, F.W. Taylor, J. van der Plicht, and C.E. Weyhenmeyer
2004 IntCal04 terrestrial radiocarbon age calibration, 0–26 cal kyr BP. *Radiocarbon* 46, 1029–58.

Reinach, S.
1891 *Chroniques d'orient: documents sur les fouilles et découvertes dans l'Orient héllenique de 1883 à 1890*. Paris: Librairie de Firmin-Didot.

Reynolds, P.
2005 Levantine amphorae from Cilicia to Gaza: a typology and analysis of regional production trends from the 1st to 6th centuries. In J.M. Gurt i Esparraguere, J. Buxeda I Garrigós, and M.A. Cau Ontiveros (eds.), *1st International Conference on Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry (Barcelona, 14–16 March 2002)*, 563–608. BAR International Series 1340. Oxford: Archaeopress.

Reynolds, P.J.
1988 Sherd movement in the ploughzone: physical data base into computer simulation. In S.P.Q. Rahtz (ed.), *Computer and quantitative methods in archaeology 1988*, 201–19. BAR International Series 446 (i). Oxford: BAR.

Rhoby, A.
2009 Epigramme auf Fresken und Mosaiken (= Byzantinische Epigramme in inschriftlicher Überlieferung, I). *Veröffentlichungen zur Byzanzforschung* 15, 341–52.

Rice, P.
1984 Change and conservatism in pottery-producing systems. In S.E. van der Leeuw (ed.), *The many dimensions of pottery: ceramics in archaeology and anthropology*, 231–94. Cingula 7. Amsterdam: Universiteit van Amsterdam.

Richards, T.
2008 Survey strategies in landscape archaeology. In B. David and J. Thomas (eds.), *Handbook of landscape archaeology*, 551–61. World Archaeological Congress Research Handbooks in Archaeology. Walnut Creek: Left Coast Press.

Riley-Smith, J.
1973 *The feudal nobility and the Latin Kingdom of Jerusalem, 1174–1277*. London: Archon Books.

Riley, J.
1979 The coarse pottery from Benghazi. In J.A. Lloyd (ed.), *Excavations at Sidi Khrebish Benghazi II*, 91–467. Tripoli: Department of Antiquities, Ministry of Teaching and Education, People's Socialist Libyan Arab Jamahiriya.

Ritter, D.F.
1985 *Process geomorphology*. 2nd edn. New York: W.C. Brown.

Rizopoulou-Egoumenidou, E.
1995 Simvola ke epighrafes se paradhosiaka pitharia tis Kiprou. Mia istoriki anafora yia ti Moni Mahera. *Report of the Department of Antiquities, Cyprus*, 289–98.
2009 *Tanning in Cyprus from the 16th to the 20th century: from traditional tanneries to modern industries*. Nicosia: Cyprus Research Centre.

Rizopoulou-Egoumenidou, E., and D. Myrianthefs
2003 Trade and use of millstones in Cyprus during the recent past (18th–20th centuries). In M. Barboff (ed.), *Meules à grains: actes du colloque international La Ferté-sous-Jouarre 16–19 mai 2002*, 175–83. Paris: Éditions Ibis Press.

Rizopoulou-Egoumenidou, E., and K. Seretis
2000 Folk art stone carvings in traditional houses in the village of Mitsero. *Report of the Department of Antiquities, Cyprus*, 407–31.

Roberts, L., ed.
2000 *Latin texts from the first century B.C. to the seventeenth century A.D.* Sources for the History of Cyprus, Vol. 8. Albany: Greece and Cyprus Research Center.

Roberts, N., W.J. Eastwood, C. Kuzucuoğlu, G. Fiorentino, and V. Caracuta
2011 Climatic, vegetation and cultural change in the eastern Mediterranean during the mid-Holocene environmental transition. *The Holocene* 21(1), 147–62.

Robertson, A.H.F.
1977 Tertiary uplift history of the Troodos massif, Cyprus. *Geological Society of American Bulletin* 88, 1763–72.

Robinson, S.A., S. Black, B.W. Sellwood, and P.J. Valdes
2006 A review of palaeoclimates and palaeoenvironments in the Levant and Eastern Mediterranean from 25,000 to 5000 years BP: setting the environmental background for the evolution of human civilisation. *Quaternary Science Reviews* 25, 1517–41.

Roodenberg, J.
2009 The Byzantine graveyards from Ilıpınar and Barcın in Northwest Anatolia. In T. Vorderstrasse and J. Roodenberg (eds.), *Archaeology of the countryside in Medieval Anatolia*, 154–167. Leiden: Nederlands Institut voor het Nabije Oosten.

Rosen, S.A.
1997 *Lithics after the Stone Age: a handbook of stone tools from the Levant*. Walnut Creek: AltaMira Press.

Rosser, J.
1983 The pottery. In W.A. McDonald, W.D.E. Coulson, and J. Rosser (eds.), *Excavations at Nichoria in Southwest Greece, vol. 3: The Dark Age and Byzantine period*, 378–424. Minneapolis.
1985 Excavations at Saranda Kolones, Paphos. *Dumbarton Oaks Papers* 39, 81–97.
2007 Stratigraphic evidence for the chronology of 'Saranda Kolones' Castle (Paphos, Cyprus). In B. Böhlendorf-Arslan, A.O. Uysal, and J. Witte-Orr (eds.), *Çanak. Late Antique and Medieval Pottery and Tiles in Mediterranean Archaeological Contexts*, 411–18. Byzas 7. Istanbul: Ege Yayınları.
Rossignol-Strick, M.
1999 The Holocene climatic optimum and pollen records of sapropel 1 in the eastern Mediterranean, 9000–6000 BP. *Quaternary Science Reviews* 18, 515–30.
Rothenberg, B.
1996 Researches in the Southern Arabah 1959–1990: summary of thirty years of archaeo-metallurgical field work in the Timna Valley, the Wadi Amram and the Southern Arabah (Israel). *Arx* 2–3, 5–42.
Rothenberg, B., and A. Blanco Freijeiro
1981 *Studies in ancient mining and metallurgy in south-west Spain*. London: Institute for Archaeometallurgical Studies, University College London.
Rowlands, M.
2010 Concluding thoughts. In A.B. Knapp and P. van Dommelen (eds.), *Material connections in the ancient Mediterranean: mobility, materiality and identity*, 233–47. London: Routledge.
Rupp, D.W.
1998 The seven kings of the land of Ia', a district on Ia-ad-na-na: Achaean bluebloods, Cypriot parvenus or both? In K.J. Hartswick and M.C. Sturgeon (eds.), *Stephanos: studies in honor of Brunilde Sismondo Ridgway*, 209–22. Philadelphia: The University Museum, University of Pennsylvania.
Rupp, D.W., L.W. Sørensen, R.H. King, and W.A. Fox
1984 The Canadian Palaipaphos (Cyprus) Survey Project: second preliminary report, 1980–1982. *Journal of Field Archaeology* 11, 133–54.
Rupp, D.W., L.W. Sørensen, and J. Lund
2000 Prastio-Agios Savvas tis Karonis Monastery (Pafos District, Cyprus): 1992–1995 Cypro-Archaic ceramics and figurines and Cypro-Classical through Roman ceramics. *Report of the Department of Antiquities, Cyprus*, 197–220.
Saidel, B.A.
2008 Smoking out Ottoman sites in Northern Sinai, Egypt: the use of clay tobacco pipes for identifying the nature of settlements in the Ottoman period. *Palestine Exploration Quarterly* 140(1), 55–69.
Saliou, C.
1989 La vaisselles en pierre. In A. Le Brun (ed.), *Fouilles récentes à Khirokitia (Chypre) 1983–1986*, 137–75. Mémoire 81. Paris: Editions Recherche sur les Civilisations.
Sallares, R.
1991 *The ecology of the ancient Greek world*. London: Duckworth.
Salles, J.-F.
1983 *Kition-Bamboula II. Les égouts de la ville classique*. Editions Recherche sur les Civilisations. Paris: Maison de L'orient Méditerranéen.
1993a *Kition-Bamboula IV. Les niveaux hellénistiques*. Paris: Editions Recherche sur les Civilisations.
1993b La citerne 198. In J.-F. Salles (ed.), *Kition-Bamboula IV. Les niveaux hellenistiques*, 261–84. Paris: Editions Recherche sur les Civilisations.
Salles, J.-F., and M.-J. Chavane
1993 Les petits objets. In J.-F. Salles (ed.), *Kition-Bamboula IV. Les niveaux hellenistique*, 331–46. Paris: Editions Recherche sur les Civilisations.
Salles, J.-F., and C. Rey
1993 Le basin 417. In J.-F. Salles (ed.), *Kition-Bamboula IV. Les niveaux hellenistique*, 227–59. Paris: Editions Recherche sur les Civilisations.
Salvador, A.
1994 *International stratigraphic guide*. 2nd edn. Boulder, CO: Geological Society of America.
Schiffer, M.B.
1988 The structure of archaeological theory. *American Antiquity* 53, 461–85.
1995 *Behavioral archaeology: first principles*. Salt Lake City: University of Utah Press.
Schilman, B., M. Bar-Matthews, A. Almogi-Labin, and B. Luz
2001 Global climate instability reflected by Eastern Mediterranean marine records during the late Holocene. *Palaeogeography, Palaeoclimatology, Palaeoecology* 176, 157–76.
Schon, R.
2002 *Seeding the landscape: experimental contributions to regional survey methodology*. PhD dissertation, Bryn Mawr College.
Schriwer, C.
2002 Cultural and ethnic identity in the Ottoman period architecture of Cyprus, Jordan and Lebanon. *Levant* 34, 197–218.
Schweingruber, F.H.
1990 *Anatomy of European woods: an atlas for the identification of European trees, shrubs, and dwarf shrubs.* Stuttgart: Bern Haupt.
Şevketoğlu, M.
2008 Early settlements and procurement of raw materials – new evidence based on research at Akanthou-Arkosykos (Tatlisu-Çiftlikdüzü), northern Cyprus. *Tüba-ar* 11, 63–72.
Shi, Y., L. Chrusciel, and A. Zoulalian
2007 Production of charcoal from different wood species. *Récents Progrès en Génie des Procédés* 96.
Shirley, R.
2001 *Kitchener's survey of Cyprus 1878–1883: the first full triangulated survey and mapping of the island.* Cyprus Cartography Lectures 5. Nicosia: Bank of Cyprus Cultural Foundation.
Silliman, S.W.
2001 Theoretical perspectives on labor and colonialism: reconsidering the California missions. *Journal of Anthropological Archaeology* 20, 379–407.
Simarski, L.T.
1992 Oman's 'unfailing springs'. *Aramco World* 43, 26–31.
Simmons, A.H.
1999 *Faunal extinction in an island society: pygmy hippopotamus hunters of Cyprus*. New York: Kluwer/Plenum.
Sinos, S.
1976 *Anadhromi sti laiki arkhitektoniki tis Kiprou*. Athens: Hermes.
Skeates, R.
2010 *An archaeology of the senses: prehistoric Malta*. Oxford: Oxford University Press.

Smith, A.T.
2003 *The political landscape: constellations of authority in early complex polities*. Berkeley: University of California Press.
Smith, B.R.
1999 *The acoustic world of Early Modern England: attending to the O-factor*. Chicago: University of Chicago Press.
Smith, J.S.
2009 *Art and society in Cyprus from the Bronze Age into the Iron Age*. Cambridge: Cambridge University Press.
Smith, M.
1996 B. The chipped stone assemblage. In D. Frankel and J.M. Webb (eds.), *Marki Alonia: an Early and Middle Bronze Age town in Cyprus, excavations 1990–1994*, 102–109. Studies in Mediterranean Archaeology 123:1. Jonsered: Paul Åströms Förlag.
2006 Chipped stone artefacts. In D. Frankel and J.M. Webb (eds.), *Marki Alonia: an Early and Middle Bronze Age town in Cyprus, excavations 1995–2000*, 249–56. Studies in Mediterranean Archaeology CXXIII:2. Sävedalen: Paul Åströms Förlag.
Sollars, L.
2005 *Settlement and community: their location, limits and movement through the landscape of historical Cyprus*. PhD, University of Glasgow.
Solomidou-Ieronymidou, M.
1998 The production of sugar in medieval Cyprus. In D. Papanikola-Bakirtzis and M. Iacovou (eds.), *Byzantine Medieval Cyprus*, 65–71. Nicosia: Bank of Cyprus Cultural Foundation.
Sørensen, L.W.
2000 Cypro-Archaic ceramics and terracotta figurines (in D.W. Rupp, L. Wriedt Sørensen and J. Lund: Prastio-Agios Savvas tis Koronis monestery (Paphos district, Cyprus): 1992–1995. Cypro-Archaic ceramics and figurines and Cypro-Classical through Roman ceramics). *Report of the Department of Antiquities,* Cyprus, 207–12.
Sørensen, L.W., and K.Winther Jacobsen, eds.
2006 *Panayia Ematousa I: a rural site in south-eastern Cyprus*. Monographs of the Danish Institute at Athens, Vol. 6.1. Athens: Danish Institute at Athens.
Soustal, P.
1991 *Thrakien (Thrake, Rodope und Haimimontos)*. Tabula Imperii Byzantini 6. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
South, A., and I. Todd
2005 Stone vessels, *Excavations at Kalavasos-Tenta 2. Vasilikos Valley Project 7*, 272–86. Studies in Mediterranean Archaeology LXXI:7. Sävedalen: Paul Åströms Förlag.
Staccioli, R.A.
2003 *The roads of the Romans*. Los Angeles: J. Paul Getty Museum.
Stanley, E.H., S.G. Fisher, and N.B. Grimm
1997 Ecosystem expansion and contraction in streams. *BioScience* 47(7), 427–35.
Staubwasser, M., and H. Weiss
2006 Holocene climate and cultural evolution in late prehistoric-early historic West Asia. *Quaternary Research* 66, 372–87.
Stebbing, W.P.D.
1926 Cyprus: some unofficial notes. *Empire Forestry Journal* 5(2), 251–55.
Steel, L.
1996 Transition from Bronze to Iron at Kourion: a review of the tombs from Episkopi-Bamboula and Kaloriziki. *Annual of the British School at Athens* 91, 287–300.
Steel, L., and S. Janes
2005 Survey at Aredhiou-Vouppes, Cyprus. *Report of the Department of Antiquities, Cyprus*, 231–44.
Steel, L., and C. McCartney
2008 Survey at Arediou Vouppes (Lithosouros), a Late Bronze Age agricultural settlement on Cyprus: a preliminary analysis of the material culture assemblages. *Bulletin of the American Schools of Oriental Research* 351, 9–37.
Steel, L., and S. Thomas
2008 Excavations at Arediou-Vouppes (Lithosouros), Cyprus: an interim report on excavations 2005–2006. *Report of the Department of Antiquities, Cyprus*, 227–49.
Stein, J.K., and W.R. Farrand, eds.
2001 *Sediments in archaeological context*. Salt Lake City: University of Utah.
Stewart, C.
1991 *Demons and the Devil; moral imagination in modern Greek culture*. Princeton: Princeton University Press.
Stewart, S.
2007 Athkiakades ancient and modern: evidence of craftsmen and chert use from the Canadian Palaipaphos and Idalion Survey Projects in Cyprus. In C. Delage (ed.), *Chert availability and prehistoric exploitation in the Near East*, 327–44. BAR International Series 1615. Oxford: John and Erica Hedges.
Stuiver, M., and H.A. Polach
1977 Reporting of 14C data. *Radiocarbon* 19, 355–63.
Stylianou, A., and J. A. Stylianou
1960 Donors and dedicatory inscriptions, supplicants and supplications in the painted churches of Cyprus. *Jahrbuch der Österreichischen Byzantinischen Gesellschaft* 9, 97–128.
1980 *The history of the cartography of Cyprus*. Nicosia: Cyprus Research Centre.
1985 *The painted churches of Cyprus: treasures of Byzantine art*. London: Trigraph.
Swiny, S.
1980 Bronze age gaming stones from Cyprus. *Report of the Department of Antiquities, Cyprus*, 54–78.
1986 The lithic industry of Episkopi Phaneromeni and pre-Late Cypriot Sites in the region. In S. Swiny (ed.), *The Kent State University expedition to Episkopi Phaneromeni, Part 2*, 1–64. Studies in Mediterranean Archaeology 74:2. Nicosia: Paul Åströms Förlag.
1997 The Early Bronze Age. In T. Papadopoulos (ed.), *A History of Cyprus, Volume 1*, 171–212. Nicosia: Archbishop Makarios III Foundation (in Greek).
2003 The ground stone. In S. Swiny, G.R. Rapp, and E. Herscher (eds.), *Sotira Kaminoudhia: an Early Bronze Age site in Cyprus*, 221–88. CAARI Monograph Series 4. Boston: American Schools of Oriental Research.
Swiny, S., and C. Mavromatis
2000 Land behind Kourion: results of the 1997 Sotira Archaeological Project Survey. *Report of the Department of Antiquities, Cyprus*, 433–52.
Swiny, S., G.R. Rapp, and E. Herscher
2003 *Sotira Kaminoudhia: an early Bronze Age site in Cyprus*. American Schools of Oriental Research archaeological reports 8. Boston: American Schools of Oriental Research.
TAESPdata
2007 Troodos Archaeological and Environmental Survey Project data archive. http://ads.ahds.ac.uk/catalogue/resources.html?taesp_ahrc_2007

Tartaron, T.F.
2003 The archaeological survey: sampling strategies and field methods. In J. Wiseman and K. Zachos (eds.), *Landscape archaeology in Southern Epirus, Greece 1: The Nikopolis Project*, 23–45. Hesperia Supplement 32. Athens: American School of Classical Studies in Athens.
2008 Aegean prehistory as world archaeology: recent trends in the archaeology of Bronze Age Greece. *Journal of Archaeological Research* 16, 83–161.
Tartaron, T.F., D.J. Pullen, T.E. Gregory, J.S. Noller, R.M. Rothaus, J.L. Rife, L. Tzortzopoulou-Gregory, R. Schon, W.R. Caraher, D.K. Pettegrew, and D. Nakassis
2006 The Eastern Korinthia Archaeological Survey: integrated methods for a dynamic landscape. *Hesperia* 75, 435–505.
Taylor, J.
2000 Cultural depositional processes and post-depositional problems. In R. Francovich, H. Patterson, and G. Barker (eds.), *Extracting meaning from ploughsoil assemblages. The archaeology of Mediterranean landscapes 5*, 16–26. Oxford: Oxbow Books.
Theophrastus
1990 *Enquiry into plants*. Translated by Sir Arthur Hort. Loeb Classical Library 70. Cambridge: Harvard University Press.
Thiébault, S.
2003 Les paysages végétaux de Chypre au Néolithique: premières données anthracologiques. In J. Guilaine and A. Le Brun (eds.), *Le Néolithique de Chypre. Acts du colloque international organisé par le département de Antiquité de Chypre et l'École Française d'Athènes, Nicosie 17–19 Mai 2001*, 221–30. BCH Supplement 43 Athens: École Française d'Athènes.
Thirgood, J.V.
1987 *Cyprus: a chronicle of its forests, land, and people*. Vancouver: University of British Columbia Press.
Thomas, J.
2008 Archaeology, landscape, and dwelling. In B. David and J. Thomas (eds.), *Handbook of landscape archaeology*, 300–306. World Archaeological Congress Research Handbooks in Archaeology. Walnut Creek: Left Coast Press.
2012 Archaeologies of place and landscape. In I. Hodder (ed.), *Archaeological theory today*, 167–87. 2nd edn. Cambridge: Polity.
Thomas, J., and A.C. Hero, eds.
2000 *Byzantine monastic foundation documents: a complete translation of the surviving founders' typika and testaments*. Dumbarton Oaks Studies, Vol. 35. Washington DC: Dumbarton Oaks Research Library and Collection.
Thompson, S.
2004 Side-by-side and back-to-front: exploring intra-regional latitudinal and longitudinal comparability in survey data. Three case studies from Metaponto, Southern Italy. In S.E. Alcock and J.F. Cherry (eds.), *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*, 65–85. Oxford: Oxbow Books.
Thomsen, O.
1995 Written sources. In J. Fejfer (ed.), *Ancient Akamas*, 26–40. Aarhus: Aarhus University Press.
Thrower, N.J.W.
1960 Cyprus, a landform study. *Annals of the Association of American Geographers* 50, Map Supplement No. 1.
Tilley, C.
2008 *Body and image: explorations in landscape archaeology 2*. Walnut Creek: Left Coast Press.
Tomber, R.S.
2002 The ceramic finds from Maroni Petrera. In S.W. Manning and A. Manning (eds.), *The Late Roman church at Maroni Petrera. Survey and salvage excavations 1990–1997, and other traces of Roman remains in the lower Maroni Valley, Cyprus*, 41–55. Nicosia: A.G. Leventis Foundation.
Tonghini, C.
1994 The fine wares of Ayyubid Syria. In E.J. Grube (ed.), *Cobalt and lustre: the first centuries of Islamic pottery*, 248–93. Oxford: Oxford University Press.
1998 *Qal'at Ja'bar pottery: a study of a Syrian fortified site of the late 11th–14th centuries*. British Academy Monographs in Archaeology 11. Oxford: Oxford University Press.
Topping, P., and M. Lynott
2005 Miners and mines. In P. Topping and M. Lynott (eds.), *The cultural landscapes of prehistoric mines*, 181–91. Oxford: Oxbow.
Trigo, I.F., T.D. Davies, and G.R. Bigg
1999 Objective climatology of cyclones in the Mediterranean region. *Journal of Climate* 12, 1685–96.
Tsiknopoullou, I.P.
1968 *I iera vasiliki ke stavropiyiaki moni tis iperayias Theotokou tou Makhera*. Nicosia: Makheras Monastery.
Tufte, E.R.
1983 *The visual display of quantitative information*. Cheshire, Connecticut: Graphics Press.
Turner, B.S.
1979 *The story of the Cyprus Government Railway*. London: Mechanical Engineering Publications.
Tylecote, R.F.
1987 *The early history of metallurgy in Europe*. London: Longman.
Tylecote, R.F., and P.J. Boydell
1978 Experiments on copper smelting based on early furnaces found at Timna. In B. Rothenberg (ed.), *Chalcolithic copper smelting* 1. London: Institute of Archaeo-Metallurgical Studies.
Tziambazis, E.
2002 *A catalogue of coins of Cyprus (from 560 BC to 1571 AD)*. Larnaca: Negresco.
Uhart, E.
1952 *Rapport au Gouvernement d'Iran sur la carbonization*. Food and Agriculture Report 44 (FAO/52/10/6261).
Ulbrich, A.
2008 *Kypris. Heiligtümer und Kulte weiblicher Gottheiten auf Zypern in der kyproarchaischen und kyproklassischen Epoche (Königszeit)*. AOAT 44. Münster.
Urwin, N.
2003a Geobotanical procedures and satellite imagery interpretation. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 39–44. Monumenta Archaeologica 21. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.
2003b Geobotany. In M. Given and A.B. Knapp (eds.), *The Sydney Cyprus Survey Project: social approaches to regional archaeological survey*, 299–301. Monumenta Archaeologica 21. Los Angeles: University of California at Los Angeles Cotsen Institute of Archaeology.
Vaag, L.E.
1999 *En undersøgelse af den senantikke keramikgruppe Phocaean Red Slip Ware. Typologi, Datering og Distribution*. Aarhus: University of Aarhus.
van Andel, T.H., and C. Runnels
1987 *Beyond the Acropolis: a rural Greek past*. Stanford: Stanford University Press.

van Andel, T.H., E. Zangger, and A. Demitrack
1990 Land use and soil erosion in prehistoric and historical Greece. *Journal of Field Archaeology* 17, 379–96.

Van de Velde, P.
2001 An extensive alternative to intensive survey: point sampling in the Riu Mannu Survey Project, Sardinia. *Journal of Mediterranean Archaeology* 14, 24–52.

Varnava, A.
2009 *British imperialism in Cyprus 1878–1915: the inconsequential experiment*. Manchester: Manchester University Press.

Vaughan, S.J.
1991 Material and technical classification of Base Ring ware: A new fabric typology. In J.A. Barlow, D.R. Bolger, and B. Kling (eds.), *Cypriot Ceramics: Reading the Prehistoric Record*, 119–30. Philadelphia: University Museum of Archaeology and Anthropology, University of Pennsylvania.
1994 Base Ring Ware: A Regional Study in Cyprus. In A.B. Knapp and J.F. Cherry (eds.), *Provenience Studies and Bronze Age Cyprus: Production, Exchange, and Politico-Economic Change*, 86–92. Monographs in World Archaeology 21. Madison: Prehistory Press.

Veldhuijzen, H.A.
2003 'Slag_Fun': a new tool for archaeometallurgy: development of an analytical (P)ED-XRF method for iron-rich materials. *Papers from the Institute of Archaeology* 14, 102–18.

Verheyden, S., F.H. Nader, H.J. Cheng, L.R. Edwards, and R. Swennen
2008 Paleoclimate reconstruction in the Levant region from the geochemistry of a Holocene stalagmite from the Jeita cave, Lebanon. *Quaternary Research* 70(3), 368–81.

Vermeule, E., and F.Z. Wolsky
1990 *Toumba tou Skourou: a Bronze Age potters' quarter on Morphou Bay in Cyprus*. Cambridge: Harvard University Press.

Vessberg, O., and A. Westholm
1956 *The Swedish Cyprus Expedition: finds and results of the excavations in Cyprus 1927–1931*. Stockholm: Swedish Cyprus Expedition.

Violaris, Y.
2004 Excavations at the site of Palaion Demarcheion, Lefkosia. *Cahier du Centre d'Études Chypriotes* 34, 69–80.

Vita-Finzi, C.
1969 *The Mediterranean valleys: geological changes in historical times*. Cambridge: Cambridge University Press.

Vollweiler, N., D. Scholz, C. Mühlinghaus, A. Mangini, and C. Spötl
2006 A precisely dated climate record for the last 9 kyr from three high alpine stalagmites, Spannagel Cave, Austria. *Geophysical Research Letters* 33(20), L20703.

von Bülow, G., and D. Schieferdecker
1991 *Iatrus-Krivina. Spätantike Befestigung und frühmittelalterliche Siedlung an der unteren Donau IV. Ergebnisse der Ausgrabungen 1975–1981*. Schriften zur Geschichte und Kultur der Antike 17. Berlin: Akademische Verlagsgesellschaft.

von Wartburg, M.-L.
1997a Lemba ware reconsidered. *Report of the Department of Antiquities, Cyprus*, 323–40.
1997b Medieval glazed pottery from the sanctuary of Aphrodite at Palaiopaphos (site TA): a preliminary survey. In 'Excavations at Kouklia (Palaipaphos). Eighteenth preliminary report: Seasons 1993–1995', by F.G. Maier and M.-L. von Wartburg. *Report of the Department of Antiquities, Cyprus*, 184–94.
1998 Mittelalterliche Keramik aus dem Aphroditeheiligtum in Palaipaphos (Grabungsplatz TA). *Archäologischer Anzeiger*, 133–65.
2000 Cane sugar production sites in Cyprus. Real and imagined. *Report of the Department of Antiquities, Cyprus*, 381–402.
2001a The archaeology of cane sugar production: a survey of twenty years of research in Cyprus. *Antiquaries Journal* 81, 305–35.
2001b Types of imported table ware at Kouklia in the Ottoman period. *Report of the Department of Antiquities, Cyprus*, 361–96.
2003 Cypriot contacts with East and West as reflected in Medieval glazed pottery from the Paphos region. In C. Bakirtzis (ed.), *VII Congrès International sur la Céramique Médiévale en Méditerranée, Thessaloniki, 11–16 Octobre 1999*, 153–66. Athens: Caisse des Recettes Archéologiques.
2007 Chronology and stratigraphy of the Medieval pottery of Cyprus: A critical review. In B. Böhlendorf-Arslan, A.O. Uysal, and J. Witte-Orr (eds.), *Çanak: Late Antique and Medieval pottery and tiles in Mediterranean archaeological contexts*, 419–40. Byzas 7. Istanbul: Deutschen Archäologischen Instituts Istanbul.

von Wartburg, M.-L., and Y. Violaris
2009 Pottery of a 12th century pit from the Paliaon Demarcheion site in Nicosia: a typological and analytical approach to a closed assemblage. In J. Zozaya, M. Retuerce, M.A. Hervás, and A. de Juan (eds.), *Actas del VIII Congreso Internacional de Céramica Medieval en el Mediterráneo, Tomo I*, 249–64. Ciudad Real: Asoción Española de Arqueología Medieval.

Vroom, J.
1996 Coffee and archaeology: a note on a Kütahya ware find in Boeotia, Greece. *Pharos: Journal of the Netherlands Institute at Athens* 4, 5–19.
1998a Early Modern archaeology in Central Greece: the contrast of artefact-rich and sherdless sites. *Journal of Mediterranean Archaeology* 11(2), 131–64.
1998b Medieval and post-medieval pottery from a site in Boeotia: a case study example of post-classical archaeology in Greece. *Annual of the British School at Athens* 93, 513–46.
2003 *After antiquity: ceramics and society in the Aegean from the 7th to the 20th century A.C.: a case study from Boeotia, central Greece*. Leiden: Faculty of Archaeology, Leiden University.
2005 *Byzantine to modern pottery in the Aegean: an introduction & field guide*. Utrecht: Parnassus Press.
2006 Some Byzantine pottery finds from Kaman-Kalehöyük: A first observation. *Anatolian Archaeological Studies* 15, 163–69.
2007 Kütahya between the lines: post-medieval ceramics as historical information. In S. Davies and J.L. Davis (eds.), *Between Venice and Istanbul: colonial landscapes in early modern Greece*, 71–96. Hesperia Supplement 40. Athens: American School of Classical Studies at Athens.
2011 The other Dark Ages: Early Medieval pottery finds in the Aegean as an archaeological challenge. In R. Attoui (ed.), *When did antiquity end? Archaeological case studies in three continents*, 137–58. BAR IS 2268. Oxford: Archaeopress.
2012 From one coast to another: Early Medieval ceramics in the southern Adriatic region. In S. Gelichi and R. Hodges

(eds.), *Da un mare all'altro: luoghi di scambio nell' Alto Medioevo Europeo e Mediterraneo/From one sea to another: trade centres in the European and Mediterranean Middle Ages*, 375–413. Turnhout: Brepols.

Waksman, S.Y., A. Bouquillon, N. Cantin, and I. Katona
2007 The first 'Glazed White Wares' in the Early Medieval technological context. In S.Y. Waksman (ed.), *Archaeometric and archaeological approaches to ceramics*, 129–35. British Archaeological Reports, International Series 1691. Oxford: Archaeopress.

Walker, B.J.
2003 Southern Syria in the Islamic period: political periphery or nexus? In D.R. Clark and V.H. Matthews (eds.), *One hundred years of American archaeology in the Middle East*, 385–409. Boston: American Schools of Oriental Research.
2008 'Twixt cross and crescent': CAARI and the cultural history of Crusader and Islamic Cyprus. *Near Eastern Archaeology* 71, 104–10.

Walker, B.J., E. Kenney, L. Holzweg, L. Carroll, S. Boulogne, and B. Lucke
2007 Village life in Mamluk and Ottoman Hubras and Saham: Northern Jordan Project, report on the 2006 season. *Annual of the Department of Antiquities of Jordan* 52, 429–70.

Wallace, P.W., and A.G. Orphanides, eds.
1990 *Sources for the history of Cyprus. Volume 1: Greek and Latin texts to the third century AD*. Albany: Institute of Cypriot Studies, University at Albany, State University of New York.

Wallace, S.
2007 Why we need new spectacles: mapping the experiential dimension in prehistoric Cretan landscapes. *Cambridge Archaeological Journal* 17, 249–70.

Wandsnider, L.
2004 Solving the puzzle of the archaeological labyrinth: time perspectivism in Mediterranean surface archaeology. In S.E. Alcock and J.F. Cherry (eds.), *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*, 49–62. Oxford: Oxbow Books.

Wandsnider, L., and E.L. Camilli
1992 The character of surface archaeological deposits and its influence on survey accuracy. *Journal of Field Archaeology* 19, 169–88.

Ward, G.K., and S.R. Wilson
1978 Procedures for comparing and combining radiocarbon age-determinations: a critique. *Archaeometry* 20, 19–31.

Warren, G.
2005 *Mesolithic lives in Scotland*. Stroud: Tempus.

Wartluft, J.L., and S. White
1984 Comparing simple charcoal production technologies for the Caribbean. Report prepared for the Montserrat Fuelwood/Charcoal/Cookstove Project. http://www.cd3wd.com/CD3WD_40/VITA/CHARCPRD/EN/CHARCPRD.HTM

Wasse, A.
2007 Climate, economy and change: Cyprus and the Levant during the Late Pleistocene–mid Holocene. In J. Clarke (ed.), *On the margins of Southwest Asia: Cyprus during the 6th to 4th millennia BC*, 43–63. Oxford: Oxbow.

Watson, O.
2004 *Ceramics from Islamic lands*. London: Thames & Hudson.

Webb, J.M.
1996 Stone artefacts. In D. Frankel and J.M. Webb (eds.), *Marki Alonia: An Early and Middle Bronze Age Town in Cyprus, Excavations 1990–1994*, 72–89. Studies in Mediterranean Archaeology 123:1. Jonsered: Paul Åströms Förlag.
2001 *Corpus of Cypriote Antiquities 20. Cypriote Antiquities in the Nicholson Museum at the University of Sydney*. Studies in Mediterranean Archaeology 20:20. Jonsered: Paul Åströms Forlag.
2005 Ideology, iconography and identity: the role of foreign goods and images in the establishment of social hierarchy in Late Bronze Age Cyprus. In J. Clarke (ed.), *Archaeological Perspectives on the Transmission and Transformation of Culture in the Eastern Mediterranean*, 176–82. Levant Supplementary Series 2. Oxford: Council for British Research in the Levant.

Webb, J.M., D. Frankel, P. Croft, and C. McCartney
2009 Excavations at Politiko Kokkinorotsos: a Chalcolithic hunting station in Cyprus. *Proceedings of the Prehistoric Society* 75, 189–237.

Weisman, R.
1994 Petrographic analysis of pottery from Alambra. In J.A. Barlow (ed.), *Uncharted vessels: studies of Red Polished and White Painted Wares from Alambra, Cyprus*. Hydra 2, 25–60.

Wells, L.E.
2001 A geomorphological approach to reconstructing archaeological settlement patterns based on surficial artifact distribution. In P. Goldberg, V. Holliday, and C.R. Ferring (eds.), *Earth sciences and archaeology*, 107–41. New York: Kluwer Academic/Plenum.

Wertime, T.A.
1983 The furnace versus the goat: the pyrotechnologic industries and Mediterranean deforestation in antiquity. *Journal of Field Archaeology* 10, 445–52.

Westholm, A.
1936 *The temples of Soli: studies on Cypriote art during Hellenistic and Roman periods*. Stockholm: Swedish Cyprus Expedition.

Weyl Carr, A.
1998 Correlative spaces: art, identity, and appropriation in Lusignan Cyprus. *Modern Greek Studies Yearbook* 14–15, 59–80.
2005 Art. In A. Nicolaou-Konnari and C. Schabel (eds.), *Cyprus: society and culture 1191–1374*, 285–328. Leiden: Brill.

Whallon, R.J.
1978 Threshing sledge flints: a distinctive pattern of wear. *Paléorient* 4, 319–24.

Whitbread, I.K.
1995 *Greek transport amphorae: a petrographical and archaeological study*. Fitch Laboratory Occasional Papers 4. Athens: British School of Athens.

Whitehill, C.
1999 *Fluvial geomorphology, Holocene soil development and land use impact, Mitsero basin, Cyprus*. MSc thesis, Vanderbilt University.

Whittaker, J.C.
1996 Athkiakas: a Cypriot flintknapper and the threshing sledge industry. *Lithic Technology* 21, 108–20.
1999 Alonia: ethnoarchaeology of Cypriot threshing floors. *Journal of Mediterranean Archaeology* 12, 7–25.
2000 Alonia and dhoukanes: the ethnoarchaeology of threshing in Cyprus. *Near Eastern Archaeology* 63, 62–69.

Wijdenes, D.O., J. Poesen, L. Vandekerckhove, and E. De Luna
1997 Chiselling effects on the vertical distribution of rock fragments in the tilled layer of a Mediterranean soil. *Soil and Tillage Research* 44, 55–66.

Wilkinson, T.J.
2003 *Archaeological landscapes of the Near East*. Tucson: University of Arizona Press.
2005 Soil erosion and valley fills in the Yemen Highlands and southern Turkey: integrating settlement, geoarchaeology, and climate change. *Geoarchaeology* 20, 169–92.

Williams, C.
1989 *Anemurium: the Roman and Early Byzantine pottery*. Subsidia Mediaevalia 16. Toronto: Pontificial Institute of Mediaeval Studies.

Winfield, D.C.
1969 *The church of the Panagia Phorviotissa at Asinou*. Nicosia: Department of Antiquities, Republic of Cyprus.

Winther-Jacobsen, K.
2010 *From pots to people: a ceramic approach to the archaeological interpretation of ploughsoil assemblages in Late Roman Cyprus*. BABESCH Supplement 17. Leuven: Peeters.

Witmore, C.L.
2006 Vision, media, noise and the percolation of time: symmetrical approaches to the mediation of the material world. *Journal of Material Culture* 11, 267–92.
2007 Landscape, time, topology: an archaeological account of the Southern Argolid, Greece. In D. Hicks, L. McAtackney, and G. Fairclough (eds.), *Envisioning landscape: situations and standpoints in archaeology and heritage*, 194–225. One World Archaeology 52. Walnut Creek: Left Coast Press.

Witte-Orr, J.
2007 Bricks and tiles from the triangular tower at Amorium. In B. Böhlendorf-Arslan, A.O. Uysal, and J. Witte-Orr (eds.), *Çanak: Late Antique and Medieval pottery and tiles in Mediterranean archaeological contexts*, 295–308. Byzas 7. Istanbul: Deutschen Archäologischen Instituts Istanbul.

Wright, G.R.H.
1992 The Cypriot rural sanctuary: an illuminating document in comparative religion. In G.C. Ioannides (ed.), *Studies in honour of Vassos Karageorghis*, 269–83. Nicosia: Eteria Kipriakon Spoudhon.

Xenophontos, C.
1991 Picrolite, its nature, provenance, and possible distribution patterns in the Chalcolithic period of Cyprus. *Bulletin of the American Schools of Oriental Research* 282\283, 127–38.

Yekutieli, Y.
2006 Is somebody watching you? Ancient surveillance systems in the Southern Judean Desert. *Journal of Mediterranean Archaeology* 19, 65–89.

Yorston, R.M., V.L. Gaffney, and P.J. Reynolds
1990 Simulation of artefact movement due to cultivation. *Journal of Archaeological Science* 17, 67–83.

Young, D.
2006 The colours of things. In C. Tilley (ed.), *Handbook of material culture*, 173–85. London: Sage.

Young, J.H., and S.H. Young
1955 *Terracotta figurines from Kourion in Cyprus*. Philadelphia: University Museum, University of Pennsylvania.

Zeller, T.
1999 'The landscape's crown': landscape, perceptions, and modernizing effects of the German Autobahn system, 1934–1941. In D.E. Nye (ed.), *Technologies of landscape: from reaping to recycling*, 218–38. Amherst: University of Massachusetts Press.

Zohary, M.
1973 *Geobotanical foundations of the Middle East*. Stuttgart: Gustav Fischer Verlag.

Index

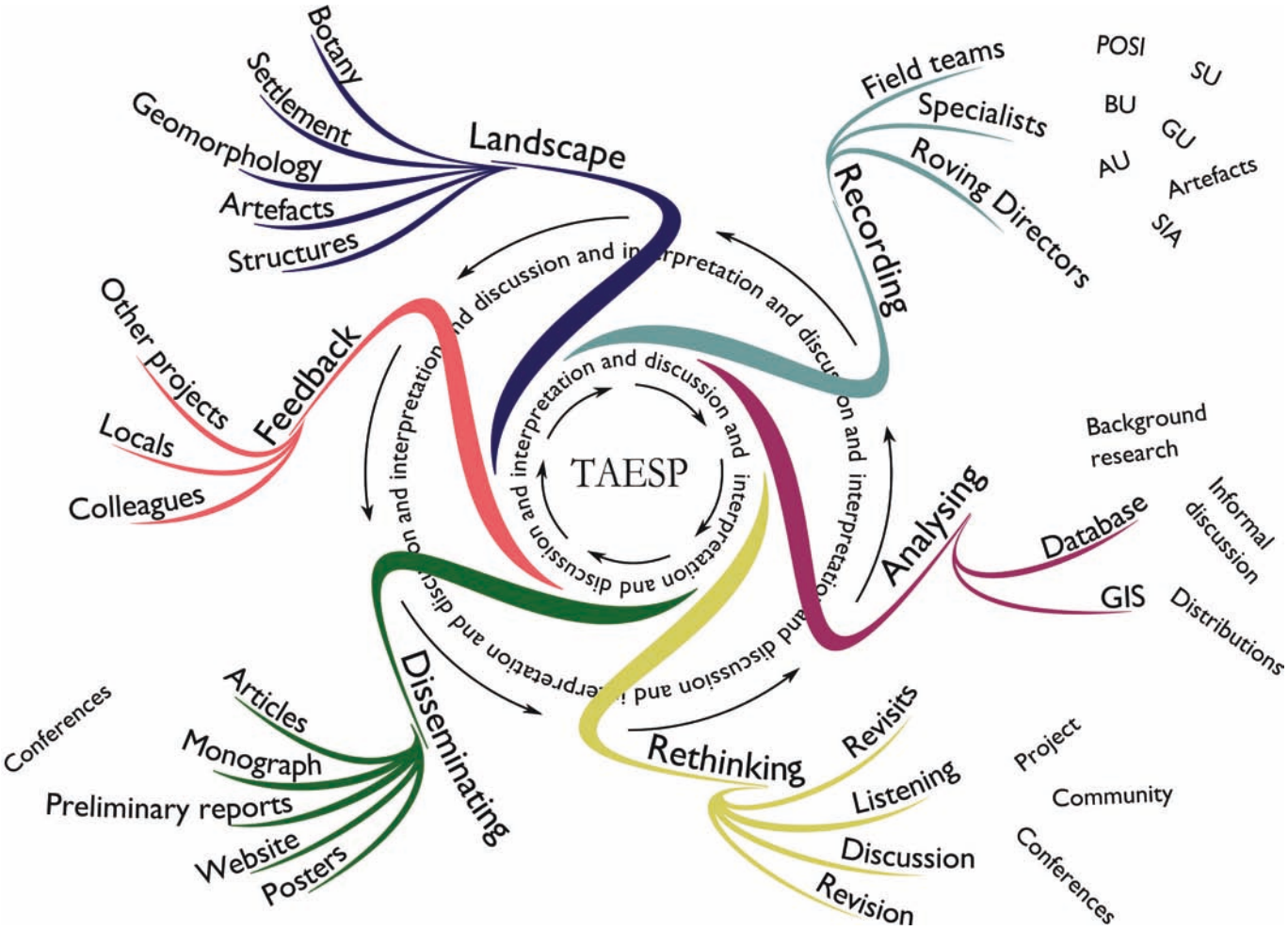
The main discussion and analysis of specific landscapes, Special Interest Areas and Places of Special Interest are in Volume 2: for more detail see the table of contents, appendices and index of that volume.

acronyms 17
adits 47
aerial photographs 33–34
Aetolia 337
agriculture 269–70, 306–307, 330–31, 338–39. *See also* cereals, land use, threshing, watermills
Agrokipia *Kriadhis* 259–60
Agroladhou 227–31, 233, 283, 285, 304, 341
Akamas 21, 332–33
Alambra 230–32, 234, 237
Alambra *Mouttes* 211–12
Alnus orientalis 254–56, 259, 315
aloni. See threshing floor
Ambelikou *Aletri* 326
Apliki *Karamallos* 218
Arab raids 9, 334
archaeometallurgy 46–48, 237–53. *See also* copper, mining
architecture 54–55, 261–77
Aredhiou *Vouppes* 325
Arundo donax 265
Asinou church 228, 231, 233, 236, 272, 274, 332, 334
Asinou monastery. *See* Nikitari *Kapsalia*
Asinou village. *See* Nikitari *Asinou*
Ayia Irini sanctuary 326
Ayia Marina *Mavrovouni* 48–54, 67, 220–22, 224–26, 240, 242–43, 249, 251–61, 291, 329–30
Ayia Marina village 292
Ayia Marina *Vrysi* 220–21, 223–25
Ayia Varvara *Almyras* 46, 241, 259–60
Ayia Varvara *Asprokremnos* 322
Ayios Epiphanios village 222, 227–31, 233–35, 278, 280–81, 283, 285, 341
Ayios Kononas 333
Ayios Theodhoros *Karterouni* 276
Ayios Theodhoros *Palloura* 293
Ayios Theodhoros *Pano Atsa* 293
Ayios Theodhoros village 289
Ayios Yeoryios church, Phlasou 276
Ayios Yeoryios Kafkallou 304
background confusion 26, 37, 43
Bars'kyj, Basil 267, 276
Blanton, Richard E. 16, 19, 350
block survey 21
botanical analysis 44–46
bricks, fired 263
bricks, mud 263–64
bridges 262–63, 273–74, 277–78, 287, 289, 294–95, 341
Bronze Age, Prehistoric 6, 59–60, 208–14, 302, 323–26
Bronze Age, Protohistoric 6, 60–62, 214–20, 302, 324–26
building materials 261–65
Building Units 54–55, 273–77
Byzantine period 9, 335–36
Canadian Palaipaphos Survey Project 64, 66, 229
Caraher, William R. 328–29
Çatalhöyük 10
cereals 59, 216, 267, 270, 278, 293, 295, 331. S*ee also* agriculture, land use, threshing, watermills
chalcedony 203–204, 208, 221, 224, 230–31, 233–34, 237
Chalcolithic 5, 58–59, 208–14, 301–302, 322–23
charcoal 47–54, 253–61, 314–20
check dams 306–308
cheese 289, 340
Christianity 270–273, 333, 349
Christodoulou, Demetris 314, 320
chronology 29–31, 57, 75–76, 326–27
churches 274–76, 333–34, 345–46, 348
climate 299–301. *See also* palaeoclimate
climate change 4, 271, 300–301
coffee 79, 342
coins 190, 192–93, 253
colonialism 9, 293–95, 341–42
colour 344
communications 286–95, 339–41

communities 338–39
copper. *See also* archaeometallurgy, mining
Bronze Age production 6, 237–39, 325–26
fuel for smelting 253–61, 314–20
ingots 237, 253
Iron Age production 7, 259–60
Modern production 47
Roman production 7–8, 47–48, 238–53, 329–30
transport of 290–92, 320
core territory 324, 344
Corfu 79
cotton 9
cryptogram 270–73
Cypro-Archaic period 7, 62–63, 190–99, 259–60, 326–27
Cypro-Classical period 62–63, 327–28
Cypro-Geometric period 7, 62–63, 326
Cyprus Museum 314, 317
data archive 2, 35
database 11–12, 15, 17, 32–33, 351
deforestation 4, 258–61, 314–20, 349
dendrochronology 48–54
de Vezin, Michael 267
dhoukani flakes. *See* threshing sledge flakes
discard 343–44
donkey 288, 292–93, 319–20, 341
du Plat Taylor, Joan 74–75
Eastern Korinthia Archaeological Survey 3, 13, 20, 25–26
economy 7, 323, 325, 334, 336
Elaborating Early Neolithic Cyprus 203–204
environment 3–4, 253–61, 296–320, 348–50
Epipalaeolithic 2, 4–5, 208, 321–22
Eratosthenes 314
erosion 4, 24, 349
estates 9, 277, 338–39
Eusebius 252
Evrykhou *Khalospitia* 326–27
Evrykhou railway station 274
Evrykhou tombs 63–64, 68–69, 333
Evrykhou village 214, 227–28, 230–31, 233–34, 268–69, 273–75, 278, 280–81, 283–85, 289, 294–95, 341
experience 337–39, 345–46
experiments 35–44
extensive transects 20
Fabrika Hill, Paphos 8–9
farmsteads, Roman 8, 45, 220–21, 226, 258, 291, 331
field manual 17
field notebooks 24–26
field teams 17, 19–20, 22, 38–39
figurines 190–99, 323, 326, 328, 333
floods 270–72, 302, 349–50
folklore 339, 341
forests 253–61, 293–93, 314–20
fuel 46, 256–61, 314–20
furnace 47, 225, 238, 240–46, 248–49, 257
Galata 263, 289, 293
Galen 7, 67, 252, 346
gender roles 11
geoarchaeology 305–11
Geographic Information Systems 14–15, 33–34, 44, 350
geology 22–23, 27–28, 297–99
Geomorphological Interns 11–14, 19–20
Geomorphological Units 19, 21–25
geomorphology 3, 22–25, 27–28, 302–305
Gjerstad, Einar 29, 62, 327
glass 190, 200, 330
goatfolds 261, 293
goats 293, 323, 339–40
Gregory, Timothy E. 70
hamam 277
Hellenistic period 7, 63–64, 68–69, 328–34
Heyman, John 266
houses 54–55, 261–65
hydrology 18, 267, 269, 278, 297
Information Technology 32–35. *See also* database, Geographic Information Systems
inscriptions 268, 270–73, 333
insolation 299–301
Intensive Survey Zone 19
interaction 287, 295, 339–41, 346–48
interdisciplinary research 11–13
interpretation 10
Iran 316–17
Iron Age 6–7, 62–63, 302, 326–28
irrigation 55, 267, 274–75, 277–86, 338, 349
Italy 72, 76–80
jasper 204, 219–21, 224–25, 227–34, 236–37, 344
Kakopetria 280–81, 289, 295
Kalavasos *Kopetra* 64, 66, 69, 332, 334–35
Kalliana 268, 275–78, 280–82, 289, 293, 304
Kalliana *Manjapierides* 326
Karkotis River 4, 263, 272, 289, 298, 308–309, 311, 314–15, 348
Karterouni. *See* Ayios Theodhoros *Karterouni*
Kato Koutraphas estate 338–39
Kato Koutraphas village 262, 264, 276, 295
Kato Koutraphas *Mandres* 227–36, 261–64, 293–94, 337, 342, 348
Kato Koutraphas *Mandroudhes* 6, 57–61, 214–18, 325
Katydhata 278, 280–82, 284–85, 308, 314, 327, 341
Katydhata *Laonarka* 57, 59–62, 214–19, 324–25
Katydhata *Pano Limna* 63, 68, 190, 192–97, 221, 224–25, 227, 290–91, 326–28, 332
khan 276, 340, 347
Korakou 268, 276, 278, 280–81, 283–85, 288–89, 341
Koronia 16, 21, 262–64, 277, 299
Kouklia 70–71, 75–79
Kowalewski, Stephen A. 16, 350
Krommidos mill 284
Kyrenia 226, 230–32
Kythrea 267, 295
landforms 303–304
land levelling 308–11
landscape theory 10–11, 346–50
land use 270, 306–307, 330–31, 338–39. *See also* agriculture, cereals, threshing, watermills
Lapithos 73–75, 77–80

lead isotope analysis 237, 253, 351
Lefkara chert 203–204, 208–209, 211, 215–16, 221, 224–25, 230–34, 236–37
Lemba 74–77
Lemonas 57–61, 227–28, 230–31, 233, 236, 322, 331, 337
lichenometry 28–29
lime 59–60, 76, 262–63, 269–70, 274
lime kilns 263–64, 268, 277
Linou 62, 227–33, 236, 268–69, 273–74, 278, 280–85, 288, 314
Linou *Vrysi tou Haji Christophi* 68, 220–21, 224–27, 291, 333
lithics 200–37
  analysis 31–32
  collection 25–26
  Bronze Age, Prehistoric 208–14
  Bronze Age, Protohistoric 214–19
  Chalcolithic 208–14
  Medieval–Modern 227–37
  Neolithic 202–208
  Roman 219–27, 332
Little Ice Age 4, 271, 302, 349–50
Llobera, Marcos 287
manganese 240, 242–46, 248, 250–52
Mariti, Giovanni 264–65, 339
Marki *Alonia* 58, 212–14, 324
Markides, Menelaos 4, 59–60, 323
McClellan, Murray C. 335
Medieval period 8–9, 69–80, 227–37, 265–67, 270, 272, 281, 314, 336–41
Megaw, Peter 74–75
Mejelle 280, 286, 339
Mesaoria Plain 253, 260, 291, 298
metal artefacts 190
Metcalf, Michael 252–53
methodology 16–56
  archaeometallurgy 46–48
  architectural analysis 54–55
  botany & geobotany 44–46
  geomorphological 21–25, 27–29
  Information Technology 32–35
  lithics 31–32
  oral history 55–56
  pottery 29–31, 41–44
  radiocarbon dating 48–54
  survey 18–27, 35–41
millstone 226–27, 266, 268–70, 274–76
mining 7–8, 47, 306, 329–30
Mitsero *Kouloupakhis* 259
Mitsero *Sykamies* 259
Modern period 69–80, 227–37, 283–85, 288–90, 293–95
Molos watermill 268–72, 275–76, 282–83
Monte Testaccio 240
Morphostratigraphic Units 27–28
Morphou *Toumba tou Skourou* 61
mosque 270, 282, 339, 346
mountains 305. *See also* Troodos Mountains
  survey methodology in, 26, 350
Mylos tou Stylli watermill 345, 349
Neolithic period 4–5, 202–208, 217–18, 224, 232, 321–22
Nicolls, Edward Hugh 262, 274, 289, 295
Nicosia 64, 70–71, 73–74, 76–79
Nikitari *Asinou* 261, 264, 274, 289, 304, 332, 340
Nikitari *Kambos tou Lemonari* 5, 202–208, 321–22
Nikitari *Kapsalia* 336–37, 344
Nikitari *Khalospidhia* 228–29, 231, 233–34
Nikitari *Khalospities* 344
Nikitari *Mandra tous Jerenides* 289
Nikitari *Petrera* 214–18, 325
Nikitari *Trimitheri* 332
Nikitari village 289, 293
Nikitari *Vouni* 227–28, 231, 233–34, 293
obsidian 203, 208, 231–32, 236
Olea europaea 45–46, 226, 234, 254–57, 259–60, 264, 270, 272, 276, 311–15
Olive. *See Olea europaea*
ophiolite 22–23, 299
oral history 55–56, 340, 342
Ottoman period 8–9, 69–80, 227–37, 267–86, 288–89, 302, 314, 337–41
palaeoenvironment 299–302
Panayia Kousouliotissa church, Phlasou 272, 276
Panayia Phorviotissa. *See* Asinou church
Panayia Skouriotissa 272, 344
Pano Koutraphas 265, 268
Pano Koutraphas *Katalasharis* 292, 322
Pano Koutraphas *Sanidhia* 208, 220–21, 224–27, 292, 322, 331
Papanikola-Bakirtzis, Demetra 74–75
Paphos 8–9, 76–79
Pastoralism 332
paths 286–95, 340, 347
(P)ED-XRF 242, 244, 246
Petra 273–74, 280–83, 341
Petra *Phoukasa* 208, 220–21, 224, 290, 329
Pettegrew, David K. 328–29
phenomenology 10, 345
Philia phase 57–59, 322–23
Phini 71, 73
Phlasou 281–85, 288, 295, 314, 327, 333, 340, 346
Phlasou *Koutroullis* 57–59, 209–14, 237, 308, 323
Phlasou *Langouphes* 308–311
Pinus brutia 46, 49–54, 254–61, 316–20
Pinus nigra 254, 256–57, 259
Pistacia sp. 254–56, 259–60, 315–16
pithari 66, 272, 339
pithos 60– 63, 66, 68–69
Places of Special Interest 12, 26
plains 305
ploughsoil experiments 39–41
Politiko *Kokkinorotsos* 211, 259–60
Politiko *Phorades* 224, 237–39, 243, 259–60, 316–17
Politiko *Troullia* 212, 216, 324
pollution 329, 331
POSI. *See* Places of Special Interest
post-depositional processes 8, 23–24, 144–46, 325, 329

Potami 281
Potamia 72, 74, 78–80
pottery. *See also* chronology
analysis 29–31, 41–44
Byzantine 335–36
collection 25
fabric 58–59, 61–62, 66–67
Hellenistic–Roman 63–69, 328–29
imported 61, 64–66, 73, 76–80, 334
Iron Age 62–63, 327
Medieval–Modern 69–76, 78–80
prehistoric 57–62
transport amphorae 62–67, 69
utility wares 29–30, 68–74
practices 344–45
precipitation 4, 253, 300, 302
Pylos Regional Archaeological Project 26
Pyrgouthi 331
Quercus sp. 254, 256, 259–60, 315–16
quernstones 330–31
radiocarbon dating 48–54
railway 274, 291, 295
Rautman, Marcus 335
reflexive methodology 13–14
research questions 2, 351
resistance 293–95
re-use 201, 204, 212, 214, 218, 226, 234, 236, 274, 348
roads 286–95, 340–42
Roman period 7–8, 63–69, 219–27, 256–61, 290–92, 302, 308–11, 314–20, 328–34
roofs 264–65
sampling 16, 18–20
sanctuaries 7, 326–27, 332–33, 349. *See also* figurines
Sanctuary of Aphrodite, Palaepaphos 333
Sanctuary of Apollo Hylates, Kourion 326–27
Saranda Kolones 70, 73–74, 76
Sarcopoterium spinosum 254, 259, 264
satellite settlements 293, 347
seasonality 293–94, 340
seeding experiments 35–39
serfs 339, 345
settlements 328–29, 336–37, 346–47
Shaban Bey watermill 268–69, 275, 283
SIA. *See* Special Interest Area
Sina Oros 289
site 10, 20, 345, 345
Skouriotissa miners' settlement 342
Skouriotissa *Pseftas* 332
Skouriotissa *Vouppes* 47–54, 66–68, 238–54, 256–61, 315–17, 320, 329–30, 343–44
slag 238–53, 261, 295
analytical methodology 47–48
heaps 47–48, 66–68, 238–43, 256, 292, 306, 343–44
road metal 295
smells 346
soil 23–24, 308–309
Soloi 6–8, 190, 252, 281, 290–91, 334
Sotira *Kaminoudhia* 58, 211–12
sounds 339, 346
Spain 253–54, 265
Special Interest Area 21
Sphakia Survey 30, 81
spiny burnet. *See Sarcopoterium spinosum*
Structural Elements 55
sugar 8, 266–67
surveillance 292, 346
Survey Area 3–4, 18–20, 42
Survey Units 20, 25–26
Sydney Cyprus Survey Project 7–8, 14, 20–21, 30, 44–47, 62, 64–66, 73, 237–38, 240–41, 251–53, 259, 261, 308, 325, 350
Syria 61, 76, 78–79
Tabula Peutingeriana 290–91
Tamassos 7, 66, 260, 290–91
Tartaron, Thomas F. 350
team leaders 12, 20
Team X 20
Tembria 263, 268–69, 274, 277–81, 284, 288–89, 293, 341
terraces 304, 306–308
Theophrastus 256
threshing 216–17, 225–26
threshing floors 211, 216, 227–31, 233, 237, 261–62, 270, 277, 293, 338, 345
threshing sledge flakes 214, 217, 227–37
tile kiln 264–65
tiles 66–69
timber 256–57, 259, 261, 264, 295
Timna 317
tobacco pipes 79, 120–21, 166–67, 342
tombs 8, 58–64, 66, 68–70, 238, 323, 327–29, 332–33
transects 19–21
Troodos-Mesaoria Geomorphological Project 308
Troodos Mountains 69, 254, 257–61, 272, 284, 297–99
umber 252
utility pottery 29–30, 68–74
Vallauri, Lucy 72
valleys 305
vegetation 4, 253–61, 301
Venice 77–78, 285–86
visibility 26, 36–37, 43
von Wartburg, Marie-Louise 75–76
Vroom, Joanita 337
Vyzakia 266–67, 269–70
Wadi Faynan 21, 253, 315–17, 348
watermills 265–78, 281–83, 285–86, 339–40, 349
water rights 277–86, 340–41, 349
weirs 277–86, 340–41
wells 70, 74, 309
Wertime, Theodore A. 260–61, 316–17
Wilkinson, Tony J. 296
Xyliatos *Athassi* 205, 227–31, 233, 277
Xyliatos *Ayios Kyriakos* 220–22, 224–27, 291–92
Xyliatos *Litharkies* 68, 190, 202, 220–21, 224–27, 291–92
Xyliatos village 304
zivania 342


TAESP
Landscape
Botany
Settlement
Geomorphology
Artefacts
Structures
Recording
Field teams
Specialists
Roving Directors
POSI
SU
BU
GU
AU
Artefacts
SIA
Analysing
Background research
Database
Informal discussion
GIS
Distributions
Rethinking
Revisits
Listening
Discussion
Revision
Project
Community
Conferences
Disseminating
Articles
Monograph
Preliminary reports
Website
Posters
Conferences
Feedback
Other projects
Locals
Colleagues
interpretation and discussion and interpretation and discussion and interpretation and discussion and

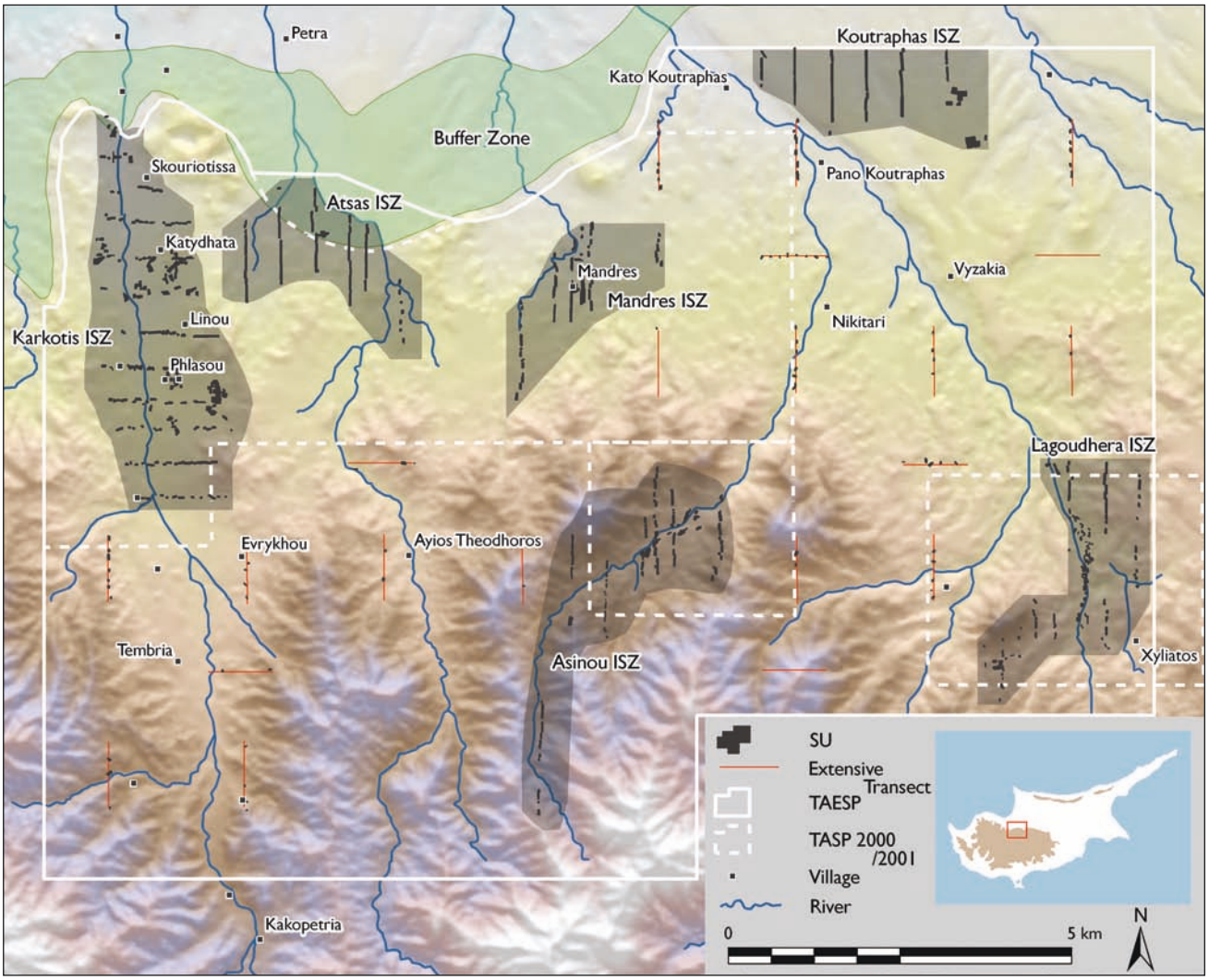


Plate 2.1. Map of Survey Area, with Intensive Survey Zones, Extensive Transects, Survey Units and outline of the original 2000/2001 Survey Area (Luke Sollars)

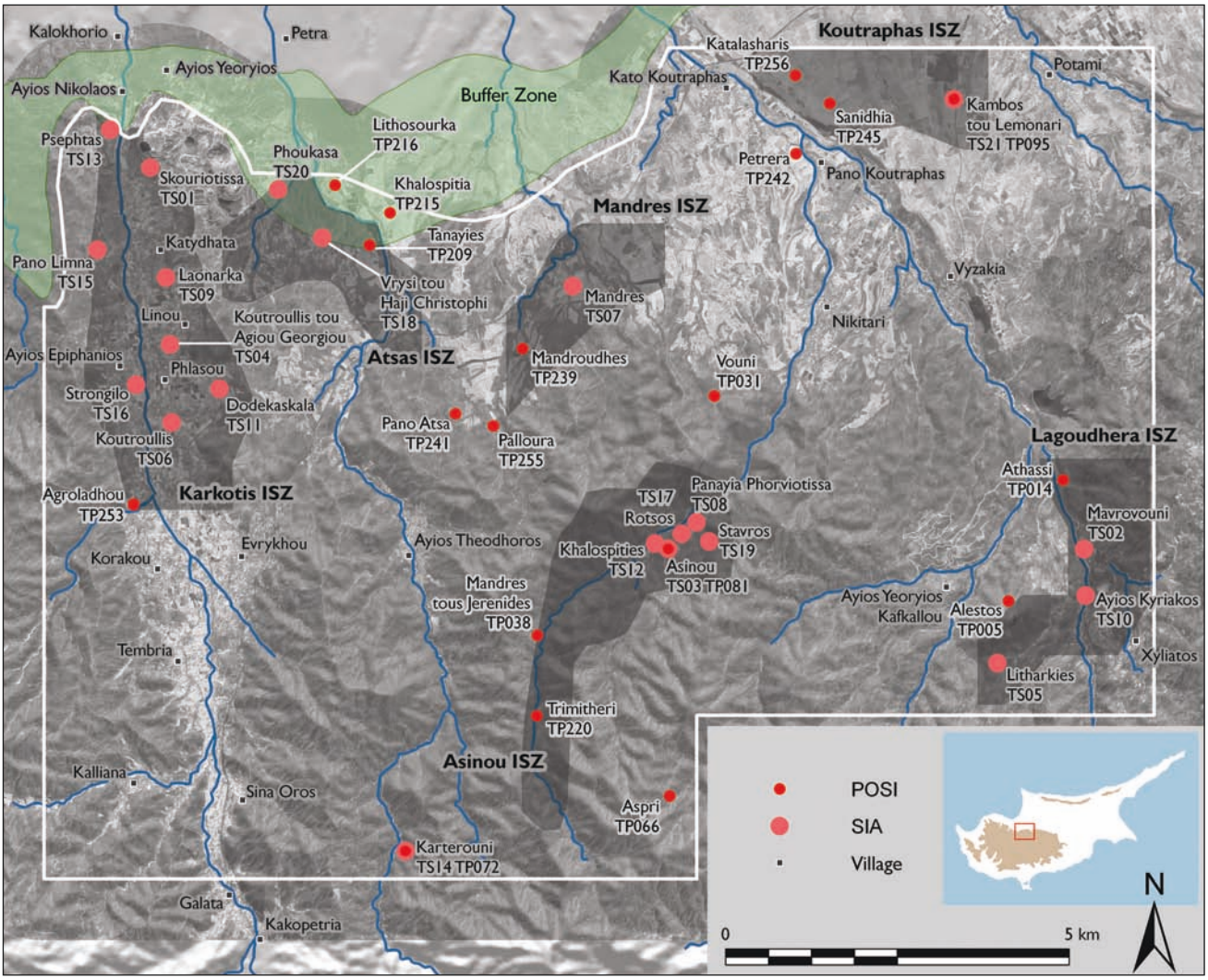


Plate 3.1. Map of the Survey Area, with Special Interest Areas and Places of Special Interest mentioned in Chapter 3 (Luke Sollars)

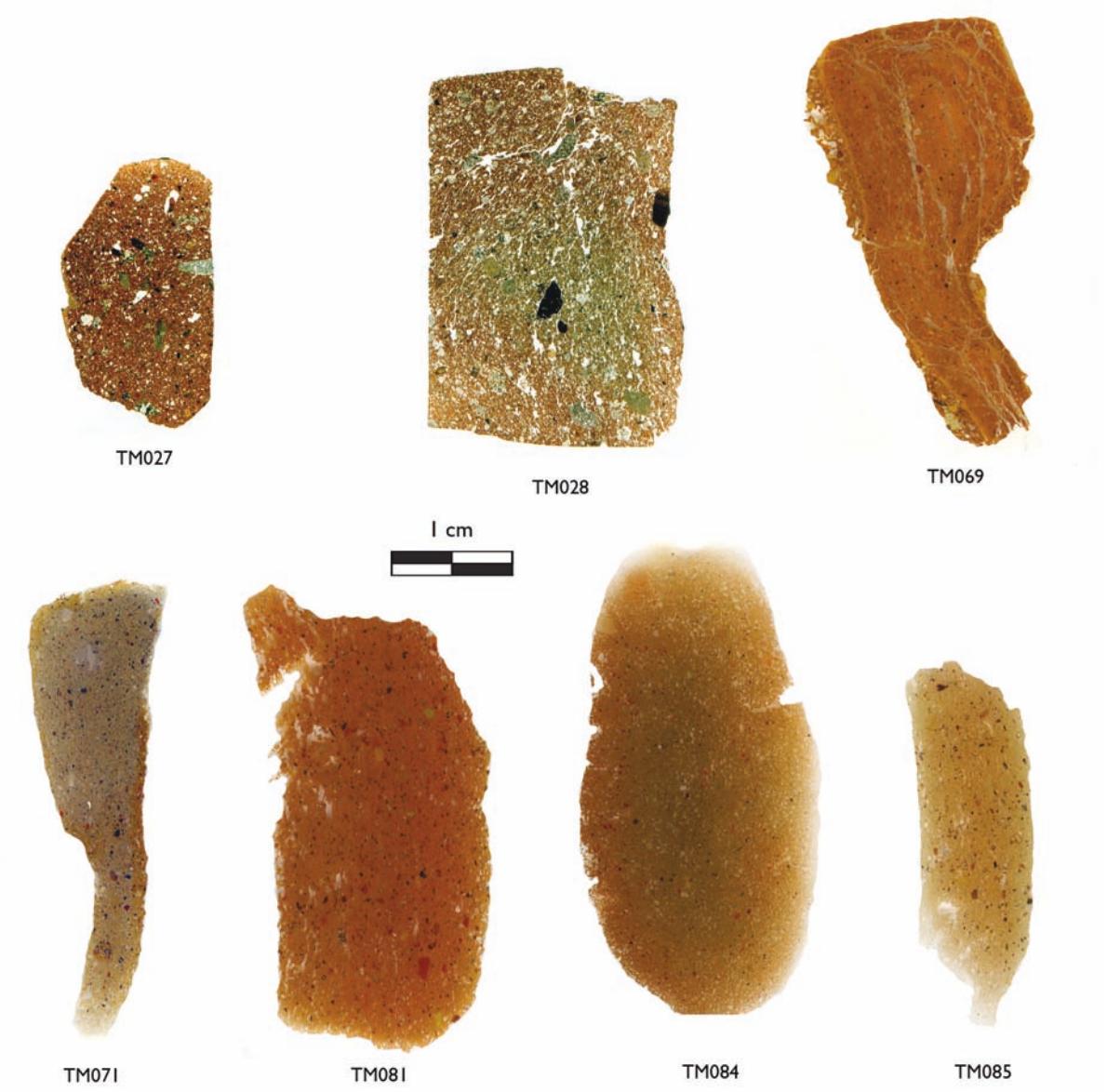


Plate 3.2. Thin sections of a pithos, tile and transport amphorae. TM027: pithos rim (SU0618.P24). TM028: tile (SU1039.P28). TM069: AmSk01-LR (TP171.PU01.P01). TM071: AmSk02-LR (TP171.PU01.P02). TM081: Mav01-Rom, base (TP104.PUW20S15.P06). TM084: Mav02-Rom, handle (SU2604.P12). TM085: Mav03-Rom, rim (SU3035. P03). (John Gordon-Smith)

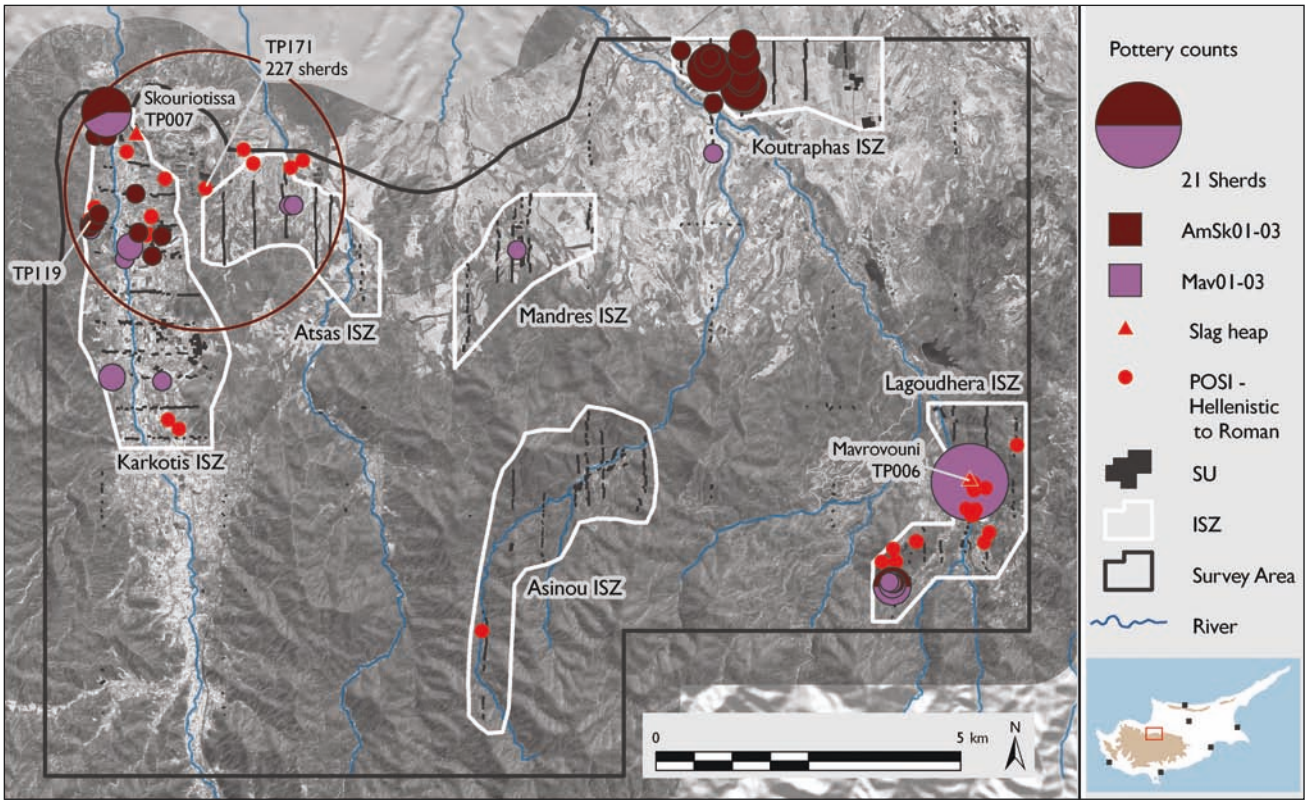


Plate 3.3. Map of Survey Area showing the distribution of local amphora types AmSk01–03 and Mav01–03. The pie charts represent the number of sherds identified from the samples brought to the project base for dating; they range in size from 1 sherd (at Mandres) to 17 sherds (at Mavrovouni). TP171 is the amphora dump in Skouriotissa mine; the 227 sherds collected are indicated by the brown circle, and represent a tiny fraction of what was in the dump. (Luke Sollars)

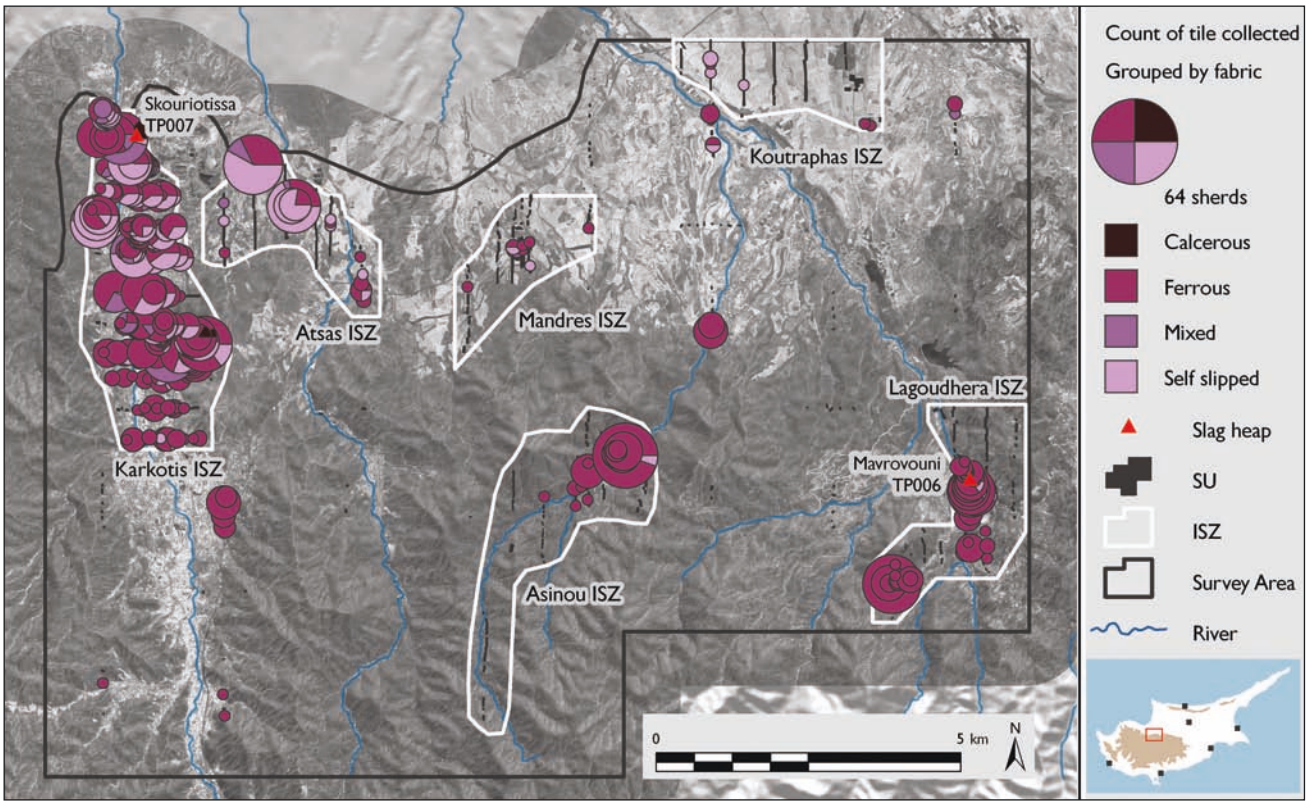


Plate 3.4. Tile distribution across the Survey Area, classified by fabric (Luke Sollars)

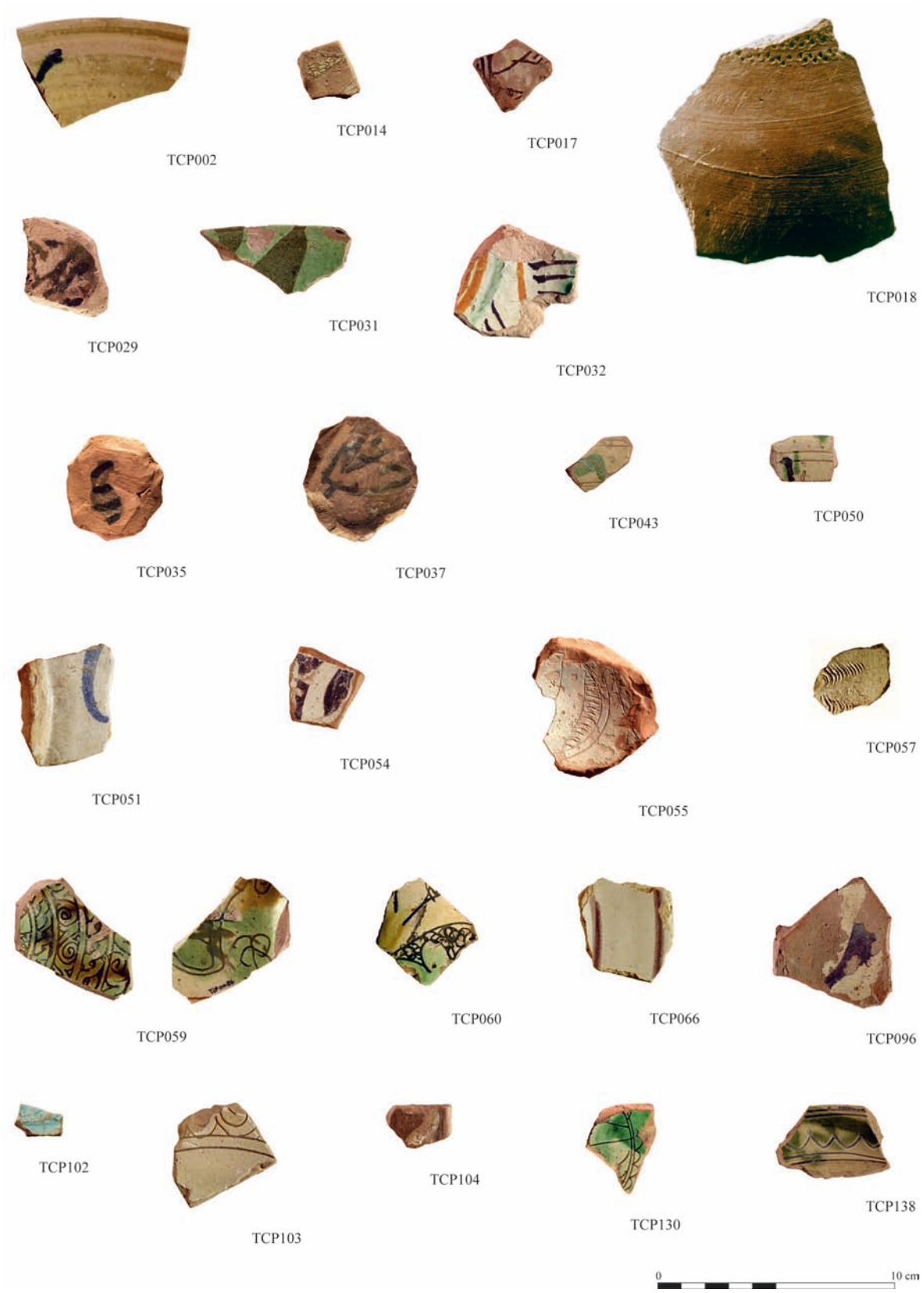


Plate 3.5. Pottery catalogue: TCP002–138. For descriptions and drawings see Chapter 3.6. (Chris Parks)

Plate 3.6. Pottery catalogue: TCP140–323. For descriptions and drawings see Chapter 3.6. (Chris Parks)

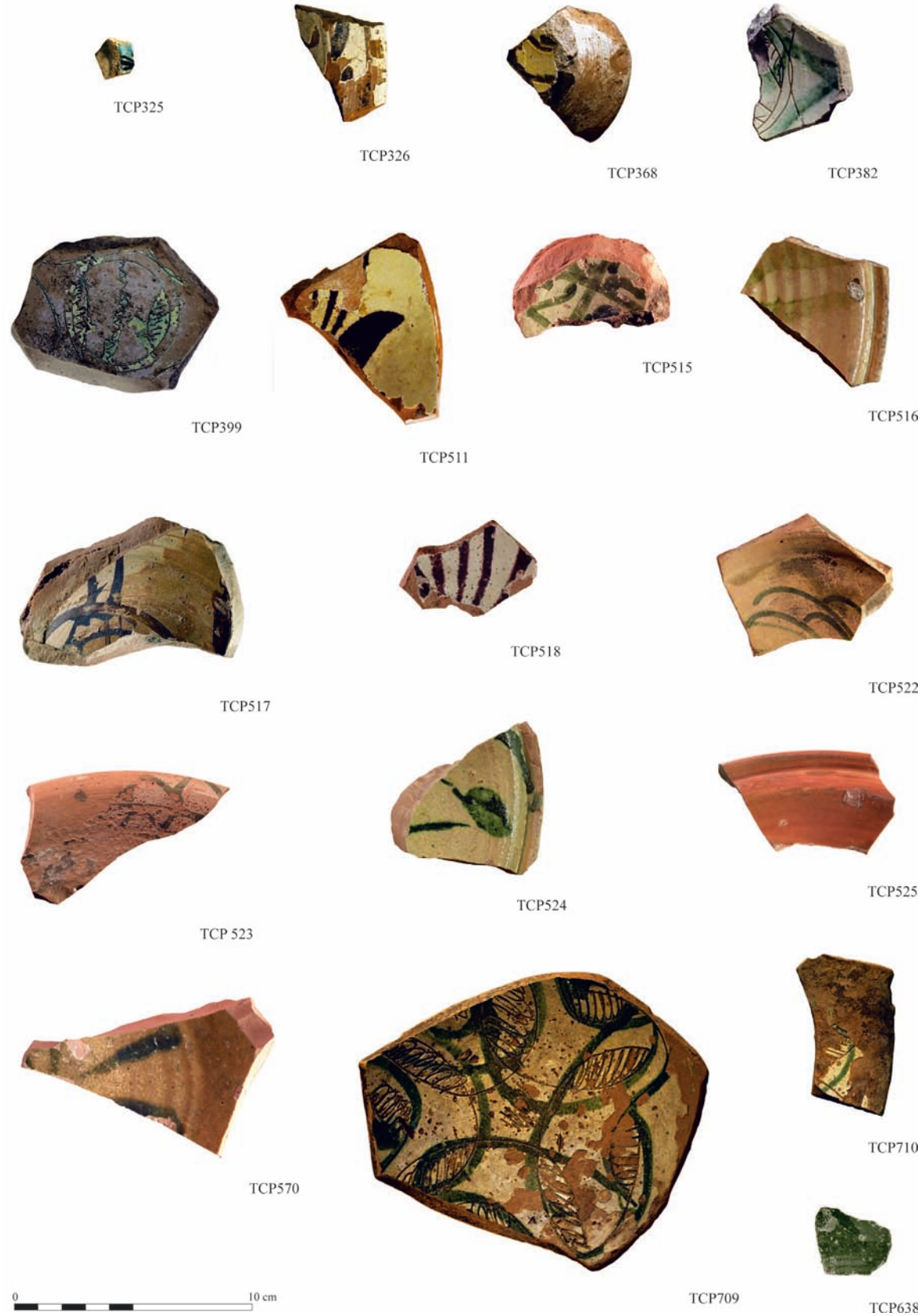


Plate 3.7. Pottery catalogue: TCP325–710. For descriptions and drawings see Chapter 3.6. (Chris Parks)

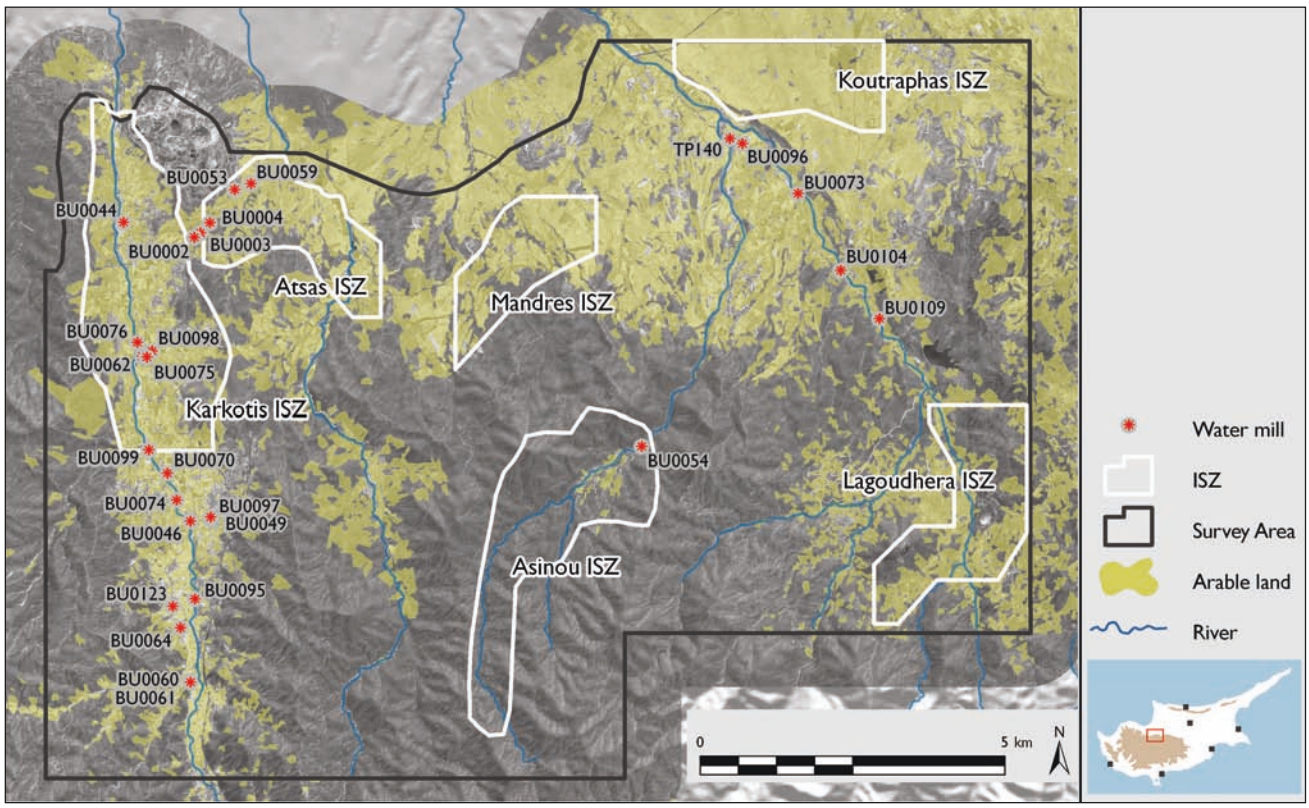


Plate 3.8. Watermills and arable land in the Survey Area. ISZ = Intensive Survey Zone. (Luke Sollars)

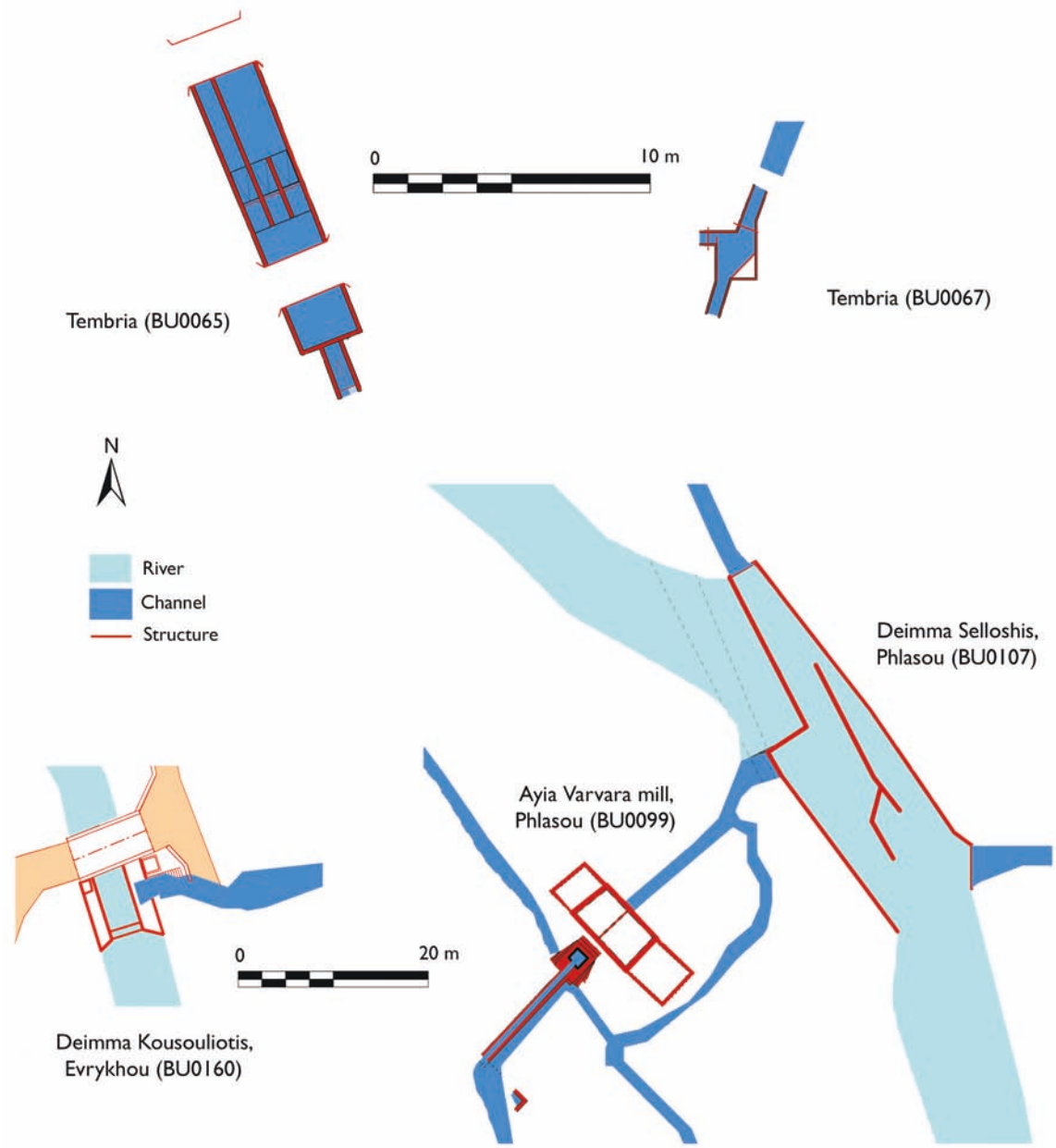


Plate 3.9. Plans of weirs in the Karkotis Valley. Water flow is from south to north. (Sevina Floridou)

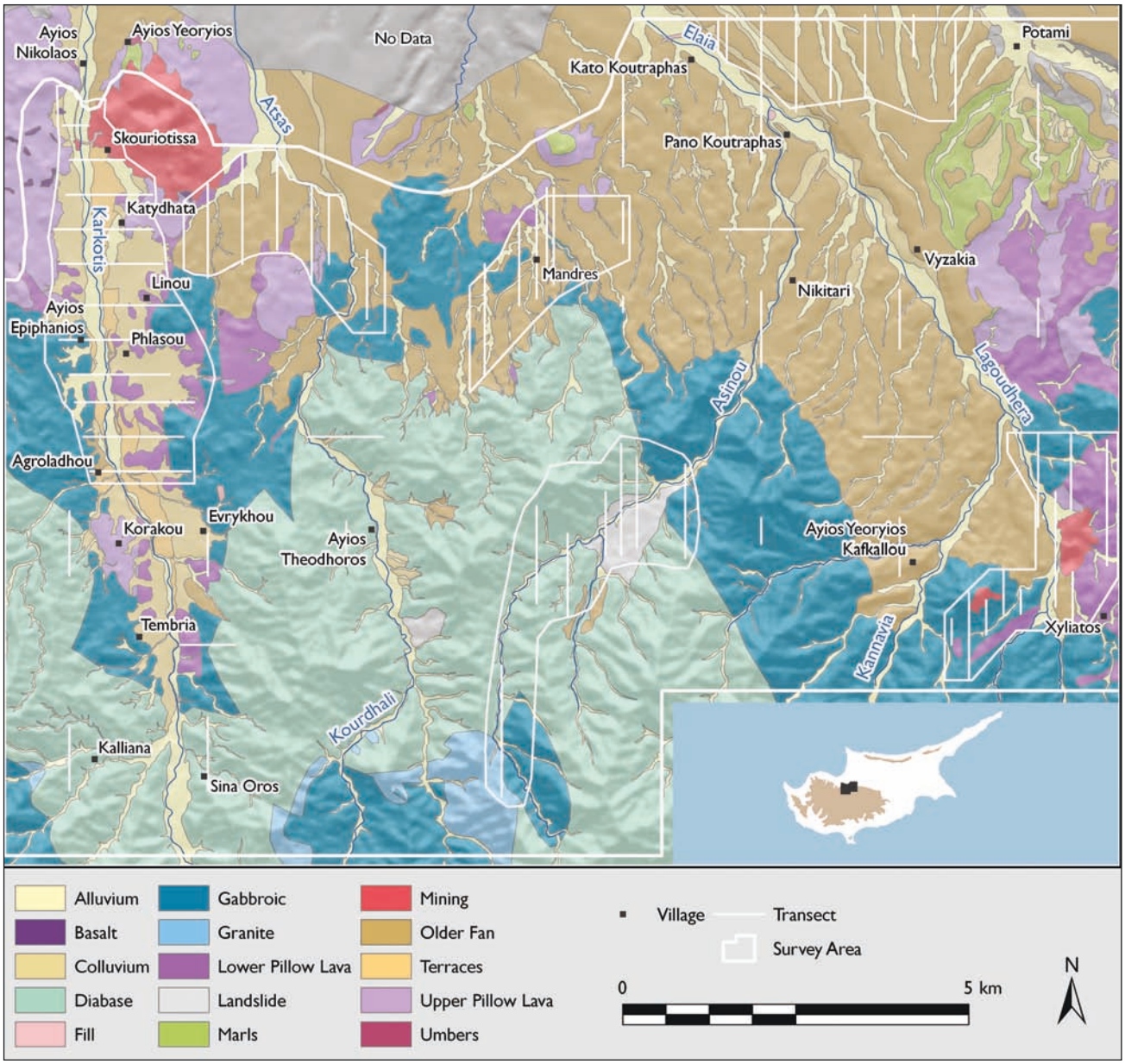


Plate 4.1. Geological map of the Survey Area draped over a hillshaded relief map (Jay Noller, finalised by Luke Sollars)

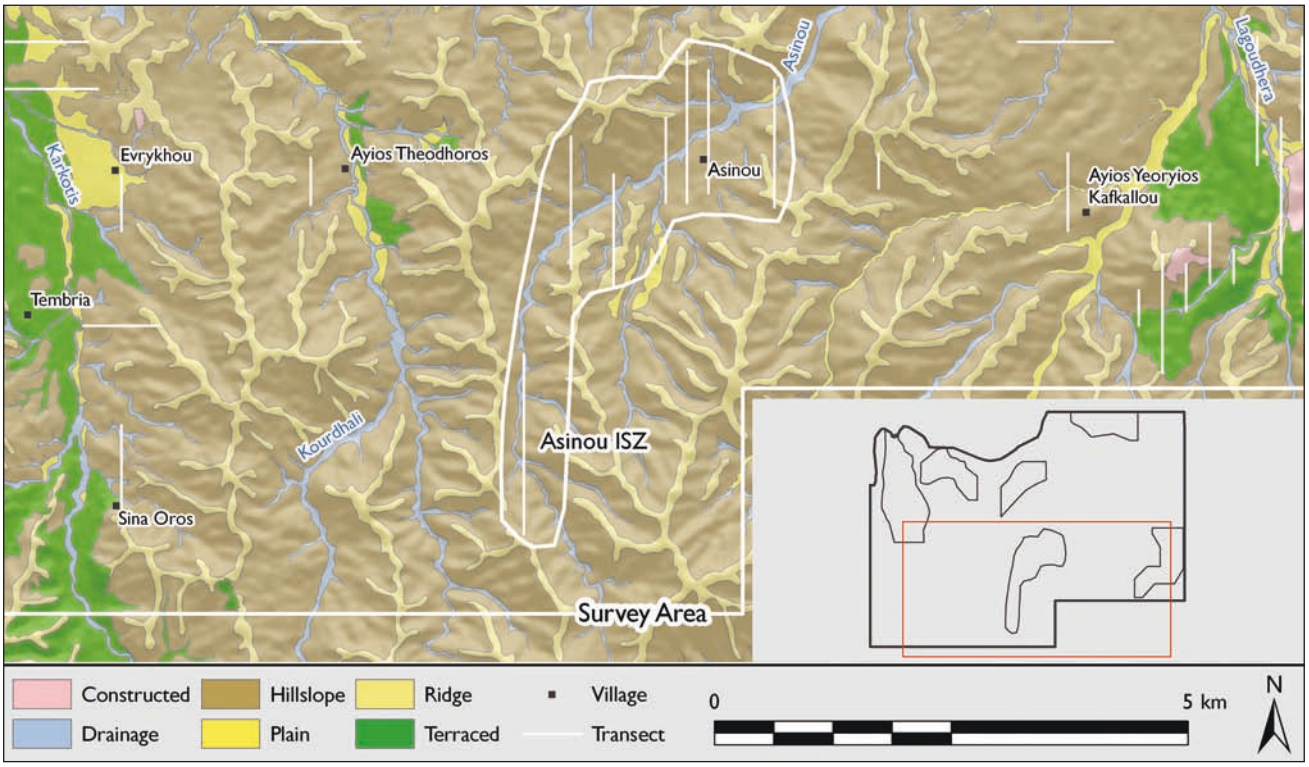


Plate 4.2. Landform map of the mountainous area, with the Karkotis Valley on the left and Lagoudhera Valley on the right (Jay Noller, finalised by Luke Sollars)

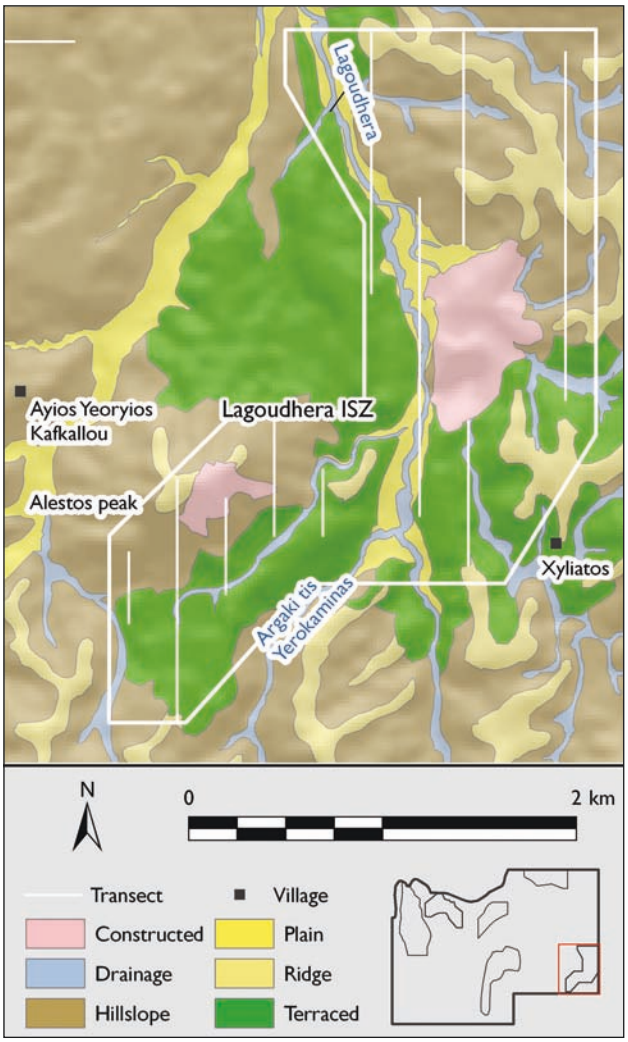


Plate 4.3. Landform map of the Lagoudhera Valley (Jay Noller, finalised by Luke Sollars)

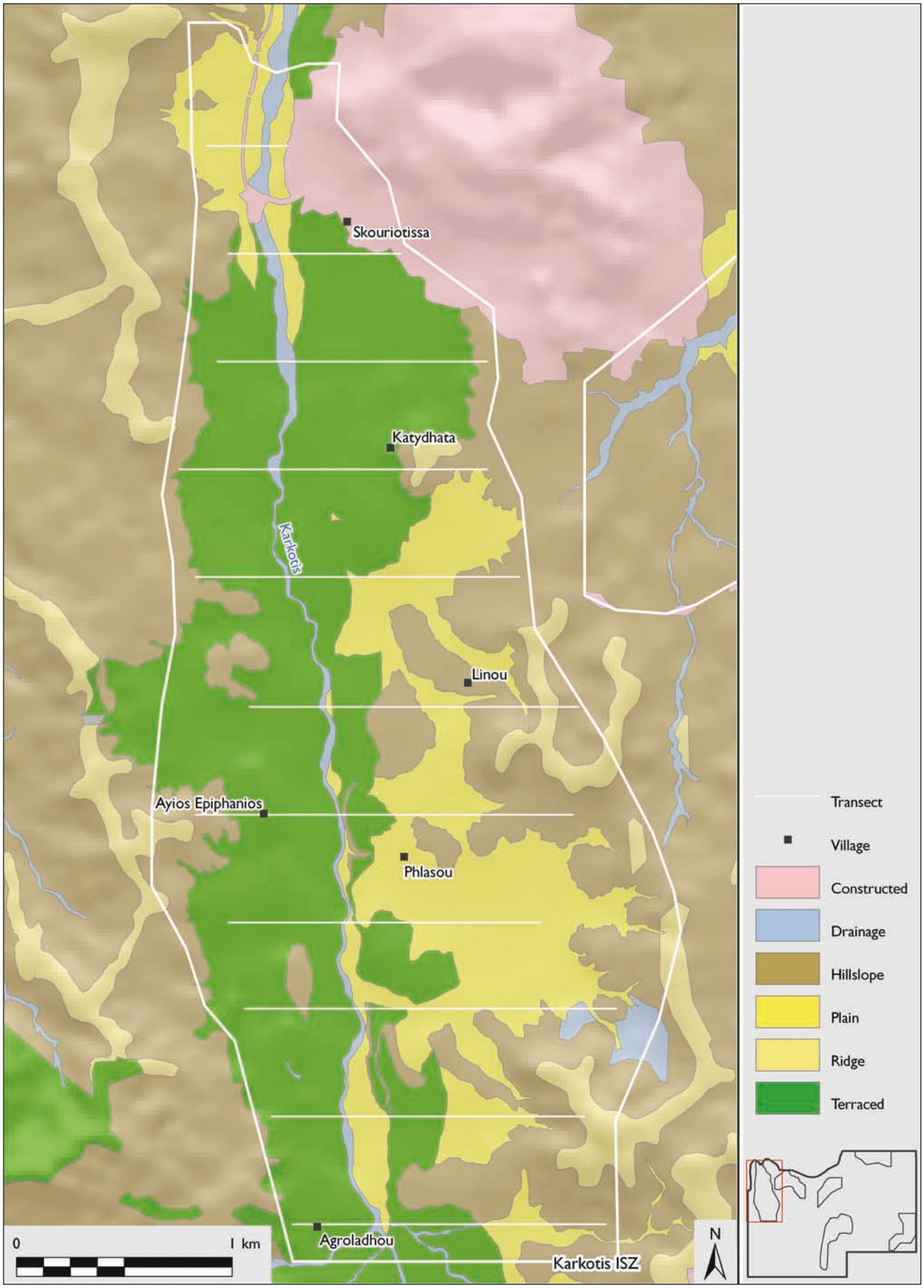


Plate 4.4. Landform map of the Karkotis Valley (Jay Noller, finalised by Luke Sollars)

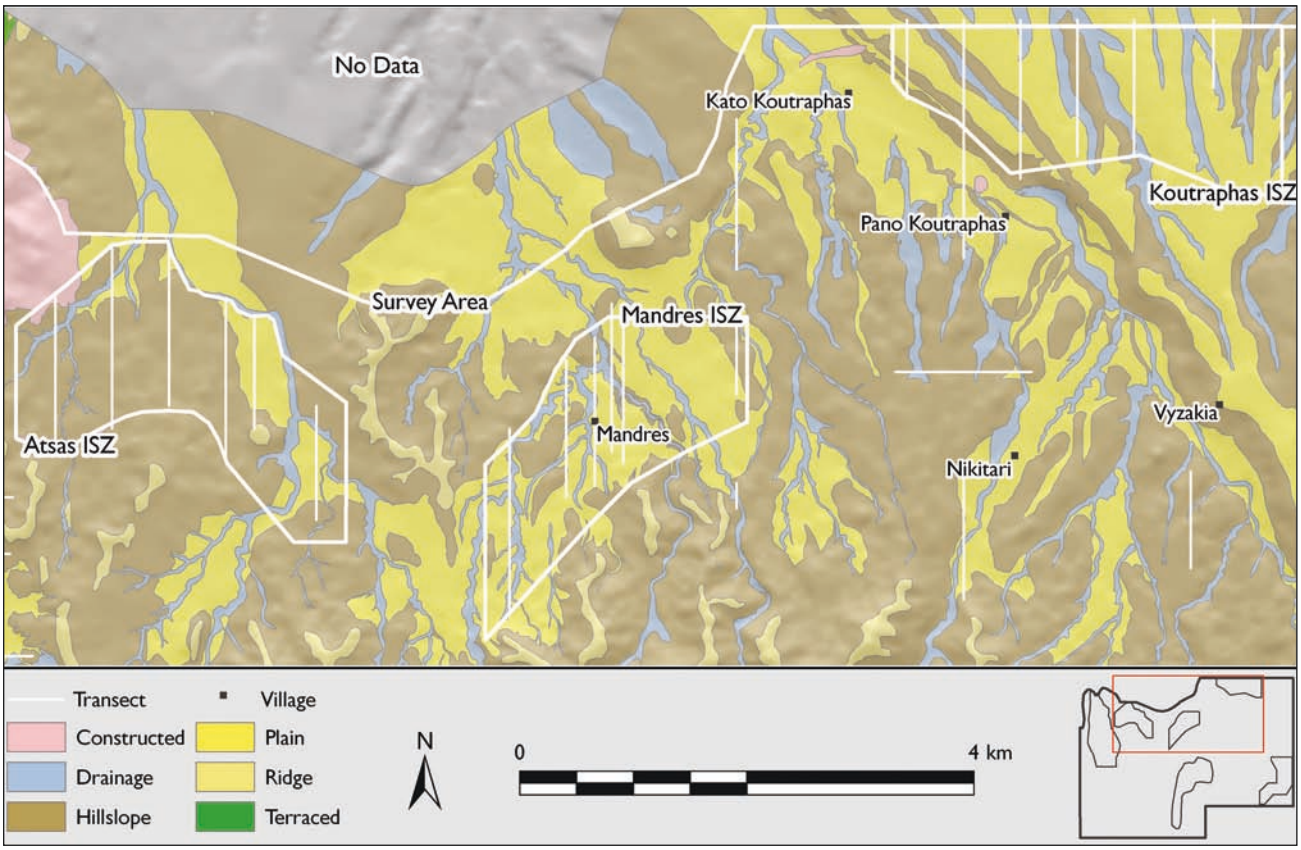


Plate 4.5. Landform map of the plains (Jay Noller, finalised by Luke Sollars)

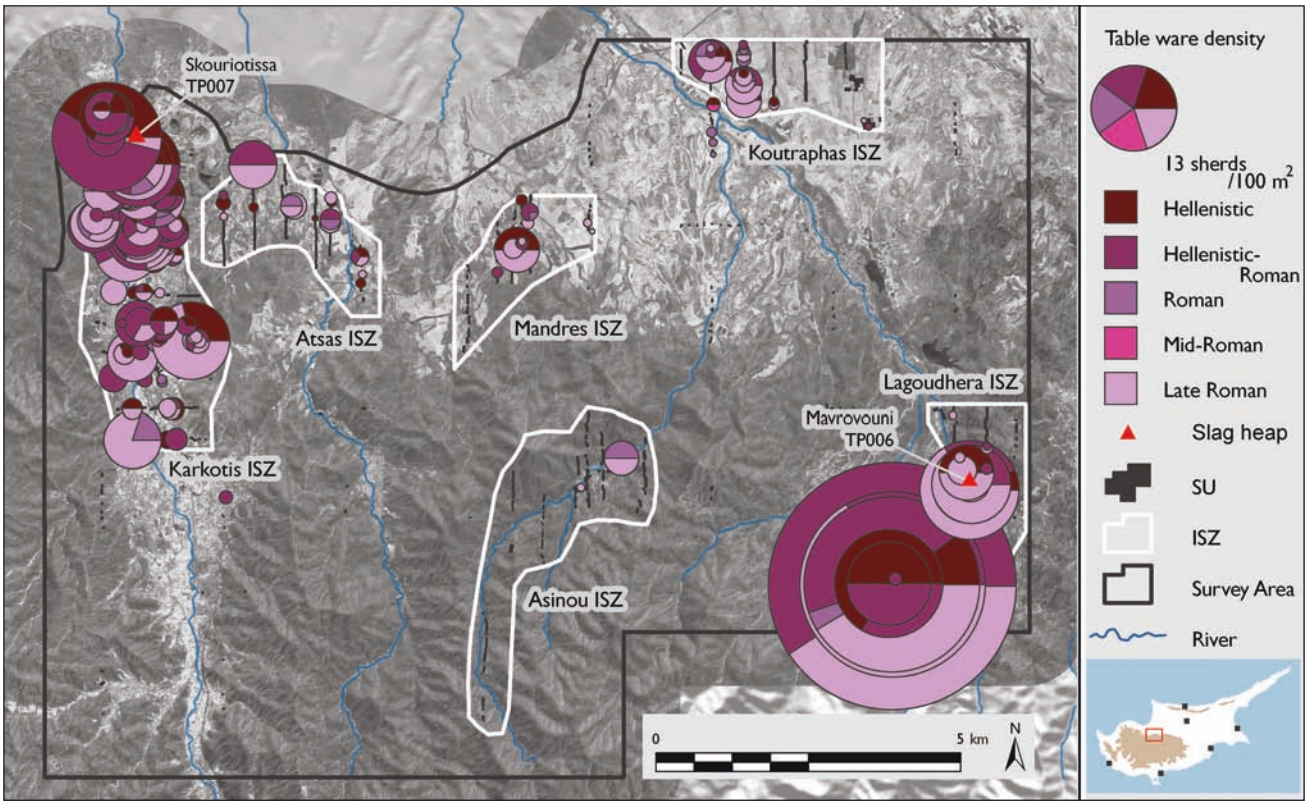


Plate 5.1. Survey Area with distribution of Hellenistic–Roman Table Wares. The smallest pie chart, in the north-west corner of the Lagoudhera ISZ, is 0.1 sherds/100 m²; the largest, also in the Lagoudhera ISZ, is 112 sherds/100 m². (Luke Sollars)

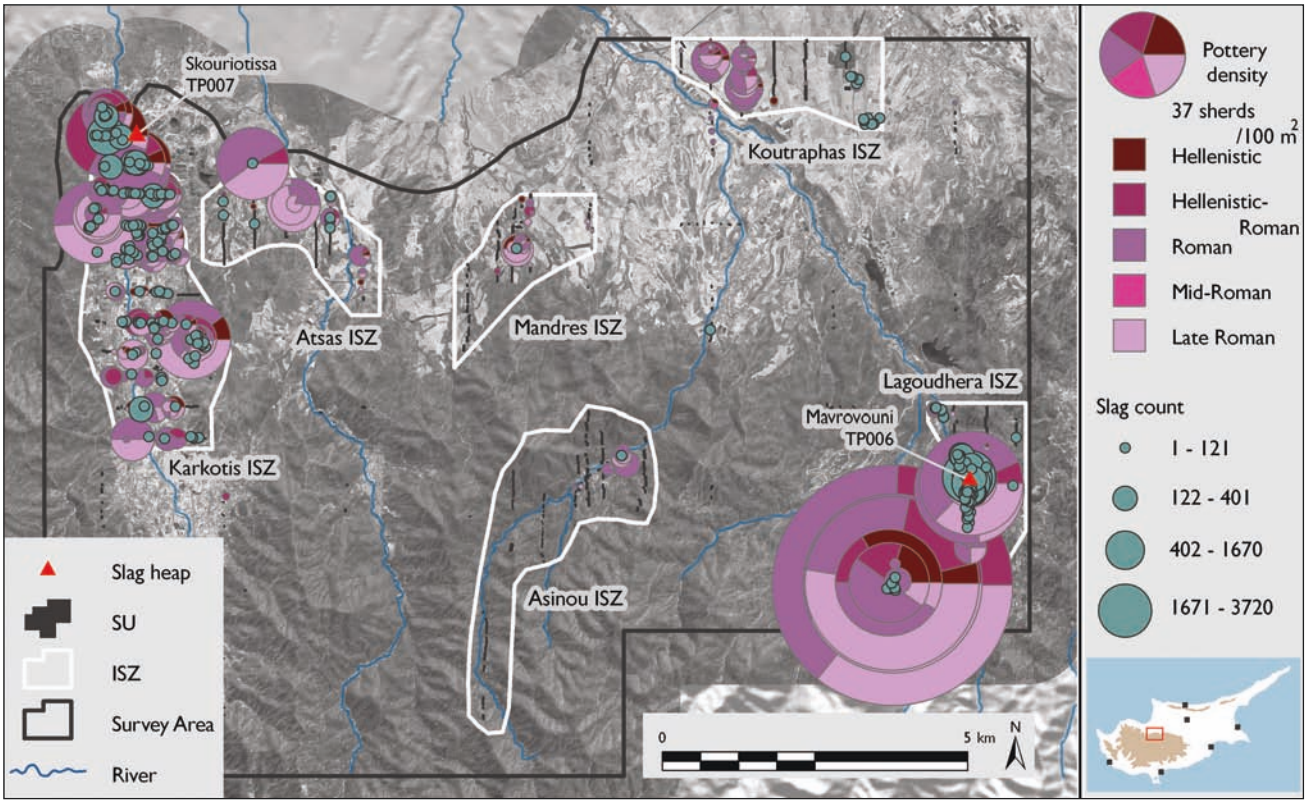


Plate 5.2. Survey Area with distribution of slag and Hellenistic–Roman pottery. The smallest pottery pie chart, in the north-west corner of the Lagoudhera ISZ, is 0.1 sherds/100 m²; the largest, also in the Lagoudhera ISZ, is 291 sherds/100 m². (Luke Sollars)

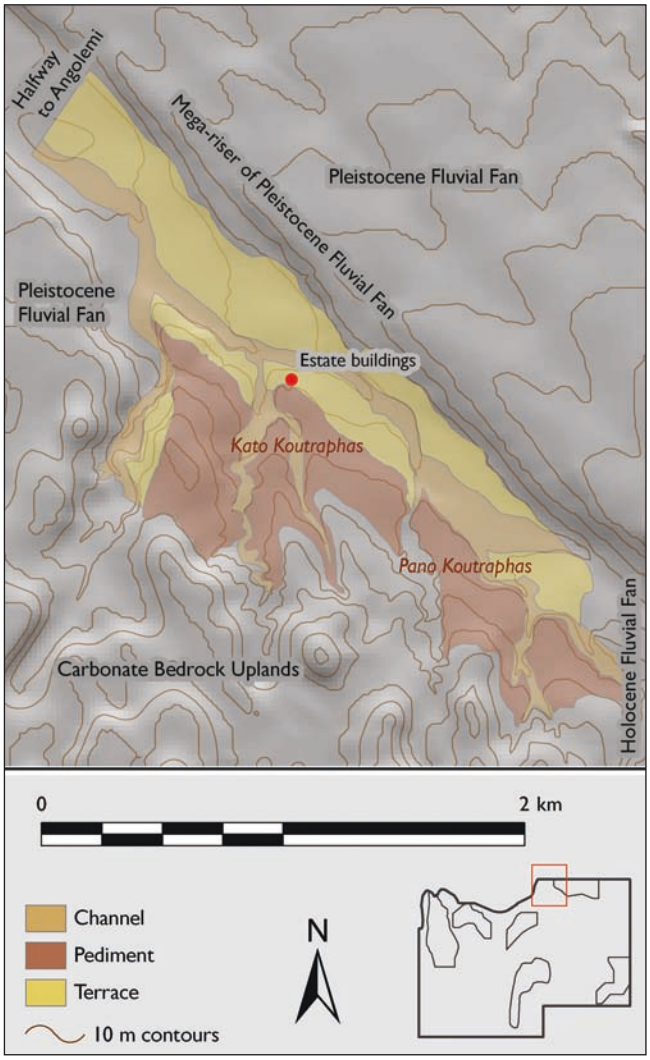


Plate 5.3. Map of Kato Koutraphas and its surrounding area, showing the ages and types of soil that we suggest relate to the land uses referred to in the 1512 enquiry. The area of c. 237 ha is centred on Kato Koutraphas and bounded by the furthest extent of the soil types put into production, as defined in the 1512 record. The hypothesized bounds of the estate are labelled with the geomorphic features that define what lies beyond this limit of agricultural soil types. (Jay Noller, finalised by Luke Sollars)