

# Pseira IX

## The Archaeological Survey of Pseira Island Part 2

### The Intensive Surface Survey

---

The archaeological excavations at Pseira, Crete, were sponsored by Temple University, in Philadelphia, Pennsylvania, by the Archaeological Institute of Crete, and by the Archaeological Society of Crete.

PREHISTORY MONOGRAPHS 12

# Pseira IX

## The Archaeological Survey of Pseira Island Part 2

### The Intensive Surface Survey

---

edited by

Philip P. Betancourt, Costis Davaras,  
and Richard Hope Simpson

*with contributions from*

Richard Hope Simpson, Philip P. Betancourt, Costis Davaras,  
Julie Ann Clark (micromorphology), Heidi M.C. Dierckx (stone tools),  
Senta German (Megali Ammos), Paul Goldberg (micromorphology),  
George W.M. Harrison (Byzantine farms),  
Natalia Poulou-Papadimitriou (Classical to Byzantine pottery),  
and David S. Reese (faunal remains)



*Published by*

INSTAP Academic Press  
Philadelphia, Pennsylvania

2005

**Design and Production**  
INSTAP Academic Press

**Printing**  
Sun Printing House, Philadelphia, Pennsylvania

**Binding**  
Hoster Bindery, Philadelphia, Pennsylvania

Library of Congress Cataloging-in-Publication Data

Pseira IX : the archaeological survey of Pseira Island, part 2.: the intensive surface survey / edited by Philip P. Betancourt, Costis Davaras, and Richard Hope Simpson ; with contributions from Richard Hope Simpson ... [et al.].

p. cm. — (Prehistory monographs ; 12)

Includes bibliographical references and index.

ISBN 1-931534-11-X (alk. paper)

1. Pseira Island (Greece)—Antiquities. 2. Excavations (Archaeology)—Greece—Pseira Island. I. Betancourt, Philip P., 1936- II. Davaras, Kostas. III. Simpson, R. Hope. IV. Series.

DF221.C8P748 2005

939'.18—dc22

2004030911

Copyright © 2005  
INSTAP Academic Press  
Philadelphia, Pennsylvania  
All rights reserved  
Printed in the United States of America

---

# Contents

LIST OF ILLUSTRATIONS IN THE TEXT .....	vii
LIST OF FIGURES .....	ix
LIST OF PLATES .....	xi
PREFACE .....	xv
ABBREVIATIONS .....	xvii
PART I. METHODOLOGY AND DATA	
1. Methodology for the Archaeological Survey, <i>Philip P. Betancourt and Richard Hope Simpson</i> .....	3
2. The Site Data and Pottery, <i>Richard Hope Simpson and Philip P. Betancourt with contributions from Heidi M.C. Dierckx, Natalia Poulou-Papadimitriou, and David S. Reese</i> .....	7
PART II. STUDIES AND DISCUSSIONS	
3. Introduction to the Individual Studies, <i>Philip P. Betancourt, Costis Davaras, and Richard Hope Simpson</i> .....	249
4. The Two Agricultural Terraces Chosen for Excavation .....	251
The Excavation at Site G 2, <i>Richard Hope Simpson</i> .....	251
Micromorphology Report on Site G 2, <i>Paul Goldberg</i> .....	252
Micromorphology Report on Site G 2, <i>Julie Ann Clark</i> .....	253
The Excavation at Site Q 21, <i>Richard Hope Simpson</i> .....	254
Micromorphology Report on Site Q 21, <i>Paul Goldberg</i> .....	256
Micromorphology Report on Site Q 21, <i>Julie Ann Clark</i> .....	256
5. The Two Dams, <i>Richard Hope Simpson</i> .....	257
The Excavation at Site M 9 .....	257
The Excavation at Site M 29 .....	260
Prehistoric Dams .....	262

6. The Two Byzantine Farms, <i>Richard Hope Simpson and George W.M. Harrison</i> . . . . .	263
The Northern Farm, Site D 8, . . . . .	263
The Southern Farm, Sites L 1, L 2, L 7, and L 8 . . . . .	264
7. The Cove of Megali Ammos, <i>Senta German, Philip P. Betancourt,</i> <i>Richard Hope Simpson, and Natalia Poulou-Papadimitriou</i> . . . . .	267
Seager's Investigations . . . . .	267
The New Investigations . . . . .	268
Discussion . . . . .	272
8. Discussion and Conclusions, <i>Philip P. Betancourt</i> . . . . .	275
Pottery Studies . . . . .	275
The Chipped Stone . . . . .	284
Other Artifacts and Materials . . . . .	284
The Final Neolithic Period . . . . .	285
The Early Minoan to Late Minoan I Period . . . . .	286
The Late Minoan II to III Period . . . . .	294
The Iron Age, Classical, Hellenistic, and Roman Periods . . . . .	295
The Byzantine Period . . . . .	296
The Late Medieval to Modern Periods . . . . .	304
Conclusions on Methodology . . . . .	306
CONCORDANCE OF EXCAVATION NUMBERS AND SURVEY SITE NUMBERS . . . . .	307
REFERENCES . . . . .	315
SITE INDEX . . . . .	329
INDEX . . . . .	337
FIGURES	
PLATES	

---

## List of Illustrations in the Text

Illustration 1. Sketch plan of Site D 1 . . . . .	8
Illustration 2. Sketch of terrace wall front at Site D 3 . . . . .	9
Illustration 3. Sketch plan of the Byzantine farm at Site D 8 . . . . .	13
Illustration 4. Sketch plan of Site D 14, a threshing floor within the enclosure wall of Site D 8 . . . . .	17
Illustration 5. Sketch plan of Site D 17 . . . . .	19
Illustration 6. Sketch of the front of the terrace wall at Site G 1 . . . . .	22
Illustration 7. Sketch plan of the terrace system at Site G 2, showing the location of the trench excavated behind the upper terrace wall . . . . .	23
Illustration 8. Sketch of front of terrace wall at Site G 2 . . . . .	23
Illustration 9. Plan and section of the excavation at Site G 2 . . . . .	24
Illustration 10. Sketch plan and section of terrace at Site G 4 . . . . .	30
Illustration 11. Sketch plan of Site H 1. . . . .	64
Illustration 12. Enlargement of the rectangular structure shown in Ill. 11 . . . . .	65
Illustration 13. State plan of Building EA (Site H 2) . . . . .	66
Illustration 14. State plan and section of the well at Site H 3 (Area ED). . . . .	68
Illustration 15. State plan of the visible part of Building EB (Site H 4). . . . .	70
Illustration 16. State plan of the visible part of Building EC (Site H 15). . . . .	76
Illustration 17. Sketch plan of building at Site H 24. . . . .	82
Illustration 18. Plan of the terrace wall system at Site H 31 . . . . .	86
Illustration 19. Sketch plan of Site J 1 . . . . .	87
Illustration 20. Sketch plan of the Byzantine farm at Site L 1 . . . . .	91
Illustration 21. Sketch plan of hut at Site L 1 . . . . .	92
Illustration 22. Sketch plan of the sheepfold at Site L 1 . . . . .	92
Illustration 23. Sketch plan of the cistern at Site L 1 . . . . .	93

Illustration 24. Sketch plan and section of the cistern at Site L 2 . . . . .	94
Illustration 25. Sketch plan of threshing floor at Site L 8 . . . . .	98
Illustration 26. Sketch plan of stone building at Site M 2 . . . . .	130
Illustration 27. State plan of the dam at Site M 9 showing the location of trenches . . . . .	134
Illustration 28. State plan of dam at Site M 9 showing bedrock and the location of drawn sections . .	135
Illustration 29. Section C-D through the dam at Site M 9 . . . . .	136
Illustration 30. Section A-B and plan of trench M 9-4 . . . . .	143
Illustration 31. Section E-F and plan of trench M 9-10 . . . . .	150
Illustration 32. Southwest section and southeast section through the dam at Site M 9 . . . . .	152
Illustration 33. East and south sections in trench M 9-13 . . . . .	153
Illustration 34. Sketch plan of Site M 10 . . . . .	155
Illustration 35. State plan of dam at Site M 29, showing bedrock and the location of section A-B . .	169
Illustration 36. Section A-B and location of trench M 29-2 . . . . .	170
Illustration 37. Section C-D through dam at Site M 29 . . . . .	171
Illustration 38. Sketch of terrace wall front at Site M 92 . . . . .	217
Illustration 39. Sketch plan and elevation of building at Site Q 2 . . . . .	227
Illustration 40. Sketch plan of the threshing floor at Site Q 3 . . . . .	228
Illustration 41. Sketch plan and section of the trench excavated in the terrace at Site Q 21 . . . . .	238
Illustration 42. Sketch of front of terrace wall at Site Q 21 . . . . .	238
Illustration 43. Sketch plan and elevation of the small cave at Site Q 23 . . . . .	242
Illustration 44. Table of Minoan pottery . . . . .	277–280
Illustration 45. Most common Minoan shapes . . . . .	282



---

# List of Figures

- Figure 1. Ancient and modern sites on Pseira Island.
- Figure 2. Final Neolithic and Minoan sites on Pseira Island.
- Figure 3. Early Minoan sites on Pseira Island.
- Figure 4. Middle Minoan sites on Pseira Island.
- Figure 5. Middle Minoan and Late Minoan sites on Pseira Island.
- Figure 6. Late Minoan sites on Pseira Island.
- Figure 7. Sites from the First Millennium B.C. on Pseira Island.
- Figure 8. Early Byzantine sites on Pseira Island.
- Figure 9. Later Medieval and Modern sites on Pseira Island.
- Figure 10. Finds from Sites D 1 to D 8. Scale 1:3.
- Figure 11. Finds from Sites D 8 to D 10. Scale 1:3.
- Figure 12. Finds from Sites D 10 to F 6. Scale 1:3.
- Figure 13. Finds from Site G 2. Scale 1:3.
- Figure 14. Finds from Sites G 2 to G 15. Scale 1:3.
- Figure 15. Finds from Sites G 16 to G 29. Scale 1:3.
- Figure 16. Finds from Sites G 30 to G 42. Scale 1:3 except for no. **G 39.2** (Scale 1:1).
- Figure 17. Finds from Sites G 43 to G 50. Scale 1:3.
- Figure 18. Finds from Sites G 50 to G 56. Scale 1:3.
- Figure 19. Finds from Sites G 56 to H 1. Scale 1:3.
- Figure 20. Finds from Sites H 1 to H 6. Scale 1:3.
- Figure 21. Finds from Sites H 6 to H 17. Scale 1:3.
- Figure 22. Finds from Sites H 17 to H 29. Scale 1:3.
- Figure 23. Finds from Sites H 29 to L 1. Scale 1:3 except for nos. **L 1.2** and **L 1.3** (Scale 1:1).

- Figure 24. Finds from Sites L 1 and L 2. Scale 1:3.
- Figure 25. Finds from Sites L 2 to L 13. Scale 1:3.
- Figure 26. Finds from Sites L 13 to L 27. Scale 1:3 except for no. **L 25.5** (Scale 1:1).
- Figure 27. Finds from Sites L 28 to L 39. Scale 1:3 except for nos. **L 33.2**, **L 33.3**, and **L 36.3** (Scale 1:1).
- Figure 28. Finds from Sites L 39 to L 47. Scale 1:3 except for no. **L 44.3** (Scale 1:1).
- Figure 29. Finds from Sites L 48 to M 8. Scale 1:3 except for nos. **L 48.3** and **L 49.6** (Scale 1:1).
- Figure 30. Finds from Sites M 8 to M 9. Scale 1:3.
- Figure 31. Finds from Site M 9. Scale 1:3 except for nos. **M 9.24** to **M 9.25** and **M 9.35** and **M 9.47** (Scale 1:1).
- Figure 32. Finds from Site M 9. Scale 1:3 except for nos. **M 9.59** and **M 9.60** (Scale 1:1).
- Figure 33. Finds from Sites M 9 to M 19. Scale 1:3.
- Figure 34. Finds from Sites M 19 to M 26. Scale 1:3 except for no. **M 26.3** (Scale 1:1).
- Figure 35. Finds from Sites M 26 to M 33. Scale 1:3.
- Figure 36. Finds from Sites M 34 to M 41. Scale 1:3 except for no. **M 40.2** (Scale 1:1).
- Figure 37. Finds from Sites M 42 to M 50. Scale 1:3 except for nos. **M 43.3**, **M 48.3**, **M 50.2**, and **M 50.3** (Scale 1:1).
- Figure 38. Finds from Sites M 51 to M 68. Scale 1:3 except for no. **M 57.2** (Scale 1:1).
- Figure 39. Finds from Sites M 68 to M 84. Scale 1:3 except for no. **M 78.2** (Scale 1:1).
- Figure 40. Finds from Sites M 84 to P 8. Scale 1:3.
- Figure 41. Finds from Sites P 8 to Q 9. Scale 1:3.
- Figure 42. Finds from Sites Q 10 to Q 18. Scale 1:3 except for no. **Q 14.1** (Scale 1:1).
- Figure 43. Finds from Sites Q 19 to Q 21. Scale 1:3 except for nos. **Q 20.1**, **Q 20.2**, **Q 21.4**, **Q 21.8**, and **Q 21.9** (Scale 1:1).
- Figure 44. Finds from Sites Q 21 to Q 23. Scale 1:3 except for nos. **Q 21.10**, **Q 21.11**, and **Q 22.5** to **Q 22.8** (Scale 1:1).
- Figure 45. Finds from Sites Q 23 to Q 32. Scale 1:3.
- Figure 46. Plan of the dam at site M 9 showing locations of trenches.
- Figure 47. Plan of dam at site M 9 showing bedrock and locations of sections.

---

# List of Plates

- Plate 1A. Site D 1, stone enclosure, showing the best-preserved wall (on the south), looking west.
- Plate 1B. Site D 2, orthostate slabs (part of a threshing floor?).
- Plate 2A. Site D 3, terrace, looking west (1986).
- Plate 2B. Site D 4, showing an olive tree at the upper left of photograph, looking north (1991).
- Plate 3A. Site D 8, west wall of the Byzantine enclosure, looking south-southeast (1988).
- Plate 3B. Site D 8, west wall, looking south-southwest (1988).
- Plate 4A. Site D 8, northeast wall, looking south (1988).
- Plate 4B. Site D 17, terrace wall (1988).
- Plate 5A. Site D 17, distant view looking northeast (1988).
- Plate 5B. Site G 1, terrace front looking north (1987).
- Plate 6A. Site G 2, terrace before excavation, looking west (1987).
- Plate 6B. Site G 2, front of terrace before excavation, looking northwest (1987).
- Plate 7A. Site G 2 after excavation, looking southeast (1987).
- Plate 7B. Site G 2, terrace front after excavation, looking northwest (1990).
- Plate 8A. Terraced area with Sites G 4, G 1, and other sites above stream confluence, looking west (1987).
- Plate 8B. Mass of reddish-brown colored plant cells associated with stone fragments, quartz, and clay. Length of frame 1.3 mm.
- Plate 9A. Clear glass sherd in the center-left part of the photograph mixed within a clayey matrix. Length of frame 1.3 mm.
- Plate 9B. Large glass sherd within clayey matrix. Length of frame 1.3 mm.
- Plate 9C. Volcanic glass fragments within matrix. Length of frame 1.3 mm.
- Plate 10A. Mass of reddish-brown colored plant cells. Length of frame 520 micrometers.
- Plate 10B. Modern root with faecal pellets of mites with glass sherd. Length of frame 1.3 mm.

- Plate 10C. Note the striotuble (the circular concentration of matrix material) in the central part of the photograph. Length of frame 1.3 mm.
- Plate 11A. Same as Plate 10C but in cross-polarized light (XPL). Length of frame 1.3 mm.
- Plate 11B. Aggregated clay mixed with quartz sand and rock fragments. Length of frame 1.3 mm.
- Plate 11C. Decomposed organic matter in voids. Length of frame 1.3 mm.
- Plate 12A. Detailed view showing decomposed organic matter in a large void in the center. Length of frame 520 micrometers.
- Plate 12B. Spongy organic matter within the matrix. Length of frame 520 micrometers.
- Plate 12C. Coarse micro-contrasted particles intimately mixed into the matrix. Length of frame 520 micrometers.
- Plate 13A. Site G 4, terrace adjoining streambed, looking southwest (1987).
- Plate 13B. Site G 7, terrace front looking west (1987).
- Plate 14A. Megali Ammos (Area E) as seen from the sea (1991).
- Plate 14B. Northeast end of the beach at Megali Ammos, showing many blocks of metacarbonate (right and center) and the sandy beach (at left), looking inland (1991).
- Plate 15A. Site H 1, general view of threshing floors, looking southeast (1987).
- Plate 15B. Site H 2 (Building EA) looking south (1991).
- Plate 16A. Site H 3 (well), looking northwest (1991).
- Plate 16B. Entrance to the well, looking west (1991).
- Plate 17A. Site H 4 (Building EB), Room EB 2, northeast corner, partly excavated, looking northwest (1991).
- Plate 17B. Site H 15 (Building EC), looking northwest (1991).
- Plate 18A. Site H 15 (Building EC) (1991).
- Plate 18B. Site H 24, sheepfold, looking northeast (1987).
- Plate 19A. Site H 30, terrace, as seen from uphill, looking southwest (1991).
- Plate 19B. Site H 31 (Building EE), looking northwest (1991).
- Plate 20. Site J 1, sheepfold, looking south (1987).
- Plate 20B. Site L 1, Byzantine farm, general view looking south, from near cistern L 2 (1987).
- Plate 21A. Site L 1, circuit wall on south side, looking southeast (1987).
- Plate 21B. Site L 1, circuit wall, showing the corner to the northwest, toward cisterns, looking northwest (1987).
- Plate 22A. Site L 1, orthostatic slabs near the southeast corner, from interior, looking south (1987).
- Plate 22B. Site L 1, south cistern before clearing, looking southeast (1986).
- Plate 23A. Site L 1, north cistern after clearing, looking north (1991).
- Plate 23B. Site L 1, south cistern after clearing, looking south (1990).

- Plate 24A. Site L 1, sheepfold, looking southwest (1987).
- Plate 24B. Site L 8, threshing floor, looking southwest (1991).
- Plate 25A. Site M 1, Katsouni Peninsula, where the main part of the Minoan town is located, as seen from the sea looking northeast.
- Plate 25B. Site M 9, south part of dam before excavation, looking south (1988).
- Plate 26. Site M 9, looking south along dam, after excavation (1990).
- Plate 27A. Site M 9, front of dam after excavation, looking southwest (1990).
- Plate 27B. Site M 9, debris at front of dam, after excavation, looking southwest (1990).
- Plate 28. Site M 9, after excavation, looking northeast along the dam (1990).
- Plate 29. Site M 9, uphill side of the dam (1990).
- Plate 30. Site M 9, cover slabs of dam at south end, looking north (1990).
- Plate 30B. Site M 9, cover slabs at south end of dam, looking northeast (1990).
- Plate 31A. Site M 9, silt behind dam (top of Excavation Units M 9-13-3 and M 9-10-2), looking southeast (1990).
- Plate 31B. Site M 9, south part of dam after excavation, looking south (1990).
- Plate 32A. Site M 9, silt behind dam (top of Excavation Units M 9-13-3 and M 9-10-2), looking south (1990).
- Plate 32B. Site M 9, lowest part of Minoan silt, looking southwest, showing position of micromorphology samples in Unit M 9-10, above bed of stream (1990).
- Plate 33A. Site M 9, south part of dam after excavation, looking southwest (1990).
- Plate 33B. Site M 9, central part of dam, showing trench M 9-13 after excavation, looking east.
- Plate 34A. Site M 9, junction of north end of dam with terrace wall (trench M 9-6, Unit M 9-6-2), looking northeast (1990).
- Plate 34B. Site M 9, core of dam in north part, after partial excavation of M 9-4-4, looking north (1989).
- Plate 35A. Site M 10, general view looking west (1988).
- Plate 35B. Site M 10, orthostatic slabs in northwest and southwest walls, looking north (1988).
- Plate 36A. M 29, dam after excavation, looking north-northeast (1989).
- Plate 36B. Site M 29, preserved part of front of dam after excavation, looking north (1989).
- Plate 37A. Site M 29, west part of dam after excavation, showing remaining core of dam, looking southwest (1989).
- Plate 37B. Site M 29, west part of dam after excavation, showing remaining core of dam, looking west (1989).
- Plate 38A. Site M 58 (Building FA), megalithic wall at corner, looking north (1991).
- Plate 38B. Site M 92, terrace front looking south (1988).
- Plate 39A. Site Q 2, stone hut, looking southeast (1987).

Plate 39B. Site Q 3, threshing floor, showing slabs angled outward at ca. 45° looking northwest.

Plate 40A. Site Q 21, terrace front before excavation, looking west (1988).

Plate 40B. Dusty void coatings (plane-polarized light). Width of field 1.3 mm.

Plate 41A. Coated voids (cross-polarized light). Width of field 1.3 mm.

Plate 41B. Coated voids (plane-polarized light). Width of field 1.3 mm.

Plate 42A. Voids (cross-polarized light). Width of field 1.3 mm.

Plate 42B. Ooids (plane-polarized light). Width of field 1.3 mm.

Plate 43A. Plaster-like fragment (plane-polarized light). Width of field 1.3 mm.

Plate 43B. Plaster-like fragment (cross-polarized light). Width of field 1.3 mm.

Plate 44. Site Q 23. Walled entrance of cave, looking southwest (1990).

---

# Preface

The information presented in this volume includes the main results of the intensive surface survey undertaken as a part of the collaboration between Costis Davaras and Philip Betancourt to investigate Pseira Island. It has shown that the residents of Pseira used the resources of their small homeland in a very thorough way. They used the land for intensive agriculture and animal husbandry, quarried bedrock formations to obtain stone for building purposes, dammed up ravines to assist with water management, cut local wood for fuel, collected fish and other marine life for food, and used their small, protected harbor for seafaring. Most of the aspects of the interaction between the human residents of the island and their natural environment are addressed in one way or another by the work of the survey. The survey has discovered a large amount of evidence for the reconstruction of the history of the tiny island, and this new information helps us to better understand its history.

The Pseira Survey was conducted over a period of several years, in the same seasons as the excavation of the settlement, so that the two parts of the project could complement one another, and staff could be shared between the two classes of investigations. The methodology used for the surface survey recorded all locations with material, collected all sherds and other artifacts that were observed, and retained all material for future study. Selected survey locations were excavated to contribute additional information. This methodology was very time-intensive, but the authors are satisfied that the results, which represent one of the closest views ever attempted for a Minoan landscape, justify the effort; many new conclusions emerge from this study.

Philip P. Betancourt

---

# Abbreviations

The following abbreviations are used in the reporting of the basic data from individual sites (Chapter 2):

3. *Ht A.S.L.:*  
A.S.L., above sea level
4. *Site type:*  
ACO, artifact collection  
TER, terrace(s)
5. *Rock type:*  
CAL, calcrete  
CAS, calcareous sandstone  
LIM, limestone  
MET, metacarbonate  
PHY, phyllite
6. *Soil type:*  
BML, brown Mediterranean lithosols  
CAL, calcrete  
CAS, calcareous sandstone  
CLI, calcareous lithosols  
COL, colluvium  
ELBM, extreme lithosolic brown Mediterranean  
ELRM, extreme lithosolic red Mediterranean  
RML, red Mediterranean lithosols
7. *Vegetation:*  
DENSE, heavy cover  
LIGHT, light cover
8. *Surface visibility:*  
EXC, excellent  
GOOD, good  
MOD, moderate  
POOR, poor  
VPOOR, very poor
10. *Structures:*  
TER, terrace(s)
11. *Pottery summary:*  
VTHICK, very large amount, 1 sherd or more per 10 sq m  
THICK, large amount, 1 sherd per 10–24 sq m  
NORM, normal/average amount, 1 sherd per 25–74 sq m  
SPARSE, small amount, 1 sherd per 75–199 sq m  
VSPARSE, very small amount, 1 sherd or less per 200 sq m