

Cambridge University Press

978-0-521-10390-9 - An Island Polity: The Archaeology of Exploitation in Melos

Edited by Colin Renfrew and Malcolm Wagstaff

Frontmatter

[More information](#)

AN ISLAND POLITY

CONTRIBUTORS

Siv Augustson

Kultergeografiska Institutionen, University of Stockholm

John F. Cherry

Faculty of Classics, University of Cambridge

M.E. Cosgrove

Department of Geology, University of Southampton

Donald Davidson

Department of Geography, University of Strathclyde

Clive Gamble

Department of Archaeology, University of Southampton

F. Hodson

Department of Geology, University of Southampton

Colin Renfrew

Department of Archaeology, University of Southampton

Jane M. Renfrew

Department of Archaeology, University of Southampton

Peter Shelford

Department of Geology, University of Southampton

Brian A. Sparkes

Department of Classics, University of Southampton

Catriona Tasker

Department of Geography, University of Strathclyde

Robin Torrence

Department of Prehistory and Archaeology, University of Sheffield

S.E. Warren

Postgraduate School of Physics, University of Bradford

Malcolm Wagstaff

Department of Geography, University of Southampton

Todd Whitelaw

St John's College, Cambridge

Cambridge University Press

978-0-521-10390-9 - An Island Polity: The Archaeology of Exploitation in Melos

Edited by Colin Renfrew and Malcolm Wagstaff

Frontmatter

[More information](#)

AN ISLAND POLITY

The archaeology of exploitation in Melos

Edited by COLIN RENFREW and MALCOLM WAGSTAFF



CAMBRIDGE UNIVERSITY PRESS

CAMBRIDGE
LONDON NEW YORK NEW ROCHELLE
MELBOURNE SYDNEY

Cambridge University Press

978-0-521-10390-9 - An Island Polity: The Archaeology of Exploitation in Melos

Edited by Colin Renfrew and Malcolm Wagstaff

Frontmatter

[More information](#)

CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, Delhi

Cambridge University Press

The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org

Information on this title: www.cambridge.org/9780521103909

© Cambridge University Press 1982

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 1982

This digitally printed version 2009

A catalogue record for this publication is available from the British Library

Library of Congress Catalogue Card Number: 81-7683

ISBN 978-0-521-23785-7 hardback

ISBN 978-0-521-10390-9 paperback

Cambridge University Press

978-0-521-10390-9 - An Island Polity: The Archaeology of Exploitation in Melos

Edited by Colin Renfrew and Malcolm Wagstaff

Frontmatter

[More information](#)

**To the memory of
DUNCAN MACKENZIE**

pioneer of survey and of stratigraphic excavation in Melos

Cambridge University Press

978-0-521-10390-9 - An Island Polity: The Archaeology of Exploitation in Melos

Edited by Colin Renfrew and Malcolm Wagstaff

Frontmatter

[More information](#)

Athenians: You will not think it degrading to submit to the greatest state when it is making you the moderate proposal of becoming allies who pay tribute but retain their own territory. And when the choice between war and security is offered, you will not be so obstinate as to choose the worse. Those who stand up to their equals, have the right attitude to their superiors, and treat their inferiors with moderation, are most likely to succeed. So, think it over again when you have withdrawn, and keep constantly in your mind that you are discussing your country, the only one you have, and that its future for good or ill depends on this one opportunity for discussion that you have.

Melians: Our opinion, Athenians, is just the same as it was at first. We shall not, in a short moment, surrender the liberty of a city which has been inhabited for seven hundred years.

Thucydides, *Historiae* V.111–12 (tr. Sparkes).

CONTENTS

<i>List of figures</i>	ix
<i>List of plates</i>	xi
<i>List of tables</i>	xii
<i>Acknowledgements</i>	xiv
1 Introduction: an initial perspective	1
Colin Renfrew and Malcolm Wagstaff	
PART I: THE HISTORY OF SOCIETY IN MELOS	9
2 A preliminary definition of site distribution on Melos	10
John F. Cherry	
3 The earliest prehistory of Melos	24
John F. Cherry and Robin Torrence	
4 Bronze age Melos	35
Colin Renfrew	
5 Classical and Roman Melos	45
Brian A. Sparkes	
A note on the topography of the ancient settlement of Melos	53
John F. Cherry and Brian A. Sparkes	
6 Post-Roman Melos	58
Malcolm Wagstaff	
PART II: ENVIRONMENTAL SYSTEM AND CONSTRAINTS	73
7 The geology of Melos	74
Peter Shelford	
8 Geomorphological evolution during the late Holocene	82
Donald Davidson and Catriona Tasker	
9 Island resources and their limitations	95
Malcolm Wagstaff and Clive Gamble	
10 Traditional land use	106
Malcolm Wagstaff and Siv Augustson	
PART III: INTRA-SYSTEMIC RELATIONS	135
11 Settlement and population change	136
Malcolm Wagstaff and John F. Cherry	
12 Early agriculture in Melos	156
Jane M. Renfrew	
13 Animal husbandry, population and urbanisation	161
Clive Gamble	
14 Alternative subsistence strategies	172
Malcolm Wagstaff, Siv Augustson and Clive Gamble	

PART IV: INTER-SYSTEMIC RELATIONS	181
15 The obsidian trade:	
The sources and characterisation of Melian obsidian	182
Peter Shelford, F. Hodson, M.E. Cosgrove, S.E. Warren and Colin Renfrew	
The obsidian quarries and their use	193
Robin Torrence	
16 Prehistoric exchange	222
Colin Renfrew	
17 Production and exchange in the classical and Roman periods	228
Brian A. Sparkes	
18 Post-classical exchange	236
Malcolm Wagstaff	
PART V: INTEGRATION	245
19 Settlement and resources	246
Malcolm Wagstaff and John F. Cherry	
20 Polity and power: interaction, intensification and exploitation	264
Colin Renfrew	
APPENDICES:	
A Register of archaeological sites on Melos	291
John F. Cherry	
B The geology of Melos, Kimolos and Poliagos: the stratigraphy	310
Peter Shelford	
C The Melian Dialogue of Thucydides	319
translated by Brian A. Sparkes	
D Gazetteer of Melian place-names	323
<i>Notes to the plates</i>	326
<i>Classical authors cited</i>	328
<i>Bibliography</i>	329
<i>Index</i>	348

FIGURES

1.1	The Melos island group	2	7.1	Distribution of volcanic rocks in the Aegean region	75
1.2	The Cycladic islands	4	7.2	Geological map of Melos	77
1.3	City-states issuing coinage c. 500 BC	5	7.3	Distribution of deposits representing major geological phases	79
1.4	The hierarchy of spatial systems	6			
1.5	The island ecosystem	7			
1.6	Topographic map of Melos	8			
			8.1	Soils in the Phylakopi basin	83
2.1	Previously known and newly discovered sites on Melos	17	8.2	Location of study areas	84
2.2	Distribution of neolithic sites	19	8.3	Longitudinal profile of the Phylakopi valley fill	85
2.3	Distribution of early bronze age sites	20	8.4	Hillslope profile in the lower Zephyria gorge	87
2.4	Distribution of middle and late bronze age sites	20	8.5	Hillslope transect to the south of Phylakopi	88
2.5	Distribution of geometric and archaic sites	20	8.6	The radiocarbon dated site in the upper Phylakopi valley	89
2.6	Distribution of classical sites	20	8.7	Elements of marine transgression or regression	91
2.7	Distribution of Hellenistic sites	20			
2.8	Distribution of Roman sites	20	9.1	Monthly temperature in Melos	95
2.9	A computer-drawn view of Melos	22	9.2	Monthly precipitation in Melos	95
			9.3	Wind-rose	99
3.1	Obsidian points	26	9.4	Interannual variation in precipitation	100
3.2	Obsidian cores	29	9.5	Slope map of eastern Melos	102
3.3	Obsidian bifaces, slugs and retouched blades	30			
3.4	Miscellaneous chipped and ground stone	32	10.1	Land in cultivation	108
			10.2	Land use in the area of Pollonia	114
4.1	Late Bronze I Mansion	40	10.3	Land use in the area of Vrysidia and Agioi Anargyroi	115
4.2	Linear A tablet fragment	40	10.4	Land use in the area of the main modern settlements	116
4.3	Plan of Phylakopi	42	10.5	Growth of arable area	118
4.4	Important locations in the bronze age Aegean	43	10.6	Theoretical zonation of land use	119
			10.7	Monthly labour input of farmers	121
5.1	Greek dialects in the Aegean region	46	10.8	Notional map of land use c. 1848	129
5.2	Important alliances of the Peloponnesian war	50			
5.3	Plan of the city of Ancient Melos	54	11.1	Aegean islands in the colonisation movement	141
			11.2	Findspots of Greek and Roman inscriptions	144
6.1	The Aegean c. AD 395	59	11.3	Number of 'castles' in the fifteenth century	147
6.2	The Aegean c. AD 900	60	11.4	Sketch plan of Kastro–Plaka	150
6.3	Byzantine churches in Melos	61	11.5	Settlements and monasteries mentioned by Tournefort	151
6.4a	Latin possessions in 1207	62	11.6	Population of the island of Melos, 1848–1971	151
6.4b	Latin possessions c. 1280	62	11.7	Chronology of the settlement pattern of the 1970s	153
6.5	Latin possessions c. 1340	63	11.8	Foundation dates of Melian churches	153
6.6	The state of the Aegean region c. 1480	64	11.9	Sketch plan of Adamas	154
6.7	The state of the Aegean region c. 1572	65			
6.8	Devastation and abandonment in the Aegean	66			
6.9	Sea routes in the middle ages	67			
6.10	Modern administrative arrangements in the Cyclades	70			
6.11	Modern administrative arrangements on Melos	71			

13.1	Changing faunal frequencies from Phylakopi	169	20.9	Peer polity interaction	286
14.1	Traditional ploughs from Melos	173	20.10	Findspots of marble <i>kouroi</i> within the Aegean	288
14.2	Site territory of Phylakopi	176	A.1	Distribution of known archaeological sites	292
14.3	Site territory of Ancient Melos	178	B.1	Diagrammatic representation of spherulite-type structures	311
15.1	Location of obsidian sampling areas	183	B.2	Relationship between Basement Complex and Neogene deposits	313
15.2	Geological sketch map of the Sta Nychia region	184			
15.3	Geological sketch map of the Demenegaki region	184			
15.4	Distribution of Melian obsidian in the Aegean	192			
15.5	Demenegaki; distribution of obsidian sources and density of surface obsidian	198			
15.6	Demenegaki; distribution of archaeological materials	199			
15.7	Sta Nychia; distribution of obsidian sources and density of surface obsidian	200			
15.8	Sta Nychia; distribution of archaeological materials	201			
15.9	Bifaces, blades and cores	206			
15.10	Bifaces from Sta Nychia and Demenegaki	207			
15.11	Macrocores from Sta Nychia and Demenegaki	209			
15.12	Blades	211			
15.13	Cluster dendrogram of activity areas	217			
15.14	Plot of standardised discriminant scores	217			
16.1	Distribution of Cycladic pottery of the later bronze age	225			
16.2	Distribution of Marine Style pottery	226			
18.1	Destinations of Melian trade goods	238			
18.2	Commercial situation in the Aegean in the eighteenth century	240			
18.3	Fluctuations in mineral production	242			
19.1	Central place models	247			
19.2	Effects of scale change on settlement	249			
20.1	Production function, marginal productivity and average productivity	267			
20.2	Production function against population	268			
20.3	Incentive elasticity of labour	269			
20.4	Production: mode I, mode II and mode III	271			
20.5	Production curves for different technologies	272			
20.6	Output of extractive industry per man-hour	274			
20.7	Assessed cities from the Athenian tribute lists	278			
20.8	The Athenian tribute list for 425/424 BC	279			

PLATES

	<i>Title page</i>	Marble disc (Selene?) from Melos (c. 475–450 BC)	
2.1	Roman structure at Tria Pigadia buried in the Younger Fill		21
3.1	Neolithic cores		28
3.2	Neolithic obsidian points and bifaces		28
4.1	Head of marble folded-arm figurine from Phylakopi		37
4.2	The flying-fish fresco from Phylakopi		39
4.3	Late Bronze I vase from Phylakopi		40
4.4	The ‘Lady of Phylakopi’		44
5.1	Geometric krater from Melos		48
5.2	Melian silver <i>stater</i> from Malayer		49
5.3	Melian silver <i>stater</i> from Melos		49
5.4	Marble Aphrodite from Melos		52
5.5	Marble Poseidon from Melos		52
5.6	Balloon photograph of Ancient Melos		55
10.1	Mount Prophitis Ilias in western Melos		109
10.2	Threshing with <i>volosyro</i> near Trypiti		120
15.1	The obsidian quarry at Sta Nychia		194
15.2	Evidence of ancient quarrying at Demenegaki		195
16.1	Middle Cycladic jug from Phylakopi		224
16.2	Bird jug from Phylakopi		224
16.3	Fragment of Marine Style jug from Phylakopi		226
17.1	White limestone tabloid seal from Melos		229
17.2	‘Island gem’, impression of green steatite lentoid		229
17.3	‘Island gem’, white steatite amygdaloid		230
17.4	Gold rosette from Melos		230
17.5	Gold earring from Melos		231
17.6	‘Melian’ amphora from Melos		231
17.7	‘Melian relief’, from Melos		232
19.1	Late Bronze I fortification wall at Phylakopi		261
19.2	Classical fortification wall at Ancient Melos		262
20.1	The site of Phylakopi from the south		282
20.2	The lower acropolis of Ancient Melos		283
20.3	The <i>kouros</i> from Melos		287

TABLES

1.1	Simplified sequence for the human exploitation of Melos in prehistoric and historic times	3	10.17	Sheep and goats, 1971	122
2.1	Site totals by chronological period before and after 1976 survey	13	10.18	Distance (in hours) ranged with sheep and goats	123
3.1	Occurrences of chipped stone at selected prehistoric sites on Melos	25	10.19	Labour coefficients, Greece 1955 and Melos, 1974: livestock	123
3.2	A typological chipped stone sequence for early prehistoric Melos	27	10.20	Livestock and production, 1973	123
4.1	The bronze age of Melos	36	10.21	Agricultural production of Melos, 1971	124
9.1	Pollen zonation from Lake Copais	96	10.22	Seed required for the areas cropped in 1971	125
9.2	Water requirements and availability	101	10.23	Production available for consumption and food requirements	125
9.3	The relative importance of sheep and goats in the Cyclades and some other areas of semi-arid Greece	101	10.24	Energy requirements and consumption	125
9.4	Work-days per stremma and per head, 1955	103	10.25	Total Melian production, 1848	126
9.5	Birds and marine creatures available in the Archipelago	103	10.26	Melian exports, 1848	127
10.1	Division of the cropped area of Melos between its communes, 1971	107	10.27	Agricultural exports from Melos, c. 1806	127
10.2	Farm holdings in Melos, 1961–71	107	10.28	Production and estimated consumption, c. 1848	128
10.3	Variations in the size of area cropped in 1974	109	10.29	Comparative consumption rates for cereals	129
10.4	Fragmentation of farm units in Melos, 1975	110	10.30	Sowing densities and cultivated area, c. 1848	129
10.5	Time taken by farmers in travelling to the most distant part of their holdings	110	11.1	Site and population estimates for third-millennium BC Melos	137
10.6	Distance considered worth travelling to cultivate a plot of land	110	11.2	Settlement–cemetery ‘pairs’ in third-millennium BC Melos	138
10.7	Crop areas, 1971	111	11.3	Data for demographic growth in geometric Attica and Melos	143
10.8	Fruit trees, 1971	111	11.4	Estimates of the population of Melos	148
10.9	Crop combinations used by full-time farmers, 1974	112	11.5	Distribution of secondary and tertiary activities, 1974	155
10.10	Size of cropped area and cropping pattern	113	12.1	Palaeoethnobotanical evidence for prehistoric crops in Greece	159
10.11	Type of farmer and pattern of land use	113	13.1	Resources available from domestic animals	162
10.12	Labour coefficients, Greece 1955 and Melos 1974: crops	117	13.2	The yields (kg) from spatially extensive and from localised systems of keeping sheep	163
10.13	Mean number of man-days per str per year saved, per crop, by mechanisation	119	13.3	Phylakopi: occurrence of species by phase	166
10.14	Number of draught animals in Melos (1961–71) and number of tractors (1971)	119	13.4	Mean weight (g) of individual identified fragments for the main domestic species in each phase	166
10.15	Amount of land under major crops (1971) and the labour required	119	13.5	Percentage representation of main domestic species as measured by number of identified fragments in each phase	166
10.16	Livestock: minor types	120	13.6	Average weight (g) of individual unidentifiable fragments by trench	166
			13.7	Ratio of ovicaprid bone to teeth by trench and phase	167

TABLES

xiii

13.8	Percentage of ovicaprid skeletal elements by phase	167	15.8	Sta Nychia obsidian sources	202
13.9	Percentage representation of main domestic species as measured by weight (g) of identified fragments in each phase	168	15.9	Demenegaki obsidian sources	204
13.10	Numbers of identified specimens of main domestic species by trench and phase	169	15.10	Macrocore descriptive statistics	210
13.11	Weight (g) of identified specimens of main domestic species by trench and phase	169	15.11	Quarry flakes, descriptive statistics	212
			15.12	Quarry flakes, coefficient of variation	214
14.1	Crop data for the Cyclades, 1916	174	15.13	Quarry flakes, descriptive statistics for weight	214
14.2	Supportive capacity of 1 ha of land in the Cyclades, 1916, using calorific content	174	15.14	Complete flakes, descriptive statistics	215
14.3	Amount of land required to support 1 person at the consumption levels found in Crete, 1948	174	15.15	Complete flakes, coefficient of variation	216
14.4	Land use in the Phylakopi site territory	175	15.16	Macrocore platform type	217
14.5	Amount of land required to support the estimated populations of Phylakopi in the second millennium BC at the consumption levels found in Crete, 1948	177	15.17	Activity areas	218
14.6	Adjusted labour coefficients for Melos	177	18.1	Agricultural exports from Melos and the Morea, c. 1805–6	237
14.7	Agricultural labour (men) required to support Phylakopi	177	18.2	Melian exports, 1848	239
14.8	Agricultural labour (men) required to support Ancient Melos	179	19.1	State of the system	252
14.9	Supportive capacity of different types of milk, Melos	180	19.2	Change in the system	253
15.1	Analytical results of specimens of obsidian from Sta Nychia (XRF)	187	20.1	Political status of Melos through time	265
15.2	Analytical results of specimens of obsidian from Demenegaki (XRF)	188	20.2	Comparison of the tribute assessments for the Cycladic islands of 425/424 BC with recent population and land use figures	280
15.3	Analytical results of specimens of obsidian from Sta Nychia and Demenegaki (NAA)	188	20.3	Tribute and exports of Melos and the islands at different periods	281
15.4	Coefficients of variation for the chemical constituents of obsidians from Sta Nychia and Demenegaki	189			
15.5	Values of Student's <i>t</i> indicating the significance of the difference in the mean values of some constituents of obsidians from Sta Nychia and Demenegaki	189			
15.6	The assignment to the Sta Nychia (Adamas) source (A) and to the Demenegaki source (D) of obsidians from various archaeological contexts by NAA	191			
15.7	Melian quarry sites: archaeological expectations derived from the commercial trading model	196			

Cambridge University Press

978-0-521-10390-9 - An Island Polity: The Archaeology of Exploitation in Melos

Edited by Colin Renfrew and Malcolm Wagstaff

Frontmatter

[More information](#)

ACKNOWLEDGEMENTS

The environmental project which formed the basis for this book was interdisciplinary in character and developed out of inter-departmental co-operation in the University of Southampton; indeed, it could only have taken shape in such a co-operative environment. The project as a whole was financed by a generous grant from the Committee for Advanced Studies of the University.

The excavations at Phylakopi in Melos were undertaken for the British School of Archaeology at Athens, and authorised by the Greek Archaeological Service, as was the site survey reported in chapter 2. The representative of the Greek Archaeological Service on this survey was Miss C. Preka.

We are pleased to acknowledge the financial assistance provided: by the Social Sciences Research Council and the Sir Frederick Soddy Trust to Malcolm Wagstaff; by the British Academy to John Cherry, Donald Davidson and Clive Gamble; by the Department of Education and Science and Southampton University's Forsey Travel Fund to John Cherry; and by the Research Fund of Sheffield University to John Cherry and Robin Torrence.

The work of Malcolm Wagstaff and Siv Augustson (chapter 10) was aided by Dr John Bintliff who provided the large-scale topographic maps on which they based the sequence of sheets used in the field. Field boundaries were drawn from wartime photographs in the aerial photograph archive at Keele University to which access was granted by the Ministry of Defence. Thanks are also due to the Agricultural Bank of Greece, and to the National Statistical Service of Greece for providing the data from which to construct the sample of Melian farmers surveyed by questionnaire. D. Martinengas, A. Penna, Mrs V. Petridou-Penna, Mrs S. Stamouli and L. Tzellas helped to carry out the survey and Kelvyn Jones aided in processing the results.

Robin Torrence was assisted by Matthew Freedman as field assistant in 1975; Alec Daykin helped with surveying. John Cherry was assisted in the arduous fieldwork of 1976 by a number of collaborators including Dr Brian Sparkes, Mr Christopher Dalwood, Mr Richard Doughty, Mr Jörg Lahde, Miss Hilary Major, Mr Sebastian Rahtz, and Mr Robert Williams. Welcome and expert help in the identification of survey material was received from a number of scholars, both on Melos and in Athens, including Professor Nicholas Coldstream, Dr Oliver Dickinson, Dr Robert K. Evans, Dr Elizabeth French, The Hon. Mrs Vronwy Hankey, Dr Chris Mee and Penny Mountjoy.

In revising chapters for publication the authors and editors have benefited from a considerable amount of mutual advice and criticism, notably from John Cherry, Clive Gamble and Robin Torrence, and from much productive discussion with Todd Whitelaw. Valuable comments on several chapters were made by the late Jane K. Sallade.

In preparing this book for publication the cartographic work was undertaken by the Cartographic Unit of the University of Southampton under the supervision of Mr A.S. Burn. Cartographic assistance to Peter Shelford (chapter 7) was by Mrs A. Dunkley. Sarah Colley executed the obsidian artefact drawings (chapter 15); Nick Bradford photographed the artefacts and the photographs of the quarries are by David Leigh and Clive Tilley. We are grateful for the secretarial assistance of Mrs S. Stephenson and Mrs A. Elborn.

Todd Whitelaw played a major editorial role in assembling the volume, and preparing it in detail for publication.