



THE UNIVERSITY *of* EDINBURGH

This thesis has been submitted in fulfilment of the requirements for a postgraduate degree (e.g. PhD, MPhil, DClinPsychol) at the University of Edinburgh. Please note the following terms and conditions of use:

This work is protected by copyright and other intellectual property rights, which are retained by the thesis author, unless otherwise stated.

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge.

This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the author.

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author.

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given.

**The Necropolis of Kissonerga-
Ammoudhia: Techniques of Ceramic
Production in Early-Middle Bronze Age
Western Cyprus**

Lisa Graham

**Doctor of Philosophy
The University of Edinburgh,
2013**

Declaration

This is to certify that that the work contained within has been composed by me and is entirely my own work. No part of this thesis has been submitted for any other degree or professional qualification.

Signed:

Word Count: 85, 541

ABSTRACT

The Early-Middle Bronze Age in Cyprus (c. 2300-1650 BCE) is still poorly understood, in spite of Cyprus's strategic importance in the Mediterranean and the revolutionary cultural transformations that occurred at the end of this period. The west coast in particular, has remained a relatively blank spot on the map of the Eastern Mediterranean, where excavations have been entirely lacking until very recently. In the absence of excavated sites, a great deal of information regarding western Cypriot society from this period must be derived from pottery.

This thesis aims to understand the nature of the ceramic material culture in the west through an analysis of the ceramics from the cemetery of Kissonerga-*Ammoudhia*, at present the largest corpus of western Cypriot funerary pottery from this period. The entire excavated assemblage is presented and a multidisciplinary approach to the ceramics is applied. A traditional typological study was conducted on the entire assemblage, and a microscopic petrographic analysis applied to a sample in order to identify the manufacturing techniques used by the potters.

This corpus of information can be used to test the nature and validity of evidence for regional identity. Although there appears to be a broadly similar culture with the rest of the island, the ceramics from *Ammoudhia* nevertheless show significant differences to those from contemporary sites. This site contains a very large amount of Drab Polished ware; little known elsewhere, this poorly understood, but potentially vital type of pottery appears to be a western local tradition. Although originally dated to the late Middle Bronze Age, this thesis provides evidence for a considerably earlier date in western Cyprus. It also argues for this being a very long lived ware with particularly sophisticated manufacturing techniques, and is one of the technological precursors to Base Ring ware, the ubiquitous pottery vessels of the Late Bronze Age.

This thesis places western Cyprus into an island-wide context, allowing for meaningful comparisons with contemporaneous sites and lays the foundations for a clearer understanding of the chronological and technological sequence, fitting into our understanding of the precursors to secondary state formation, in particular: funerary and ritual practices, trade and exchange and technological advances.

This corpus from the Kissonerga *Ammoudhia* cemetery represents the first ever study of a large body of information from the Early-Middle Bronze Age of Western Cyprus. As such it can provide both the framework for further analyses, as well as the first glimpses of the unique culture of this area, and an understanding of how this region fits into the wider Bronze Age Mediterranean world.

Contents

List of Text Figures	xii
List of Digital Figures	xxi
List of Tables	xxii
Acknowledgements	xxiii
Glossary	xxvi
Chapter 1: Introduction	1
Aims and Objectives	3
Analysis and interpretation	5
Chapter Summary	8
Chapter 2: A Background to the Cypriot Bronze Age: Areas of Debate	12
Establishing a Chronology	12
The Philia Debate	21
The Early and Middle Bronze Age (EC-MC)	24
The MC-LC Transition	26
Into The Late Bronze Age	27
Debating the EC-MC	29
Recognising Regionalism	29
Settlement	33
Economy	35
Death and Burial	42

EC-MC Ceramics	50
Classification Issues	51
Stylistic Analyses	54
Ceramic Technology	57
<i>Petrographic Analyses</i>	59
The Geological Background of Cyprus	67
Drab Polished ware: A case study	73
Chapter 3: Methods and Materials	76
Introduction to Kissonerga-Ammoudhia	76
Previous Research of Kissonerga-Ammoudhia	79
Ceramic Methodologies	81
Conservation	81
Recording	81
Creating a Typology	87
Creating a Relative Chronology	90
Chronological Markers	91
<i>RPSC</i>	91
<i>RPI</i>	91
<i>Disc lugs</i>	91
<i>Conical bowls</i>	92
<i>Ring base vessels</i>	92
Wishbone handles	93
<i>Elongated tablet lugs with vertical handles</i>	93
Comparisons	94

Petrographic Analysis	95
Experimental Clay Sampling	96
Non-Ceramic Evidence	97
Excavation Recordings	97
Non-Ceramic Grave Goods	98
Human Remains and Absolute Dating	99
Chapter 4: The Kissonerga-Ammoudhia Data	100
Kissonerga-Ammoudhia Ceramics: Wares	101
Identified Fabrics	101
Drab Polished ware	104
<i>DP (1)</i>	105
<i>DP (2)</i>	106
<i>DP (3)</i>	108
<i>DP (Intact)</i>	109
Red Polished ware	110
<i>RP (4)</i>	111
<i>RP (5)</i>	112
<i>RP (6)</i>	113
<i>RP (7)</i>	114
<i>RPSC (10)</i>	115
<i>RP Black Topped</i>	118
<i>RPIII Imported</i>	119
<i>RPIV</i>	120
<i>RPX</i>	120
<i>RP (Intact)</i>	121
Cooking Wares	121

CW (8)	121
Cooking Pots	122
<i>Cooking pot (6)</i>	123
<i>Cooking pot (9)</i>	124
Unidentifiable Wares	125
Vessel Shapes	125
Jugs and Juglets	128
<i>Large jugs</i>	129
<i>Medium jugs</i>	133
<i>Jugs with cutaway spouts</i>	134
<i>Jugs with round spouts</i>	136
<i>Juglets</i>	137
<i>Juglets with cutaway spouts</i>	139
<i>Juglets with round spouts</i>	139
<i>Juglets with mid-neck handles</i>	141
Flasks	142
Bowls	144
<i>Small bowls</i>	145
<i>Bowls with elongated lugs</i>	146
<i>Bowls with horizontal lug handles</i>	146
<i>Bowls with horn lugs</i>	147
<i>Bowls with vertical loop handles</i>	148
<i>Bowls with horizontal loop handles</i>	149
<i>Bowls with ring bases</i>	150
<i>Bowls with wishbone handles</i>	152
<i>Bowls with elongated tablet lugs</i>	152
<i>Zoomorphic bowls</i>	154

<i>Unclassified small bowls</i>	155
<i>Conical bowls</i>	156
<i>Deep conical bowls</i>	157
<i>Large bowls</i>	158
Cups	158
Amphorae	159
Pithoi/Storage Jars	160
Jars	162
<i>Tubular spouted jars</i>	163
<i>Large jars</i>	165
Cooking Pans	167
Cooking Pots	168
<i>One-handled cooking pots</i>	170
<i>Tripod cooking pots</i>	170
Composite Vessels	171
Decoration	172
Relief Decoration	174
Incised and Impressed Decoration	175
Spindle Whorls	176
Non-Ceramic Grave Goods	181
Tomb Chronology	189
Absolute Chronology	189
Tomb Descriptions and Relative Tomb Chronology	191
Tomb 1 (ECI-II)	192
Tomb 2 (ECIII-MCIII)	196
Tomb 3 (ECI-MCI)	199

Tomb 4 (ECI-ECIII)	202
Tomb 5 (ECIII-MCII?)	205
Tomb 6 (ECI-MCI)	207
Tomb 7 (EC-MC)	215
Tomb 8 (ECIII-MCI)	217
Tomb 9 (ECIII-II)	220
Tomb 10 (ECI-MCII)	224
Tomb 11 (EC-MC)	227
Tomb 12 (EC-MCI)	227
Tomb 13 (ECIII-MCIII)	230
Tomb 14 (EC-MC)	234
Tomb 15 (ECIII-MCIII)	234
Tomb 16 (ECIII-MCIII)	238
Tomb 17 (EC-MC)	242
Tomb 18 (ECI-MCI)	245
Tomb 19 (ECIII-MCIII)	248
Tomb 20 (ECIII-MC)	253
Tomb 21 (EC-MC)	256
Tomb 38 (EC-MC)	257
Tomb 39 (ECIII-MCII)	257
Tombs 40A and B	261
Tomb 40A (ECIII-MCII)	262
Tomb 40B (ECIII-MCII)	266
Tomb 41 (ECI-MCI)	267
Tomb 42 (ECI-MCI)	270
Tomb 43 (ECI-III)	275
Tomb Overview	279

The Kissonerga-<i>Ammoudhia</i> Petrological Data	285
Fabric I	287
Fabric II	288
Fabric III	290
Fabric IV	291
Fabric V	292
Fabric VI	293
Fabric VII	294
Fabric VIII	295
Fabric IX	296
Clay Sampling Experiment	298
Chapter 5: Discussion	302
Contextualising Kissonerga-<i>Ammoudhia</i>	
Establishing a Chronology	302
Towards an Absolute Chronology	302
A Relative Chronology	305
The Kissonerga-<i>Ammoudhia</i> Material Culture	310
The Ceramic Character	310
Typological Evidence	311
<i>Wares</i>	312
<i>Forms</i>	314
Inter-site Comparisons	316
Petrographic Evidence	320
<i>Clay types and sources</i>	320
<i>Preparation</i>	322
<i>Firing</i>	326

<i>Surface treatment</i>	328
Comparing the Typological and Petrographic Classifications	329
Inter-site Petrographic Comparisons	331
Spindle Whorls	334
Non-Ceramic Grave Goods	337
Chapter 6: Discussion: Beyond <i>Ammoudhia</i>	339
Kissonerga-<i>Ammoudhia</i> in a Mortuary Context	339
Tomb Architecture	339
Evidence for Mortuary Ritual at Kissonerga- <i>Ammoudhia</i>	344
<i>Ritualistic behaviour</i>	344
<i>Tomb ceramics</i>	347
Inter-site Comparisons	350
Social/Cultural Evidence	353
Identifying the Individual	353
The <i>Ammoudhia</i> Social Trajectory	357
Chapter 7: Conclusions	363
Contextualising Kissonerga-<i>Ammoudhia</i>	364
Interpreting Kissonerga-<i>Ammoudhia</i>	367
Recommendations for Future Research	370
Further Research and Refinement of Kissonerga Ceramics	370
Investigation of the Chrysochou Bay Region	372
Continuation of Scientific Analyses	372

Understanding Kissonerga in the Late 3 rd Millennium BCE	373
Final Remarks	374
Bibliography	375
Appendix: Digital File	
Appendix 1: Catalogue	
Appendix 2: Excavated Sites and Surveys	
Appendix 3: EC-MC Ceramic Wares	
Appendix 4: Pottery Recording	
Kissonerga- <i>Ammoudhia</i> Fabrics	
Pottery Recording Criteria Used in this Thesis	
Appendix 5: Petrographic Analysis	
Catalogue of Sherds Used in Petrographic Analysis	
Detailed Fabric Classification	
Microscopic Description of Clay Samples	
Appendix 6: Radiocarbon Date Report	
Appendix 7: Tombs 20 and 21 Excavation Images	
Appendix 8: Illustrations	
Appendix 9: Photographic Plates	
Appendix 10: Excel Spreadsheet	

Text Figures

2.1	Map of Cyprus showing EC-MC sites mentioned in the text	12
2.2	Map showing Late Bronze Age sites mentioned in the text	28
2.3	Map showing relative proportions of MC wares in different regions	31
2.4	Map of the four geological zones of Cyprus	68
2.5	Simplified geological map of Cyprus	71
2.6	25,000 geological map of western Cyprus	72
3.1	Satellite image of the modern village of Kissonerga	76
3.2	Cadastral map of Kissonerga (1:5000)	77
3.3	The view from Kissonerga- <i>Ammoudhia</i> to the south	77
3.4	The view from Kissonerga- <i>Ammoudhia</i> to the west	77
3.5	The view from the west to Kissonerga- <i>Ammoudhia</i>	78
3.6	The view from the south to Kissonerga- <i>Ammoudhia</i>	78
3.7	Map of probable tomb locations	79
4.1	Incidence of general wares	101
4.2	Incidence of fabric types	102
4.3	DP sub-ware type distribution	104
4.4	DP vessel shape distribution	105
4.5	DP (1) Vessel 17.4	105
4.6	DP (1) distribution of open and closed vessels	105
4.7	DP (1) distribution of diagnostic vessel shapes	106
4.8	DP (2) vessel 16.8	107
4.9	DP (2) distribution of open and closed vessels	107
4.10	DP (2) distribution of diagnostic vessel shapes	108
4.11	DP (3) vessel 8.4	108
4.12	DP (3) distribution of open and closed vessels	108
4.13	DP (3) distribution of diagnostic vessel shapes	109
4.14	DP (Intact) vessel 9.4	109
4.15	DP (Intact) distribution of diagnostic vessel shapes	110
4.16	RP sub-ware type distribution	111
4.17	RP vessel shape distribution	111
4.18	RP (4) vessel 4.7	112
4.19	RP (4) distribution of open and closed vessels	112
4.20	RP (4) distribution of diagnostic vessel shapes	112
4.21	RP (5) vessel 10.8	113
4.22	RP (5) distribution of open and closed vessels	113
4.23	RP (5) distribution of diagnostic vessel shapes	113
4.24	RP (6) vessel 6.30	114
4.25	RP (6) distribution of open and closed vessels	114

4.26	RP (6) distribution of diagnostic vessel shapes	114
4.27	RP (7) vessel 1.4	115
4.28	RP (7) distribution of open and closed vessels	115
4.29	RP (7) distribution of diagnostic vessel shapes	115
4.30	RPSC (10) vessel 6.175-177	116
4.31	RPSC (10) vessel 1.19	116
4.32	RPSC (10) vessel 12.9	117
4.33	RPSC (10) vessel 13.24	117
4.34	RPSC (10) vessel 18.11	117
4.35	RPSC (10) distribution of open and closed vessels	117
4.36	RPSC (10) distribution of diagnostic vessel shapes	118
4.37	RPBT vessel 16.35	119
4.38	RPBT distribution of open and closed vessel shapes	119
4.39	RPIII imported vessel 16.38	120
4.40	RPIV vessel 4.30	120
4.41	RP (Intact) vessel 1.2	121
4.42	CW pan 18.6	122
4.43	CW pan 18.6 (underside)	122
4.44	Cooking pot fabric type distribution	123
4.45	Cooking pot (6) vessel 6.25	124
4.46	Cooking pot (9) vessel 13.13	124
4.47	Incidence of general vessel shapes	126
4.48	Incidence of vessel shapes by general function	126
4.49	Incidence of vessel forms (pie chart)	127
4.50	Incidence of vessel forms (line graph)	127
4.51	Distribution of general jug sizes	128
4.52:	Large jugs, distribution of spout types	130
4.53	Large jugs, distribution of wares to spout types	130
4.54	Large jugs, distribution of spout types to wares	131
4.55	Composite vessel 9.14	132
4.56	Large jug 1.29	132
4.57	Large jug 6.22	132
4.58	Medium jugs, distribution of spout types	133
4.59	Medium jugs, distribution of wares to spout types	133
4.60	Medium jugs, distribution of spout types to wares	134
4.61	Jug 6.2	135
4.62	Jug 7.1	135
4.63	Cutaway spouted jugs, distribution of wares to decorative motifs	136
4.64	Jug 5.1	137

4.65	Jug 40.9	137
4.66	Juglets, distribution of spout types	138
4.67	Juglets, distribution of wares to spout types	138
4.68	Juglets, distribution of spout types to wares	138
4.69	Juglet 16.44	139
4.70	Juglet 16.8	139
4.71	Juglets, distribution of wares to decoration	140
4.72	Juglet 15.6	141
4.73	Juglet 15.8	141
4.74	Juglet 15.9	142
4.75	Juglet 16.14	142
4.76	Flasks, distribution of wares to decorative motifs	143
4.77	Flask 1.14 with disc lugs	144
4.78	Flask 16.16 with cotton-reel lugs	144
4.79	Distribution of general bowl sizes	145
4.80	Distribution of specific bowl shapes to wares	145
4.81	Bowl 1.9	146
4.82	Bowl 6.40	146
4.83	Bowl 8.8	147
4.84	Bowl 4.6	147
4.85	Bowl 6.47	148
4.86	Bowl 16.50	148
4.87	Bowl 6.38	148
4.88	Bowl 19.14	148
4.89	Small bowls with horizontal loop handles, wares	149
4.90	Bowl 13.16	150
4.91	Bowl 2.18	150
4.92	Bowl 16.12	151
4.93	Bowl 2.17	151
4.94	Bowl 16.24	151
4.95	Bowl 10.4	151
4.96	Bowl 16.4	152
4.97	Bowl 16.5	152
4.98	Bowl 6.48	153
4.99	Bowl 13.9	153
4.100	Pedestalled bowl 19.8	154
4.101	Zoomorphic bowl 16.21	155
4.102	Zoomorphic handle/lug 16.74	155
4.103	Conical bowl 1.22	156
4.104	Conical bowl 6.45	156

4.105	Conical bowl 6.46	157
4.106	Deep conical bowl fragments 6.175-180	157
4.107	Deep conical bowl fragments 6.175-180	157
4.108	Bowl 10.7	158
4.109	Bowl 6.28	158
4.110	Cup 3.9	159
4.111	Amphorae, distribution of wares to decoration	160
4.112	Amphora 3.15	160
4.113	Amphora 13.11	160
4.114	Pithoi, distribution of wares to decoration	161
4.115	Pithos 6.27	162
4.116	Pithos 6.31	162
4.117	Jars, distribution of wares to shapes	163
4.118	Jars, distribution of shapes to wares	163
4.119	Jar 1.10	164
4.120	Jar 1.23	164
4.121	Jar 8.1	165
4.122	Jar 6.30	166
4.123	Jar 2.14	166
4.124	Cooking pan 4.8	168
4.125	Cooking pan 6.26	168
4.126	Cooking pot 18.9	169
4.127	Cooking pots, distribution of bases to fabrics	169
4.128	Cooking pot 8.14	171
4.129	Cooking pot 16.20	171
4.130	Cooking pot 16.28	171
4.131	Composite vessel 9.14-16	172
4.132	Composite juglet 16.26	172
4.133	Basic ratio of decorated and undecorated vessels	173
4.134	Percentile of decorated vessels by ware	173
4.135	Percentile of decorated vessels by shape	174
4.136	Spindle whorls, distribution of wares to decoration	178
4.137	Spindle whorl 2.3	179
4.138	Spindle whorl 6.42	179
4.139	Spindle Whorl 43.9	179
4.140	Spindle whorl 18.7	179
4.141	Spindle whorl 6.19	180
4.142	Spindle whorl 19.17	180
4.143	Metal object 16.130	181
4.144	Metal blade 17.14	181

4.145	Metal knife 18.32	182
4.146	Metal object 13.5	183
4.147	Metal object 15.45	183
4.148	Whetstone 18.31	184
4.149	Numbers of small beads found in tombs	185
4.150	Beads and spacers from Tomb 20	186
4.151	Macehead 19.91	187
4.152	Picrolite pendant 9.59	188
4.153	Picrolite pendant 6.189	188
4.154	Tomb 6 manuports	188
4.155	Sample 55356, Tomb 1 Marine calibrated graph	190
4.156	Sample 55360, Tomb 1 Marine calibrated graph	190
4.157	Sample 55361, Tomb 10 Marine calibrated graph	190
4.158	Sample 55362, Tomb 16 Marine calibrated graph	190
4.159	Tomb 1, floor sketch	192
4.160	Tomb 1, general ware distribution	193
4.161	Tomb 1, general shape distribution	193
4.162	Tomb 1, distribution of wares to shapes	194
4.163	Tomb 1, distribution of shapes to wares	194
4.164	Juglet 1.1	195
4.165	Tomb 2, general ware distribution	196
4.166	Tomb 2, general shape distribution	196
4.167	Tomb 2, distribution of wares to shapes	197
4.168	Tomb 2, distribution of shapes to wares	198
4.169	Tubular spouted jar fragment 2.15	198
4.170	Tomb 3, general ware distribution	199
4.171	Tomb 3, general shape distribution	199
4.172	Tomb 3, distribution of wares to shapes	200
4.173	Tomb 3, distribution of shapes to wares	201
4.174	Large jar 3.20	201
4.175	Juglet 3.4	201
4.176	Flask 3.5	201
4.177	Tomb 4, general ware distribution	203
4.178	Tomb 4, general shape distribution	203
4.179	Tomb 4, distribution of wares to shapes	203
4.180	Tomb 4, distribution of shapes to wares	204
4.181	Flask 4.1	204
4.182	Flask 4.5	204
4.183	Tomb 5, general ware distribution	205
4.184	Tomb 5, general shape distribution	205

4.185	Tomb 5, distribution of wares to shapes	206
4.186	Tomb 5, distribution of shapes to wares	206
4.187	Juglet 5.2	207
4.188	Jug 5.1	207
4.189	Tomb 6, sketch of the interior, including entrance and shelf	208
4.190	Jug 6.21	208
4.191	Handle 6.168	208
4.192	Jug 6.164	208
4.193	Tomb 6, general ware distribution	210
4.194	Tomb 6, general shape distribution	210
4.195	Tomb 6, distribution of wares to shapes	210
4.196	Tomb 6, distribution of shapes to wares`	211
4.197	Bowl 6.37	212
4.198	Bowl 6.68	212
4.199	Flask 6.20	212
4.200	Flask 6.11	212
4.201	Amphora 6.43	213
4.202	Amphora 6.44	213
4.203	Unusual RPSC jug 6.162	214
4.204	Tomb 7, general ware distribution	215
4.205	Tomb 7, general shape distribution	215
4.206	Tomb 7, distribution of wares to shapes	216
4.207	Tomb 7, distribution of shapes to wares	216
4.208	Jug 7.1	217
4.209	Spout 7.8	217
4.210	Tomb 8, floor sketch	217
4.211	Tomb 8, general ware distribution	218
4.212	Tomb 8, general shape distribution	218
4.213	Tomb 8, distribution of wares to shapes	219
4.214	Tomb 8, distribution of shapes to wares	219
4.215	Juglet 8.10	220
4.216	Juglet 8.9	220
4.217	Tomb 9, general ware distribution	221
4.218	Tomb 9, general shape distribution	221
4.219	Tomb 9, distribution of wares to shapes	222
4.220	Tomb 9, distribution of shapes to wares	222
4.221	Juglet 9.3	223
4.222	Juglet 9.6	223
4.223	Tomb 10, floor and section sketch	224
4.224	Tomb 10, general ware distribution	224

4.225	Tomb 10, general shape distribution	224
4.226	Tomb 10, distribution of wares to shapes	225
4.227	Tomb 10, distribution of shapes to wares	226
4.228	Tomb 12, floor sketch	227
4.229	Tomb 12, general ware distribution	228
4.230	Tomb 12, general shape distribution	228
4.231	Tomb 12, distribution of wares to shapes	228
4.232	Tomb 12, distribution of shapes to wares	229
4.233	Jug 12.1	229
4.234	Jug 12.2	229
4.235	Amphora 12.4	229
4.236	Amphora 12.7	229
4.237	Tomb 13, floor and section sketch	231
4.238	Tomb 13, general ware distribution	231
4.239	Tomb 13, general shape distribution	231
4.240	Tomb 13, distribution of wares to shapes	232
4.241	Tomb 13, distribution of shapes to wares	233
4.242	Lug 13.53	233
4.243	Tomb 15, general ware distribution	235
4.244	Tomb 15, general shape distribution	235
4.245	Tomb 15, distribution of wares to shapes	236
4.246	Tomb 15, distribution of shapes to wares	236
4.247	Juglet 15.4	237
4.248	Juglet 15.5	237
4.249	Flask 15.1	237
4.250	Flask 15.10	237
4.251	Tomb 16. General ware distribution	238
4.252	Tomb 16, general shape distribution	238
4.253	Tomb 16, distribution of wares to shapes	239
4.254	Tomb 16, distribution of shapes to wares	240
4.255	Juglet 16.45	241
4.256	Juglet 16.44	241
4.257	Bowl 16.1	241
4.258	Bowl 16.18	241
4.259	Tomb 17, general ware distribution	243
4.260	Tomb 17, general shape distribution	243
4.261	Tomb 17, distribution of wares to shapes	243
4.262	Tomb 17, distribution of shapes to wares	244
4.263	Juglet 17.1	245
4.264	Cooking pot 17.2	245

4.265	Jug spout 7.5	245
4.266	Tomb 18, general ware distribution	245
4.267	Tomb 18, general shape distribution	245
4.268	Tomb 18, distribution of wares to shapes	247
4.269	Tomb 18, distribution of shapes to wares	247
4.270	Bowl 18.3	248
4.271	Jar 18.17	248
4.272	Pithos 18.8	248
4.273	Amphora 18.4	248
4.274	Tomb 19, general ware distribution	249
4.275	Tomb 19, general shape distribution	249
4.276	Tomb 19, distribution of wares to shapes	250
4.277	Tomb 19, distribution of shapes to wares	250
4.278	Flask 19.9	251
4.279	Flask 19.13	251
4.280	Amphora 19.29	252
4.281	Amphora 19.75	252
4.282	Juglet 19.22	252
4.283	RPSC sherd 19.70	252
4.284	Tomb 20, general ware distribution	253
4.285	Tomb 20, general shape distribution	253
4.286	Tomb 20, distribution of wares to shapes	254
4.287	Tomb 20, distribution of shapes to wares	254
4.288	Flask 20.2	255
4.289	Flask 20.60	255
4.290	Pan 20.38	255
4.291	Bowl 21.1	256
4.292	Sketch of Tomb 39	258
4.293	Tomb 39, general ware distribution	258
4.294	Tomb 39, general shape distribution	258
4.295	Tomb 39, distribution of wares to shapes	259
4.296	Tomb 39, distribution of shapes to wares	259
4.297	Juglet 39.1	260
4.298	Bowl 39.8	260
4.299	Sketch of Tombs 40A and 40B	261
4.300	Schematic plan of Tombs 40A and 40B	262
4.301	Tomb 40A, general ware distribution	263
4.302	Tomb 40A, general shape distribution	263
4.303	Tomb 40A, distribution of wares to shapes	264
4.304	Tomb 40A, distribution of shapes to wares	264

4.305	Bowl 40.21	265
4.306	Jug 40.1	265
4.307	Rim 40.64	265
4.308	Rim 40.103	265
4.309	Sketch showing relationship between Tomb 40B, 42 and dromos	266
4.310	Bowl 40.7	267
4.311	Juglet 40.13	267
4.312	Schematic plan of Tomb 41	267
4.313	Tomb 41, general ware distribution	268
4.314	Tomb 41, general shape distribution	268
4.315	Tomb 41, distribution of wares to shapes	269
4.316	Tomb 41, distribution of shapes to wares	269
4.317	Flask 41.21	270
4.318	Cooking pot 41.5	270
4.319	Schematic plan of Tomb 42	271
4.320	Tomb 42, general ware distribution	271
4.321	Tomb 42, general shape distribution	271
4.322	Tomb 42, distribution of wares to shapes	272
4.323	Tomb 42, distribution of shapes to wares	273
4.324	Juglet 42.4	274
4.325	Flask 42.58	274
4.326	Cup 42.1	274
4.327	Bowl 42.5	274
4.328	Bowl 42.6	274
4.329	Bowl 42.7	274
4.330	Schematic plan of Tomb 43	275
4.331	Tomb 43, general ware distribution	276
4.332	Tomb 43, general shape distribution	276
4.333	Tomb 43, distribution of wares to shapes	277
4.334	Tomb 43, distribution of shapes to wares	277
4.335	Bowl 43.1	278
4.336	Amphora 43.4	278
4.337	Jug 43.15	278
4.338	Percentile of decorated vessels by tomb	280
4.339	Chart showing approx. date ranges of <i>Ammoudhia</i> tomb use	282
4.340	Fabric I, RPSC sample 4D (XP x25)	288
4.341	Fabric II, CW sample 4E (PPL x25)	289
4.342	Fabric III, DP sample 5C (XP x10)	290
4.343	Fabric III, RP sample 15H (XP x10)	291

4.344	Fabric IV, DP sample 15C (PPL x10)	291
4.345	Fabric IV, RP sample 15E (XP x10)	292
4.346	Fabric V, DP sample 15G (PPL x10)	292
4.347	Fabric VI, DP sample 5B (XP x10)	293
4.348	Fabric VII, DP Coarse sample 15A (XP x10)	295
4.349	Fabric VII, RP Coarse sample 4A (PPL x10)	295
4.350	Fabric VIII, RP Coarse sample 10E (PPL x10)	296
4.351	Fabric IX, sample 15B (XP x25)	297
4.352	Map showing clay sample locations	298
5.1	Grain size according to the Wentworth Scale	324
5.2	Disc lug 6.146	336
5.3	Disc lug 3.68	336

Digital Figures

A2.1	DP juglet from Kissonerga- <i>Skalia</i>
A2.2	DP pithos from Kissonerga- <i>Skalia</i>
A2.3	DP jug from Mesoyi- <i>Katarraktis</i>
A2.4	Spouted bowl from Mesoyi- <i>Katarraktis</i>
A2.5	DP flask from Chrysochou Bay
A2.6	RPSC bottle from Chrysochou Bay
A2.7	DP jug from Prastio- <i>Mesorotsos</i>
A2.8	DP amphora from Episkopi- <i>Phaneromeni</i>
A2.9	RPSC jug from Episkopi- <i>Phaneromeni</i>
A2.10	RPSC bottle P32 from Sotira- <i>Kaminoudhia</i>
A2.11	DP tankard P72 from Sotira- <i>Kaminoudhia</i>
A2.12	DP jug from Kalavasos Village
A2.13	DP pithos from Pyrgos- <i>Mavroraki</i>
A2.14	DP pithos from Pyrgos- <i>Mavroraki</i>
A2.15	RPSC vessels from Psematismenos- <i>Trelloukkas</i>
A2.16	DP jugs F389 and 390 from Alambra- <i>Mouttes</i>
A2.17	DP jug P3733 from Marki- <i>Alonia</i>
A2.18	DP juglet from Deneia- <i>Kafkalla</i>
A2.19	DP juglet from Nicosia- <i>Ayia Paraskevi</i>
A2.20	Horned handled amphorae from Lapithos- <i>Vrysi tou Barba</i>
A2.21	RPIII juglet from Lapithos- <i>Vrysi tou Barba</i>
A7.1	Tomb 20, plan of contents at 5cm depth
A7.2	Tomb 20, plan of contents at 10cm depth
A7.3	Tomb 20, plan of contents at 15cm depth

A7.4	Tomb 20, plan of contents at 20cm depth
A7.5	Tomb 20, plan of bottom
A7.6	Tomb 20, section A
A7.7	Tomb 20 section B
A7.8	Tomb 20, initial excavation image
A7.9	Tomb 20, north eastern quadrant
A7.10	Tomb 20, north-west edge and fill 20.3
A7.11	Tomb 20, end of excavation image
A7.12	Tomb 21, north-west facing elevation
A7.13	Tomb 21, north-west to south-east cross section
A7.14	Tomb 21 end of excavation image
A7.15	Wide, east facing image of emptied tombs 20 and 21

Tables

2.1	Current chronological sequences of the Cypriot Bronze Age	13
2.2	EC-MC sites with corresponding relative and absolute dates	19
2.3	ARCANE suggested refined chronology	20
2.4	Manning suggested refined chronology	21
2.5	Location and chronology of the main EC-MC wares	30
3.1	The <i>Ammoudhia</i> tombs and their contents	84
3.2	Criteria for establishing fabric hardness	85
3.3	Occurrence of chronological ceramic markers in tombs	93
4.1	Kissonerga- <i>Ammoudhia</i> wares	103
4.2	Totals of wares and shapes at Kissonerga- <i>Ammoudhia</i>	172
4.3	The Kissonerga- <i>Ammoudhia</i> spindle whorls	177
4.4	The Kissonerga- <i>Ammoudhia</i> Calibrated Age ranges BC	189
4.5	The <i>Ammoudhia</i> tombs, their general contents and proposed date	281
4.6	Number of wares according to tomb	283
4.7	Vessel shapes according to tomb	284
4.8	The <i>Ammoudhia</i> fabrics as defined by petrographic analysis	286
4.9	Clay sample location and short description	299
6.1	The architectural features visible in the <i>Ammoudhia</i> tombs	340
6.2	Details of the pits found in <i>Ammoudhia</i> tombs	342

ACKNOWLEDGEMENTS

I am indebted to so many people who have helped me over the course of this research. First thanks must go to my supervisors Professor Edgar Peltenburg and Dr Ulf-Dietrich Schoop and to the original excavators, Dr Eustathios Raptou, Dr Angelos Papadopolous and Elena Meranou. Several funding bodies enabled me to continue to travel to Cyprus and conduct this research and grateful thanks is given to all. These include The University of Edinburgh Innovation Initiative Grant and the Abercromby Travel Fund, The Carnegie Trust and especially the Council for British Research in the Levant (CBRL). Several scholars were also extremely generous with their time and allowing me to examine their ceramics allowing for comparisons with other sites in Cyprus. I therefore thank Dr Diane Bolger, Dr Lindy Crewe, Professor David Frankel, Dr Sophocles Hadjisavvas, Dr Ellen Herscher, Dr Alison South, Professor Stuart Swiny, Dr Ian Todd and Dr Jennifer Webb for their kindness.

Conducting a research project that covers other disciplines is often no easy feat, and I would like to extend my thanks to all of the geologists who helped a complete amateur understand some of the basics of their science. Without exception they are the friendliest and most patient group of scientists I had the privilege to learn from. In particular I would like to acknowledge the practical help and advice given to me by the late Dr John Dixon of the University of Edinburgh, it is doubtful that the scientific analysis included in this thesis would have taken place without his patience and assistance. Dr Riley Snider was also extremely generous initiating me into the secrets of thin sectioning and sharing our tiny lab in the Old High School. In Cyprus special thanks go to the Cyprus Geological Survey staff in Nicosia, especially Dr Zeza Zomeni, who allowed me access to their facilities in Nicosia and very kindly agreed to proof read this research and steered me away from some basic geological errors. In this vein I would also like to thank Dr Maria Dikomitou for

allowing me access to her unpublished thesis on petrographic analyses. Dr Caroline Jeffra was extremely helpful in identifying clay sources and in Scotland, Janet Adam of the Adam Pottery, Edinburgh kindly allowed me to use her studio and kiln *gratis* for various clay sample experiments.

This work could not have taken place without the permission and assistance of the Department of Antiquities of Cyprus, and grateful thanks is given to the Directors, Dr Pavlos Flourentzos, Dr Maria Hadjicosti, Dr Despo Pilides and Dr Marina Solomidou-Ieronymidou. Most of the research conducted herein took place over several summers in the garden of the Paphos Museum and much thanks is given to the wonderful staff there who have helped me and often fed and watered me in the process. Also, thanks to the other district museums and their staff, in particular to the Cyprus Museum, Nicosia and the Kourion Museum in Episkopi where I had the privilege of staying for two weeks in 2008.

I am extremely grateful to Professor Gordon Cook of SUERC, who agreed to spend an afternoon in the Paphos Museum advising on the best possible selection of human remains and then also produced radiocarbon dates from the very poorly preserved remains. Grateful thanks also go to Dr Michelle Gamble, who advised me on best practice for recording human teeth.

Other organisations that have enabled me to conduct this work in Cyprus and to whom I extend my thanks include the Lemba Archaeological Research Centre (LARC) and its manager, Dr Paul Croft and the Cyprus American Archaeological Research Institute (CAARI) and their staff, particularly Vathoulla Moustoukki. We are fortunate in Cypriot archaeology to work with not only knowledgeable and skilled colleagues but also friends, and I extend all my thanks to my dear friends who have shared these experiences over the years, and have in some way contributed to this thesis. In particular Vasiliki Koutrafoura and Harry Paraskeva

who translated the fieldnotes from the original Greek into English. Thanks again to Harry, Daisy Knox, Ben Blakeman and Austen Cook, who are all more skilled in using computer software than me and are happy to share these talents. To Tom Lucas for allowing me access to his undergraduate dissertation on the *Ammoudhia* ceramics and Mat Dalton for allowing me to reproduce his illustrations of Tomb 20, and to other dear friends who spent many weeks in Room F5 in the old High School Yards, Edinburgh, at Lemba or on excavations listening to me talk about pots. You are too many to name, but you know who you are.

I must also thank my non-archaeological friends, especially my sister Paula and her growing family, who provided a haven of escape and love when needed. Finally, with all my heart, I thank my best friend and partner, Dr Andrew McCarthy, for his patience and inspiration as well as his unstinting support and love.

I dedicate this thesis to the memory of my parents, Joyce and Derek Graham, who taught me that anything is possible with hard work and determination.

GLOSSARY

Ceramic Terms

BP: Black Polished ware

BR: Base Ring ware

BrP: Brown Polished ware

BS: Black Slip ware

CW: Coarse ware

DP: Drab Polished ware

DPBC: Drab Polished Blue Core ware

Fabric: The fired ceramic paste and temper of which pottery is composed

Incised Decoration: Decorative style applied via a sharp instrument cut into the vessel surface, executed pre-firing

Impressed Decoration: Decorative style applied by pressing a tool onto vessel surface, executed pre-firing

Paste: Plastic clay constituents, pre-firing

PW: Plain ware

RB/B: Red and Black Burnished ware

Relief Decoration: Additive decorative style, consisting of plastic clay motifs and/or figures applied to vessel surface pre-firing.

RonB: Red on Black ware

RP (I-IV): Red Polished ware (I-IV)

RPBT: Red Polished Black Topped ware

RPm: Red Polished Mottled ware

RPP: Red Polished Philia ware

RPPunct: Red Polished Punctured ware

RPSC: Red Polished South Coast ware

RS: Red Slip ware

SW: Spalled ware

Temper: Foreign material added to clay paste to reduce plasticity and alter drying and firing qualities

Ware: Pottery classification based on technology, material and surface treatment

WP: White Painted ware

WPP: White Painted Philia ware

Chronological Terms

Cal. BC: Calibrated BC (radiocarbon date range)

BCE: Before Common Era

BA: Bronze Age

EC: Early Cypriot Bronze Age

MC: Middle Cypriot Bronze Age

LC: Late Cypriot Bronze Age

EC-MC: Early-Middle Cypriot Bronze Age

Miscellaneous Terms

ARF: Argillaceous Rock Fragment

CAARI: Cyprus American Archaeological Research Institute

LAP: Lemba Archaeological Project

LARC: Lemba Archaeological Research Centre

PPL: Plane Polarised Light – the state of source light in a polarising microscope using only the lower polariser, transmits light in a single direction

RDAC: Report of the Department of Antiquities, Cyprus

SCE: Swedish Cyprus Expedition

SCSP: Sydney Cyprus Survey Project

TCF: Textural Concentration Feature

VVP: Vasilikos Valley Project

XPL: Crossed Polarised Light – the state of source light in a polarising microscope using the lower and upper polariser, allows for light to be transmitted in two directions

CHAPTER 1

INTRODUCTION

The Paphos District of western Cyprus is famous for its wealth of archaeological sites. Until very recently however, there was little or no archaeological evidence of occupation during the Early-Middle Cypriot Bronze Age (c. 2300-1650 BCE – hereafter EC-MC). This has meant that any attempt to understand western Cypriot society could only be achieved by proxy, by examining evidence from excavations on other parts of the island. This thesis represents the first substantial study of this time and place, and one of the main aims of this research is to provide clarity and context, bringing western Cyprus into the wider narrative.

There is very good archaeological data from western Cyprus from the preceding Chalcolithic period (c. 4000 – 2500 BCE) (Crewe *et al.* 2005; Peltenburg 1983, 1989, 1996; Peltenburg *et al.* 1998, 2006, 2011, 2013). Specifically in the Kissonerga area, the site of Kissonerga-*Mosphilia* is an important and long lived settlement, showing occupation from the Ceramic Neolithic through to the Philia phase (c. 5500 – 2300 BCE) (Peltenburg 1998: 12-21). Likewise, there is considerable evidence in the region for Late Bronze Age occupation. The important Iron Age city of Palaepaphos has evidence of occupation from as early as the MCIII/LCIa horizon (c. 1650 BCE) (Maier & Karageorghis 1984: 50-51; Iakovou 2008: 269). Closer to Kissonerga (c. 5km), the site of Maa-*Palaeokastro* has a later date of initial occupation, in the late LCIIC (c. 1250 BCE) (Karageorghis & Demas 1988: 262-3). Even taking the shortest period between the two, there remains a c. 650 year gap in knowledge.

It is during this gap that society in Cyprus underwent an enormous transformation, from insular, relatively egalitarian cultures of the Chalcolithic to the complex society of the Late Bronze Age, and became one of the main players in the eastern Mediterranean network of the period. Understanding the socio-cultural and

technological changes that occurred during this period is crucial to understanding the mechanisms that led to this transformation, but western Cyprus remains a *terra incognita* that modern scholars are only now beginning to tackle through excavation and survey (Crewe 2008; McCarthy 2009, 2010, Malisewski 2013).

Until the advent of radiocarbon dating in the 1950s, ceramic seriation was one of the most secure means through which archaeologists were able to establish relative chronologies. In Cyprus, chronology was set (rightly or wrongly) on the basis of ceramics. Phases were established based on changes in pottery styles (Rice 1987: 249-51), using criteria largely set by the Swedish Cyprus Expedition (SCE) who established a (still influential) typology that primarily used the ceramics of two cemetery sites on the north coast (Gjerstad 1926, 1934; Dikaios & Stewart 1962; Åström 1972a). These criteria were applied to ceramics from island-wide contexts until very recently, when excavations in the south and centre of the island illustrated the particularly regional nature of EC-MC ceramics, as well as providing much needed radiocarbon dates (Manning & Swiny 1994; Coleman *et al.* 1996; Frankel and Webb 1996, 2006; Swiny *et al.* 2003). This unforeseen regionalism raised issues within the classification system and highlighted the need for a review of the typology.

The west of Cyprus is no exception to this regionalism. This research concentrates on the ceramics from the cemetery of Kissonerga-*Ammoudhia*. This EC-MC necropolis is one of the few sites to have been excavated in the west, and represents one of the first substantial pottery assemblages to be investigated from this part of the island. The cemetery has been the subject of two separate rescue excavations by the Cyprus Department of Antiquities (2000 and 2008-9), and it is the artefacts from these excavations, and in particular the ceramics, that form the foundation for this thesis.

I first studied the *Ammoudhia* ceramics as part of my undergraduate dissertation (2005), which first identified the large amount of Drab Polished ware (DP) found in the assemblage and therefore the distinct regional character of the ceramics. I then consolidated this research in my MSc (Res.) (2006) where I examined a selection of ceramics (100 vessels and sherds), for evidence of manufacturing techniques, using a stylistic analysis based on the theories of Sackett (1977, 1986) and Lemonnier (1992).

I observed that the pottery exhibited considerably different ceramic styles and technologies from the rest of the island being dominated by DP, a very minor ware at other excavated sites. Indeed, the ceramics found at Kissonerga-*Ammoudhia* exhibit, if anything, even stronger regional variations than those observed at contemporary sites, indicating strong local traditions (Graham 2006).

Aims and Objectives

Since there is so little evidence from western Cyprus from this period, presenting the data from Kissonerga-*Ammoudhia* is an important first step. Therefore, one of the main aims of this thesis is to present the Kissonerga-*Ammoudhia* assemblage, providing as comprehensive an analysis as possible in the confines of a single author's PhD thesis. This has merit for the presentation alone, but an attempt will also be made to lay the foundations for future work on regionality and social interpretations of this time and place.

Since pottery is the most abundant artefact in the assemblage, the bulk of artefactual presentation and interpretation will concentrate on ceramic analysis. In particular, to methodically classify the ceramics in a way that allows the assemblage to be understood on its own terms, but is also of use in integrating the assemblage into

the wider Cypriot typology that helps to place Kissonerga into the wider chronological and social narrative and aid future scholars of the EC-MC. The current typologies of EC-MC ceramics in Cyprus are problematic and convoluted, with many scholars over the years adding new wares and sub-wares and the occasional attempt to bring clarity to “one of the most complex ceramic sequences in archaeology” (Barlow 1989: 56). A good classification system should be a tool to clarify, not obscure patterns (Merrillees 1991: 237). By formulating a simple typology this thesis will then go on to use this classification system to analyse and interpret the ceramics in order to produce a chronology based on ceramic typology and comparisons with ceramics from securely dated contemporary sites, and backed up with radiocarbon dates.

Because of the incomplete archaeological record for this period, most ceramic studies in EC-MC Cyprus have concentrated on establishing chronological and typological issues. Ceramic technology remains relatively understudied, despite some excellent research in this field (Barlow 1989, 1991, 1996a, 1996b; Vaughan 1987, 1991, 2003; Dikomitou 2011; Frankel & Webb 2012). In more recent years, ceramic studies have expanded to develop new methodologies to help both refine existing typologies and answer basic questions, as well as take the discipline in new directions. Applying a multidisciplinary approach allows for the study of both the physical and cultural aspects of ceramics (Skibo 1992: 2); therefore, this thesis will also conduct a petrographic analysis of a sample of the *Ammoudhia* ceramics as well as local clays. In this way I aim to look beyond the traditional methods of typology to use geology and petrographic analysis to identify the raw materials and technologies selected by the *Ammoudhia* potters.

Examining the ceramics on a microscopic level provides evidence for vessel manufacturing techniques, as well as offering data comparable with other excavated

ceramics, allowing for a detailed typological and chronological examination not available through macro study alone.

Analysis and Interpretation

Kissonerga-Ammoudhia is a cemetery, not a settlement site, and the assemblage used in this thesis comes from a rescue project conducted under pressure with no specific research questions in mind. In many cases recorded information is brief. With these caveats in mind, *Kissonerga-Ammoudhia* still represents a large body of evidence from the EC-MC in western Cyprus that has been lacking until now, and there are several questions that this material can help answer. Each tomb represents a discrete unit, constructed in the past; and chronological information and the behaviours of the people are embodied in the ceramic manufacture and tomb use, even though contextual information is limited.

Very recent studies have begun to use ceramic evidence to examine socio-political processes on Cyprus during the EC-MC and in particular the integration of societies during the transition to the EC (Frankel 1993, 2009; Webb 2009; Webb & Frankel 2008, 2010, 2013; Georgiou *et al.* 2011). These studies illustrate the possible existence of two separate social trajectories. Firstly, a continuation of a *Philia*-type culture in the north suggests a society based on social competition focussed on conspicuous consumption and elaborate ritual (Webb & Frankel 2013: 76). Secondly, in the south and centre of the island, a more socially inclusive society with a more communal ethos (Webb & Frankel 2013: 73), perhaps representing a continuation from local Chalcolithic culture (Peltenburg 1993: 96).

This thesis attempts to address this question with regard to the west coast of Cyprus. The evidence from *Ammoudhia*, whilst having general features in common with both northern and southern sites, seems to represent a third social trajectory

that may be idiosyncratically western in character. The possible reasons for this 'western character' as represented by the ceramic evidence, will be discussed.

To summarise, the main aims of this thesis are:

1. To present the *Ammoudhia* evidence
 - a) Present an overall report of the excavations and the tomb contents
 - b) Present the ceramic assemblage
 - i) Classify the ceramics in a useful and meaningful manner that can be used to establish a relative chronology and compare with contemporary ceramics
 - ii) Conduct microscopic analysis of both ceramics and local clay sources
 - c) Present all other artefact types
 - d) Present absolute dates in the form of radiocarbon dating evidence from human remains

2. To analyse and interpret the *Ammoudhia* evidence
 - a) Establish a working chronology based on both relative ceramic typology and absolute radiocarbon dating
 - b) Analyse the *Ammoudhia* material culture and interpret how the ceramic styles and technologies compare to contemporary evidence
 - c) Analyse the contexts and material as a mortuary assemblage
 - d) Discuss how the evidence from *Ammoudhia* fits into what is currently known about EC-MC society and the wider Bronze Age world and how this evidence can be used to interpret social transformations

To begin to answer these questions it is first necessary to provide an explanation of what ceramics mean in the study of material culture.

Ceramics can be defined as:

“the art and technology which consists of shaping and manufacturing products made from earthy materials and the application of heat to these materials to form useful products” (Rice 1984: 172).

At its simplest, pot making consists of shaping wet clay, letting it dry and firing it until hard. However, the wide variety of clays available and the malleable nature of clay have led to an enormous variety of vessel forms and decorations being used in more than a simple domestic, utilitarian function (Sinopoli 1991: v).

Pottery is abundant and durable, making it an excellent means of analysing technological and social aspects of past societies (Sinopoli 1991: v). Its diverse ranges of shapes, colours, textures and decorations also make ceramics one of the most useful means of identifying material culture groups and changes through time.

Although my MSc research argued that the *Ammoudhia* ceramics represented just such a culture group (Graham 2006), it only partially covered the evidence. In the conclusion several recommendations were made for future research. First and foremost was vessel reconstruction and analysis of the entire ceramic assemblage (Graham 2006); secondly, I argued that several of the questions regarding manufacturing traditions could not be answered fully without a microscopic analysis (Graham 2006).

This thesis contains, for the first time, complete information from the entire available assemblage. The assemblage is examined in a variety of different ways; firstly, a broad examination of fabrics and shapes are classified. The various issues encountered in classifying a ceramic assemblage that does not necessarily fit easily into the existing classification system are discussed. It is not an aim of this thesis to re-evaluate EC-MC ceramics in general; therefore, it was decided to use the existing classification system where possible and where a ware did not fit, a simple (numerical) nomenclature is used. Any comparisons with existing wares are explicit, since this thesis aims to provide a corpus that fits well with current research and literature and is useful to scholars of the EC-MC. Thus, this methodology enables a comprehensive comparison with wares and shapes described from other excavations. The assemblage is also examined on a tomb by tomb basis, creating a

picture of both individual tomb assemblages the cemetery as a whole. This also places the vessels in their funerary context, allowing for unforeseen patterns of behaviour and funerary ritual to emerge.

Chapter Summary

Chapter 2 provides a background to the Cypriot Bronze Age before discussing the EC-MC period in more detail. I will introduce the material culture, with special reference to ceramics, including a critical review of previous research on chronology, typology, economic and socio-cultural issues relevant to this thesis. This chapter also briefly discusses the periods immediately before and after the EC-MC (namely the 'Philia phase' and the Late Cypriot Bronze Age) and the factors that may have led to these transitions.

This is followed by a discussion on the current relevant debates the main problems encountered in classifying EC-MC ceramics based on a typology built around one or two single purpose sites that are now understood to be somewhat unrepresentative. This will include a review of how petrology has been used in the study ancient Cypriot ceramics. This chapter concludes with a case study illustrating how many of the debates presented in this chapter can be applied to the study of Drab Polished ware.

Chapter 3 begins with an introduction to the materials that will be studied (i.e. the site and excavations of *Kissonerga-Ammoudhia*). It will present information regarding the site location, a critique of the excavation and study, including maps and the available archaeological evidence from both excavations.

The methodologies used to record the typological data in this research will then be presented, beginning with the ceramic methodology. This will include how the

ceramics were initially conserved, recorded, illustrated and analysed. The criteria chosen to classify the *Ammoudhia* ceramics will then be presented and reasons given for choosing this system.

Once the typological framework is established, this chapter will present the methods by which this framework can be applied to suggest a relative chronology based on ceramic typology of vessel wares and shapes and comparisons to other, contemporary sites with more comprehensive dates.

To complete the ceramic analysis, a petrographic study of a sample of the pottery as well as local clay sources was conducted. The methods applied to collect and produce these samples as well as analysis will be presented here.

In order to provide the most comprehensive dataset, this chapter will discuss the methods used to analyse the non-ceramic evidence, including the recording used during the excavation of the two tombs in which I had a direct involvement. Finally, this chapter will conclude with the process of selecting and analysing the sample of human remains selected for radiocarbon dating.

Chapter 4 presents the hard data from Kissonerga-*Ammoudhia*, thus completing the first aim of this thesis. This chapter begins by presenting in detail the ceramic wares and forms found during the *Ammoudhia* excavations. Each ware will be discussed in detail, with graphs, counts and comparisons both intra- and inter-site. Vessel forms will be given the same scrutiny and representative graphs and illustrations are included to aid the presentation. The spindle whorls and non-ceramic grave goods will then be presented in the same manner.

This is followed by a presentation of the radiocarbon dates produced from human remains and a detailed tomb by tomb description, including any architectural

information and a study of the complete tomb assemblages. Any comparisons that can be made with other EC-MC sites or chronological information will also be presented. This chapter concludes with the results of the petrographic analysis and the data produced by the clay sampling experiment.

Chapter 5 aims to establish a chronological and typological framework for *Kissonerga-Ammoudhia*. By analysing the data presented in Chapter 4, it seeks to accomplish the first two aims and objectives posed in the introduction. Firstly, the chronological evidence will be analysed and the correlation between the absolute and relative dates will be discussed, as will any evidence for technological and behavioural changes over time.

This will be followed by an analysis of the material culture of *Ammoudhia*, interpreting the data presented in Chapter 4, with a focus on ceramics. The typological evidence will be analysed and interpreted and comparisons with research performed at other sites will be conducted, the results of which will help place *Kissonerga-Ammoudhia* into the wider typology. The data from the petrographic and clay sampling experiment will also be analysed, and any comparisons that can be made with both the typological classifications and with previous petrographic analyses at other EC-MC sites will be explicitly made.

This chapter will conclude with an analysis of the spindle whorls and non-ceramic artefacts. Again, applying the same interpretative techniques as applied to the ceramics; any evidence that might aid in refining a relative date or provide useful comparisons with other sites will be highlighted.

Chapter 6 seeks to unify the data provided in Chapter 4 and the contexts discussed in Chapter 5 and bring this discussion into a more coherent, wider context. In particular, it seeks to bring the people of *Ammoudhia* into the dialogue and analyse if

the behaviour witnessed in this study conforms to current scholarly research. Since *Kissonerga-Ammoudhia* is a cemetery, this chapter will begin by analysis the data from a mortuary standpoint. Any evidence for mortuary ritual or behaviour will be analysed and interpreted through comparisons to other EC-MC sites as well as any recorded behaviour from the wider Eastern Mediterranean world. This will include any evidence regarding tomb architecture, the role of grave goods (with particular attention to ceramics) and any patterns or features that can add to our interpretation of EC-MC funerary behaviour.

This chapter concludes with a discussion on any cultural and socio-economic evidence that can be extrapolated from the *Ammoudhia* data. The economy, social structure and community evidence will be analysed, as well as relationships with the outside world. An attempt to define how *Kissonerga-Ammoudhia* might fit into the currently accepted socio-economic trajectories will be made.

Chapter 7 concludes the thesis, with a summary of the evidence presented and recommendations for further research.

CHAPTER 2

A BACKGROUND TO THE CYPRIOT BRONZE AGE:

AREAS OF DEBATE

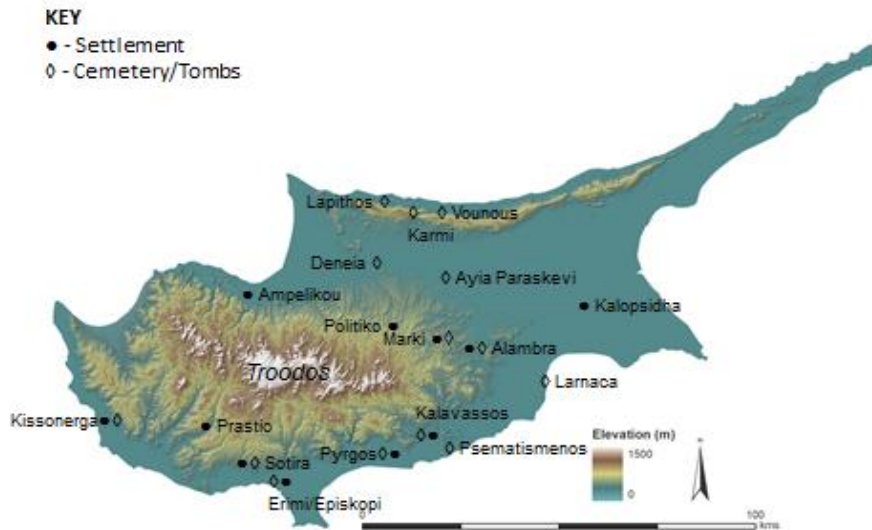


Figure 2.1: Map of Cyprus showing EC-MC sites mentioned in the text (Base map courtesy of Ben Blakeman)

Establishing a Chronology

Establishing the chronological sequence of the EC-MC is an ongoing area of debate among scholars. Different dates and terminologies have been proposed using criteria based on ceramic seriation, cultural changes and, more recently, radiocarbon dating. Since dating Kissonerga-*Ammoudhia* is one of the aims of this thesis, these dating methodologies will be examined and critiqued.

Knapp Scheme	Traditional Scheme	Approximate Years BCE
PreBA I	Philia Facies	2500-2300
	EC I-II	2300-2100
	EC IIIa	2100-1950
PreBA II	EC IIIb	2000-1950
	MC I	1950-1850
	MC II	1850-1750
ProBA I	MC III	1750-1650
	LC IA	1650-1550
	LC IB	1550-1450
ProBA II	LC IIA	1450-1350
	LC IIB	1350-1300
	LC IIC	1300-1200
ProBA III	LC IIIA	1200-1100
	LC IIIB	1100-1050
	LC IIIC	1050-1000

Table 2.1: Current chronological sequences of the Cypriot Bronze Age

As a robust and abundant artefact, pottery is an excellent transmitter of stylistic, technological and socio-economic changes through time (Sinopoli 1991: v; Orton, Tyres & Vince 1993: 182). Even after the advent and now routine application of radiocarbon dating, ceramic seriation remains a common dating method (Orton, Tyres & Vince 1993: 182) and, in Bronze Age Cyprus, ceramic comparisons are still the most sensitive means to provide a relative chronology.

One of the first attempts to establish a chronology based on ceramics was constructed by John Myres using Red Polished (RP) ware (Myres & Ohnefalsch-Richter 1899: 36-46). This was further developed by Einar Gjerstad (1926) of the Swedish Cyprus Expedition (SCE) who set the first ceramic typologies of prehistoric Cyprus by systematically describing changes in ceramic styles (1926). Gjerstad also described clay colour and surface treatment, associating the wares with forms and

decorations thus providing the basis for a comprehensive and still influential typology.

Gjerstad's work was refined by James Stewart (1962) and Paul Åström (1972a), using primarily the ceramics from cemetery sites on the north coast excavated by the SCE in the 1930s, in particular, *Bellapais-Vounous* and *Lapithos-Vrysi tou Barba* (Gjerstad *et al.* 1934; Stewart 1962; Åström 1972a). Stewart and Åström's volumes in the SCE are still consistently used as the main criteria determining EC-MC ceramic typologies, in particular for the classification of Red Polished ware (RP) (Barlow 1991: 51).

Although the SCE criteria remain influential, there are significant shortcomings. Firstly, excavation (and therefore, the RP typology) was limited to discrete cemeteries on the north coast (Gjerstad *et al.* 1934; Stewart 1962; Åström 1972a), making it difficult to recognise the truly regional nature of the EC-MC (and of limited use in this present study where the ceramics exhibit a highly idiosyncratic, regional character). Secondly, neither of the parent settlements have been located, therefore, settlement evidence was still lacking (Sneddon 2002: 2).

Lack of occupational deposits (and in particular stratigraphic evidence), makes the relative chronology ill-defined (Swiny 2003: 1), and before the widespread use of radiocarbon dating, 'absolute' dates were identified by the existence of imported vessels from areas where the ceramic typologies had been studied for some time and were considered to be more refined (Stewart 1962: 282-5; Åström 1972a: 257-271). For example, the SCE used the few Tell-el-Yahudiyeh ware imports found in Cyprus (Åström 1972a: 130-2) as well as comparisons with well stratified wares in the Levant, Anatolia and the Aegean to provide 'absolute' dates (Stewart 1962: 282-5; Åström 1972a: 257-271). The fact remains that this is still a relative (albeit more refined) chronology and is limited in use due to the scarcity of imported vessels in

Cyprus during this period (Bolger & Webb 2013: 50) *and* the fact that they are almost entirely found in cemeteries, with all the inherent problems discussed herein.

To add to this confusion, there is also evidence that tombs were used and reused over generations, making it impossible to prove when the ceramics were placed in the tomb, or if they all belong to a single event (Stewart & Stewart 1950: 221; Webb 1992: 87; Frankel & Webb 2009: 22-27, 2010: 194; Keswani 2004: 24, 2013: 204). This is made even more difficult given taphonomic processes, such as tomb flooding, erosion and looting (Barlow 1991: 51; Keswani 2004: 24).

Deposition is the final event in a vessel's life cycle. Unless it can be proved that tomb vessels were manufactured specifically for funerary ritual, it is possible that the vessels were in use for some time before deposition (this issue applies equally to settlement contexts). There is good evidence for this at Psematismenos-*Trelloukkas*, where flat based bowls consistently show use wear to the bases (Georgiou *et al.* 2011: 194). For these reasons, establishing a chronology based solely on tomb ceramics is problematic.

Regardless, these criteria had been used in island wide contexts until very recently when events forced attention to the south of the island. Until the Turkish invasion and subsequent occupation of the northern part of the island in 1974, attention had remained focussed on the archaeological sites on the north coast, particularly around those sites discovered by the Swedish Cyprus Expedition and Cyprus Department of Antiquities (Gjerstad 1926, 1934; Dikaios & Stewart 1962; Åström 1972). This was partly due to the scope of the SCE, who identified several new sites and areas of possible research interest, and also partly due to the fact that until very recently, many parts of the island were, if not inaccessible, then at least very difficult to access and co-ordinate expeditions. Pre-1974, several of the main administrative and tourist areas were found in what is now the Occupied Territory (such as parts

of Nicosia, Kyrenia and Famagusta). It was not until these areas became inaccessible that attention was turned to elsewhere and excavations took place with more regularity in the south (e.g. Coleman *et al.* 1996; Swiny *et al.* 2003; Frankel & Webb 1996, 2006, Georgiou *et al.* 2011). The Occupied Territory remains closed to any new archaeological investigation and is currently under the aegis of the 1954 Hague Convention on the protection of cultural heritage in the event of armed conflict (Hladík 2014: 67). However, some recent re-evaluations of pre-1974 excavations do continue to provide new information (Webb *et al.* 2009; Webb 2012).

Systematic excavations in the south and centre at sites such as Sotira-Kaminoudhia, Alambra-Mouttes and Marki-Alonia provided the first stratigraphic evidence from settlements and their associated cemeteries and illustrated the particularly regional nature of EC-MC ceramics (Herscher 1981: 80, 2003; Coleman *et al.* 1996; Frankel & Webb 1996, 2006; Swiny *et al.* 2003). These sites also provided, for the first time, a range of absolute radiocarbon dates, which call into question the neat 50-100 year ranges of the traditional classification system (see Tables 2.1, 2.2 and 2.3). However, with the exception of Marki-Alonia, horizontal stratigraphy and single period occupations remain the norm in EC-MC archaeology, meaning that reliance is still placed on cross-dating radiocarbon dates and material cultures (in particular, ceramics) to establish an overall chronological framework (Peltenburg *et al.* 2013: 38).

As well as questioning the usefulness of pan-regional typologies, when the ceramics differ from region to region and sometimes from site to site, these regional differences also have implications for understanding the chronology, as some wares and decorative motifs have been shown to appear in areas somewhat later or earlier than initially expected. It was originally suggested that the south-west of the island was unpopulated during the MC because of the lack of White Painted ware (WP) (Catling 1962: 131). WP was thought, at the time, to be the defining ware of the

period (Herscher 1981: 80). Recent excavations and research in the south-west show that these areas were indeed occupied (Swiny *et al.* 2003; Graham 2006, 2008, 2012; Crewe *et al.* 2008, 2010; McCarthy *et al.* 2009, 2010), but the occupants, for whatever reasons, simply did not adopt WP.

More recently, Knapp, has criticised the dominance of ceramics in the formulation of a Cypro-Bronze Age chronology (1990, 1994, 2008) and has argued for a re-evaluation of the chronological sequence using the terms Pre-historic and Proto-historic Bronze Age, based on cultural transformations rather than relative ceramic typologies that are continually being refined (1990, 1994a, 1994b) (Table 2.1).

Very recent work by a group of scholars has led to a re-evaluation of the 3rd millennium BCE in Cyprus (Peltenburg *et al.* 2013). The ARCANE (*Associated Regional Chronologies for the Ancient Near East and the Eastern Mediterranean*) Project aims to identify and make accessible “*chronological secure assemblages of archaeological materials, so that we can obtain a more dependable framework in which to evaluate local developments and inter-regional connections in the East Mediterranean and Near East during the 3rd millennium*” (Peltenburg *et al.* 2013: 6).

The project seeks to synthesise the scattered Chalcolithic and Bronze Age evidence by establishing a secure and dependable framework based on good quality evidence from only “*high integrity assemblages*” (Peltenburg *et al.* 2013: 6). In this way, the project was able to establish a chronological sequence for 3rd millennium Cyprus and the transition from the Chalcolithic period to the Early Bronze Age.

Knapp’s argument is a sound one, and in many ways this terminology is more rational. Likewise, the typology proposed by the ARCANE Project is a systematic and secure chronological framework that has the advantage of being easily

compared to those from other areas of the eastern Mediterranean, ultimately allowing for a more inclusive and comprehensive analysis.

However, for the purposes of this thesis, I have chosen to maintain the traditional EC-MC chronological nomenclature. The main reason for this is twofold; firstly, as per Keswani (2004: 35-36), this is the terminology used to date sites and artefacts by the vast majority of scholars to whose work I will refer to throughout this thesis, and I fear some of the finer chronological distinctions may otherwise become confused or altogether lost. Secondly, the ARCANE typology covers 5 periods of the 3rd millennium (ECY 1-5 in their classification system), whilst the *Ammoudhia* assemblage continues to be in use into the 2nd millennium BCE.

Few excavations of EC-MC sites in Cyprus have produced secure radiocarbon dates (Table 2.2). At the time of writing only three sites (*Alambra-Mouttes*, *Sotira-Kaminoudhia* and *Marki-Alonia* [Manning & Swiny 1994: 158; Swiny *et al.* 2003: 502-5; Coleman *et al.* 1996: 339; Frankel & Webb 2006: 35-7]) had produced a series of radiocarbon dates, and from these only *Marki-Alonia*'s dates were taken from short-lived samples (Frankel & Webb 2006: 35; Peltenburg *et al.* 2013: 325, Manning 2014: 208). *Marki-Alonia* is also the only site to provide a reliable series of 21 dates from a stratigraphic sequence from the *Philia* to the *MCI* (Frankel & Webb 2006: 35). The ten reliable dates from *Sotira-Kaminoudhia* all came from *ECIII* settlement deposits (Manning & Swiny 1994; Herscher & Swiny 2003: 502-5), whilst the four from *Alambra-Mouttes* gave a wide range of error allowing only for a general MC date (Coleman *et al.* 1996: 339).

A single date was also forthcoming from *Ambelikou-Aletri* and *Psematismenos-Trelloukkas* (Manning & Swiny 1994: 151; Webb 2012: 11; Peltenburg *et al.* 2013: 337; Manning 2013: 14, 2014: 209) and three from *Episkopi-Phaneromeni* which are not completely reliable (Carpenter 1981; Manning 2014: 209). Very recent dates have

also been extracted from Politiko-*Troullia* and Erimi-*Laonin tou Porakou* and first published by Manning (2013: 14), and are still under analysis. This thesis offers the first EC-MC radiocarbon evidence from the south-west, allowing for the first time, direct comparisons and integration with the wider Cypriot chronology.

SITE	FUNCTION	RELATIVE AGE RANGE	ABSOLUTE AGE RANGE (Cal. BC)
Kissonerga- <i>Ammoudhia</i>	Cemetery	ECI-MCII/III	2300-1890
Kissonerga- <i>Skalia</i>	Settlement	EC-LCIa	TBC
Prastio- <i>Mesorotsos</i>	Settlement	EC-LCIa	TBC
Episkopi- <i>Phaneromeni</i>	Settlement & Cemetery Settlement	EC-MC LCIa	N/A
Sotira- <i>Kaminoudhia</i>	Settlement Cemetery	Philia-MCI Philia-ECIII	2376-1783 2480-2046
Erimi- <i>Laonin tou Porakou</i>	Settlement & Cemetery	MCIII-LCIa	*2360-1888
Kalavastos	Settlement/Cemeteries	MCI-MCIII LC	N/A
Pyrgos- <i>Mavroraki</i>	Settlement/Workshops/Tombs	EC-MCIII	TBC
Psematismenos- <i>Trelloukkas</i>	Cemetery	ECI-III	* 2202-1983
Larnaca- <i>Ayios Prodromos</i>	Cemetery	MCI-III	N/A
Alambra- <i>Mouttes</i>	Settlement & Cemetery	MCI-II	1900-1800
Marki- <i>Alonia</i>	Settlement & Cemetery	Philia-MCII	2400-1700
Deneia- <i>Kafkalla/Mali</i>	Cemeteries	ECIII-MCII	N/A
Politiko- <i>Troullia</i>	Settlement	ECII-MCIII	* 2235-1826
Nicosia- <i>Ayia Paraskevi</i>	Cemetery	Philia-MC	N/A
Bellapais- <i>Vounous</i>	Cemetery	ECI-MCII	N/A
Lapithos- <i>Vrysi tou Barba</i>	Cemetery	ECI-MCII	N/A
Ampelikou- <i>Aletri</i>	Settlement/Production areas	MCI-III	2044-1929
Khalopsidha	Settlement	ECI-MCIII	N/A

Table 2.1: List of EC-MC sites with corresponding relative and absolute dates where available (* = limited number/very recently attained dates, with more refinement expected, with the exception of Psematismenos-*Trelloukkas*, where only a single date was extracted from charcoal).

Recent work by The ARCANE Project (2013) and Manning (2013, 2014) have attempted to synthesise the available radiocarbon dates to provide a more refined chronology, “placing the period into a relatively resolved absolute chronological framework” (Manning 2014: 207). Whilst Manning’s work has concentrated on the EC-MC, the ARCANE project presents dates from the entire 3rd millennium BCE (Peltenburg *et al.* 2013: 313-338). Since Marki-*Alonia* provides a reliable series of dates from a five-period stratigraphic sequence, it is heavily relied upon by both projects as the ‘type’ site for the period (Manning 2013: 6-10, 2014: 208; Peltenburg *et al.* 2013: 325). Kissonerga-*Mosphilia* performs the same function for the Chalcolithic period, and the two are the only sites as yet, to provide any radiocarbon dating evidence for the Philia period (Frankel & Webb 2006: 35; Manning 2013: 3, 2014: 208; Peltenburg *et al.* 1998: 14, 2013: 315). Whilst Manning uses every date available to form his chronological synthesis (2014), the ARCANE project have only used dates from their ‘benchmark’ sites – sites with rigorous excavation techniques that fit ARCANE guidelines for “sealed contexts with high chronological integrity, associated objects and, preferably, ¹⁴C dates” (Peltenburg *et al.* 2013: 2).

Conventional period label	ARCANE label	ARCANE dates B.C.
Middle Chalcolithic	ECY 1	3500/3400 – 2800/2700
Late Chalcolithic	ECY 2	2800/2700 – 2500/2400
Philia facies	ECY 3	2450/2400 – 2300/2250
ECI-II	ECY 4	2300/2250 – 2150/2100
ECIII	ECY 5	2150/2100 – 2000/1950

Table 2.3: ARCANE suggested refined chronology (2103: 338, Table 9.3)

Conventional period label	Manning dates B.C.
Early Chalcolithic	4000/3900 -
Middle Chalcolithic	- 2700
Late Chalcolithic	2700 (-2650) – 2500
Philia	2500/2400? – 2200
Early Cypriot	2200 – 2100/2050
Middle Cypriot	2100/2050 – 1800 (to ca. 1750)
End MC/Start LC	1690-1650

Table 2.4: Manning suggested refined chronology (2014: 215)

These chronologies tend to back up the proposed relative chronology, but with some refinement. Whilst both parties agree that the Bronze Age begins somewhere around 2500 Cal. BC, Manning (who uses more, but possible less reliable dates) suggests that the Philia period lasts until 2200 Cal. B.C. (2014: 215), whilst ARCANÉ argue for a date of 50 to a 100 years earlier (2013: 338). Since there are currently only four dates from the Philia (three from Marki-*Alonia*'s earliest phase [Frankel & Webb 2006: 35] and one from the final, disturbed level of Kissonerga-*Mosphilia* [Peltenburg *et al.* 1998: 14]), this question is still open to debate (Manning 2014: 214).

The Philia Debate

The Philia phase is still not fully understood, but is generally held to represent the transitional period between the Late Chalcolithic and the Early Bronze Age. First identified by Dikaios (1962), and identifiable largely through the ceramic record (Webb 2007: 199), it remains problematic, since the homogeneous Philia ceramics are found over a wide geographical area, but not at every site. Whilst no Philia ceramics were found at *Ammoudhia*, to understand the society under scrutiny, it is important to examine the critical changes that took place on Cyprus in the mid-3rd millennium BCE.

These new ceramic types are coupled with other social and economic changes that can be observed in the archaeological record, including the introduction of the plough, cattle, multi-roomed, rectilinear architecture, and increase in the use of metal (Frankel & Webb 2006: 305). Spindle whorls also appear in the archaeological record at this time, suggesting a change in methods of textile production (Crewe 1998: 14). These fundamental changes have led to differing explanations regarding the origins of the Philia culture. Some scholars have theorised that this represents a distinct ethnic group, probably migrants from Anatolia, bringing their own material culture (Dikaios 1962: 202; Mellink 1991: 173; Webb and Frankel 1999: 38; Frankel 2000: 168; Bachhuber 2014), whilst others have argued for entirely local adaptations (Stewart 1962: 211; Knapp 1990: 156; Manning & Swiny 1994: 171). In the same SCE volume (1962) Dikaios and Stewart provided these contrasting views based on the ceramics from cemetery sites in the north. More recent studies have now produced some much needed stratified settlement evidence. Philia ceramics occur in the final phase of the Chalcolithic site of Kissonerga-Mosphilia (Peltenburg *et al.* 1998); however, they are also recognised to represent the *earliest* phase of the EC-MC settlement of Marki-Alonia (Frankel & Webb 2006). Both of these sites have produced radiocarbon dates for their Philia contexts; the Marki-Alonia Philia phase can be dated to 2400-2200 Cal. BC (Frankel & Webb 2006: 35) whilst Kissonerga-Mosphilia allows for a range of 2500-2400 Cal. BC for the Philia phase (Peltenburg *et al.* 1998: 20-1), suggesting that the Philia occupation at Kissonerga-Mosphilia may have occurred earlier than that at Marki-Alonia.

Philia ceramics constitute a remarkably homogenous material culture across a large spatial area, and are arguably very different to the existing Late Chalcolithic styles (Stewart 1962: 211; Webb & Frankel 2006: 307). The ceramics are dominated by red monochrome wares consisting of well levigated, finely textured fabrics with a polished and lustrous red surface (Webb & Frankel 1999: 14-15). Red Polished Philia (RPP) is the most common, but other wares include a Philia White Painted ware

(WPP) combed and differentially (band) burnished wares. A range of new shapes, including cutaway spouted jugs and juglets, small bowls, amphorae and braziers indicate changes in food preparation and consumption (Webb & Frankel 1999: 14-15). Bases are flat, handles on jugs are thrust through the body and decoration, where it occurs, consists of incised zigzags and distinctive herring bone patterns (Frankel & Webb 2006: 90).

By around 2300 BCE this homogenous culture gave way to the distinct regionality of the EC (Herscher 1981, 1991; Merrillees 1991; Frankel 1994, 2009). Although the new vessel shapes represented by the Philia phase largely continued, the homogeneity disappeared to be replaced by extremely regionalised fabrics, shapes and motifs, as is found at *Kissonerga-Ammoudhia* and presented herein.

There are certainly parallels with southern Anatolian styles, in particular the EBA II at Tarsus (Goldman 1956; Dikaios 1962: 202; Schaar 1985; Mellink 1991: 170-1; Webb & Frankel 1999: 25-8) and it seems certain that international contacts existed, particularly with Anatolia (Webb & Frankel 1999: 7). The north and west of Cyprus may have been part of a wider interaction sphere with southern Anatolia and possibly the Aegean by around 2400 BCE (Frankel & Webb 2006: 305). But whether the Philia material culture can be held to represent a specific ethnicity and/or a specific chronological period in Cypriot prehistory is still open to debate. Webb and Frankel argue for the use of the term 'Philia facies' instead of 'Philia culture', as allowing for the identification of a distinct and homogenous material tradition without the ethnic or chronological implications of the term 'culture' (1999: 7).

There are at least three differing schools of thought regarding the processes involved in the Philia phase. Webb and Frankel suggest an explanation based on initial migration from south-west Anatolia, followed by adaptation and integration with the existing Chalcolithic communities, with eventual assimilation between the

two groups (1999: 38; Frankel 2002: 176, 2005; Webb 2007). Knapp (contra his previous model of indigenous developments [1994: 98; Manning 1993: 43]) has recently accepted an Anatolian migration (or at least contact) model (2008: 103-130). However, he questions the means of transfer, arguing against assimilation, and rather for a model of hybridisation (2008: 110), where local traditions and socio-cultural factors coupled with Anatolian influences came together to form “entirely new material forms and social practices” (Knapp 2008: 128). Based on evidence from *Kissonerga-Mosphilia* and the south-west, Peltenburg (1998, 2007) and Bolger (2007) argue that there is already considerable evidence for long-term Anatolian contacts during the Late Chalcolithic period at *Mosphilia* (Peltenburg 1998: 256-9, 2007: 142-144; Bolger 2007: 182-183). Thus, suggesting that the *Philia* facies is “not an entirely new phenomenon” (Peltenburg 2007: 144), but the result of Cypriot adaptations to an extended period of contact that triggered processes of “social and economic adjustments that impacted local ideologies” (Peltenburg 2007: 153). These processes observed at *Kissonerga-Mosphilia* might have a significant bearing on the society and traditions of the EC-MC inhabitants and will be discussed further in Chapter 6.

It seems certain that some contact and influence with Anatolia in the mid-3rd millennium occurred. However, whilst only one site provides secure stratigraphic evidence (Frankel & Webb 2006), any model attempting to fully explain the *Philia* processes remains inadequate, with data based almost entirely on surface scatters or ceramics from unstratified tombs from the north.

The Early and Middle Bronze Age (EC-MC)

By around 2300 BCE the homogeneity observed in the *Philia* ceramic culture fragmented into multiple regional variations, such as that observed at *Kissonerga-Ammoudhia* (Herscher 1981, 1991; Merrillees 1991; Frankel 1994, 2009). Frankel & Webb argue that this collapse of the *Philia* system can be explained as a result of communities growing in population and becoming more self-reliant, sharing

broadly similar traditions and economies but now with identifiable regional differences (Frankel & Webb 2006: 307). The cultural and economic changes that begin to be observed during the Philia facies are now culturally embedded, with what may be termed the 'Bronze Age way of life' now visible across the island (Frankel & Webb 2006: 307). The material culture observed in the main excavations of the period (see Table 2.2 and Appendices 2 and 3) depict "'scattered rural communities" of agro-pastoralists (Swiny 1989: 14), with few external contacts. Indeed, after the initial phase, there is very little evidence for any contact with the mainland during the EC (Peltenburg 1996: 20, 22; Webb *et al.* 2009: 248). Imports number in single figures and mostly come from the Aegean (Grace 1940; Merrillees 1977: 36; Kouka 2009: 39-40; Webb *et al.* 2009: 252; Knapp 2013: 307, 309), and are unlikely to have reached Cyprus through direct contact (Peltenburg 1996: 26, 2008: 153; Knapp 2013: 310).

This material culture continued with little observable change through to the MCII (what Knapp terms the Prehistoric Bronze Age) and Swiny has argued that the division of EC to MC is entirely arbitrary (1989: 16). However, at the same time it is possible to identify population increase and a growth in contacts and interaction throughout the ECIII-MCI (Swiny 1989: 16; Knapp 1990: 154-5; Frankel & Webb 2007); there is also a shift in mortuary behaviour (Webb 1992: 88; Keswani 2013: 228-9). There is some evidence for a re-establishment of relations with the mainland during the MC (Swiny 1989: 187), with an increase in vessels and exotica, mainly from the Levantine coast, found predominantly in the east of the island (Maguire 1995: 54-5; Knapp 1996: 16-17, 2013: 398; Crewe 2009b: 79; Keswani 2004: 80; Kouka 2009: 40). However, Cyprus is still very much on the periphery of any international trading sphere until at least MCIII/LCIa (Peltenburg 1996: 21, 27). Since the EC-MC is the period under scrutiny in this thesis, it will be explored in more detail below.

The MC-LC Transition

Recent investigations have illustrated that the MCIII-LCI (c. 1700-1400 BCE) was a particularly dynamic time. It is during this period that changes in ceramic style and technology began to spread (Herscher, 2001: 16-18). Sites that may have existed specifically for copper procurement or production have been identified dating to this period, as have pottery production sites and possibly the earliest evidence for a specific coastal trading site at Enkomi (Dikaios 1969: 71; Knapp 1997: 56). The increased number of fortresses found dating to the MCIII-LCI period also suggests social instability, although forts such as Nitovikla in the Karpass region possibly had an economic, rather than defensive, function, based on the large number of storage vessels found (Peltenburg 2008: 145). Fortresses found lining the route from the Troodos mountains to the coast, in particular to the urban centre of Enkomi, led Peltenburg to suggest that this is an example of early state formation in Cyprus, with copper production being controlled and exploited by the coastal polities (1996: 29-30).

Crewe warns against using the term MCIII-LCI to denote a context that spans both periods, and likewise MCIII/LC to denote one period or the other (2004: 91). She argues that the former may only be used in tomb contexts when there is both MCIII and LCI material which is mingled and any stratigraphy is lost (Crewe 2004: 91). In settlements, a context should be dated to the latest material found; therefore any context with both MCIII and LCI would then be dated to LCI (Crewe 2004: 91).

The development of Cyprus from small village-like communities to state level societies in this relatively short period is by no means clear. Unlike the city states of the Near East, Cyprus had no history of urbanism and until this period, remained an independent, insular island. There was certainly contact with the mainland but very little evidence for trade or integration. Textual evidence, such as the Amarna letters (Moran 1992), has proved a rich source of evidence on the eastern

Mediterranean networks of trade and kinship at this time. However, the scarcity of excavated MCIII-LCI sites in Cyprus has meant that the social and economic developments that led to Cyprus becoming one of the major states in the eastern Mediterranean network remain largely unanswered (Peltenburg 1996: 36).

Into The Late Bronze Age (LC)

The Late Bronze Age sees the social and economic transformation of Cyprus with the emergence of what may be termed state level societies. These societies are characterised by large, sometimes fortified urban centres, complete with ashlar masonry, administrative buildings and temples, social hierarchy, craft specialisation, the introduction of writing and associated bureaucratic and administrative practices, international trade and an island wide homogeneous material culture and religion (Catling 1962; Dikaios 1969; Vermeule & Wolsky 1990; Knapp 1994, 1996, 1997, 2008, 2013).

There is a wide variety of archaeological and textual evidence illustrating the importance of Cyprus to the eastern Mediterranean trade and exchange networks of the Late Bronze Age. Copper production sites found at urban coastal centres far removed from the copper sources (such as Enkomi and Kition) point to copper being the main impetus for trade (Knapp 1986). This is backed up by evidence from shipwrecks (such as the LBA Uluburun wreck off the coast of southern Turkey [Pulack 1998]) and texts from Amarna, Hattusa, Ugarit and Alalakh which identify *Alashiya* as a copper source possibly as early as the 18th century BCE and as a major player in the political and trade arena by the 14th century BCE (Moran 1992; Knapp 1994, 1996, 1997).

The demand for copper and subsequent trade expansion during the LC led to major social and political upheavals (Keswani 2004: 84). This is clearly observed in the settlement shifts that take place. Previously flourishing settlements such as

Alambra-Mouttes, Marki-Alonia and Prastio-Mesorotsos are abandoned or destroyed (Åström 1966: 140; Swiny 1986: 87; Coleman *et al.* 1996: 17; Frankel & Webb 2006: 41; McCarthy *et al.* 2010) and a shift to the rapidly urbanising coastal centres can be observed. The mechanisms behind this shift remain unclear.

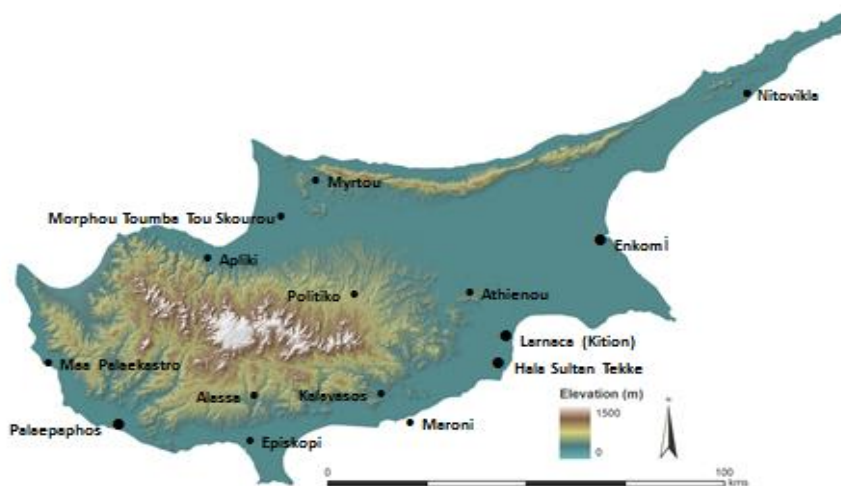


Figure 2.2: Map showing Late Bronze Age sites mentioned in the text (Base map courtesy of Ben Blakeman).

Parallel to these fundamental changes to society, ceramic styles and modes of production also changed during the LC. The regional differences that are so noticeable during the EC-MC largely disappeared and only a few dominant, island wide wares remained, in particular, Monochromes, White Slip and Base Ring wares, which are found in large quantities all over Cyprus and the eastern Mediterranean (Åström 1972b, 2001). In particular Base Ring ware (BR) juglets are prized, possibly for their contents. Several scholars have argued that these juglets may have contained opium (e.g. Merrillees 1962: 287-92; Maguire 1995), and recent residue analyses have shown this to be the case (Collard 2011). Cypriot pottery (mainly WP) was also the largest ceramic cargo found on the Uluburun shipwreck dating to the late 14th century BCE (Pulak 1998: 193).

The focus of this thesis is the EC-MC period, so beyond giving this brief synopsis of the changes that took place, the LC will not be discussed in detail.

Debating the EC-MC

Since the material presented in this thesis dates exclusively to the EC-MC, the material culture, technology and socio-cultural debates require further elaboration.

Recognising Regionalism

By comparing ceramic assemblages it is possible to identify social networks.

Kissonerga-Ammoudhia did not exist in a vacuum; the people buried there once lived, built houses, made pots and communicated with others. Without looking at the evidence from contemporary sites, we can only have a very partial picture of their lives and the society in which they lived, died and were buried.

Full descriptions of each site, history of excavation and a brief description of the main ceramics are provided in Appendices 2 and 3, however, Table 2.2 provides a breakdown of each site with a relative age range suggested by the excavator and absolute dates where they exist, whilst Table 2.5 presents the main ceramic wares and where they are found. Frankel's 2009 map (Figure 2.3) illustrates the regional ceramic ware distribution.

Ware	Date	Where found
RP Philia	Philia-ECI	Islandwide
RPI	ECI-II	North coast, central plain, west coast
RPII	ECII	North coast, central plain
RPIII	ECIII-MCIII	Islandwide
RPIV	MCI-LCIA	Islandwide
RPm	ECI-MCII	South coast, central plain
RPSC	ECI-II	South coast, west coast
RP Punctured	MCI-LCIA	South coast
RPA (<i>Alambra-Mouttes</i>)	MCI-II	<i>Alambra-Mouttes</i>
RPB (<i>Alambra-Mouttes</i>)	MCI-II	<i>Alambra-Mouttes</i>
BP	ECI-MCII	North coast, central plain
Br.P	ECI-II ECIII-MCI	Central plain South coast
WP	MC-LC	North and east coast, central plain
BS	MCI-LC	Islandwide
RS	MCI-LC	Islandwide
BR	LC	Islandwide
DP	ECI-MCIII ECIII-MCIII	West coast/south-west South coast & central plain

Table 2.5: Table showing the location and chronology of the main EC-MC wares

The disparity between cemetery sites in the north and settlement sites in the south has meant that whilst the regional nature of Cyprus in the EC-MC has been recognised for some time, the processes and trajectories involved are still under scrutiny (e.g. (Georgiou *et al.* 2011; Webb & Frankel 2008, 2010, 2013). Although regional differences are apparent in socio-economic behaviour and funerary rituals (Frankel 2009; Keswani 2004, 2013; Webb & Frankel 2013) it is, again, in ceramics where these differences are most apparent.

Several scholars have contributed to the regionalism debate (Merrillees 1973, 1977, 1991; Price 1979, MacLaurin 1980; Bolger 1989; Herscher 1991; Swiny 1991; Georgiou 2009; Hein *et al.* 2009; Frankel 2009; Webb 2009, 2012; Frankel & Webb 2013).

Regional distinctions have tended to be applied in line with the natural topography and geology of Cyprus (e.g. Price 1979). Whilst the divisions of the west coast, south coast, central plain and north coast and Karpass seem to depict areas of cultural homogeneity (Frankel 2009: 15) they cannot be taken as definitive cultural regions with defined borders or identities (Frankel 2009: 15). However, the ceramic assemblages from each area illustrate the regional differences (Figure 2.3). The majority of sites are dominated by RP, with varying numbers of WP and BP suggesting some contact between the north, centre and south of the island (Webb and Frankel 2013). WP and BP in the west are replaced by increasing number of DP vessels, suggesting some contact between the west and south (Herscher 1976, 1981; Phillip 1983; Crewe *et al.* 2008; Frankel 2009). Since no comprehensive excavations in the south-west had taken place at the date of publication, the proportions of ceramics that Frankel assigns to the south-west are based on survey information (Hadjisavvas 1977; MacLaurin 1980; Phillip 1983; Malisewski 1997), a single excavated tomb (Herscher & Fox 1993) and the first season's preliminary report of excavations at Kissonerga-Skalia (Crewe *et al.* 2008, 2010). However, further excavations at Skalia (L. Crewe: personal communication) and this author's research backs up Frankel's percentiles (Graham 2006, 2008, 2012).

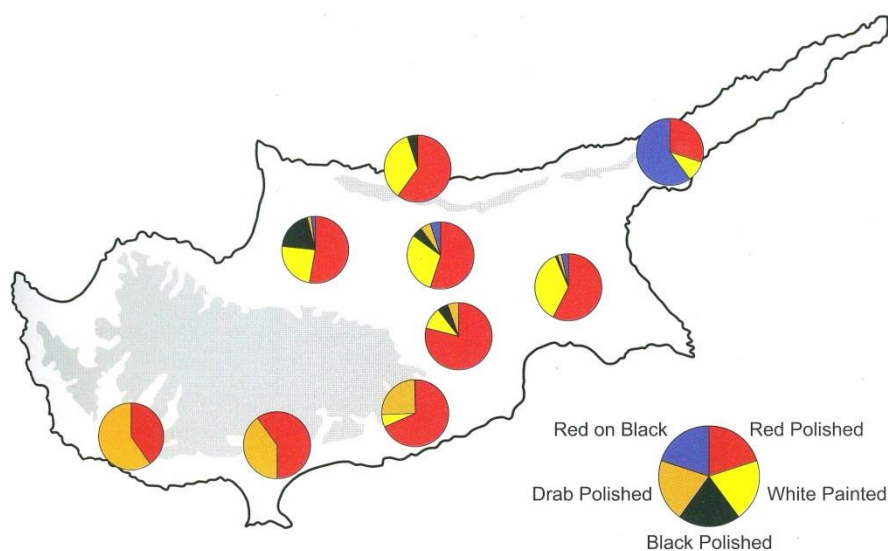


Figure 2.3: Map showing relative proportions of MC wares in different regions (Frankel 2009: 21, fig. 2)

The regional nature of Cypriot Bronze Age ceramics was the subject of a conference in May 2008 in Nicosia, Cyprus (Hein *et al.* 2009). As well as discussing regionalism in general (Frankel 2009: 15-27), the origins and provenance of specific wares were discussed (Maguire 2009: 39-49; Crewe 2009b: 79-91). Jennifer Webb's study on the Deneia sites and the ceramic interaction between Deneia and its surroundings is particularly relevant as she uses the ceramics to build a history of the complex and shifting relationships between Deneia and its neighbours (notably its relationship with Lapithos-*Vrysi tou Barba*) through the EC-MC (Webb 2009: 27-37).

Frankel & Webb have recently published several studies discussing the regionalism recognised in EC-MC ceramics and the social interactions that may be observed through studying regional similarities and differences (Frankel 1993, 2009; Webb 2009; Webb & Frankel 2010, 2013). Whilst linking EC-MC regionalism so closely with ceramics has been criticised as being possibly misleading, given the depositional and chronological issues presented above (Manning 2001: 80; Knapp 2008: 134), Webb and Frankel argue that using the study of ceramics to successfully identify regional identities and hypothesise the social and economic trajectories that led to a more defined regionalism (Frankel 2009; Webb 2009; Georgiou *et al.* 2011; Webb & Frankel 2013).

Evidence from the cemetery of Psematismenos-*Trelloukkas* has provided means for direct comparisons (Webb & Frankel 2013: 63). Both assemblages are large and consist almost entirely of whole RP vessels deliberately deposited, allowing for relevant cross-regional comparisons to be made (Webb & Frankel 2013: 60). By examining tomb architecture, grave goods and specifically, ceramics, Webb and Frankel argue that north coast ceramics during the ECI-II show considerable continuity with RP Philia, both in fabric and shape, with jugs and drinking apparatus occurring frequently (2013: 72). The frequent occurrence at Bellapais-*Vounous* of elaborately decorated vessels and complex ritual vessels coupled with

elaborate tomb architecture suggests a society based on social competition focussed on conspicuous consumption and elaborate ritual (Webb & Frankel 2013: 76). Webb and Frankel propose that following the breakdown of the island-wide Philia material culture, the north coast (as represented by Bellapais-*Vounous*) continued on a “more or less direct evolution from the earlier system” (Webb & Frankel 2013: 59), whilst the south and central lowlands followed a different trajectory.

At Psematismenos-*Trelloukkas* the majority of vessels occur in R_{Pm} and are undecorated and functional with large bowls being the most common (suggesting shared food). Although similar burial practices indicate shared traditions (Georgiou *et al.* 2011: 361), tomb architecture is also simpler, suggesting a more socially inclusive society with lower levels of social pressure, where a communal ethos is important and social approval is sought through conformity (Georgiou *et al.* 2011: 361; Webb & Frankel 2013: 73). This may signify the survival or revival of previous Chalcolithic cultural ethos in the south (Peltenburg 1993: 96).

Webb and Frankel’s research in this area is on-going, and whilst they recognise these two discrete regional provinces, the reasons why these societies expanded along different trajectories in the ECI-II are still to be fully explained (Webb & Frankel 2013: 72). They also accept that the west/south-west seems to represent another, different social trajectory that cannot yet be adequately understood (Webb & Frankel 2013: 76). How Kissonerga-*Ammoudhia* fits into and can contribute to our understanding of this western social trajectory will be discussed in Chapter 6.

Settlement

By the beginning of the EC, settlements increased in size (Frankel & Webb 2006; Knapp 2013: 263), Chalcolithic roundhouses disappeared and more rectilinear structures became common, implying a fundamental change in how people saw and used space (Papaconstantinou 2013: 160; Peltenburg 2013: 345). Like Chalcolithic

roundhouses, EC buildings were often built of mudbrick with only the lower foundations built of stone; although, there are occasionally buildings constructed entirely of stone (Frankel & Webb 2006: 763). Rooms vary in size from 2 m² to 30 m² and appear to consist of designated areas for living and working, including rooms set for specific tasks such as textile working (Swiny 1989: 20). Typical features include rectilinear clay hearths, low benches built against walls, a wide range of ceramics and groundstone tools, plaster bins and pot emplacements (Frankel & Webb 1996: 54-55).

As well as changes in architecture, settlements also shift in location. There is (as yet) no site in Cyprus with a stratified continuous occupation from the Late Chalcolithic to the EC. In some instances the two settlements are still very close; *Kissonerga-Skalia* (EC-MC, and the probable settlement for those buried at *Kissonerga-Ammoudhia*) is located only 100m or so south-west of the Chalcolithic settlement of *Kissonerga-Mosphilia* (Crewe *et al.* 2008: 105-6). *Skalia* is one of the very few coastal settlements identified from this period (Crewe *et al.* 2008: 105-6), and it may yet prove to be the continued occupation of *Kissonerga-Mosphilia* with a slight relocation or settlement drift.

Settlement patterns remain difficult to understand, due to the lack of excavated and published settlements and to inadequate stratigraphical data. Horizontal stratigraphy and single period sites are the norm in EC-MC archaeology (Peltenburg *et al.* 2013: 38). Of the three main sites to be comprehensively excavated and published, only *Marki-Alonia* has superimposed stratigraphy, allowing for more nuanced study of the population expansion and socio-cultural and economic processes occurring in a settlement site during the EC-MC (Frankel & Webb 1999, 2006).

Swiny recognises a slight preference for building settlements on plateaux with a good view (1981: 80-1), but this should not be taken as evidence for defence, as there is very little fortification seen during the EC (1981: 80-1). It is not until the latter part of the MC that there is any evidence for fortification, for example on the Karpass peninsula at sites such as Nitovikla (Peltenburg 2008) and the Mesaoria Plain (Peltenburg 1996: 30). At the time of writing, there are still only three settlements (Alambra-Mouttes, Marki-Alonia and Sotira-Kaminoudhia) that have been comprehensively excavated and published (Coleman *et al.* 1996, Frankel & Webb 1996, 2006, Swiny *et al.* 2003). However, recent re-evaluations of sites such as Ambelikou-Aletri (Manning & Swiny 1994; Webb 2012) and ongoing excavations at a number of settlement sites around the island (Bombardieri *et al.* 2008, 2009; Crewe *et al.* 2008, 2010; Falconer & Fell 2008, 2010, 2013; McCarthy *et al.* 2009, 2010), mean that this lack of secure settlement data should be somewhat resolved in the near future.

Economy

Despite this expansion in settlement size and population, society and economy still appear to be generally egalitarian and agrarian (Frankel & Webb 2006: 307). However, faunal remains show changes in animal husbandry and the re-introduction of cattle to Cyprus, after at least a millennium hiatus (Vigne *et al.* 2000, Croft 2006: 271), signifying fundamental changes to agricultural practices. At Late Chalcolithic Kissonerga-Mosphilia, deer and pig make up 80% of the identifiable animal bone (Croft 1998: 207-214), arguing for a dependency on hunting and herding (Croft 1998: 207-214; Webb & Frankel 2007: 194). However, at Marki-Alonia, deer and pig account for only 10% of the animal remains, with caprines the dominant species (62%) and cattle at 24% (Croft 2006: 263). These changes in animal husbandry are accompanied by new agricultural technology. There is strong evidence that, as well as a food source, cattle were also used as traction animals. The robustness of oxen phalanges from Marki-Alonia (Croft 2006: 271), coupled with

a possible stone ard blade (Frankel & Webb 2006: 207-88, fig. 6.1) suggest that cattle were used as draught animals. A clay model of a plough and oxen also appears on a composite vessel from *Vounous* (Dikaios 1940: 127-9), illustrating that this technology was in use by around 2000 BCE (Webb & Frankel 2007: 196). The introduction of a new type of sickle blade at Marki-*Alonia* also suggests new harvesting techniques (Frankel & Webb 2006: 252-4), whilst increases in the number of cereal grinding equipment also argue for an increase and dependence on cereal production (Frankel & Webb 2006: 219, Webb & Frankel 2007: 197). Perhaps it was in response to these social and economic changes that ceramic forms and technology altered considerably during the Philia and EC period, as described above.

Spindle whorls become common during the EC-MC, signifying an increase in textile production (Crewe 1992: 14, 24; Knapp 2013: 263). A spindle whorl is a small object used to aid in the spinning of wool. It is pierced and placed on a spindle (usually wood) and provides weight and tension to aid the drawing out and twisting of fibre and also helps to hold the spun thread in place (Crewe 1998: 5). Spindle whorls first appear in the Cypriot archaeological record during the Philia phase, probably introduced from Anatolia (Crewe 1998: 14) and are found in small but significant amounts island-wide, including several of the *Ammoudhia* tombs. They vary in shape and are generally ceramic, although stone examples are also found. Size and weight can vary and, as with ceramics, a great deal of regional variation is observed (Crewe 1998: 15). The size, shape and weight of a whorl can also provide evidence for the type of material being spun. Smaller, lighter whorls could be used to spin short staple wools such as sheep, whilst heavier ones (over 100g) could be used to spin heavier staples and flax (Crewe 1998: 13; Frankel & Webb 2006: 160-3; Knapp 2013: 326). Diameter can also be indicative of the type of wool being spun, as a wider diameter equals a slower spin, essential when spinning heavier wool (Frankel & Webb 2006: 173).

Spindle whorls were first identified at *Vounous* by Dikaios (1940) although no standardised classification method existed for several decades. Crewe's typology (1998) provided a much needed overview of the objects as well as a clear typology based on size, shape and weight, and is now almost universally applied (Frankel & Webb 2006: 159).

There are various different techniques for spinning. In EC-MC Cyprus, arguments for a 'low whorl' technology, where the whorl sits low on the spindle (Crewe 1998: 7) are backed up by recurring evidence of heavy usewear to the narrow terminal and are now generally accepted (Frankel & Webb 1996: 194, 2006: 176; Webb & Frankel 1999; Keswani 2013: 271). In this case the whorl is centred on the lower part of the spindle, which leads to often heavy abrasions to the narrow terminal which would be facing the ground (Crewe 1998: 59); this abrasion is visible on the majority of EC-MC whorls (Crewe 1998: 59; Frankel & Webb 2006: 171).

Davies estimated that approximately 30% of all burials contain 'devices' such as spindle whorls and loom weights (1995: 77). Davies observed that sometimes large numbers of whorls could be ascribed to a single burial and this did not seem to have any correlation to metal grave goods or large ceramic assemblages (1995: 77). This led to the suggestion that spindle whorls are important only to the individual and not linked to social rank (Davies 1995: 75; Frankel & Webb 2006: 197). Spindle whorls are often imbued with gender assumptions, being seen as 'feminine' objects, textiles being seen as a specifically female occupation (Crewe 1998: 36; Bolger 2003: 75; Knapp 2013: 326). However, gender arguments aside, the EC-MC practice of multiple burials means that it is usually not possible to ascribe grave goods to specific individuals, therefore using spindle whorls to determine gender or identity is not possible (Crewe 1998: 36).

It has been argued that spindle whorls are not useful chronological indicators, due mainly to a lack of securely dated contexts coupled with a high level of homogeneity (Åström 1972a: 617; Swiny 1986: 104; Crewe 1998: 36; Frankel & Webb 2006: 172). However, Frankel & Webb argue that recent evidence from Marki-*Alonia* changes this opinion (2006: 172). A total of 154 whorls were found at Marki (compare this to 125 from Lapithos-*Vrysi tou Barba* 75 from the Deneia cemeteries, 65 from Bellapais-*Vounous* and Alambra-*Mouttes*, 60 from Episkopi-*Phaneromeni*, 38 from both Karmi sites, 31 from Sotira-*Khaminoudhia* and only 4 from Psematismenos-*Trelloukkas* [Crewe 1998: 80-93; Frankel & Webb 2007: 125; Swiny 1986: 99; Webb *et al.* 2009: 227; Swiny 2003: 401-6; Georgiou *et al.* 2011: 302]). Many were found in securely datable contexts and show significant changes through time (Frankel & Webb 2006: 172). Stewart had already argued that the size of whorls increased during the EC-MC (1962: 233) and this is confirmed at Marki-*Alonia*, where Frankel & Webb note that, apart from the more idiosyncratic (and therefore easily identifiable) whorls, size increased and shapes altered with conical and biconical shapes being replaced by truncated and spherical versions by ECIII (2006: 172). The more cylindrical shapes attested at Alambra-*Mouttes* do not occur at Marki-*Alonia*, leading Frankel & Webb to conclude that this particular shape did not come into use until after the MCII abandonment of Marki-*Alonia* (2006: 172). The majority (76.6%) of the Marki-*Alonia* whorls are decorated with incised and impressed motifs (2006: 172) and Crewe recognised a similar percentage in her overview of Bronze Age Cypriot spindle whorls (1998: 44-45). However, at Marki-*Alonia* the proportion of undecorated whorls appears to increase into the MC (Frankel & Webb 2006: 174). It is possible that the manufacturing techniques and motifs found on whorls are representative of particular individuals or kin groups; Frankel & Webb note that whorls are broadly similar between the north coast, south coast and central plain (2006: 175). However, the Cypriot dataset is, as yet, too small for conclusive results (2006: 175).

Possibly the most important economic change to take place at this time is the intensification of copper production. In modern times Cyprus remains one of the richest countries in the world for copper ore (Constantinou 1982: 15). One would expect to find copper being utilised during the Chalcolithic period (Chalcolithic = copper/stone). However, copper artefacts found dating to the Chalcolithic period are extremely scarce and shapes are limited (Crewe *et al.* 2005: 51; Peltenburg 2011; Kassianidou 2013: 231). It is not until the EC-MC that copper finds become more common, particularly in cemeteries on the north coast (Dikaios 1940, Stewart 1962, Keswani 2004: 63-80; Kassianidou, 2013: 232-234). There appears to be improvements in metallurgical technology at the onset of the EC; during the Late Chalcolithic the evidence points to copper being hammered at low temperatures, technology not dissimilar to that already used for stone tool production (Weinstein Balthazar 1990: 92-94; Gale 1991: 52-53). This alters drastically during the EC, where the first evidence for casting copper in moulds appears (Webb & Frankel 1999: 31; Weinstein Balthazar 1990: 370-1; Kassianidou 2013: 234).

Although the archaeology shows an increase in metal production into the MC (Weinstein Balthazar 1990: 92-94; Gale 1991: 52-53, Webb & Frankel 1999: 3; Kassianidou 2013: 239-40), the range of copper objects found from EC-MC contexts remains limited (this is the case at *Ammoudhia*, where metal seems to be restricted to a small number of tombs; discussed in Chapters 4, 5 and 6). Whilst this can be explained in part through the melting down and reuse of objects, the abundance of stone tools generally found in settlements strongly suggests that metal use and range is restrained (Frankel & Webb 1996: 102). Throughout the EC-MC the majority of copper items continue to be found in tombs, although by the ECIII examples are also found in settlements (Swiny 2003, Frankel & Webb 2006) and a persistent increase is observed into the MC (Kassianidou 2013: 239-240). The earliest evidence for copper mining in Cyprus currently comes from the site of *Ambelikou-Aletri*, in the northern Troodos foothills and dates to c. 2044-1929 Cal. BC (Dikaios 1945: 104;

Merrillees 1984; Muhly 1989, Manning & Swiny 1994: 151; Webb 2012). Small amounts of slag and crucibles suggest that by the MC, smelting was taking place and copper production intensified. Further evidence for smelting in the form of slag, moulds and crucibles from *Alambra-Mouttes* (Gale *et al.* 1996: 369-70) and *Marki-Alonia* (Frankel & Webb 2006: 191) argue that during the MC, copper smelting and casting was now taking place in settlements (Frankel & Webb 2006: 191).

It is not until the late Cypriot Bronze Age (LC) that copper mining and bronze production took off on an industrial scale (Weinstein Balthazar 1990; Muhly 1989); and it may be the chief reason for the fundamental economic, social and cultural changes that took place on Cyprus during the LC (Knapp 1990; 1994, 2008, 2013). Regardless, many of these changes that are seen to culminate in the LC may actually have their genesis in the EC.

Some scholars, particularly Knapp and Manning argue that the intensification of an agricultural economy as evidenced by the increase in cattle numbers, cereal production and use of secondary products, led to surpluses and the inception of elites who controlled these surpluses (Manning 1993: 48; Steel 2004: 126; Knapp 2013: 304). Manning has argued that the occurrence of vessels containing images of cattle suggest the beginnings of social elites with cattle as the source of wealth (1993: 45). He goes on to argue for these elites controlling copper production, with the extremely rich burials of *Bellapais-Vounous* and *Lapithos-Vrysi tou Barba* evidence for social differentiation (1993: 43, 98). Knapp also argues for indigenous elites in the EC exploiting Cypriot copper sources with Anatolia (2008: 82-87).

However, it must be noted that Knapp and Manning's evidence for social stratification comes almost entirely from cemeteries on the north coast, which contain little or no stratigraphy and where the parent settlements have not been located (Sneddon 2002: 2) and, given the present geo-political circumstances, will

remain unknown. Alternatively, the three published settlements all show evidence of egalitarianism, with no recognisably different economic or social practices (Coleman *et al.* 1996: 329, 344; Swiny *et al.* 2003: 54; Frankel & Webb 2006: 314). Any evidence for social elites or a stratified social hierarchy at Kissonerga-*Ammoudhia* will be discussed in Chapter 6.

Knapp's argument for elites controlling a copper trade with the mainland (1990, 2008, 2013) is also problematic. Apart from initial contact at some point before or at the beginning of the Philia facies (e.g. Mellink 1991; Webb & Frankel 1999; Peltenburg 2007; Knapp 1990, 2008), Knapp admits that there is little evidence for long-distance trade on a local scale (Knapp 2013: 307) and very few ceramic vessels in the EC-MC repertoire have been identified as certain imports (Stewart 1962; Webb. 2009: 252; Knapp 2013: 307).

There is more evidence for external contact in the examination of metals. Although it is the *Bronze Age* under discussion, actual evidence for bronze during this period is rare. Bronze is an alloy of copper and tin, and while copper is abundant in Cyprus, there are no sources of tin on the island, so foreign trade or exchange would be required to obtain the tin needed to make bronze. Weinstein Balthazar proposed that tin bronze first appeared during the MCI, based on the evidence of two Minoan daggers from *Vounous* (1990: 73). However, more recent lead isotope analysis by Webb (2006) proved that three metal objects dating to the Philia period are believed to be of tin bronze (Webb 2006: 268). Two (a sword and spear tip) are believed to be imports, but the third is an axe of a Cypriot type, suggesting local manufacture (Webb 2006: 274; Kassianidou 2013: 233). This implies that raw tin was imported to Cyprus as early as the Philia facies (Webb 2006: 274). Backing up this Early Bronze Age date for imported bronze are four spiral rings of tin bronze from Sotira-*Kaminoudhia* Tomb 6 (Swiny *et al.* 2003: 376-9). Unfortunately, the evidence for tin

bronze during this period is still scanty and the source of tin still a matter of debate (Kassianidou 2013: 233).

Evidence outside of Cyprus during the EC-MC is similarly slight. Knapp lists only one identifiably Cypriot object found in Minoan Crete and eight Minoan objects found in Cyprus (Knapp 1994, 2013: 309). Whether the Minoans were trading objects for Cypriot copper (e.g. Peltenburg 2008: 153) or these objects arrived through more passive, random exchanges (e.g. Kouka 2009: 40) cannot be determined on this limited evidence.

Although there remains very little direct evidence for social hierarchy and elites during the Cypriot EC-MC, so many profound changes to economy and society do at least suggest an increased level of co-operation (Knapp 2013: 306). Apart from the odd imported artefact, beyond the establishment of the Philia culture, there is very little evidence for social, cultural or ritual practices that can be identified as 'foreign'. Rather, the present evidence points to a still largely insular economy during the EC-MC. However, given the paucity of evidence for exports and imports, and the fragmentary and inadequate data from both settlements and cemeteries in Cyprus, the jury remains out on this issue. Any attempts to reconstruct specific socio-economic models will remain incomplete until further stratified evidence is forthcoming.

Death and Burial

The social and economic changes described above are reflected in EC-MC mortuary practices, of particular interest to this thesis, given that *Kissonerga-Ammoudhia* is a cemetery site. Burial customs fundamentally changed during the transition to the EC, as large communal cemeteries became the norm, with chamber tombs replacing the pit graves of the Chalcolithic, and a significant increase in grave goods

(Peltenburg 1998: 257; Keswani 2004: 12-13; 2013: 186-225). Changes in funerary and religious rituals reflected in art/iconography can also be observed.

Standard burial practice on Cyprus before the Bronze Age is the intra-mural pit grave, usually containing a single individual and often found in domestic context (Peltenburg 1998: 68-9; Keswani 2013: 168). Cemeteries are not unknown during the Chalcolithic period (Keswani 2004: 39; Crewe *et al.* 2005; Peltenburg 2011), but they are extremely rare and, at the time of writing, only seem to occur in very special circumstances around the Souskiou area near the mouth of the Dhiarizos River (Crewe *et al.* 2005; Peltenburg *et al.* 2006, 2011). At least two discrete cemeteries exist, Souskiou-*Vathyrkakas* (Peltenburg 2006) and Souskiou-*Laona*, a discrete limestone outcrop on the opposite ridge of the Vathyrkakas River (Crewe *et al.* 2005; Peltenburg 2011). Recent excavations have revealed a settlement, also on the *Laona* ridge (Peltenburg *et al.* 2006; Peltenburg 2011) where evidence has refined the occupation date to the Middle to Late Chalcolithic transition, c. 3000 BCE (Peltenburg 2011: 681).

Keswani argues that the increased use of formal cemeteries can be directly associated with the formation of descent group identities or competition between such groups (Keswani 2004: 12-13). Whether the dead were inhabitants of the Souskiou settlement or represent distinct social groups or elites is one of the questions currently being analysed by the Souskiou team and this and other questions will hopefully be answered in the forthcoming final publication (Peltenburg 2011: 685). However, the early date for the Souskiou cemeteries is unusual, and there is little evidence for communal mortuary practices until the EC.

EC-MC cemeteries tend to be placed on a hill or ridge usually within 1km and in sight of the parent settlement (Sneddon 2002: 3). Tombs are cut into bedrock, often with an open passage (dromos) and a doorway entrance (Stewart 1962: 215-6), and

Kissonerga-*Ammoudhia* conforms to these traditions (see Chapters 4 and 6). Tomb architecture and scale can vary considerably, with chambers recorded as round, oval, kidney shaped, rectilinear or even square and varying in diameter from 2-4m (Webb 1992: 88; Davies 1997: 11). The earliest excavated chamber tombs occur at Kissonerga-*Mosphilia*, where 13 sub-circular examples were recorded from the Late Chalcolithic Period 4 (Peltenburg 1998: 70); some containing multiple burials in a discrete area of the settlement that may have been set aside as a burial plot for a particular group or family (Peltenburg 1998: 88; Keswani 2013: 180-1). Similar simple tombs have been identified at Sotira-*Kaminoudhia*, along with shaft tombs similar to those observed at the Souskiou complex, suggesting some continuity with Chalcolithic practices in the south-west (Swiny 2003; Keswani 2004: 55, 2013: 228). Webb has argued that chamber tombs were originally constructed to house one inhumation, but by ECIII, multiple burials were commonplace (1992: 88) and by this period multi-chambered tombs frequently occur, although none were identified at *Ammoudhia*.

Webb also suggested that the variations in tomb architecture and location are due to environmental factors, with finding a stable medium to construct underground chambers being of foremost importance (Webb 1992: 87). However, Keswani proposes that there is a direct relationship between tomb architecture and the wealth of the individual or community (or the aspirations of the survivors [2004: 35]) whilst Manning argued that the occurrence of contemporary pit tombs and multi-chambered examples together illustrate differences in status and possibly emergent elite (1993: 45). Tombs can contain multiple inhumations, with evidence of use over several generations, leading Keswani to argue for these individuals belonging to the same kin group (Keswani 2004: 54). However, lack of stratified evidence compounded with the usual caveats for mortuary archaeology (Barlow 1991: 51; Webb 1992: 87; Sneddon 2002: 2; Swiny 2003: 1; Keswani 2004: 24) makes it extremely difficult to come to any decisive conclusions with the present evidence.

Whilst grave goods are often found in Chalcolithic tombs, the number and range of goods vastly increased during the EC-MC (Keswani 2004: 51-54). Typical grave goods include ceramics, combs, spindle whorls, beads and occasional metal objects such as daggers/knives and whetstones (Manning 1993: 45; Washbourne 2000; Keswani 2004: 63, 2013: 193-7, 207-211, 220-224). From the Philia phase onwards, ceramic vessels are found in large numbers and include fine vessels for mixing, pouring and drinking liquids, suggesting liquid consumption became an aspect of mortuary ritual (Keswani 2013: 228). These vessels increased in number over time and more complex, possibly ceremonial, vessels and small round spouted juglets became widespread by ECIII (Keswani 2013: 228-9). These vessels and the associated changes over time are observed at *Ammoudhia* and are discussed further in Chapters 5 and 6.

Webb and Frankel suggest that this preference for ceramics linked to drinking were used by the living, as part of a funerary feasting or imbibing ritual (2008: 288). However, there is also evidence that they might represent libations or offerings to the dead (Keswani 2013: 229). Several tombs across the island have produced the remains of joints of meat (Stewart & Stewart 1950: 122, 130, 141; Georgiou 2011: 342), suggesting a feasting ritual, but in cases such as at *Psematismenos-Trelloukkas*, these joints remain articulated and may well represent offerings to the dead, rather than constitute the detritus of a feast by the living (Georgiou 2001: 52; Georgiou *et al.* 2011: 342).

Changes in decorative motifs and iconography are also reflective of changes in ritual and belief. Picrolite, the material highly favoured for the manufacture of cruciform figurines during the Chalcolithic, is still occasionally used, but the cruciform pendants and figurines of the Chalcolithic are replaced by anular spurred pendants and other simpler decorative forms (Keswani 2013: 193). When figurines do occur during the EC-MC they tend to be ceramic plank figurines (Morris 1985:

135; a Campo 1994: 164-9). These highly schematic human figures seem to have their origins in Anatolia (Bolger 1996: 370) and are usually only found in tombs; in fact human forms are rare and there are none at *Kissonerga-Ammoudhia*.

Many archaeologists have theorised over the years on just what information can be obtained from studying death and burial and funerary ritual (Malinowski 1925; Binford 1972; O'Shea 1984; Parker Pearson 1993, 1999). Is it possible to identify specific rituals and do they signify a belief in an afterlife? Do grave goods represent the wealth of the deceased or the number of mourners (in other words – do pots equal people?).

Despite a large number of EC-MC tombs and artefacts have been excavated, knowledge regarding funerary ritual is somewhat less than usually assumed (Sneddon 2002: 1). Because of a lack of context and information, little has been written regarding funerary ritual in the EC-MC. Webb tackled this issue in a 1992 paper, where she reviewed the evidence for funerary ritual in the EC-MC (Webb 1992). Webb argued that, although it is difficult to establish the exact relationship between people and artefacts, the evidence points to some kind of belief in post-mortem survival, with grave goods forming an important part of these rituals (1992: 87-89). Ceramics make up the majority of grave goods, with the vast majority of these being in the forms of bowls, jugs and juglets (Webb 1992: 89). Whether these are synonymous with life after death or are used in specific rituals such as feasting is more difficult to ascertain. Rituals such as libations leave no trace in the archaeological record (Webb 1992: 91) and ultimately, Webb argued that the “ideology of death and burial in Bronze Age Cyprus is largely unknown and perhaps unknowable” (1992: 96).

Sneddon made the point that very few cemeteries had been excavated in conjunction with the related settlement, meaning that comparisons between the two

are limited (2002: 2). However, Swiny had estimated that there were over 200 prehistoric cemeteries in Cyprus (1989: 26) and this issue is now beginning to be addressed as excavations at cemeteries and settlements are occurring at several sites around Cyprus (Appendix 2).

At *Alambra-Mouttes*, for example, a cluster of tombs was identified, but erosion coupled with previous (and largely unpublished) excavations has meant a loss of information. The most recent expedition excavated six tombs of both chamber and pit variety in the hope of providing some mortuary evidence and comparisons with the settlement (Coleman *et al.* 1996: 113). The recovered tombs contained a surprisingly small number of grave goods, and although the ceramics seemed to be largely contemporaneous with the settlement, there were a few shapes found in the cemetery that were rare in the settlement assemblage (Coleman *et al.* 1996: 117).

A similar pattern can be seen at nearby *Marki-Alonia*. The settlement appears to be ringed by at least five distinct clusters or cemeteries (Sneddon 2002: 9-12). Most were looted, and the information from excavation proved scanty; however, a comprehensive survey of the cemetery areas was conducted and results were published (Sneddon 2002). The ceramics point to a broadly similar assemblage as found on the settlement, with the majority being RP, with a small number of Philia and DP vessels, most being utilitarian vessels showing evidence of use (Sneddon 2002: 113). However, there were small but important differences. Although there was some evidence for what may be termed 'food preparation' equipment (such as groundstone and cooking pots) there was a considerably higher percentage of storage vessels found in the cemetery ceramics, with large bowls and basins being more common in the cemeteries (Sneddon 2002: 113). Cemetery vessels are also more likely to be decorated and show a wider range of decorative motifs (Sneddon 2002: 113).

The most comprehensively excavated site to have both settlement and cemetery information published is *Sotira-Kaminoudhia*. 21 Tombs were excavated, containing multiple burials and a modest number of grave goods (Swiny 1989: 88). Once again, the ceramics are very similar to those found at the settlement; the majority being RP, with some BP, RPSC and the only complete DP vessel from the site, a tankard, dated to ECIII (Herscher 2003: 152; 497). There are, again some differences between the two assemblages; small bowls are the most common vessel in the cemetery, they are also more likely to be decorated (Herscher 2003: 152; 498). There are also more vessels with flat bases in the cemetery (Herscher 2003: 152; 498), although, unlike *Marki-Alonia*, decorated vessels are more prevalent in the settlement assemblage, as are DP vessels (Herscher 2003: 152; 498).

Episkopi-Phaneromeni also consists of a settlement and cemetery, however, the ceramics are yet to be fully published and from the published information it would appear that the excavated late MC settlement actually post-dates the cemetery (Sneddon 2002: 2). Like *Sotira-Kaminoudhia*, the *Episkopi-Phaneromeni* cemetery seems to contain a modest number of grave goods, for example, of 12 tombs excavated, 80 vessels were recovered (Swiny 1989: 88).

More recently, excavations at the cemetery at *Psematismenos-Trelloukkas* produced 47 tombs (Georgiou *et al.* 2011). Altogether, 728 vessels were recorded, the vast majority being Rpm ware (Georgiou *et al.* 2011: 187-194). Whilst small flat based conical bowls are the most common shape, there are also a significant number of other types of bowl including tulip, large and spouted bowls as well as jugs and juglets (which again tend to have flat bases and round or cutaway spouts) and jars, which vary considerably in size and shape (Georgiou *et al.* 2011: 203-235). 25 cooking pots were also recovered, the majority of which are homogenous with a flat base, ovoid body and single vertical handle (Georgiou *et al.* 2011: 239). The area around *Psematismenos-Trelloukkas* is recognised as a particularly rich area for

Bronze Age occupation (Georgiou *et al.* 2011: 5); however, the corresponding settlement to the Psematismenos-*Trelloukkas* cemetery is yet to be identified and excavated and therefore no similarities can, as yet, be made.

In sheer numbers, the tombs at Bellapais-*Vounous* and Lapithos-*Vrysi tou Barba* are still by far the largest excavated. At Lapithos-*Vrysi tou Barba* 245 tombs were excavated, out of which, 118 were intact and at Bellapais-*Vounous* 100 were intact out of a total 210 excavated (Davies 1997: 12). However, at Bellapais-*Vounous* at least 32 tombs were found to contain more than 50 vessels, with nine having more than 100 (Stewart 1962); whilst Lapithos-*Vrysi tou Barba* on average contains less than half the number of vessels found at Bellapais-*Vounous* (Davies 1997: 18). These numbers mean that until a large, intact cemetery and settlement is excavated and published, archaeologists will still rely heavily on these cemeteries (Davies 1997: 12).

Despite the caveats stated above, studying funerary ceramics can provide the investigator with valuable information regarding prehistoric society. The most comprehensive study to date on Cypriot Bronze Age mortuary ritual was conducted by Keswani (2004, 2013), in which she examined the social and ideological aspects that govern the trends of mortuary ritual from the Philia period to the end of the LC. Keswani's study was conducted after the excavation and publishing of several of the excavations discussed above allowing her to elaborate more fully on the nature of ceramics and grave goods. She suggests that grave goods in the EC-MC consist of a combination of personal possessions and gifts (Keswani 2004: 75). She also notes that as the size of tombs grew over time, so did the number of vessels and other grave goods (Keswani 2004: 63), which, she argues, can be explained as an increase in mortuary expenditure and signs of conspicuous consumption and status displays, such as feasting and funerary rituals which again are very difficult to recognise in the archaeological record (Keswani 2004: 82).

As discussed above, Manning has argued that tombs rich in prestige goods and distinctive, highly decorated vessels provide evidence for a hereditary aristocracy confirming the status of the dead (1993: 45, 48). Knapp also argues for elites using mortuary ritual and conspicuous consumption to establish links between these groups, their ancestors and the land (2013: 321). The continuous use of cemeteries does suggest an increased veneration of ancestors and connections to the land (Herscher 1997: 31-4; Bolger 2003: 159-60; Knapp 2013: 321). Unfortunately, the fact that most tombs from this period contain multiple burials makes it difficult (if not impossible) to assign grave goods to a specific inhumation (Webb 1992: 87; Keswani 2004: 24). The vast majority of grave goods from this period conform to general island-wide categories and Keswani argues that there are very few that can be described as “individualising” (2013: 229). Rather, the mortuary evidence conforms to a structured or conventionalised model of conformity (albeit with a degree of prestige displays [2013: 229]). Mortuary evidence from *Kissonerga-Ammoudhia* and how adds to this debate will be discussed in Chapter 6.

EC-MC Ceramics

There have been several studies on Early-Middle Cypriot ceramics over the years (Stewart 1962; Åström 1972a; Merrillees 1978; MacLaurin 1980; Philip 1983; Herscher 1976, 1981, 1991; Frankel 1974, 1977, 1981, 1988, 1994, 2005; Washbourne 2000; Webb 1992, 2000, 2002, 2012, 2013; Webb & Frankel 1999, 2001, 2013; Dikomitou 2007, 2010, 2011), the majority being typological studies in an effort to clarify wares and chronologies. Because there are so few excavated sites from this period, attention has been concentrated in putting sites into context within the spatial and temporal landscape. The studies conducted outside of the typological arena have again mainly been concentrated in a social interaction sphere, in attempts to place sites into a chronological context and gain insights into social interaction between groups.

Classification Issues

More recent excavations have produced a slew of generally similar, but specifically different wares that could not always be comfortably fitted into the traditional classification system (see Appendix 3), and illustrate considerable regional variations. This has led to the original chronology and typology (based on RP, particularly from *Bellapais-Vounous* and *Lapithos-Vrysi tou Barba*), being reviewed and added to as new wares and sub-wares were discovered. This has also thrown into doubt the numerical categories of RPI, II, III and IV which suggest a simple chronological connection which does not necessarily exist (Vaughan 1987: 15; Barlow 1989: 56). This has led to one of the most complex ceramic sequences in archaeology and it is no wonder that the majority of studies into EC-MC ceramics have been occupied with classification. The present research is no exception, since it represents a new corpus of regionally distinct ceramics, the classification of these new wares and sub-wares is of primary importance.

Rice defined the purpose of classification as to create groups whose members are similar whilst the groups themselves are dissimilar (1987: 274). These similarities should not occur by chance but reflect something significant. In the case of pottery, groups are usually based on common features of materials, manufacturing techniques and style (Rice 1987: 274). In Cyprus there are immediate issues with nomenclature that stem from original identifications, and, in some cases, the same ware may be classified differently by different scholars.

These issues can apply to almost anyone working with ancient ceramics anywhere in the world. But relating to Cyprus, a symposium was held in 1991 to deal with these specific issues (Barlow, Bolger & Kling, 1991). How to classify prehistoric Cypriot ceramics and what criteria to use were debated by several scholars (e.g. Barlow, Merrillees & Vaughan, 1991), sometimes with opposing ideas.

Barlow, for example, argued for using manufacturing techniques and chemical/microscopic analysis, as applied at *Alambra-Mouttes* (Barlow 1996a). She also argued against the use of generic RP categories, since 99% of the *Alambra-Mouttes* repertoire is made up of RPIII (Barlow 1996a). Barlow identified through petrographic analysis that the *Alambra-Mouttes* potters chose to use two very different clay sources for different types of vessels (RPA and RPB – see Appendix 3). Whilst this methodology has worked very well at *Alambra-Mouttes*, it has not been widely adopted by other projects. The majority of recent excavations have chosen to apply the general SCE typology wherever possible. Although several refinements have been made to adapt to local techniques and styles and occasionally entirely new classifications have been made (for example R_{Pm} and R_{PSC}; both are relatively common at sites on the south coast but do not appear in the SCE classifications). In the same volume, Merrillees acknowledged the problems with the SCE typology (1991: 237), but argued for maintaining the current system, unless “present practice is found totally unworkable” (1991: 237). Merrillees also raised the point that we do not know what these different pots would have been called by their makers or users (1991: 238). Indeed, we have no idea where or even if, ancient potters recognised the sometimes very subtle differences that are currently used to classify and sub-classify ceramics, such as shape, surface treatment or manufacturing techniques. It is important for anyone making a study of ceramics to realise that the classification system is a false one, set up for convenience by modern scholars (Merrillees 1991: 238).

Elsewhere, Vaughan has argued (like Barlow) that the identification of fabric should be the initial identifier (1987: 9) as handmade vessels are difficult to rigorously classify and criteria such as shape or decoration are easily copied, whilst the fabric represents more deeply ingrained technological traditions (1987: 9).

This thesis supports the idea that it is counter-productive to attempt to force ceramics into the general classification system when they clearly do not fit. Nevertheless, it is also counter-productive for every new excavation to classify wares with entirely new names; there must be some cohesion, otherwise it would be impossible to recognise any similarities between assemblages.

The work done by recent excavations has followed this rule, where local RP (for example) is still named RP, but a further definition is given (Mottled, South Coast, etc.). However, Merrillees has argued against using a geographical nomenclature (1991: 238-9), as naming a ware after the site at which it is originally discovered is misleading (1991: 238). He gave the example of 'Episkopi ware', originally named after Episkopi-*Phaneromeni*, the site where it was originally discovered. It was later renamed as Red Polished Punctured ware (Carpenter 1981: 64), to illustrate that this ware is part of the RP repertoire and is largely differentiated by its surface treatment (punctured decoration). However, as more excavations have taken place, RP Punctured has been identified at a various sites, mostly on the south and west coast (Carpenter 1981: 64; Cullen *et al.* 1986: 23; Swiny 1991: 65). Many of these vessels fit the description of RP Punctured very well, except several are completely undecorated (Carpenter 1981: 64). This raises an important point – how can a vessel be RP Punctured without punctured decoration? Should we be naming wares using terms that are irrelevant or misleading?

So exactly which criteria should scholars be using? Should they be based on surface treatment, shape or fabric? What to do if the vessel is completely intact and the fabric is not visible? Clearly, one cannot break an intact vessel to observe the fabric. Stewart used vessel shapes, surface treatment and perceived dates as identifiers (Stewart 1962: 223); and the first two, at least, are obvious choices, since both are immediately visible and recognisable. If fabric is not always visible then it is counterproductive to name a ware based on fabric type. Rather if fabric is visible

then it can be placed into a subset of existing wares (for example, as per Merrillees (1991: 237-8), DP is the parent ware, DPBC the sub-ware if the blue core is visible).

Rice acknowledged these issues in her comprehensive study of pottery analysis (1984: 282-287) and like Merrillees argued against using a site name as an identifier, as this might lead to misinterpretations especially on the origins and spread of the ware (1984: 282). She went on to argue for using technological attributes where possible to back up identifications made through form and surface treatment (1984: 287).

Stylistic Analyses

Pottery is especially useful for both transmitting and receiving stylistic messages and ceramics have been a rich source of stylistic analyses for several decades. The additive nature of pottery manufacture also makes it a particularly good area of study for the processes of manufacture and the choices involved in that process (Irving 2004: 9; Graham 2006). Because pottery is used continuously and, by probably all members of a society, it is useful in providing a basis for both inter- and intra-site comparisons.

Cypriot pottery has also on occasion been stylistically analysed, again with the emphasis on understanding social structure and interaction. In most cases this has constituted traditional analyses of fabrics, form and decoration.

Ellen Herscher has been at the forefront of several of these studies and publications in recent years as well as being responsible for recording and analysing the ceramics from recent excavations such as *Sotira-Kaminoudhia* (2003). Her studies in southern Cyprus have led her to suggest that ceramic style here in the EC-MC was technologically conservative, the norm being to improve on existing techniques rather than adopting new ones. This can be observed in the absence of WP in the

region, the answer to which she suggests, lies in the political and sociological realm (Herscher 1981: 15). With the information from Barlow (1989) that WP is manufactured in the same way as RP, a stylistic analysis comparing these fabrics and the different stylistic choices made may prove enlightening.

Over the past four decades David Frankel and Jennifer Webb have been two of the most prolific contributors to our knowledge of EC-MC Cyprus. They have provided evidence in the form of newly excavated sites such as Marki-*Alonia* (1996, 2006) and Deneia-*Kafkalla* and *Mali* (2006; Webb 2009) and with Georgiou, Psematismenos-*Trelloukkas* (Georgiou *et al.* 2011). Recently, they have been involved in the re-evaluation of sites excavated by Stewart in the (presently inaccessible for research) occupied territory, at Karmi *Lapatsa* and *Palealona* (2009) and Ampelikou-*Aletri* (2012), presented in Appendix 2.

Both individually and together they have pursued various questions regarding EC-MC society and have used various different methods of stylistic, typological and scientific analyses to seek answers regarding technology, pottery production, social structure and social interaction. One of Frankel's earliest studies (1977) dealt explicitly with decoration on WP, a processual approach similar to design attribute analysis, where he attempted to quantify the degrees of similarity between different groups by studying the proportional occurrence of decorative motifs (Frankel 1977: 149).

An on-going debate in Cypriot archaeology is that of the nature of prehistoric Bronze Age pottery production. Some scholars have argued for a specialised industry, likely operated by males (Stewart 1962: 291-2); others for a more *ad hoc* domestic production operated by females (Frankel 1988: 29). Frankel's later papers explored this issue and in most of his studies he used an explicitly stylistic approach to argue for the latter (Frankel 1992: 69). Through their findings at the Marki-*Alonia*

settlement Frankel reconsidered his opinion regarding his previous arguments for a domestic female pottery industry. Analysis of the pottery and estimates of population and the life span of vessels suggests that so few vessels would be needed each year that rather than each household making their own vessels as it needed them, one or two specialised households were probably responsible for pottery production (possibly linked to kin groups), with more uniformity and less individual expression (Frankel & Webb 2000: 7). Frankel sees this as a more emblematic representation of style rather than the more assertive model he had advocated previously (Frankel & Webb 2000: 8).

There is no one stylistic theory that is considered superior to any other, and most can be used interchangeably outside their original area of study (Irving 2004: 202). However, it is clear that there is more to stylistic variation than typology and the study of decoration. In Cypriot Bronze Age archaeology, ceramic production and technology have been studied by those scholars mentioned herein, but the nature of production and technology still remains on the periphery of most analyses. My Master by Research dissertation (2006) consisted of a stylistic analysis of a selection of ceramics from four *Ammoudhia* tombs (5, 10, 15 and 16). This study applied the theories of Lemonnier (1992, 1993) and in particular Sackett (1977, 1986). By applying the theoretical framework of Sackett's *isochrestic variation* (1977) I sought to identify the stylistic choices made during the manufacturing process of the ceramics and investigate whether the ceramic variability observed in the assemblage (particularly in wares, forms and surface treatment) were superficial, or the result of deeply ingrained manufacturing traditions. This study showed the intensely regional nature of the Kissonerga-*Ammoudhia* ceramics (Graham 2006). For the first time it was apparent that DP was by far the most common ware in this cemetery and by studying manufacturing techniques in particular, it illustrated some of the subtle but crucially different choices that were being made in or around Kissonerga during the EC-MC.

My research was restricted to a macro-level study and concluded that the ceramics conformed in a general way to EC-MC typology but seemed to be almost entirely locally produced. However, the DP at *Ammoudhia* presented profoundly different manufacturing techniques to the RP, particularly during the firing process (Graham 2006: 83). Unfortunately, the investigation was restricted by the constrictions of a Master's degree; the sample was limited to 100 vessels and sherds and there was no scope to conduct any microscopic analysis, which would have greatly enhanced any understanding of manufacturing techniques.

Ceramic Technology

One of the few studies to take a technological view of EC-MC ceramics was conducted by Jane Barlow (1989, 1991, 1996a, 1996b) on RP from *Alambra-Mouttes*, as discussed above. In an attempt to gain a clearer understanding of the myriad categories of RP she conducted petrographic and chemical analysis on a selection of sherds. She discovered that two fundamentally different types of clay were used, one sedimentary and one igneous which appear to be used for specific vessels (Barlow 1989: 55). Barlow also discovered that, microscopically, early WP is almost identical in composition to the finer RP, which she termed RPA (Barlow 1989: 56). A later study also showed that BP is technologically nearly identical to RPA but is fired in a reducing atmosphere to give its black colour (Barlow 1994: 45). These studies showed that, at least at *Alambra-Mouttes* and its environs, pottery making techniques were almost homogenous, with the potters making clear choices at different points in the manufacturing process (surface treatment for WP, firing for BP) to achieve the vastly different aesthetics.

In recent years, further studies have taken place using scientific techniques such as petrography and chemical analyses, in attempts to ascertain provenance (Knapp & Cherry 1994; Summerhayes 1996; Vaughan 1987, 2003; Dikomitou 2006, 2011; Frankel & Webb 2012a) and these promise to be fruitful areas for future research.

A promising area for provenance studies is the use of a portable X-Ray Fluorescence device (pXRF). This technique can be used on almost any solid or liquid and is used across a broad spectrum of science and industry (Shackley 2011: 7-8). By using X-Ray technology to agitate electrons, this technology can identify specific elements which can then be used to identify the chemical composition of the object. The advantages of XRF in geoarchaeology have been established since the 1960s (Shackley 2011: 1) and more recently, it has become a common method of compositional analysis in archaeological ceramic studies, due in part to the invention of a portable, hand-held device that can be easily taken into the field (taking the lab to the artefact, rather than bringing the artefact to the lab).

As well as being portable, this technology has the advantages of being non-destructive, easy to use and produces speedy results with minimum preparation (Shackley 2011: 8-9). By identifying the composition of types of ceramics it becomes possible to make comparisons that can identify differences in clays and tempers (Frankel & Webb 2012), although the person using the equipment should be skilled and cognizant with any potential flaws in the analysis, as although useful and cost-effective, the portable XRF is not the “all-knowing black box we would like it to be.” (Shackley 2011: 9).

Frankel & Webb have recently used this methodology to good use in examining and comparing samples of pottery from four different EC-MC centres (*Ambelikou-Aletri*, *Marki-Alonia*, *Bellapais-Vounous* and *Psematismenos-Trelloukkas* [2012a]). Their study identified that, what had been identified as local RP from *Ambelikou*, *Psematismenos* and *Vounous* all differed considerably in their trace elements (2012a: 3), thus “fitting with a model of local production and consumption” (2012a: 4). This study also showed that different clays were selected for different types of vessels; in particular, fine examples of RPIII and the more decorated vessels were made of “significantly different clay” (2012a: 5). At *Ambelikou-Aletri*, the trace elements

differ significantly, suggesting that these vessels were imported, but at Marki-*Alonia*, they appear to be from local, but preferentially selected fine clays (2012: 4-5). These findings back up previous assertions of differential clay sourcing for finer/coarser vessels (Barlow 1996 a, 1996b; Barlow & Idziak 1989; Frankel & Webb 1996, 2006, Summerhayes 1996). The DP examined in their studies had a very different chemical signature to the locally manufactured RP, containing higher concentrations of Zr, Nb and Rb (2012a: 5-6). However, the DP samples from both *Ambelikou-Aletri* and *Marki-Alonia* were homogenous (2012a: 5-6); confirming Frankel & Webb's hypothesis that DP originates from elsewhere, most likely the west coast, and that these vessels represent imports (Frankel & Webb 2012a: 4, 7).

Petrographic Analyses

Ceramics are a combination of naturally occurring raw materials that can be mixed with added temper of a varied nature, which is then subjected to differing heat processes that leave mineralogical signatures. By examining these signatures, researchers are able to identify characteristics that may be misinterpreted or overlooked in a traditional, macroscopic analysis (Peterson 2009: 2). A petrographic analysis is included as part of this research.

A petrographic analysis of ceramics involves thin section analysis, grinding sherds down to 0.03mm thick (enabling light to pass through), then observing the mineral composition under a polarising microscope. Minerals can then be identified and fabrics can begin to be classified using features such as textural and optical characteristics of the matrix and inclusions (Peacock 1970: 356-7; Peterson 2009: 2). A microscopic examination of ceramics provides information on the manufacturing processes invisible in a traditional analysis. As well as identifying clay types and possible sources, procedures such as temper, sorting, firing techniques and surface treatment can be observed (Peacock 1970: 356-7; Whitbread 1995; Peterson 2009). These can provide evidence for the relations of materials to human behaviour and the choices and decisions made by the potters (and how these might change over

time and space) (Rice 1987: 310). By observing these microscopic characteristics, similarities and differences can be identified and relationships between wares can be established. It also becomes possible to compare these to macroscopic characteristics, allowing for similarities and differences between the two to be observed (Rice 1987: 310). For example, are the superficial similarities observed in a macro analysis mirrored microscopically or not? Are pots that look the same really alike or are they, in fact, manufactured very differently? Petrographic analysis allows observation of relationships in the manufacturing process that would otherwise go unobserved (see Chapter 5).

No formal terminology currently exists for archaeological petrology, resulting in a lack of consistency, with information open to being neglected or misinterpreted. The most successful studies are those with clear aims and simple methodologies (Freestone 1991: 400). Freestone (1991) argued that whilst petrographic analysis is an effective tool to determine the characteristics of a fabric (1991: 399), there are still limitations to be considered, particularly in provenance studies (1991: 399). These limitations are directly illustrated in Cyprus, where the existence of similar geological blends occur at various different locations on the island (as well as some geological signatures covering a very wide area) making it extremely difficult to identify clay sources.

Analytical examinations of the mineralogy of ancient Cypriot ceramics were first conducted by Courtois (1970), who proposed that production centres may be identified by their exploitation of igneous or sedimentary clay sources. This was gradually followed by Barlow & Idziak (1989), Knapp and Cherry (1994) and Barlow again (1991, 1994, 1996b). Although there have been recent re-examinations of ceramics from some excavations in the north (e.g. Webb et al. 2009; Frankel & Webb 2012a; Webb 2012]), this has been entirely based on non-destructive techniques such as pXRF analysis. For petrological information we must still rely on

those excavated sites in the south, where petrographic analyses have been conducted.

The three main sites to be excavated and fully published, *Alambra-Mouttes*, *Marki-Alonia* and *Sotira-Kaminoudhia* all included a mineralogical analysis of a ceramic sample in their final site reports. Thin section analyses were conducted at *Alambra-Mouttes* (Barlow 1996b) and *Sotira-Kaminoudhia* (Vaughan 2003). At *Marki-Alonia* an electron microprobe analysis (Summerhayes 1996) and thin-section analysis (Dikomitou 2010) were performed. Dikomitou also conducted a petrographic analysis on the ceramics from the brief excavations at *Deneia* (2007).

These studies agree that the evidence points to a broad island-wide ceramic tradition, but with local production sites, exploiting local clay resources and with few, if any, clay mixing or tempering. Although these studies were predominantly of a technological and compositional nature, they illustrate that the potters were skilled at selecting raw materials suitable for various functions, as well as processing, forming and firing the product.

As discussed above, the *Alambra-Mouttes* pottery was manufactured using one of two distinct types of clay, from either igneous or sedimentary sources (Barlow & Idziak 1989: 68; Barlow 1996a: 248-254). Thus illustrating that vessel function was a criterion for the initial clay selection. This selection is also visible at *Marki-Alonia*, where a number of wares are identified and some (including DP) are identified as likely imports (Summerhayes 1996: 178).

At *Sotira-Kaminoudhia*, Vaughan aimed to identify any regional variations of RP and how these may be related to each other technologically (2003: 211). She also asked whether “patterns of material exploitation or technological developments were responsible for the appearance of Drab Polished ware” (Vaughan 2003: 211). This is

one of the very few occasions when DP has been microscopically examined and is therefore of prime importance in comparison with Kissonerga-*Ammoudhia*. Vaughan took 32 samples in total and was able to identify seven different fabrics, two of which are igneous (Types 1 & 2), three calcareous with abundant microfossils (Types 3-5), one very fine, uniform sedimentary fabric (Type 7) and one of radiolarian shale and siltstone (Type 6), which appears in examples of RP Monochrome and Drab Polished, and which is also consistent with a sample of DPBC from Episkopi-*Phaneromeni* (Vaughan 2003: 213-215).

Vaughan had tackled these issues in her unpublished PhD thesis (1987) where she applied a petrographic analysis to the Base Ring ware of the LC. Using a macro sample base of 1000 vessels and sherds, she first conducted a detailed macroscopic analysis based on traditional typology to provide a basis for establishing groups (1987: 45). She then examined 175 samples microscopically to ascertain whether the island-wide homogeneity observed in Base Ring ware typology is also observed at a microscopic level (1987: 41). Her thesis brought to light many previously unforeseen aspects of ancient Cypriot ceramic technology, and provided clear evidence for some of the choices made by the potters in question. Her research shows that in the manufacture of BR ware, there is no evidence for any adding of temper (1987: 67), and the selected clays, whilst generally siliceous, can also consist of carbonates, shale, iron oxides and clayey concentrations such as mudstone (1987: 67). This variety of clay sources fits with the model of a general island-wide tradition with local workshops utilising local resources.

Vaughan is one of the few scholars to attempt a provenience study of EC-MC ceramics through investigating possible local clay sources (see also Dikomitou, 2011). In her study of Base Ring ware (1987, 1991a, 1991b) she took 40 samples, representative of the four mineralogical clay types she had identified (1987: 205). A selection of these were hand sorted and crushed, then made into briquettes and air

dried for 48 hours before firing at a low temperature (100°C) for 24 hours and finally at 700° - 950°C (Vaughan 1987: 205). Changes in colour, hardness and degrees of spalling were recorded (1987: 205). Although each clay type sampled contained common minerals with the typical BR fabrics (in particular bentonitic clays from the west, and marls from the south [1987: 208]), there were no examples that could be identified as containing enough similarities to be identified as a possible source for BR (1987: 208). She also manufactured two bowls (one in bentonitic clay, the other in marl) using techniques that she suggests for the manufacture of Base Ring ware (1987: 205) and attempted to fire these in a reducing atmosphere. However, this attempt did not produce fabrics that could be compared to Base Ring ware (1987: 206).

Vaughan's research also provided evidence of firing technology. Surface colour differentiations and the presence of cores suggested that BR ware was fired in a pit fire (or similar), as these are common signs that oxygen is not being distributed evenly (1987: 71-2). The hard, fine nature of BR coupled with its dark surface colour, are all highly suggestive of a hot, rapid firing, at temperatures of between 700-900°C (1987: 281). Although BR dates to the LC, and is therefore out-with the chronological remit of this research, Vaughan's work is still pertinent to this study. Firstly, as one of the very few comprehensive petrographic studies into ceramics from the south-west of Cyprus, and secondly, as a comparison of the material and technological affinities between BR and DP (Vaughan 1991a: 124-5).

The most recent analytical research into EC-MC ceramics was conducted by Maria Dikomitou for her PhD thesis (2011). In this research, Dikomitou conducted an interdisciplinary two-tier investigation into the technology and manufacturing techniques of EC-MC ceramics. Firstly, by conducting a broad, island-wide investigation into the technological uniformity of Philia ceramics, using 39 samples from Marki-*Alonia* and 49 from 6 other sites (2011: 74, 94), and also a diachronic

study of another 146 sherds, representing the main wares at Marki-*Alonia*, the only published site to allow for chronological comparisons (2011: 74, 94, 159).

A large part of Dikomitou's research involved petrographic analysis. In her research into the island-wide Philia ceramics, she was able to argue that the microscopic evidence points to a complex network of "local, regional and supra-regional production centres, producing pottery in a similar fashion" (2011: 147). Dikomitou's ongoing research is contributing greatly to the debate on Philia culture and ceramics.

The second part of Dikomitou's research focused on the ceramic assemblage at Marki-*Alonia*, where the earlier Philia wares conform to the evidence provided by her initial study (2011: 155). However, her study of the ceramics from later contexts shows that this level of cultural homogeneity is not sustained through the EC-MC, as wares become increasingly regionally distinct. Her study of the Marki ceramics only includes the major wares; however, she was still able to identify 13 different fabrics, of both sedimentary and igneous composition (2011: 167). Like the sites discussed above, the microscopic analysis of Marki-*Alonia* ceramics points to specific choices being made in the pottery-making process including clay sourcing, preparation and firing techniques (2011: 174). However, her research did not include sherds deemed to be imported to Marki, therefore, she was not able to examine the small amounts of DP found there (2011: 77-8).

Dikomitou also attempted a provenience study of the Marki ceramics. By collecting 10 soil samples from igneous, alluvial and sedimentary deposits up to 5km from Marki (2011: 79) she was able to fire them for five hours at 750°C and manufacture briquettes that could then be made into thin sections (2011: 79). These were then analysed and compared to her petrographic results. Although not able to state conclusively that Marki ceramics were manufactured from specific clay sources, she

was able to identify several cases where her identified petrographic fabrics shared similar mineralogies with the soil samples, arguing for a local manufacture (2011: 230, 245).

Whilst the ceramics at Marki-*Alonia* seem to fit the hypothesis of an island-wide tradition with local production centres exploiting local clay sources, the Marki-*Alonia* potters appear to be catholic in their tastes, with only two fabrics identified with a specific vessel shape or ware. One, Early RS, appears to be an import (Dikomitou 2011: 260) whilst the other is specifically used for the manufacture of cooking pots, where ability to withstand and conduct heat is of prime importance. The technological choices made regarding the manufacture Marki ceramics and, of cooking pots in particular, have been discussed in more detail by Dikomitou (2011) and is an on-going research project by Dikomitou and colleagues from the University of Cyprus.

A similar, but smaller petrographic study of Philia ceramics was conducted by Stephen (1998) as part of the Kissonerga-*Mosphilia* excavation. She compared Philia ceramics from Kissonerga-*Mosphilia* (8 samples), Sotira-*Kaminoudhia* (11 samples) and Vasilia-*Evrina* (10 samples). Although Stephen was unable to identify if the Philia ceramics from these three sites had a local manufacture (1998: 144), she argued that the Kissonerga samples did seem to come from a common source (1998: 144). Although there were also notable similarities between the ceramics from Kissonerga-*Mosphilia* and Vasilia-*Evrina*, those from Sotira-*Kaminoudhia* were considerably different, being coarser and containing more igneous inclusions such as olivine and volcanic glass (Stephen 1998: 173). Stephen's work therefore suggests that there existed different production centres during the Philia facies, both of local origin and more regional, perhaps with one linking the north and west (1998: 173).

An unpublished petrographic report of a 16 sherds from *Kissonerga-Mosphilia* (Robertson 1989) shows two clusters of clay types. Both are homogenous within their boundaries, but are heterogeneous when compared to each other. The first cluster consists of a mudstone matrix an unusually large mix of igneous material combines with fine grained chalks and sandstones. Robertson identified the provenance as matching outcrops in the *Kissonerga* area (*Mamonia Complex* or *Kannaviou Formation*). These samples all derived from RP *Philia* sherds.

Robertson's second cluster is made up almost entirely of mudstone and siltstone, both in the matrix and in the form of compacted clasts, which vary between rounded and angular and measure several mm in length and can exhibit polygonal cracking (Robertson 1989). This source was also identified as local, possibly the *Kannaviou Formation* of *Mamonia* outcrops. This sample comes from sherds belonging to the Late Chalcolithic wares Red and Black Burnished (RB/B) and Spalled ware (SW). Since it has been argued that SW may be the precursor to DP in the region (Herscher 2003: 218), it is useful to compare the two microscopically. Robertson's analysis offers an opportunity to compare petrography from *Kissonerga-Mosphilia* and *Kissonerga-Ammoudhia* and will be discussed further in Chapter 5.

Stephen's and Dikomitou's study of *Philia* ceramics are notable as they provide information on the manufacturing techniques and intra-island contacts in the period immediately preceding *Kissonerga-Ammoudhia*. Stephen's evidence that *Sotira-Kaminoudhia* ceramics were considerably different to those from *Kissonerga-Mosphilia* in the mid to late 3rd millennium BCE is interesting, given Vaughan's study of later EC-MC *Sotira-Kaminoudhia* pottery, in particular DP. Likewise, the evidence that *Kissonerga-Mosphilia* ceramics show similarities to those from *Vasilia-Evrima* and the north is useful information that may have implications into the Bronze Age and the ceramics from *Ammoudhia*. Dikomitou's research into RP is

extremely relevant; in particular her diachronic study of RP at Marki-*Alonia*. Thus microscopic ceramic information is now available from each of the big three contemporary sites. This allows for comparisons with the *Ammoudhia* sample and certain conclusions may be drawn regarding similarities or differences observed in clay choices and manufacturing techniques.

The Geological Background of Cyprus

A ceramic vessels appearance and character may, in a large part, be dependent on the clay selected for its manufacture. Although potters may travel some distance for favoured clay sources, this does depend on what clays are available locally, i.e. the local geology. Therefore, before examining the microscopic evidence from Kissonerga-*Ammoudhia*, it is essential to provide some information on the geological background of Cyprus. Geology forms the background to our lives, it provides the ground on which we live, the landscape and topography allowing us to grow crops, build cities, power our vehicles and provide fuel, minerals and metals; it is the (generally unseen) backdrop to our lives, as it was in the past. Geology helped determine where and how people existed, what they ate, what they wore, and important to this research, how they manufactured their pottery.

The geology of Cyprus is extremely complex, and this brief account should be taken as just that – a *brief* account. At its most basic, Cyprus can be split into four distinct geological zones. The Kyrenia Terrane in the north and the Troodos Ophiolite Terrane in the centre-west are the two mountain ranges. These are bridged by, and in the case of the Troodos, encircled by, the Circum-Troodos Sedimentary Succession, with the Mamonia Terrane in the west of the island (Cyprus Geological Survey 2012) (Figure 2.4).

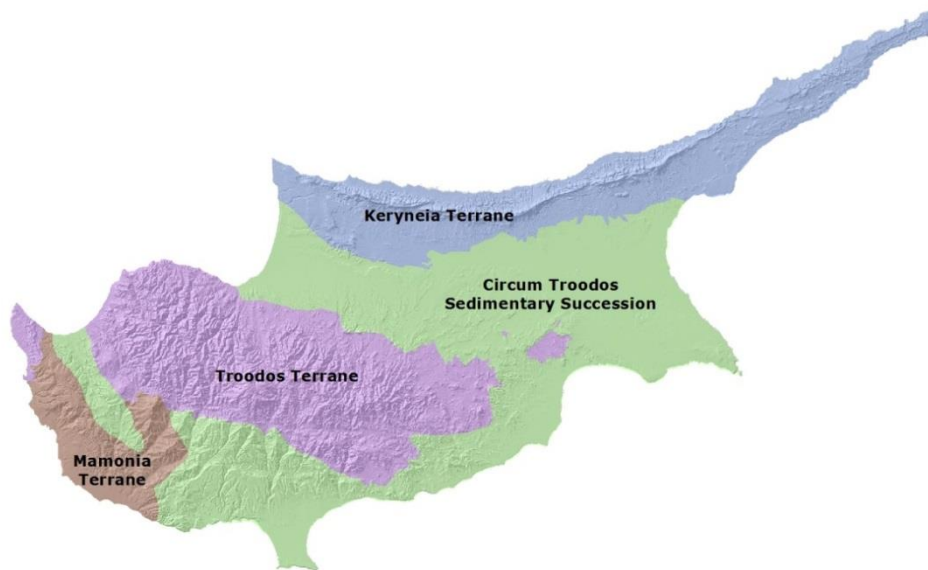


Figure 2.4: Map of the four geological zones of Cyprus (Geological Survey Department), Republic of Cyprus, http://www.moa.gov.cy/moa/gsd/gsd.nsf/dmlIntroduction_en/dmlIntroduction_en?OpenDocument, accessed 24/12/12)

The Kyrenia Terrane in the north covers the narrow and steep sided Pentadaktylos mountain range and the Karpass peninsula (Cyprus Geological Survey 2012). It consists mainly of carbonates, particularly limestones, with some igneous and metamorphic rocks, including dolomites and marbles (Cyprus Geological Survey 2012). The EC-MC cemeteries of Bellapais-*Vounous* and Lapithos-*Vrysi-tou-Barba* are located in this geological zone.

The Troodos Ophiolite Terrane dominates the centre of the island and is regarded as ‘the most complete and studied ophiolite in the world’ (Cyprus Geological Survey 2012). This stratigraphically complete ophiolite is composed of the mantle sequence (harzburgite and serpentinite), plutonic (dunite, pyroxenite, gabbro), intrusive (diabase dykes) and volcanic rocks (pillow lava basalts), with chemical sediments of the Perapedhi formation, consisting of umbers, shales and radiolarites, which cover the ophiolite (Department of Geological Survey 2012).

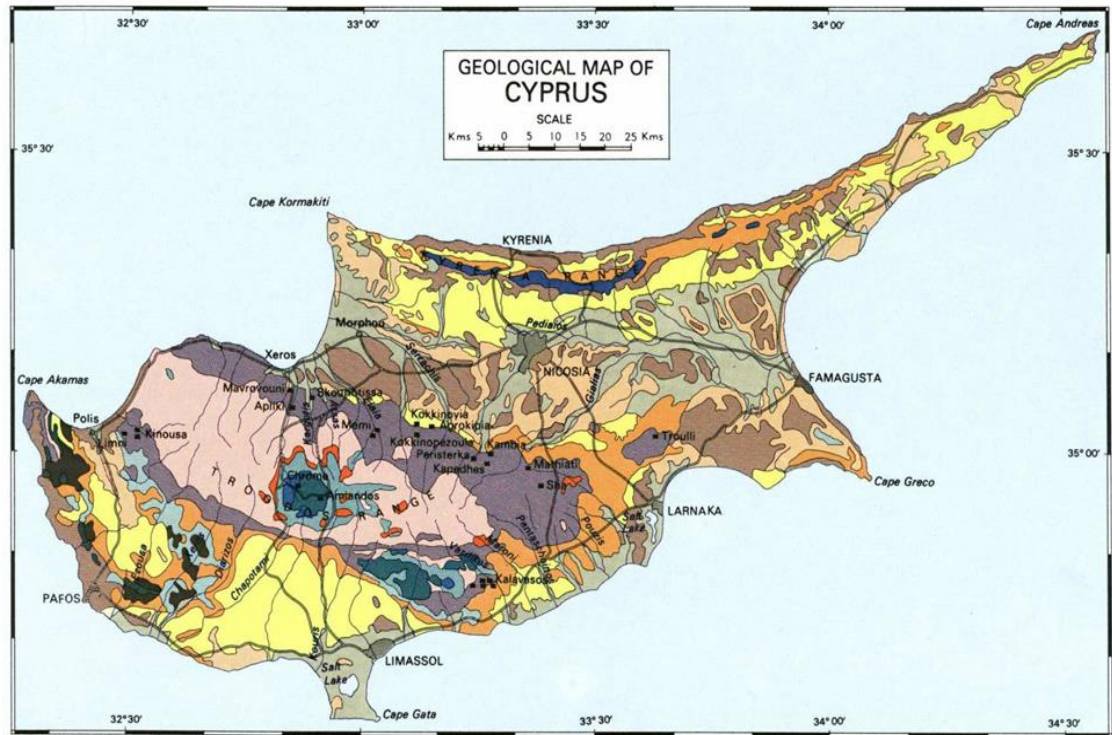
At the time of writing, there are no EC-MC sites excavated in the Troodos Terrane, although several sites are located in the foothills of the ophiolite (this may be due to the difficult terrain, rather than the lack of sites).

The Circum-Troodos Sedimentary Succession is an extensive zone of autochthonous sedimentary deposits, extending between the Kyrenia and Troodos ranges, taking in the Mesaoria Plain in the centre and down to the south coast (Figure 2.4). It consists of marine deposits, including 'bentonitic clays, volcanoclastics, melange, marls, cherts, limestones, calcarenites, evaporates, clastic sediments and melanges' (Cyprus Geological Survey 2012). The majority of excavated EC-MC sites are located in this wide geological zone, including central sites such as *Marki-Alonia* and *Alambra-Mouttes* and south coast sites such as *Psematismenos-Trelloukkas*, the *Vasilikos Valley* sites and *Pyrgos-Mavroraki*. The re-occurrence of similar geological blends encircling the Troodos mountains makes it extremely difficult if not impossible to pinpoint the original source of ceramics from this zone (Dikomitou 2011: 137).

The Mamonia Terrane in the west is an extremely complex zone, made up of igneous, metamorphic and sedimentary rocks, including volcanics (lavas), sedimentary rocks (limestones, mudstones and quartzitic sandstones), recrystallised limestones and metamorphics such as schists and marbles (Cyprus Geological Survey 2012). The Mamonia Terrane is an intensely faulted zone, incorporating fragments of Troodos ophiolite lithologies (which it overlies in part). Several EC-MC sites are located within the Mamonia Terrane, including *Kissonerga Skalia*, *Kissonerga-Ammoudhia* and *Prastio-Mesorotsos*. The south-west is characterised by outcrops of bentonitic clays, mudstones and volcanoclastic sandstones of the *Kannaviou Formation* and the highly deformed Mamonia Complex which occurs in two main outcrops; one in the north-west extending from the Akamas Peninsula to

the Mavrokolympos Dam, and one around the Dhiarizos River in the south-east (Cyprus Geological Survey 2012).

The geology and topography on the south-western coastal plain, where the village of Kissonerga is located, is an equally diverse area of the Mamonia zone. Consisting of narrow coastal plains and river valleys which develop inland to an extensive limestone plateau, this in turn backs onto the foothills of the Troodos Mountains (Bolger, McCartney & Peltenburg 2004: 195). Weathering coupled with rainfall runoff from the Troodos has given rise to thick alkaline soils containing fragments of igneous, sedimentary and metamorphic lithologies sourced from the Mamonia Terrane, particularly in the areas of the Dhiarizos Valley to the south-east of Paphos and areas to the north of Kissonerga (Figure 2.4). However, it should also be noted that, although ceramics are made from clay (and a clay sampling strategy has been employed as part of this research), studying modern clay and soil sources is problematic (King 1987: 7-10; Vaughan 1987: 204). The physical environment is not static and the present environment cannot be taken as representative of past ones (King 1987: 7). Therefore, examining the background geology, which is considerably slower to alter, is altogether more productive in this instance (King 1987; Vaughan 1987; Dikomitou 2011).



STATE COPYRIGHT

Compiled, drawn and photographed by Geological Survey Department, 1981

LEGEND

SEDIMENTARY FORMATIONS		TROODOS OPHIOLITE (PRE-CAMPANIAN)	
	Alluvium		Upper and Lower Pillow Lavas and Basal Group
	Fanglomerate, Terrace Deposits		Diabase
	Nicosia - Athalassa Formations		Plagiogranite
	Kalavassos, Koronia, Pakhna and Kythrea Formations		Gabbro
	Terra, Lefkara, Ardana-Kalogrea and Lapithos Formations		Pyroxenite, Wehrlite, Dunite
	Moni, Kannaviou and Perapedhi Formations		Harzburgite, Serpentinite
	Hilarion, Sykhari, Dhikomo and Kantara Formations		Serpentinite (Mamonnia Complex)
	Mamonnia Complex		Mine
	RECENT		PILLOW LAVA SERIES
	PLEISTOCENE		SHEETED DYKE COMPLEX
	PLIO-PLEISTOCENE		PLAGIOGRANITE
	MIDDLE-UPPER MIOCENE		GABBRO
	MAESTRICHTIAN - LOWER MIOCENE		ULTRAMAFICS
	CAMPANIAN-MAESTRICHTIAN		
	PERMO-CARBONIFEROUS TO LOWER CRETACEOUS		
	TRIASSIC TO LOWER CRETACEOUS		

Figure 2.5: Simplified geological map of Cyprus (Geological Survey Department, Republic of Cyprus, [http://www.moa.gov.cy/moa/gsd/gsd.nsf/All/CE3B2485DC97BB83C22572A3004645C9/\\$file/Geological%20Map%20Cyprus_en.jpg?OpenElement](http://www.moa.gov.cy/moa/gsd/gsd.nsf/All/CE3B2485DC97BB83C22572A3004645C9/$file/Geological%20Map%20Cyprus_en.jpg?OpenElement), accessed 24/12/12).

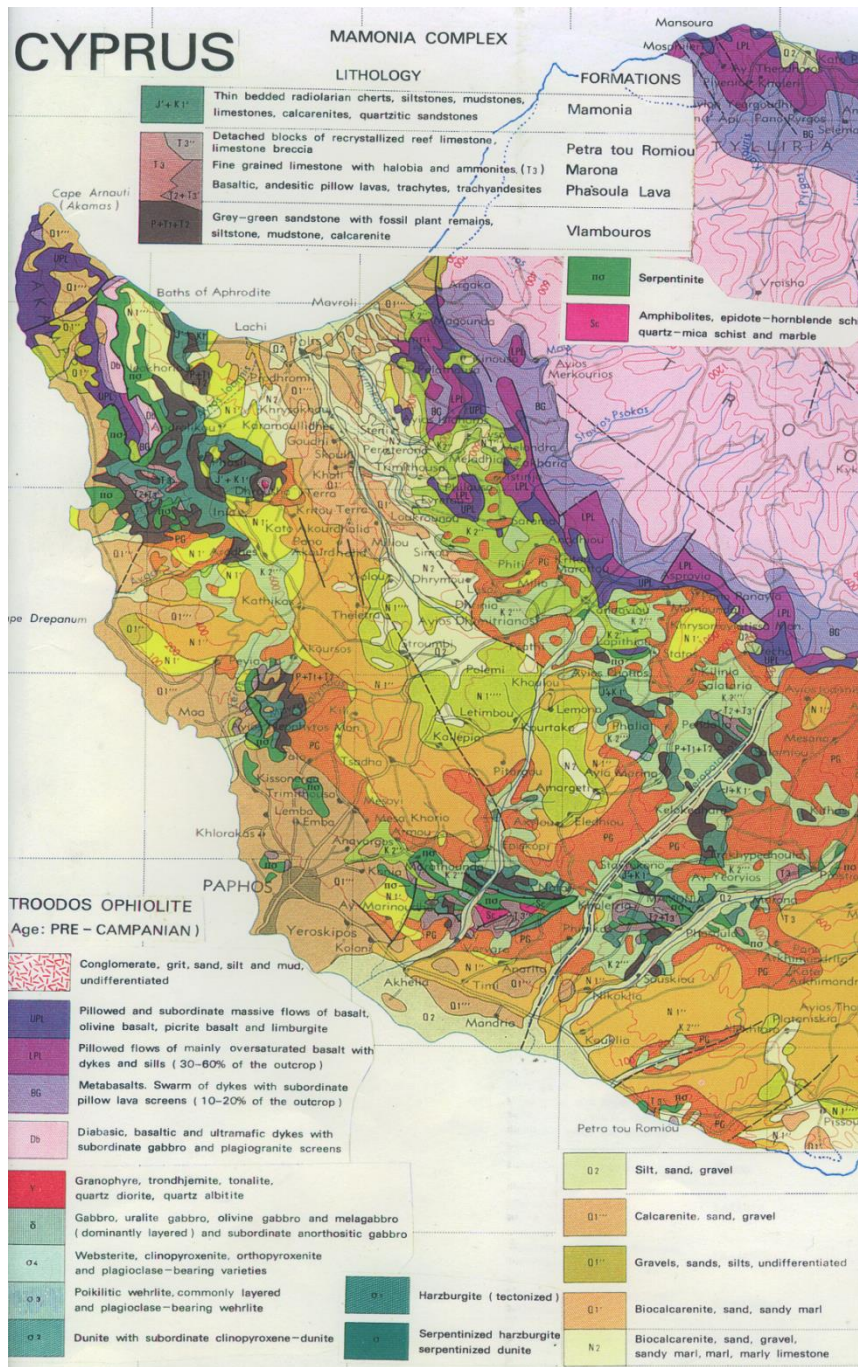


Figure 2.6: 1: 25,000 geological map of western Cyprus (Cyprus Geological Survey 1995, reproduced from Robertson *et al.* 2004).

Drab Polished ware: A case study

Several of the issues regarding nomenclature and chronology discussed above are compounded in the study of DP ware. Few studies have so far been conducted on DP, largely due to it constituting a very minor ware at most sites, meaning that until recently, there has not been a large enough corpus of material available to make informed conclusions. Kissonerga-*Ammoudhia* and the ongoing excavations at Kissonerga-*Skalia* provide ceramic assemblages dominated by DP (Crewe 2008, 2010; Graham 2006, 2010), making it now possible to identify the manufacturing traditions of DP and compare these with both DP from contemporary sites and with the general EC-MC ceramic repertoire.

Ellen Herscher is one of the few scholars to have made a study of the ware out-with inclusion in a site report (1976, 1981, 1991, 2001, 2003; Herscher & Fox 1993). She refined the typology of DP in the south-west, noting that most of the DP in the south-west has a fine, hard fabric (with or without a blue core) and a few limestone inclusions (1981: 81, 2003: 152-3), this is *contra* Åström's description of black grits being common (1972a: 83). Graham Philip suggested that DP constituted the local west coast version of RP (1983: 48, 52), although Herscher argued that its manufacturing techniques differ from the local RP ware and (*contra* Philip), DP represents a long lived, independent and sophisticated technology (Herscher & Fox 1993: 71). These studies have proved invaluable to this research and future chapters will discuss the validity of both conclusions.

DP was first identified by Paul Åström and dated to the MCII-III (1972a: 190). However, more recent studies from Sotira-*Kaminoudhia* and Marki-*Alonia* now suggest that this is a more long lived ware than originally stated (Herscher 2003: 152-3; Frankel & Webb 2006: 140). Its existence in secure ECIII contexts at Marki-*Alonia* is particularly suggestive; macro and microscopic as well as chemical analysis has shown that the Marki-*Alonia* DP is an import, accepted to be from the south-

west (Frankel & Webb 2006: 140). This would then suggest that DP in the south-west dates to *at least* the ECIII and probably earlier; and an earlier date is backed up by the presence of DP at the EC site of Sotira-*Kaminoudhia* (Herscher 2003: 152-3).

Understanding DP has been hampered by a lack of uniformity in identification and nomenclature. Since DP does not occur in abundance out-with the recently excavated south-west, it is open to misidentification. Ceramics that may be identified as DP have been classified as RPIV, BSII, RS and Proto-BR at various times (Frankel & Webb 2007: 68). Åström's original description is not typical of that DP found in the south-west (Guldager Bilde 1993: 22; Herscher 2003; Graham 2006), and variations may represent chronological as well as typological differences.

The argument for DP originating in the south-west is gaining support. The Palaepaphos survey identified a significantly larger amount of DP at sites in the Dhiarizos valley than at even Episkopi-*Phaneromeni* (Guldager Bilde 1993: 22). Guldager Bilde suggested that its presence at sites identified as EC was evidence for the Dhiarizos DP dating to earlier than that at Episkopi-*Phaneromeni*, arguing for the ware originating in the Paphos area (1993: 23). Frankel & Webb's recent study of the chemical make-up of ceramics from Ambelikou-*Aletri* and Marki-*Alonia* also help substantiate this claim (2012a). The recent evidence from Kissonerga-*Skalia* (Crewe 2008) and the evidence presented herein agree with this hypothesis.

DP found in the south-west has a range of fabric and surface treatments not included in the original descriptions (Graham 2006). For example, the DP from the tomb excavated at Mesoyi-*Katarraktis* near Paphos contained DP vessels in a wide range and variation of surface colours including red, brown, reddish yellow, buff and dark grey (Herscher & Fox 1993: 71), as does the material from the Palaepaphos survey (Guldager Bilde 1993: 22). This evidence, coupled with recent findings from

Kissonerga-*Skalia* (Crewe 2008) and Kissonerga-*Ammoudhia* (Graham 2006, 2010, 2012) bring into question the very title '*Drab Polished ware*'.

If these vessels cannot be termed 'drab' by their surface colour, and an identification based on manufacturing techniques is out of the question, then how is one to make the distinction? Is a vessel that is polished and red, by definition not 'Red Polished'? Even if it has a blue core, should we then name this Red Polished Blue Core? What about vessels that are mottled drab and red and only have parts of blue core, illustrating an uneven firing environment? There are also issues regarding the identification of DP Blue Core ware, if the vessel is intact and the blue core is not then visible, as discussed above. Clearly, some standardisation is required and this thesis will attempt to offer clarification in at least some of these areas.

CHAPTER 3

METHODS AND MATERIALS

Introduction to Kissonerga-Ammoudhia

The village of Kissonerga is situated on the west coast of Cyprus, approximately 8km north of the city of Paphos. Figure 3.1 shows a satellite (Google Earth) image of the modern village and its relation to the coastline, whilst Figure 3.2 is a 1:5000 cadastral map of the modern village.



Figure 3.1: Satellite image of the modern village of Kissonerga showing the location of *Ammoudhia* in relation to other sites mentioned in the text (Google Earth accessed 23/09/2012) The Chalcolithic settlement of Kissonerga-*Mosphilia* is visible at the northernmost part of the map, with the EC-MC settlement of Kissonerga-*Skalia* to the immediate south of *Mosphilia*. Kissonerga-*Skalia* is marked at the plot currently under investigation, although the site may be considerably larger and may overlie parts of Kissonerga-*Mosphilia* (Crewe 2008: 105-6). The *Ammoudhia* cemetery is in the foreground, situated on a terraced limestone escarpment at the south-eastern edge of the modern village and less than 1km south-east of Kissonerga-*Skalia*. The area marked in orange is the extent of the site, based on reports by Hadjisavvas (1976) and by extensive recent fieldwalking. The area excavated in 2000 is marked in red, whilst the 2008-09 excavations are in blue.

The *Ammoudhia* escarpment has an extensive viewshed, although *Kissonerga-Skalia* is not directly visible (Crewe 2008: 106). The *Ammoudhia* outcrop overlooks the Mediterranean Sea to the west, and the Agriokalami River to the south, with the Chalcolithic site of *Lemba-Lakkous* on the eastern side of the river (Hadjisavvas 1977: 226).

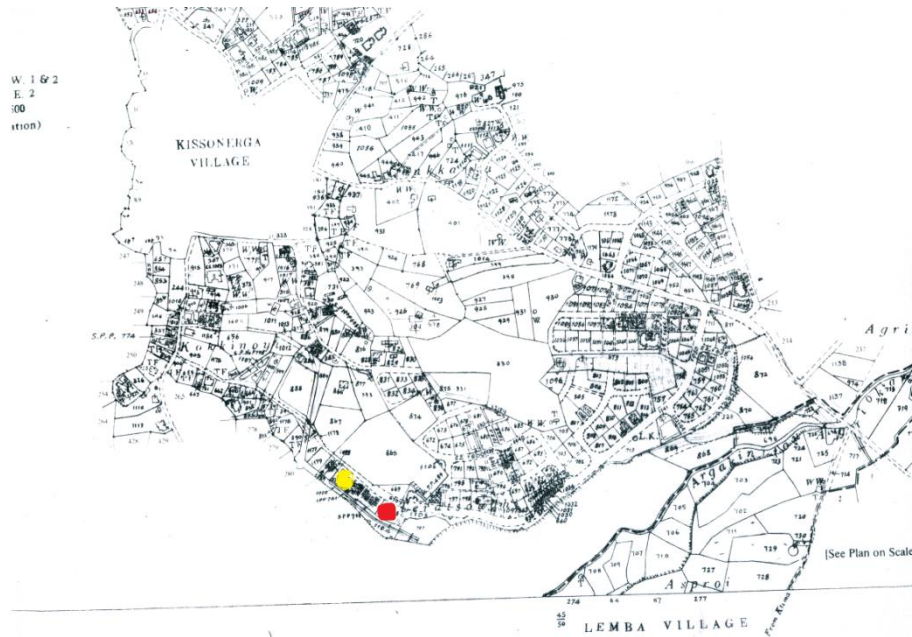


Figure 3.2: Cadastral Map of Kissonerga (1:5000); the area excavated in 2000 is represented by a red circle near the bottom centre. The yellow circle represents the 2008-09 excavations.



Figure 3.3: The view to the south from the cemetery



Figure 3.4: The view to the west from the cemetery



Figure 3.5: The view of the cemetery from the west (the excavated plots are marked in red)



Figure 3.6: The view of the cemetery from the south (from Lemba-Lakkous - the Agriokalami River is in the foreground)

In 2000, due to the construction of holiday apartments, part of the cemetery was excavated as a rescue operation conducted by Dr Eustathis Raptou of the Paphos Museum and a team of volunteer students from LAP, lasting from July 26th to August 9th 2000. The following account and tomb descriptions provided in Chapter 4 are largely taken from notes kindly supplied by Dr Raptou.

During this operation 19 rock cut chamber tombs were excavated, with varying degrees of preservation. The first few tombs to be discovered were already largely destroyed by bulldozers, meaning that little of the tomb architecture was discernible and tombs could only be identified by sherd scatter. Others had their tops sheared off by bulldozers. The later tombs to be discovered were excavated carefully, although still under severe time constraints. Unfortunately, due to the rescue nature of the excavation there are no complete plans of the tombs or their relation to each other. Figure 3.7 shows the likely cemetery layout as based on information extrapolated from the excavation notes.

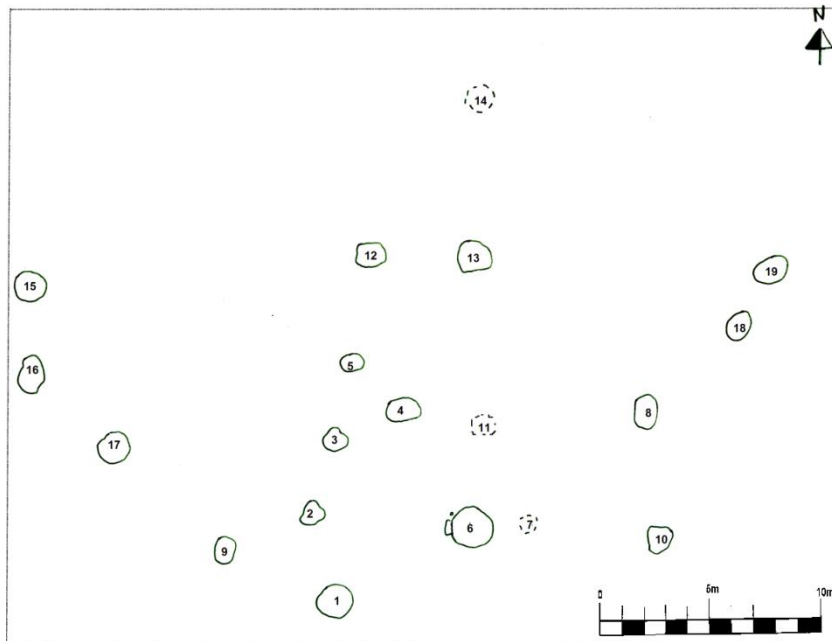


Figure 3.7: Map of probable tomb locations based on descriptions given by Dr Raptou

In 2008, further construction led to another rescue excavation in a plot to the north of the 2000 excavation, led by Dr Angelos Papadopoulos (Figures 3.1 and 3.2). I was fortunate to be in Cyprus during this period and am very grateful to Dr Papadopolous for allowing me to contribute to the excavation and recording of two of the tombs excavated. Final excavations of the same plot were completed by Ms Elena Meranou in 2009, where seven further tombs were excavated, all corresponding to the brief descriptions given by Dr Raptou (Elena Meranou: personal communication). Unpublished surveys conducted by the *Kissonerga-Skalia* project suggest that the boundaries of the cemetery are larger than were previously thought, and there may be many more tombs still existing under modern buildings and agricultural land (L. Crewe & A. McCarthy, personal communication).

Previous Research of Kissonerga-Ammoudhia

A small selection of ceramics from *Kissonerga-Ammoudhia* from the survey by Hadjisavvas was examined by Lucy MacLaurin (1980). Although only surface finds were studied, her description of the fabrics, forms and, in particular, decoration, is

synchronous with the material examined in this study (a personal inspection by the author, granted by Dr Hadjisavvas, confirmed these similarities). The majority of these vessels are DPBC (MacLaurin 1980: 247-256). In his survey, Hadjisavvas observed that ceramics from the settlement and cemeteries appeared to be homogenous, and he went on to suggest a local mass production of small to miniature pottery (1977: 225).

A small selection of the ceramic assemblage from the 2000 excavation was studied by Tom Lucas and myself for our undergraduate dissertations (2005). A selection of 100 vessels and sherds from four tombs (5, 10, 15 and 16) also formed the basis of the stylistic analysis conducted for my MRes. dissertation (2006 – see Chapter 2).

This thesis includes all of the excavated material from the 2000 and 2009 excavations as well as the two tombs which I helped to excavate in 2008. Because these were all rescue excavations conducted under extreme pressure and time constraints, the recording (in particular of stratigraphy and tomb architecture) is frequently lacking. This is unfortunate, but we must work within the confines of what we have. There are certainly details that are lacking that would have been of benefit to this research, however, I was not a participant in the 2000 or 2009 excavations, making it difficult to critique. Therefore, whilst this thesis will examine the evidence for tomb architecture and stratigraphy where possible, the thrust of this thesis is concerned with the ceramics and what information can be obtained from their study, the technological aspects of their manufacture and how they compare to ceramics from other sites in Cyprus. Before an analysis could be attempted, there were several stages involved in the conservation, recording and classification of the *Ammoudhia* ceramics.

Ceramic Methodologies

Conservation

The fragmentary nature of the assemblage meant that, before any recordings or preliminary theories could be made, each vessel had to be reconstructed. Trays from each tomb were laid out and sherds were matched with similar ones. This varied from being a simple task (e.g. Tomb 14 consisted of one tray) to extremely complicated, Tombs 1 and 6 each accounted for over 40 trays of sherds. (N.B. a tray measures 50 x 50cm and is approximately 5cm deep. It is difficult to estimate a number of sherds a single tray may hold, as this is entirely dependent on the size of sherds. A tray may hold less than ten very large sherds or over 100 small ones).

Starting either at the base or rim, vessels were slowly reconstructed using basic white glue (polyvinyl acetate [(C₄H₆O₂)_n],) and masking tape. White glue was used as, whilst robust, it is also easily washed off so any errors are easily rectified. Different methods of adhesion were experimented with; it was found that masking tape was the most efficacious. Once repaired the masking tape was removed and a basin of sand was used as a stabiliser. In the case of large vessels such as pithoi and jars, it was decided to begin reconstruction from the rim, as these were consistently wider than the bases, and better able to distribute weight.

Recording

Each vessel was reconstructed to varying levels, often parts were missing or could not be identified. However, each single vessel, partly reconstructed vessel and every diagnostic sherd was recorded. In the catalogue (Appendix 1) the vessels are listed according to three types:

- **Vessel:** a complete or almost complete vessel (in the case of incomplete vessels, a full profile can be obtained).
- **Vessel equivalent:** an incomplete vessel, but with enough remaining to ascertain the form and size of the vessel. Vessel equivalents include fragmentary vessels where a full profile could not be obtained, and cases where diagnostic sherds (such as a spout) combined with non-joining sherds can be proven to be from a single vessel with clearly no other equivalents in the tomb (i.e. it cannot be part of any other recorded vessel and therefore can be taken to represent an individual vessel).
- **Diagnostic sherd:** Those sherds that convey some information regarding the vessel form but are too fragmentary to provide information on the complete size or shape (the majority of these are rim, base or handle sherds).

N.B. There are a few examples of duplicate vessel equivalents or diagnostic sherds. These are cases where it was not identified until late in the research that two vessel equivalents (or sherds) are actually from the same vessel. In this case, they are clearly labelled 'duplicates' in the catalogue and counted as a single vessel in the statistical analysis.

The catalogue lists whether each vessel was excavated as a complete vessel or was found broken and reconstructed. How intact the form of the vessel is after reconstruction is also listed in each description (i.e. usually vessels that are excavated whole are 100% intact, others may be broken but still 100% intact, however, if broken it was then possible to examine the interior fabric).

After conservation, it was determined that there were initially 1303 diagnostic vessels or sherds that should be recorded in detail (991 from the 2000 excavations and 312 from 2008/09). Further analysis showed that 112 of these could be

convincingly shown to belong to a previously recorded vessel. These sherds are clearly marked on the spread sheet and catalogue as a DUPLICATE and are treated as part of the whole vessel. Therefore, the sample under analysis consists of 1191 individual vessels, vessel equivalents or diagnostic sherds, each identified as representative of a separate, individual vessel (Table 3.1 provides details on the ceramics and grave goods found in each tomb).

When recording the *Ammoudhia* assemblage, it was important to aid comparisons with other assemblages by using criteria that can also be easily applied to other assemblages. Therefore the recording techniques used in this research are ones common to most ceramic studies of prehistoric Cyprus. I chose to use a recording sheet adapted from pottery recording criteria used at Marki-Alonia (Frankel & Webb, 1996: 231-33). These criteria are used for ceramic recording at various excavations in Cyprus, including Kissonerga-*Skalia* and Prastio-*Mesorotsos*; a copy of the recording sheet is included in Appendix 4.

Each vessel or sherd was measured for height and diameter (rim, body and base where relevant). Where only a sherd of the rim or base remained, a rim gauge was used and where a sherd was too small to give an accurate rim or base diameter this is described in the catalogue as 'too fragmentary'. As much information as possible was gathered regarding the vessel or sherd form, in particular from spouts and rims as these can provide important information regarding the vessel function. For example a cutaway spout will pour liquid at a controlled but speedy rate, whereas a small round spout with a flaring rim will only pour liquids drop by drop. Bases also provide a great deal of information; a flat base may be set on a flat surface, however, the large amount of round or pointed bases found in the *Ammoudhia* assemblage suggest that these vessels were not made to rest on a flat surface. These vessels may have been placed in small pits, have been hung up, or perhaps placed on stands, although no stands were found in excavation.

Tomb	Number of Burials	Minimum Number of vessels	Non-Ceramic grave goods
1	1+	103	Spindle whorl
2	1+	35	Spindle whorl, beads, picrolite flake
3	?	60	Spindle whorl
4	?	38	
5	1+	27	Spindle whorl
6	2	153	2 spindle whorls, picrolite pendant, beads, spacers, stone blade, bone point, whetstone, picrolite flake, pebbles
7	?	16	
8	?	40	2 spindle whorls
9	?	50	Spindle whorl, Picrolite pendant
10	1	20	
11	?	2	Stone spindle whorl
12	?	33	
13	1+	36	2 spindle whorls, metal earring, beads, spacers, pebbles
14	?	4	Stone spindle whorl, whetstone
15	1	30	Metal earring, beads, picrolite bead, spacers
16	2	126	Metal object, beads, picrolite bead, pebbles
17	?	12	Metal axe
18	?	29	Spindle whorl, metal knife, whetstone
19	1+	75	Spindle whorl, beads, spacers, mace head, pebbles
20	1+	41	7 spindle whorls, pot disc, beads, spacers, whetstone, pebbles
21	0	2	
38	1+	3	Spindle whorl
39	1+	45	
40A	1+	94	Limestone bowl
40B	1+	3	
41	0	38	Spindle whorl
42	2+	58	Spindle whorl
43	1+	18	Spindle whorl

Table 3.1: The *Ammoudhia* Tombs and their contents

Other recorded characteristics include necks and handles. Necks on pouring vessels can again aid in controlling the rate of flow. Handles can often provide specific information; several bowl handles in the *Ammoudhia* assemblage are too small to hold with the fingers and may have been used for suspending the bowl when not in

use. The method of attaching handles can also give a clue to the area of production. It is common at this time for handles of closed vessels to be thrust through the body at the lower attachment, and *Ammoudhia* is no exception. However, in the south it is also common for necks of closed vessels to be attached separately, with a row of punctures covering the join (Frankel & Webb 1996: 155; Herscher 2003: 153). Whilst rows of punctures do occur on jugs at *Ammoudhia*, there is no evidence of this particular type of manufacturing technique.

Surface treatment such as slip application, polishing and burnishing were recorded, particular attention was paid to colour, thickness and lustre. Colours were recorded using Munsell Soil Color Charts and relative hardness was recorded using the Marki-*Alonia* recording criteria (Table 3.2), a “semi-subjective measure along the lines of Mohs Scale of Hardness” (Frankel & Webb 1996: 233).

Hardness	Definition	Mohs
Very soft	Scratched easily by fingernail	1
Soft	Scratched easily by knife	2-3
Medium-soft	Scratches with knife	4-5
Medium-hard	Requires some force to scratch with knife	6-7
Hard	Hard to scratch with knife	8
Very hard	Very hard to scratch with knife	9-10

Table 3.2: Criteria for establishing fabric hardness (Frankel & Webb 1996: 233)

While it is acknowledged that these methods of recording are subjective (colour, in particular can be seen very differently by different individuals) each vessel and sherd was recorded solely by the author, allowing for a continuity and uniformity of recording.

In the case of vessels that were not 100% intact, the interior fabric was recorded in detail. It is in the fabric colour, hardness and texture where it is easiest to recognise manufacturing techniques and firing processes. Inclusions can provide information on both the geological nature of the clay and any external tempers that may have been used (Rice 1987: 31). Therefore, the size, shape and colour of any inclusions were recorded using a 20x hand lens and counts and descriptions of shape and size of inclusions are given using criteria recommended for archaeological ceramics (Rice 1987: 309; Orton, Tyres & Vince 1993: 138-140, 231-241; Frankel & Webb 1996: 232-3).

Decorative techniques were recorded, with descriptions as simple and immediately understandable as possible, enabling comparisons with motifs and decorative styles from other sites. Finally any evidence of manufacture and/or use was recorded. All of this information was entered into a Microsoft Excel spreadsheet and adapted to form the catalogue which contains all of the above information for each vessel and sherd (Appendix 10).

Once recorded, each vessel and diagnostic sherd was both drawn and photographed (using a 12 megapixel digital camera). Whilst most vessels were recorded at a scale of 1:1, some of the larger vessels were recorded at 1:2 or 1:5 for the larger pithoi. Drawings were then scanned and scale added using 'Gimp' software. Black and white drawings of every vessel, vessel equivalent and diagnostic sherd are included digitally in Appendix 8, and a selection of colour plates are also included (Appendix 9). It was decided to include colour photographs of complete vessels only, as providing photographs of each sherd would not be productive. Although a photograph can give a clear image of surface treatments such as colour and lustre, a drawing of the actual artefact can also convey some details that may be missed in photography. These may include fine details of decoration or small marks (such as string impressions that may have been used to

support round-based vessels) that illustrate methods of manufacture but are too fugitive to show up well in a photograph.

Creating a Typology

As discussed in Chapter 2, a robust debate continues among scholars regarding the correct classification criteria to use with prehistoric Cypriot ceramics. The *Ammoudhia* assemblage is the first large excavated corpus from western Cyprus and illustrates the regional nature of the EC-MC not wholly recognised by Stewart in his influential typology (1962). At first glance, the assemblage does not correspond to this traditional typology; it is dominated by DP, and the RP (for the most part) seems to be made up for local forms of RPIII.

Thus, one of the main issues encountered in this study was determining what criteria should be used to classify the *Ammoudhia* pottery. Should classifications be based on traditional criteria of surface treatment and shape, as per Stewart (1962) or on fabric and technology as Barlow (1996) and Vaughan (1987) argued. A typology of handmade ceramics should be simple and flexible, showing the framework within which the potters worked (MacLaurin 1980: 270). Since one of the main purposes of a typology is to aid in the understanding of the sequence and place the ceramics in a time and place, it was decided to examine the *Ammoudhia* pottery bearing in mind the following three criteria:

- **Style:** Including vessel form, surface treatment and decoration. Those criteria that are visible, recognisable and easily documented, but may be relatively easily altered and adapted.

- **Chronology:** Can a vessel be fitted into the existing chronology?

- **Technology:** Fabric, manufacturing techniques, clay selection, etc. Those criteria that may not always be visible, are less likely to change and when identified can provide important information.

Being wary of needlessly splitting or unhelpfully lumping categories, I examined the pottery bearing in mind these three main criteria. Stewart used the first two in his classifications (1962) and technology has become more important as more scientific techniques are used. Chronology can be problematic, as this is a funerary assemblage, the issues discussed in Chapter 2 apply. Nevertheless, when no stratigraphic evidence exists, the few occasions when a vessel can be identified to date to a specific period is very useful information.

I then used these criteria to ask questions about the *Ammoudhia* pottery – if a potential classification could not provide a positive statement regarding any one of these criteria then I chose to lump it in a wider category. An example of this ‘lumping’ is the case of DP Blue Core vessels that are slipped red. The dilemma of classifying vessels that are red and polished as ‘Drab Polished’ has already been discussed. It became clear through microscopic analysis that the manufacturing process was exactly the same for vessels with a blue core, regardless of slip colour. The redder surface is simply a question of oxygen reaching the vessel surface for a longer duration during the firing process. Several vessels actually exhibit both drab and red slips on different parts of the vessel. Therefore, applying the three criteria above, this ware was stylistically, technologically and probably chronologically the same as DPBC, and in this study it is classified as such.

Careful consideration was also given to the classification of ‘cooking wares’. At sites such as Marki-*Alonia* and Sotira-*Khaminoudhia*, vessels such as cooking pots and pans are classified as RP (Herscher 2003: 153-154; Frankel & Webb 2006: 130-137). In these cases, the vessels share similar fabric types with other RP vessels and are

generally slipped and polished (Herscher 2003: 153-154). In the case of *Kissonerga-Ammoudhia*, these vessels represent a small but important sub-group of food preparation vessels found in a funerary context and it was decided in this instance to record them as separate wares. There are some examples of cooking pots that could be classed as RP; although it could also be argued that in this instance, several examples might just as easily be classified as a subtype of DP. However, the majority are unslipped and unpolished and (in the case of cooking pans in particular) represent a stylistically and technologically different ware. Bearing in mind that this thesis aims to bring clarity to the ceramic typology of western Cyprus, it was decided to avoid obscure RP and DP sub-groupings and classify these vessels as a distinct classification group based on style, technology and function.

By applying these criteria it became clear that the assemblage consisted almost entirely of local variations or hybridisations of the Drab or Red Polished tradition. These local wares when examined at a macro level appear to be easily split into three distinct categories: Drab Polished, Red Polished and Cooking wares (including cooking pots and pans). The RP and DP can then be fairly easily divided further based on fabric type, surface treatment and vessel shapes.

When a vessel can be clearly fitted into the existing typology (such as RPSC and RPIV) it has been classified as such. Others do not fit into the traditional typology with ease and are of a local manufacturing tradition. Careful thought was given to the options of creating a new typology to suit the regionally distinct west coast ceramic repertoire. It was decided that, in the absence of stratigraphic evidence, it is extremely important to ease comparisons with contemporary sites. Therefore, for the purposes of this study, the traditional classification system was used (with a few adaptations). Despite the caveats discussed previously, Merrillees' arguments regarding the flexibility and continued value of Stewart's classification system still

stands (1991: 237-8), and it is not in anyone's interest to create a 'stand-alone' typology, that would further isolate the west.

Since the terms RP and DP are already in wide use and are understood and accepted by Cypriot Bronze Age scholars, this system has been maintained, and when a ware can be easily classified I have maintained the traditional nomenclature. However, rather than using tenuous sub-ware categories, that may, in the future, prove misleading, I have chosen a simple typology. The terms RP, DP, CW and Cooking pot are used as initial identifiers, based on the traditional methods of identification (surface treatment, shape, decoration); but sub-groups determined by technological characteristics are (for the time being) classified only by numbers.

This simple classification system has the advantage of being adaptable and changeable as more evidence comes to light. It attempts to confront the ceramics on their own terms rather than trying to make them fit into sub-categories that are potentially misleading; thus producing a typology that provides clarification and helps to place the ceramics in their time and place, as intended.

Creating a Relative Chronology

The emergency nature of the *Ammoudhia* excavations, coupled with the issues related to dating mortuary data presented in Chapter 2 means that a stratigraphic sequence in this case is lacking. Whilst an attempt has been made to secure absolute dates (see below); almost all useful contextual and dating evidence comes from ceramics. Therefore, for the time being, establishing any chronology for Kissonerga-*Ammoudhia* has to be conducted through ceramic typology.

The *Ammoudhia* ceramics are (with one or two exceptions) such an idiosyncratic local tradition that they cannot be comprehensively compared with other EC-MC classifications. The vessel wares and forms point to a very general ECIII-MCII date.

There are however, those exceptions that also occur in other assemblages that have been systematically excavated and radiocarbon dated. Through comparisons with well-documented assemblages, these 'chronological ceramic markers' can be relatively dated, offering valuable information that can help to date individual tomb usage, as well as the assemblage as a whole.

Chronological Ceramic Markers

RPSC

This ware is a style of Red Polished ware occurring in highly decorated (and usually closed) vessels. Securely dated to the ECI-II, it has been found at EC sites on the south coast, and is also found in small numbers on the central plain at Marki-*Alonia* and Alambra-*Mouttes* and in the north, around Chrysochou Bay (See Appendix 3 for full details and description). Although a minor ware, the presence of this type of RP is important, as it is one of the few wares at *Ammoudhia* that can both be identified to a specific and restricted chronological time frame, *and* can be directly compared to other, contemporary sites.

RPI

Like RPSC, this type of RP shows strong similarities to that RPI described by Stewart and dated by him to ECI-II (1962: 225). Again, like RPSC, this ware only accounts for 2% of the assemblage and is very restricted, occurring in only three tombs (see Appendix 3).

Disc lugs

These distinctive attachments in the form of an elongated stem with a round flat disc on top are very rare in the archaeological record. Occasionally, the upper surface of the disc is decorated with incised or impressed motifs. Five RPSC vessels displaying this feature are in the T.N. Zintilis Collection, four of which occur on deep conical bowls similar to *Ammoudhia* vessel 6.175-7 (Lubsen-Admiraal, 2003:

XIV, 141-XV, 143-145). The other is a flask with two rather stubby examples and incised decoration (Lubsen-Admiraal, 2003: XIII, 128). Disc shaped handles also occur on an unpublished RPSC vessel from Episkopi-*Phaneromeni* (MacLaurin, 1981: 139), currently on display at the Kourion Museum, and a double necked vessel in the Paphos Museum (PM 2952/1).

In the *Ammoudhia* assemblage no fewer than 19 of these features occur in six tombs. The few examples out-with this research all occur in RPSC; however, in the *Ammoudhia* assemblage they are encountered in three different wares, RPSC, RPI and, notably, DP.

Conical bowls

Conical bowls are a distinctive shape, similar to tulip bowls found in the north, and dated by Stewart to the ECI (1962: 330, CXLII: 20). Broadly similar vessels also occur at Psematismenos-*Trelloukkas* (Georgiou 2011: 59, 110), which again, suggests an ECI-II date for this form. Three examples occur in the *Ammoudhia* assemblage and are discussed fully in Chapter 4.

The majority of *Ammoudhia* ceramics can only be dated to a general ECIII-MCI date, however the following examples offer evidence for use into the MCII-III, albeit, of a lesser value for chronological purposes than the evidence for ECI-II use, as given above.

Ring based vessels

Although flat bases occur in the early EC, almost all the vessels at *Ammoudhia* have round or pointed bases. Vessels with ring bases are diagnostic of the LC, with the earliest examples dating to the MCIII (Herscher 2003: 218). There are at least four examples of ring bases in the *Ammoudhia* assemblage, all are highly decorated small bowls and all occur in a form of DP.

Wishbone handles

This form of handle is again, dated to MCI-III (Åström, 1972a: 78; Frankel & Webb, 2006: 113). These handles, which can be seen, with ring bases, as some of the latest items at *Ammoudhia* are found in three tombs.

Elongated tablet lugs with vertical handles

This style of bowl does not occur at other sites and seems to be a local hybrid; sharing characteristics with some wishbone handled and ring based bowls. There are at least nine examples of this style in the *Ammoudhia* assemblage. All lugs are decorated, sometimes elaborately, and all have a vertical loop handle occurring below one of the lugs. This bowl type only occurs in six tombs. The similarities shared between this vessel form, ring bases and wishbone handles suggests a later date, of MCII-III.

Tomb no.	1	2	3	4	6	10	12	13	16	18	19	20	21	39	40	41	42	43
RPSC (ECI-II)	3	0	0	4	5+	0	1	2	0	1	1	0	1	0	0	1	2	2
RPI (7) (ECI-II?)	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	1	0
Disc Lugs (ECI-II)	5	0	3	0	8	0	1	0	0	0	0	0	0	0	1	0	0	1
Conical Bowls (ECI-II)	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring Bases (MCII-LCI)	0	1	0	0	0	1	0	0	2+	0	0	0	0	0	0	0	0	0
Wishbone Handles (MCI-III)	0	1	0	0	0	0	0	1	2+	0	0	1	0	0	0	0	1	0
Bowls with elongated tablet lugs (MCI-III)	0	1	0	0	0	0	0	2	3+	0	1	0	1	1	0	0	0	0

Table 3.3: Occurrence of chronological markers in tombs (+ indicates there are potentially more examples but evidence is too fragmentary to be sure).

These summaries allow for comparisons between the ceramics in each tomb to ascertain a likely tomb chronology.

Comparisons

Once the vessels were fully conserved and recorded it became possible, for the first time, to glimpse the *Ammoudhia* ceramic identity. The dominance of DP is something that my previous research had strongly suggested, but it took a study of the entire assemblage to confirm that DP does indeed dominate. Therefore, the next step was to examine other EC-MC ceramics in order to compare to *Ammoudhia* and ascertain the level of regionalism occurring there.

Several site directors were extremely generous with their material and I was able to spend some time examining the ceramics from *Kissonerga-Skalia*, *Episkopi-Phaneromeni*, *Marki-Alonia*, and The Vasilikos Valley as well as material held in the Paphos Museum held by the Department of Antiquities. Both *Marki-Alonia* and The Vasilikos Valley are fully published so it was possible to pinpoint exact vessels that were of particular interest to this study (Todd: 1986, 2007; Frankel & Webb 1996, 2006). However the full *Episkopi-Phaneromeni* assemblage remains unpublished so some time was spent giving the entire corpus a brief examination before examining more thoroughly those vessels which seemed most comparable with *Ammoudhia*. *Kissonerga-Skalia* is still under excavation; I had the opportunity to spend three seasons working on the ceramics and forming a working typology with the site director, Dr Lindy Crewe.

When compared to the EC-MC ceramics from other areas of Cyprus, it became clear that the *Ammoudhia* assemblage exhibited a conservative, regional identity. There are very few vessels in the assemblage that appear to be imported from elsewhere, almost the entire assemblage is locally manufactured and homogenous.

Petrographic Analysis

A microscopic examination of ceramics can provide information not obtainable in a traditional, macro-examination (Peacock 1970; Williams 1979; Jones 1986; Rice 1987; Whitbread 1989, 1995; Peterson 2009). One of the aims of this petrographic analysis is to ascertain if the classifications made at the macro-level, are mirrored microscopically or not. Examining pottery manufacturing processes can also illuminate the choices made by the potters at different stages of production and identifying these choices can then provide insights into the traditions and technology of the society in question (Sackett 1990; Lemonnier 1992). By examining the *Ammoudhia* assemblage in this way, it is hoped that some light will be shed on the manufacturing traditions and choices made by the *Ammoudhia* potters, which in turn should provide insights into their society and relationships with contemporary societies in other parts of Cyprus.

To conduct this analysis a systematic sampling strategy was implemented. Permission was granted by Dr Pavlos Flourentzos, the then Director of the Department of Antiquities, Cyprus, to collect and export 24 samples, with at least two of each ware (described in Chapter 4 and Appendices 4 and 5). Some wares that only occur once in the *Ammoudhia* assemblage, and can therefore be classified as outliers, were not sampled (such as RPIV, RPBT). Unfortunately, the ware RPI (7) was not identified until very late in the analysis, meaning a sample of this ware was not obtained.

The individual sherds were exported to the University of Edinburgh, where slides of thin sections were produced using the standard procedures suggested by Whitbread (1986, 1995) and Peterson (2009). To maintain objectivity, the slides were numbered, rather than named, and the samples were then analysed, again using the recording methods and criteria advocated by Whitbread (1986, 1995). This included

the fabric microstructure and groundmass, mineralogical inclusions and textural concentration features, as well as any observable voids and any evidence for surface treatment. Finally, photomicrographs were taken in both plane, and cross polarised light. The main results of this analysis are presented in Chapter 4 and a more detailed recording of each fabric is also presented in Appendix 5.

The results were then analysed and evidence obtained on the manufacturing techniques and technological choices made by the *Ammoudhia* potters, including information on clay preparation and vessel forming, firing techniques and temperatures and surface treatment, as well as information that may point to possible clay sources for the *Ammoudhia* ceramics.

A petrographic analysis can contribute greatly to this study, by providing information, not evident to the naked eye, regarding the manufacturing process and the technological and stylistic choices made by the potters. These can then be compared to those traits identified in other studies and to the macroscopic information to identify some of the techniques used in the manufacturing of the *Ammoudhia* ceramics, in particular DP. It was then possible to compare the different interior fabrics through traditional analysis and to ascertain if the wares identified through traditional classification were mirrored by similar differentiations microscopically (or not).

Experimental Clay Sampling

As part of the microscopic analysis, selections of samples from local clays around Kissonerga were taken, in an attempt to assess the degree of similarities between the local geology and soil morphology and the *Ammoudhia* ceramics. Working with Dr Caroline Jeffra, a ceramicist and potter, specialising in ancient clay and pot making on Cyprus and Crete, six local clay beds of potential interest were identified. These beds overlaid Mamonia Complex outcrops and were deemed to be consistent with

the geological signature of the ceramics from both Kissonerga-*Ammoudhia* and Kissonerga-*Skalia*. The clay beds were visited and samples of approximately 0.5 kilos of clay was taken from each bed.

Each sample was rolled into a cylinder and allowed to air dry for 48 hours, no sorting or crushing took place. The samples were exported to the University of Edinburgh, where they were split into three groups. One group was left unfired and made into thin sections in an unfired state. The second were fired in a potters kiln (by Janet Adam of The Adam Pottery, Edinburgh) in an oxidising atmosphere at a low temperature (250-300°C) for 24 hours, whilst the final group was fired in an oxidising atmosphere at a hotter temperature of 750-800°C for 5 hours. Thin sections were taken from each sample and each were examined and recorded using the same criteria as the ceramic samples.

Each sample was then compared to those from *Ammoudhia* and any mineralogical similarities noted. The results are presented in Chapter 4 and detailed geological descriptions of each clay in Appendix 5.

Non-Ceramic Evidence

Although the bulk of this thesis is concerned with the ceramic assemblage, it is necessary to include as much information as possible regarding the tombs and their contents. Therefore, where possible, the tombs themselves, as well as any other non-ceramic evidence are also considered.

Excavation Recordings

The problems inherent in investigating the architecture and layout of a cemetery that was, a) conducted as an emergency rescue excavation with few excavation

notes or illustrations, and b) no longer exists, have been presented in Chapter 2. The evidence from the 2000 excavation is particularly scanty, although a study of Dr Raptou's field notes shows that there are some interesting features that can be investigated further.

The 2008-09 excavations were also conducted under extreme time constraints. However, I had the privilege of participating in the excavation of two tombs (20 and 21). These tombs were the first to be identified during construction work; excavation took place over the weekend of 15th to 17th of August 2008, and were conducted by a small team and directed by Angelos Papadopolous. A final report documenting the excavation, including stratigraphic analysis is currently in production. In the interim, Dr Papadopolous has kindly allowed me to reproduce images of these tombs and provide a brief synopsis of the excavation of these two tombs (Appendix 7). As well as excavation, I participated in the recording of the tomb architecture and each stratigraphic layer in keeping with The Department of Antiquities of Cyprus best practice. In the excavation of Tomb 20, I was also able to record the positions of vessels and grave goods, which provided an opportunity to study the placement of vessels in the tomb and their relation to the interred human remains (see Appendix 7). A soil sampling strategy was implemented for Tomb 20, where 10 litre samples were taken from the pit fill 20.2 and 100% from the area around the crania. These samples were then 'wet sieved' through water, and it was through this process that a large number of very small beads were recovered.

Non-Ceramic Grave Goods

Although the assemblage is dominated by ceramic vessels, 21 tombs also contained non-ceramic items. These consisted of mainly small beads, although the occasional metal object or items of jewellery were also present. Permission was granted by the current Acting Directors of Antiquities, Dr Despo Pilides and Dr Marina Solomidou-Ieronymidou, to examine and photograph the finds from both excavations that are

currently held partly in the Archaeological Museum of Paphos and partly in the Cyprus Museum, Nicosia. Each item was measured, drawn and photographed from various angles and any diagnostic information noted. A description of each item is included in Chapter 4.

Human Remains and Absolute Dating

In 2014 permission was granted by the Acting Directors of Antiquities to export six samples of human remains from the 2000 excavations (held at the Paphos Museum) to the UK for the purpose of radiocarbon dating. Due to a combination of limestone leeching, taphonomy and the emergency nature of the excavations, the remains are in a very poor state indeed (G. Cook: personal communication). There are no complete bones, only small fragments of long bones and teeth survive. Professor Gordon Cook of the Scottish Universities Environmental Research Centre (SUERC) visited the Paphos Museum in July 2014 and kindly advised on the selection of six suitable samples.

Five teeth and one long bone fragment were selected from Tombs 1, 6, 10 and 16. These tombs were selected primarily because the remains were the most likely to provide enough carbon to be dated; and were also from tombs that contained good ceramic evidence for relative dating out-with a general ECIII-MCII date. In this way, it was hoped that the relative chronology established by the ceramics might be refined by absolute dates.

The samples were then exported to the SUERC laboratory in East Kilbride. Unfortunately, two samples did not produce enough carbon to be dated. The remaining dates were then recalibrated taking into account the stable isotope evidence for marine diet; these refined graphs are presented in Chapter 4, while the full report containing the radiocarbon dates and original graphs is provided in Appendix 6.

CHAPTER 4

THE KISSONERGA-AMMOUDHIA DATA

The *Ammoudhia* tombs from both excavations exhibited a high degree of homogeneity (E. Raptou & E. Meranou: personal communications). Each was curvilinear, with a diameter of between 1.8 and 2.3 m. Every tomb contained a rich assemblage of ceramic vessels, the vast majority of which are of the serving or pouring type (bowls and jugs/juglets, with occasional large jars). As well as these more typical vessels, several tombs also contained fragments of cooking pots and ceramic braziers or cooking pans. Some of the smaller, fine, decorated vessels were originally placed in shallow pits in the floor and were mostly excavated *in situ* and intact. Unfortunately, the same cannot be said for the human remains which were extremely poorly preserved, making any gender or age determinations impossible (M. Gamble: personal communication).

Damage by bulldozers and the time constraints placed on the excavations, mean that only limited information regarding tomb architecture and cemetery layout remains. From the remaining evidence it would appear that the *Ammoudhia* tomb architecture generally follows the common EC-MC tradition of hewing the tomb out of bedrock, often with a dromos and a circular opening on one side (often blocked by a large stone slab), and with a step down onto the flat floor of the tomb and a domed ceiling (Swiny 2003: 104). The *Ammoudhia* tombs tend to be circular, rather than oval and range in size between 1-2.3m in diameter. Similar tombs varying in size are found at various sites on the south coast and central plain (Swiny & Herscher 2003; Gjerstad 1926: 52; Frankel & Webb 1996: 11, 14; Georgiou *et al.* 2011: 341-344). There is no evidence for the more elaborate tomb architecture such as occurs at *Karmi-Palealona* (Webb *et al.* 2009) or the type of ritual vessels found at *Bellapais-Vounous* (Dikaios 1940; Stewart & Stewart 1950).

Kissonerga-Ammoudhia Ceramics: Wares

The Kissonerga-*Ammoudhia* ceramic assemblage consists of 1191 vessels or diagnostic sherds. 889 of these come from the 2000 excavations and 302 from 2008-09.

The entire assemblage consists almost exclusively of two wares – RP and DP. Because the wares found at *Ammoudhia* do not fit easily into the traditional categories it has become necessary to create a typology that will still enable classification according to traditional methods, as described in Chapter 3. Other wares are also present in small quantities, namely coarse ware, cooking wares and what appears to be Red Polished South Coast ware (RPSC). There are also a very few imported examples of RP III and RP Black Topped ware. Figure 4.1 shows the incidence of these general wares and it is clear to see that DP accounts for a very large proportion (68%) of the *Ammoudhia* assemblage.

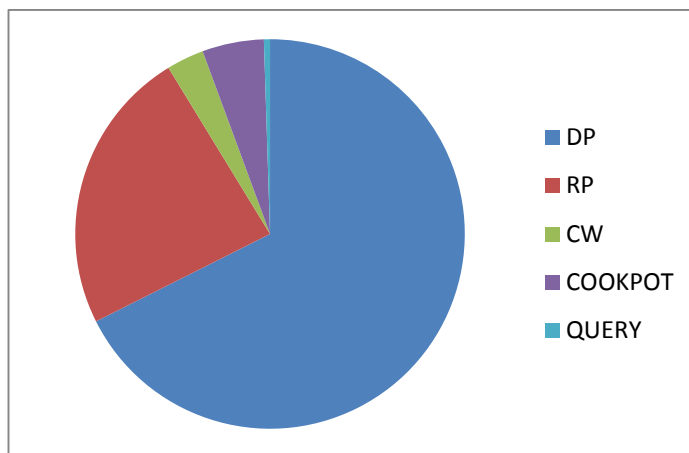


Figure 4.1: Incidence of general wares

Identified Fabrics

A traditional examination of the visible fabrics produced ten separate sub-wares that could be clearly identified and occur with some frequency (Figure 4.2). The majority of these fabric types occur within limited parameters that allow them to be

identified as representing a sub-ware of an existing classification; e.g. Fabric Type 2 is certainly a local form of DPBC (the exception being Fabric Type 6, which occurs both in RP vessels and cooking pots. As presented in Chapter 3, it was decided to eschew the use of sub-ware titles; therefore, whilst the terms DP and RP will still be used throughout this thesis, the sub-wares will be represented by simple numbers. These are presented briefly in Table 4.1 and in more detail in Appendix 4.

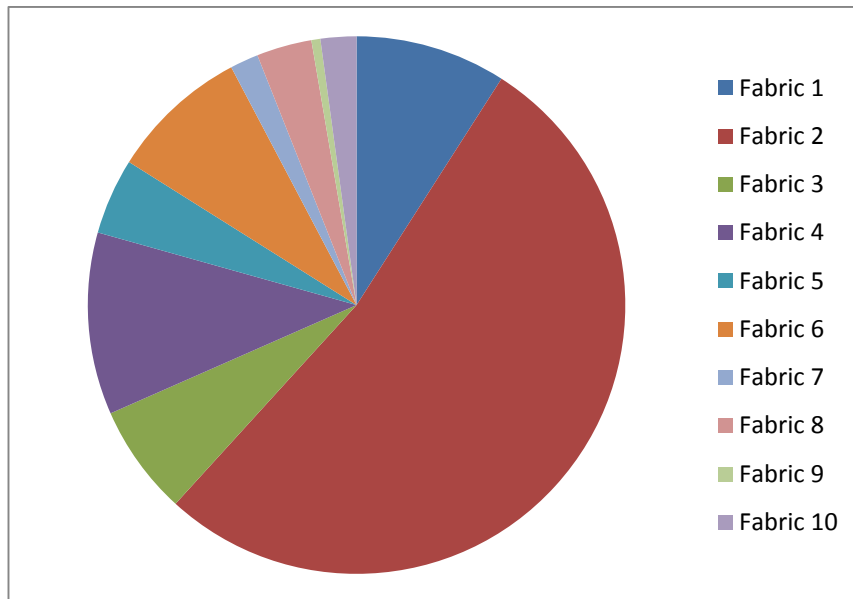


Figure 4.2: Incidence of fabric types

Ware	Fabric Type	Surface Treatment	Shapes	Decoration	Proposed Date
DP	1	Matte to lightly lustrous slip, buff to reddish yellow.	Mostly open: small bowls	Rare, occasional incised and impressed.	ECIII-MCIII
DP	2	Matte to lightly lustrous slip, buff to reddish yellow. Red or Dark grey.	Slightly more closed than open shapes, jugs common	Incised and impressed fairly common on small closed vessels	ECI-MCIII
DP Coarse	3	Matte to lightly lustrous slip, buff to reddish yellow.	Large open and closed	rare	EC-MCIII
RP	4	Thin, slightly lustrous red to yellowish red slip. Abrades easily.	Small bowls common	Rare, incised and impressed occurs on small closed vessels.	ECIII-MCIII
RP	5	A medium lustrous slip of the same colour as fabric.	Larger open and closed	Rare, occasional relief wavy line	ECIII-MCII
RP	6	Thin, matte red slip, worn.	Large open, occasional closed	Rare, occasional relief	ECIII-MCIII
RP (I)	7	Medium red slip with high lustre	Bowls, flasks and unusual shapes	Relief wavy lines and elongated lugs common	ECI-II
RPIII		Various descriptions	All shapes	Incised and impressed if any	EC-MC
RPSC	10	Thin to medium lustrous slip, reddish brown to almost black	Mostly closed, one deep conical bowl	Highly decorated with incisions and white filling.	ECI-II
RPBT	Various	Thin and lustrous slip, light red to reddish yellow.	Only six examples, 4 closed 2 open	Only one example of incised decoration.	ECI-MCI
RPIV		Thin, matte slip, dark reddish brown	Only one example – large bowl	None	MC
CW	8	Smoothed. Occasional slip	Pans/ braziers	None	ECIII-MCII
COOKING POT	9	Smoothed, no slip	cooking pots	None	MC
COOKING POT	6	Smoothed, often covered in a thick lime paste	cooking pots	None	EC-MC

Table 4.1: Kissonerga-Ammoudhia wares.

Drab Polished ware

The most common ware is DP, accounting for 805 vessels and diagnostics, or 68% of the entire assemblage. DP appears in far greater numbers in this area than anywhere else in Cyprus, and is clearly a local tradition. Graham Phillip refers to the ware as the local RP (1983: 48), as it is similar in fabric if not in firing and occurs in similar shapes and functions. However, Herscher argues that it is not just a regional variation but a distinct ware (1993: 71). The DP at *Ammoudhia* show sufficiently different manufacturing techniques to be accepted as a somewhat different technological tradition to RP.

The size of the DP assemblage at *Ammoudhia* (and that being excavated at *Kissonerga-Skalia*) has now made it possible to suggest a tentative typology of three distinct types of DP (Figures 4.3 and 4.4).

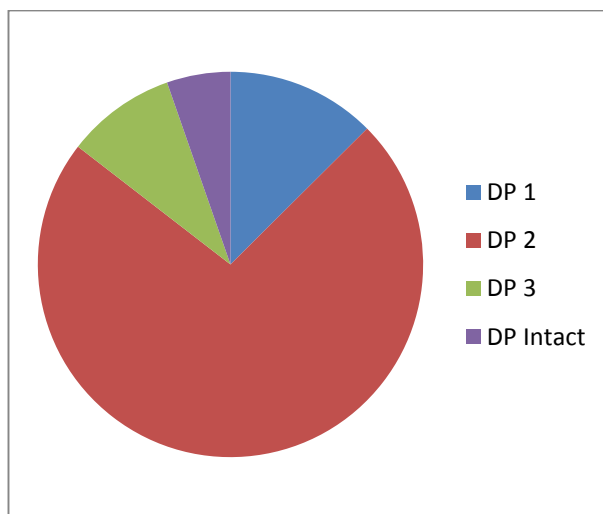


Figure 4.3: DP sub-ware type distribution

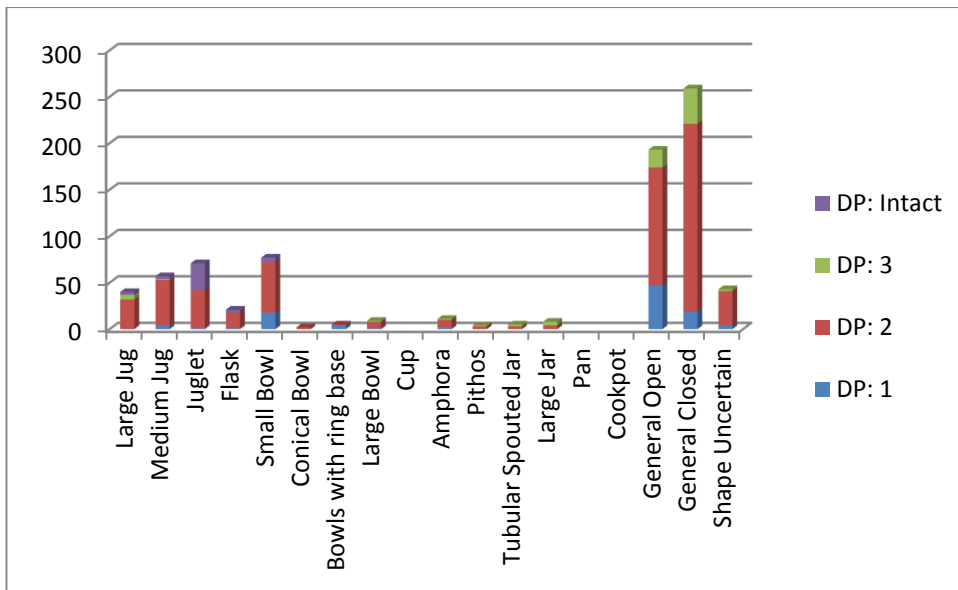


Figure 4.4: DP vessel shape distribution

DP (1)

This sub-ware conforms to what may be termed the classic DP described by Åström (1972a). In the *Ammoudhia* assemblage it accounts for 101 vessels or sherds or 8% (Figure 4.2). It is favoured for open shapes (69%), mostly small bowls, and often decorated with elaborate appendages (for example, Figure 4.5 shows vessel 17.4, the organics within the section are clearly visible). Occasionally, small closed shapes occur (27%), with the remaining 4% of uncertain shape (Figure 4.6 & 5.7).



Figure 4.5: DP (1) Vessel 17.4

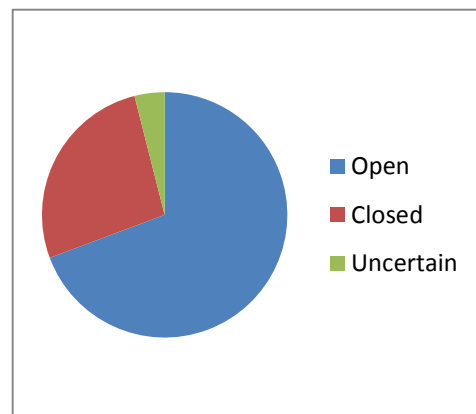


Figure 4.6: DP (1) distribution of open and closed vessels

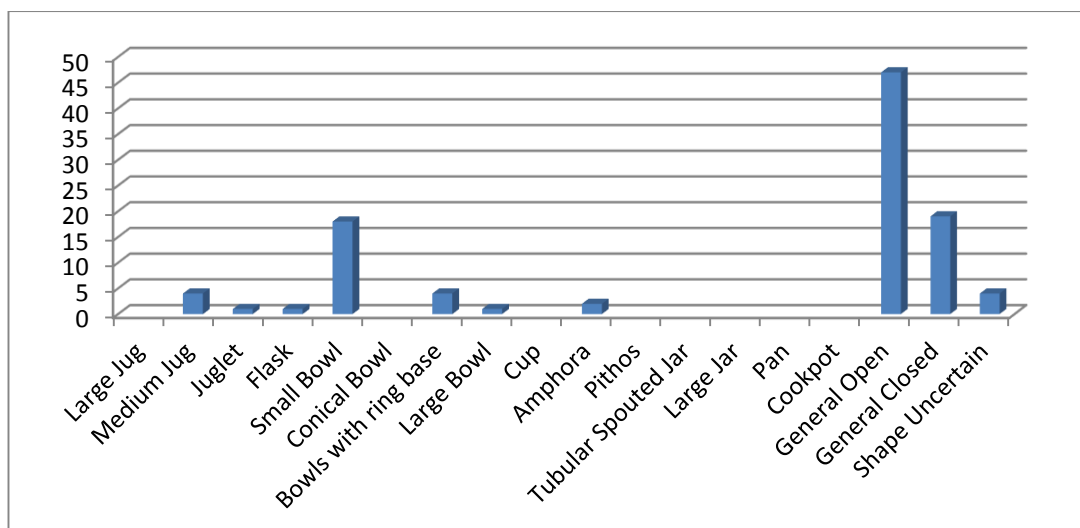


Figure 4.7: DP (1) Distribution of diagnostic vessel shapes

DP (2)

This sub-ware conforms to the DPBC described by Herscher (1976: 13 2003: 152-153).

This is the most common fabric type at *Ammoudhia*, accounting for 587 vessels and sherds or 49% of the total assemblage (Figure 4.2). In manufacturing techniques and appearance it is similar to Type 1, being a very fine grained matrix with few inclusions, but immediately identifiable by the distinctive hard, metallic blue core.

Surfaces tend to have a thin, matte to slightly lustrous slip, most commonly in the reddish yellow to yellowish red range (5YR 5-6/6 – 2.5YR 5/6), calling into question the nomenclature 'Drab' as discussed previously. Figure 4.8 shows vessel 16.8 which clearly illustrates the red slip coupled with the hard blue core. The characteristic hard fine fabric and blue core is almost certainly a combination of clay minerals and firing conditions (Herscher 2003: 152).



Figure 4.8: DP (2) vessel 16.8

This type is generally found in closed shapes (60%), with medium sized jugs and small juglets being the most common, however at *Ammoudhia* it is also found in open shapes such as small bowls, accounting for 34%, with uncertain shapes making up the remaining 6%.

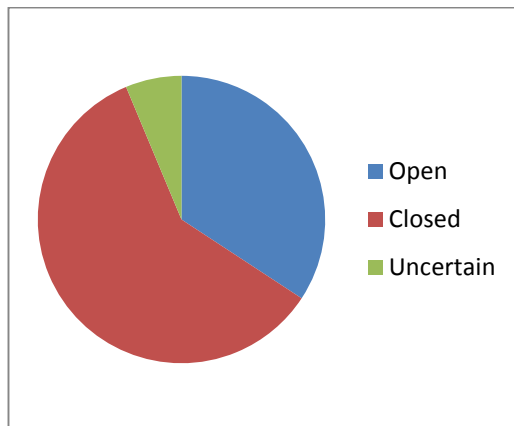


Figure 4.9: DP (2) distribution of open and closed vessels

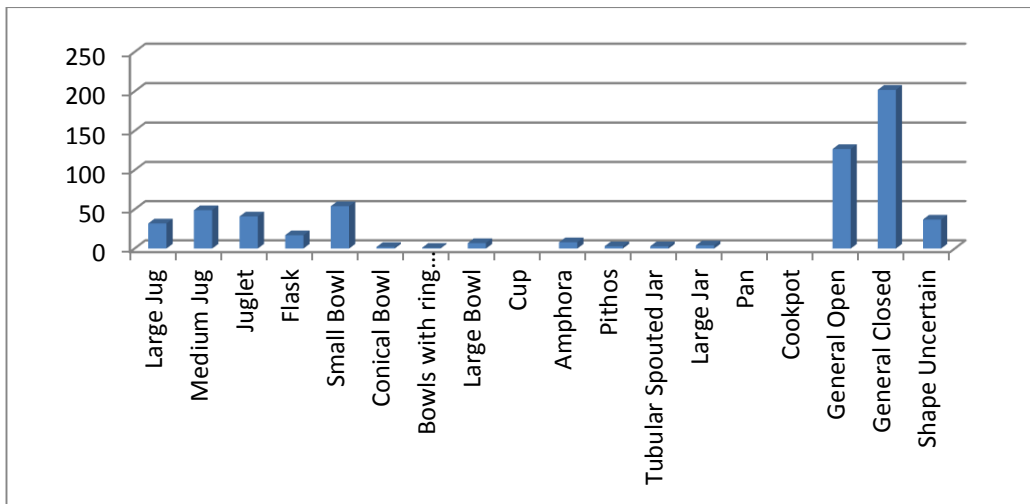


Figure 4.10: DP (2) distribution of diagnostic vessel shapes

DP (3)

This type may also be termed as DP Coarse, with 74 examples, accounting for just 6% of the assemblage (Figure 4.2). Its fabric is very similar to that of Type 2 but much coarser. This sub-ware always has thick defined blue or grey core and shows similar manufacturing techniques; however it contains many more inclusions. The matrix seems to be less well sorted than Type 2. This fabric occurs in mostly larger vessels such as large jugs with small flat bases, large bowls and storage jars. Figure 4.11 shows vessel 8.4, a jar in typical DP (3) fabric; whilst figures 4.12 and 4.13 show the restricted nature of this ware.



Figure 4.11: DP (3) vessel 8.4

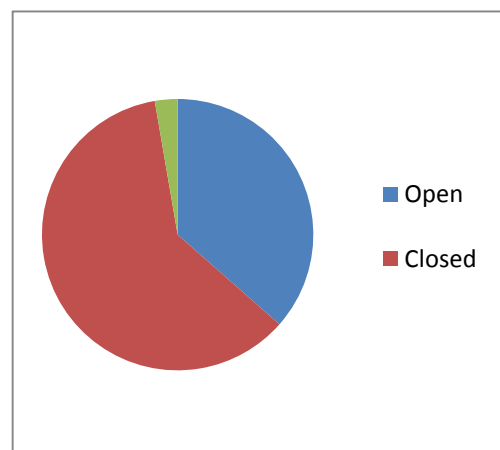


Figure 4.12: DP (3) distribution of open and closed vessels

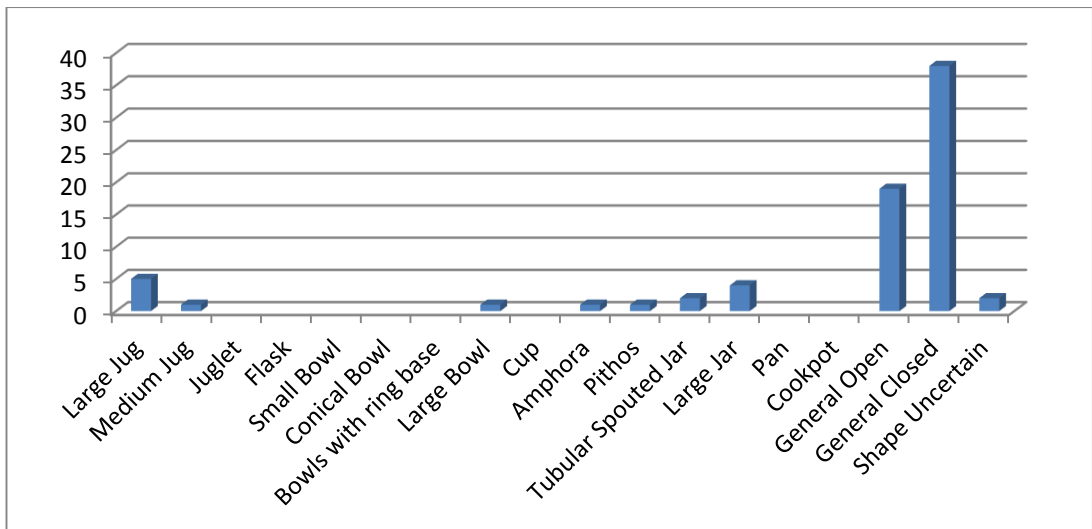


Figure 4.13: DP (3) distribution of diagnostic vessel shapes

DP (Intact)

Finally, in the DP range there are a number of small vessels (mostly juglets) that were discovered intact. These vessels have surface treatment fitting into the ‘drab’ nomenclature; however with no interior fabrics visible they are impossible to type beyond a basic DP; Figure 4.14 shows vessel 9.4, a typical example. There are 43 of these vessels, accounting for 4% in total (Figure 4.15).



Figure 4.14: DP Intact vessel 9.4

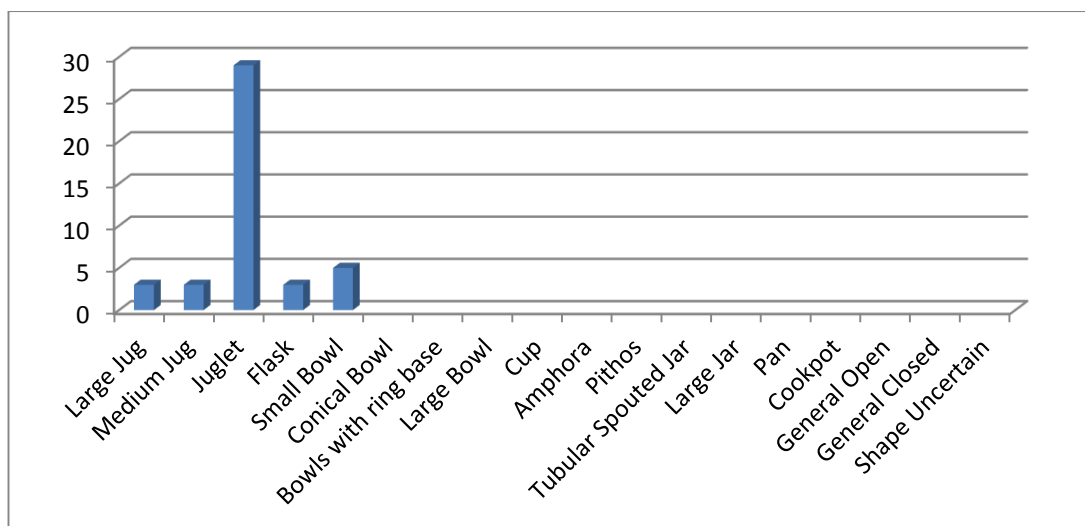
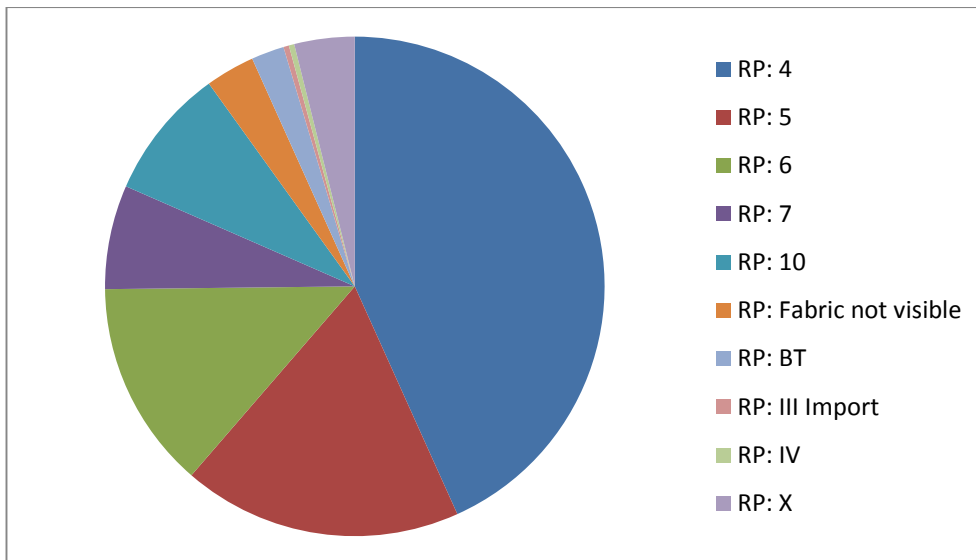


Figure 4.15: DP (Intact) distribution of diagnostic vessel shapes

Red Polished ware

Although this is the most common ware at EC-MC sites out-with the west coast, it only accounts for 282 vessels and diagnostics, or 24% of the *Ammoudhia* assemblage (Figure 4.1). Described in detail by Stewart (1962) and found all over Cyprus, more recent excavations have illustrated the regional differences that occur in this ware (Frankel & Webb 1991: 14-15 2006: 124; Herscher 1976: 1981 2003: 145). The west coast is no exception, with local RP displaying a variety of regional traits and differing fabrics (Crewe *et al.* 2008: 112). This again makes it difficult, if not counterproductive, to try and fit the west coast types into the traditional typology. The local RP has been separated into distinct categories based on the fabrics identified and described above (Figure 4.16), and where a vessel can be clearly identified as belonging to the existing typology I have used that nomenclature. Figure 4.17 shows the distribution of vessel forms that occur in the various types of RP. By comparing to the distribution of DP shapes (Figure 4.4), it is clear that RP at *Ammoudhia* is favoured for the manufacture of open vessels.



4.16: RP sub-ware type distribution

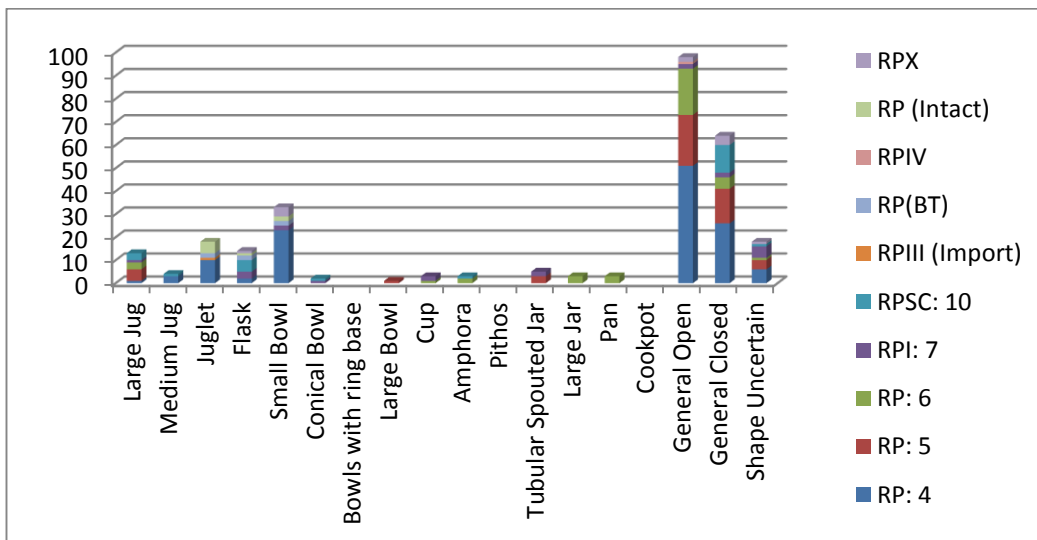


Figure 4.17: RP vessel shape distribution

RP (4)

This is the most common RP at *Ammoudhia*; it accounts for 122 vessels or 10% of the assemblage (Figure 4.16). It is similar in appearance to the softer examples of Type 1, but is slipped red and does not exhibit the characteristic organics. Because of this softness, this sub-ware shows more abrasion than the harder DP, (Figure 4.18). This type occurs mainly in open vessels (61%), small bowls being the most common, although it does also occur in the form of small jugs and juglets (34 %).



Figure 4.18: RP (4) vessel 4.7

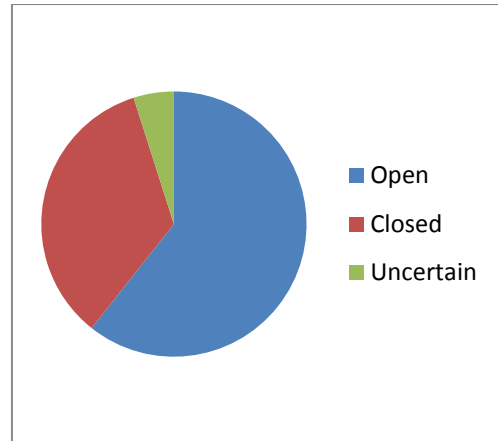


Figure 4.19: RP (4) distribution of open and closed vessels

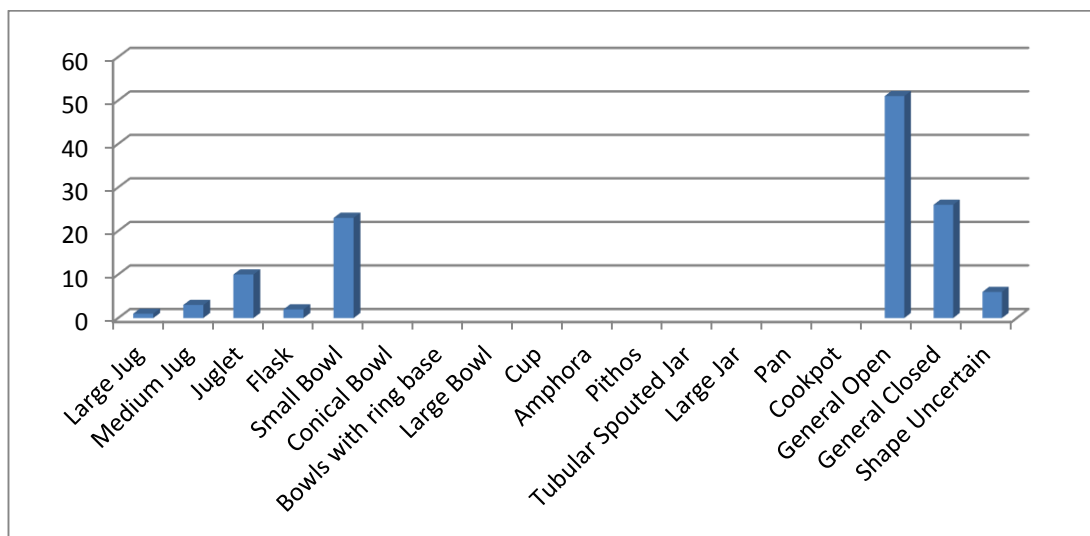


Figure 4.20: RP (4) distribution of diagnostic vessel shapes

RP (5)

This type of RP, unknown elsewhere in Cyprus, accounts for 50 vessels and sherds or 4% of the assemblage (Figure 4.2). It appears to be a local tradition as it is also found at *Kissonerga-Skalia* (L. Crewe: personal communication). It is easily identified by the large number of small and medium sized red inclusions, as exhibited in Figure 4.21. This sub-ware comes in a variety of shapes; both open (52%) and closed (40%) (Figure 4.22), however it is most common in larger vessels such as jars and amphorae (Figure 4.23).



Figure 4.21: RP (5) vessel 10.8

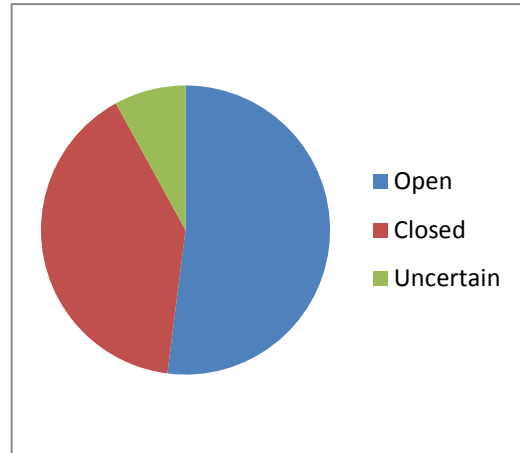


Figure 4.22: RP (5) distribution of open and closed vessels

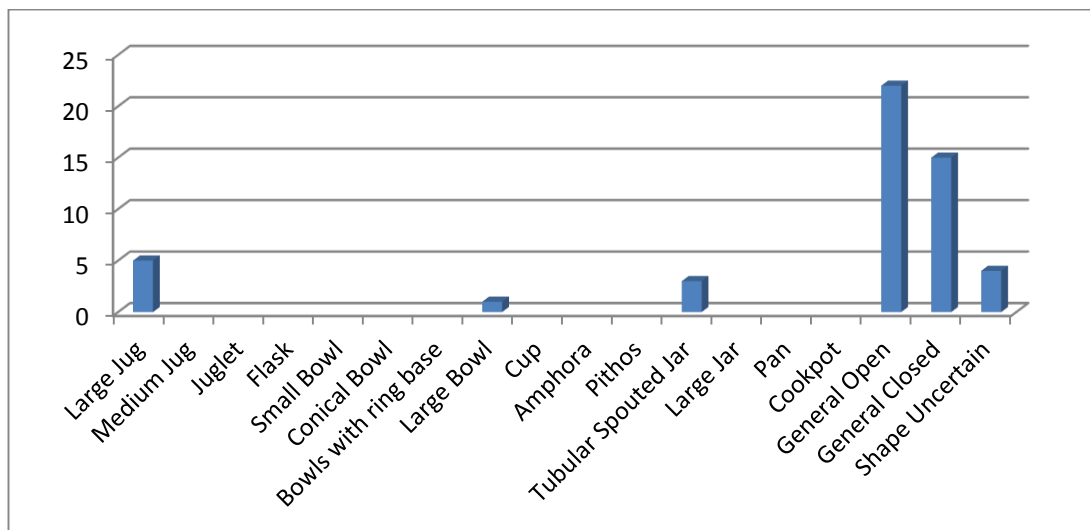


Figure 4.23: RP (5) distribution of diagnostic vessel shapes

RPC (6)

This can be classified as a coarse RP, corresponding somewhat to Stewart's RP III Coarse (Stewart 1962: 229). It does not occur throughout the assemblage, only 38 vessels and diagnostic sherds (Figure 4.2) have been recovered (3%), 11 of those are from Tomb 6 (Figure 4.24). The fabric colour is usually red (2.5YR 5/8) but can range to the brown (7.5YR 5/4). Almost all examples in this sample are sherds from large vessels, such as large jugs, jars and rim sherds from large bowls. Open vessels account for 70%, whilst 26% are closed shapes and 3% are too abraded to identify.



Figure 4.24: RP (6) vessel 6.30

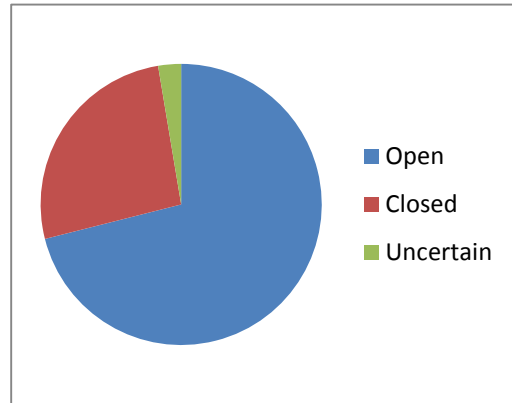


Figure 4.25: RP (6) distribution of open and closed vessels

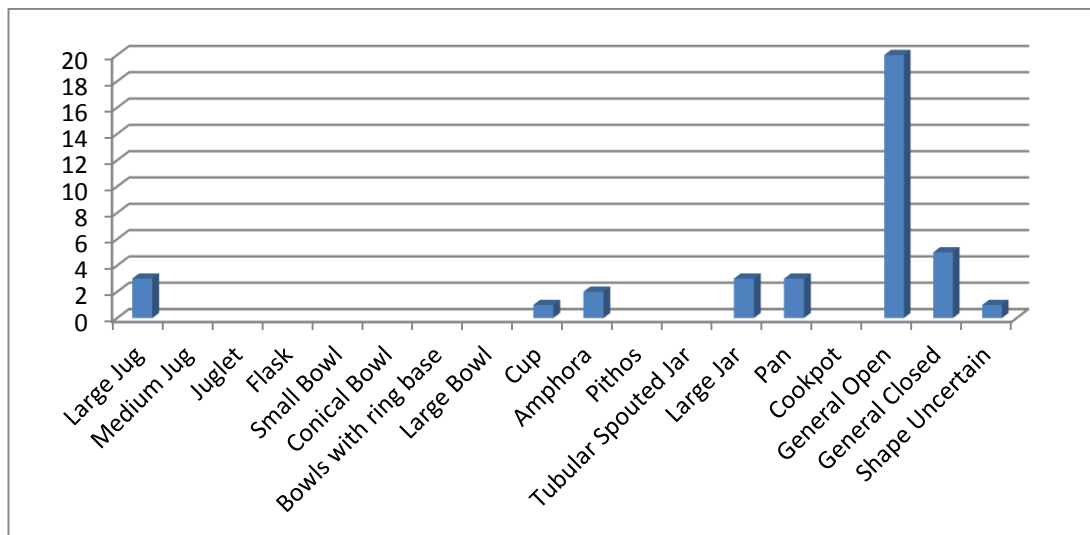


Figure 4.26: RP (6) distribution of diagnostic vessel shapes

RPI (7)

Accounting for only 20 vessels or 2% of the assemblage (Figure 4.2), this fabric is similar to the common RPI fabric described by Stewart (1962: 225), but exhibits distinctive regional traits (Figure 4.27). It only occurs in numbers in Tombs 1 and 6 (with a single jug example in Tomb 42). This ware occurs equally in open (45%) and closed (30%) shapes (with a further 25% of uncertain shape – see Figures 4.28 & 4.29).



Figure 4.27: RPI (7) vessel 1.4

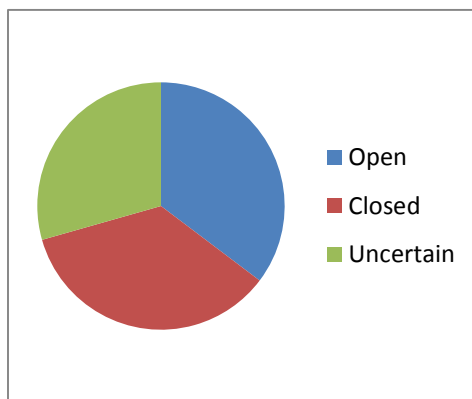


Figure 4.28: RPI (7) distribution of open and closed vessels

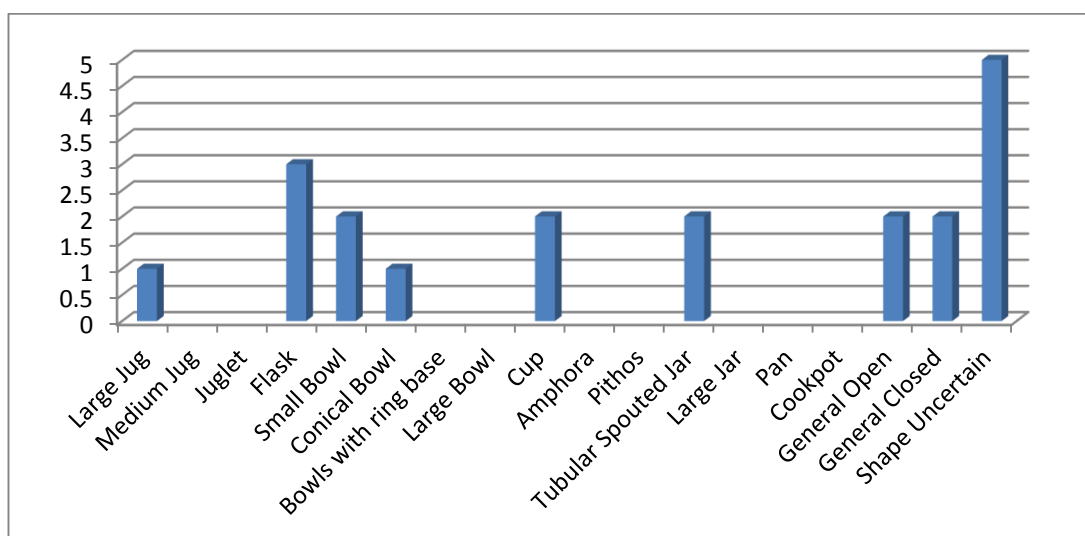


Figure 4.29: RP (7) distribution of diagnostic vessel shapes

RPSC (10)

This highly decorated ware occurs in 11 tombs accounting for 24 vessels or 2% of the assemblage (Figure 4.2), a small but significant amount. Highly decorated, this ware has connections to RPI from the south coast, Bellapais-*Vounous* and some *Philia* styles (Stewart (1962: 225; Herscher 2003: 150).

RPSC occurs at *Ammoudhia* in exclusively closed shapes (Figure 4.35) with the exception of one deep conical bowl (6.175-177 – Figure 4.30) and a disc lug from an indeterminate vessel. The fine fabric varies from soft to rather hard, and is in the

pale brown (10YR 6/3 to light brown (7.5YR 6/4) range with few small usually white and black but occasionally red inclusions. Slips are thin but quite lustrous; many are almost completely black although some deep red and brown patches appear, whilst others are reddish brown.



Figure 4.30: RPSC (10) vessel 6.175-177



Figure 4.31: Vessel 1.19

Like examples from elsewhere, all of these vessels are highly decorated (Morris 1985: 293). The same decorative motifs can be seen on several of the vessels, and are similar enough to suggest the same workshop if not the same hand. Some recognisable motifs occur; for example, what Morris terms ‘the meander technique’ (1985: 293) can be observed on these same vessels from Tombs 1, 4 and 6 and is clearly visible in Figure 4.30. This motif also occurs on an RPSC vessel from Episkopi-Phaneromeni Tomb 24B (MacLaurin 1980: Figure 103). However, a few motifs are not seen in the existing repertoire and may suggest a local provenance. For example the motif of impressed dots forming a continuous ‘S’ shape is found on vessels in Tombs 1, 4 and 6, and (so far) has no parallel in the archaeological record (Figure 4.31). With the exception of the deep conical bowl, all of these are rather large jugs with long plank-like handles (Figure 4.31), similar to vessels 106-113 in the Zintilis Collection (Lubsen-Admiraal 2003: Plates X, XI).

Tombs 12, 13 and 18 contain RPSC in smaller shapes and with somewhat different motifs to those from 1, 4 and 6. Tomb 12 contained one neck of a bottle (12.9 – Figure 4.32) with zigzags and a motif of linked circles containing several dots. This vessel shows strong similarities to a bottle described by MacLaurin from the Chrysochou Bay area (Figure A2.6; MacLaurin 1980: 710). Vessel 13.24 (Figure 4.33) is again the neck and rim of a bottle or flask, this time showing parallel zigzags and wavy lines which, again, are not well attested in the existing record. Finally Tomb 18 contains a complete flask (Figure 4.34) with decoration similar to 12.9 and a basket handle, similar to ones found in the Zintilis Collection (Lubsen-Admiraal 2003: XII).



Fig. 4.32: Vessel 12.9



Fig. 4.33: Vessel 13.24



Fig. 4.34: Vessel 18.11

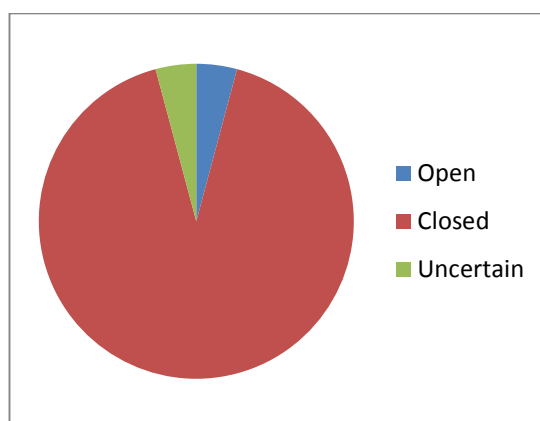


Figure 4.35: RPSC (10) distribution of open and closed vessels

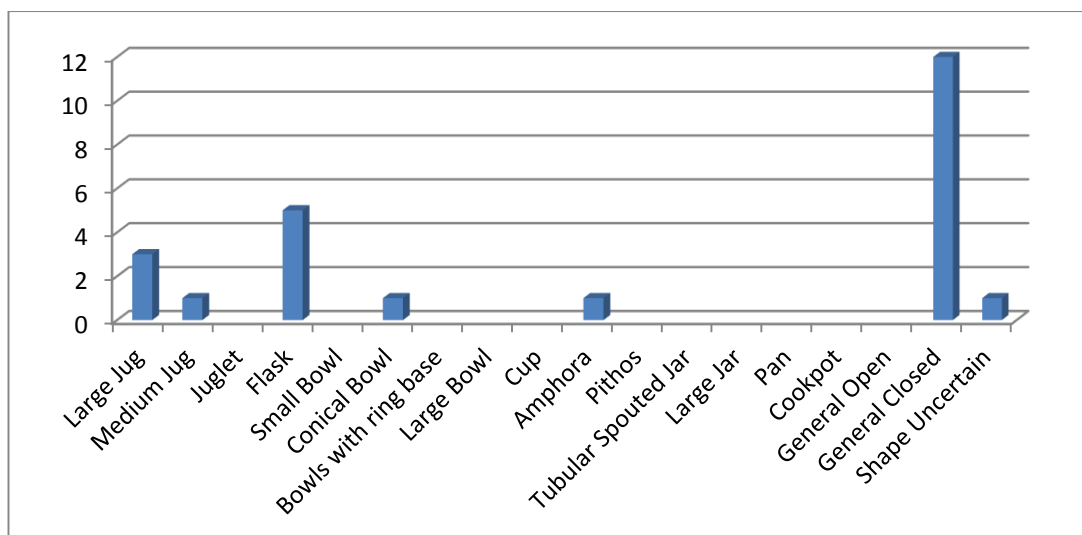


Figure 4.36: RPSC (10) distribution of diagnostic vessel shapes

RP Black Topped (RPBT)

Only six instances of black topped RP occur (Figure 4.2). Occurring in small numbers at most EC-MC sites, this differentially fired RP is usually dated to ECIII-MCII. It occurs at Marki-*Alonia* in ECIII-MCII (Frankel & Webb 2006: 118) and at Deneia in the MCI-MCII period (Frankel & Webb 2006: 118). It has been suggested that the technology to make this type of ware was lacking in the south-west (Herscher 2003: 145), however, large amounts of this ware have recently been found at Prastio-*Mesorotsos* (McCarthy *et al.* 2010).

The six *Ammoudhia* examples are all small fine vessels with a medium hardness. Two are sherds from small bowls that are possible imports; 16.35 is a collection of sherds that are too abraded to join but are clearly from the same bowl with a vertical lug (Figure 4.37) and 18.18 is a single sherd with incised decoration similar to RPBT bowls from various contemporary sites. There are two flasks and a juglet from Tomb 6 and another juglet from Tomb 3. Some are intact so it is impossible to determine the interior fabric; however those that are visible show a light red fabric (2.5YR 6/6) with few inclusions. Surface treatment includes a lustrous light red (2.5YR 6/6) to reddish yellow (5YR 6/6) slip with the top fired black. Unlike many

examples from the north and centre of the island all of the *Ammoudhia* black-topped vessels (with the exception of 18.18) are undecorated.



Figure 4.37: RPBT vessel 16.35

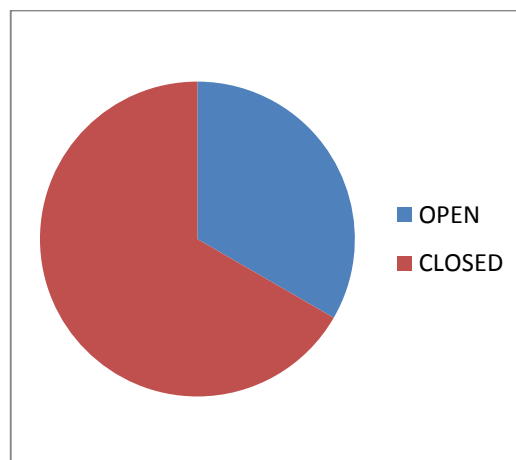


Figure 4.38: RPBT distribution of open and closed vessels

RP III Imported

Only one vessel in the *Ammoudhia* assemblage fits a specific RP III type (16.38 – Figure 4.39). Described by Stewart (1962: 229) and found at sites throughout Cyprus this is the major island wide ware of ECIII-MCII. Vessel 16.38 is a round spouted juglet, however the sherds are too abraded to conserve. This juglet has a medium hard, fine pale brown fabric (7.5YR 6/6) with a thin, lustrous red slip (2.5YR 4/8). The linked concentric circle pattern is a common one and is found at various sites around the island, for example it is a common motif at Marki-*Alonia* (Frankel & Webb 2006: 125). It has been found at sites on the south coast where Herscher has identified them as north coast imports (Herscher and Swiny 2003: 499-501). 16.38 is also likely to be an import from the north, probably from the Lapithos area (E. Herscher: personal communication).



Figure 4.39: Imported RP III vessel 16.38

RP IV

Only one definite RP IV sherd occurs at *Ammoudhia*. Described by Åström as 'having buff, brown clay, dull brown or red brown slip or wash with a matte finish and being grittier and coarser than Red Slip' (Åström 1972a: 78). Vessel 4.30 (Figure 4.40) is a body and handle sherd from a large open bowl, having a red fabric and slip it has the distinctive metallic RP IV texture and is very similar to RP IV found at *Kissonerga-Skalia* (L. Crewe: personal communication) and *Episkopi-Phaneromeni* (Herscher 1981: 82).



Figure 4.40: RPIV vessel 4.30

RPX

The RP at *Ammoudhia* is very homogenous and usually fits easily into one of the above categories. Only 12 vessels or sherds do not fit into any of these categories and therefore remain classified as RPX until identification can be made.

RP Intact

Finally, like DP (above) there are eight examples (1%) of complete vessels which, whilst appearing to be part of the RP category it is impossible to type confidently without seeing the interior fabric. Thus, only a general RP nomenclature is given (e.g. Figure 4.41).



Figure 4.41: RP Intact vessel 1.2

Cooking Wares

As stated in Chapter 3, it was decided to create a separate category of cooking wares. Although some of these vessels could be classified as a type of RP (in particular cooking pots in Fabric 6), the majority are sufficiently heterogeneous with the *Ammoudhia* RP to deserve a separate classification. Classifying those vessels that are clearly used for cooking as a separate group helps to identify those few vessels that occur rarely in a funerary assemblage, but may have cultural or ritual implications that will be discussed in future chapters.

CW (8)

Only 37 examples of Coarse ware occur at *Ammoudhia* (3%). The fabric tends to be in the brown range (7.5YR 4/3) to very pale brown (10YR 7/4). The texture is coarse to very coarse and is generally medium-hard to hard (Mohs 4) with many inclusions and a dark grey core may be present. This ware occurs almost exclusively in the form of cooking pans or braziers (Figures 4.42 and 4.43). Some are slipped on the

interior, the slip usually quite thick and lustrous in the yellowish red range (5YR 5/6).



Figure 4.42: CW pan 18.6



Figure 4.43: CW pan 18.6 (underside)

These pans are found at several sites and are generally classified as a version of RP (Stewart 1962: 341, Barlow 1996: 293, Herscher 2003: 153-154, 188-189; Frankel & Webb 2006: 132). Whilst a very few of the *Ammoudhia* examples (specifically from the 2008-09 excavations) are slipped and fit into a RP classification, the fabric (8) is considerably coarser and technologically different to any of the *Ammoudhia* RP types. The presence of these vessels in a funerary context is also notable and it was therefore decided in this instance to record them as a separate (coarse) ware.

Cooking Pots

As would be expected from a funerary assemblage cooking pots do not account for a very large proportion, only 61 (5%) vessels and diagnostic sherds were found. Cooking pots are common all over Cyprus at this period, occurring frequently in settlement contexts (as would be expected), but also with some frequency in tombs (Stewart 1962: 228, 332; 1992: 182-186; Frankel & Webb 2006: 133-137; Herscher 1988: 160-161 2003: 188 200; Barlow 1996a: 310; Cullen *et al.* 1986: 55, 61-63; Karageorghis 1958: 125-126, 1974: 6, 12 and Belgiorno 2002: 15, 19).

The *Ammoudhia* cooking pots were fired at low temperatures in an oxidising atmosphere to produce a soft fabric whose manufacture probably signifies more restricted choices in the firing process than other fabrics based on functionality and can be separated into two distinct wares (Figure 4.44).

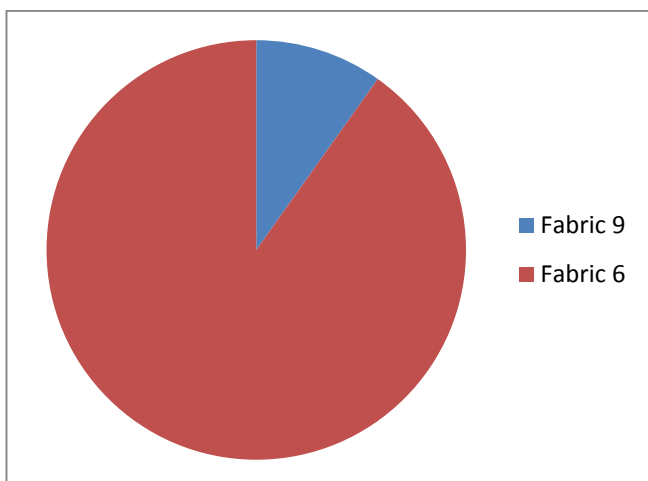


Figure 4.44: Cooking pot fabric type distribution

Cooking pot (6)

This fabric type is common in cooking pots both at *Kissonerga-Ammoudhia* and *Kissonerga-Skalia*, and there are 55 diagnostic examples identified from the *Ammoudhia* assemblage. It is recognisable by its red fabric (2.5YR 5/8-5/6) which also occasionally occurs in weak red (10YR 5/4). Like the RP version of this fabric type described above, it is characterised by a large number of red inclusions. However the coarse and friable nature of this fabric and the specific cooking pot shapes are clearly recognisable, and, in this instance deserve a separate classification. White and black inclusions are sometimes present and the fabric is hard to very hard (Mohs 4-5). Slipping is rare but does occur, sometimes in a matte light red (2.5YR 6/6). It is more usual for the surface to be smoothed and a few examples are covered in a thick white lime paste. This ware occurs exclusively in round mouthed cooking jars and jugs.



Figure 4.45: Cookpot (6) vessel 6.25, a typical one-handled example.

Cooking pot (9)

This fabric type occurs in greater numbers at *Kissonerga-Skalia*, it is only identifiable in six examples in the *Ammoudhia* assemblage. This is a hard (Mohs 4) coarse fabric, dark grey/brown in colour (7.5YR 4/1-7.5YR 3/2); it has relatively few inclusions which can vary in size and colour. Surfaces are smoothed and unslipped but show evidence of burning. It is unclear at present if there is a specific repertoire of shapes for this ware. Figure 4.46 shows vessel 13.13, the only near complete example of this ware.



Figure 4.46: Cookpot (9) vessel 13.13

Unidentifiable Wares

There are only six sherds which, so far, do not fit into any the Kissonerga-*Ammoudhia* typology. 15.23 (Figure T15.3) and 16.96 (Figure T16.9) are rims from very hard, fine vessels with dark slips, possibly RP IV or BS. Both 6.85 (Figure T6.8) and 8.45 (Figure T8.3) are large cutaway spout fragments unslipped with a plain coarse texture; both of these could fit into a general plain ware (PW) category. 40.80 (Figure T40A.4) is a rim sherd from an open vessel that has been over-fired, making it unidentifiable, and 41.34 (Figure T41.3) is a small rounded spout of an unusual brown fabric and inclusions that remain to be identified.

Vessel Shapes

All of the vessels at Kissonerga-*Ammoudhia* are handmade. However, there is a degree of homogeneity in the forms which do not differ widely from other excavated cemeteries from this period. The high proportion of finely made jugs and juglets and small bowls is typical. The low number of coarse and cooking vessels is also typical of a funerary repertoire. (Stewart 1962; Frankel & Webb; 1996 2006; Herscher 2003).

The shapes can be separated into three main categories: serving vessels (bowls, cutaway spouted jugs and juglets), storage vessels such as amphorae, round spouted large jugs and large jars and food preparation/cooking vessels.

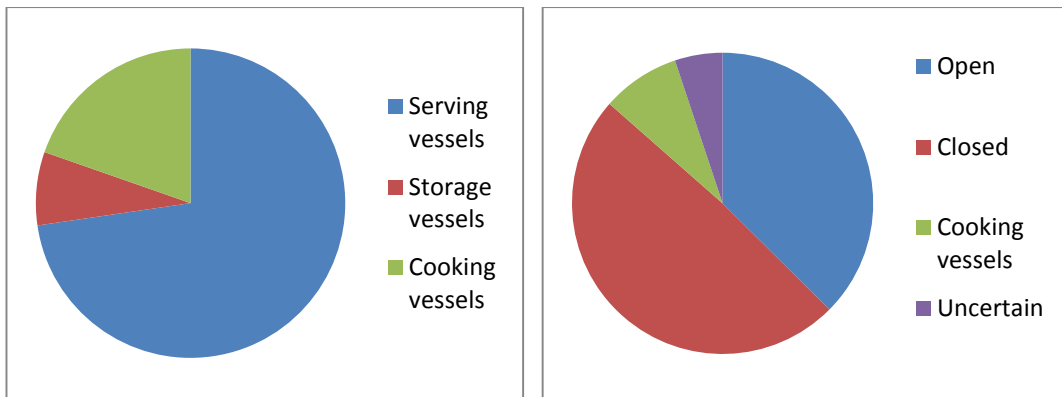


Figure 4.47 & 48: Ratio of vessel shapes in the entire *Ammoudhia* assemblage

Figures 4.47 and 4.48 illustrate this preference for closed shapes, with 49% of the entire assemblage occurring in a closed form. Open vessels account for 37% and 5% are of an uncertain shape. The remaining 9% accounts for the small but significant number of cooking vessels. Figure 4.48 shows the functional forms that can be clearly identified (as opposed to a general open or closed shape designation) and in these vessels serving shapes are dominant, accounting for 73%. Storage vessels account for only 8%, whilst cookware accounts for 21%.

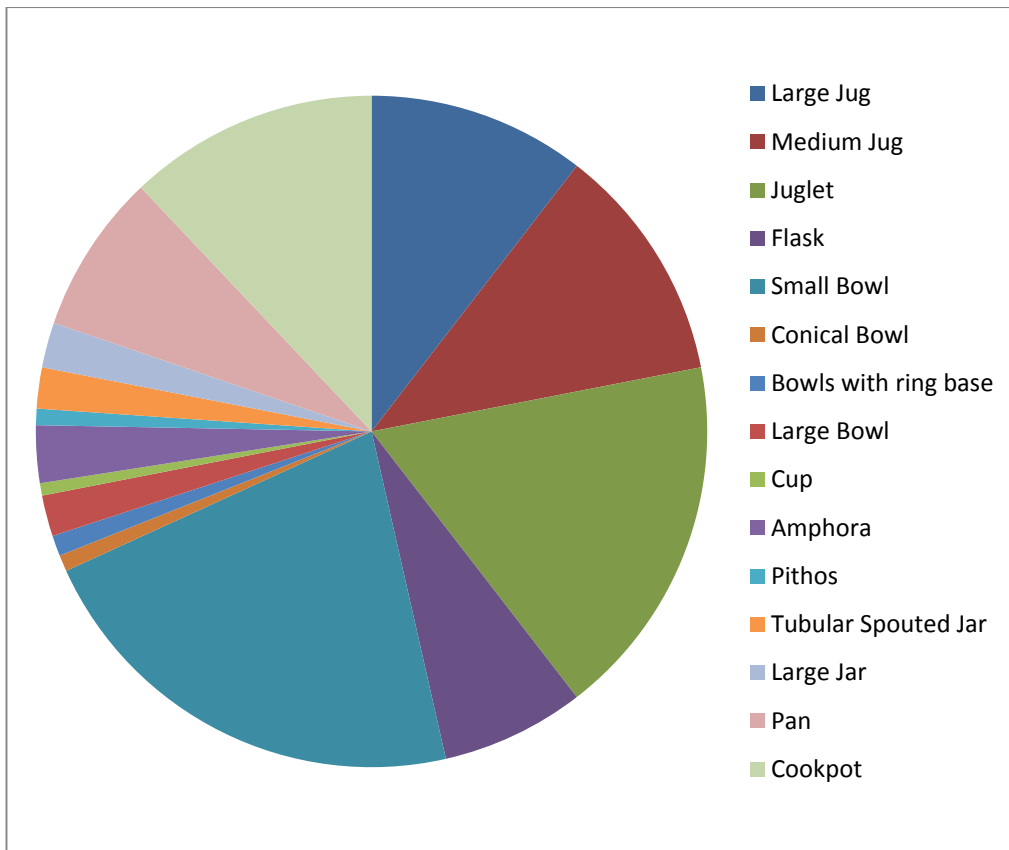


Figure 4.49: Incidence of vessel forms

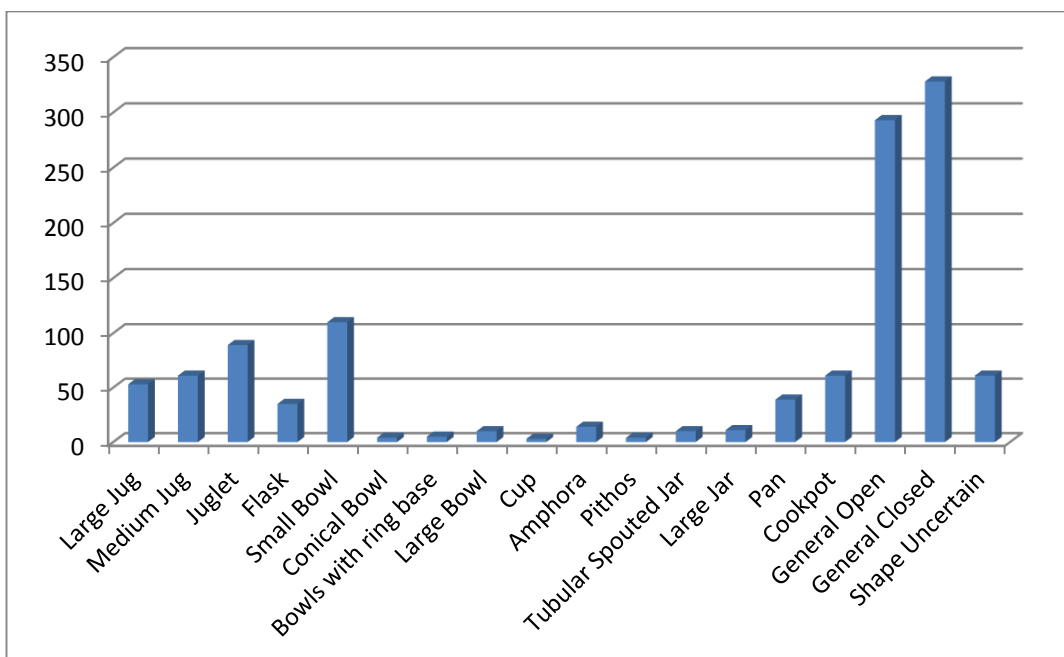


Figure 4.50: Incidence of vessel forms

Here follows a description of the main categories and subcategories of vessels found at *Ammoudhia*, including comparisons with vessels found at contemporary sites in Cyprus. Where no comparisons are made it should be assumed that none exist and the particular shape is (so far) restricted to the *Ammoudhia* assemblage.

Jugs and Juglets

Together jugs and juglets form the largest category of forms at *Ammoudhia*, with 200 complete or near complete vessels and many more diagnostic sherds (handles and rims for the most part) accounting for 17%. The jugs and juglets seem to follow rather strict traditions of size and shape making it relatively simple to categorise them accordingly (Figure 4.51).

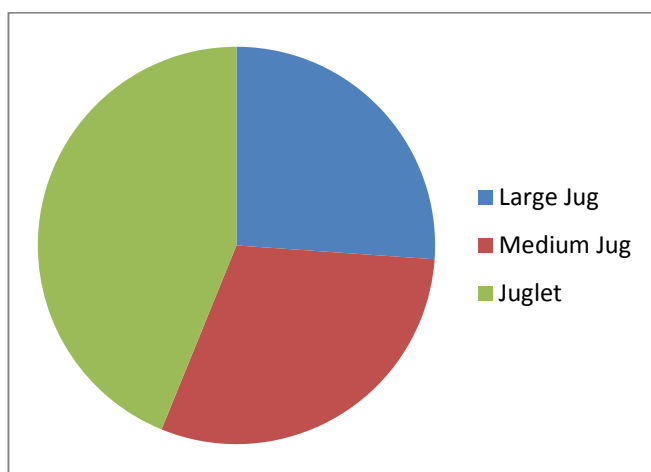


Figure 4.51: Distribution of jug sizes

Large jugs are classified as over 25cm high and have round spouts and mid-neck vertical handles; the remainder measure between 15-25cm and have cutaway spouts. Decoration on jugs is rare, usually only occurring around the neck join or on the handle where it takes the form of punctures or incised grooves.

Juglets are classified as under 15cm in height, the majority have round spouts but cutaways are known and bases are either round or pointed. Decoration is more

common on these small, fine juglets, the most common motif being incised circles with central dots (or 'target' motif) combined with vertical incisions enclosing a row of dots. This motif occurs again and again and is extremely conservative in its placing and position on the body and neck of the juglet.

Finally, all of the handles in these jugs and juglets are thrust through the body, typical of the EC-MC. However, at *Ammoudhia*, it is only the lower attachment that is thrust through. Necks are not attached to the *outside* of the body at *Ammoudhia*, unlike those observed at Marki-*Alonia* and the south coast (Frankel & Webb 1996: 156-157; Herscher 2003: 153). Relief lugs are common, either one opposing the lower handle attachment or two, with an extra one below the handle, which may have assisted in pouring (Frankel & Webb 2006: 120).

Jugs and juglets occur throughout Cyprus, and the styles seen here are common to the MC. For example, at Marki-*Alonia* they occur mainly in later phases (Frankel & Webb 2006: 120). A general ECIII-MC date for many of these vessels is backed up by the lack of flat bases as observed at earlier EC sites such as Sotira-*Kaminoudhia* (Herscher 2003: 126-174).

At Marki-*Alonia* cutaway spouts outnumber round spouts by 5-1 (Frankel & Webb 2006: 120), however this situation is reversed at *Alambra-Mouttes* where round spouts prevail (Barlow 1996a: 279). At *Ammoudhia* the ratio is dependent on size. Medium sized jugs almost always have cutaway spouts and large jugs tend to have round ones. In juglets there are considerably more (x3) examples of round spouts than cutaway.

Large jugs (over 25cm tall)

There are 37 complete or almost complete examples of very large jugs in the assemblage. The majority measure well over 25cm, averaging about 40cm in height. Another 16 fragmentary spouts occur, giving a total of at least 53. Large jugs can be

differentiated from large jars as they have long narrow (usually concave) necks and a single vertical handle, some have cutaway spouts and are clearly for pouring (Figure 4.57), other round spouted examples are probably for the storage of liquid (Figure 4.56). The distribution is even, with 23 examples of cutaway spouts and vertical handles, and another 27 with round flaring spouts and mid-neck vertical handles (Figure 4.52). There are also three vessels with spouts and necks missing. Bases vary, the majority (17) are small and flat, however, six rounded and ten pointed examples also occur.

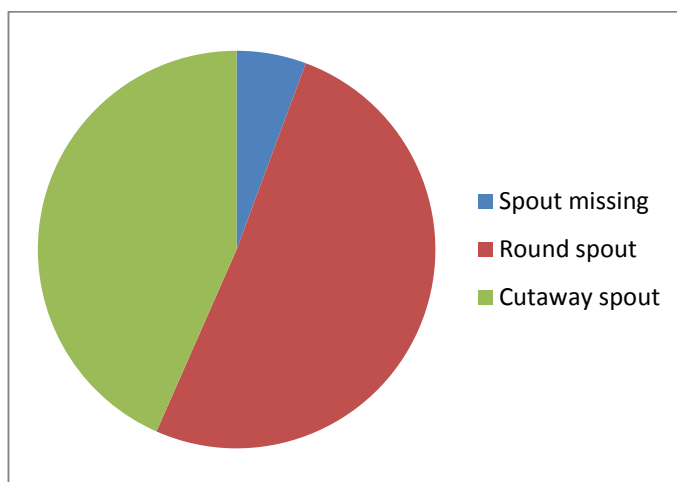


Figure 4.52: Large jugs, distribution of spout types

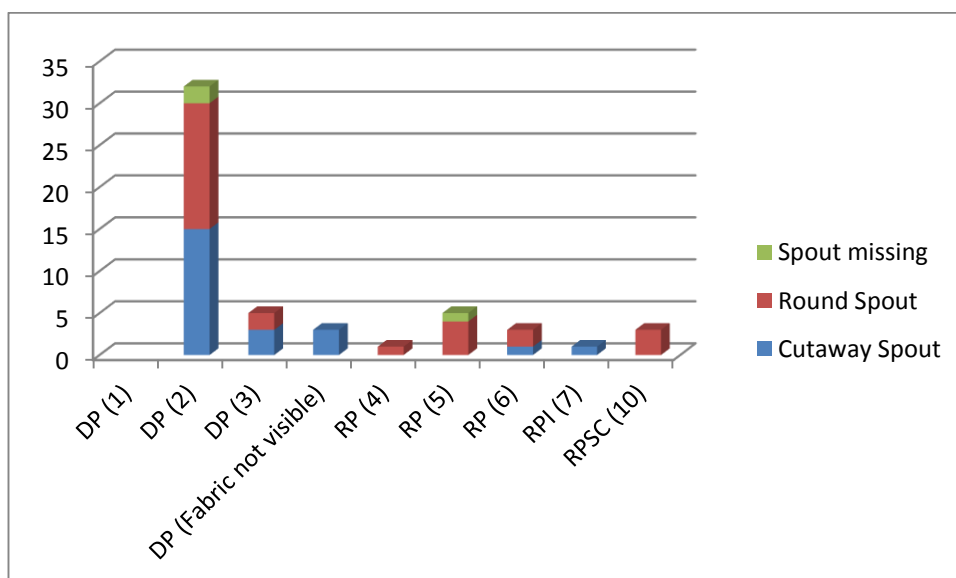


Figure 4.53: Large jugs, distribution of wares to spout types

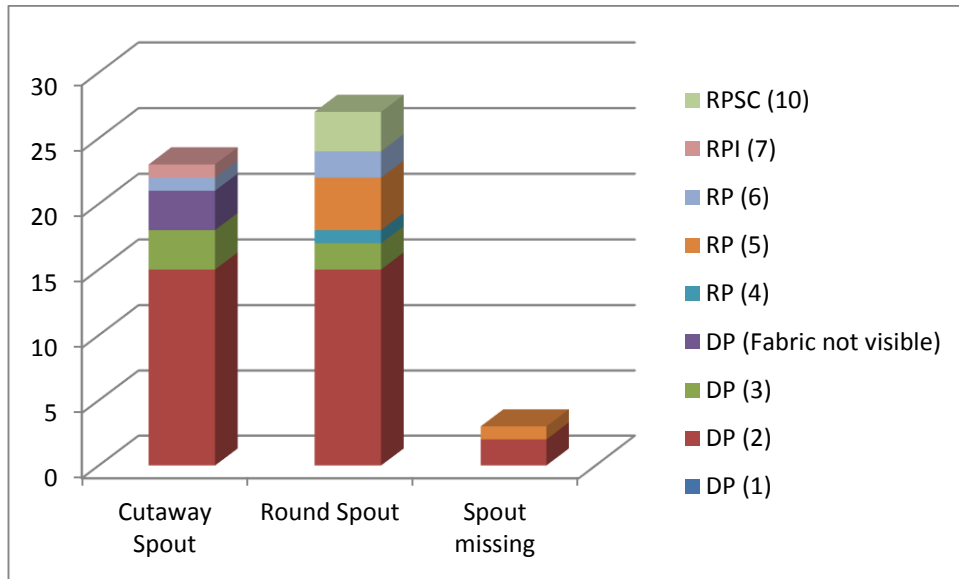


Figure 4.54: Large jugs, distribution of spout types to wares

Despite their large size, the fabrics remain quite fine and many have a blue core with 32 DP (2) examples. There are five RP (5) examples and eight large jugs that show slightly coarser wares with five DP (3) and three RP (6) vessels. There are some which appear to be early in date; three occur in RPSC and there is one example of RPI (7). Finally there are three complete examples where the interior fabric is not visible. These have been classified as DP based on slip colour. RP is restricted in shape to the round spouted, mid-neck handle type, with only two RP examples exhibiting a cutaway spout. The round spouted vessels are also common in DP; with 17 examples as compared to the ten RP vessels.

Only 14 show any kind of decoration; three are of the highly decorated RPSC tradition and one (9.14) is a rare composite vessel (Figure 4.55), discussed further below. The remainder carry limited decorative motifs of relief bands or punctures around the neck/shoulder join, or incised handles.

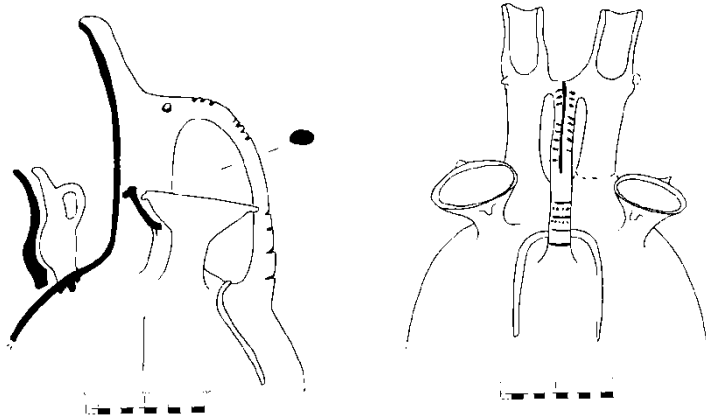


Figure 4.55: Composite vessel 9.14

The large jugs correspond comfortably to similar types found in cemeteries (Stewart 1962; Todd 1985; Barlow 1996; Frankel & Webb 1996; 2006; Herscher 2003). There are few examples of large jugs which do not fit comfortably into the above typology:

1.29 is a RPC jug, rather coarse, with a flat base and an unusual small squared handle from mid-neck (Figure 4.56). The neck and rim is also quite cylindrical and does not flare as much as the norm. The remainder are highly decorated RPSC examples. 9.14 is the only example of a composite vessel in the assemblage (Figure 4.55). Unfortunately only the upper part of the vessel survives, but it is a DP (2) example with two cutaway spouts and two handles. The shoulder has a miniature cutaway spouted juglet and two miniature small bowls or cups thrust through the body and the handles have incised decoration.

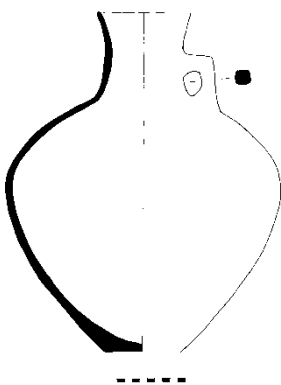


Figure 4.56: Large jug 1.29

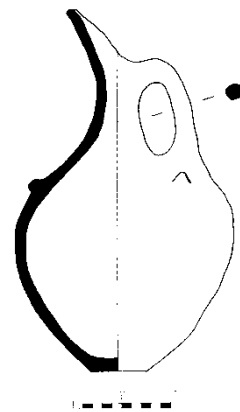


Figure 4.57: Large jug 6.22

Medium Jugs

There are 58 examples of complete or near complete medium sized jugs. This figure is conservative and may be slightly misleading, as the majority of diagnostic sherds from closed vessels (classified as 'General closed') are likely to be from this form of vessel, suggesting that the total may be higher than 42 (possibly over 100).

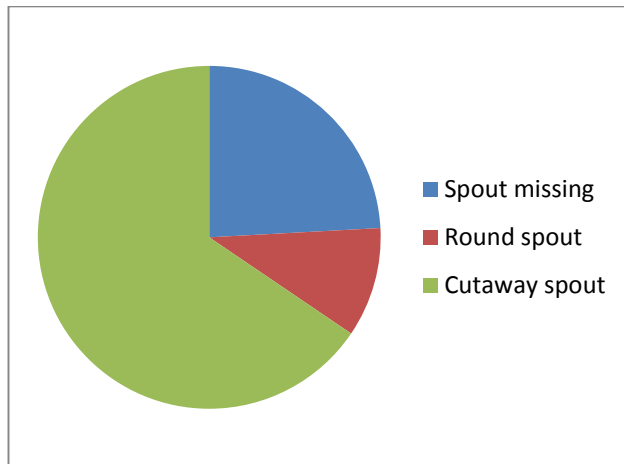


Figure 4.58: Medium jugs, distribution of spout types

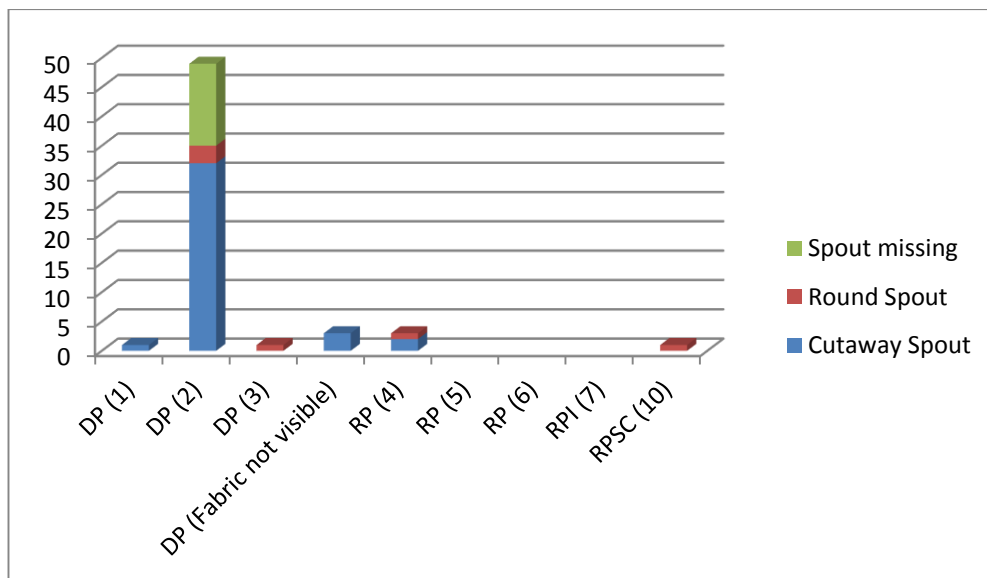


Figure 4.59: Medium jugs, distribution of wares to spout types

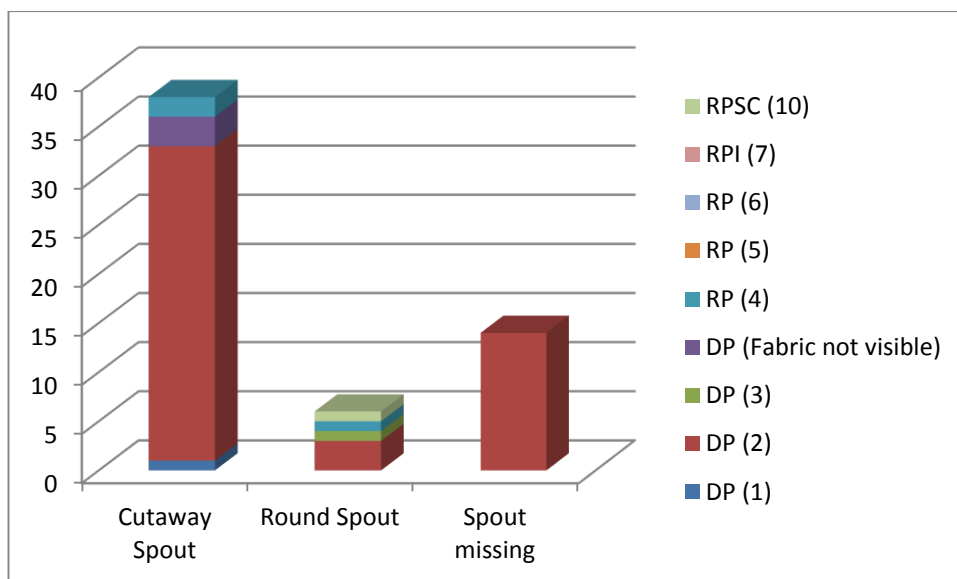


Figure 4.60: Medium jugs, distribution of spout types to wares

Jugs with cutaway spouts

There are 38 complete or near complete jugs of this type in the assemblage, and another 63 examples of spout and handle sherds, accounting for at least 101 examples. Those with vertical handles have the lower part of the handle plugged into the body. Many have an opposing pointed lug, and some also exhibit a second lug below the handle.

Of the complete examples the majority have globular bodies, elongated concave necks and pointed bases (Figure 4.61). There are also three examples of knob bases, where, instead of the base being pinched to a point the base is actually a plastic add-on. Finally, there are three completely round bases (Figure 4.62). Fabrics are fine (Figure 4.59 & 4.60), the majority occur in a form of DP, with 84% occurring in Type 2, there are also three intact vessels which can only be classified as DP. In the RP repertoire there are two intact examples of Type 4, although in the 'general closed' category, the cutaway spouted sherds also include some Type 5 examples.

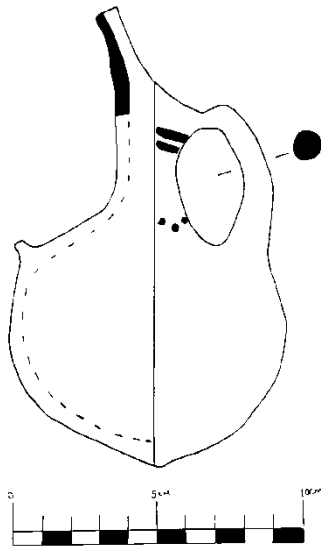


Figure 4.61: Jug 6.2

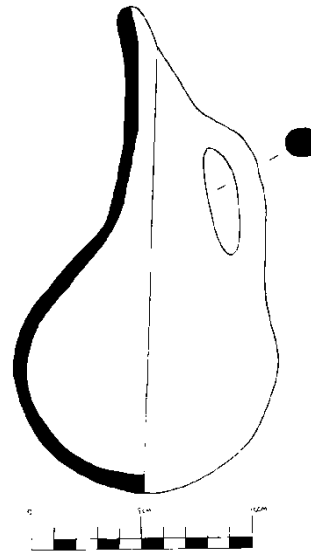


Figure 4.62: Jug 7.1

The DP (2) examples all have very fine fabrics with very thin walls and an almost metallic feel. All of these vessels have a thin matte slip varying in colour from a dark grey (5YR 4/1) to bright red (2.5YR 5/8) and reddish yellow (5YR 6/6) and mottling is common. Occasionally the bases of the vessels show string marks suggesting they were suspended in string bags to dry.

Decoration is scarce in this type of vessel, with only 15 decorated examples, almost all occurring in DP (2) (Figure 4.63). Motifs are restricted to a row of punctures around the neck join (Figure 4.61), a motif that is also common on the south coast (Herscher 2003: 147). 13 examples of this incised handles occur, usually a long central incision with short incisions emanating from each side. A few jugs are decorated with both incised handles and punctures and there are three vessels with two oblique incisions occurring on the neck at both sides of the upper handle attachment.

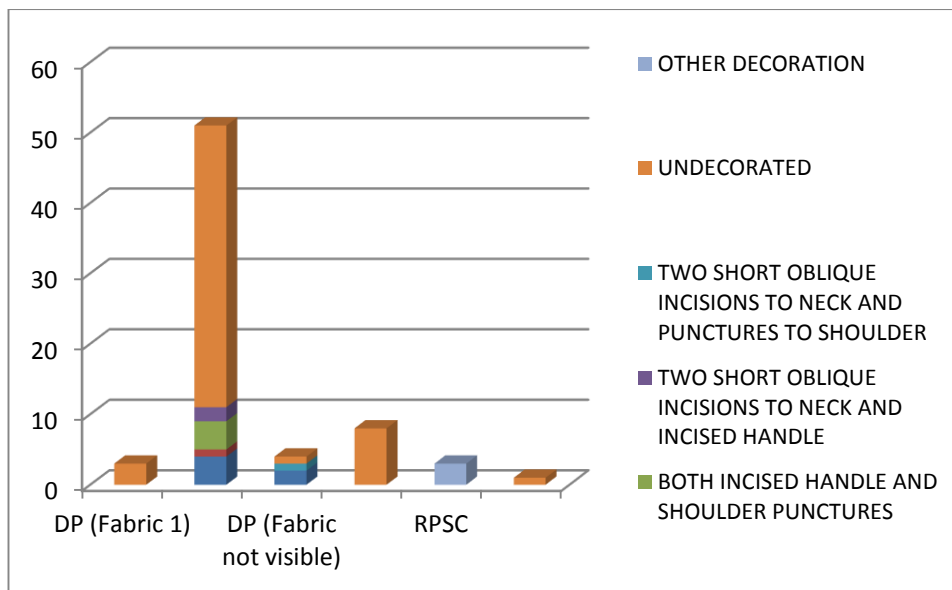


Figure 4.63: Cutaway spouted jugs, distribution of wares to decorative motifs

The homogeneity observed in these vessels may be related to their funerary function, as they are not particularly common in settlements (Frankel & Webb 2006: 122). At Marki-*Alonia* these vessels all come from later deposits (Frankel & Webb 2006: 122) and have round or flattened bases. Most sites also show similar handle decoration, although zigzags are more common (Herscher 2003: 166-167). Frankel & Webb suggest an ECIII-MCI date for the use of these vessels at Marki-*Alonia* (2006: 122). They conform well to Stewart's type IA1 (1962: 304) who suggested that they were in widespread use in the north and centre of the island. Although DP is never a common ware outside of the south-west, it is this shape that most frequently occurs in other regions (Frankel & Webb 2006: 140).

Jugs with round spouts

Only three complete examples of medium sized jugs with round spouts occur. 5.1 is an unusual shaped DP (2) jug with a wider rim than the norm, globular body, indented neck and round base (Figure 4.64). 18.10 is a RP (4) example of the same and 40.9 is more in keeping with the DP (2) round spouted, mid-neck vertical handle type of juglet that is somewhat more common and described below (Figure 4.65). The remaining sherds are all fragmentary but are of a clear type with a round

flaring rim and mid-neck vertical handles. All are DP (2), with thin walls and a hard, metallic blue obscuring core, similar to 40.9. Most have a matt, dark slip, two have a red slip and two oblique grooves to the upper handle attachment, as described above, otherwise decoration is extremely scarce. There are also seven examples of medium sized jugs which have the spouts missing, all occur in DP (2).

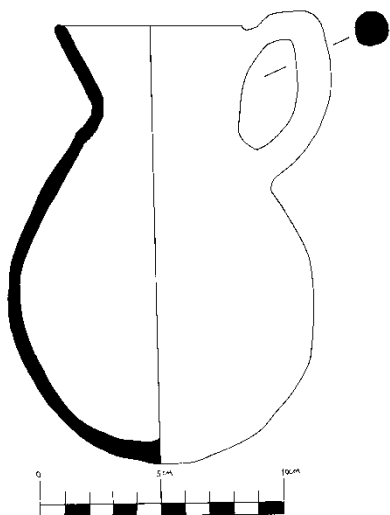


Figure 4.64: Jug 5.1

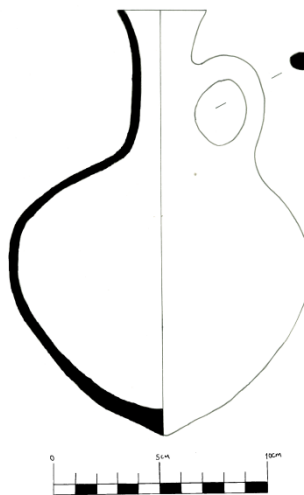


Figure 4.65: Jug 40.9

Juglets

There are 89 complete or near complete juglets in the assemblage; several of which are completely intact, making it impossible to identify the fabric. Round spouts are more common in this small size vessel, suggesting that they may have contained a substance that was expected to drip out rather than pour (Figure 4.66).

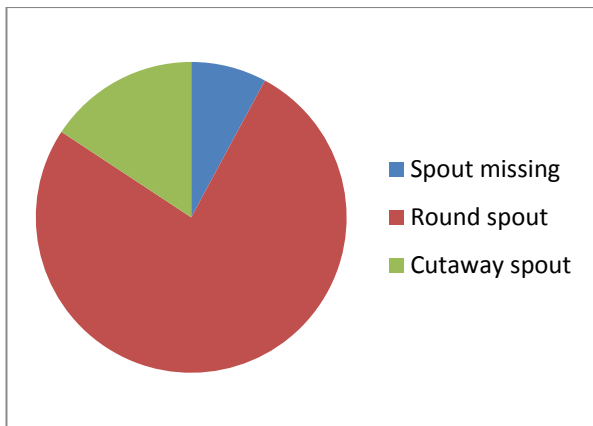


Figure 4.66: Juglets, distribution of spout types

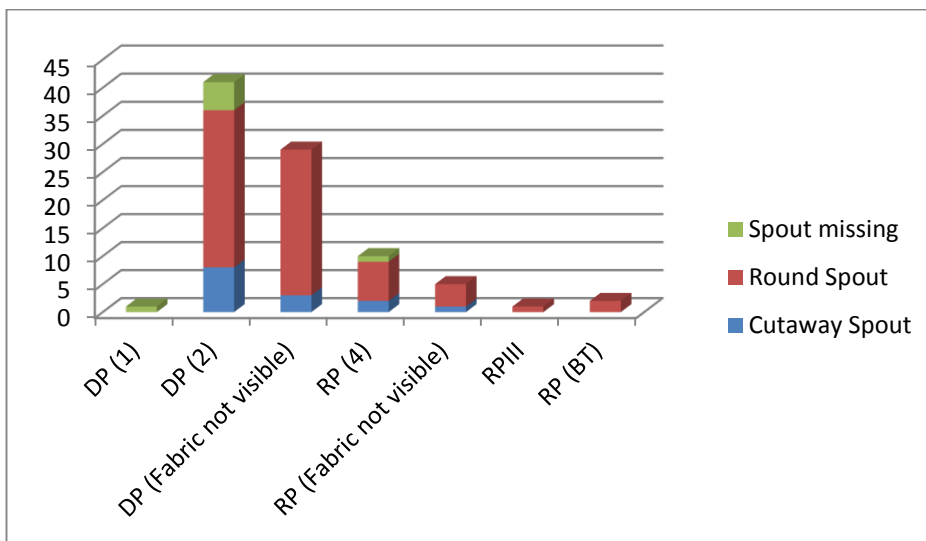


Figure 4.67: Juglets, distribution of wares to spout types

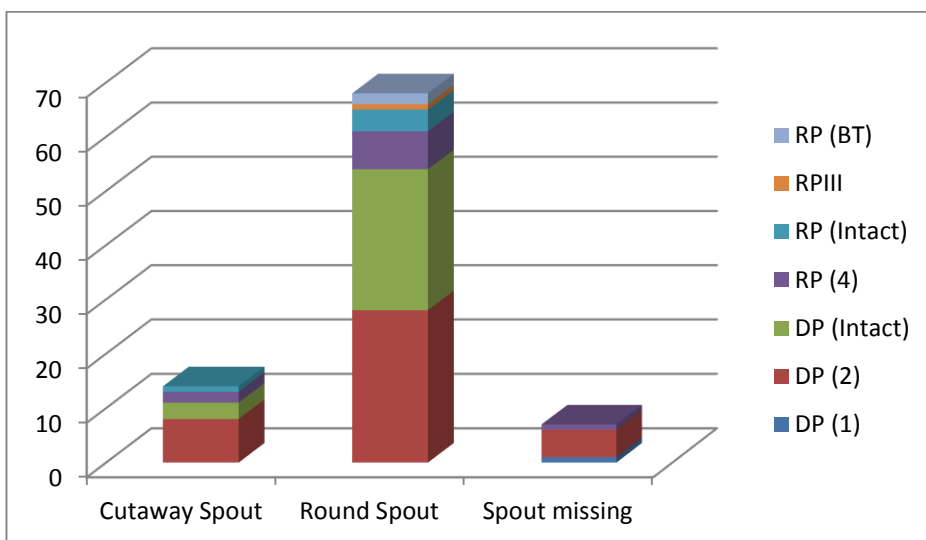


Figure 4.68: Juglets, distribution of spout types to wares

Juglets with cutaway spouts

There are at least 14 examples of small very fine juglets with cutaway spouts, six of which come from Tomb 16. The remainder also come from tombs that appear to have a MC date; they are all undecorated. Two have rounded bases (Figure 4.69) but the remainder have pointed bases (Figure 4.70). The wares are dominated by DP (Figure 4.67 & 5.68) with eight occurring in DP (2), two in RP (4) and four intact vessels with no fabric visible. All have a matte slip with the majority favouring a 'drabber' shade. This miniature style is well represented in the centre and south of Cyprus in the ECIII-MC (Frankel & Webb 2006: 124).

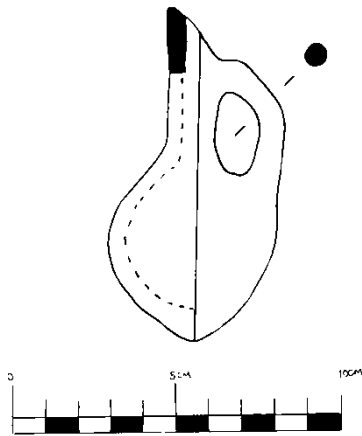


Figure 4.69: Juglet 16.44

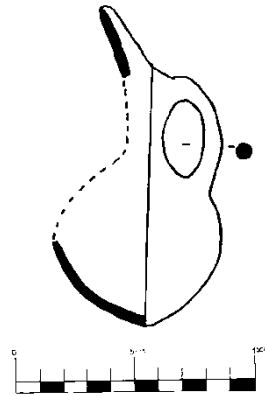


Figure 4.70: Juglet 16.8

Juglets with round spouts

This is a common type at *Ammoudhia*, with 68 complete or near complete vessels. Defined by round spouts with slightly flaring rims and vertical handles, some slightly high. Rim diameter is extremely restricted (between 1.8-2.5 cm), thus restricting the flow rate of liquid contents to a drop at a time. Necks are usually narrow and concave with a few more cylindrical examples, and bodies are round and globular. Bases vary, with 19 rounded 21 pointed and another 24 with an attached nipple base.

Again, these juglets all occur in very fine, mostly hard fabrics with the majority again being in the DP range (Figure 4.67 & 5.68). 27 are clearly DP (2), whilst 34 are intact, with the interior not visible so must be classified as DP or RP (Intact). Only 14 fall into the Red Polished type with seven occurring in Type 4, four completely intact, one RPIII and two with black tops.

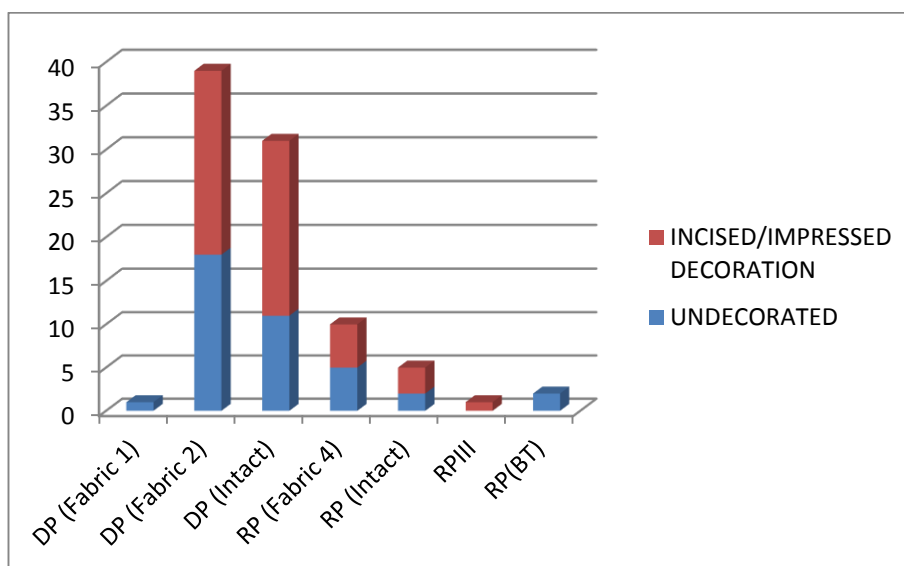


Figure 4.71: Juglets, distribution of wares to decoration

A large number of juglets (50) are decorated (Figure 4.71). As stated above, decoration is conservative with impressed circles and dots and/or incised lines with rows of dots (e.g. Figure 4.72). All decorated vessels bar five have this typical west coast motif; 9.3 only has a ring of punctures around the neck join. 15.8 (Figure 4.73) is a RP example with a more typically south coast stitching motif (Morris 1985: 214), although the impressed circles are there they have a central dash rather than dot. Vessels 16.19 and 16.47 also carry this stitching decoration. Imported juglet 16.38 has already been discussed above (Figure 4.39). Decorative motifs are restricted and there are no examples of relief decoration on these small juglets.

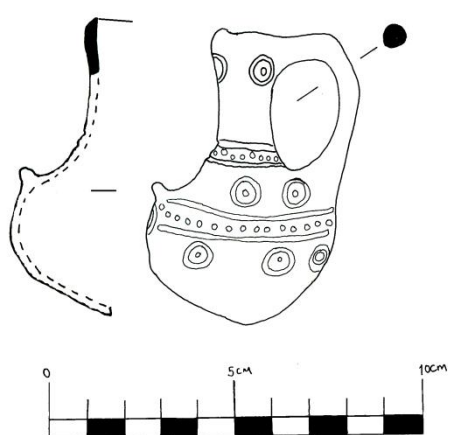


Figure 4.72: Juglet 15.6

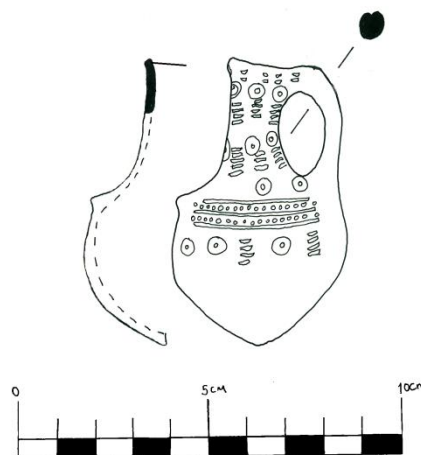


Figure 4.73: Juglet 15.8

These vessels are found all over Cyprus during the EC-MC and are often easiest to place geographically as they are more likely to exhibit regionally recognisable decorative motifs. They are less common in settlements but are found regularly in funerary deposits. For example, they occur rarely at Marki-*Alonia*, and when they do it is from later deposits, Phases F-I (Frankel & Webb 2006: 123). Evidence for these juglets was found in every tomb with the exceptions of Tombs 1 and 43.

Juglets with mid-neck handles

Whilst only five examples of this type of juglet occur at *Ammoudhia* (15.9, 16.2, 16.14, 16.43 and 42.4) it is necessary to record them separately as they may represent a distinct, MC tradition. All occur in DP (2) with the exception of 42.4 (Figure 42.1) which is intact, but has a red exterior so is recorded as RP (Intact), and are extremely hard fired with an almost metallic feel (Figure 4.74). Bodies are round and bases vary, necks are more cylindrical and handles join at mid-neck. All have a thin matte slip and, with the exception of 16.14 (Figure 4.75) and 42.4 which have a lighter reddish yellow colour, all are very dark grey (5YR 4/1), sharing similarities with proto BR from the south coast (E. Herscher: personal communication). It should be noted that these vessels only occur in what may be termed as the latest tombs in the assemblage.



Figure 4.74: Juglet 15.9



Figure 4.75: Juglet 16.14

Flasks

Flasks occur throughout the assemblage, although never in large numbers. 32 complete vessels and four diagnostic spouts were found, accounting for 3% of the corpus. Flasks are of similar size and shape to small juglets with globular bodies and bases that are either rounded, pointed or nipple shaped. Flasks tend to have much longer, thinner necks than juglets, with round spouts and flaring rims and no handles. Every flask in the *Ammoudhia* assemblage also has two opposing string holes just below the rim.

The flasks at *Ammoudhia* occur in a range of wares (see Figure 4.76). 17 in DP types (15 in Type 2, and two with no fabric visible –classified as DP). 12 examples occur in RP fabrics (two in Type 4, three are Type 7, four RPSC, two RPBT, one RP (6) and one classified as only RP). All have a thin matte slip varying from a bright red (2.5YR 5/6) to light brown (7.5YR 4/6) and dark grey (5YR 4/1). Flasks appear to cover a wide chronological range and are quite distinctive in their shapes and motifs.

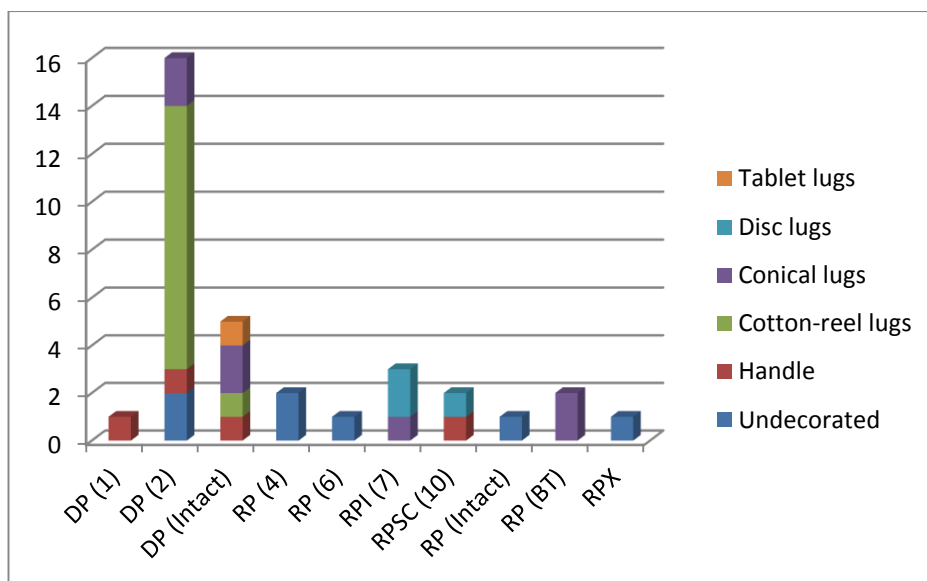


Figure 4.76: Flasks, distribution of wares to decorative motifs

The majority of the flasks (27) have lugs which show a varied typology. Among the earliest are two examples of RPI (7) flasks, both from Tomb 1 (1.14, 1.24) with two opposing elongated disc lugs (Figure 4.77). 40.2 is a typical RPSC example which is also highly decorated. Seven examples have what may be termed conical lugs, again protruding from opposing shoulders, these vary in size. Both of the RP (BT) flasks have small, stunted versions of this lug (6.17, 6.20) and have round bases. 6.24 is also an early version which has two extra small button lugs as well as the conical ones and has a lustrous red slip; the remaining four are DP.

The most common lug is the 'cotton reel' (Figure 4.78). This has been classified as a west coast design (MacLaurin 1980: 719) and it is no surprise to see the twelve complete examples found at *Ammoudhia* are highly decorated with the uniform regulated west coast motif of impressed circle with a central dot and incised lines. Every one of these flasks carries this decoration and all occur in DP. These lugs are similar to the 'disc' lugs found on some of the RPSC and RPI vessels and dated to the EC. The two may be related, possibly as the large discs shrink over time to form the MC 'cotton-reel' shape, as seen in Figures 4.77 and 4.78.

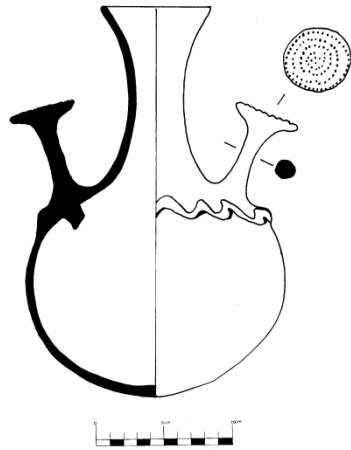


Figure 4.77: Flask 1.14 with disc lugs

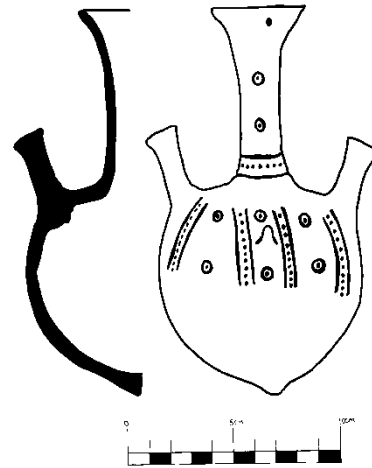


Figure 4.78: Flask 16.16 with cotton-reel lugs

Whilst handles are rare on flasks there are four examples here which can be classified as flasks but do have handles of a kind. 19.13 (Figure 4.124) has unusual loop handles, 19.9 (Figure 4.123) is a typical cotton-reel example but in this case the lugs have been attached to the mid-neck with a crossbar, effectively turning the lugs into handles. Finally, 18.11 (Figure 4.34) is an early RPSC flask; very highly decorated with a dark, lustrous slip and an unusual basket type handle over the rim.

Bowls

Bowls are one of the most common vessel form found at EC-MC sites. There are 132 complete or near complete examples, accounting for 11% of the diagnostic vessels. There are, however, many rim sherds from open vessels that occur in every tomb, making this number a conservative estimate. Bowls can be distinguished by size (see Figure 4.79 for general ratios), a few very large bowls are present, and the various types of small bowls occurring can again be split into a series of classifications which may help identify typological and/or chronological traits (see Figure 4.80 for detailed ratios).

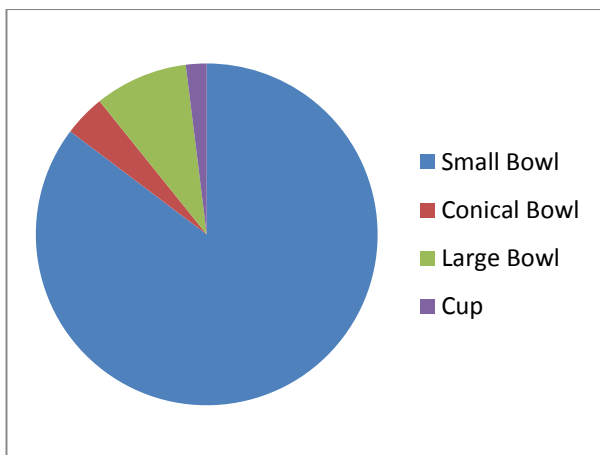


Figure 4.79: Distribution of general bowl sizes

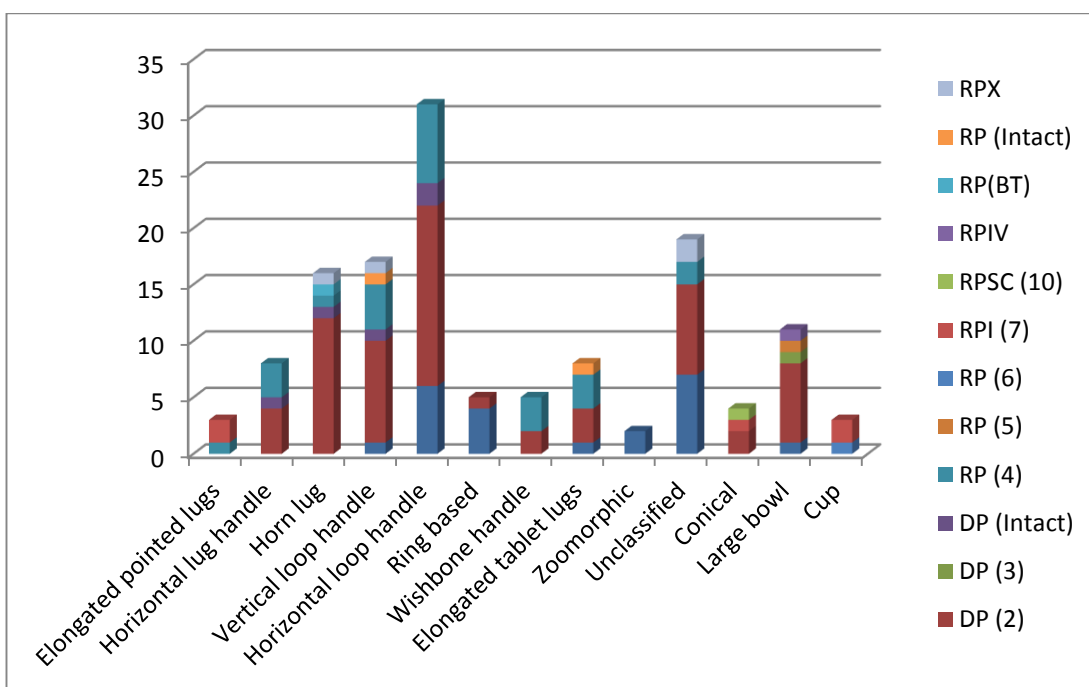


Figure 4.80: Distribution of specific bowl shapes to wares

Small bowls

The small bowls conform (with few exceptions) with types known at other sites, and for the most part with Stewart's typology (1962). The strongest similarities are again with ECIII-MC phases of Marki-Alonia (Frankel & Webb 2006: 112). The flat bases that are preferred on the south coast (Herscher 1981; 2003: 154) are entirely absent at *Ammoudhia*. 114 individual small bowls occur in the *Ammoudhia* assemblage with many diagnostic rim sherds, accounting for 10% of the total assemblage. Differing

shape, base and handle type have been used to distinguish ten different types of small bowls (Figure 4.80).

Bowls with elongated lugs

Only three examples of this type survive, however, several diagnostic lugs are also present and seem to have come from similar bowls. Two of these vessels are from Tombs 1 and 6 and are both of the RPI (7) fabric. Vessel 1.9 (Figure 4.81) originally had two pairs, although only one now remains. 6.40 (Figure 4.82) is fragmentary and may also have had two pairs. 17.4 is slightly different, being small with a pair of smaller projections and occurring, unusually in DP (1). 1.9 is the only decorated example, with the typical wavy line relief running below rim. In fabric, decoration and texture, vessel 1.9 is very similar indeed to the conical bowl 1.22 (Figure 4.103).

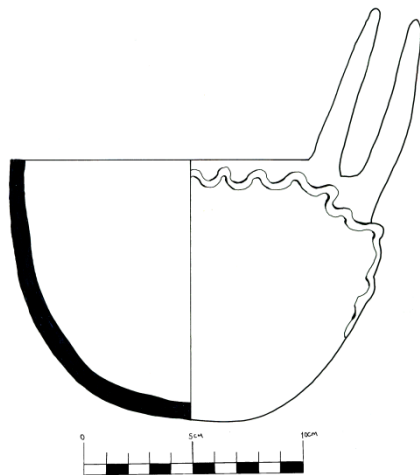


Figure 4.81: Bowl 1.9

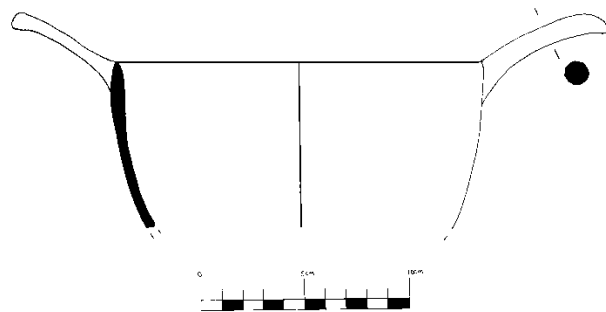


Figure 4.82: Bowl 6.40

Bowls with horizontal lug handles

Seven examples of this type occur (see Figure 4.83 for a typical example), four in DP (2) and three in RP (4). These are deep round based bowls, undecorated, with horizontal lugs below rim being pierced vertically to form a small irregular handle. All except 4.6 (Figure 4.84) also have opposing horned lugs occurring on the rim. This type was found in survey at *Kissonerga-Skalia* (Philip 1981: 53, fig: 13.6) and at *Marki-Alonia* this type begins in the ECII and seems to last right through to the MCII

(Frankel & Webb 2006: 112). They are found at other sites from this period but are never a common occurrence (Frankel & Webb 2006: 112; Stewart 1962: 334; Herscher 1988: 144; Barlow 1996: 292, 317).

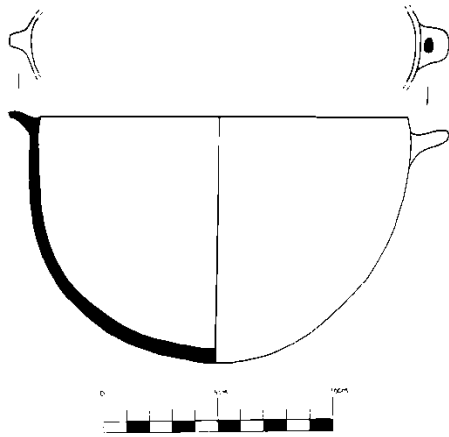


Figure 4.83: Bowl 8.8

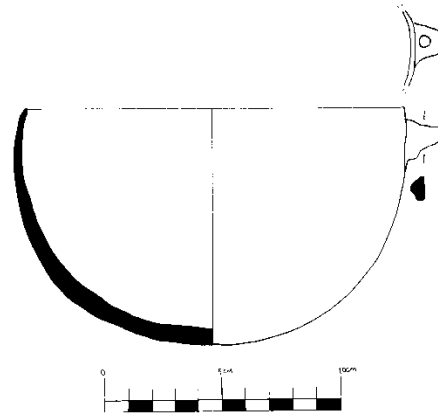


Figure 4.84: Bowl 4.6

Bowls with horn lugs

There are 17 examples of bowls with no handles but one or two small horn lugs. Again, these are deep round based vessels, undecorated and occurring in fine fabrics, the majority (12) in DP (2). The majority have pinched hornlike projections rising from the rim (Figure 4.85) and can be compared to Type D from *Sotira-Kaminoudhia* (Herscher 2003: 156) and Stewart's hemispherical knob lug bowl type XIII F a2, dated by Stewart to ECII-MCI (1962: 333; Figure CXXXIX 9-16). The remainder are all from Tomb 16 and are slightly different; the examples from this tomb all have lugs occurring below the rim (for example 16.50 – Figure 4.86). 16.35 in particular stands out (see Figure 4.37). This is a fragmentary RPBT example, with a pierced knob projection and a black top and black interior similar to Stewart's type XIII F b5 (1962: 333; Fig: CXXXIX 37-42). This type is also found at *Marki-Alonia* (Frankel & Webb 2006: 111) who, like Stewart date this to ECI-MCI.

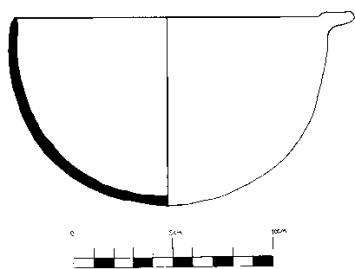


Figure 4.85: Bowl 6.47

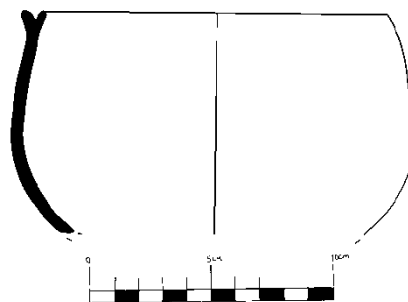


Figure 4.86: Bowl 16.50

Bowls with vertical loop handles

18 examples of bowls with vertical handles occur. Ten of these are the general deep bowl type, monochrome and undecorated with small vertical loop handles occurring below rim and an opposing pointed lug. This type is restricted to three tombs (6, 10 and 40) and occurs in DP (2) and RP (4). 6.38 (Figure 4.87) is fragmentary and may originally have exhibited a lug, which is now missing. The remainder are small, shallower bowls with proportionally larger high loop handles (Figure 4.88). Four occur in DP (2), three in RP (4), one RP and one RPX. These are common in the centre and south of the island (Barlow 1996a: 294; Herscher 2003: 164-166; Frankel & Webb 2006: 110). At Marki-Alonia they are never common but ‘maintain a steady presence’ (Frankel & Webb 2006: 110). They are undecorated with two exceptions; 6.38 has a single incised groove to the upper handle attachment and 19.14 has a small opposing tablet lug decorated with a single incision and the upper handle is decorated with eight short incisions.

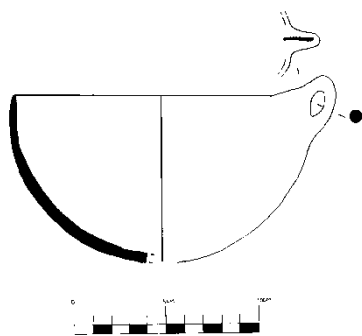


Figure 4.87: Bowl 6.38



Figure 4.88: Bowl 19.14

Bowls with horizontal loop handles

This is the most common type of bowl found at *Ammoudhia* with 29 examples and at least eight diagnostic handle sherds. These tend to be deep hemispherical bowls, round based, monochrome and undecorated with horizontal loop handles occurring below the rim that vary in size and projection.

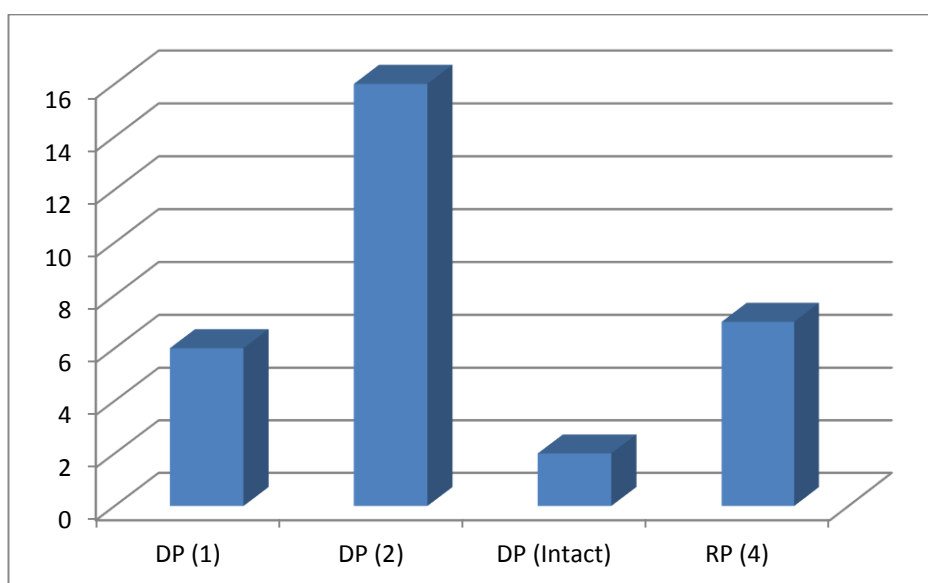


Figure 4.89: Small bowls with horizontal loop handles, wares

Five have incised grooves to the upper surface (1.41, 6.1, 13.16, 13.21 and 19.23). Of these, two have an opposing incised lug (6.2 and 13.16 – see Figure 4.90), the remainder are fragmentary. Eleven others have undecorated handles but also have opposing pinched vertical or pointed lugs opposing the handle. Vessel 2.18 (Figure 4.91) is the only decorated example, being a DP (2) bowl with some mottling and classic west coast incised decoration of impressed circles with central dots and incised lines. Finally, there are 13 examples of vessels or diagnostic sherds that represent this type but are incomplete. All finely made, they occur mainly in DP (2) (Figure 4.89). These bowls are also common at *Marki-Alonia* and *Alambra-Mouttes* (Frankel & Webb 2006: 113; Barlow 1996a: 287), where they date from ECIII but are most common in MCII, as well as the south coast (Herscher 1988: 144) but are relatively rare on the north coast (Stewart 1962: 335).

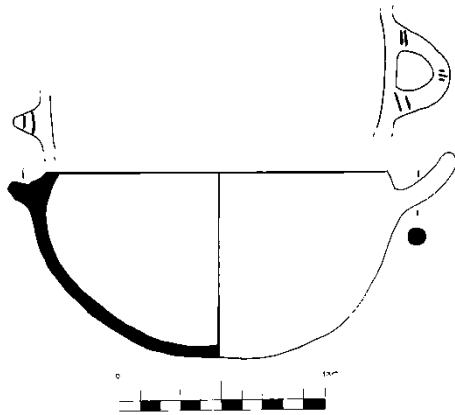


Figure 4.90: Bowl 13.16

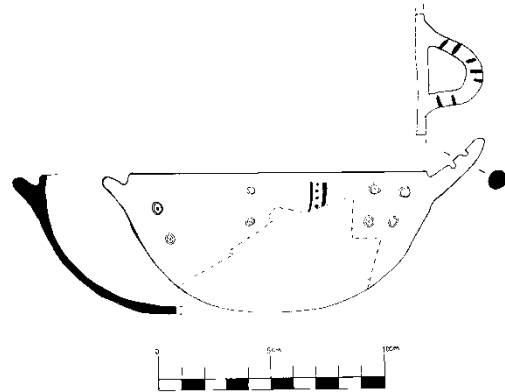


Figure 4.91: Bowl 2.18

Bowls with ring bases

Ring bases are rare in the EC-MC and are not usually observed until late MCIII at the earliest (Herscher 2003: 218). Two occur at *Marki-Alonia*, but are seen as anomalies (Frankel & Webb 2006: 115). Flat bases tend to define the earliest Bronze Age and during the MC it is round, pointed or nipple bases that dominate. True Base Ring ware (BR) does not occur until LCI-II but Proto-Base Ring has been identified earlier. Herscher argues that DPBC ware, with its very hard, thin walls and sophisticated pyrotechnology may in fact be a precursor to BR and chemical comparisons conducted at *Sotira-Kaminoudhia* seem to back this up (Herscher 2003: 218).

There are four examples of ring based bowls in the *Ammoudhia* assemblage (and one ring base sherd), all are small bowls and all are highly decorated. All four bowls occur in DP and all have relief decoration of wavy lines; 16.12 (Figure 4.92) is the only Type 2 example and is decorated with wavy relief. The remainder all occur in Fabric Type 1. Vessel 2.17 (Figure 4.93) and 16.24 (Figure 4.94) are decorated with relief wavy lines; whilst 10.4 (Figure 4.95) is extremely unusual (described above). There is also one example of a ring base sherd (16.77), again occurring in DP (1).

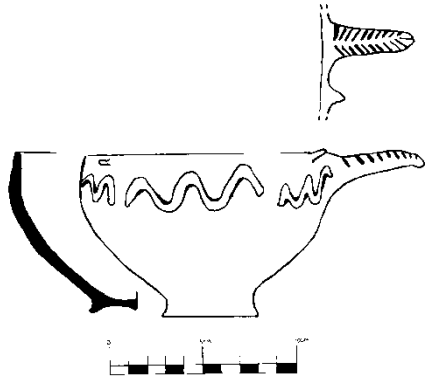


Figure 4.92: Bowl 16.12

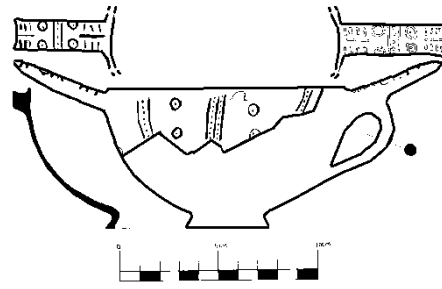


Figure 4.93: Bowl 2.17

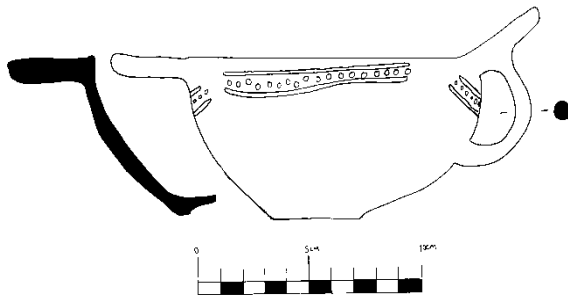


Figure 4.94: Bowl 16.24

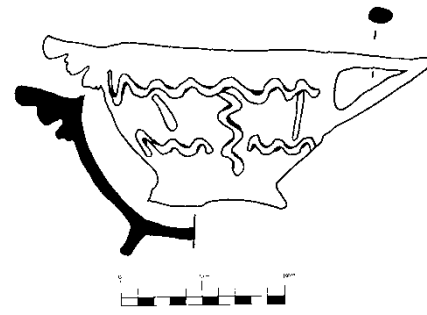


Figure 4.95: Bowl 10.4

With the exception of 2.17 these vessels are all crudely made and asymmetrical, 10.4 (Figure 4.95) is extremely unusual, with a unique triangular handle with no precedents in the archaeological record and a crude zoomorphic attachment. 2.17 (Figure 4.93) is a rather more formalised design with the classic west coast motif of impressed circles and dots and parallel incised lines enclosing a line of dots.

I have chosen to classify these bowls as a separate 'ring based' category, since this classification is of possible chronological importance and can be compared to other sites. However, it should be noted that these vessels could also fit into one of the following categories (namely 'elongated tablet lugs' and 'zoomorphic').

Bowls with wishbone handles

These forms of handles, so called because they resemble a bird's wishbone, are usually dated to MCI-II (Åström 1972a: 78; Frankel & Webb 2006: 113). In the north they are found in RP IV (Åström 1972a: XIX 2); Red Slip ware (Åström 1972a: XXI 2-3) and Black Slip II (Åström 1972a, XXIV 2-6). At Marki-*Alonia* they are only found in the latest deposits, H and I, and are rare (Frankel & Webb 2006: 113). At *Ammoudhia*, only five complete examples occur in four tombs (2, 16 20 and 42). 2.16 is a DP (2) small bowl, undecorated; 42.5 and 16.4 (Figure 4.96) are undecorated RP (4) small bowls; whilst 20.36 and 16.5 (Figure 4.97) are decorated, with the handle and opposing tablet lug incised with short lines. Tomb 16 also contains a diagnostic RP (4) incised wishbone handle (16.75).

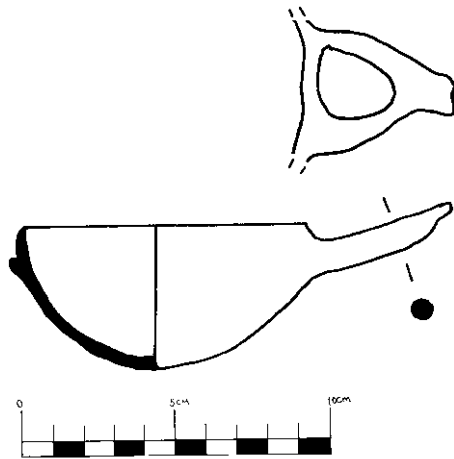


Figure 4.96: Bowl 16.4

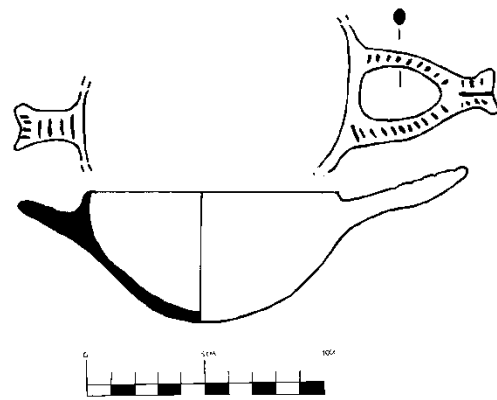


Figure 4.97: Bowl 16.5

Bowls with elongated tablet lugs

This style of lug or handle is again unusual and often occurs alongside wishbone handles. For example, vessel 16.5 (Figure 4.97) has been classified as a 'wishbone handle' type as this shape is more useful for typological and chronological comparisons. There are 11 examples of this style in the *Ammoudhia* assemblage and although grouped together (with the exception of 2.17, 16.12 and 16.24 which also have ring bases and have been classified as such), there are stylistic differences. All of the occurring lugs are flat and tend to end in a fork reminiscent of a fish tail. All lugs are decorated, 6.48 (DP (2) – Figure 4.98) and 16.22 (4) are the simplest

examples, being unadorned except for the lug, which is decorated with a central incision with emanating short lines. The remainder are more elaborate, with a vertical loop handle occurring below one of the lugs (the upper attachment is to the lug underside). This appears to be a highly stylised local tradition not seen out with this assemblage, although comparisons can be made to a DP shallow bowl described by Åström (1972a: 83; Figure XXIII: 1). This example has a vertical handle with the upper part decorated with short incisions and extending to a point and an opposing conical lug. It is possible that the unusual pinched triangular handle on bowl 10.4 (discussed above) is a prototype for this lug/handle combination. Eight examples occur; 16.1 and 21.1 are RP examples with two opposing fishtail lugs (one with the vertical handle on the underside) but the bowls are undecorated. The remainder are all highly decorated, with what may be termed typical west coast motifs. The two from Tomb 13 have a fishtail above the handle which splits to form what may be termed another handle rather than lug (Figure 4.99).

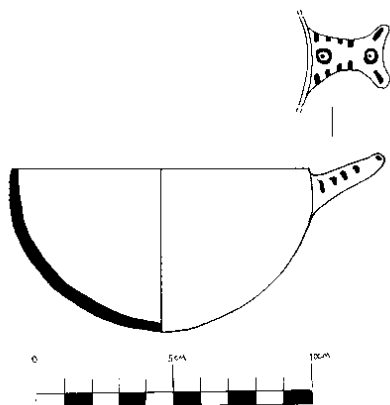


Figure 4.98: Bowl 6.48

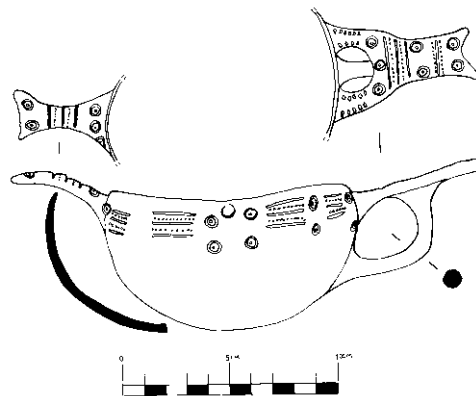


Figure 4.99: Bowl 13.9

The remaining four all have two fishtail lugs with a vertical handle underside and decorated bodies, although, again, there is variation.

Finally, 19.8 (Figure 4.100) is a highly unusual vessel, conforming to this type in all other ways (in fact, very similar to 16.18), but having a stemmed base and two small raised 'horns' arising from the rim as well as two shorter tablet lugs and is one of

the most unusual and enigmatic vessels in the *Ammoudhia* assemblage. This vessel may have had a particular cult or ritual purpose, as the weight from the two lugs and the narrowness and fragility of the base mean that it is highly unlikely that this vessel was able to stand upright safely.

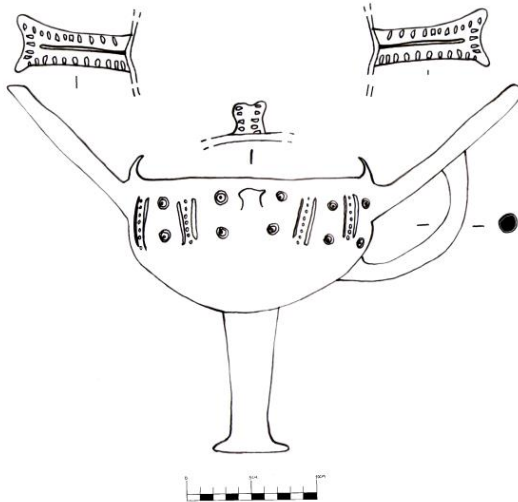


Figure 4.100: Pedestalled bowl 19.8

Some examples of isolated tablet lug sherds also occur, particularly in Tombs 13 and 16. It should also be noted that these three examples of ring bases, wishbone handles and tablet lugs/handles all share similar traits, suggesting similar manufacturing techniques, style and date, possibly MCII-III. These vessels only occur in Fabric Types 1, 2 and 4, where there are three examples of each.

Zoomorphic bowls

Zoomorphic decoration is rare at *Ammoudhia*. Only four examples occur, all of which appear to be from small bowls. Only one complete vessels survives (10.4, see above), therefore, this has not been designated a separate classification in this study.

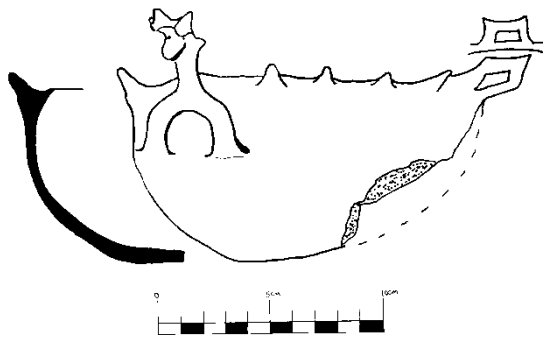


Figure 4.101: Zoomorphic bowl 16.21

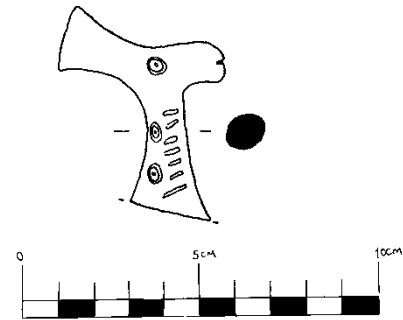


Figure 4.102: Handle/Lug 16.74

The other zoomorphic reliefs all come from Tomb 16. Two fragments from two separate bowls (16.21 and 16.30) are also in the DP (1) tradition. 16.21 (Figure 4.101) is more complete and illustrates a horizontal handle with the figure of a stag rising above. The rim of the bowl is decorated with conical lugs rising from the rim at 3cm intervals and another square horizontal handle. 16.30 is from a similar vessel, but only the horizontal handle, stag and one projection remain from this example. These conform to what MacLaurin terms 'sea urchin' type, which she identifies as being a rare west coast type (MacLaurin 1980: 721, fig. 123. 12-13). Finally, in Tomb 16, there is an appendage in the form of a goat (or sheep) head (16.74 – Figure 4.102), with the typical west coast decorative motifs and the end of which is reminiscent of the 'cotton reel lugs' already occurring in this and other MC tombs, although this lug sherd could not be linked to a specific vessel shape.

Unclassified small bowls

There are 19 examples of small bowls which either have no lugs or handles or do not fit into any of the above categories. The majority are incomplete vessels that cannot be securely classified, but can still be identified as hemispherical bowls, either lacking or missing discernible handles or lugs. The remainder are all large diagnostic rim sherds that can be taken as representing a small bowl, but lack any other diagnostic characteristics.

Conical Bowls

Three examples of these highly unusual types survive. With no clear precedents in the archaeological record it is difficult to place these vessels into a clear context. However, they only occur in Tombs 1 and 6, the largest and earliest tombs in the cemetery and therefore point to an EC date. These bowls are deep with conical pointed bases and two opposing large wide cutaway spouts. Bowl 1.22 (Figure 4.103) has relief decoration of two wavy lines running on either edge of elongated spout from rim to start of main rim below.

These bowls may be related to tulip bowls found at sites in the north at *Vounous* and dated by Stewart to ECI (1962: 330 and CXLII: 20). There are also recent examples from *Psematismenos-Trelloukkas* which have similar opposing spouts and conical bases (Georgiou *et al.* 2011: 59) although the spouts on these vessels are much smaller and appear to be attached onto the bowl (Georgiou *et al.* 2011: 59). However, one example from *Psematismenos-Trelloukkas* (108.18) is larger in size and bears some resemblance to the *Ammoudhia* examples. It is a RP Mottled example and has a solid, pointed base and relief decoration (Georgiou *et al.* 2011: 110) and is dated to the ECI-II. The undecorated examples from Tomb 6 (Figures 4.104 and 4.105) both occur in DP (2); another sign that, in this region, DP can be dated to the earlier phases of the EC.

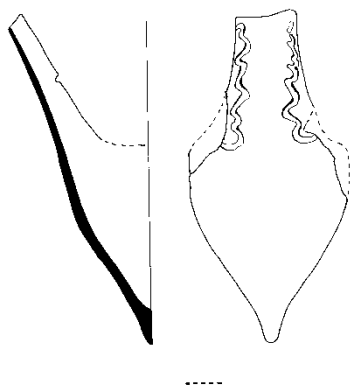


Figure 4.103: Conical bowl 1.22

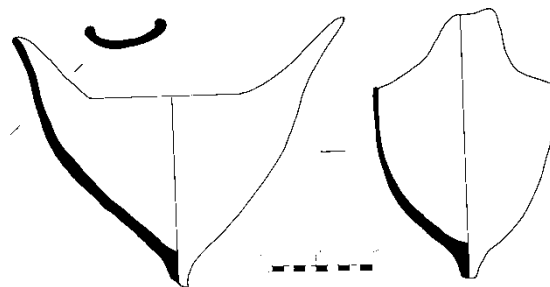


Figure 4.104: Conical bowl 6.45

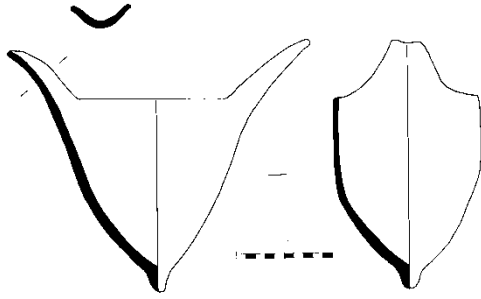
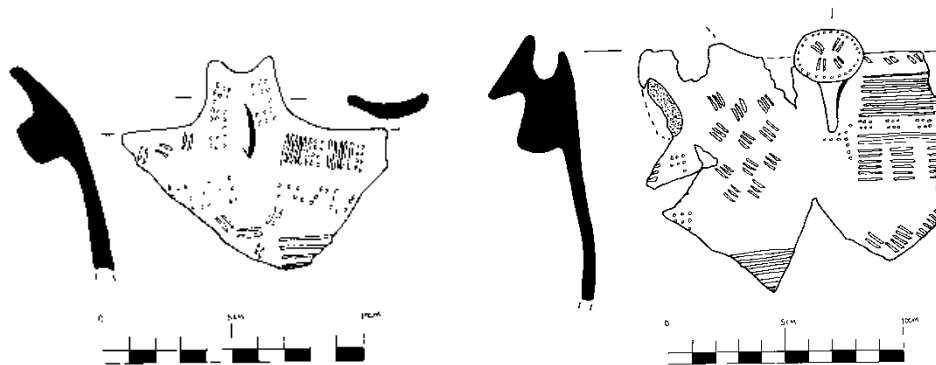


Figure 4.105: Conical bowl 6.46

Deep Conical Bowls

Deep conical bowls are generally accepted to be an ECI-II date and occur both in the north (Stewart 1962: 330) and south (Herscher 2003: 156-157) of the island. The examples at *Ammoudhia* are all RPSC and only occur in Tomb 6 in sherd form (6.175-6.180, see Figures 4.30, 4.106 and 4.107). The rim sherds all appear to be from one or possibly two bowls and are highly decorated with deeply incised decorations, vertical lugs and disc lugs. Comparisons can be made to those RP I examples found at *Bellapais-Vounous* (Stewart 1962: CVII) and RPSC bowls in the Zintilis Collection (Lubsen-Admiraal 2003: XV), an example from *Episkopi-Phaneromeni* Tomb 24B (MacLaurin 1980: 209, Figure 103:4) and one from *Yialia* (MacLaurin 1980: 250, Figure 128:3).



Figures 4.106 & 4.107: Deep conical bowl fragments 6.175-180

Large Bowls

Only seven complete and four fragmentary large bowls occur in the assemblage.

Two are DP (2) bridge spouted examples: one (8.2) has a horizontal handle opposing the spout; the other (10.7 – Figure 4.108) has a similar handle but also has an incised vertical lug protruding above the spout. These are relatively rare although they occur at Marki-*Alonia* in MC deposits (Frankel & Webb 2006: 116).

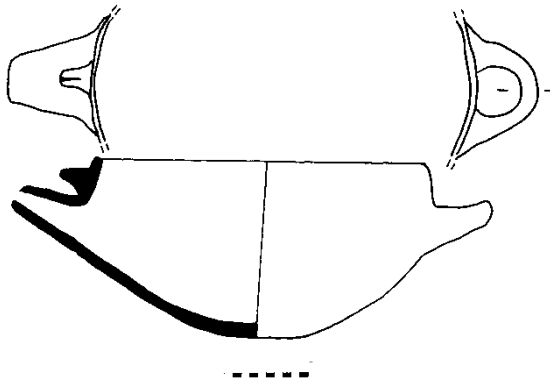


Figure 4.108: Bowl 10.7

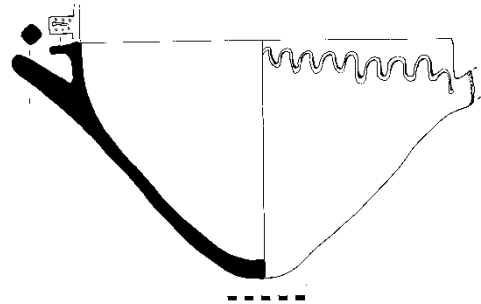


Figure 4.109: Bowl 6.28

The remainder are large wide bowls all with horizontal handles. 6.28 (Figure 4.109) has two opposing low horizontal loop handles and relief decoration of a wavy line occurring below the rim; 16.41 also carries this motif but has a high horizontal handle and 40.4 and 40.54 are partially reconstructed large bowls with horizontal handles and wavy line decoration below rim. This relief decoration is relatively common on these large bowls and is prevalent in MCI at Marki-*Alonia* (Frankel & Webb 2006: 116). There are also two fragments of large bowl handles; 1.103 is a DP (2) example with an incised handle, whilst 4.30 is one of the few examples of RP IV in the *Ammoudhia* assemblage (see Figure 4.40 above).

Cups

Only three examples of cups occur. 1.4 is a RPI (7) example of a small cup with a conical very pointed base and two opposing small tablet lugs (Figure 4.27). It is undecorated but has two opposing string holes through the base. 42.1 is almost

identical to 1.4, although lacking the string holes. 3.9 (Figure 4.110) is a rather poorly made example in RP (6) with coarse fabric and much lime spalling to the surface, which has a crudely shaped and pierced ring base.

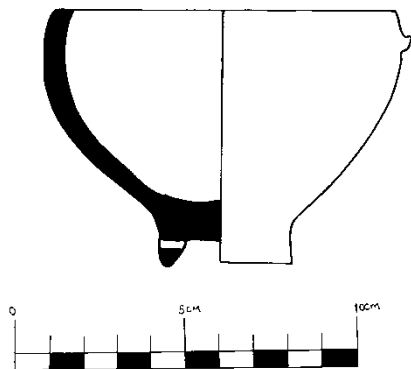


Figure 4.110: Cup 3.9

Amphorae

Only 13 examples of amphorae occur, most of which are fragmentary. All have a round, flaring rim, two horned handles, a globular or ovoid body and are under 40cm in height (Figure 4.112 shows vessel 3.15, one of the larger examples). Bases vary between flat and rounded. At least one example occurs in RPSC, the remainder are DP (see Figure 4.111). 13.11 (Figure 4.113) is a DP (2) example, although the decoration typically west coast, the shape and design of this vessel is similar to P205 284, 4025 and 356 from Marki-Alonia (Frankel & Webb 2006: 126, Fig, 437). 43.4 (Figure 4.326) is another unusual type, having two pointed and forked horned handles, both having a central bar. This is a DP (1) example, but is slightly blackened to the rim, showing similarities with 6.43 (Figure 4.186). There are also several tombs that contain horned handle sherds that are indicative of a slightly larger number of amphorae in the assemblage.

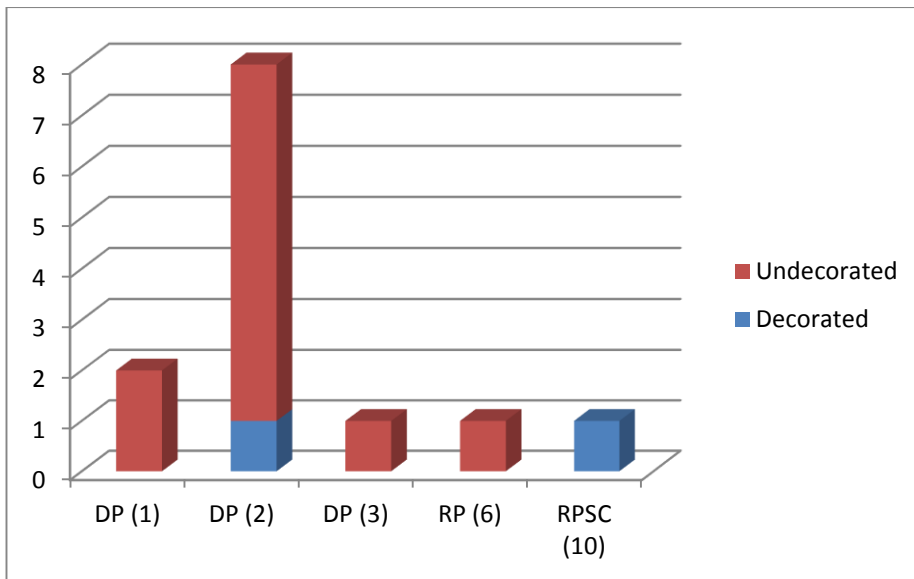


Figure 4.111: Amphorae, distribution of wares to decoration

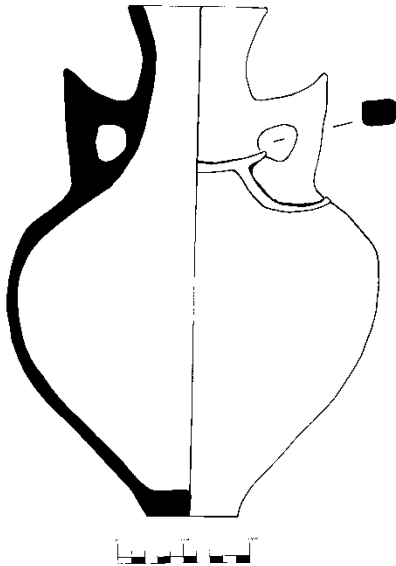


Figure 4.112: Vessel 3.15

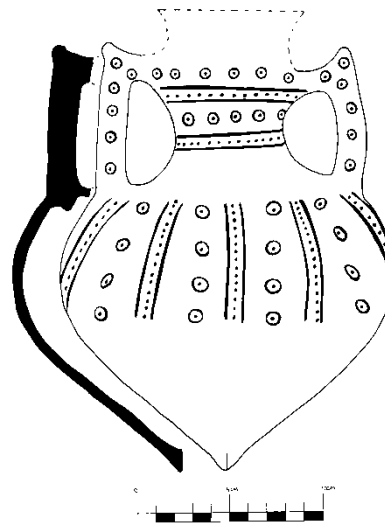


Figure 4.113: Vessel 13.11

Pithoi/Storage Jars

Very large storage vessels are rare in the EC-MC record, although they do occur, with the size of storage vessels increases significantly at the end of the EC (Herscher 2003: 189). Four complete examples were identified in this assemblage, as well as two rim and neck fragments that can be identified as potential pithoi, or perhaps large amphorae or storage jars. These all have flat bases, ovoid bodies, relatively

narrow, cylindrical necks with flaring rims and a pair of handles all vertical, mostly horned. Height is between 42 and 63cm, and rim diameters are within the 20-25cm with the exception of 18.8 which has a narrow rim of 12cm.

All of these vessels occur in a type of DP (Figure 4.114) and all have a thin matte slip. Decoration can occur on pithoi in the nature of relief lines and motifs and sometimes punctures. 6.27 (Figure 4.115) and 6.31 (Figure 4.116) are examples of fine pithoi both with panelled relief decoration to the necks and opposing horned handles similar to that seen on amphorae. Both of these vessels were discovered on the dromos flanking the entrance to Tomb 6. 6.29 is an undecorated example with a shorter squatter neck whilst 18.8 also has horned handles and is also undecorated. Tomb 12 has two rim diagnostics both in DP (2) and both again with horned handles. It is noteworthy that whilst these are the largest vessels in the assemblage they are still (with the exception of 18.8) made with very fine fabric, hard fired and have (for the size of the vessels) extremely thin walls (1cm).

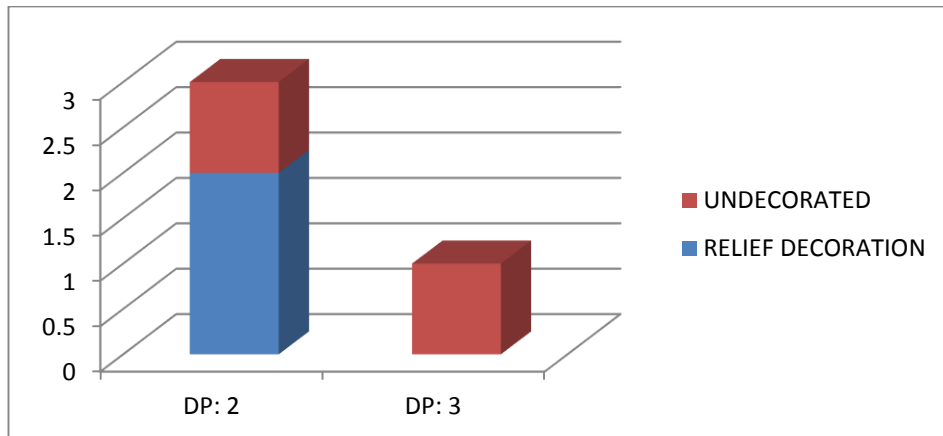


Figure 4.114: Pithoi, distribution of wares to decoration

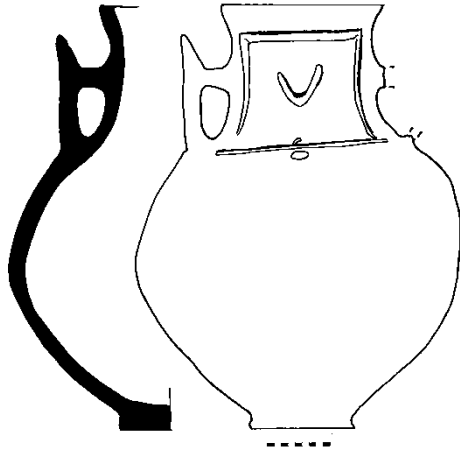


Figure 4.115: Pithos 6.27

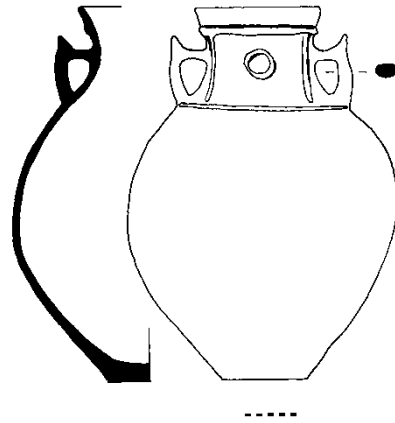


Figure 4.116: Pithos 6.31

Jars

Jars are not common in the assemblage; 21 complete or partial examples occur. Most are large vessels, suggesting storage. These differ from pithoi, as jars have much wider open rims lack horned handles. Jars are typically flat based with a globular or ovoid body and a broad, indented neck widening to flattened or round rims. Vertical handles are common although a few horizontal examples exist. Handles are attached to the exterior of the vessel and not thrust through. All are slipped to the exterior and on the interior of the rim. Figures 4.117 and 5.118 illustrate the restricted types of jars that occur at *Ammoudhia*.

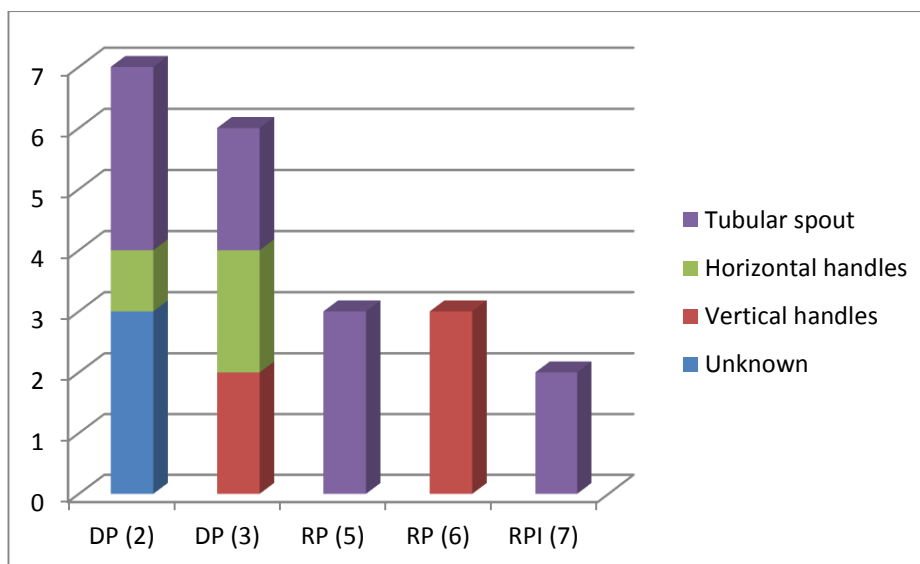


Figure 4.117: Jars, distribution of wares to shapes

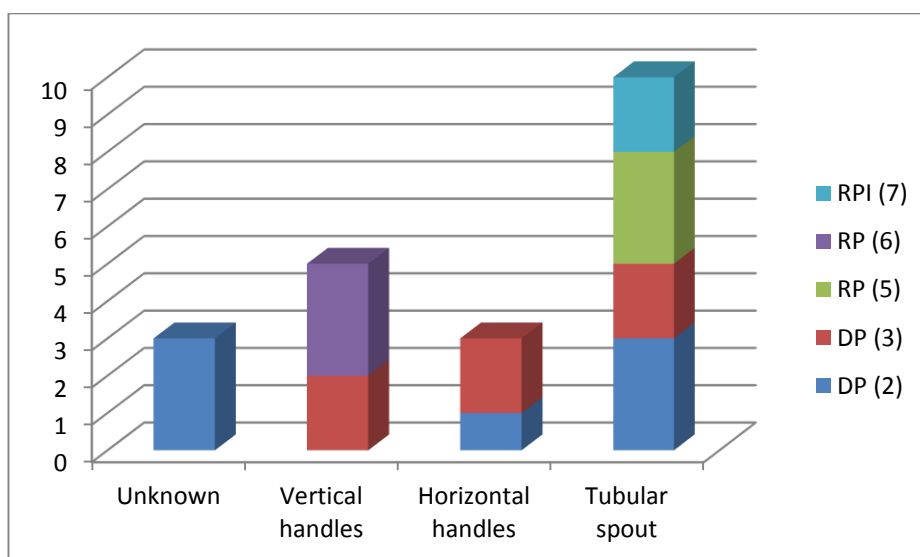


Figure 4.118: Jars, distribution of shapes to wares

Tubular spouted jars

Jars or bowls with open mouths and a second tubular spout are attested to at various sites in Cyprus (Coleman & Barlow 1996: 334-8; Herscher 2003: 161-3; Stewart 1962: 324; Todd 1985: 70). There is some discussion over the chronology of these vessels; tubular spouted bowls exist in ECI-II contexts at various sites (e.g. Frankel & Webb 2006: 117). However, the jar form seems to occur slightly later and continue on into the MC, for example, at Sotira-Kaminoudhia they occur in RP and

DPBC and were dated to ECIII at the earliest by Herscher (2003: 163). At Marki-
Alonia they also occur in ECIII to MCII contexts (Frankel & Webb 2006: 129).

At *Ammoudhia* there are no spouted bowls, but ten examples of spouted jars, occurring in eight tombs (1 2, 6, 8, 16, 19, 42 and 43). Only three remain intact and although they share the same indented necks and flaring rims, each exhibits considerable differences in size and shape. Vessel 1.10 (Figure 4.119) is a DP (2) jar with a rounded base and a high vertical handle, similar to a RPI example from Bellapais-*Vounous* which Stewart dates to ECI (1962: CXXII 2). 1.23 (Figure 4.120), a RPI (7) example, is considerably larger and more ovoid in shape, with a flat base and a horizontal handle on mid-body sloping downwards. Like 1.10, this shape has few parallels, although the handle is reminiscent of RP I bowl from Bellapais-*Vounous* (Stewart 1962: CXXIX 3-5). Vessel 8.1 (Figure 4.121) has a flat base and a horizontal handle; the tubular spout on this example is rather more elongated than the norm.

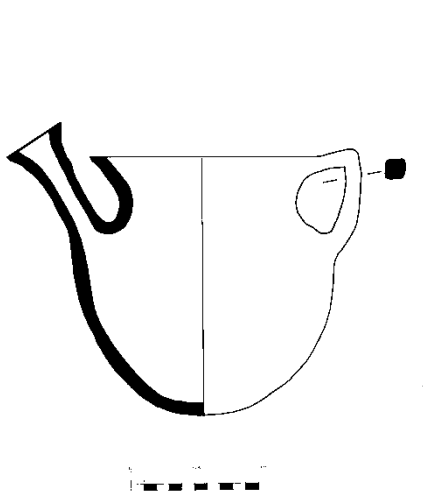


Figure 4.119: Jar 1.10

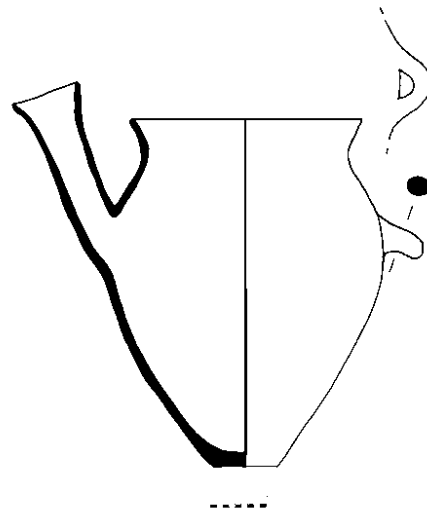


Figure 4.120: Jar 1.23

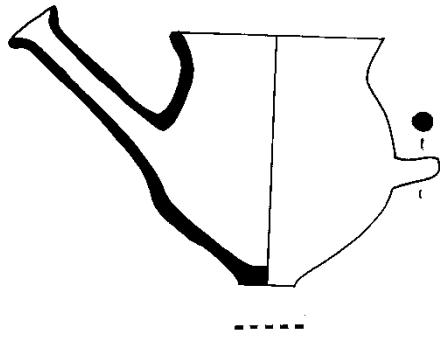


Figure 4.121: Jar 8.1

These jars occur in a variety of RP and DP and are undecorated, with the exception of 2.15, a RP (5) example with a relief wavy line around the neck. Five of these vessels occur in DP; three are in Type 2 and two in Type 3. The remaining five occur in RP; three in Type 5 and two in Type 7.

The small flat bases, flaring rims and horizontal handles at mid-body are very similar to Spouted Bowl Type D at *Sotira-Kaminoudhia* (Herscher 2003: 163-4). Herscher states that this type is uncommon and is apparently distinctive of southern Cyprus with a variety of DP examples occurring in the west. She dates the earliest examples to ECIII (2003: 163), although this may be due to its occurrence in DP (which this thesis argues, occurs considerably earlier in the west).

Large jars

The remaining jars are large, mostly with flat bases; although 6.30 (Figure 4.122) and 8.4 (Figure 4.11) have rounded bases. Size varies between around 27cm to 50cm and rim diameters vary between 29 and 38cm. All have short indented necks and flaring rims. Handles are not thrust through the body but attached to the exterior. Some examples are extremely similar in shape to cooking pots and have been classified as jars largely based on fabric and surface treatment. Those which have a relatively fine fabric and are polished and slipped have been classified as jars, whilst unslipped, coarse examples which may have evidence of use (i.e. burning) have been classified as cooking pots.

There are few decorated examples; several rims that appear to come from this type of vessel illustrate wavy line decoration around the neck indentation (for example 6.56). 2.14 (Figure 4.123) is an unusual RP Coarse (6) example. Only part of the rim, neck and handle survive but it is a large example with a vertical handle rising at rim to form a double peak. The exterior neck is decorated with relief wavy lines and circles whilst the interior below the rim attachment has unusual impressed decoration of wedges forming a 'fir tree' like pattern.

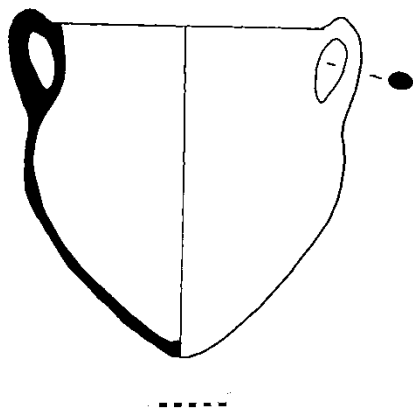


Figure 4.122: Jar 6.30

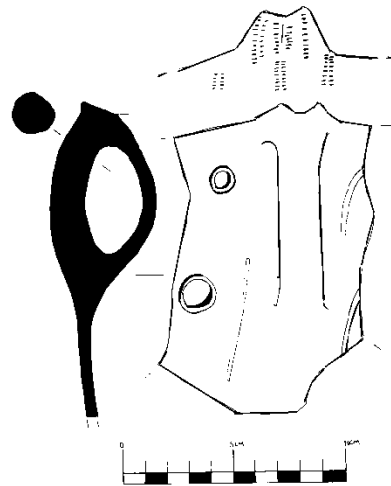


Figure 4.123: Jar 2.14

Most of these vessels are rather coarse, with three RP (6), three DP (3) and four DP (2). Slips are matte, and are restricted to a red/light red (2.5 YR 6/6) to reddish yellow (5YR 6/6). These jars are similar to those found at other sites such as Marki-*Alonia* (Frankel & Webb 2006: 128) although the examples at *Ammoudhia* tend to have more flaring rims. Several rim or neck and handle sherds were also identified as diagnostic of large jars.

Cooking Pans

There are 15 complete cooking pans at *Ammoudhia* and 34 base or rim sherds, accounting for a minimum of 32 vessels. All are wide and circular with walls typically around 4cm thick. Rims are flaring with a diameter between 25 and 36cm. Tripod feet are oval in section and rounded at the base. The underside of each pan has a number of punctures (see Figures 5.42 and 5.53 above and 5.124 below); this is likely to make heat distribution more efficient and reduce thermal shock (Frankel & Webb 2006: 132). Four out of the ten complete examples also have circular mat or basket impressions to the underside. These impressions occur on similar vessels from *Alambra-Mouttes*, *Sotira-Kaminoudhia* and *Marki-Alonia*, and suggest that they were laid on mats whilst drying (Barlow 1996a: 293-296; Herscher 2003: 188-189; Frankel & Webb 2006: 130). Almost all occur in Fabric Type 8, and most have a thick, dark grey core. A thick slip was applied to the interior and walls of six examples and slip colour varies between red (2.5YR 5/6) and brown (7.5YR 5/2). Carbon deposits also occur on the majority, this blackening is relatively slight and does not go through the fabric in most cases suggesting that use was restricted to one or two occasions before deposition. There are three examples (20.38, 41.9 and 42.14) where the fabric is clearly Fabric 6, and the pans do not exhibit any evidence of use. In fact, these examples are slipped and altogether finer than the CW examples, so have been recorded as RP (6).

Vessel 6.26 (Figure 4.125) is the only other example to show no sign of use. This vessel is a peculiar example, having only two feet instead of three which are flanged and mean that the pan is unable to stand on a solid surface unassisted. It has few punctures and a thin, matte brown slip (7.5YR 4/3). It is doubtful whether this pan could have been used efficiently; it may have been manufactured specifically for funerary purposes. Vessel 4.8 (Figure 4.124) is a more typical example, similar to tripod pans in the Paphos Museum (Inv. No. PM2105) and the Zintilis Collection

(Lubsen-Admiraal 2004: 87), which Frankel & Webb argue are favoured for burial (2006: 132).

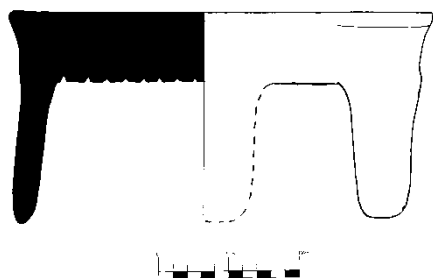


Figure 4.124: Pan 4.8

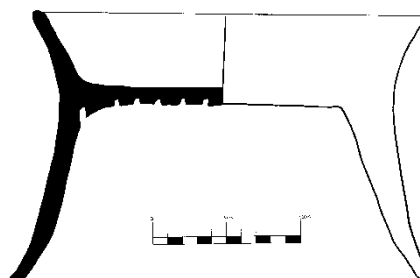


Figure 4.125: Pan 6.26

These pans appear similar to Type A from Marki-*Alonia* which are found in all strata from the earliest ECI phase to MCII (Frankel & Webb 2006: 130). The Marki examples are recorded as RP and tend to have peaked handles (Frankel & Webb 2006: 130), this feature only occurs on two of the RP (6) examples at *Ammoudhia* (41.9 and 42.14). 13 examples were recovered from *Alambra-Mouttes* (Barlow 1996a: 293-296) although these also have handles and are lacking the tripod feet. Several examples have also been discovered on the south coast in funerary contexts (Herscher & Swiny 1992: 76, 80; Herscher 2003: 188-189).

Cooking Pots

As would be expected from a funerary assemblage, cookware does not figure highly in the repertoire. However, 18 complete or near complete examples were identified, as well as 43 diagnostic sherds accounting for a minimum of 61 vessels. Although some of the cooking pots resemble jars, they are distinguished by a much coarser fabric (Type 6 for the most part, although there are vessels occurring in Type 9 – see Figure 4.127).

All of the cooking pots, but one, have a single vertical handle. 18.9 (Figure 4.126) is a large example, with two vertical handles from the rim and a flat base. This vessel could also be classified as a jar, however, the coarse nature of the fabric coupled with evidence of burning covering the surface means that functionally, it should be classified as a cooking pot.

Most of the *Ammoudhia* cooking pots have small flat bases, although there are examples of tripods. Bodies are ovoid with a few slightly rounder; necks are short and indented with rims slightly flaring. None of the cooking pots at *Ammoudhia* are slipped, but interior and exterior are smoothed and occasionally with a white (lime) coating to the exterior.



Figure 4.126: Cooking pot 18.9

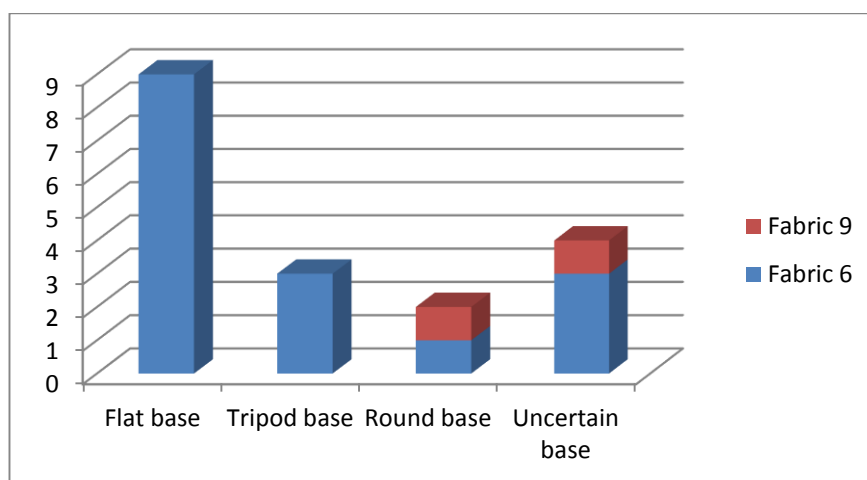


Figure 4.127: Cooking pots – Occurring bases and wares

One-handled cooking pots

15 examples of this type were identified, as well as 15 diagnostic sherds. One (13.13 – Figure 4.46) occurs in Fabric Type 9. This is an extremely elongated ovoid example with a pointed base and vertical handle from rim; the handle attachment is smoothed to exterior, not thrust through the body. The remainder occur in Fabric Type 6. These vessels are similar to those found at Marki-*Alonia* in phases E-I although the handles at Marki-*Alonia* tend to be higher and wider (Frankel & Webb 2006: 136-7). They are also found in an ECIII funerary context at Bellapais-*Vounous* and Lapithos-*Vrysi tou Barba* (Stewart 1962: 182-186), Sotira-*Kaminoudhia* (Herscher 2003: 188, 200) and Alambra-*Mouttes*, where they also occur in MC tomb and settlement deposits (Barlow 1996a: 310).

Tripod cooking pots

Only five such vessels occur, all in Fabric Type 6. Three are complete or near complete (8.14, 16.20, 16.28) and there are two where only the tripod base survives (5.10, 19.64). Vessel 8.14 (Figure 4.128) can be described as a typical one-handled cooking pot as above, however with a short tripod base. Two from Tomb 16 are highly unusual, being thin-walled, hard fired in weak red (10R 4/4) and unslipped. 16.20 (Figure 4.129) is missing handles and 16.28 (Figure 4.130) is missing a base. However, they are very similar to each other and surviving attachments suggest that both have rather elegant elongated tripod bases and two opposing handles of an unusual type: elongated vertical, rising straight up from rim to turn at right angle (slightly horned) and drop down to middle of body. 16.20 also has a small pointed lug from below rim. These have round bodies, indented necks and narrowing, everted rims and they also show evidence of use with blackening to lower body and base.

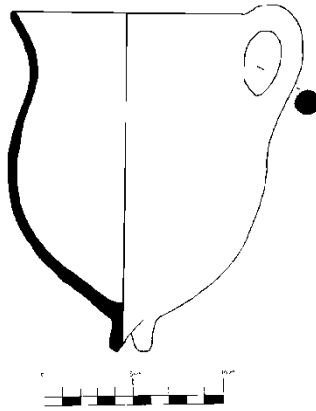


Fig. 4.128: 8.14

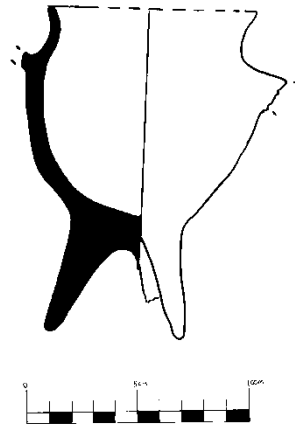


Fig. 4.129: 16.20

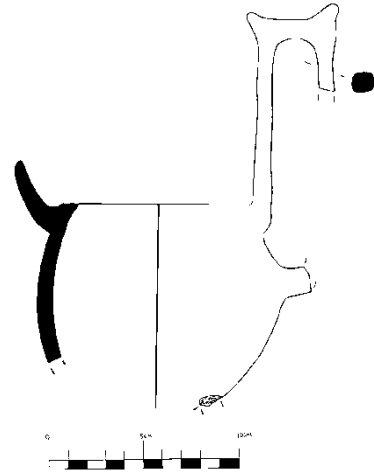


Fig. 4.130: 16.28

Composite Vessels

Only one example of a composite vessel occurs at *Ammoudhia*. 9.14-16 (Figures 4.55 and 4.131) is a double spouted jug made up of three non-joining sherds of DP (2). Already presented above and listed as a large jug, it deserves further description here. The vessel consists of the upper part of a large double spouted jug. The spouts have concave necks and cutaway spouts and a single nipple lug below the rim. The single handle is vertical and oval in section; the upper part is decorated with a central vertical incision with eight sort lines emanating from each side and the lower has two lines of punctures with a central incision and three more horizontal incisions. The body has a single composite juglet (cutaway spouted) and two identical composite cups, each with two opposing pinched pointed lugs. All are plugged into the body. Tomb 16 also contains one miniature juglet (16.26 – Figure 4.132) with a pedestal base, suggesting that it may be an ornamental juglet constituting part of another vessel similar to 9.14.



Figure 4.131: Composite vessel 9.14-16

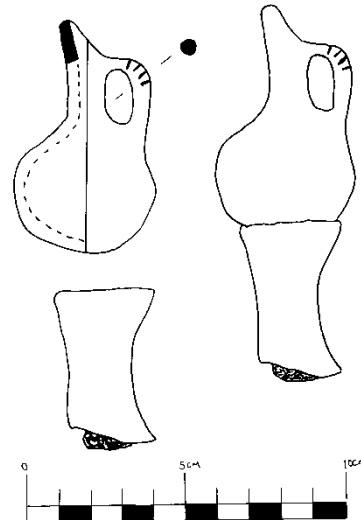


Figure 4.132: Composite juglet 16.26

	DP: 1	DP: 2	DP: 3	DP: RP: 4	RP: 5	RP: 6	RPI: 7	RPSC: 10	RPIII (RP(BT)	RPIV	RP (RPX	CW: 8	Cook: 6	Cook: 9	Query	TOTAL			
Large Jug		32	5	3	1	5	3	1	3							53			
Medium Jug	1	49	1	3	3				1							58			
Juglet	1	41		29	10				1	2	5					89			
Flask	1	17		3	2		1	3	5	2	1	1				36			
Small Bowl	18	54		5	23			2		1	2	4				109			
Conical Bowl		2					1	1								4			
Bowls with ring base	4	1														5			
Large Bowl	1	7	1			1					1					11			
Cup							1	2								3			
Amphora	2	8	1				1		1							13			
Pithos		3	1													4			
Tubular Spouted Jar		3	2			3		2								10			
Large Jar		4	4				3									11			
Pan							3									39			
Cookpot													36			61			
General Open	48	127	19		51	22	20	2		1	2		55	6		294			
General Closed	21	202	38		26	15	5	2	12		4	1			4	330			
Shape Uncertain	4	37	2		6	4	1	5	1		1					61			
TOTAL	101	587	74	43	122	50	38	20	24	1	6	1	8	12	37	55	6	6	1191

Table 4.2: Totals of wares and shapes at Kissonerga-Ammoudhia.

Decoration

The majority of vessels in the *Ammoudhia* assemblage are undecorated; only 278 examples or 23% of vessels and diagnostics have any kind of decoration (see Figure 4.133). The decoration consists of two main types, relief and incised/impressed. Incised decoration is restricted to small fine closed vessels such as juglets and flasks and some bowls, while larger vessels tend to have relief decoration. Figures 4.134

and 4.135, below, show the occurrences of decorative motifs by wares and shapes respectively.

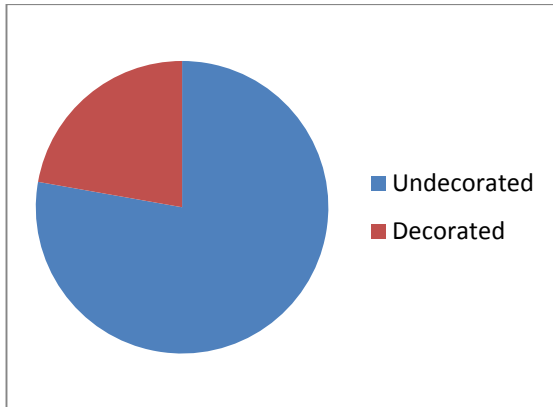


Figure 4.133: Ratio of decorated/undecorated vessels

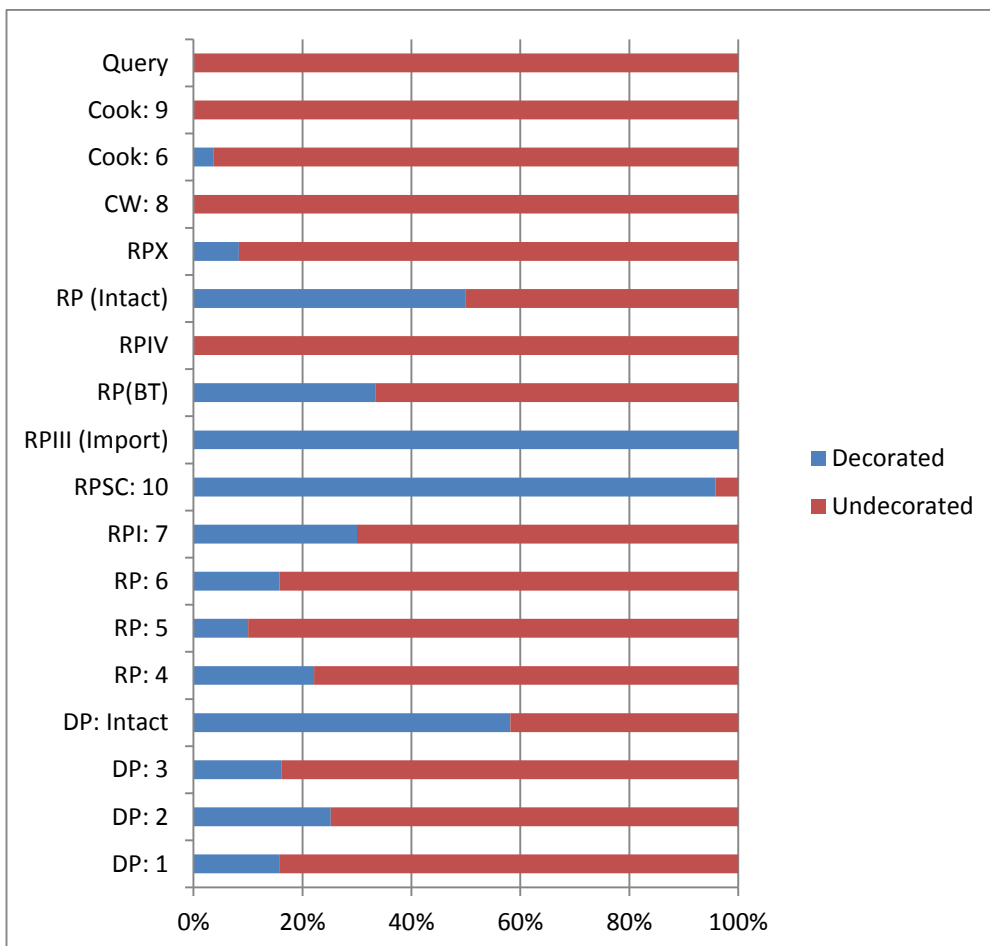


Figure 4.134: Percentile of decorated vessels by ware

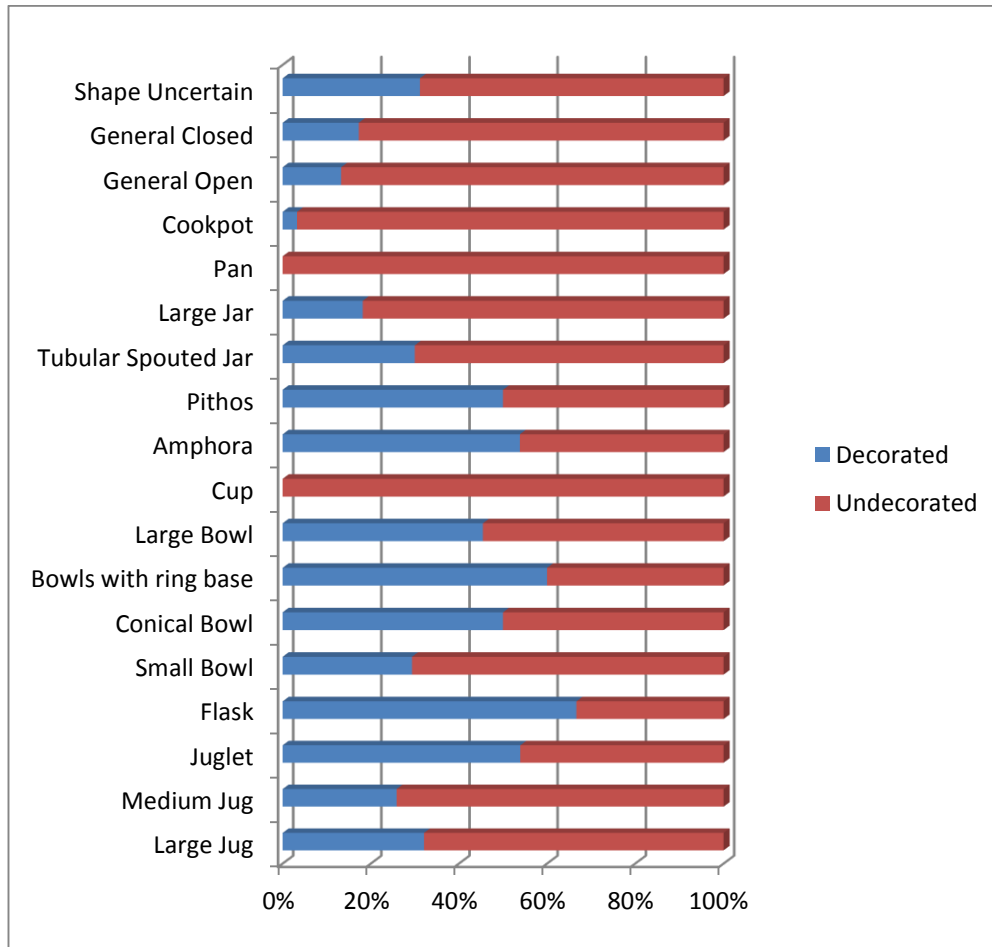


Figure 4.135: Percentile of decorated vessels by shape

Relief Decoration

Although relief decoration occurs all over Cyprus in the EC-MC period, there is little visible in the *Ammoudhia* assemblage with only 48 identified examples. Relief decoration is mainly restricted to large vessels (for example on pithoi, Figures 5.115 and 5.116), and is fairly conservative in design. Bands and a few plastic inverted ‘Y’ or ‘n’ were identified, although wavy lines are most common. This motif occurs with some frequency on vessels that may be dated to the EC (for example conical bowl 122 (Figure 4.103). Vessel 10.4 (Figure 4.95) has already been discussed above, with its wavy relief and unidentified quadruped. Tomb 16 has a very similar bowl (16.12 – Figure 4.92) and another extravagantly decorated zoomorphic bowl (16.21 –

Figure 4.101), as well as some rather appealing zoomorphic lug sherds which may belong to one of the vessels in the assemblage.

Incised and Impressed Decoration

Incised decoration is fairly common, with 232 examples of incisions and/or impressions. Incised decoration is generally limited to small juglets, some small bowls and flasks, although it can occur as a handle groove on medium sized cutaway spouted jugs. This may in fact have a technological explanation. It is easier to incise fine fabrics with few inclusions to mar the path of incision. The incised motifs mainly consists of the typical west coast design of impressed or incised circles with a central dot (target motif) and either horizontal or vertical parallel lines enclosing a row of dots. All of these vessels only show decoration on particular areas. Unlike vessels from other regions which tend to be decorated all over the body, neck and handles, in the *Ammoudhia* assemblage the bottom half of the vessels and handles remain undecorated.

A very few of these vessels vary from the main sample, with considerably different decorative motifs, and these may prove to be imports from other areas of Cyprus. Juglet 16.38 (Figure 4.39) has already been discussed above; one vessel (15.8 - Figure 4.73) shows different motifs and shape to the general trends occurring in RP and rather elongated in shape compared to the majority of juglets, which tend to be rather squat. It has an incised handle and decoration which is more reminiscent of the south coast; although still displaying incised circles, the dot inside is more of a stroke, as are the dots enclosed in the parallel lines. This vessel also shows blocks of short strokes which are not represented in the rest of the sample.

Like many incised RP vessels there are several examples of white filling being used to enhance the incisions. Barlow has shown that, at least at *Alambra-Mouttes*, the white filling consists of a chalk paste mixed with carbonised bone (Barlow 1994: 46).

Spindle Whorls

In total 26 spindle whorls occur in 17 of the *Ammoudhia* tombs. Two of these are made of stone (11.5 and 14.6), the remainder are ceramic (Table 4.3). They are generally homogenous in shape, with 80% being conical (there are three biconical examples and two cylindrical). Because the whorls are handmade the shapes can be rather idiosyncratic, with straight sides and truncated or rounded sides appearing on the same whorl (Frankel & Webb 2006: 159).

Frankel & Webb argue against assigning specific wares to spindle whorls as this can be misleading and the wares do not always conform to the ceramics (2006: 159). However, like the ceramic vessels, at *Ammoudhia*, more than 50% of the spindle whorls are clearly made in the same manufacturing tradition as the DP vessels, therefore I have assigned wares wherever possible (see Table 4.3). Eight of the *Ammoudhia* whorls have a blue core and can be assigned as Type 2. Eight of the whorls have a red fabric or slip and no core visible so have been assigned to the RP category. One (19.7) is a rare coarse ware example and one (1.11) is of an unidentified ware.

Tomb	No	Material	Shape	Type (Crewe)	Height (cm)	Diam. (cm)	Weight (grams)	Decoration
1	11	QUERY	Conical	1a1	2.4	3.8	26	yes
2	3	DP: 2	Conical	1b3	3.7	4.6	68	yes
3	1	DP: 2	Conical	1a4	2.8	4.6	41	yes
5	11	DP: 2	Conical	1b3	3.2	4.7	42	yes
6	19	DP	Conical	1a1	3.5	5	63	yes
6	42	DP: 2	Conical	1b1	3.4	5	72	yes
8	12	RP	Biconical	11c1	3.2	4.5	53	no
8	13	RP	Cylindrical	1Va2	3.5	3.8	44	no
9	12	DP	Conical	1b1	3.3	4.8	60	yes
11	5	Stone	Conical	1a1	2.5	3.8	28	yes
13	7	DP	Cylindrical	1va1	3.4	3.8	47	no
13	12	DP	Conical	1b4	4.1	5	73	no
14	6	Stone	Conical	1b5	3.7	5.5	72	no
18	7	RP	Conical	1b2	2.7	4.2	29	yes
19	17	DP	Conical	1b	3.7	5.4	87	yes
20	28	DP	Conical	1a1	3.0	4.4	38	yes
20	29	DP	Conical	1a3	2.1	2.7	24	no
20	33	RP	Conical	1b1	3.0	5.1	65	yes
20	35	DP	Conical	1a3	2.6	3.3	27	no
20	47	DP	Conical	1a1	3.2	4.2	45	no
20	58	DP	Conical	1a1	3.6	5.4	74	yes
20	59	DP	Conical	1a1	3.0	3.4	29	yes
38	4	RP	Conical	1a	3.8	4.4	55	yes
41	7	RP	Biconical	11c2	2.8	3.4	28	no
42	12	RP	Conical	1b1	2.4	4.4	33	no
43	9	RP	Biconical	11c1	1.9	2.6	23	yes

Table 4.3: The Kissonerga-*Ammoudhia* spindle whorls

17 of the whorls (65%) are decorated with incised and impressed decoration on the flat terminal (Figure 4.136), with only three examples that also have decorations on the body – 2.3 (Figure 4.137), 6.42 (Figure 4.138) and 43.9 (Figure 4.39). The most common decoration consists of sets of equidistant incised lines (usually three) radiating from the outer edge to the perforation; a relatively common island-wide motif (Crewe 1998: 44-45); of the fifteen decorated examples only two (43.9 and 18.7 – Figures 4.139 and 4.140) are not decorated with a variation of this motif. These particular examples also differ in other areas, being among the smallest examples. 18.7 is also one of the few RP examples, and the decoration consists of four impressed circles with a central dot interspersed with sets of four short dashes. Although the impressed circle with central dot is a common feature on the ceramic vessels, it only occurs on one other whorl (2.3). 43.9 is a biconical example with sets of parallel incisions that circle the perforation, rather than bisect.

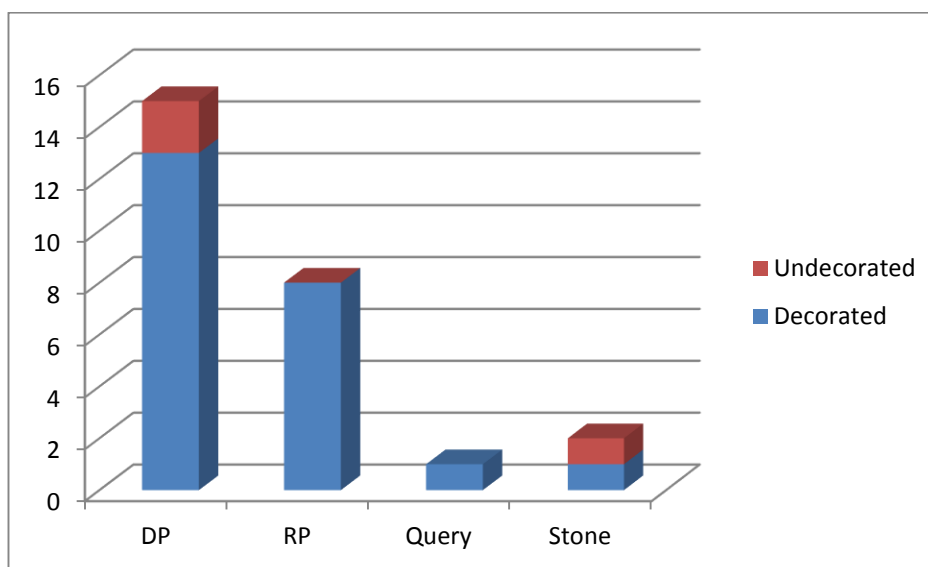


Figure 4.136: Spindle whorls – distribution of ware/material and decoration

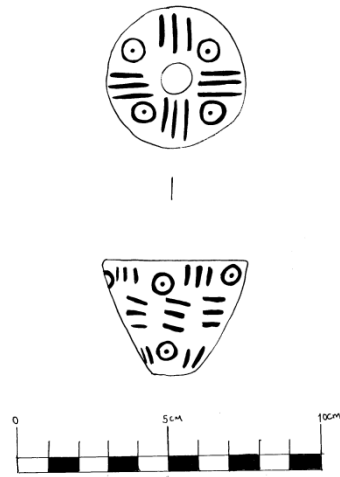


Fig. 4.137: 2.3

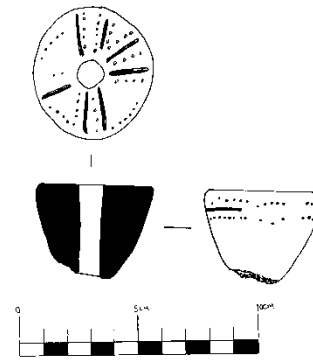


Fig. 4.138: 6.42



Fig. 4.139: 43.9

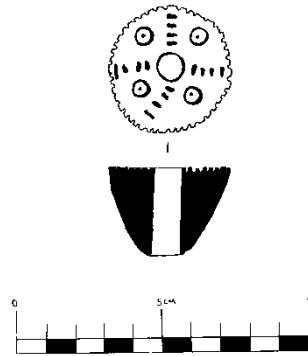


Fig. 4.140: 18.7

The undecorated whorls only occur in six tombs and one of these (14.6) is made of stone. Three occur in Tomb 20, all three are of a conical shape. Two of each were found in Tombs 8 and 13 respectively; the two examples from Tomb 8 fit into a general RP category one being biconical, the other conical in shape, whilst the two from Tomb 13 are both DP and narrow, almost conical in shape. Both are quite large, with 13.12 being the largest of the *Ammoudhia* whorls.

Tomb 20 contained seven spindle whorls – a large number for a single tomb. All are conical in shape, and five are decorated with some type of incised parallel line decoration, whilst two are undecorated. All are ceramic and intact, although all except one (20.33) are clearly part of the DP technological tradition.

Two spindle whorls were found in Tomb 6. Both are DP and are exactly the same size, although a slightly different shape. Both are decorated with four sets of radiating lines and the decoration on 6.19 (Figure 4.141) in particular is similar to example P8467 from Marki-*Alonia*, which has been dated to ECIII-MCI (Frankel & Webb 2006: 166). Whorl 19.17 (Figure 4.142) carries similar motifs and might also be compared to the Marki-*Alonia* example. This whorl also shows some similarities to one found during survey at Prastio-*Lakries* (Rupp *et al.* 1993: 384, fig. 3.3).

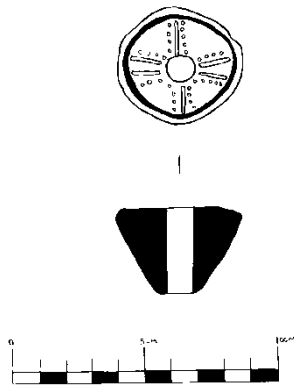


Figure 4.141: 6.19

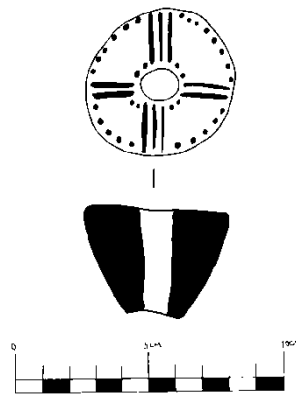


Figure 4.142: 19.17

Usewear is plainly visible to the narrow terminals of all the *Ammoudhia* whorls (e.g. Figures 4.138 and 4.142 show dramatic wear), and it was for this reason decided to classify the two stone examples with the ceramics, since they illustrate the same usewear, they were clearly manufactured with the same function in mind and one example (11.5) also carries the common radiating lines decoration. Stone spindle whorls are rare, but not unknown in Cyprus. Only 16 have been identified (six of these come from Episkopi-*Phaneromeni* [Swiny 1986: 14]), of these, only three are decorated, with drilled circles (Crewe 1998: 26), making 11.5 unique in the archaeological record.

Non-Ceramic Grave Goods

Although this thesis deals mainly with the ceramic assemblage from Kissonerga-*Ammoudhia*, a few non-ceramic grave goods also occur. These artefacts are currently being analysed for publication by Department of Antiquities of Cyprus staff, but are included in this thesis to present a complete picture of the entire contents of the *Ammoudhia* tombs. From the 21 tombs containing grave goods, 11 of these contain some kind of non-ceramic item.

There is very little evidence of metal in the *Ammoudhia* assemblage. Only five definite metal items were found and no tomb contained more than one metal object. A small metal hook (16.130) was found in Tomb 16 (Figure 4.143), which is possibly a tang from a metal blade or spear, similar to those found in cemeteries across the island (Gjerstad 1934; Stewart & Stewart 1950; Balthazar 1990: 392; Georgiou *et al.* 2011: 303). Unfortunately, this item is so fragmentary, that no further diagnostic information can be obtained.



Figure 4.143: Metal object 16.130



Figure 4.144: Metal blade 17.14

An axe was found in Tomb 17 (17.14 – Figure 4.144), despite this tomb being largely destroyed by bulldozers. Axes are found throughout Cyprus from the Philia period onwards, and are difficult to date to a specific timeframe within the Bronze Age (Coleman 1996: 139; Keswani 2013: 246), however they are not commonly found in funerary contexts (Swiny 1986: 93). The *Ammoudhia* example is broken, with only the blade remaining, making it difficult to refine its typology. This is a flat type and the

blade, despite being heavily worn to one edge, is curved and shares general similarities with examples found at Episkopi-Phaneromeni (Swiny *et al.* 84), Sotira-Khaminoudhia (Swiny *et al.* 2003: 374), Alambra-Mouttes (Coleman *et al.* 1996: 129, 139, fig. 69, pl. 48), Lapithos-Vrysi tou Barba (Gjerstad 1934, pl. CXLIII), and Pyrgos-Mavroraki (Giardino *et al.* 2002: fig. 2).

Tomb 18 contained a knife (Figure 4.145). Such knives occur with some frequency during the EC-MC; they are found at settlements, and are also the most common metal object to be found in tombs (Keswani 2013: 207). This example is flat, doubled-edged with a pointed blade, and has a rectilinear tang with a single rivet still in place. This conforms to Stewart's Type III (1962: 246, 350). Very similar parallels occur island-wide; on the north coast at Bellapais-Vounous (Dikaios 1940: 138), Lapithos (Gjerstad 1934: Pl. CXLIII) and Karmi-Lapatsa and Palaeolona (Webb & Frankel 2009: fig. 3.9). They are found on the central plain at Alambra-Mouttes and Nicosia-Ayia Paraskevi (Coleman *et al.* 1996: 129, 137; Georgiou 2002: fig. 1.7), and at Sotira-Khaminoudhia, Episkopi-Phaneromeni and Pyrgos-Mavroraki (Swiny *et al.* 1986: 71, 90; 2003: 370; Giardino 2002: fig. 2).



Figure 4.145: Metal knife 18.32

Stewart dates this type to the ECIII-MCI (1962: 246, 350), although, Åström's Type Ib is also very similar and is dated to the MCI-II (1972a: 139). Like axes, it is therefore difficult to assign a date beyond a general EC-MC one (Coleman *et al.* 1996: 138; Keswani 2013: 241).

Fragments of two small metal objects were also discovered in Tombs 13 and 15 (Figures 4.146 and 4.147). Dr Raptou suggests that these are both fragments of earrings (E. Raptou: personal communication), possibly similar to those more complete spiral earrings from Sotira-*Khaminoudhia* (Swiny 2003: 376-377, Plate 8.1d & 8.1e), Deneia-*Kafkalla* (Nicolaou & Nicolaou 1998: 105, fig. 17) and Nicosia-*Ayia Paraskevi* (Hennesy *et al.* 1988: 14-15). These spiral earrings are securely dated to the Philia period (Stewart 1962: 251; Swiny *et al.* 1986: 86 2003: 376-7; Keswani 2013: 239-40). Larger EC-MC examples have been found at Lapithos-*Vrysi tou Barba* (Stewart 1962: 251), but, the extremely fragmentary nature of both *Ammoudhia* objects makes comparisons difficult.



Figure 4.146: Metal object 13.5

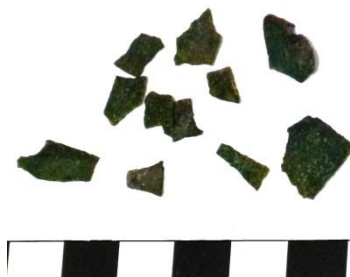


Figure 4.147: Metal object 15.45

Although metal objects are rare at *Ammoudhia*, four of the tombs also yielded whetstones (Fig. 4.148). All four *Ammoudhia* examples are of Stewart's Type BI (1962: 257, fig. 103 2-7), being fine grained sandstone, elongated, flattish trapezoids with a conical perforation to the wider pole. Direct parallels have been found at Bellapais-*Vounous*, where they are well represented (Dikaios 1940: 137; Stewart 1962: 257), Lapithos-*Vrysi tou Barba* (Herscher 1978: 761), EC contexts at Karmi (Webb *et al.* 2009: 56, 91), Alambra-*Mouttes* (Coleman *et al.* 1996: 172), Marki-*Alonia* (Frankel & Webb 2006: 232-3), Deneia-*Kafkalla* (Nicolaou & Nicolaou 1988: 90), Psematismenos-*Trelloukkas* (Georgiou *et al.* 2011: 310) and Episkopi-*Phaneromeni* (Swiny *et al.* 1986: 12).



Figure 4.148: Whetstone 18.31

These items are found island-wide from the Philia period onwards (Stewart 1962: 257; Georgiou *et al.* 2011: 310), and are relatively common in tombs, particularly those containing metal (Keswani 2013: 207). Tomb 18 is the only example of a metal object and whetstone occurring together at *Ammoudhia*, however, at Psematismenos-*Trelloukkas* whetstones are also found in tombs that did not contain any metal objects (Georgiou *et al.* 2011: 311), and their inclusion in *Ammoudhia* Tombs 6, 14 and 20 may suggest that these tombs did originally contain metal objects that are now lost.

Numerous small beads made of stone and coloured red, black or white, were discovered in seven of the tombs (2, 6, 13, 15, 16, 19 and 20 – Figure 4.149), usually *in situ* with human remains. These are simple, disc shaped beads, measuring 1.5-3mm in diameter with a central perforation and flat faces. The white are generally calcite, whilst the red are made from jasper and the black from igneous rock such as basalt, or possibly black quartz (Swiny *et al.* 2003: 234; Frankel & Webb 2006: 244; Georgiou *et al.* 2011: 309). Necklaces strung with such beads are common in tombs from the Philia period onwards (Stewart 1962: 260; Swiny 2003: 235; Frankel & Webb 2006: 244) and can be found in large numbers. For example, at *Sotira-Khaminoukhia* 1716 such beads were found (Swiny 2003: 234-5). Psematismenos-*Trelloukkas* also produced 1665 in total from 13 tombs (Georgiou *et al.* 2011: 308). EC and MC tombs at *Episkopi-Phaneromeni* produced six necklaces with a total of 1676 beads (Swiny 1986: 30) and *Kalavassos-Panagia Church* tombs produced 2587 (Cullen *et al.* 1986: 117). Out-with the south coast, 556 examples were discovered at *Nicosia-Ayia*

Paraskevi (Krumholtz 1982: 285) and large amounts were also attested in Deneia tombs (Frankel & Webb 2007: 129) and Lapithos-Vrysi tou Barba (Gjerstad 1934: 19-21).

Although mostly found in tombs, these beads are also occasionally found in settlement contexts, such as four jasper examples found within a jug on an ECIII floor at Marki-Alonia (Frankel & Webb 2006: 244) and a large number (currently unpublished) found in an EC-MC context in very recent excavations at Prastio-Mesorotsos (A. McCarthy: personal communication). The fact these beads are found more commonly within a cemetery context is not necessarily indicative of funerary use. Rather, it reflects the fact that funerary contexts are more likely to be sieved than settlement ones (Frankel & Webb 2006: 244). The number of beads from *Ammoudhia* numbers 2127, with 1107 of these coming from Tomb 19; and it can be seen from Figure 4.149 that red jasper beads are by far the most popular type. There is one picrolite example from Tomb 15.

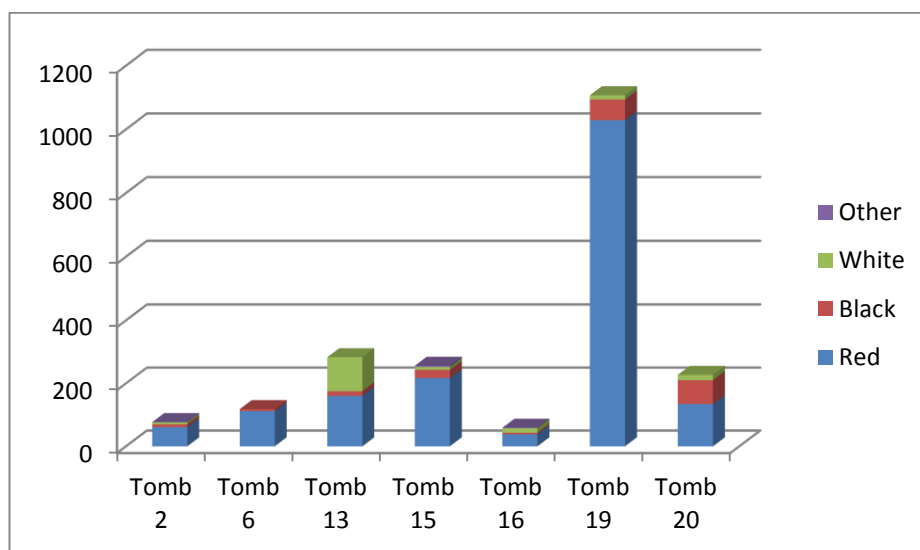


Figure 4.149: Numbers of small beads found in *Ammoudhia* tombs



Figure 4.150: Tomb 20 restrung beads and spacers

Five of the tombs containing beads (6, 13, 15, 19 and 20) also contain what are termed 'spacers' (Swiny 2003: 235). These are small (c. 1-1.5cm long, 0.1-0.2 thick), flat, elongated plaques of stone with one, two or three perforations (Figure 4.150). These items are always associated with miniature beads and first appear during the Philia period and continue in use throughout the EC and MC (Stewart 1962: 260-3; Åström 1972a: 160; Swiny 1986: 30; 2003: 235; Georgiou *et al.* 2011: 310). Ten examples were found at Psematismenos-*Trelloukkas* (Georgiou *et al.* 2011: 309); Swiny states that six of these spacers were found with necklace S208 from Sotira-*Khaminoudhia* (which contained 646 beads) making this the largest number to be found in association with a single necklace. Since eight were discovered in Tomb 19 at *Ammoudhia*, alongside the largest number of beads from a single tomb, this suggests that Tomb 19 contained more than one necklace.

Tomb 19 is the only *Ammoudhia* tomb to include a stone tool, in this case a macehead 19.91, Figure 4.151). These tools are common in Cyprus from the Neolithic to the Late Bronze Age (Swiny 1986: 13), making it difficult to establish a date. This ovoid example in diabase conforms to Stewart's Type 2 and can be compared to similar examples from tombs at Bellapais-*Vounous* (Dikaios 1940: 136), Lapithos-*Vrysi tou Barba* (Gjerstad 1934: 119), Episkopi-*Phaneromeni* (Swiny 1986: 13) and Nicosia-*Ayia Paraskevi* (Georgiou 2009: 75). They are also found in settlement contexts at Marki-*Alonia* (Frankel & Webb 2006: 211-2) and Alambra-*Mouttes* (Coleman *et al.* 1996: 161).

An example was also found at *Sotira-Khaminoudhia*, and although the shape is similar to 19.91, it is made from limestone (Swiny 2003: 226).

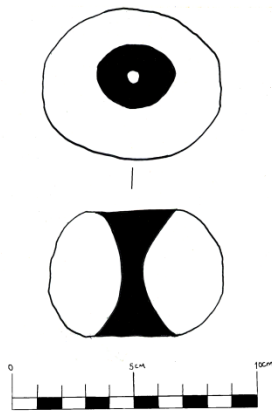


Figure 4.151: Macehead 19.91

Two picrolite pendants were recovered from Tombs 6 and 9. Use of picrolite is better known from the Chalcolithic period in the form of the cruciform figurine (e.g. Peltenburg 2006 2011). However, picrolite jewellery is still found in the Bronze Age, although in bead or oval pendant form (Knapp 2013: 327). Pendant 9.59 (Figure 4.152) is the fragment from a Middle-Chalcolithic cruciform figurine that has been reworked, with the feet of the original figurine now pierced to form an upside-down T-shaped pendant. These pendants are extremely common at Middle Chalcolithic sites such as the nearby *Lemba-Lakkous* and *Kissonerga-Mosphilia* (Peltenburg 1998: 233-4; 2006: 97-99, 2011). The example from Tomb 6 is an unusual 'nut' shaped example, with delicate incised cross-hatching and a perforation to one end (Figure 4.153). A thorough search of the existing literature has produced no Bronze Age parallels, with the closest parallel being a larger and less carefully executed picrolite example from the Pre-Pottery Neolithic site of *Parakklissha-Shillourokambos* (Guilane *et al.* 2011: 794, 1205). Three globular beads of a whitish green stone occur in Tomb 15, which may be a pale form of picrolite, or other stone.



Figure 4.152: Picrolite pendant 9.59

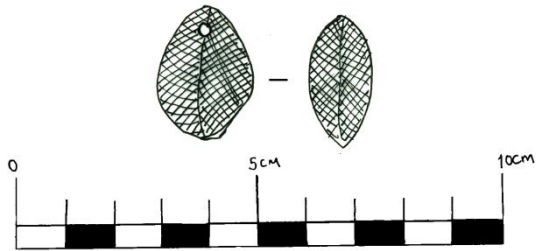


Figure 4.153: Picrolite pendant 6.189

There are a small number of grave goods that are so generic or ambiguous that they cannot be compared to contemporary examples. These include a bone point from Tomb 6 (Figure T6.12, Plate 6.9) and a fragment from a limestone bowl from Tomb 40a (Figure T40A.5, Plate 40A.2) as well as occasional flakes of picrolite and quartz.

Finally, four tombs (6, 13, 19 and 20) also contain a number of ovoid pebbles, which may have a ritual significance (in his notes, Dr Raptou signifies that in at least one occasion [Tomb 6, Figure 4.154], these pebbles appear to have been placed directly on top of human remains). Georgiou *et al.* (2011: 311) describe similar items being found at Psematismenos-*Trelloukkas* and define them as “manuports” (2011: 311), although (unlike *Ammoudhia*) several of these were heat cracked and possibly used as the setting for a fire (Georgiou *et al.* 2011: 311). Three similar pebbles were found in Tomb 67 in the *Kalavassos-Panagia Church* (Todd 2007: 257). Although ambiguous, these pebbles are recorded as their existence in a funerary context deserves further investigation.



Figure 4.154: Tomb 6 manuports

Tomb Chronology

Absolute Chronology

From the six samples of human remains selected by Professor Cook (see Chapter 3), only four contained sufficient collagen for C-14 dating (Table 4.4). Two human teeth from Tombs 1 and 6 respectively contained insufficient amounts of carbon (SUERC: personal communication, see Appendix 6). As can be seen from Table 4.4, three of the dates provided fit well with a general EC date for Tombs 1, 10 and 16.

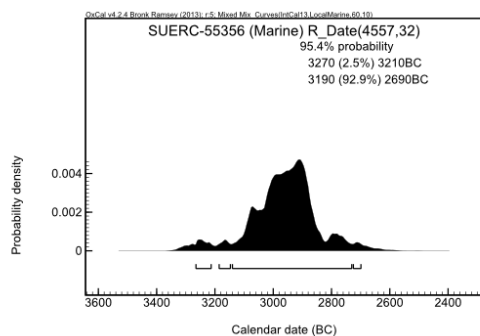
Sample 55356 is anomalous, as it gives a date somewhere in the Middle-Late Chalcolithic (Figure 4.155). However, this is the least secure of the samples; a long bone with a C/N ratio of 3.6, which is “right on the limit for acceptable collagen quality for C-14 dating” (G. Cook: personal communication). Gordon Cook advises to treat this result as an outlier, therefore it will not be considered further in this study.

Sample	Context	95.4% Prob.		Radiocarbon Age BP
55356	Tomb 1 (Human Longbone)	3270	2690	4557 ± 32
55360	Tomb 1 (Human tooth)	2280	1930	3763 ± 30
55361	Tomb 10 (Human tooth)	2300	1970	3828 ± 30
55362	Tomb 16 (Human tooth)	2200	1890	3718 ± 32

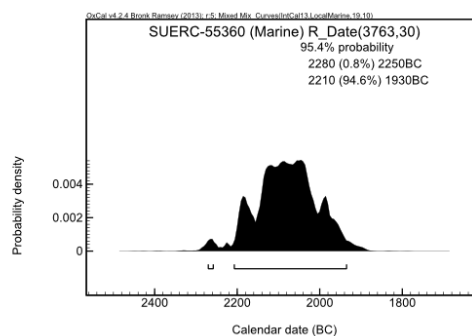
Table 4.4: The Kissonerga-*Ammoudhia* Calibrated Age ranges BC at 95.4% probability

The three remaining dates all come from human teeth and provide a single date for Tombs 1, 10 and 16. Each date falls within a 400 year period covering the entire EC and early MC (Table 4.4). Although, at first glance it appears that Tomb 10 is the

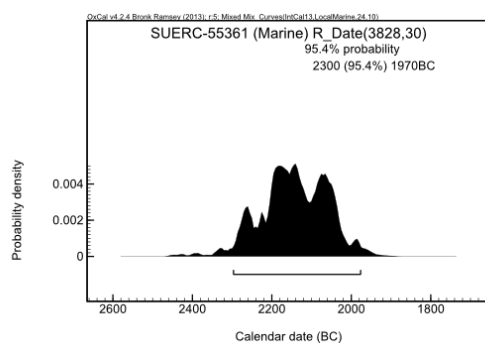
earliest, followed by Tomb 1, then Tomb 16, it should be noted that there is no stratigraphic relationship between each of these sample contexts and in using the 2 σ (95.4% probability) range, each date overlaps each other somewhat. Because each date might fall anywhere within the predicted range it becomes impossible to state conclusively if one tomb pre-dates another (Bowman 1990: 50-62). Therefore, the relative internal chronology must still rely largely on the ceramic evidence.



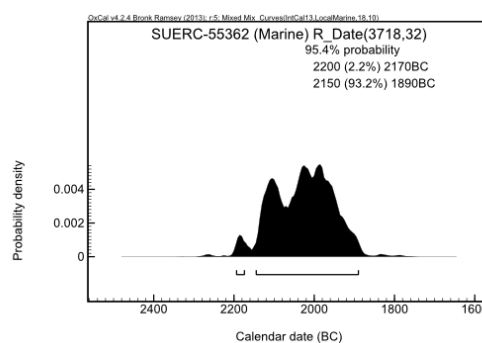
**Figure 4.155: Sample 55356, Tomb 1
Marine calibrated graph**



**Figure 4.156: Sample 55360, Tomb 1
Marine calibrated graph**



**Figure 4.157: Sample 55361, Tomb 10
Marine calibrated graph**



**Figure 4.158: Sample 55362, Tomb 16
Marine calibrated graph**

The date from Tomb 1 places it within a 350 year range during the ECI-III period, fitting well with the proposed date for the ceramics from this tomb (Figure 4.156). Tomb 10 (Figure 4.157) is perhaps somewhat earlier than the ceramics would suggest, with a 300 year range covering the EC. The range for Tomb 16 (Figure 4.158) is again, rather earlier than expected, being anywhere from ECI-MCI. The possible implications of these dates and how they might fit with the relative ceramic

chronology as well as with radiocarbon evidence from other sites will be discussed in Chapters 5 and 6.

Tomb Descriptions and Relative Tomb Chronology

Here follows a more detailed description of each tomb, putting the ceramics into a localised context and providing a detailed vision of the cemetery and each tomb. The information is based on Dr Raptou's, Dr Papadopolous' and Ms Meranou's field notes and report, and illustrations are provided where possible based on original drawings.

For each tomb that was not completely destroyed, four charts are provided as visual aids to the discussion. Firstly, two pie charts show the distribution of general wares and shapes (open and closed) for each tomb. Although basic, these charts offer useful information; firstly it can be seen at a glance, the high proportion of DP in each tomb. However, the proportions of RP and cooking wares varies considerably, as does the ratio of open and closed vessels and this is likely to signify changes over time. Two more specific line charts are also presented; the first showing the ratio of wares to vessel shapes, the second showing the opposite. These charts illustrate that some wares were preferred for the manufacture of specific shapes. Through the data presented in these charts, it can also be observed that some tombs contain a greater variety of shapes and wares than others, and again, this is a possible chronological observation.

From this information and the few chronological markers discussed above, a tentative chronology can now be suggested for each of the *Ammoudhia* tombs.

Tomb 1 (ECI-III)

The first tomb to be excavated proved to be one of the largest, with a rich ceramic assemblage. The upper part of the tomb was lost to bulldozers, with only the floor and lowest part remaining. The floor is circular to elliptical in shape, measuring 2m by 2m at the widest parts (Figure 4.159). The entrance could not be traced, and was likely to be at the higher, destroyed level. No intact burials were observed in this tomb; however, a small scattering of very poorly preserved bones was discovered in the north-west corner of the tomb.

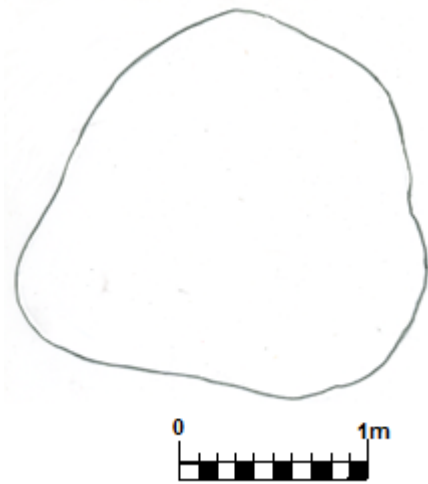


Figure 4.159: Tomb 1, floor sketch (E. Raptou)

The material evidence from Tomb 1 is entirely ceramic and consists of 42 complete or near complete vessels, 72 diagnostic sherds (accounting for 61 vessels), totalling at least 103 vessels and one spindle whorl. The ratio of open to closed vessels is almost equal, with 48 open vessels, 51 closed and four of uncertain shapes, the majority of open vessels are highly likely to be from small bowls; the closed vessels are largely rim sherds from medium sized round spouted amphora/jugs or jars. The wares are also split fairly evenly between DP and RP with DP occurring in 52 vessels (50%) and 41 in RP (40%) with the remainder occurring in cooking wares (10%).

Tomb 1 exhibits a wide repertoire of both wares and shapes, with EC wares including RPI and RPSC. Figure 4.160 clearly illustrates the dominance of DP (2); however, it can be observed from this chart that RPI (7) is the second most common ware in this tomb. The open vessels include ten small bowls (the majority of which have horizontal loop handles) and at least two large bowls. The closed vessels include large jugs with round spouts, few juglets and flasks. There are also examples of cookware, including a cooking pan or brazier and four examples of cooking pots in Fabric 6.

Decoration is very limited, with only 13 examples (see Figure 4.338 for each tomb ratio); the most highly decorated vessels are those occurring in RPSC, which are all incised. The remaining decoration consisting of relief bands or wavy lines around the neck of closed vessels (in particular the RPI vessels) and restricted incised lines to handles.

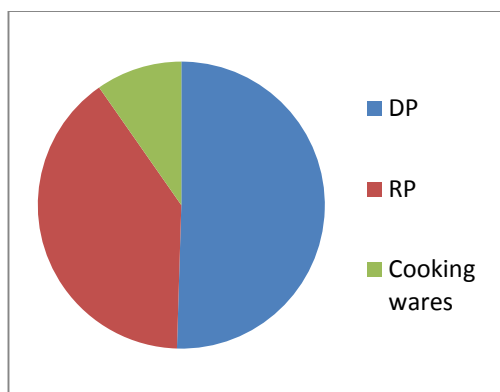


Figure 4.160: Tomb 1 general ware distribution

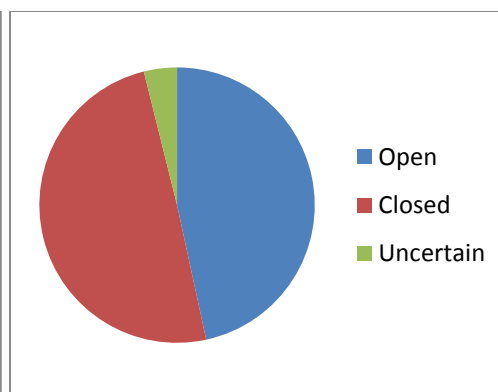


Figure 4.161: Tomb 1 general shape distribution

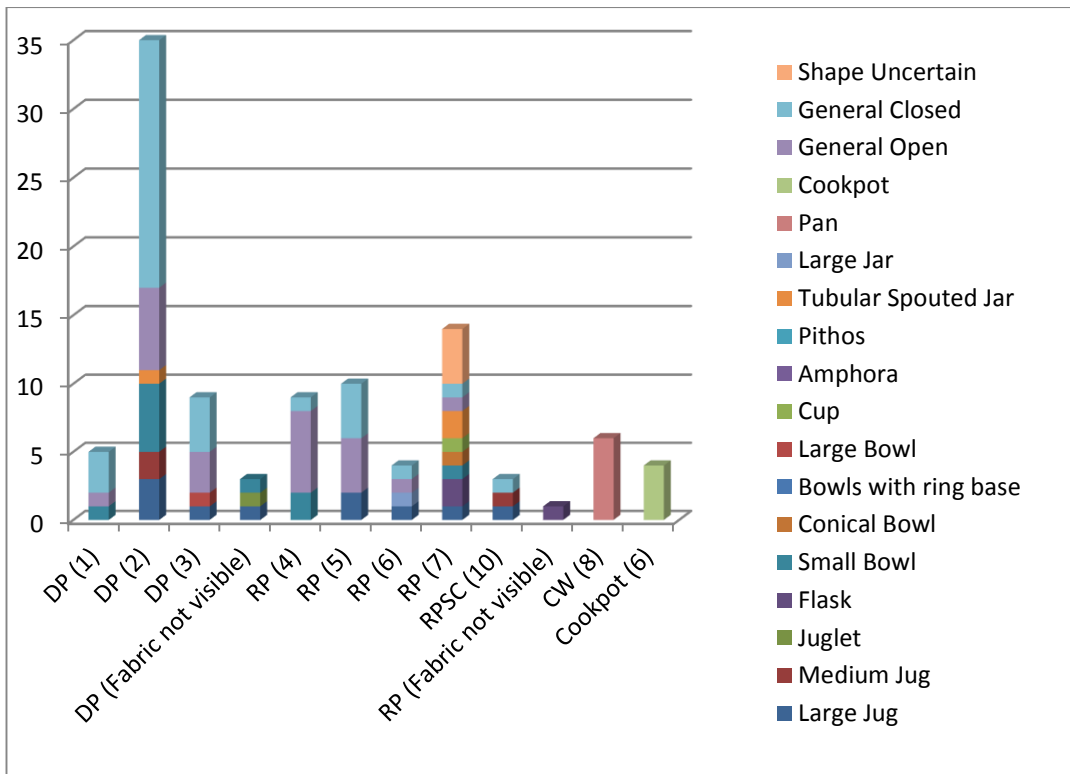


Figure 4.162: Tomb 1, distribution of wares to shapes

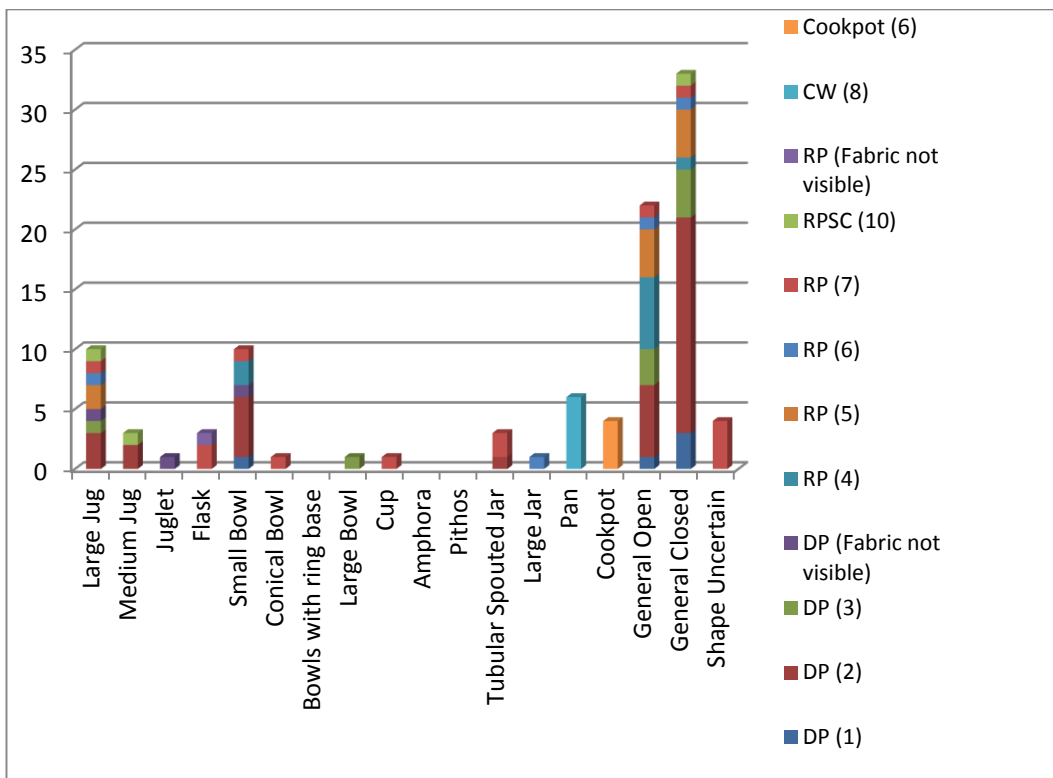


Figure 4.163: Tomb 1, distribution of shapes to wares

As well as early EC wares, several shapes also indicate an EC date for Tomb 1, including one of few cups in the entire *Ammoudhia* assemblage, vessel 1.4 (Figure 4.27). This small cup occurs in RPI (7), suggesting an early EC date and has a pointed base and two small lugs to the rim and shares similarities in shape with the tulip bowls of the north coast (Stewart 1962), although lacking in decoration. Other examples of RPI (7) vessels in this tomb include 1.9 (Figure 4.81), a hemispherical bowl with two sets of two long pointed lugs rising from the rim and a wavy line relief below rim and flasks 1.14, and 1.24 and conical bowl 1.22 (discussed above) as well as tubular spouted jar 1.23 (Figure 4.120).

Tomb 1 contains five examples of disc lugs as discussed above, including two RPSC jugs; 1.19 (Figure 4.31) and 1.89. The remaining three (1.14, 1.24 and 1.115) occur in RPI. The two lugs occurring on vessel 1.14 (Figure 4.77) are decorated with impressed punctures and the flask shoulder has a relief wavy line, while flask 1.24 is very similar in shape but is undecorated. 1.115 is a single lug, very worn but shows evidence of a ring of punctures around the circumference.

As well as these specific vessels there are several small bowls, some of which are slightly conical and of a general EC shape, and several rims and bases of large open jars or bowls, often decorated with wavy lines in RPI (7).

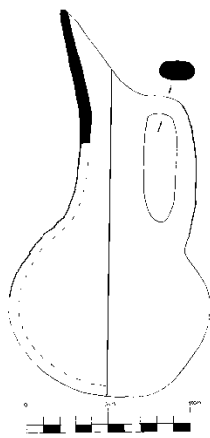


Figure 4.164: Juglet 1.1

Interestingly, only one cutaway spouted jug occurs (1.1) and it is a particularly thick and chunky version (Figure 4.164) and there are no small incised juglets which are so distinctive in other tombs and are usually dated to the MC. Therefore Tomb 1 appears to be among the earliest, the ceramics suggesting an ECI-II date, possibly into ECIII and this is backed up by the 2σ date range of 2280-1930 Cal. BC.

Tomb 2 (ECIII–MCIII)

Tomb 2 is a smaller tomb, found north of Tomb 1. Like Tomb 1, the upper part was almost completely destroyed, with only the floor remaining. Described as almost triangular in shape, it measures 1.8m by 1.8m at its widest. No further recording of the tomb architecture remains. No intact burial remained, only a small number of badly preserved bone fragments. As well as ceramic vessels, this tomb contained a DP spindle whorl, a number of very small beads in red, white and black and an intrusive flake of quartz and one of picrolite.

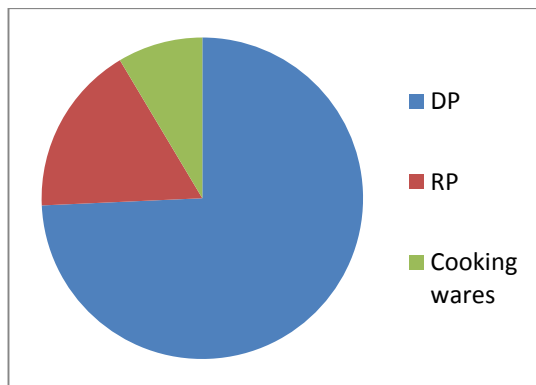


Figure 4.165: Tomb 2 general ware distribution

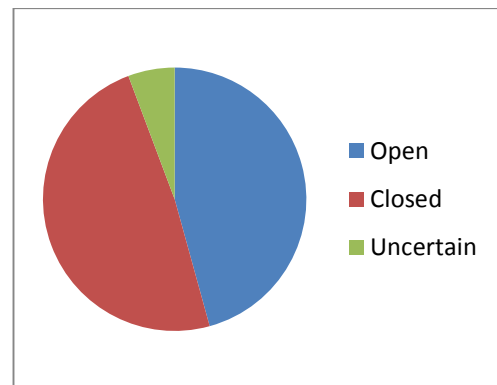


Figure 4.166: Tomb 2 general shape distribution

The ceramics consist of 18 complete or near complete vessels and another 24 diagnostic sherds (making up another 17 individual vessels), accounting for at least 35 vessels in total. DP accounts for 26 of these (74%), with six RP (17%). A one-handled cooking pot in Fabric 6 and two fragments from CW pans accounting for the remaining 9%. Shapes are more restricted than in Tomb 1, with a 16/17 ratio of

open and closed vessels, and two of uncertain shape. Open bowls account for most of the small vessels, two are of a later MC date, one with a ring base and elongated tablet lugs (Figure 4.93), and both are decorated with traditional west coast incised decoration. Also included in the 'open' category are two fragments from cooking pans and three jars, one of which has a tubular spout (2.15 – Figure 4.14). The only coarse RP vessel is a fragment from a jar (2.14 – Figure 4.123) with a double peaked vertical handle and relief wavy lined and circle decoration to the exterior and impressed decoration to the interior of the handle/rim join. Closed vessels are represented by jugs, juglets and at least two flasks. Compared to Tomb 1, the range of wares is more restricted, with DP (2) accounting for an even higher percentage of the assemblage. This is coupled with a shift in shape preference, with closed vessels such as jugs, juglets and flasks now the most common vessels.

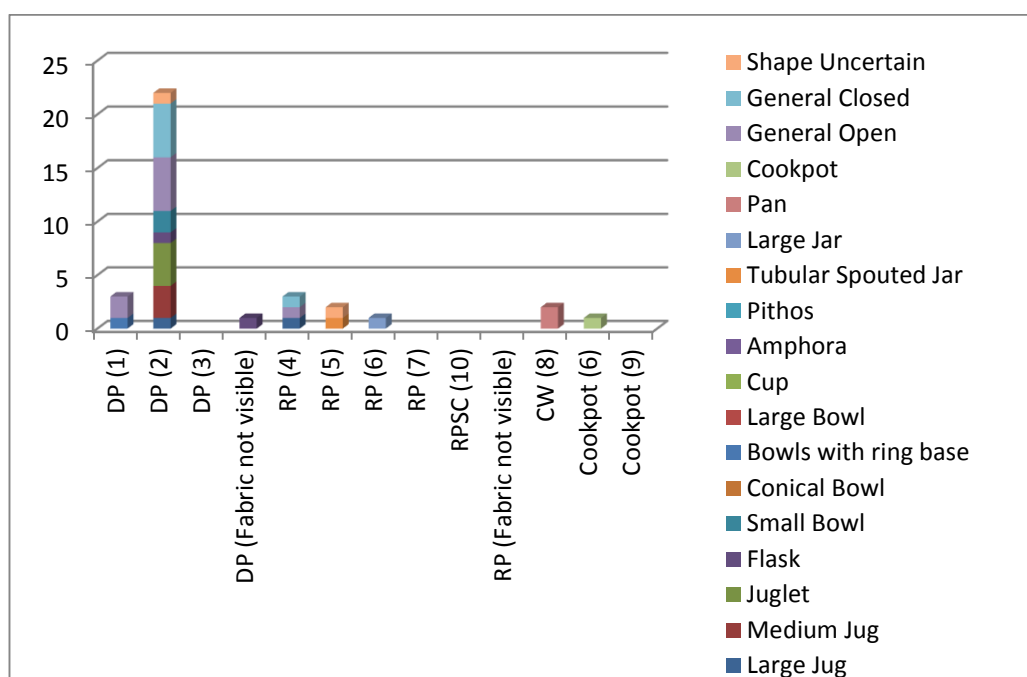


Figure 4.167: Tomb 2, distribution of wares to shapes

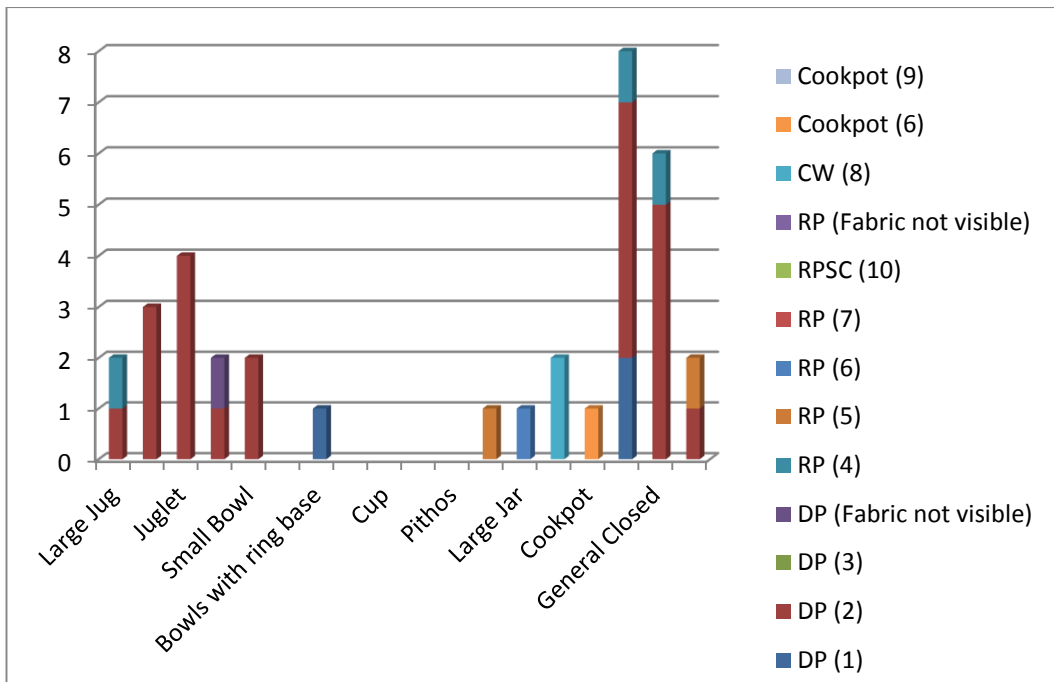


Figure 4.168: Tomb 2, distribution of shapes to wares

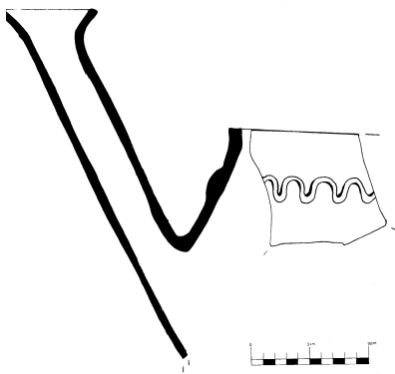


Figure 4.169: Tubular spouted jar fragment 2.15

Decorative motifs occur relatively frequently in this tomb, with 15 vessels having some form of decoration. The west coast 'target' motif occurs on five vessels, including two juglets, a flask and two bowls. Larger vessels and rim sherds from large jugs/jars tend to have relief wavy line decoration just below the rim and this also occurs on the tubular spouted jar (Figure 4.169) and the large jar (2.14).

Tomb 2 contains nothing dating to the ECI-II, however, it does contain a ring based bowl (2.17). This, coupled with the high proportion of very hard fired DP, small incised juglets and cutaway spouted jugs, therefore suggests an ECIII-MCIII date.

Tomb 3 (ECI–MCI)

Tomb 3 is found to the north of Tomb 2 and is another poorly preserved tomb, with only parts of the floor remaining. The shape again is round/ellipsoid, measuring 1.8m by 1.8m at its widest. No further recording of the tomb architecture or burial remains.

The ceramics were in a very poor state with only a few small juglets remaining intact. This tomb contains 24 vessels and 44 diagnostic sherds (forming at least 36 individual vessels) account for a minimum of 60 vessels. The majority of which (39) occur in a form of DP, accounting for 65%. RP accounts for only 9 (15%) and the remainder consists of cookware (20%), including coarse tripod pans and cooking pots, which include a rim in Fabric 9 and ten examples of Fabric 6 (accounting for seven vessels), five of which are clearly one-handed types.

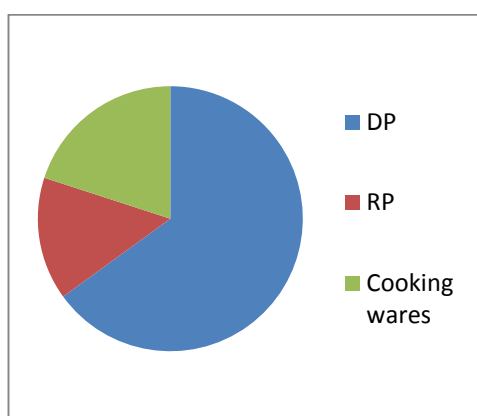


Figure 4.170: Tomb 3, general ware distribution

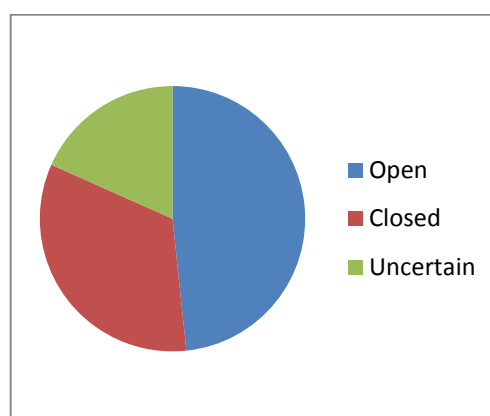


Figure 4.171: Tomb 3, general shape distribution

Open shapes are more common in Tomb 3, accounting for 29 vessels, compared to 20 closed and 11 of indeterminate shape. The open vessels are mostly rim sherds

from small bowls and there are a few better preserved bowls, including examples with horned vertical lugs, horizontal handles and tablet lugs. There is also a cup (3.9 – Figure 4.110) which is made from a coarse version of RP (6) and a large open jar (3.20 – Figure 4.174) with a narrow flat base and single handle placed in the centre of the body. Closed vessels included three juglets and one flask (3.5 – Figure 4.176), at least two cutaway spouted jugs and large jugs or amphorae with round mouths and indented necks. There are also several flat bases that imply larger storage sized vessels. A spindle whorl was found in this tomb, but no other grave goods were discovered.

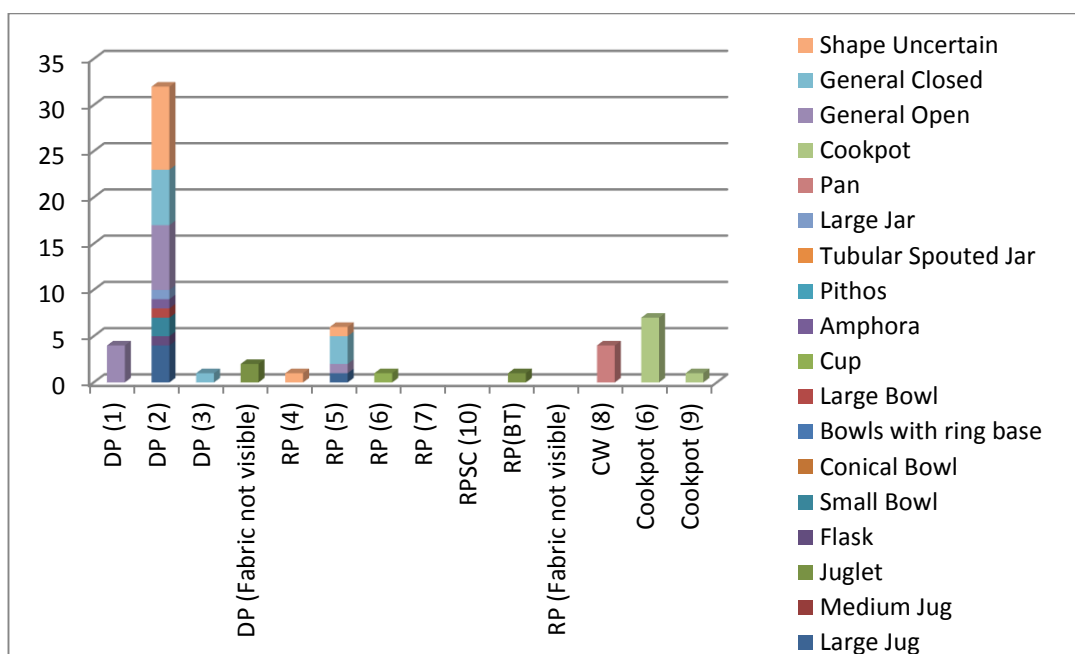


Figure 4.172: Tomb 3, distribution of wares to shapes

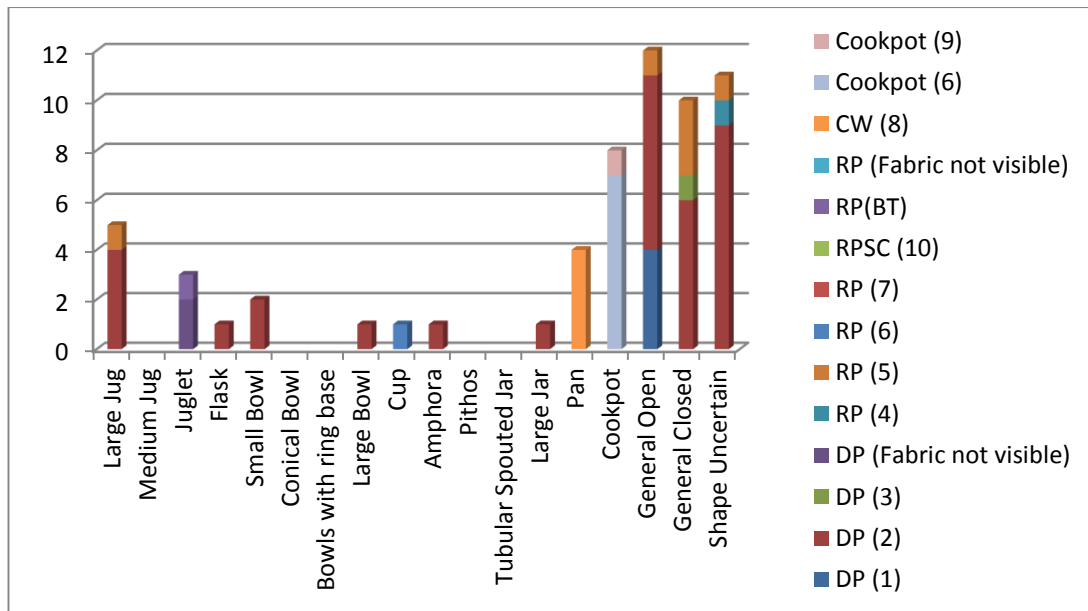


Figure 4.173: Tomb 3, distribution of shapes to wares

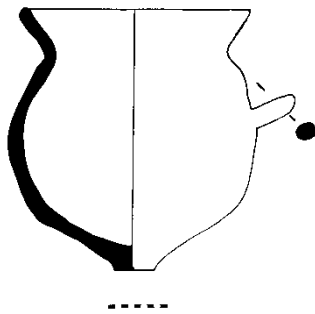


Figure 4.174: Large jar 3.20

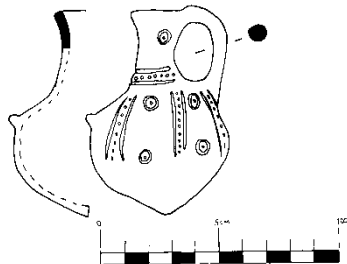


Figure 4.175: Juglet 3.4

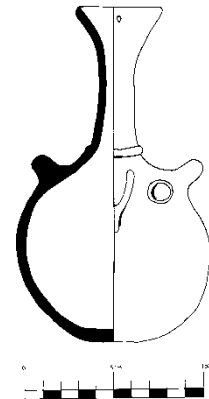


Figure 4.176: Flask 3.5

Decoration is restricted, with only seven examples, consisting of the occasional relief band on the neck of jugs and amphora. There is also one example of a small juglet (3.4 – Figure 4.175) exhibiting the classic west coast ‘target’ motif. However, the few remaining examples of decoration are restricted to handles or disc lugs, the majority of vessels remain undecorated.

Possible chronological indicators include three horn lug bowls and a small flask with stubby lugs in a variant of DP (2) ware with a black top. Tomb 3 contains three examples of disc lugs, although all three stand alone with no connecting vessel.

Unusually, all three occur in DP (2), 3.67 is undecorated, 3.68 is highly decorated with five sets of four incised lines running from edge to centre and 3.69 has a very unusual motif of impressed wedges.

The remainder of the sherds are mostly from large jugs or amphorae. As usual, DP dominates, but given that there are clear EC vessels and nothing that can be identified as later in the MC, I would suggest an ECII-MCI date for this tomb.

Tomb 4 (ECI–ECIII)

Tomb 4 is another tomb in the central area of the site. It was discovered to the north-west of Tomb 3 and again, is a round to ellipsoid shape, measuring 1.8m by 1.8m at its widest. A large stone was found in the north-western corner of the tomb, which may have originally represented the (now lost) tomb entrance. There were also no skeletal remains found in this tomb. Whether there was never a burial or the remains did not survive both natural taphonomy and the destructive nature of its discovery remains to be seen, although the latter seems most likely. No further recording of the tomb architecture remains.

Tomb 4 contains ten complete or near complete vessels and 32 diagnostic sherds, accounting for a minimum of 38 vessels. As in other tombs DP is the dominant ware with 18 vessels occurring in some form of DP (accounting for 47%); RP accounts for 12 (32%) while there are at least eight separate examples of cook wares, including a complete pan/brazier (4.8) and a one-handled cooking pot in (4.10) accounting for the remaining 21%. This is the only fully excavated tomb where DP accounts for less than 50% of the total tomb assemblage.

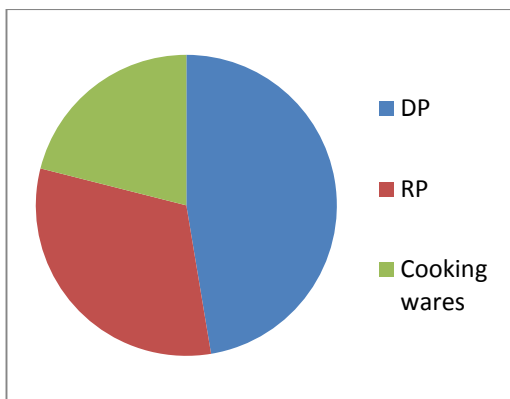


Figure 4.177: Tomb 4 general wares distribution

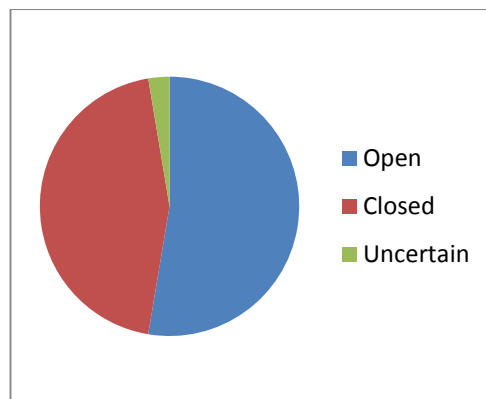


Figure 4.178: Tomb 4 general shape distribution

The ratio between open and closed vessels in this tomb is fairly even, with 20 open, 17 closed and one of an uncertain shape. The open vessels are almost entirely small bowl fragments and those that survive relatively intact have horizontal loop handles. The closed vessels include two undecorated small round-spouted juglets and two flasks. 4.1 (Figure 4.181) is an undecorated RP (4) example, whilst 4.5 (Figure 4.182) is highly decorated RPSC. The remainder are made up of rim or base sherds from round-spouted jugs or amphorae; there are no examples of cutaway spouts in this tomb.

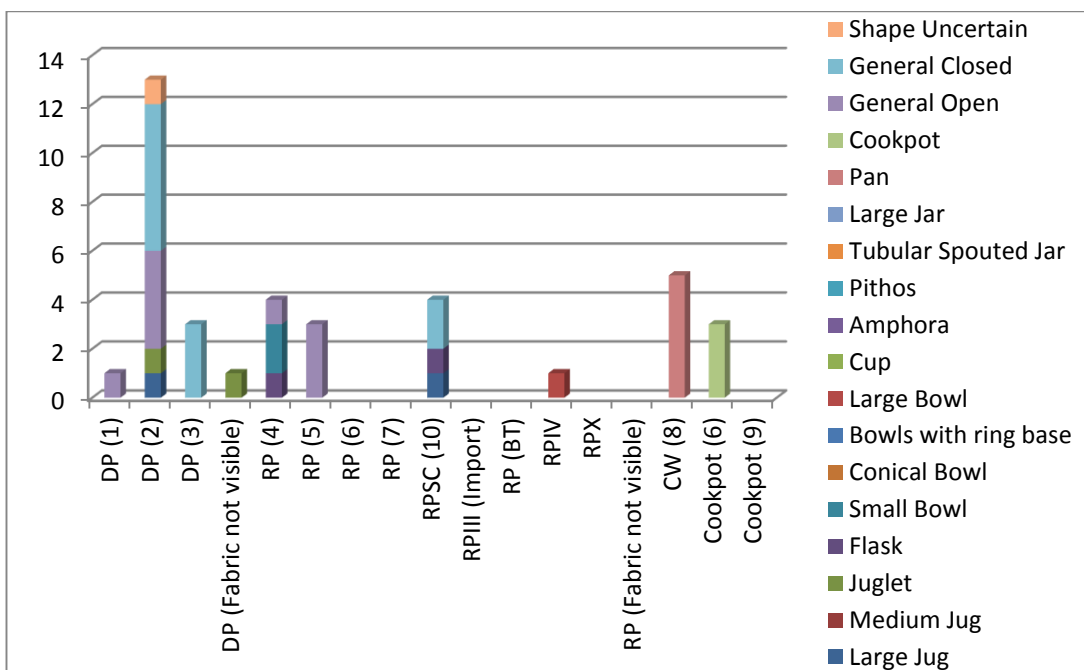


Figure 4.179: Tomb 4, distribution of wares to shapes

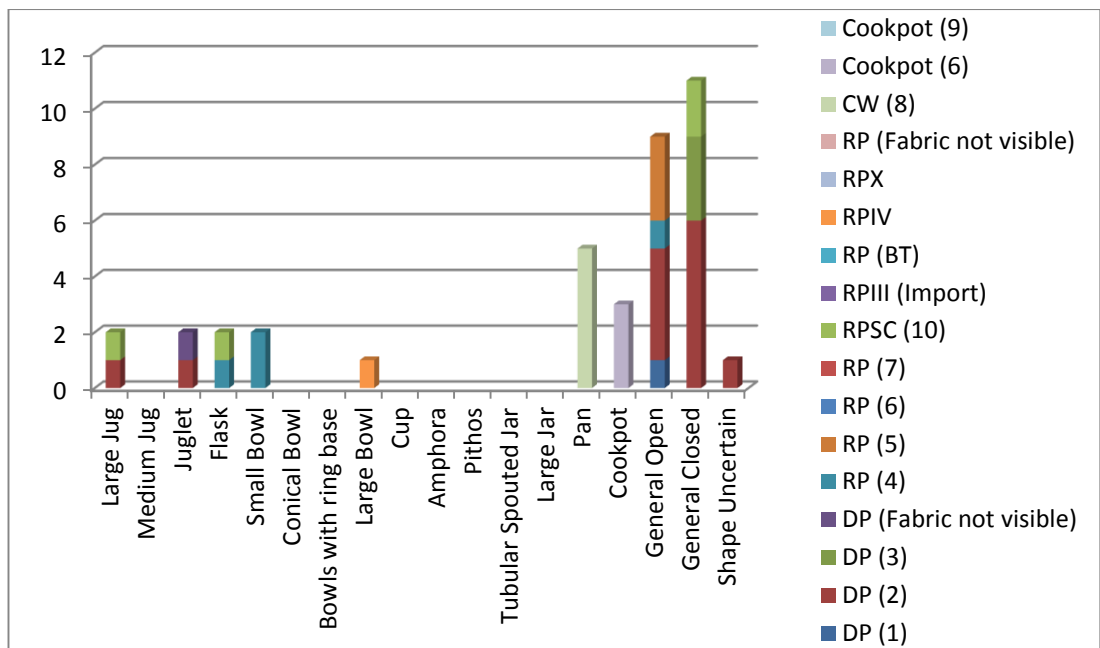


Figure 4.180: Tomb 4, distribution of shapes to wares

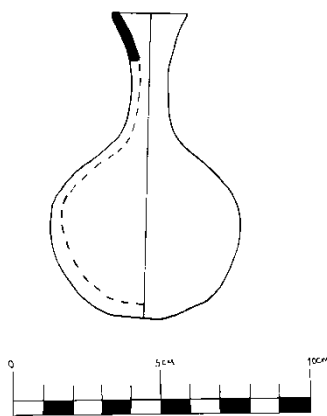


Figure 4.181: Flask 4.1

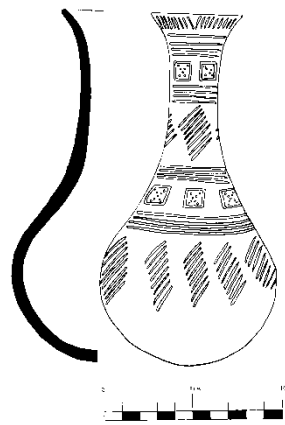


Figure 4.182: Flask 4.5

Decoration in Tomb 4 is restricted, with only five examples that are almost entirely limited to RPSC. These distinctive vessels also represent the only real chronological markers in this tomb, although it does also contain three horn lug bowls and flat based large jars and nothing suggesting a particularly late date. Although still dominated by DP (2), Like Tomb 1, other wares are also significant. This variety of wares coupled with the absence of cutaway jugs or incised juglets suggests an earlier ECI-III date for this tomb.

Tomb 5 (ECIII-MCII?)

Tomb 5 was discovered north-west of Tomb 4 and was mostly destroyed by bulldozers. The remaining floor suggests a smaller tomb; again round in shape and measuring 1.5m by 1.4m at its widest. A few badly damaged skeletal remains were discovered but nothing clearly in situ. No further recording of the tomb architecture remains.

The ceramics were in a very poorly preserved state, with only two complete and four incomplete vessels and 21 diagnostic sherds accounting for 27 complete vessels. 23 of these occur in DP, accounting for an enormous 86% of this tombs assemblage. The remainder is split with 2 occurring in RP (7%) and the remaining two (7%) in Cooking pot 6, including a cooking pot with one remaining handle (5.3) and a stubby tripod base from a cooking pot (5.10). Shapes are split evenly with 12 closed vessels, 10 open and five indeterminate. The closed are represented by spouts and handles from round or cutaway spouted jugs, whilst the open vessels are predominantly rim sherds from small round bowls. One small juglet remains intact (5.2 – Figure 4.187) as does a one-handled jar or tankard (5.1 – Figure 4.188). A single spindle whorl was also found in this tomb.

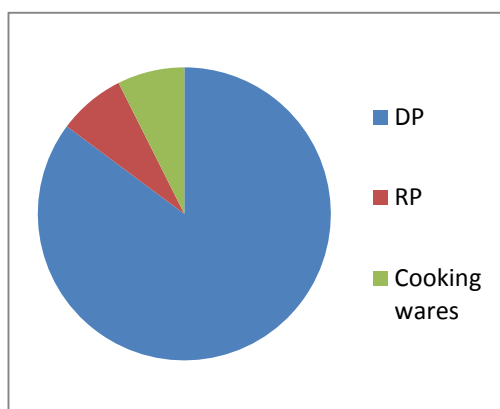


Figure 4.183: Tomb 5 general ware distribution

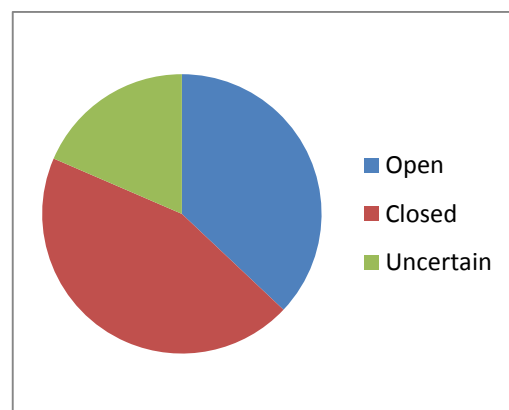


Figure 4.184: Tomb 5 general shape distribution

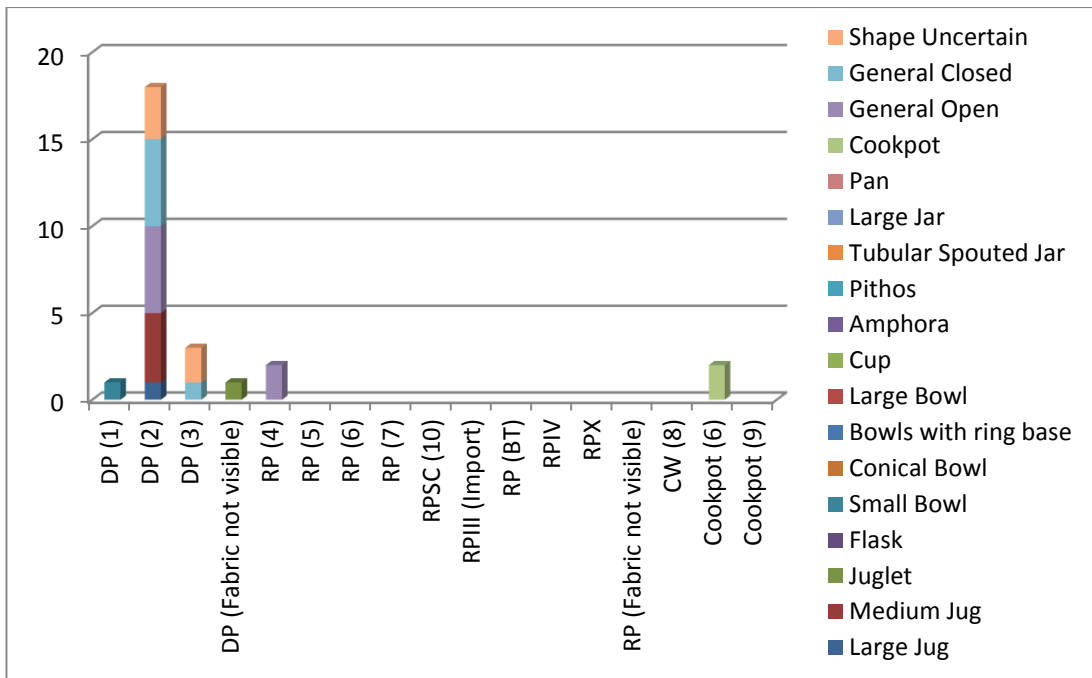


Figure 4.185: Tomb 5, distribution of wares to shapes

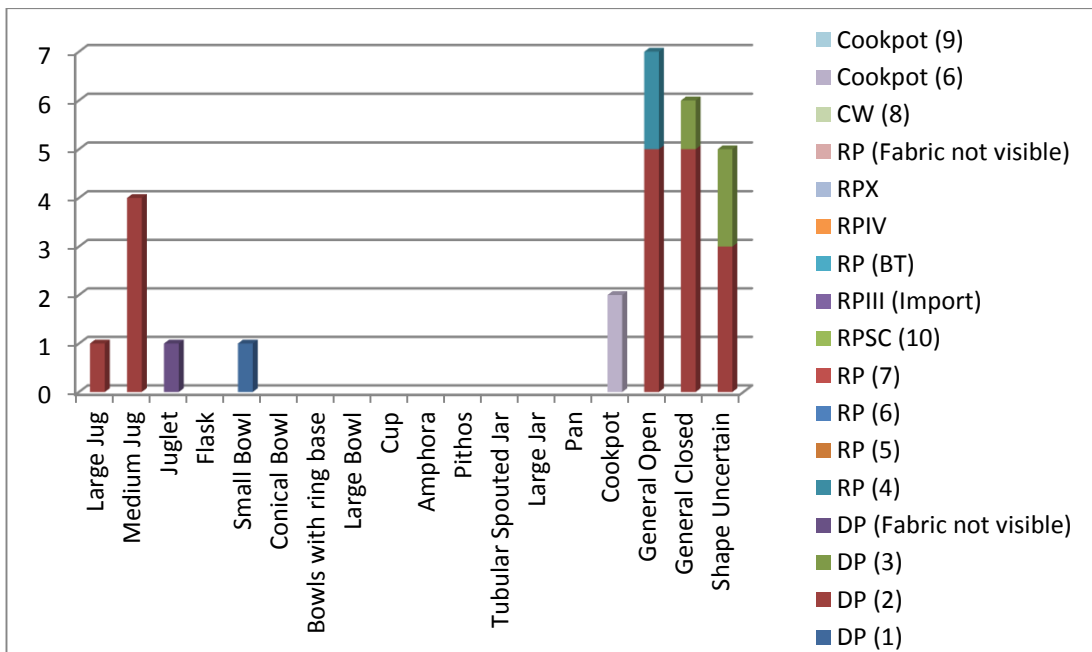


Figure 4.186: Tomb 5, distribution of shapes to wares

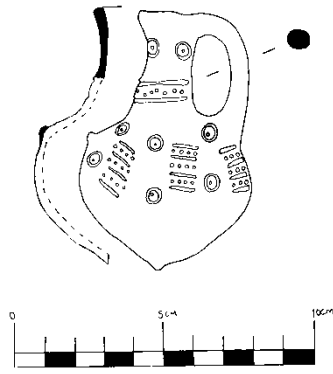


Figure 4.187: Juglet 5.2

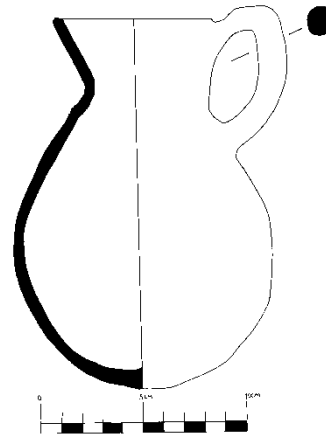


Figure 4.188: Jug 5.1

Typically, decoration is restricted, with only five examples. The small DP juglet is decorated with the west coast 'target' motif, but otherwise decoration is limited to very occasional short incisions to necks and handles. The disturbed nature of this tomb coupled with its poorly preserved and generic ceramics means that it is of limited chronological value, a general MC date is given due to the very large percentage of DP coupled with typical MC shapes.

Tomb 6 (ECI–MCI)

This tomb is exceptionally well preserved, given the poor preservation of most of the tombs, coupled with the rescue nature of the excavation. It is the only tomb to be discovered completely intact, comprising a large, almost circular room, measuring 2m by 2m. The entrance and part of a rectangular dromos remained intact (Figure 4.189). Outside the tomb just to the south of the entrance were two large pithoi (6.27 and 6.31 – Figures 4.115 and 4.116) which appear to have been deliberately placed upside down, and a jug (6.21 – Figure 4.190), found on its side and wedged in with small stones.



Figure 4.189: Tomb 6, sketch of the interior including entrance and shelf (E. Raptou)

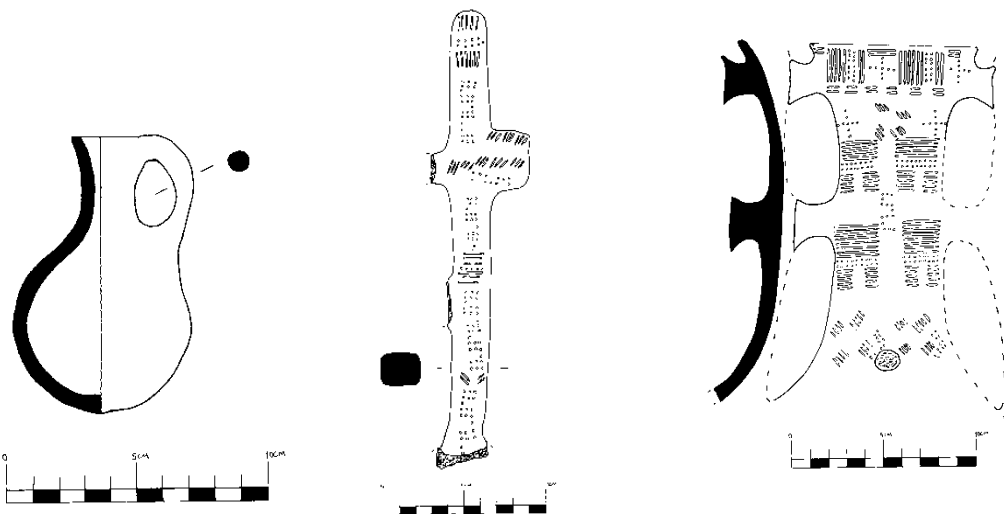


Figure 4.190: Jug 6.21

Figure 4.191: Handle 6.168

Figure 4.192: Jug 6.164

The entrance itself was covered by a large rectangular stone, under which was discovered a 'cross shaped' ceramic handle, which has since been identified as RPSC handle 1.168 (Figure 4.191), possibly a handle from jug 6.164 (Figure 4.192), although the remainder of the jug was found inside the tomb. This suggests that this vessel was broken in antiquity and may represent some form of ritual behaviour on the final sealing of the tomb. The top of this stone was damaged by bulldozers, but

the entrance itself was steeply stepped, the floor being considerably lower than the other excavated tombs, and the superior state of preservation may be due to its greater depth.

Inside the chamber immediately to the left (west) were some smaller vessels, including the fragments of a CW pan or brazier in blackened soil. Dr Raptou conjectures in his notes that both these phenomena may signify funerary ritual. In the right wall of the chamber a shelf at about ground level had been cut out, on which was the remains of a skeleton *in situ* with some beads, small, fine vessels and two ceramic spindle whorls. The north western side contained traces of another burial surrounded by a number of intact vessels in good condition with some oval igneous pebbles and cobbles seemingly placed on the body. A picrolite pendant (6.189 – Figure 4.153) of oval shape with thin linear incisions was also found at the side of this burial, as was a chert blade (6.150 – Plate 6.9) and a bone point (6.181 – Plate 6.9) as well as many intact vessels, some 33 trays of sherds were also taken from this tomb, all of which were later reconstructed to form the vessels presented herein. Other grave goods include at least 119 stone beads, the majority of which (112) are jasper, two spacers (each with 3 perforations) and a whetstone, although no metal was discovered in this tomb.

This tomb contained the largest ceramic assemblage, with 54 complete or near complete vessels and 126 diagnostic sherds, accounting for a minimum of 153 individual vessels. DP accounts for 97 of these, amounting to 63% of the assemblage. RP accounts for 40 or 26% and the remaining 10% are cookware and one vessel of an unknown ware, labelled as 'query'.

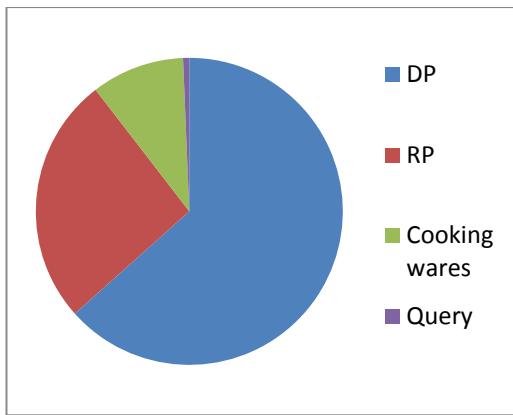


Figure 4.193: Tomb 6 general ware distribution

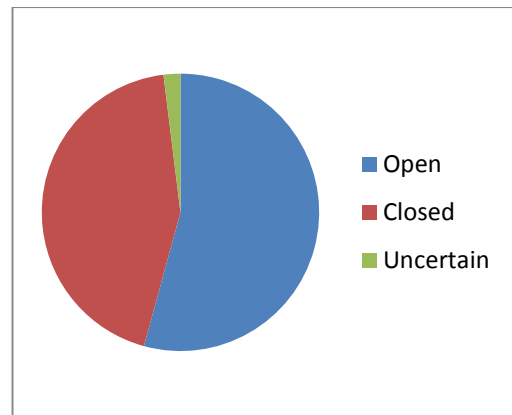


Figure 4.194: Tomb 6 general shape distribution

There are a slightly greater number of open vessels in this tomb, accounting for 83, whereas closed vessels number 67 with only three of indeterminate shape. Figure 4.191 demonstrates the similarities between this tomb and Tomb 1. Both contain a large assemblage with DP (2) dominating, but, with a large selection of lesser wares also present.

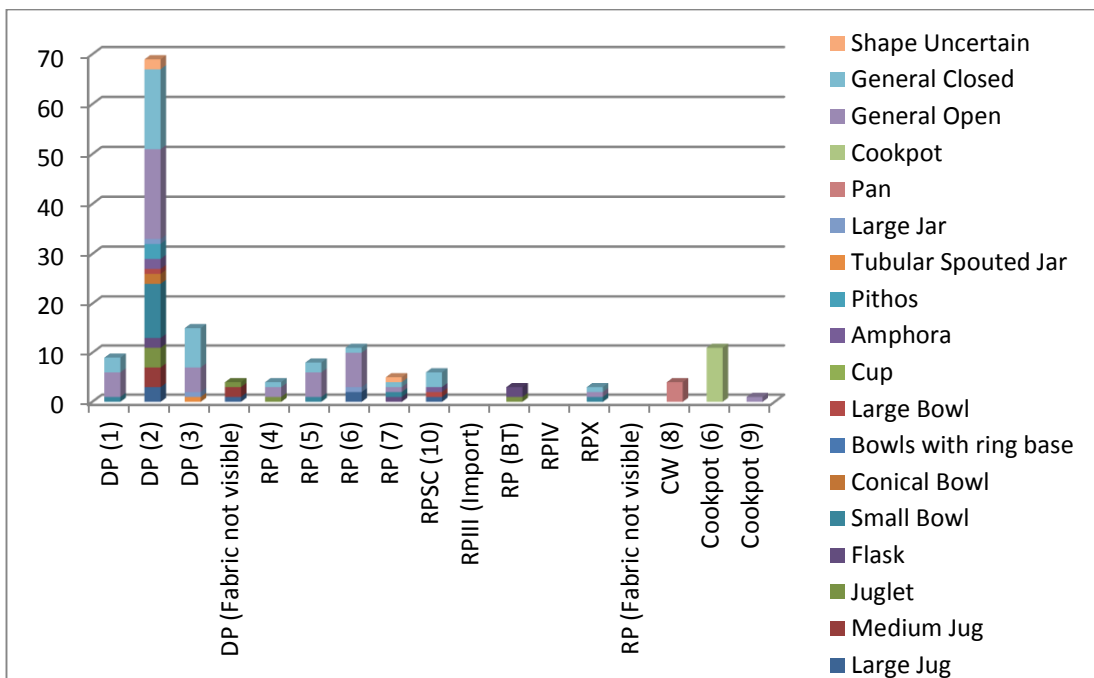


Figure 4.195: Tomb 6, Distribution of wares to shapes

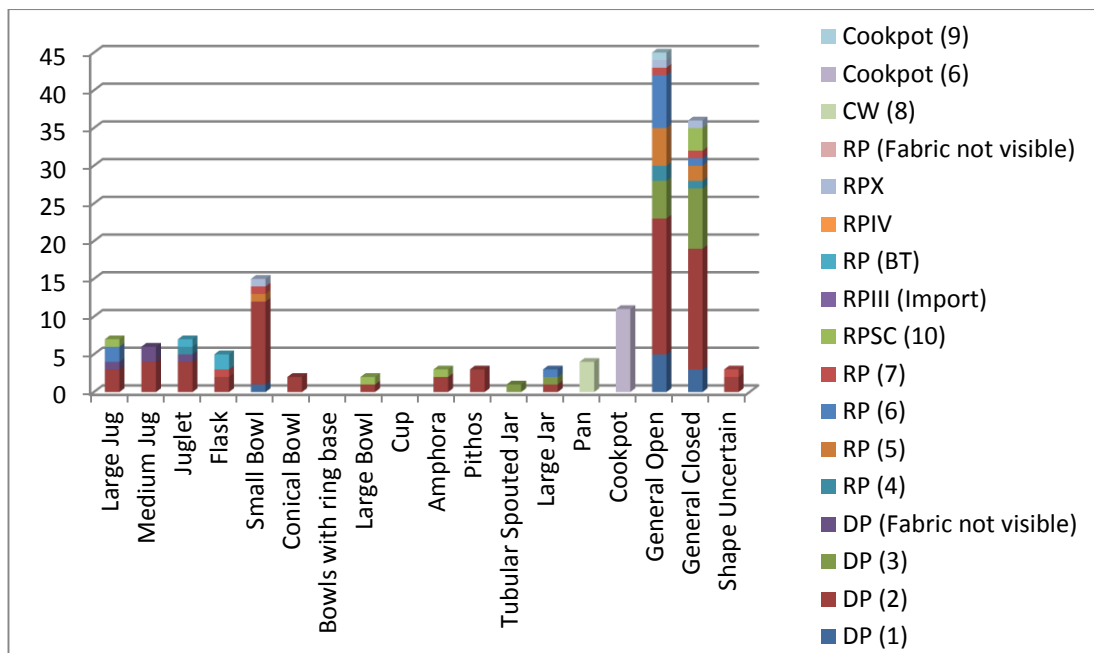


Figure 4.196: Tomb 6, distribution of shapes to wares

Open vessels are mostly represented by small bowls or rim sherds that are likely to come from small bowls and at least 14 are complete or near complete. Almost all of these occur in some form of DP, although handle shape and decorations vary. For example, there are four with horizontal handles and three with vertical handles and several examples of horn lugs on rim sherds. There is also a RPI example of a bowl with four elongated pointed lugs (Figure 4.82) and two DP (2) examples of conical or large tulip bowls. Two bowls are decorated with the common western Cypriot target motif (Figures 4.197 and 4.198). There are also some large open vessels, including two large bowls and three jars, two of which have two handles and one with a tubular spout. An unusual vessel is the RPSC deep conical bowl (6.175-180). This is very similar to a complete bowl found at Episkopi-*Phaneromeni* and one from Yialia, both described by MacLaurin (1980: 209 250, Figs. 103:4, 128:3).

Closed vessels are represented by a majority of jugs and juglets, including six cutaway spouted jugs and at least four with round spouts and two very large examples. There are at least seven juglets, all with round spouts and only three of

which are decorated. However, there are also five flasks in this tomb, two of which are decorated. One (6.20 – Figure 4.199) is an unusual RP Black Topped example, with a relief band around neck/shoulder join and an inverted u shape relief on either face and two opposing conical lugs on the shoulder. The other (6.11 – Figure 4.200) is more typical of *Ammoudhia*, with two ‘cotton-reel’ lugs and the ‘target’ decoration interspersed by pairs of incised lines with a central line of impressed dots. There are also several rims sherds with indented necks that would appear to come from amphorae, 6.43 (Figure 4.201) is a highly unusual type, being DP (2) but having a blackened top, as well as being smaller and finer than the majority of amphora. 6.44 (Figure 4.202) is also DP (2), but slipped red and with typical horned handles and relief pendant band around neck/shoulder join.

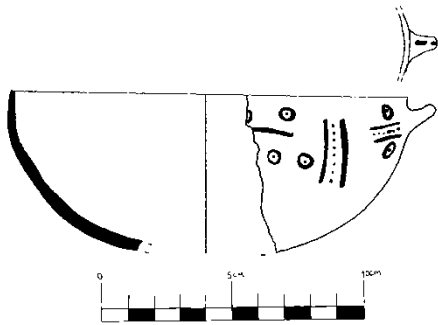


Figure 4.197: Bowl 6.37

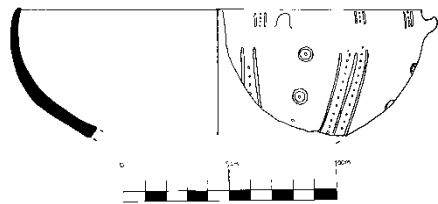


Figure 4.198: Bowl 6.68

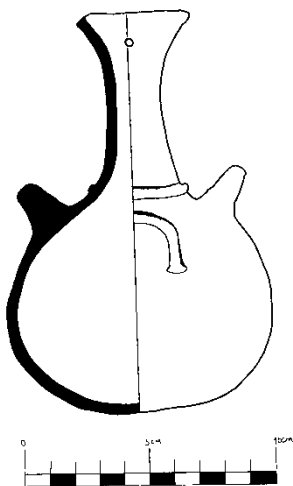


Figure 4.199: Flask 6.20

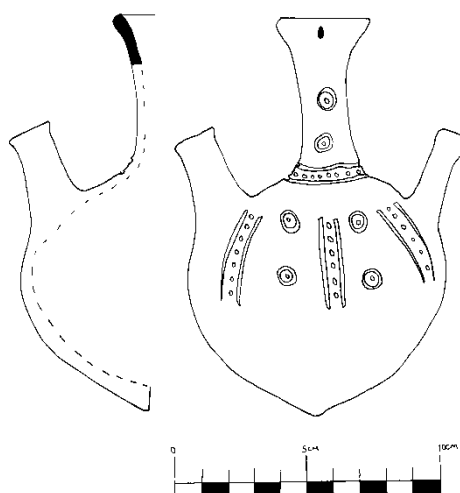


Figure 4.200: Flask 6.11

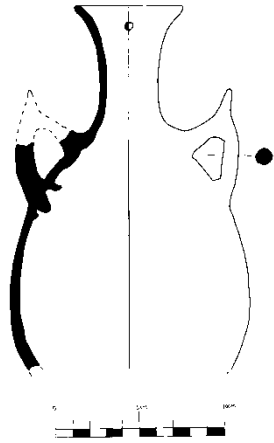


Figure 4.201: Amphora 6.43

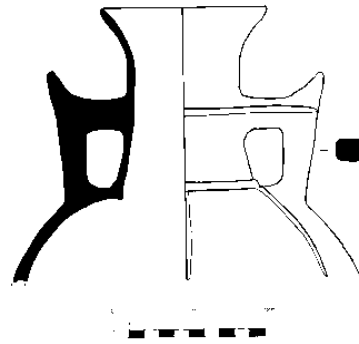


Figure 4.202: Amphora 6.44

Cookware in this tomb is represented by cooking pots (two of which can be recognised as the one-handed type), and four examples of cooking pans. As discussed above, the complete pan 6.26 (Figure 4.125) is extremely unusual, only having two (very wide and flaring) legs, as opposed to the traditional three. The functionality of this pan must be called into question, as it does not stand unsupported and may represent some form of ritual ceramic.

Decoration occurs on around 35 separate vessels. The decorative motifs that occur in Tomb 6 are fairly typical of the rest of the ceramics, with mostly discrete decorations such as incised handles on jugs and bowls and the odd relief band (on amphorae in particular). When vessels are incised, it is generally with some form of traditional west coast motifs occurring on juglets, flasks and the two small bowls (above) as well as on random handles and lugs. There are also a few examples of relief motifs such as inverted U or Y; the most decorative vessels remain those occurring in RPSC. These are all very highly decorated, both with incised decorations and reliefs such as 'disc' lugs. Tomb 6 has the largest selection of RPSC and it occurs in a variety of forms, including the bowl and jugs or amphorae, with elongated T-shaped handles. One example, 6.162/3 (Figure 4.203) is extremely unusual, with a greyish appearance and a decorative motif of incised panels with an incised X to the neck and there are no apparent parallels to be found in the archaeological record.

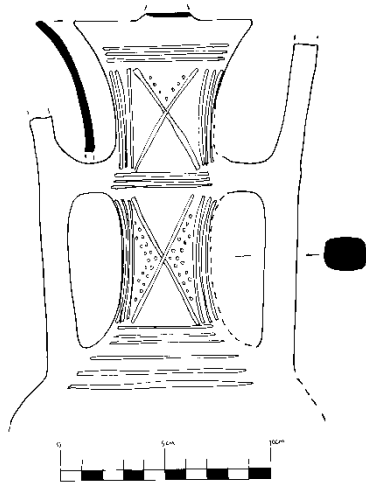


Figure 4.203: Unusual RPSC Jug 6.162

Not surprisingly, this well preserved tomb and assemblage is one of the most chronologically secure. As always it is dominated by DP (2), however, there are a wide variety of wares present and this tomb contains several early markers. It has at least six and probably more RPSC vessels and eight examples of disc lugs, five being part of RPSC vessels described above (6.165, 175, 177, 179, 180). Three occur in RPI (6.136, 6.137 and 6.146), the latter is decorated with a central impressed circle with four sets of incised lines. 6.136 and 6.137 are undecorated and likely to be from flask 6.135 but no definite joins are visible.

Tomb 6 also contains a significant amount of RPI. For example, 6.40 consists of two fragments of the same RPI bowl, with very elongated pointed lugs rising from the rim and is not unlike a similar bowl from Tomb 1 (1.9 – Figure 4.81). Also similar to vessels from Tomb 1 are the two very distinctive conical bowls (Figures 4.103-105), although, in this instance, both occur in DP (2). These, as well as black topped bottles and horn lug bowls, suggesting, like Tomb 1, an EC date. However, unlike Tomb 1, this tomb does contain some cutaway spouted jugs and incised juglets, although nothing diagnostic of the later MCII-III period; I would therefore suggest an ECI-MCI date.

Tomb 7 (EC-MC)

Tomb 7 was almost completely destroyed by bulldozers and no architectural description could be given. However, a cutaway spouted jug (Figure 4.208) and 18 diagnostic sherds were recovered, accounting for 16 vessels in total. 12 of these (75%) were of a DP type, with only one RP rim, accounting for just 6%. The remaining 19% is cookware, made up of a cooking pot (6) rim and cooking pan/brazier fragments. The lack of RP in this case may not be significant, as the *Ammoudhia* RP is generally softer and more liable to be damaged than the harder, more robust DP and cookware, therefore, the lack of RP in this tomb may be entirely due to the tombs near destruction.

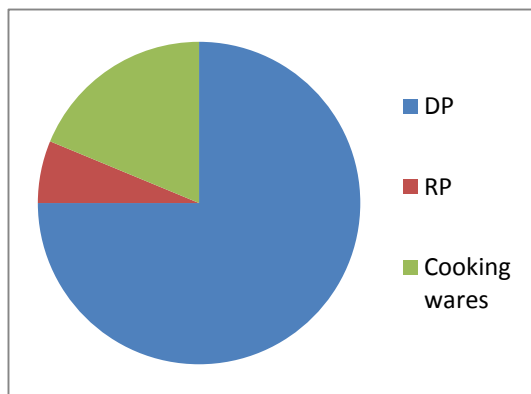


Figure 4.204: Tomb 7 general ware distribution

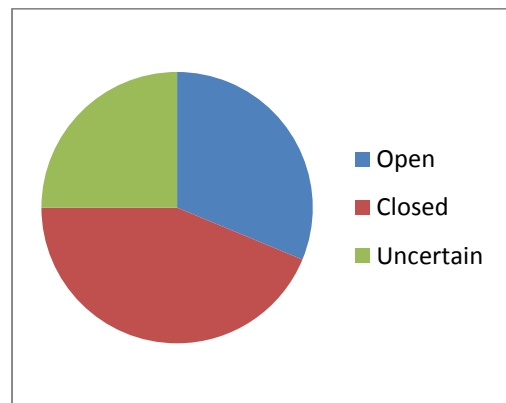


Figure 4.205: Tomb 7 general shape distribution

There are seven closed vessels including the aforementioned jug, four spouts and two DP (3) bases of relatively large closed vessels. Five open vessels mainly include the cookware and two rims, the remainder consists of handles where the shape of the vessel cannot be determined. There is little decoration in this collection, only a DP (2) spout (7.8 – Figure 4.209) which appears to belong to a flask (having two opposing 'string holes' below the rim) and target and incised line and dot decoration.

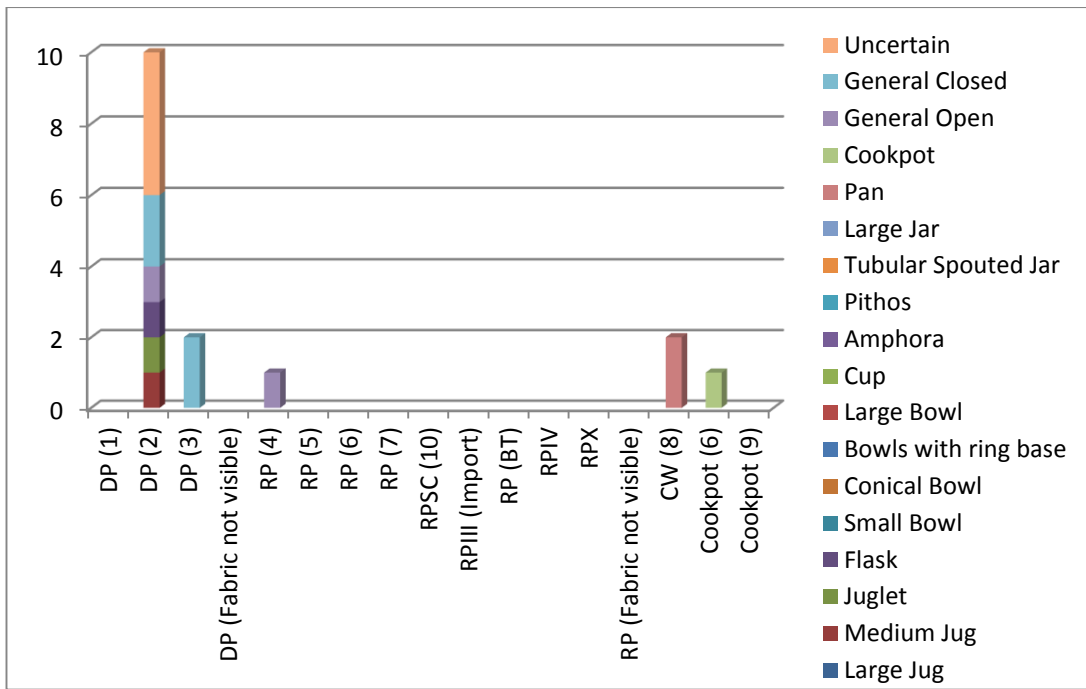


Figure 4.206: Tomb 7, distribution of wares to shapes

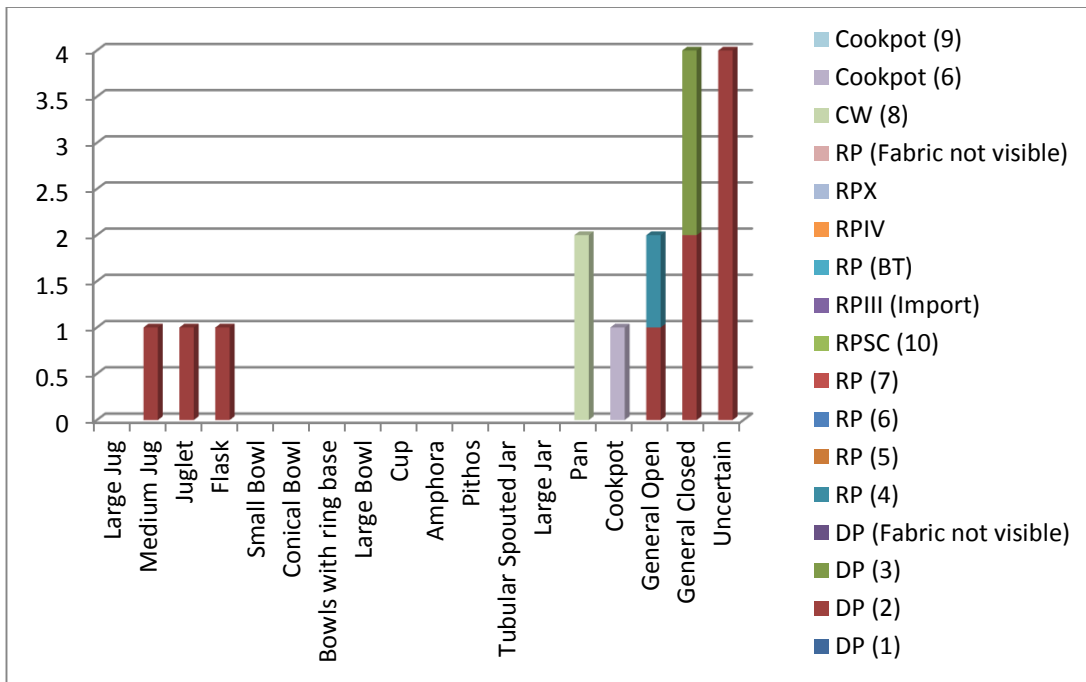


Figure 4.207: Tomb 7, distribution of shapes to wares

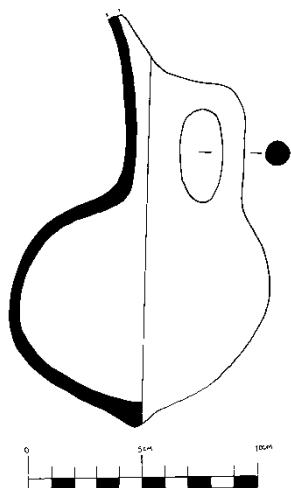


Figure 4.208: Jug 7.1

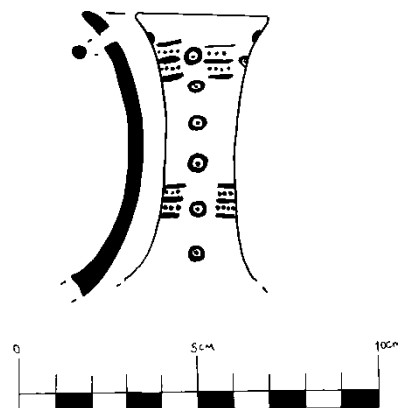


Figure 4.209: Spout 7.8

With such a small assemblage, very little useful data can be extrapolated, beyond the suggestion that the ceramics are typical of the rest of the cemetery and there are no clear chronological markers beyond a general EC-MC date.

Tomb 8 (ECIII-MCI)

Tomb 8 was found to the north of Tomb 10 and is an ellipsoid shape measuring 2.2m by 1.6m at its widest (Figure 4.210). The top part of the tomb had been destroyed, but the floor was found 40cm below topsoil. Several vessels and human bones were disturbed and scattered on the tomb floor.

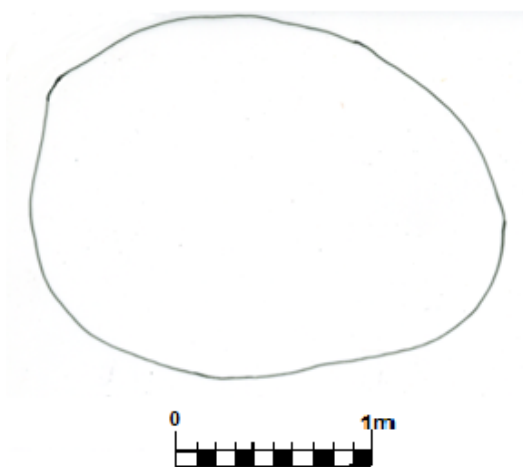


Figure 4.210: Tomb 8, floor sketch (E. Raptou)

Tomb 8 has 13 complete or near complete vessels and 37 diagnostic sherds accounting for a minimum of 40 vessels. DP accounts for 27 of these (68%). RP is in the minority with only four examples (or 10%), whilst cookware account for eight (20%) and one cutaway spout sherd of an unknown ware (8.45) accounting for the remaining 3%. Vessel shapes are dominated by open shapes; of which there are 22, as opposed to 15 closed and three of an uncertain shape.

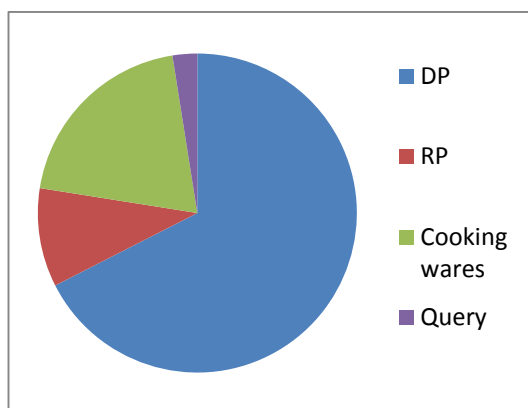


Figure 4.211: Tomb 8 general ware Distribution

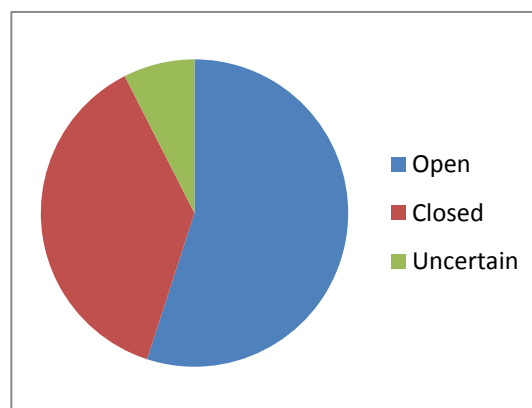


Figure 4.212: Tomb 8 general shape distribution

The open vessels are, as is usual, dominated by bowls or rim sherds from bowls, including six intact (or almost intact) examples. All occur in DP (one 1 example, the remainder in 2). There is also a large DP bowl (2) and two jars, one of which (8.4 – Figure 4.11) is a RP (5) two-handled type, but with a narrow, rounded base. The other (8.1 – Figure 4.121) is a DP (3) tubular spouted example, however, in this case the spout is extremely long. Closed vessels are represented by two large DP jugs (2 and 3), two small round spouted DP juglets and a RP (4) flask, as well as several base, rim and horned handle sherds that suggest more closed vessels of the amphora type.

Juglet 8.10 (Figure 4.215) is a rare occurrence of DP (2) with a black top (although, the black covers almost two-thirds of the vessel). Cook wares are also represented by the usual tripod cooking pan and cooking pot fragments as well as one almost complete cooking pot (8.14 – Figure 4.128), occurring in the more common Fabric 6

and of the one-handed variety. It also has a very small tripod base, which is unusual in this assemblage.

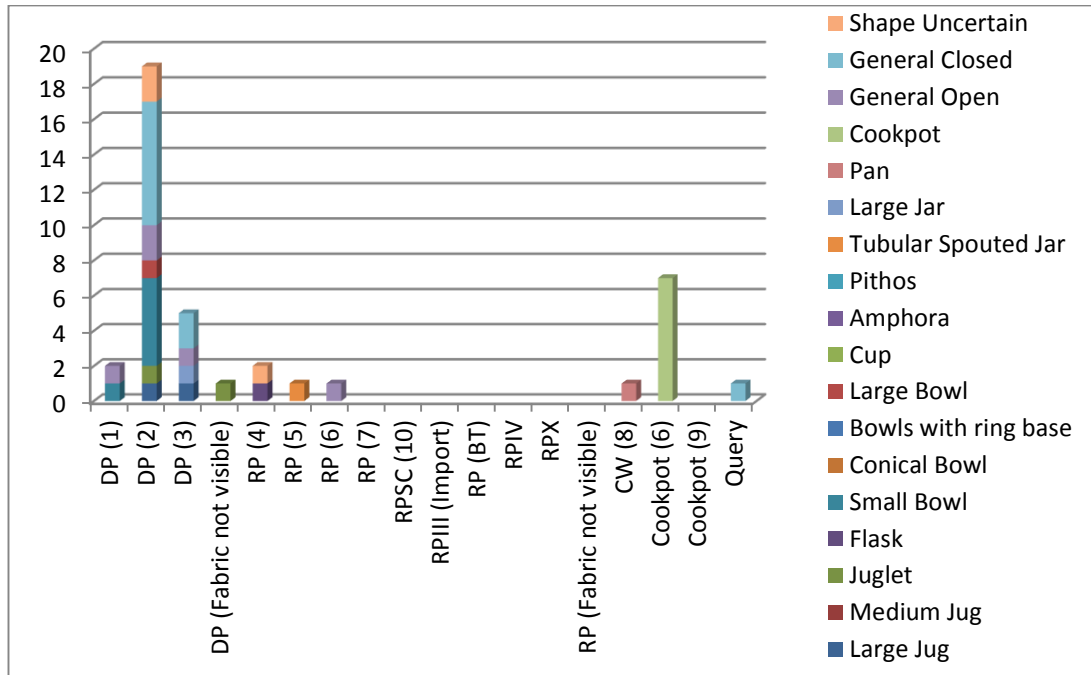


Figure 4.213: Tomb 8, distribution of wares to shapes

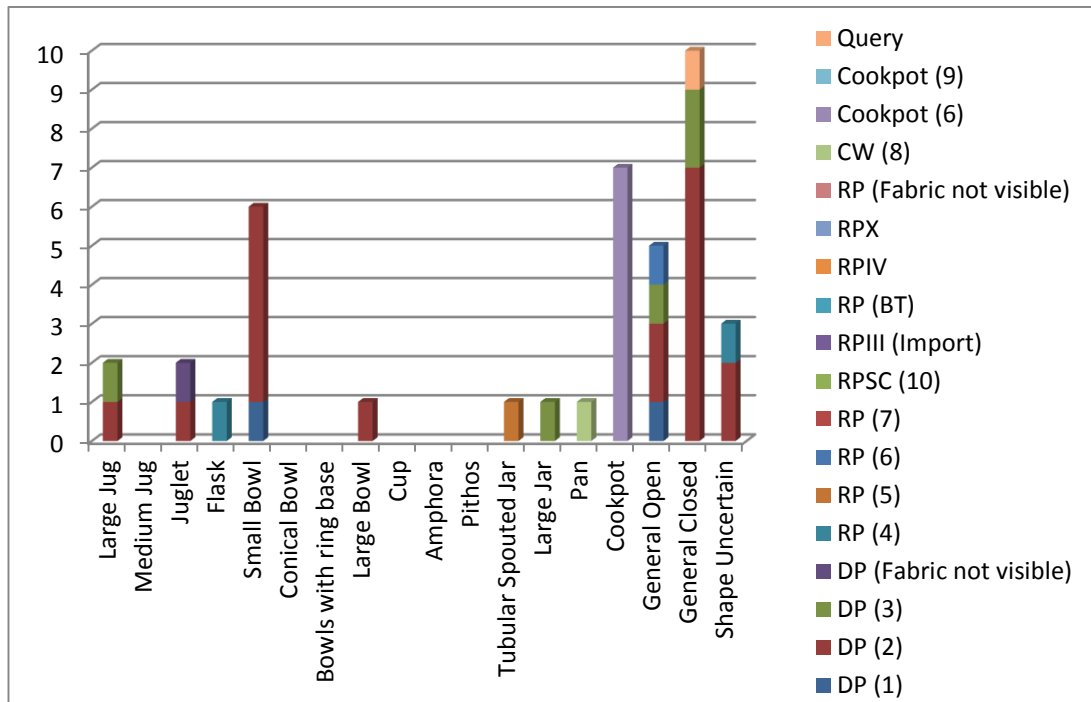


Figure 4.214: Tomb 8, distribution of shapes to wares

Decoration in Tomb 8 is very restricted indeed, with only one example. Juglet 8.9 (Figure 4.61) has a ring of impressed punctures around the neck/body join, otherwise, no decoration occurs. Two spindle whorls also occur in this tomb and, like the ceramic vessels, are undecorated.



Figure 4.215: Juglet 8.10

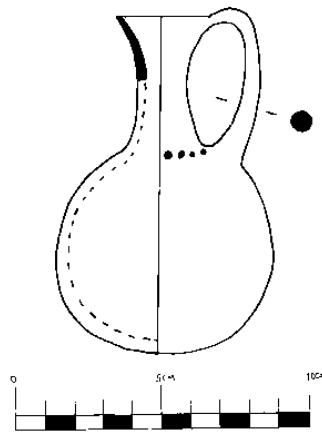


Figure 4.216: Juglet 8.9

Chronologically, the vessels all point to a slightly earlier date, with nothing that suggests a later date I have appointed a general EC date for this tomb.

Tomb 9 (ECIII-MCII)

Tomb 9 was discovered to the west of Tombs 1 and 2. It was almost entirely destroyed, with only an ellipsoid floor remaining, measuring 1.8m-1.2m at its widest and very disturbed human remains and vessels. No further recording of the tomb architecture remains.

This tomb contains 15 complete or near complete vessels and 42 vessel fragments or diagnostic sherds accounting for a minimum of 50 individual vessels. DP strongly dominates in this tomb with 43 examples accounting for an enormous 86%. 6 RP examples account for 12% and one cooking pot fragment accounts for the remaining 2%. There is a similarly strong bias in vessel shapes, where closed vessels account

for 40 and open for eight, half of which occur in RP (two are of a fragmentary nature with shape undetermined). This suggests a strong correspondence between vessel ware and shape with hard, fine DP wares being chosen for closed vessels.

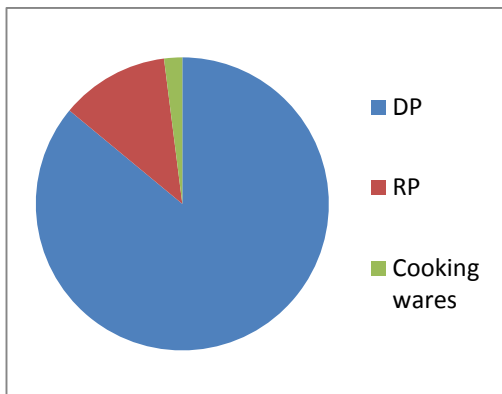


Figure 4.217: Tomb 9 general ware distribution

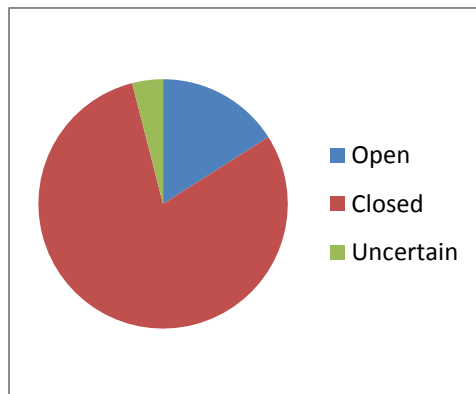


Figure 4.218: Tomb 9 general shape distribution

The vessel shapes are dominated by small incised round spouted juglets, of which there are at least nine (all DP; four are intact with the fabric not visible, the remaining five all occur in Fabric 2). There are also at least two cutaway spouted jugs with incised handles and two flasks, again all occurring in Fabric 2. Open vessels are almost entirely bowls including three small examples with a combination of vertical and horizontal loop handles, and one with incised and impressed west coast style decoration. The bowls are more evenly distributed between RP and DP. Other small sherds suggest that the tomb contained amphorae, at least one large jar, one cooking pot and more small fine closed vessels.

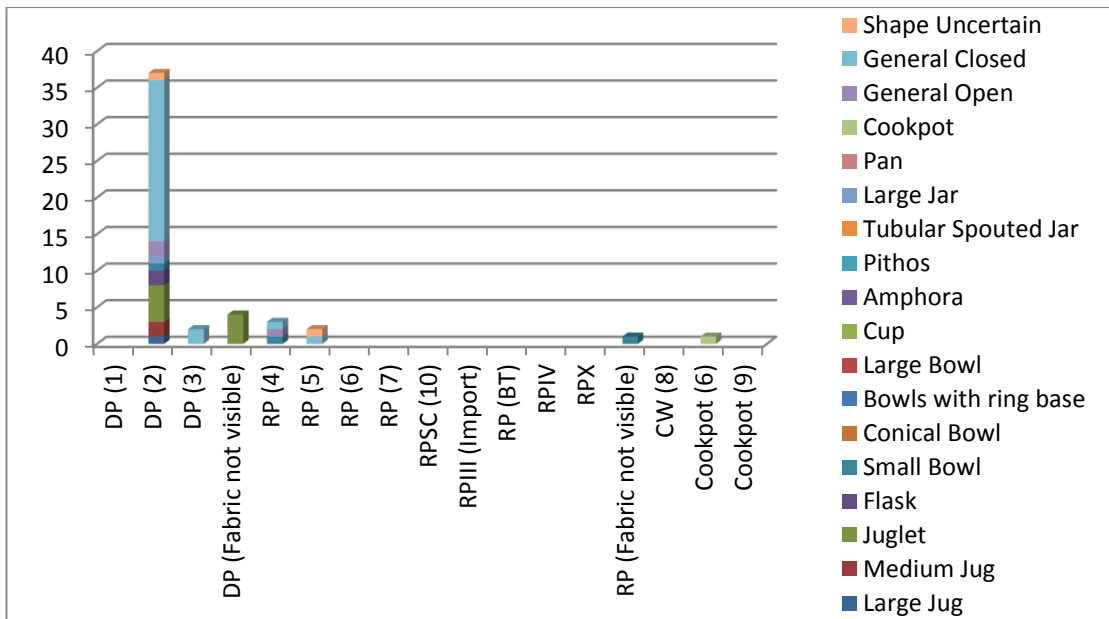


Figure 4.219: Tomb 9, distribution of wares to shapes

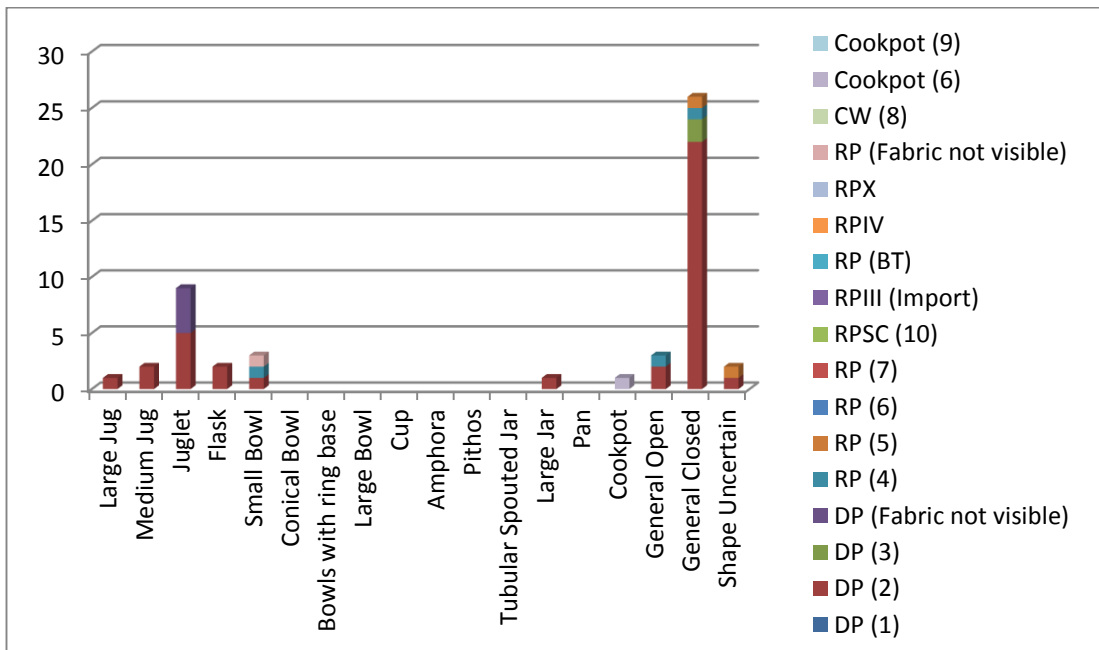


Figure 4.220: Tomb 9, distribution of shapes to wares

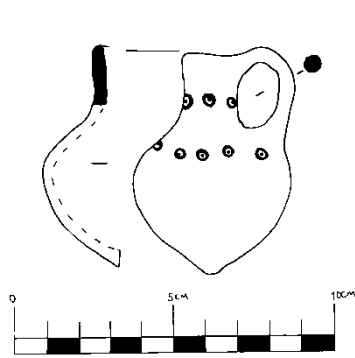


Figure 4.221: Juglet 9.3

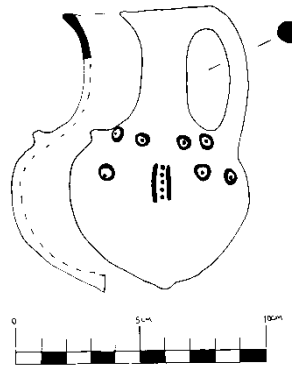


Figure 4.222: Juglet 9.6

Some form of decoration occurs on at least 18 vessels or sherds, the majority (12) being typical west coast target and incised line and dot decoration which occurs on every juglet and flask in this tomb. Juglets 9.3 (Figure 4.221) and 9.6 (Figure 4.222) and possible flask 9.57-58 also have this decoration, although the motifs and incisions are noticeably smaller and take up less of the vessel surface than in most of the vessels at *Ammoudhia*. This may be a chronological marker as vessels found in the more recent excavations to the north-west of this area also contain juglets with this more restrained decoration. The fact that this tomb lies on the north-western edge of this field may suggest burials in the western part of the plot are later in construction. Otherwise, decoration consists of neck punctures to jugs or incised handles.

A very rare composite vessel also occurs in Tomb 9 (9.14-16 - Figures 4.55, 4.131). This DP (2) vessel is in the form of a double spouted cutaway jug with two small bowls and small jug on a pedestal attached to the upper shoulder, similar to a DP example in the Morris Collection (Morris 1985: 107, Pl. 170). A spindle whorl and an oval shaped picrolite pendant were also discovered in this tomb.

The restricted nature of the wares in this tomb illustrated by the extremely high proportion of DP wares, coupled with closed vessels and decorated juglets suggests a MCI-II date, as although these are all general MC traits, there are no exceptionally late markers found in this tomb.

Tomb 10 (ECI-MCII)

Tomb 10 was discovered to the south of Tomb 8 and 20.5m east of Tomb 6 in what might constitute a separate cluster of tombs including tombs 8, 10, 18 and 19. It is an irregularly shaped chamber tomb measuring 1.8m by 1.8m at maximum (Figure 4.223). The floor was discovered 40cm below topsoil. A poorly preserved burial was evident in the north-east of the tomb.

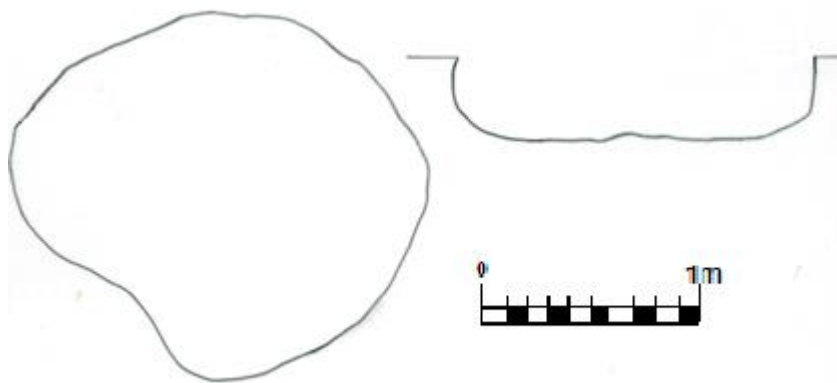


Figure 4.223: Tomb 10, floor and section sketch (E. Raptou)

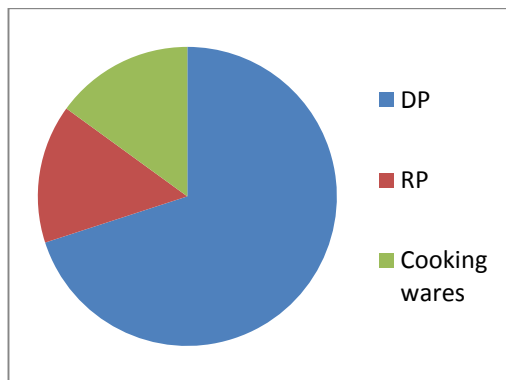


Figure 4.224: Tomb 10 general ware distribution

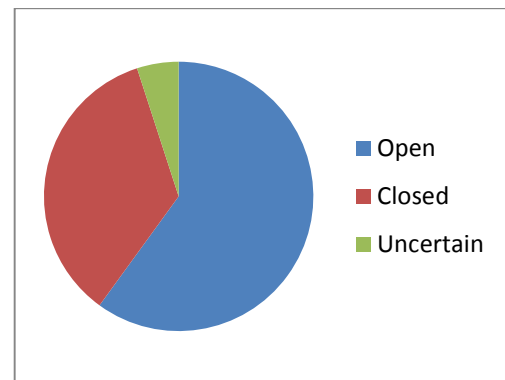


Figure 4.225: Tomb 10 general shape distribution

Although this tomb was not damaged to the extent of some others by bulldozers, by the standards of the other tombs, it is relatively poor in finds. It contained only 13 vessels and eight diagnostic sherds making at the most 20 vessels. 14 of these vessels occur in a form of DP accounting for 70%, there are also three RP vessels and three

cooking vessels, accounting for 15% each. In this case, open vessels dominate, with 12 open vessels, seven closed and one uncertain. The open vessels are predominantly bowls, with one large DP bridge-spouted bowl in Fabric 2 (10.7 – Figure 4.108) and six hemispherical bowls. All of these are in DP (2), with one RP (4) exception. Closed vessels are represented by two cutaway spouted jugs, two undecorated, round spouted juglets and a large round-spouted jug with a mid-neck handle (10.8 – Figure 4.21). Again, all of these occur in DP (2), with the exception of 10.8, a RP (5) example. Cook wares are also present in the form of sherds from at least two cooking pots and a cooking pan.

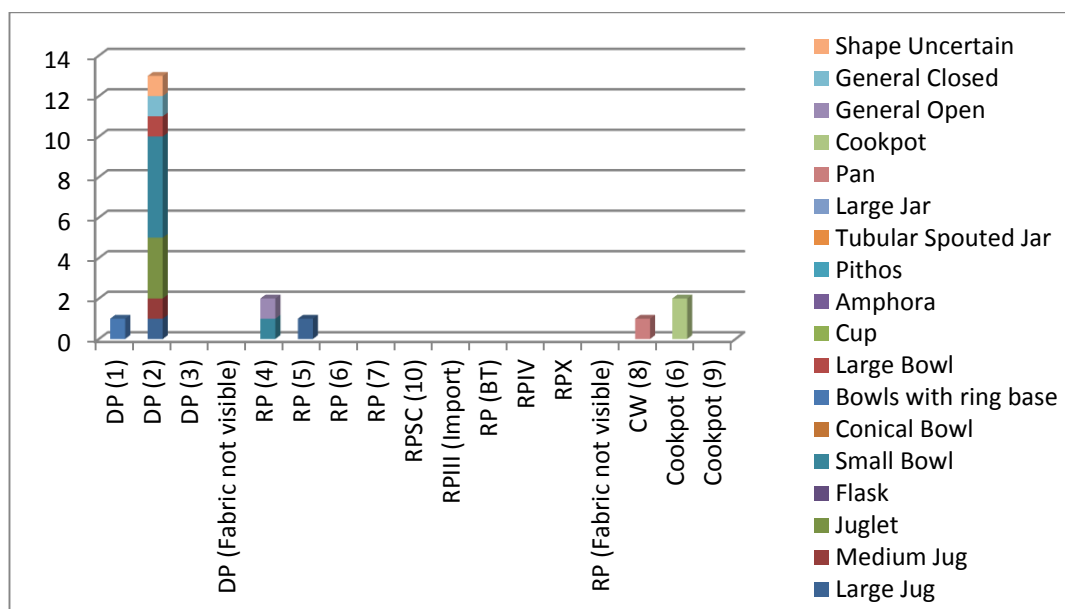


Figure 4.226: Tomb 10, distribution of wares to shapes

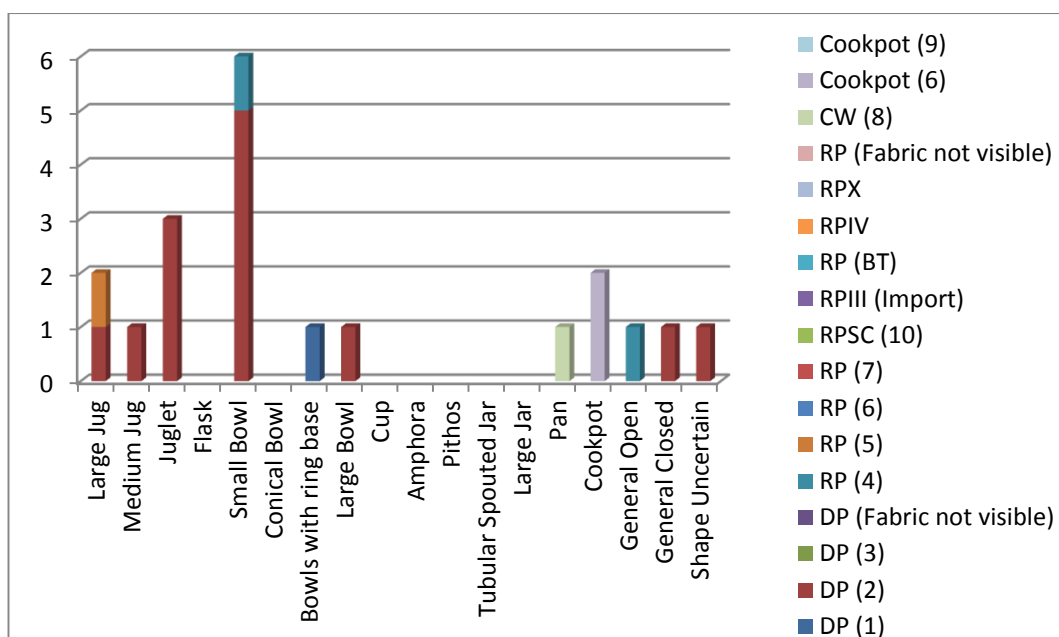


Figure 4.227: Tomb 10, distribution of shapes to wares

There are five examples of decoration occurring in Tomb 10. One highly unusual vessel occurs in this tomb has already been discussed, 10.4 (Figure 4.95) is a crudely made DP (1) bowl with a ring base and a vertical pinched triangular shaped handle. Decoration includes relief wavy lines to the body and a zoomorphic lug rising from the rim opposing the handle in the form of an unidentified quadruped. This vessel has no parallels in the archaeological record, although the ring base is much more suggestive of a MC date or later.

The small selection of ceramics makes this tomb difficult to date; hemispherical bowls with horn lugs and undecorated juglets suggest an EC date, however, the ring base on 10.4 is suggestive of a later date. However, the radiocarbon date of 2300-1970 Cal. BC (2σ) places the human remains firmly in the EC and possibly as early as ECI. This might signify tomb re-use, with the ring base constituting either a later addition or, perhaps a precocious EC element. Therefore it is difficult to classify, beyond a general EC-MCII date.

Tomb 11 (EC-MC)

Tomb 11 was discovered to the north of Tomb 6. It was almost completely destroyed during excavation and only an ellipsoid floor remained, measuring 1.6m by 1.4m at its widest. No further recording of the tomb architecture remains. No human remains were found and only one tray of sherds was recovered. This tray contained four diagnostic sherds and a stone spindle whorl made of stone. The sherdage from Tomb 11 accounts for two DP vessels. A small bowl in Fabric 1, made up of three rim sherds and a single neck and handle sherd from a juglet in Fabric 2.

Due to the destruction of this tomb there is little to nothing that can be said about the typology or chronology of this tomb, besides the fact that the very restricted finds are in keeping with the *Ammoudhia* assemblage as a whole.

Tomb 12 (EC-MCI)

Tomb 12 was discovered 5.4m west of Tomb 13 and was also totally destroyed by bulldozers. Only an ellipsoid floor remains, measuring a maximum of 1.5m by 1.3m (Figure 4.228).

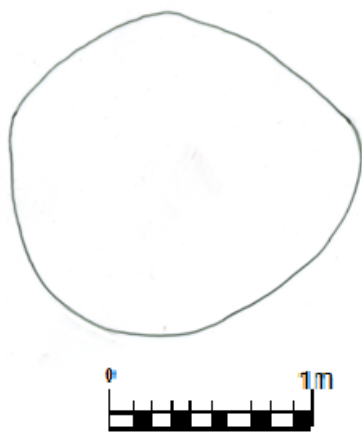


Figure 4.228: Tomb 12, floor sketch (E. Raptou)

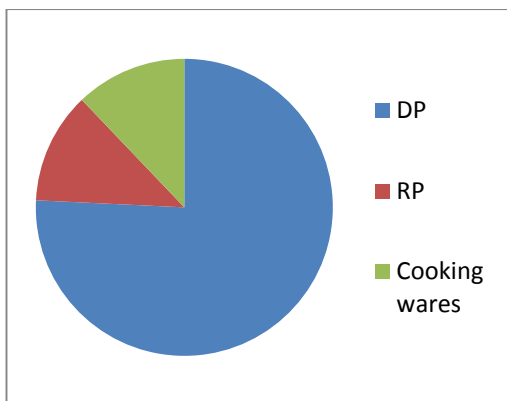


Figure 4.229: Tomb 12, general ware distribution

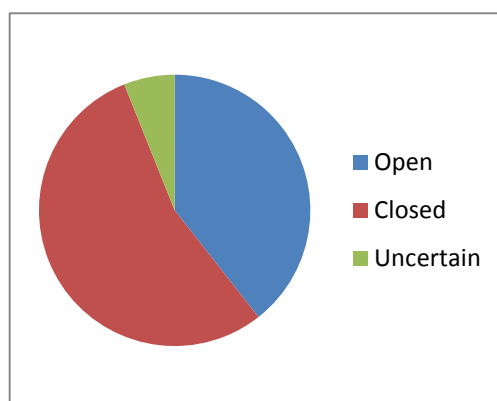


Figure 4.30: Tomb 12, general shape distribution

No intact vessels remained in this tomb, only 37 diagnostic sherds which constitute a minimum of 33 separate vessels. DP accounts for 25 vessels or 76%, RP and cookware each number four (or 12%). Closed shapes are popular in this tomb with 18, 13 open and two of uncertain shape. The closed shapes include two large jugs (Figures 4.233 and 4.234) and two amphorae (Figures 4.235 and 4.236). Whilst these all occur in DP (2), there is also one RPSC flask (12.9 – Figure 4.32); the remainder consist of diagnostic sherds. Cooking pot (9) and cooking pan sherds account for the small number of cookware.

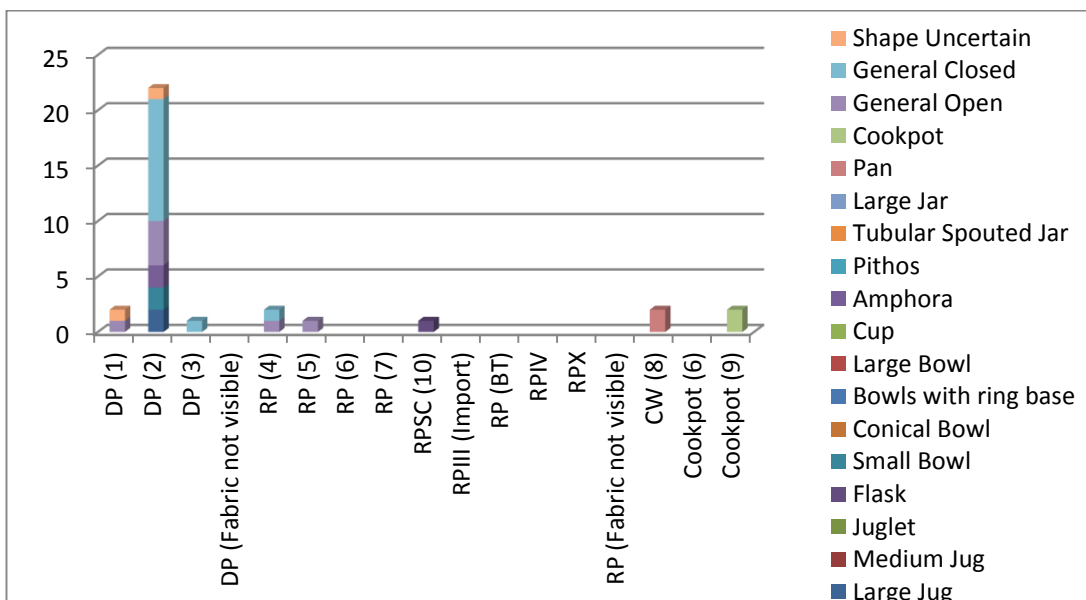


Figure 4.231: Tomb 12, distribution of wares to shapes

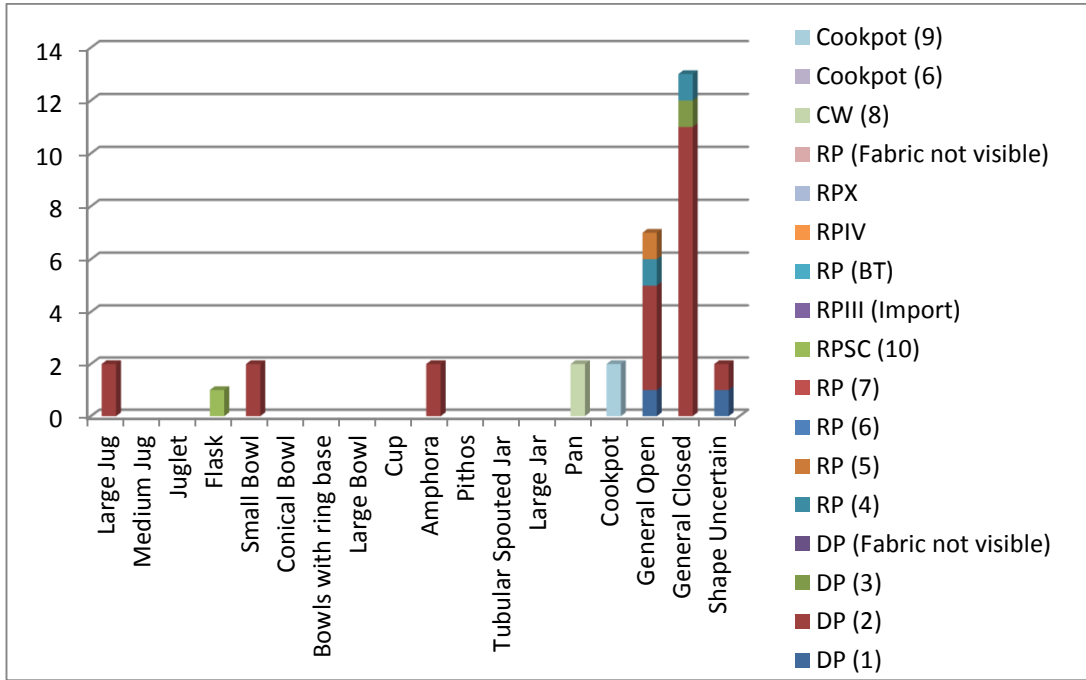


Figure 4.232: Tomb 12, distribution of shapes to wares

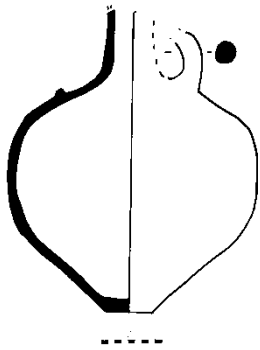


Figure 4.233: Jug 12.1

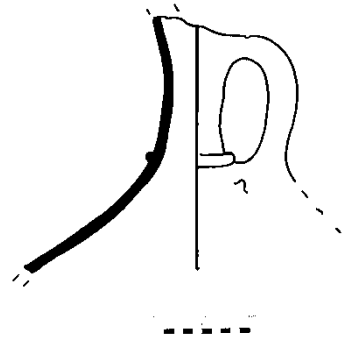


Figure 4.234: Jug 12.2

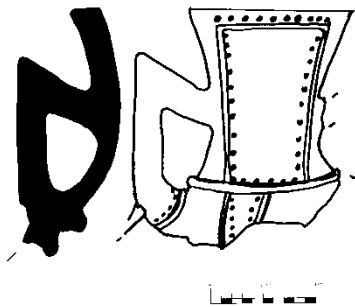


Figure 4.235: Amphora 12.4

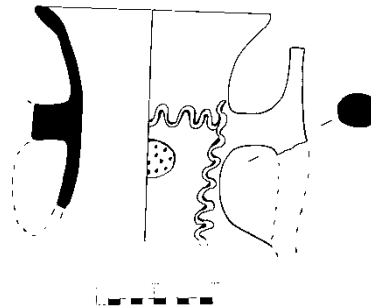


Figure 4.236: Amphora 12.7

11 vessels are decorated, with relief bands and cordons most common. Several body sherds from closed vessels also illustrate relief inverted Y shapes and button shapes often with surrounding impressed punctures. Incised west coast motifs occur on a body sherd (12.37); the RPSC flask spout (Figure 4.32) has decorative motifs that differ from the RPSC found in tombs 1, 4 and 6. This decoration consists of parallel zigzags and a 'strawberry' motif similar to some of the relief motifs found on other vessels in this tomb. Finally, there is a rare example of a DP (2) disc lug with incised and impressed decoration with some white filling remaining.

The RPSC neck and spout as well as the disc lug, suggest an early date for this tomb. This is backed up by the large percentage of small bowls and lack of medium sized jugs and decorated juglets. The remainder of the vessels appear to be large storage vessels, however the remains are too fragmentary to make comprehensive conclusions. Therefore, a general EC-MCI is more likely for this tomb.

Tomb 13 (ECIII–MCIII)

Tomb 13 was discovered 13.5m north of Tomb 6 and 5.4m east of Tomb 12. It is 60cm below topsoil (Figure 4.237). On the floor to the east is an ellipsoid pit, 1m by 0.6m by 0.2m containing some small, intact juglets, and to the north-west side is a slightly raised shelf with traces of a human skeleton. This is one of the richest tombs, containing a metal earring in fragments, a number of very small beads, a whetstone, two ceramic spindle whorls and several ovoid shaped pebbles.

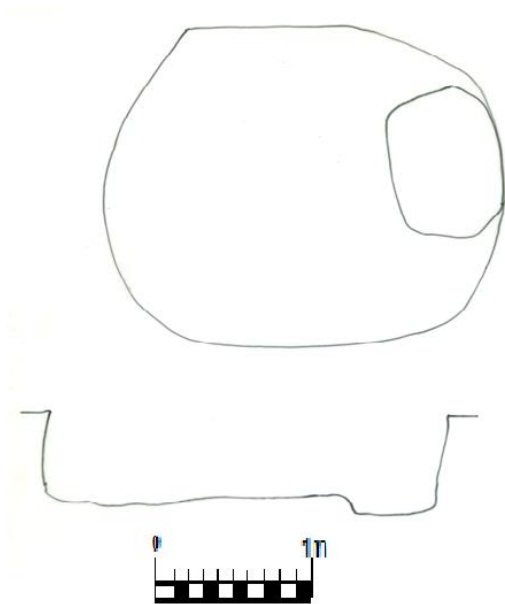


Figure 4.237: Tomb 13, floor (including pit to the right) and section sketch (E.Raptou)

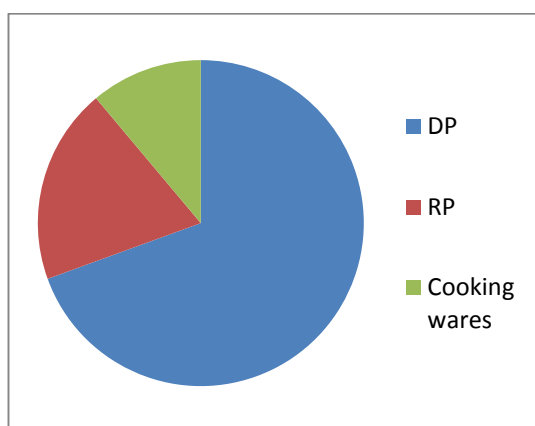


Figure 4.238: Tomb 13, general ware distribution

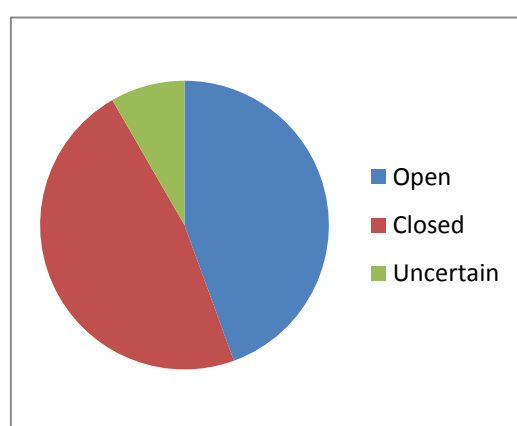


Figure 4.239: Tomb 13, general shape distribution

There are 16 complete or almost complete vessels and 34 diagnostic sherds making up a minimum of 36 individual vessels. DP accounts for 25 vessels (or 69%), while there are seven RP (19%) and four cookware making up 11%. These are split evenly, with 16 open, 17 closed and three of uncertain shape.

Open vessels are, as usual, made of fragments of small bowls. These include three DP examples with horizontal handles (two in Fabric Type 1, the other in Type 2), two examples of the elongated lug with vertical handle below, as discussed above

and at least two of indiscriminate type. Closed vessels are dominated by the small intact decorated vessels found in the aforementioned small pit, including three DP (2) juglets and three DP (2) flasks with cotton reel lugs, all carrying the west coast target and line/dot motifs. The DP (2) amphora 13.11 (Figure 4.11) is of a similar shape and decoration to the flasks, although larger and with two opposing horned handles. There are also two cutaway spouted jugs of medium size and various rim and base fragments from similar jugs and amphorae. Two rim fragments point to the presence of two separate RPSC flasks or jugs. Cookware is represented by a one-handled cooking pot in Fabric 9, a Fabric 6 rim sherd and CW (8) sherds, representing two separate cooking pans.

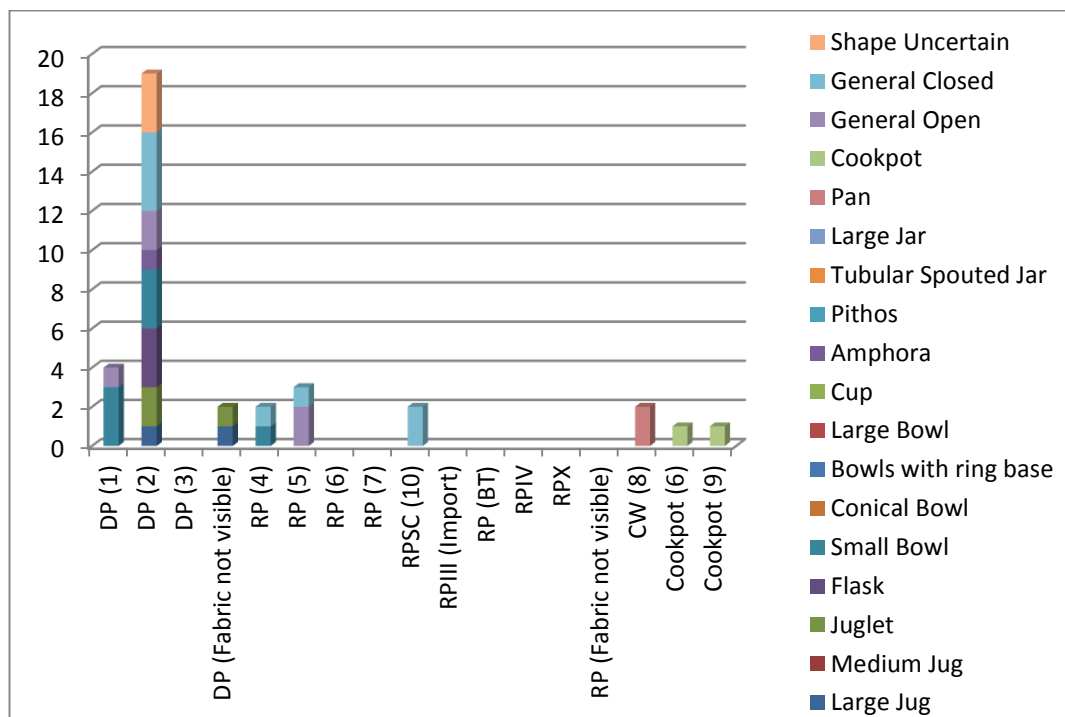


Figure 4.240: Tomb 13, distribution of wares to shapes

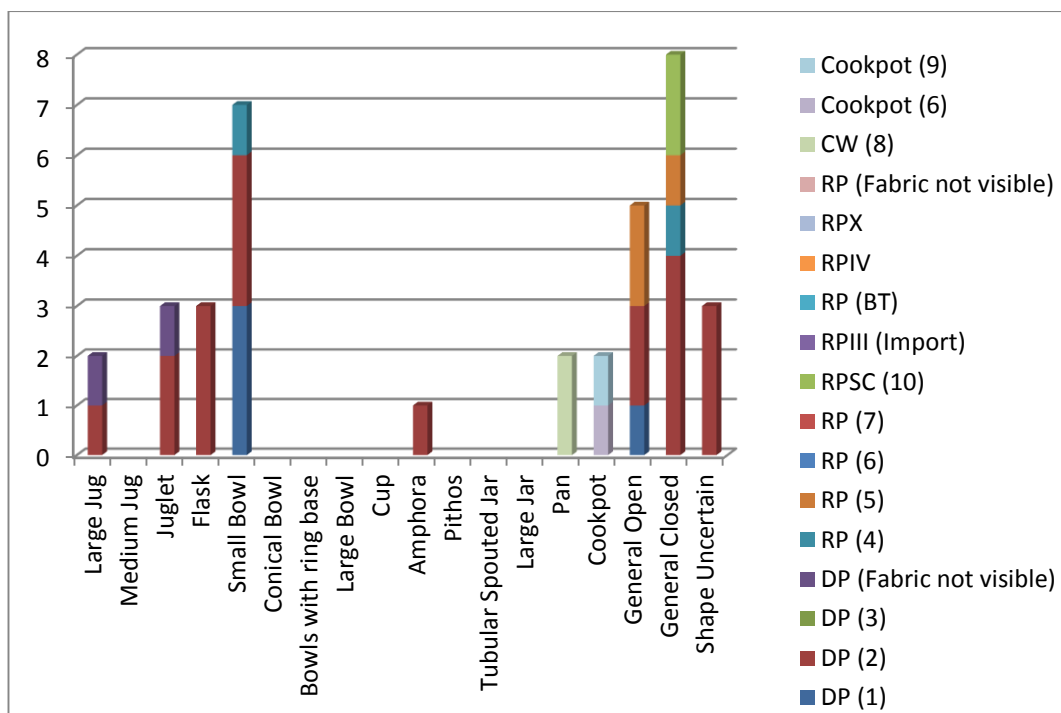


Figure 4.241: Tomb 13, distribution of shapes to wares

This is the only tomb where over half the vessels are decorated; all of the small juglets, flasks and the amphora carry west coast motifs and the two cutaway jugs have incised handles. Other decoration includes parallel wavy lines and zigzags to RPSC sherds, similar to Tomb 12, and a high number of incised handles and lugs. 13.53 (Figure 4.238) has been classified as a ‘cotton-reel’ style lug; however, it is slightly wider in diameter than the usual style of this lug and is the only example to carry decoration (impressed). This lug may represent a hybrid between the earlier disc lugs and the later cotton reel as discussed above.

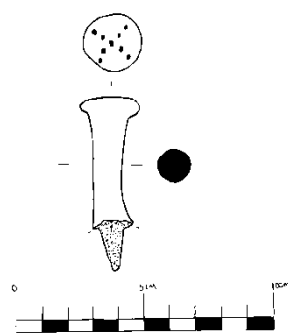


Figure 4.242: Lug 13.53

This is a confusing tomb containing both early and late markers. Two RPSC vessels and the high number of small bowls and cookware, suggests an earlier date.

However the remainder of the ceramics are firmly in the late, MC category with three flasks with cotton reel lugs, at least one, probably two of the later handle type with an elongated lug and handle below this and several small incised juglets. With the exception of the RPSC this tomb dates firmly to ECIII-MCIII, this could suggest that the RPSC vessels may be heirlooms or evidence of tomb reuse.

Tomb 14 (EC-MC)

Tomb 14 was completely destroyed by bulldozers, it was discovered far to the north of the main cemetery area and there were no descriptions given. One tray of sherds was removed, containing fragments of four vessels which were subsequently reconstructed. These include a plain, crudely made RP (4) juglet and fragments of a larger DP (2) jug, a wide mouthed cooking pot in Fabric 6 and a CW (8) cooking pan. A plain stone spindle whorl and a whetstone were also found in the vicinity of this tomb.

Like Tomb 11, these few vessels conform to the general *Ammoudhia* assemblage.

Tomb 15 (ECIII–MCIII)

Tomb 15 was discovered to the west of the main excavation area. It is a chamber with an almost circular floor measuring 2m by 2m. The tomb contained mostly small vessels, several of which were found in a small pit in the western part of the tomb. This pit measured 0.6m by 0.3m by 0.15m, similar to Tomb 13, and also contained a comingled skeleton. A small discrete blackened area in the centre of the tomb floor indicates some burning took place, but no further recording of the tomb architecture remains. In the south part of the tomb broken parts of a small metal

earring were also discovered. Other grave goods include several ovoid shaped pebbles, again, similar to Tomb 13.

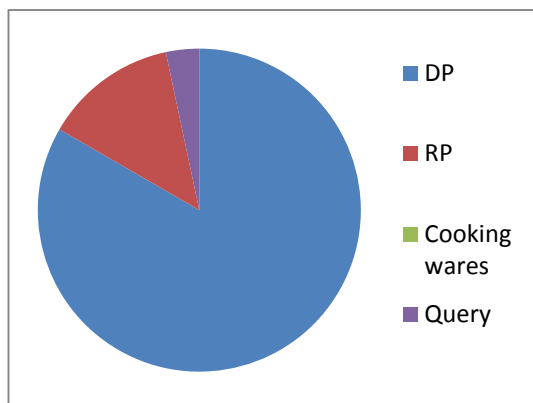


Figure 4.243: Tomb 15, general ware distribution

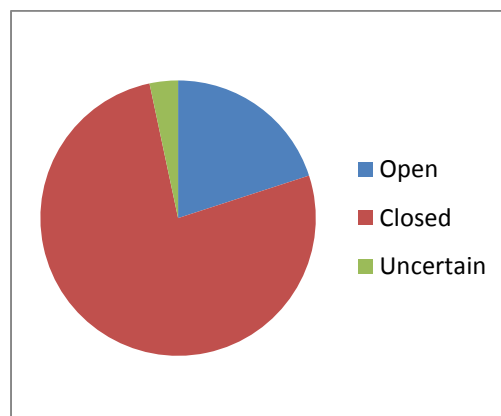


Figure 4.244: Tomb 15, general shape distribution

Tomb 15 contained 21 vessels and 9 diagnostic sherds, accounting for 30 individual vessels. DP accounts for 25, or 83%, whilst RP accounts for only four (13%) and one unidentifiable sherd makes up the remaining 3%. There are no examples of coarse or cookware in this tomb. The types of DP and RP found in this tomb are further restricted, with DP only occurring in Fabric Type 2 and RP in Type 4.

Shapes are dominated by closed vessels, with 23, compared to only six open shapes and one indeterminate. Closed shapes all occur in DP (2) and consist of a large number of small, round-spouted juglets. Nine of these are intact and six are decorated with typical west coast motifs (Figure 4.247 shows a typical example). Of the undecorated, vessel 15.9 (Figure 4.74) stands out as it is of an unusual shape, having a mid-neck handle instead of one to the rim, which is the norm in such small vessels. As well as being undecorated, the slip on this juglet is a very dark grey matte. Similar juglets are also found in Tomb 16 and 19.

As well as small juglets there are also two similar style flasks, both with the same west coast decoration and 'cotton-reel' lugs (Figures 4.249 & 250). The remaining closed vessels consist of seven cutaway spouted jugs and one large jug with a mid-

neck handle. All of the vessels in Tomb 15 represent pouring and drinking vessels, there are no larger storage vessels such as amphorae, jars or pithoi .

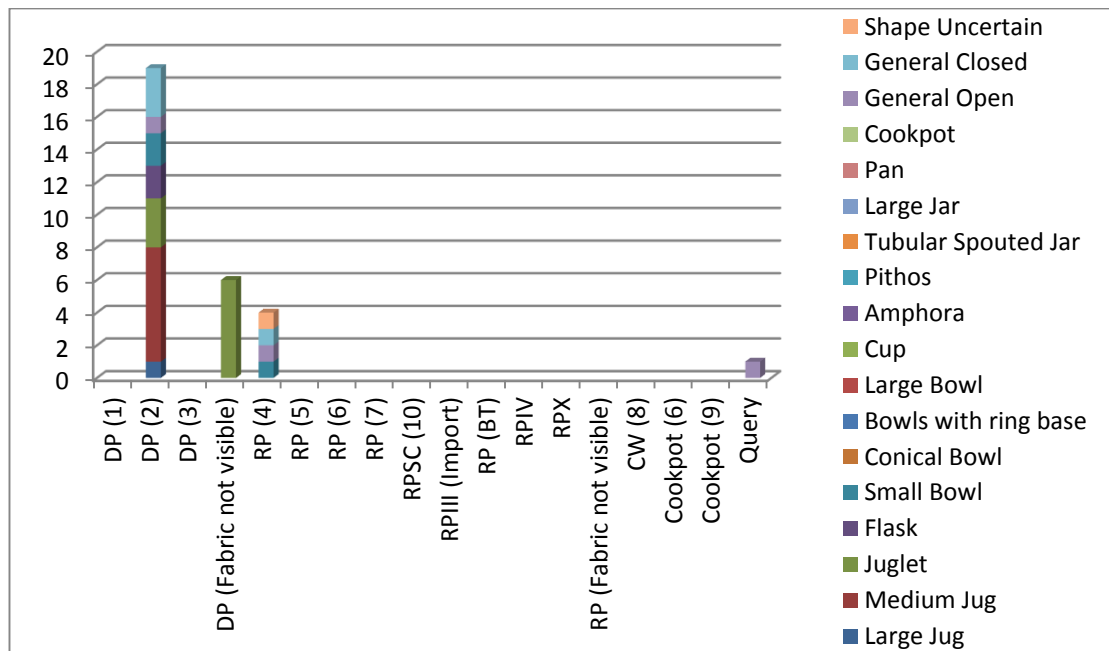


Figure 4.245: Tomb 15, distribution of wares to shapes

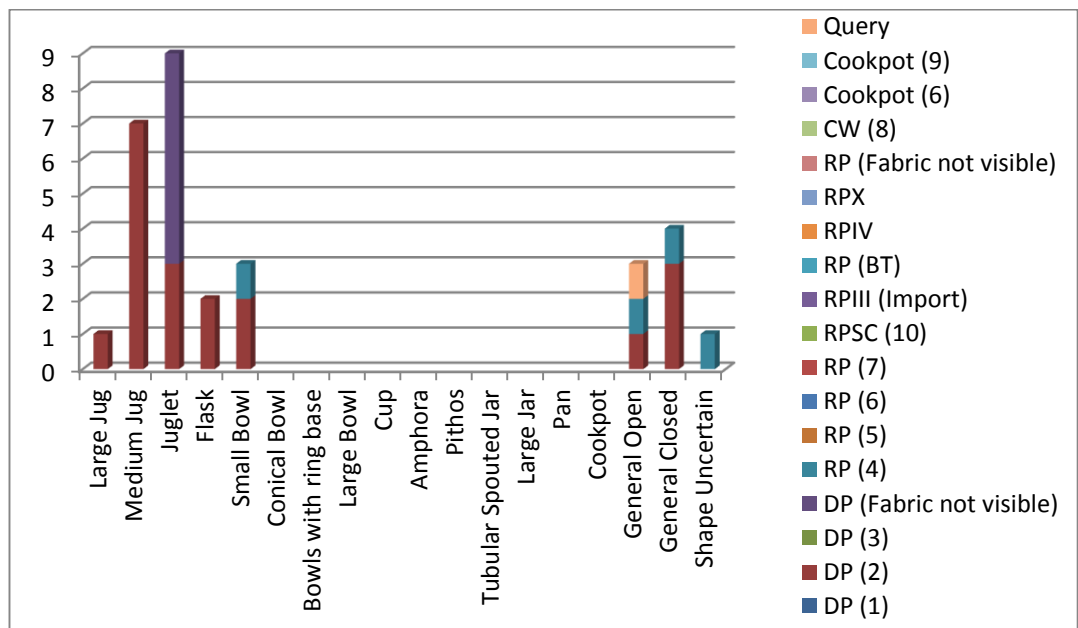


Figure 4.246: Tomb 15, distribution of shapes to wares

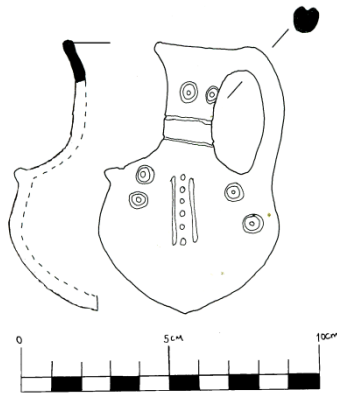


Figure 4.247: Juglet 15.4

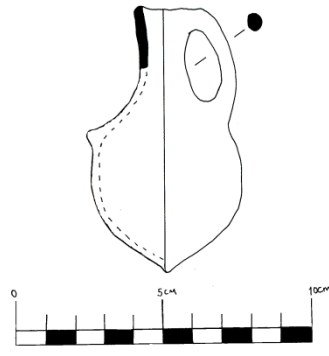


Figure 4.248: Juglet 15.5

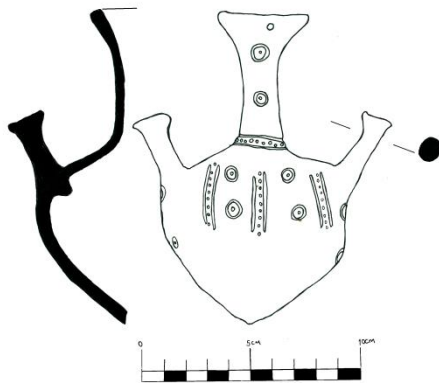


Figure 4.249: Flask 15.1

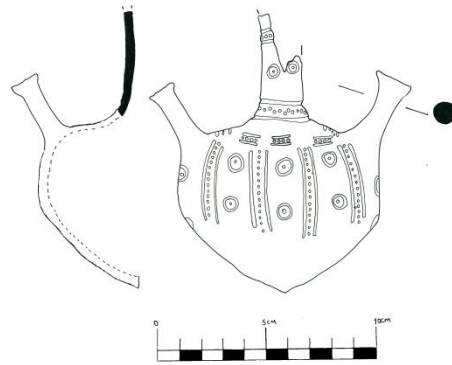


Figure 4.250: Flask 15.10

The open vessels are all in the shape of small bowls (again mostly Fabric 2), with a variety of rim fragments and two almost intact examples, both with loop handles (15.14 and 15.16). The diagnostic sherds include a vertical loop handle and a bowl rim sherd decorated with the traditional west coast target and incised line motif. Altogether, 11 of the vessels from Tomb 15 are decorated, all incised with the west coast target and line/dot motif (although 15.8 is slightly different; the target motif is an impressed circle with two central *dashes* instead of one central dot – see Figure 4.73).

This tomb is dominated by DP (2) which (like Tomb 9), accounts for more than 80% of the assemblage. In both cases this is coupled with a very high ratio of closed vessels and very few cases of cookware (none at all in this case). Although this tomb contains no early or particularly late markers, the ceramics are dominated by small

incised round spouted juglets and medium cutaway spouted jugs in very restricted fabrics. Two cotton-reel flasks also occur and the DP ware is particularly thin-walled and well made. Therefore, this tomb can be dated to the ECIII-MCIII period

Tomb 16 (ECI-MCIII)

Tomb 16 is part of a cluster of three tombs (15, 16 and 17) found to the west of the main excavation area. It was discovered to the south of Tomb 15 and has an ellipsoid shaped floor, measuring at its widest 2.4m by 2m. In the western half of the tomb a badly preserved skeleton was found inside a small shallow pit measuring 1.1m by 0.6m by 0.4m. Inside this pit were two disc beads and in the immediate vicinity were two zoomorphic bowls (16.21 and 16.30 – see Figure 4.101) and a metal object (16.130 – Figure 4.143). In the northern quadrant is another small pit measuring 0.7m by 0.5m by 0.5m, which also contained some comingled human bones, two small juglets and some beads. No further recording of the tomb architecture remains.

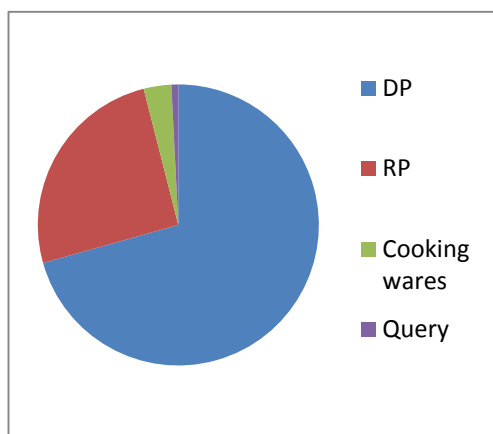


Figure 4.255: Tomb 16, general ware Distribution

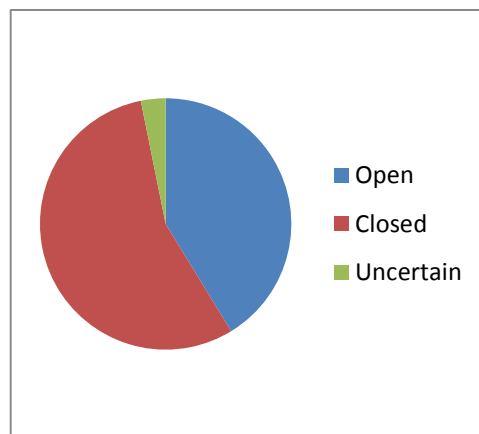


Figure 4.256: Tomb 16, general shape distribution

Tomb 16 has a rich ceramic assemblage with several varieties of wares and shapes not otherwise present in the *Ammoudhia* assemblage, including the only two imported vessels. There are 37 complete or near complete vessels and a number of

fragments from large vessels and diagnostic sherds (89) accounting for a minimum of 126 individual vessels. 89 of these are DP (71%), with 32 RP (25%). There are four cooking vessels (3%) and one query sherd. All types of DP are present but DP (2) is dominant. In the case of the RP, the usual local wares are present. However, there are also two examples of what can definitely be termed RPIII. 16.38 (Figure 4.39) is a round spouted juglet with incised decoration that bears distinct similarities to those found in the Lapithos area (Herscher: personal communication) and 16.35 (Figure 4.37) is a RP Black Topped bowl, which also appears to be intrusive. Whilst not unknown in the *Ammoudhia* assemblage, black topped vessels here tend to be of closed shape and local wares. This bowl is altogether different both in manufacture and surface treatment to the usual *Ammoudhia* styles.

Tomb 16 also contains a wide variety of shapes. There are 70 closed vessels and 52 open (four are indeterminate); but within these criteria there exists a wide variety of shapes and decorations. Like Tomb 15, there are very few large shapes; indeed there are no examples of amphorae, pithoi or other large vessels, the majority of vessels in this tomb being small, fine and decorative.

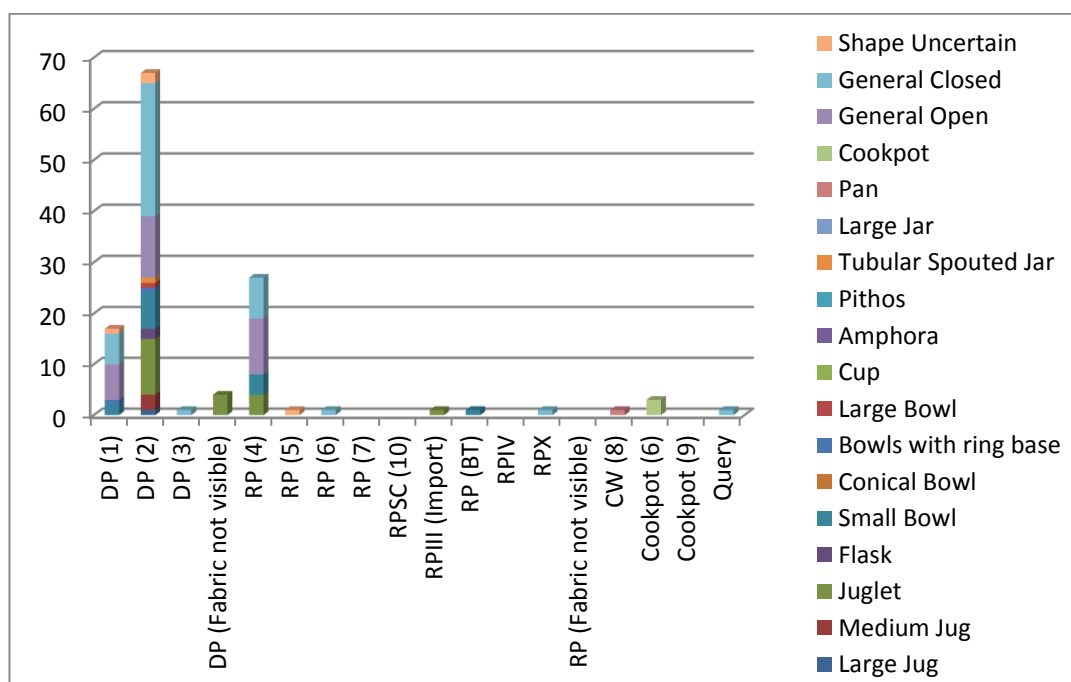


Figure 4.253: Tomb 16, distribution of wares to shapes

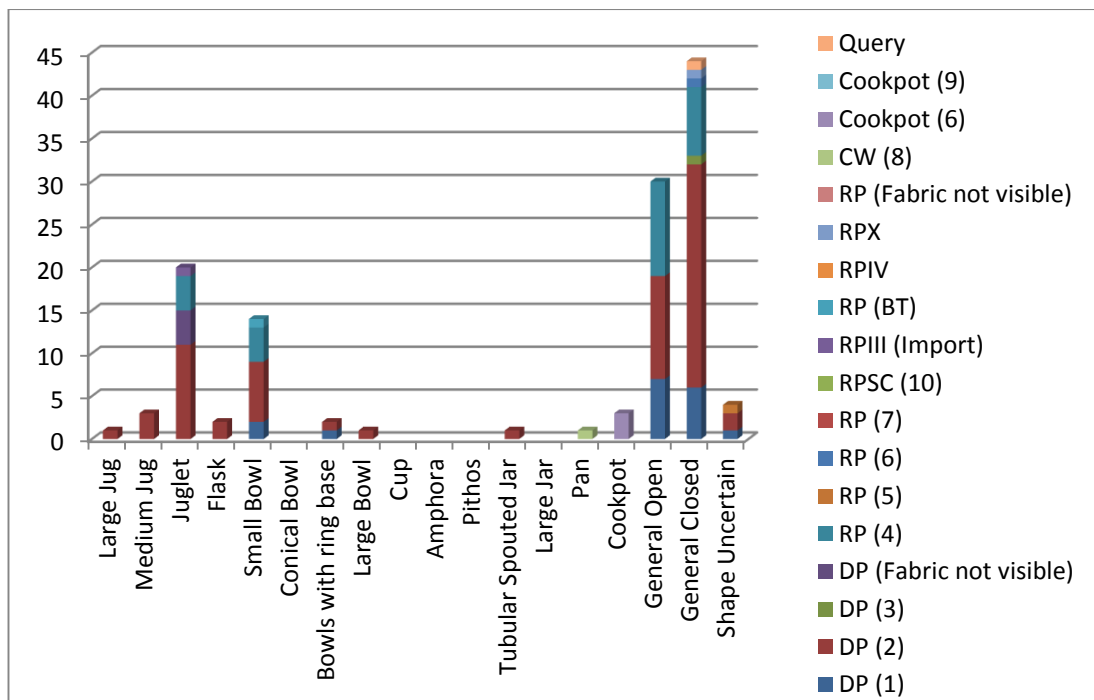


Figure 4.254: Tomb 16, distribution of shapes to wares

Closed shapes are represented by jugs, juglets and flasks. There are at least four almost complete jugs (and probably several more, given the nature of the diagnostic sherds), mostly medium sized with cutaway spouts. There are at least two flasks, both with incised and impressed west coast decoration and cotton-reel lugs (see Figure 4.78) and at least 20 juglets (the dominant shape). Of these juglets, 11 are of the usual decorated, round spouted type (Figure 4.255 is a typical example). Three are undecorated with mid-neck handles, similar to 15.9 (Figure 4.75). There are also six examples of small juglets with cutaway spouts; these are all undecorated (Figure 4.256 is a typical example). The remaining closed vessels consist of small diagnostic base and rim sherds, although 16.26 (Figure 4.132) is a very small RP cutaway spouted juglet in (4) with a pedestal. It is likely that this miniature vessel forms part of the plastic decoration on a composite vessel similar to the one in Tomb 9 (9.14), although the rest of the vessel has not survived. With four RP exceptions, the juglets all occur in DP (where visible the fabric is always Type 2).

Open vessels are mostly represented by small bowls, although again, there is a great deal of variety. Out of the 14 complete or almost complete bowls there are two DP ring bases (Figures 4.92 and 4.94) and three examples of the unusual elongated lug and vertical handle as described above. These occur in Types 1, 2 and 4 respectively, showing that this form is not restricted to one type. There are also variations on these elongated lugs, such as elongated incised lugs or 'fishtail lugs' but without the vertical handle below. One example of a DP (2) large bowl also exists, albeit in very fragmentary form.

Finally, there are four examples of cookware in this tomb including two unusual cooking pots, similar to each other (Figures 4.129 and 4.130), with globular bodies, rather high tripod bases and very high vertical handles (although both are fragmentary). These share no similarities to the other cooking pots in the *Ammoudhia* assemblage or any other contemporary published assemblage.

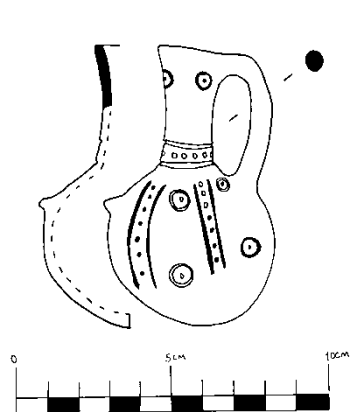


Figure 4.255: Juglet 16.45

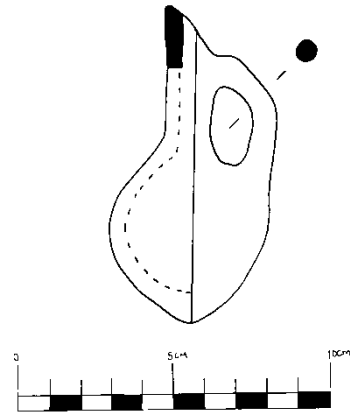


Figure 4.256: Juglet 16.44

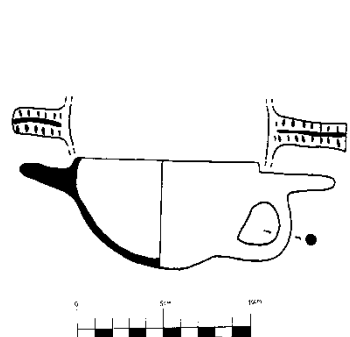


Figure 4.257: Bowl 16.1

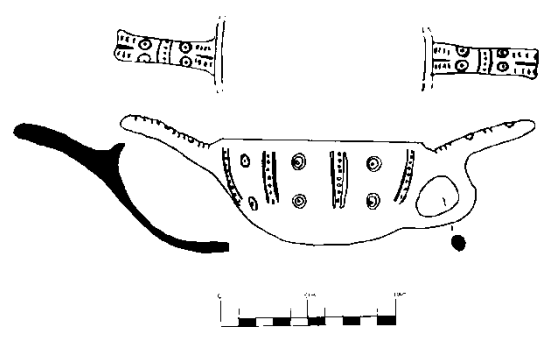


Figure 4.258: Bowl 16.18

38 vessels in Tomb 16 are decorated. This is restricted mainly to incised handles and west coast motifs on flasks and juglets. However, there are also some notable differences. I have already commented on the decoration on 16.38 (Figure 4.39) – a likely import from the north coast, there are also examples of what has been identified as a more south-west/south coast motif of dashes. Decoration is again, mostly restricted to closed vessels, although there are also two bowls with incised decoration to the body; 16.18 (Figure 4.258) and 16.24 (Figure 4.94). These bowls also have the lug/handle combination that has been identified as a later adaptation. 16.12 (Figure 4.92) is another identifiably late vessel with wavy relief lines and an incised elongated lug. Finally, there is a selection of zoomorphic motifs found in this tomb. As well as the two bowls with stag handles discussed above, there are one or two handles that are ambiguous but bear resemblances to animals, possibly goats (for example 16.129 is a convincing DP example in Fabric Type 1).

This tomb appears to be one of the latest of the assemblage. It contains no early markers, but ring bases and wish bone handles as well as the unusual type of lugged bowl suggest a MCII-III date. The imported vessels also suggest an ECIII or later date. However, the radiocarbon date of 2200-1890 Cal. BC (2 σ) is somewhat earlier than expected and places the human remains in an ECI-MCI context. The possible reasons for this will be discussed further in Chapter 5.

Tomb 17 (EC-MC)

Tomb 17 was almost completely destroyed by bulldozers. It was found to the west of the main excavation area, slightly south east of Tomb 16. Only the floor survived and it appears to be a large irregular shape, measuring 2.5m by 2.5m at its widest, with a small pit (dimensions not recorded) containing ceramic sherds. Human remains were severely disturbed. No further recording of the tomb architecture remains. Three trays of sherds were rescued from this tomb along with a fragment of a metal axe (17.14 – Figure 4.144).

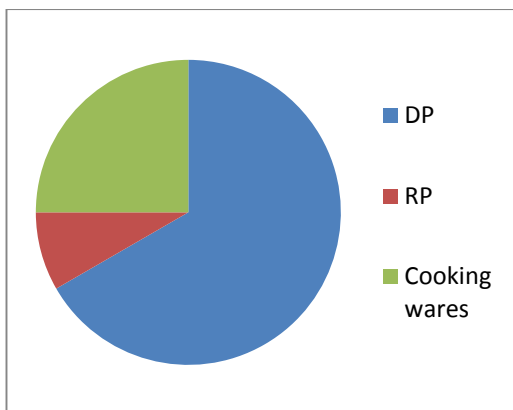


Figure 4.259: Tomb 17, general ware distribution

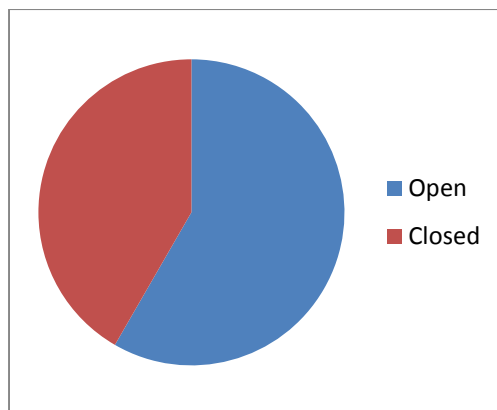


Figure 4.260: Tomb 17, general shape distribution

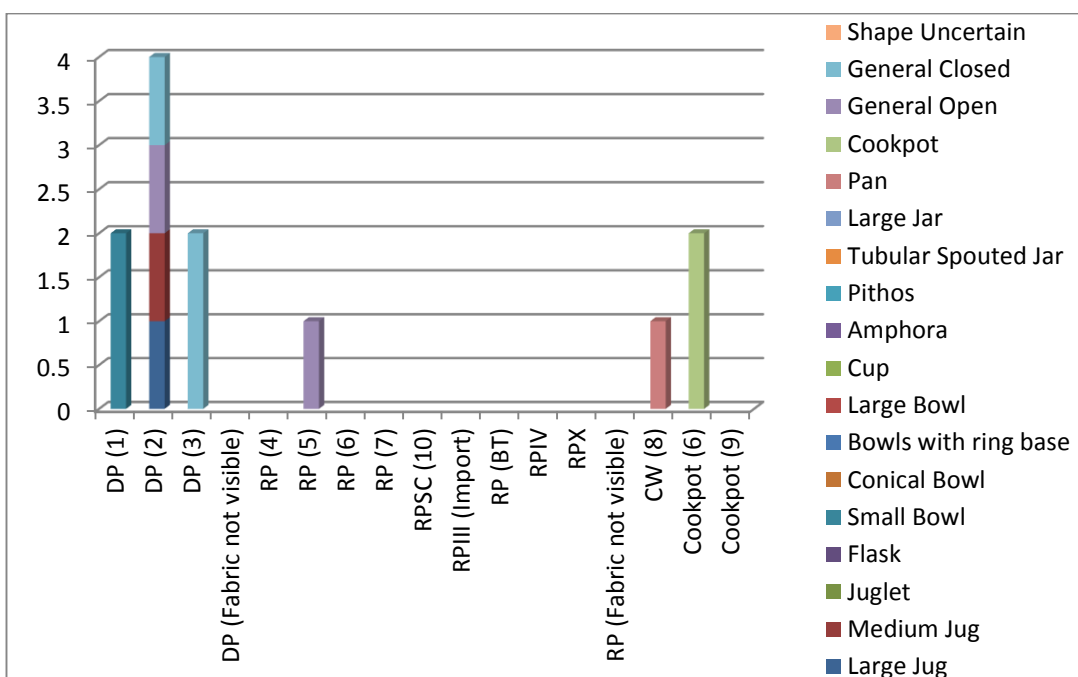


Figure 4.261: Tomb 17, distribution of wares to shapes

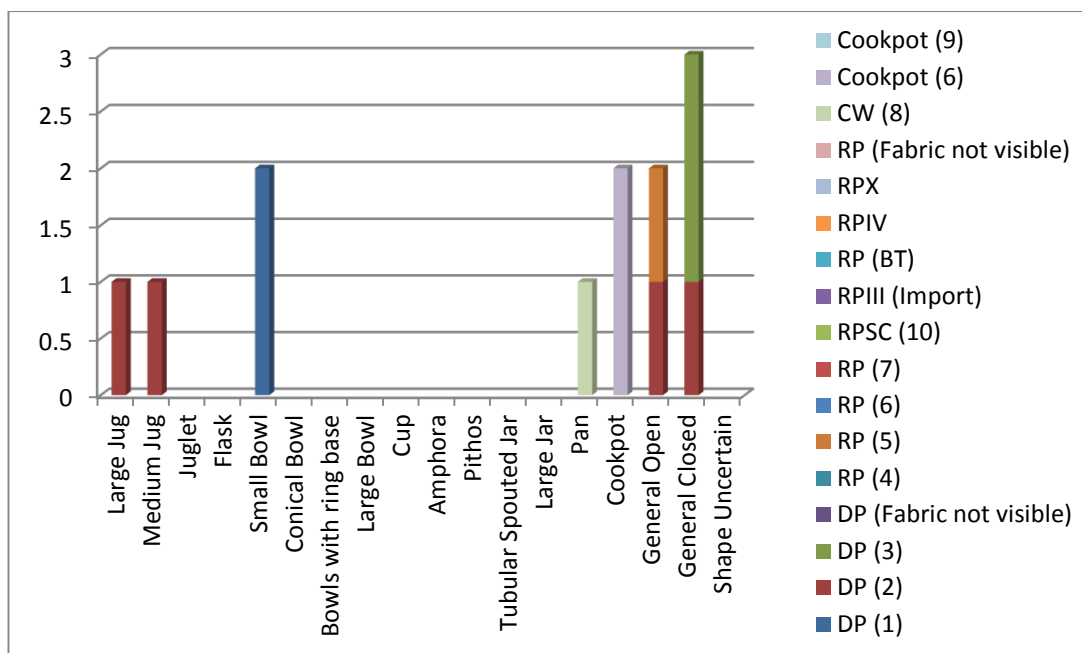


Figure 4.262: Tomb 17, distribution of shapes to wares

Only four vessels and nine sherds were recovered, accounting for 12 vessels in total. DP account for eight of these or 67%, only one RP (5) sherd was found accounting for 8%; the remaining 25% consists of a cooking pan and two cooking pots. Five closed vessels were found, including one intact plain cutaway spouted juglet (17.1 - Figure 4.263). The open vessels consist of a one-handled cooking pot with a small flat base (17.2 - Figure 4.264) and a bowl (17.4 - Figure 4.5) with a horizontal lug handle. Decoration is limited in this small and incomplete assemblage, with only the large jug spout 17.5, showing any kind of decoration with a relief band around the neck (Figure 4.265).

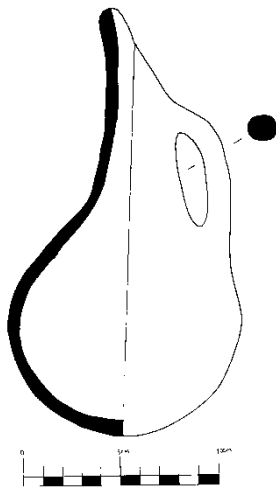


Fig. 4.263: 7.1

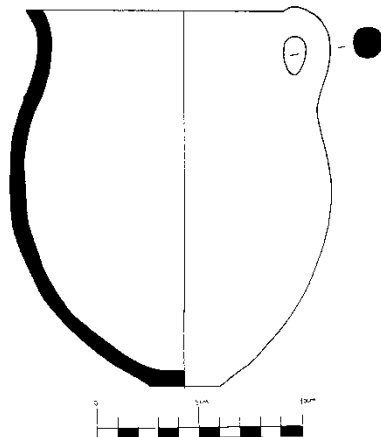


Fig. 4.264: 7.2



Fig. 4.265: 7.5

Like Tombs 7, 11 and 14, there is very little chronological information to be gleaned from Tomb 17; all that can be said is that it is perfectly in keeping with the general stylistic traits of the wider *Ammoudhia* assemblage.

Tomb 18 (ECI-MCI)

Tomb 18 was discovered far to the east of the main excavation area, north-east of Tomb 8. It has an ellipsoid floor measuring 2m by 1.5m at its widest, 53cm below topsoil, although no further recording of the tomb architecture remains. Only very fragmentary human remains were discovered. A metal knife and whetstone were discovered in this tomb, as well as a RP spindle whorl.

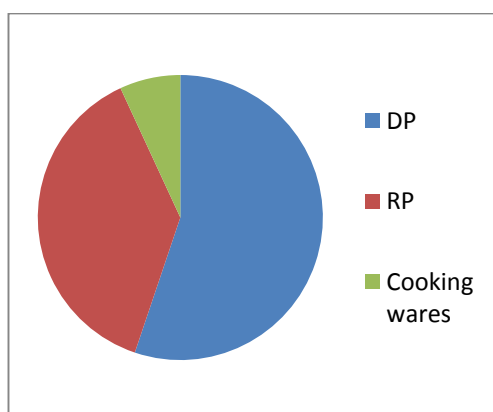


Figure 4.262: Tomb 18, general ware distribution

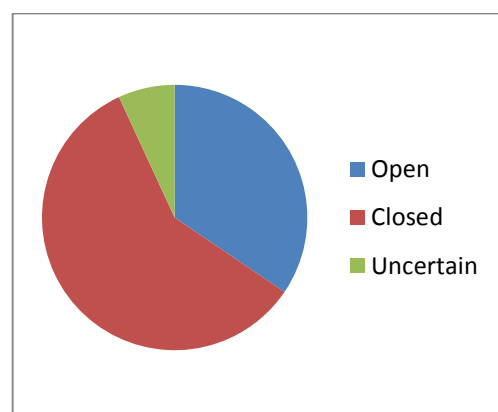


Figure 4.263: Tomb 18, general shape distribution

This tomb contained 15 vessels and 14 diagnostic sherds accounting for a minimum of 29 vessels. There are 16 DP vessels (55%), 11 RP (38%) and a cooking pot and pan (7%). There is a higher proportion of coarser wares in this tomb, both in RP and DP. General shapes are made up of 10 open, 17 closed and two of indeterminate shape. There is a relatively wide range of wares occurring in this tomb, similar to those observed in those tombs identified as EC in date. This tomb does not contain any small fine juglets or other fine vessels, rather, large jugs and coarser, more utilitarian vessels are the norm.

The open vessels consist of a RP (4) bowl with a horizontal lug handle (18.3 - Figure 4.270), a large two-handled DP (3) jar (18.17 - Figure 4.271) and several rim and body sherds, including a RPBT body sherd. The closed vessels are dominated by at least seven large jugs (six Type 2, and one Type 3). Four have cutaway spouts and three have round spouts and mid-neck handles. As well as these large jars, a DP (3) pithos is also present in this tomb (18.8 – Figure 4.272). There is also an example of RPSC in the form of a flask (18.11 – Figure 4.34) with an unusual basket handle and zigzag decoration similar to that found in tombs 12 and 13. An unusual DP (2) amphora with T-bar handles (18.4 – Figure 4.273), a wide-mouthed RP (4) jug (18.10) and a few bases from more large vessels also occur. Finally, a CW pan and a two-handled cooking pot with a flat base (Figure 4.126) make up the small number of cooking vessels found in this tomb.

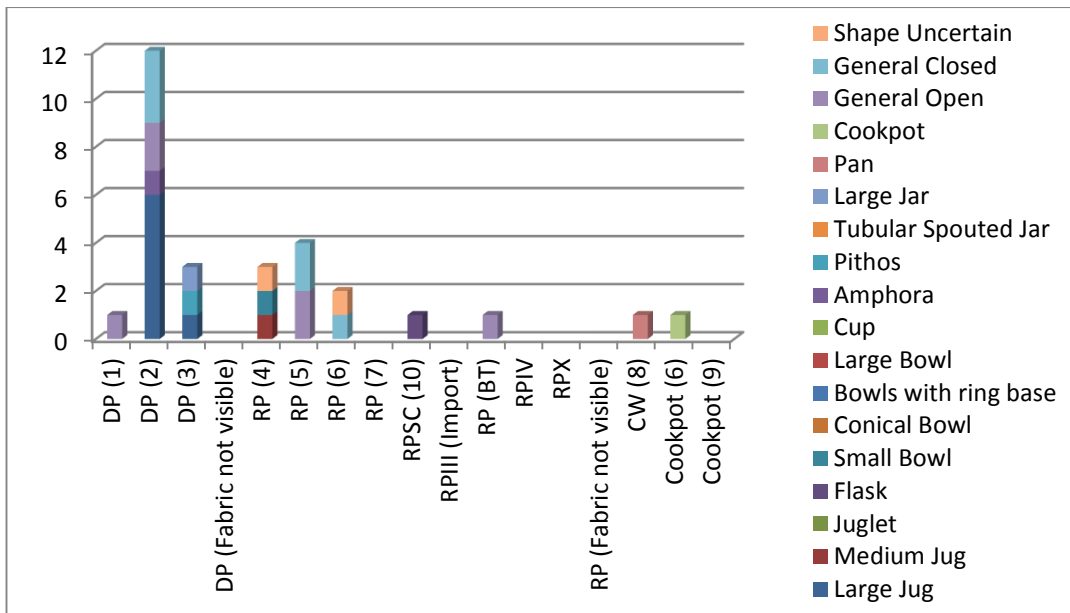


Figure 4.268: Tomb 18, distribution of wares to shapes

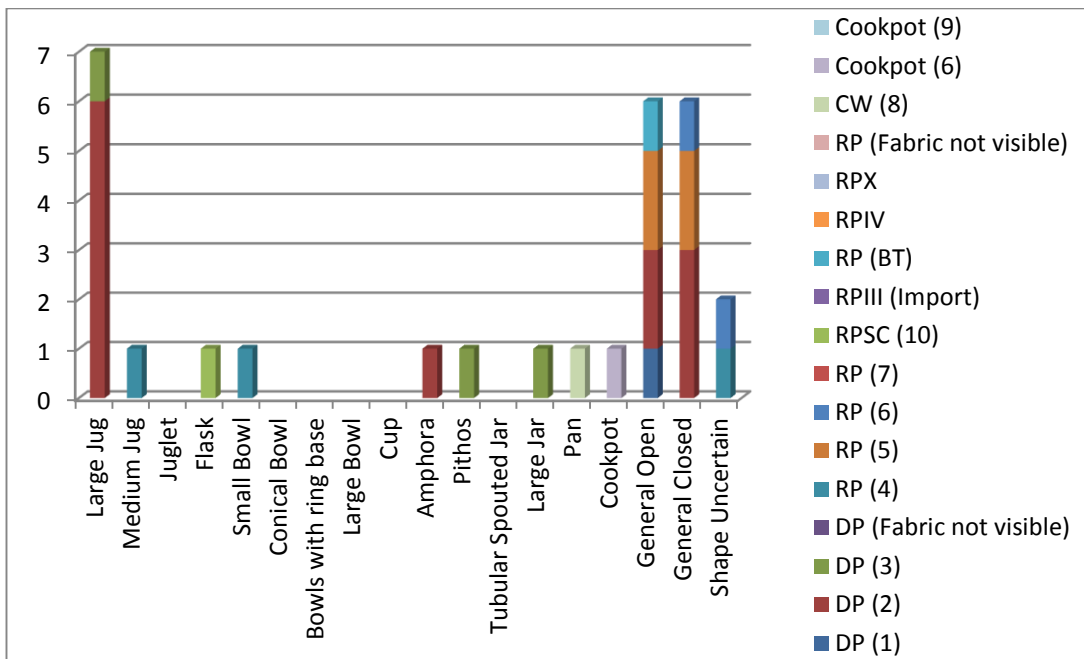


Figure 4.269: Tomb 18, distribution of shapes to wares

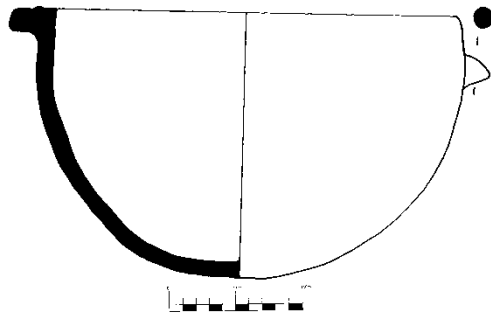


Figure 4.270: Bowl 18.3

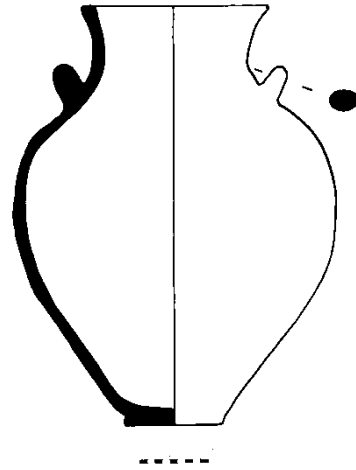


Figure 4.271: Jar 18.17

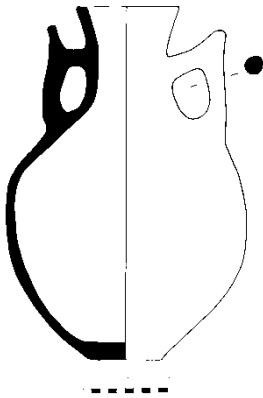


Figure 4.272: Pithos 18.8

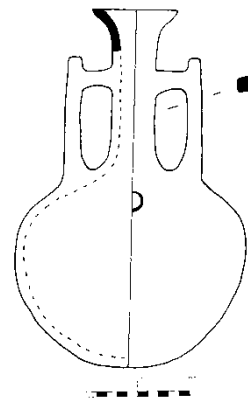


Figure 4.273: Flask 18.4

Decoration in Tomb 18 is very restricted, with only three examples, the RPSC flask being the most highly decorated vessel in this tomb. Otherwise, there are only two examples of incised handles. Apart from the RPSC, there is not enough evidence to date this tomb securely, although an earlier date is indicated.

Tomb 19 (ECIII–MCIII)

Tomb 19 was found just to the north-east of Tomb 18, the floor found 50cm below topsoil. The floor was almost circular, measuring at its widest 2m by 2m. In the north quadrant was a small irregular pit containing mingled skeletal remains (dimensions not recorded), and in the southern quadrant a large rock, similar to that found at the entrance to Tomb 6. Although likely to form the entrance to this tomb,

no entrance could be located. No further recording of the tomb architecture remains. As well as ceramics, a spindle whorl, a stone mace head, numerous small beads and two large pebbles were also discovered in this tomb.

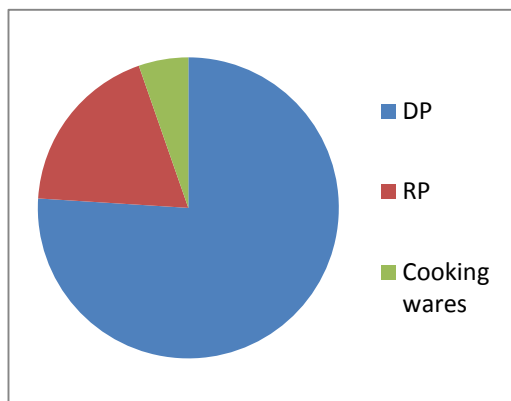


Figure 4.274: Tomb 19, general ware distribution

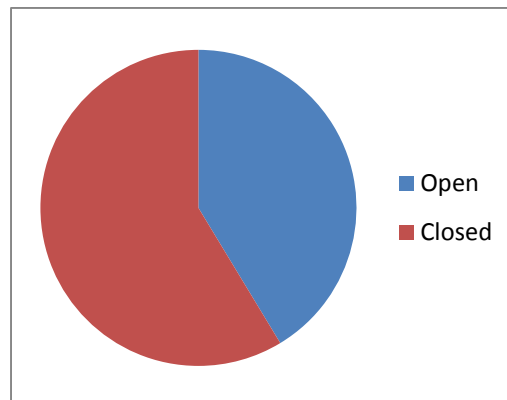


Figure 4.275: Tomb 19, general shape distribution

Tomb 19 consists of 30 complete or near complete vessels and 49 diagnostic sherds, accounting for a minimum of 75 separate vessels. DP accounts for 57 of these (76%), whilst there are only 14 (19%) RP and four examples of cookware (5%). Open vessels accounts for (31) 41% and closed for (44) 59%.

This tomb shows similarities to Tombs 9, 15 and in particular, 16. It has a large assemblage, with a very high percentage of DP (2), a restricted selection of wares, a large number of small, fine, decorative vessels and very few cooking vessels.

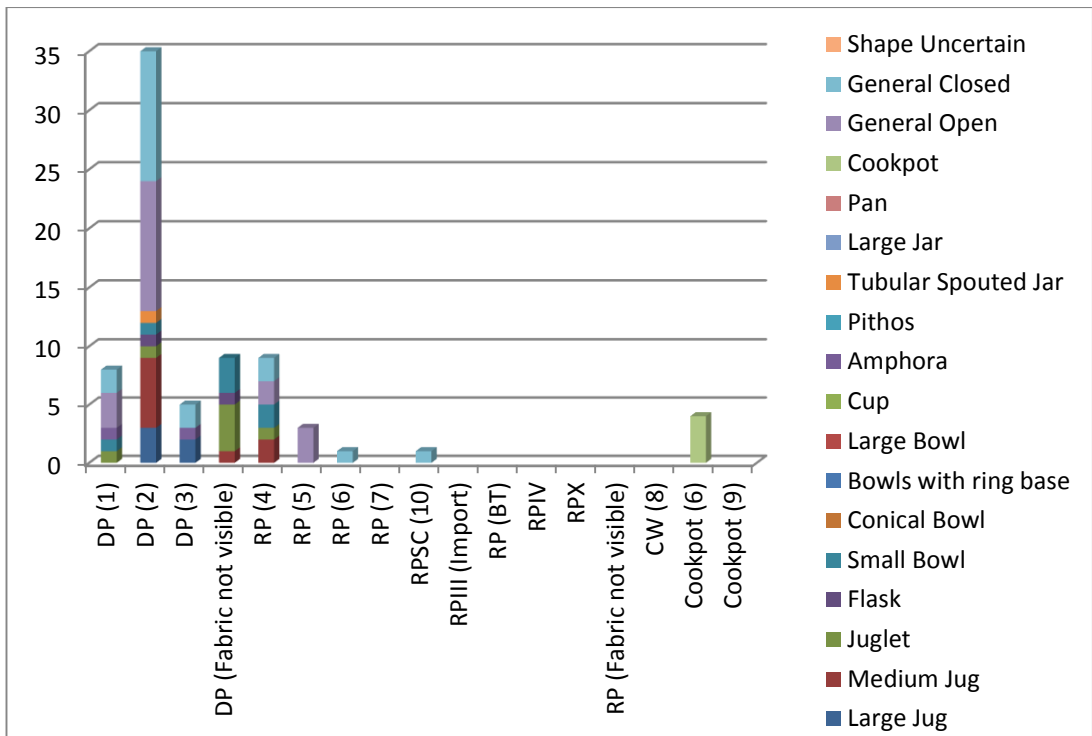


Figure 4.276: Tomb 19, distribution of wares to shapes

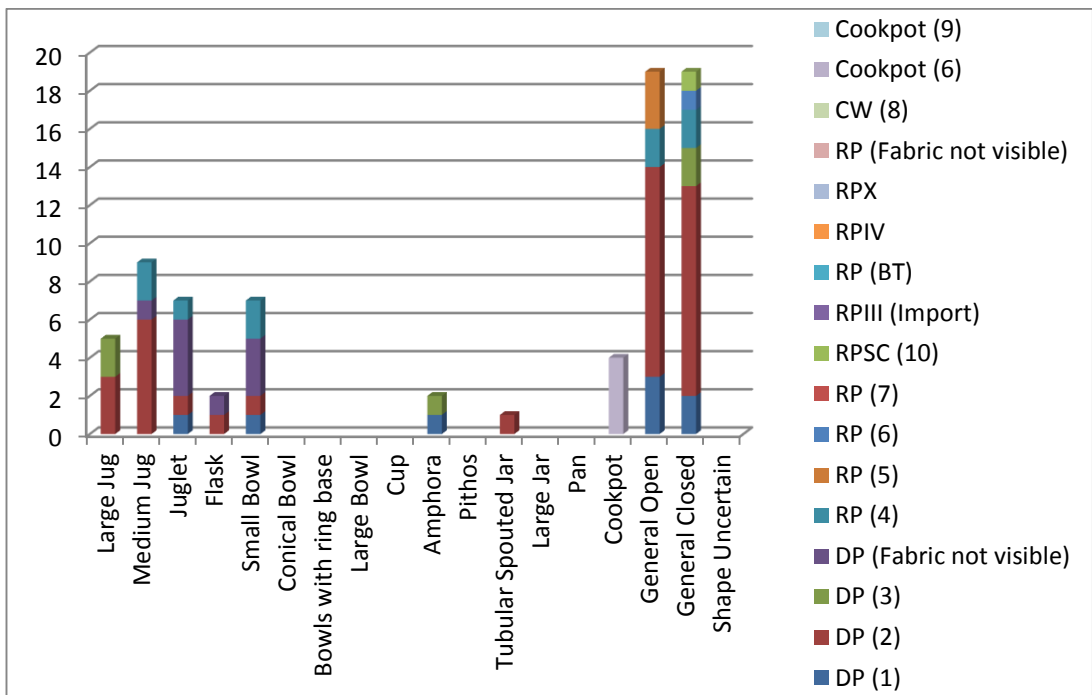


Figure 4.277: Tomb 19, distribution of shapes to wares

The closed vessels are mainly represented by jugs, which are numerous. Five of these jugs are large with round spouts (all DP, three Type 2 and two in Type 3).

Nine are medium sized with cutaway spouts; seven in DP (2), and two in RP (4). There are also at least seven juglets, six in DP (2) with one RP (4) exception. Most have round spouts (three are missing spouts), four are undecorated and three carry the traditional west coast motifs. Two DP flasks occur; 19.9 (Figure 4.278) is a typical west coast example, with cotton-reel lugs, but in this instance they are joined to the body by T-bars. 19.13 (Figure 4.279) is also atypical, having two very high horizontal loop handles where lugs normally exist. There are also two DP amphorae; 19.29 (Figure 4.280) is a complete example in Fabric 1, with horned handles, but otherwise undecorated. 19.75 (Figure 4.281) is only a shoulder, rim and handle fragment but is a coarser Fabric 3 example with punctures and pointed horned handles, showing similarities to vessel 12.4 (Figure 4.231).

The open vessels are represented by complete bowls and rim fragments. There are at least seven small bowls, largely undecorated, with at least three showing horizontal loop handles, one horned, and one dipper-like example with a large looped vertical handle (five are DP, two RP). There are also various sherds suggesting bowls, and DP (2) tubular spout, suggesting that a tubular spouted jar was present. One bowl (19.8 – Figure 4.100) has been described above and is an extremely unusual shape with traditional west coast decoration. Cooking pots are represented by one complete single handled pot with a small flat base, rim sherds and a stubby tripod base, all in Type 6.

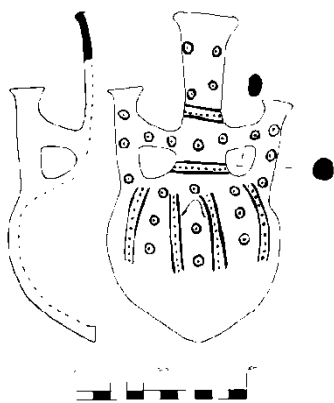


Figure 4.278: Flask 19.9

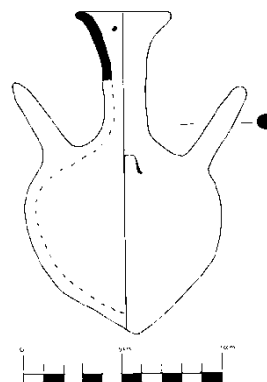


Figure 4.279: Flask 19.13

Decoration occurs on 21 vessels and is limited mainly to small juglets, with impressed target motifs and incised lines and dots, (e.g. 19.9 -Figure 4.278). In several cases this motif is smaller and executed with less precision than is usually observed, juglet 19.22 is a good example (Figure 4.282). Punctured impressions can also be seen on the remaining sherds of amphora 19.75 (Figure 4.281) and typical incised decoration occurs on the RPSC sherds 19.70/71 (Figure 4.283). Relief wavy lines can also be observed on sherds that appear to be from larger vessels.

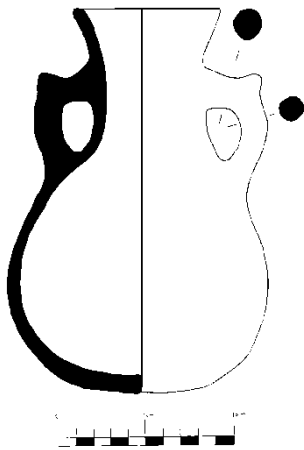


Figure 4.280: Amphora 19.29

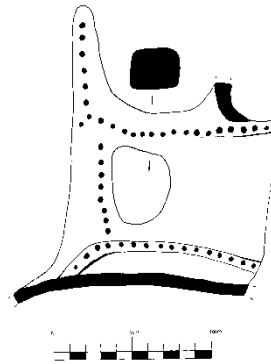


Figure 4.281: Amphora sherd 19.75

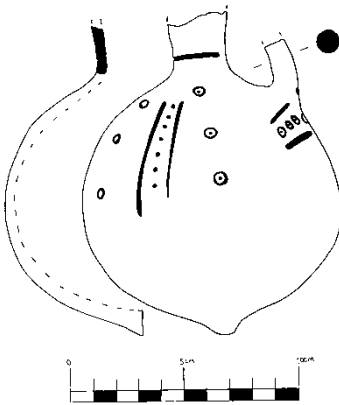


Figure 4.282: Juglet 19.22

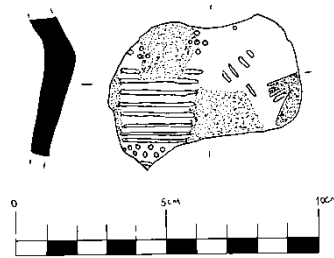


Figure 4.283: RPSC sherd 19.70

Like Tomb 13, Tomb 19 contains early and late markers and may have been in use for a long period. RPSC is present, as well as two horn-lug bowls that suggest an EC date. However, there are also several MC shapes and wares and that very peculiar bowl mentioned above. Wares are restricted, with DP strongly represented and

shapes comprise of a large amount of small incised juglets, cutaway spouted jugs, larger round mouthed jugs and flasks with cotton-reel lugs. This evidence suggests overall a MC rather than EC date, but potentially another tomb with a long lifespan.

Tomb 20 (ECIII-MC)

Tombs 20 and 21 were both excavated as an urgent rescue excavation in August 2008, the complete plans and photographs are presented in Appendix 7.

Tomb 20 was the first tomb identified in this excavation. Almost the entire upper tomb had been destroyed by bulldozers; however, the bottom 25cm remained, measuring at its maximum 2.4m by 1.65m, with the long axis running north west-south east. The remains of at least two individuals remained, in very poor condition, with the crania situated in a small shallow pit in the north western edge. This irregular depression measures at maximum 33cm x 33cm with a depth of 11cm and appeared to be naturally occurring rather than artificially constructed. A small discrete area of ash was found immediately to the south of this.

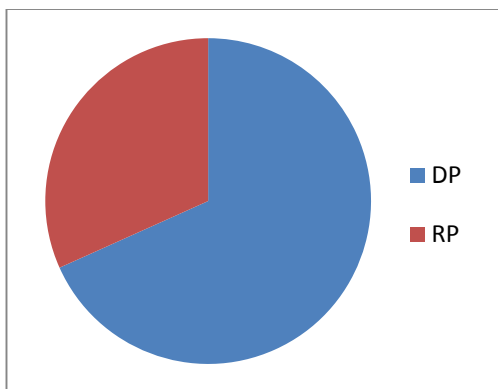


Figure 4.284: Tomb 20, general ware distribution

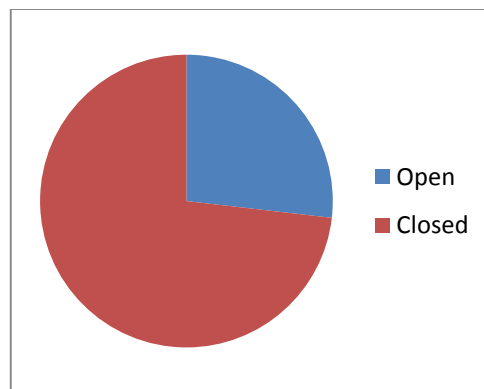


Figure 4.285: Tomb 20, general shape distribution

Tomb 20 consists of 35 complete or near complete vessels and 8 diagnostic sherds, accounting for a minimum of 41 separate vessels. DP accounts for 28 (68%), RP for 13 (32%) Open vessels accounts for 11(27%) and closed for 30 (73%).

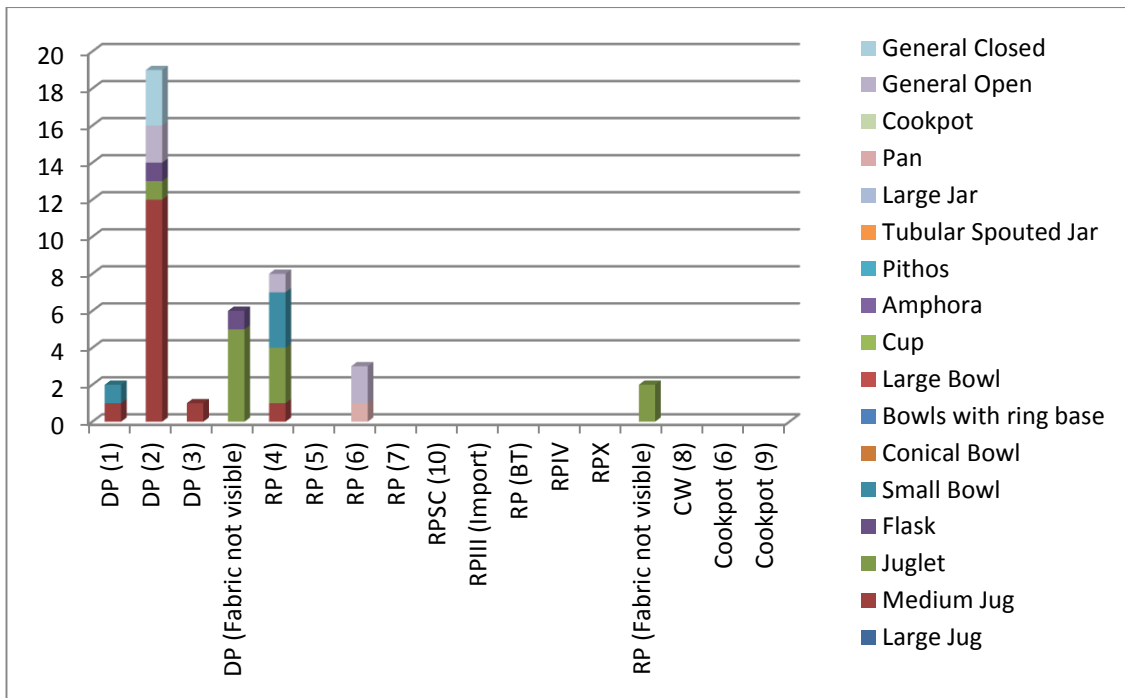


Figure 4.286: Tomb 20, distribution of wares to shapes

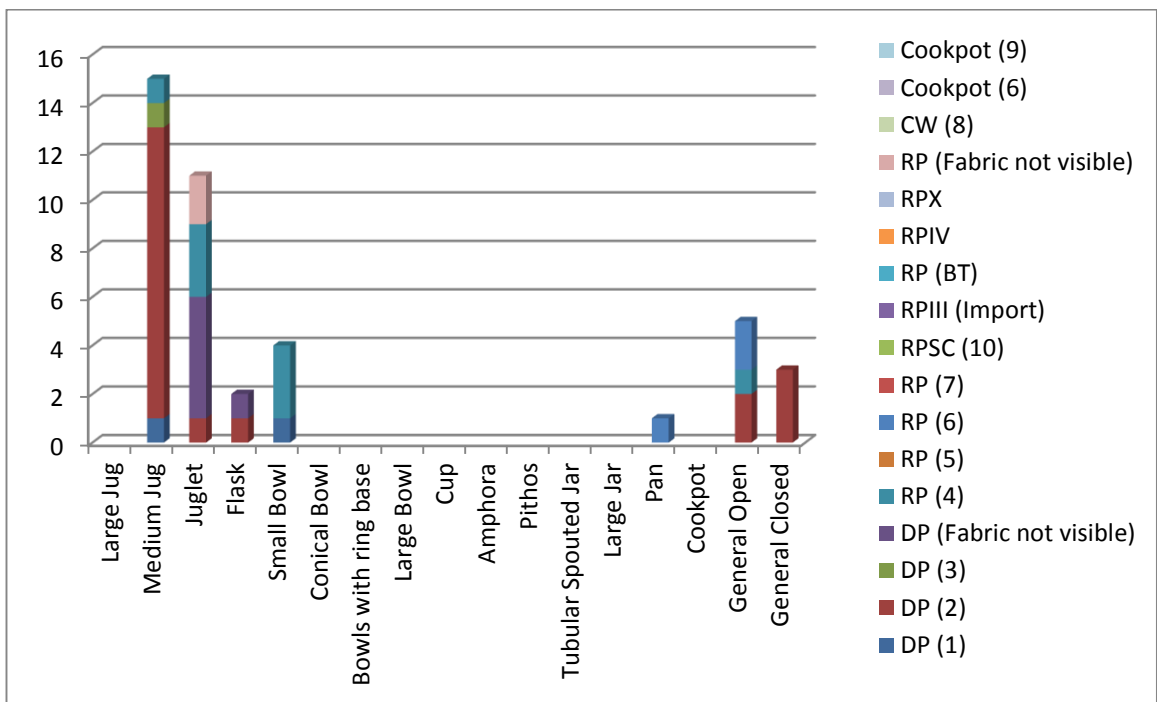


Figure 4.287: Tomb 20, distribution of shapes to wares

Medium sized jugs and juglets make up the majority of the closed vessels in this tomb, with 15 and 16 respectively. All of the jugs (with one exception) occur in a form of DP, with DP (2) accounting for 12. The juglets consist of a more varied

selection of fabrics with five classified as RP and 6 as DP. Two DP flasks also occur, one Type 2, the other intact. Whilst the jugs and juglets are entirely in keeping with those found during the 2000 excavation; these two flasks are both more idiosyncratic. 20.2 (Figure 4.288) is a DP (2) flask with four small tablet lugs instead of the usually cotton-reel style, and the decoration, whilst still consisting of impressed circles and incised lines is subtly different, with the circles containing two dashes instead of the usual dot (similar to 15.8). 20.60 (Figure 4.289) is an unusually small example, undecorated but with a pierced neck.

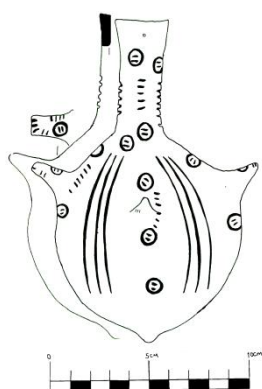


Figure 4.288: 20.2



Figure 4.289: 2.60

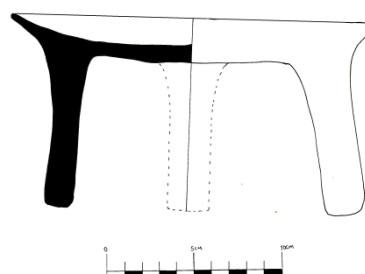


Figure 4.290: 20.38

The small numbers of open vessels are made up almost entirely of small bowls, or fragments from such bowls. Those that remain have horizontal handles, and one, (20.36) has an incised wishbone style handle. There are no storage or cooking vessels in this tomb with one unusual exception. 20.38 (Figure 4.290) is in the form of a cooking pan, but unlike CW examples, this is a relatively finely made pan, in Fabric 6, with a reddish brown, slightly lustrous slip. There is no evidence of use.

Ten vessels carry some form of incised and/or impressed decoration. All of the motifs are in keeping with the general *Ammoudhia* repertoire and all occur on closed vessels with the exception of bowl 20.36, which has incisions to the handle and lug.

Tomb 20 contained seven spindle whorls – the highest number found in a single tomb at *Ammoudhia*; all are ceramic and three are undecorated, whilst the remainder carry the common radiating lines motif. This tomb also contained at least 227 red, white and black beads (again with red jasper being the most numerous), a whetstone (although no metal was found) and 11 unworked pebbles.

The restricted range of wares in this tomb coupled with the high percentage of closed shapes makes an MC date likely. There are no definite EC markers in this tomb and this coupled with the presence of a wishbone handle and similarities with other designated MC tombs all combine to suggest an ECIII-MCIII date.

Tomb 21 (EC-MC)

Tomb 21 was almost empty, with no human remains and only two ceramic objects, but is useful as it is the only tomb to have a complete section intact. The tomb was discovered eroding out of a section cut by bulldozers, half of the tomb had been destroyed, the other half remained intact (See Appendix 7 for images).

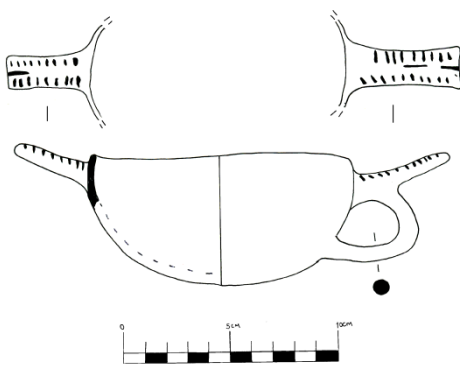


Figure 4.291: 21.1

Only two ceramics were found in the remains of Tomb 21. The first is an intact RP bowl of the MC type with elongated lugs and a vertical loop handle situated below one lug (Figure 4.291). The other is a RPSC body sherd from a highly decorated closed vessel dating to the ECI-II. Given that the only two vessels to remain in this

tomb seem to date from differing periods within the EC-MC, a later MC date must be appointed to this tomb, based on the RP bowl, with the possibility that the RPSC sherd may be an heirloom, or, is an artefact of tomb clearance/reuse.

Tomb 38 (EC-MC)

This tomb was the first to be excavated during the 2009 season by Elena Meranou and was almost completely destroyed by construction work. It was discovered at the northernmost edge of the plot under investigation, but only an ellipsoid floor remained, measuring 1.15m east to west by 1.0m north to south. No further recording of the tomb architecture remains. Very fragmentary human remains were found, along with one tray of sherds containing three diagnostic sherds and a partial ceramic spindle whorl. The diagnostic sherds are all from closed vessels; one DP (2) large base and two juglets (one Type 2 and the other Type 4).

Due to the destruction of this tomb there is little to nothing that can be said about the typology or chronology, beyond it being in keeping with the general *Ammoudhia* assemblage.

Tomb 39 (ECIII-MCII)

Tomb 39 lies slightly to the west of the main cluster of tombs excavated in 2009. Like Tomb 20, only the lowest strata remained of an ovoid, almost sub-rectilinear chamber measuring 1.66m north to south and 1.58m, east to west and part of the original entrance and dromos also remained, measuring 32cm in width (Figure 4.292). Very fragmentary human remains were found scattered throughout the tomb.

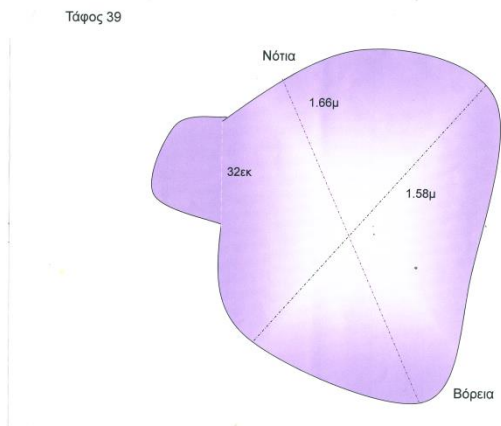


Figure 4.292: Schematic sketch of Tomb 39 (E. Meranou)

The ceramics from Tomb 39 consist of four complete or near complete vessels and 41 diagnostic sherds, accounting for 45 individual vessels. DP accounts for 36 of these, making up 80% of the total assemblage, with RP accounting for 16% (seven vessels) and the remaining 4% made up of two cooking pans. There are 23 open vessels (51%), 19 closed (42%) and 3 uncertain.

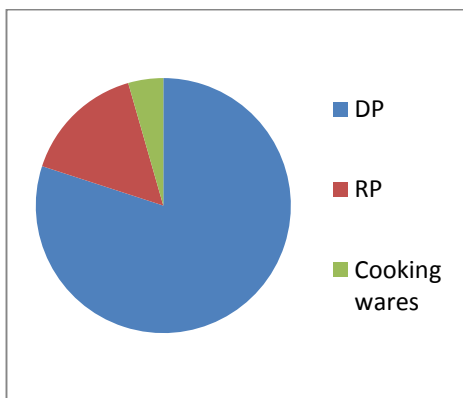


Figure 4.293: Tomb 39 general ware distribution

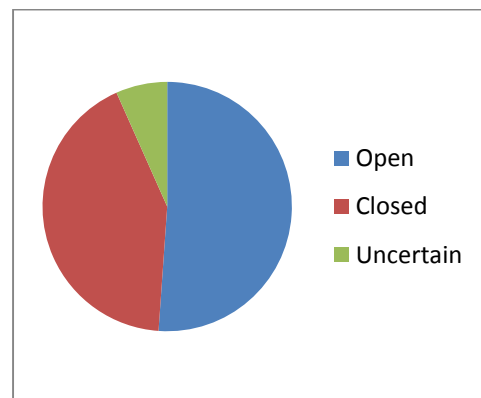


Figure 4.294: Tomb 39 general shape distribution

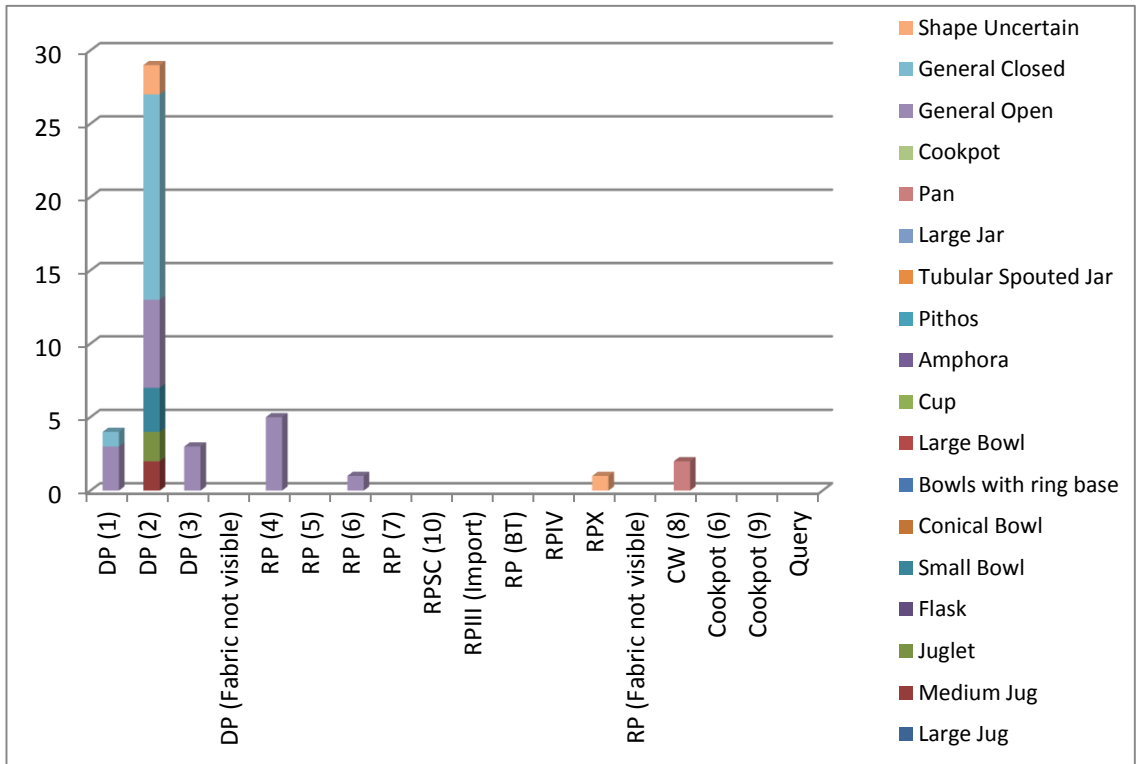


Figure 4.295: Tomb 39, distribution of wares to shapes

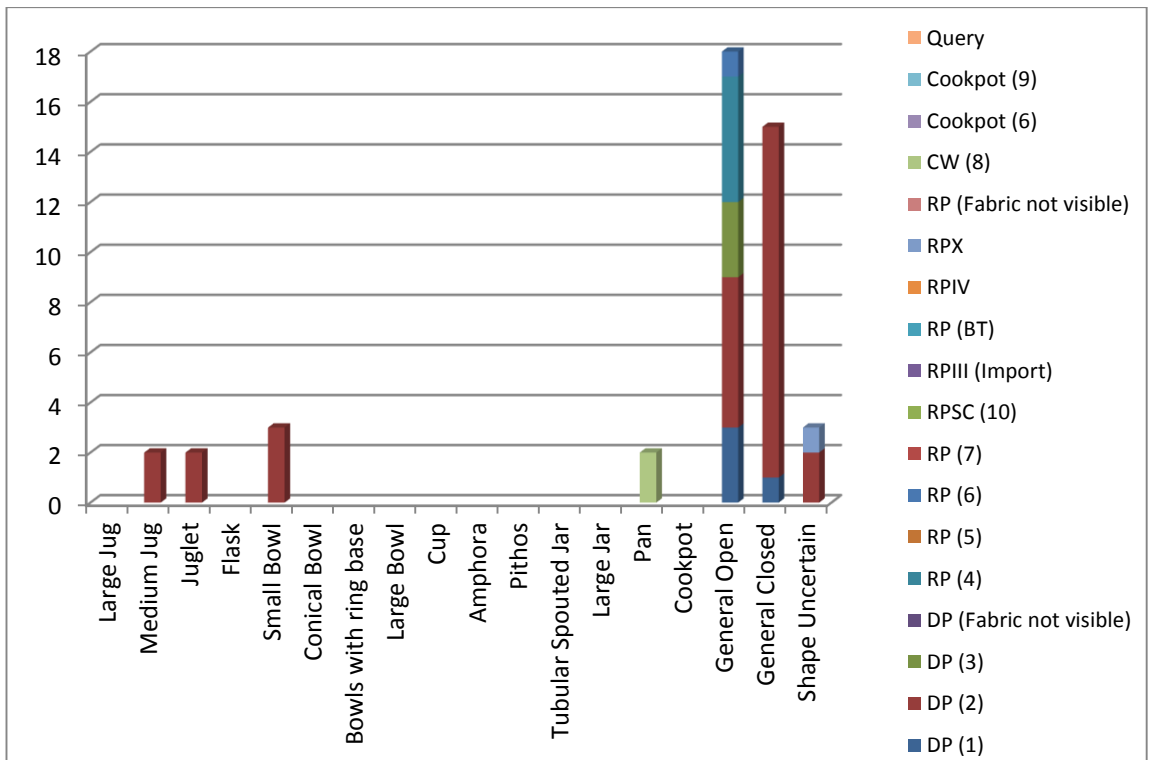


Figure 4.296: Tomb 39, distribution of shapes to wares

The ceramics from Tomb 39 were in a very fragmentary state, with the majority unable to be classified beyond a general open or closed category. Those that could be identified as a specific shape are typical of the general *Ammoudhia* repertoire, with at least two medium sized jugs and two juglets, all in Fabric 2. 39.1 (Figure 4.297) is the only complete vessel from this tomb, a typical small decorated juglet with incised line and dot motifs.

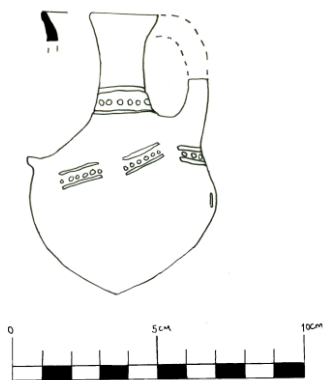


Figure 4.297: 39.1

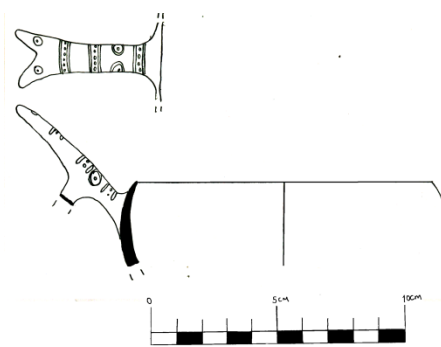


Figure 4.298: 39.8

Most open sherds are likely to be from small bowls and at least two have identifiable handles, one being a typical horizontal loop handle (39.2), another, 39.8, is a fragment from a small bowl with an elongated tablet lug with a partial vertical loop handle below the lug (Figure 4.298). Finally, there are fragments from two cooking pans, both in the typical CW found in the 2000 excavation. There were no non-ceramic finds in this tomb.

Decoration occurs on ten vessels, although apart from the incised juglet, 39.1 and the incised lug from 39.8, most of this decoration consists of single incised lines to handles and one relief band around a jug neck/shoulder join.

The Tomb 39 assemblage is in keeping with those tombs assigned a MC. The restricted wares, the extremely high proportion of DP (2) coupled with the lack of

any diagnostic EC shapes and the presence of MC shaped handles all suggest a general MCI-II date for this tomb.

Tombs 40A and 40B

Tombs 40A and 40B are so named as they were originally believed to form one large chamber. Bulldozers had destroyed the area between the two tombs, but excavations revealed that they are, in fact, two separate chambers. Although much of the evidence for the relationship between the two was largely destroyed by construction work (represented by the pink rectangle in Figure 4.299) enough tomb architecture remained for Ms Meranou to propose that Tomb 40B cuts 40A; although whether 40B was actually a separate tomb or a sub-chamber of 40A can now, unfortunately, not be confirmed. The ceramics from these tombs were all recorded under a general 'Tomb 40' category. Altogether 97 individual vessels were identified, but, only three vessels could be ascribed with certainty to Tomb 40B (7, 8 and 13 - E. Meranou, personal communication). Therefore, the remaining 94 vessels and sherds were recorded as 40A, although it is possible that several were originally located in 40B. Again, very fragmentary human remains were found disturbed and scattered throughout both tombs.

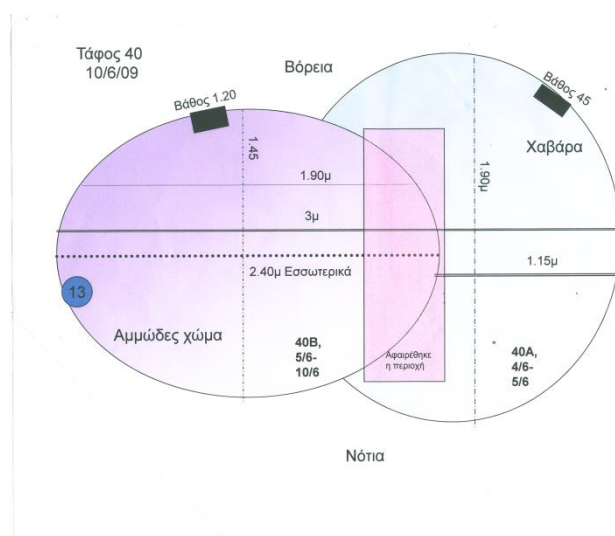


Figure 4.299: Schematic sketch of Tombs 40A and 40B (E. Meranou)

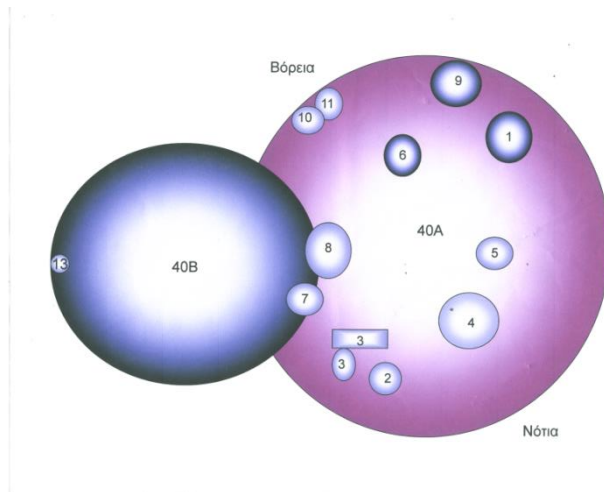


Figure 4.300: Schematic sketch of Tombs 40A and 40B with vessel locations (E. Meranou) N.B. Vessels 7 and 8 were confirmed (along with 13) to originate in Tomb 40B.

Tomb 40A (ECIII-MCII)

Tomb 40A is an elliptical shape, the long axis running north to south and measuring a maximum of 1.90m. The east to west axis is partially destroyed, but is estimated to have measured approximately 1.60m (see Figure 4.299, E. Meranou, personal communication). Only the bottom 45cm remained of this tomb, but, like Tomb 20, the majority of vessels were found intact, in this lower level. Fragmentary human remains were found to the north and east of this tomb.

13 vessels and 87 sherds were found, accounting for 94 individual vessels. DP dominates, accounting for 70 vessels or 74%. There are 20 RP vessels (22%) and 3 examples of cooking wares (3%). The remainder is a single flaring rim sherd, which is over-fired and too blackened to identify securely. Of the DP, the majority (38) occur in DP (2), with ten coarser DP (3) versions. However, there are also 22 examples of DP (1), the highest proportion of this ware in any of the *Ammoudhia* tombs, accounting for 23% of the tomb assemblage. Fabric 4 dominates the RP, whilst cooking wares are made up of two CW cooking pans and a single fragment from a Fabric 6 cookpot.

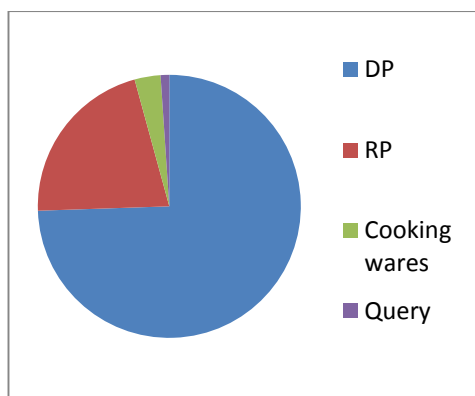


Figure 4.301: Tomb 40A, general ware distribution

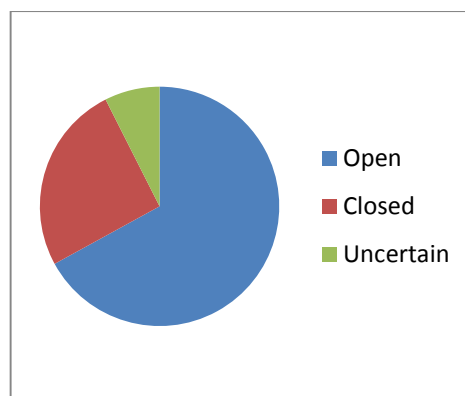


Figure 4.302: Tomb 40A, general shape distribution

Open shapes are more common in this tomb, with 63 vessels or 67%, mostly small bowls. There are 24 closed vessels (26%) and seven unidentified (7%). All complete examples of small bowls occur in DP, with a relatively high proportion of Type 1, although the majority are still Type 2 (there are RP (4) sherds counted in the 'general open' category that are likely to be from small bowls, but are too abraded to conserve or ascertain a shape). The small bowls are homogeneous, with quite deep, hemispherical bodies and either vertical handles or horn lugs (40.21 is a typical example – see Figure 4.305). There are also fragments of two large bowls, each with relief wavy line decoration.

Closed vessels mostly occur in sherd form, the majority come from relatively large, round-spouted vessels (there are only three fragments from cutaway spouts in this tomb). Two complete examples remain, both are round spouted with mid-neck vertical handles; 40.1 is a large RP (5) example (Figure 4.306), whilst 40.9 is a smaller DP (2) type.

Decoration occurs on only 24 of the vessels in this tomb (26%). The motifs consist of a mixture of typical west coast incised lines and impressed dots to some bowls, incisions to handles and lugs and relief wavy lines (on larger vessels). There are also two examples of relief and impressed decoration applied in panel form to the necks of large jars (40.60 and 40.103 – Figures 4.307 and 4.308), which can be compared to

the two pithoi from Tomb 6, although both examples here are very fragmentary and both occur in RP (6).

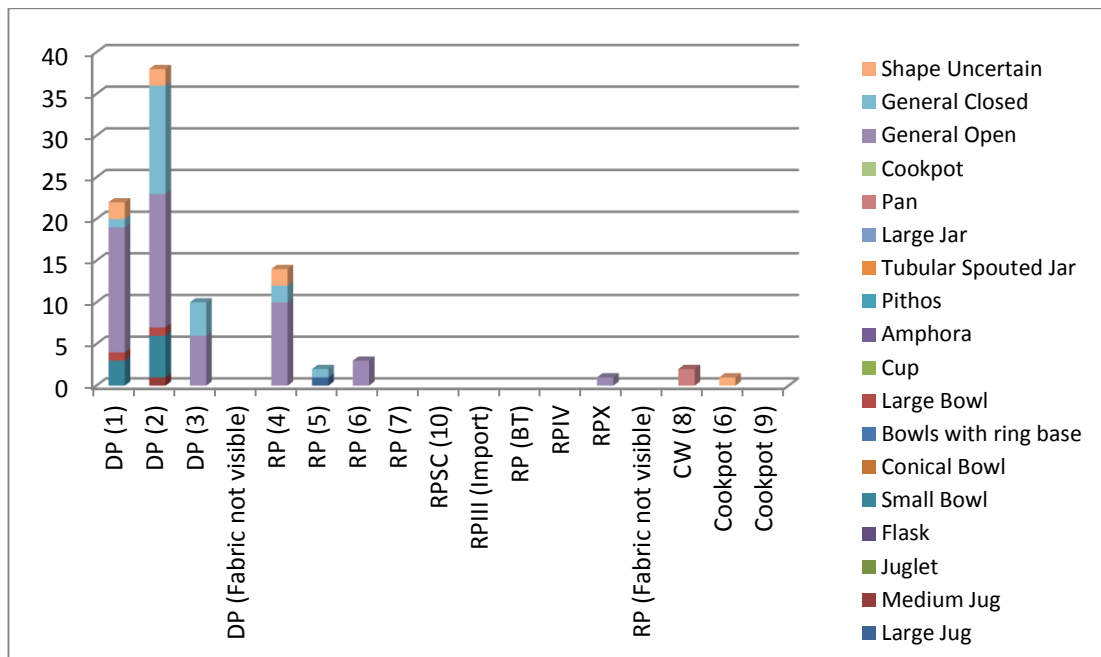


Figure 4.303: Tomb 40A, distribution of wares to shapes

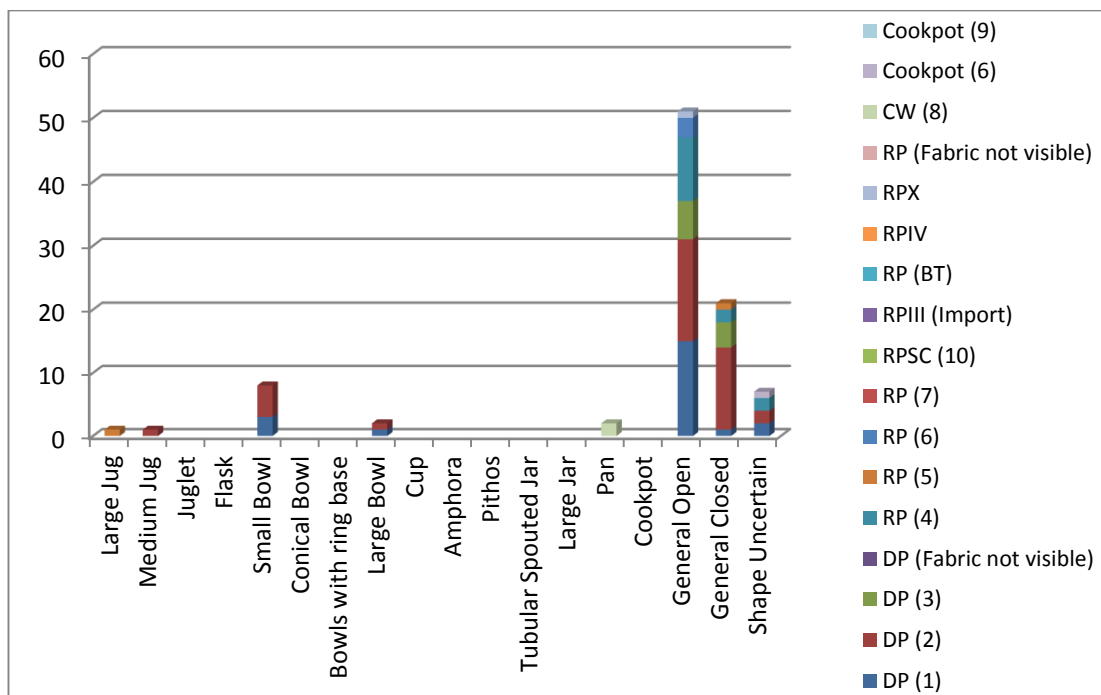


Figure 4.304: Tomb 40A, distribution of shapes to wares

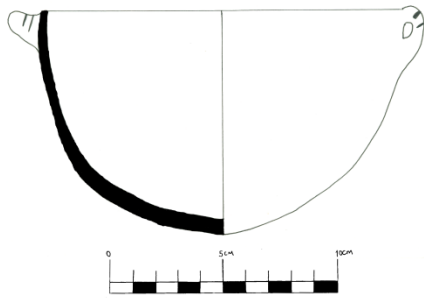


Figure 4.305: 40.21

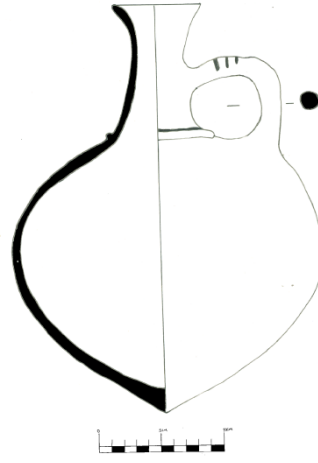


Figure 4.306: 40.1

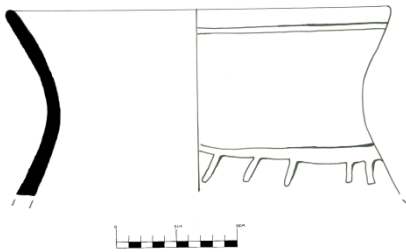


Figure 4.307: 40.64

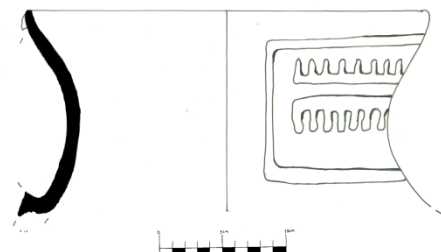


Figure 4.308: 40.103

Finally, a fragment of a small limestone cup or bowl was found in this tomb (Figure T40A.5). Although this tomb contains the largest number of ceramic vessels from the later excavations, it has proved difficult to date. The fragmentary condition of the vessels coupled with the very generic EC-MC shapes present make it difficult to suggest anything more than a general EC-MC date. The fact that there are no wares or shapes that can be identified as ECI-II, coupled with the high number of DP (1) vessels and the presence of fragmentary elongated tablet lugs adds to the likelihood of an MC date, however, without clear markers, a general ECIII-MCII date must suffice.

Tomb 40B (ECIII-MCII)

Tomb 40B is an elliptical chamber measuring approximately 2.4m at its longest (the east-west axis) and 1.45m on the north-south axis (Figure 4.299). Despite being partially destroyed, this tomb had a maximum depth of 1.20m. Again, very fragmentary human remains were found scattered throughout.

Tomb 40B exhibited an intact entrance to the south edge and sealed with a large stone measuring 54cm by 80cm (Figure 4.309). This entrance was connected to a short dromos, which also contained the entrance to Tomb 42 to the east. The remaining dromos measured 1.8m at its longest on the east-west axis, and 1.1m on the north-south.

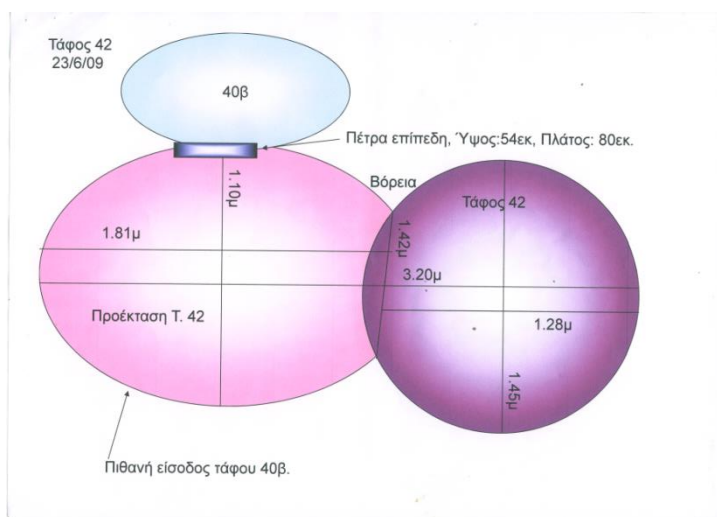


Figure 4.309: Sketch showing relationship between Tombs 40B, 42 and dromos.

The three vessels from Tomb 40B are all RP (4); 40.7 and 40.8 are both typical small bowls, undecorated, but 40.7 (Figure 4.310) has a vertical loop handle and 40.8 a horn lug. 40.13 (Figure 4.311) was found close to the tomb entrance and comprises a neck and spout fragment from a small juglet. Other sherds were found nearby and can be positively identified as belonging to the same vessel, but are too abraded to conserve.

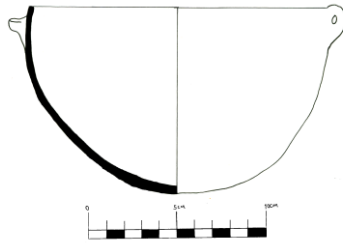


Figure 4.310: 40.7

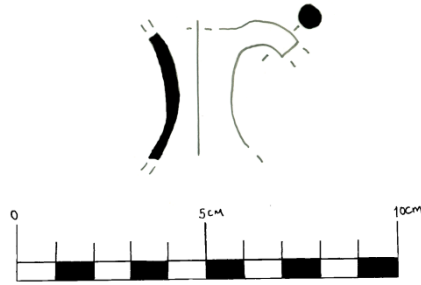


Figure 4.311: 40.13

Since Tomb 40B cuts 40A, it must be assumed that its construction dates to a later time than 40A, although this may be within the same general time period. The fact that 40B and 42 both share a common dromos also suggests that these two tombs were in use at a similar time. Given the stratigraphic evidence, then a date of ECIII-MCII is proposed for Tomb 40B.

Tomb 41 (ECI-MCI)

Tomb 41 was found to the south of Tombs 40A and B. It is an almost circular chamber, measuring 1.57m north to south and 1.55 m, east to west; the maximum depth remaining was 42cm. A large, triangular rock was found at the base of the tomb (Figure 4.312), measuring 80cm x 62cm x 62cm, possibly this blocked the original entrance which is now lost. There were no human remains recovered from this tomb.

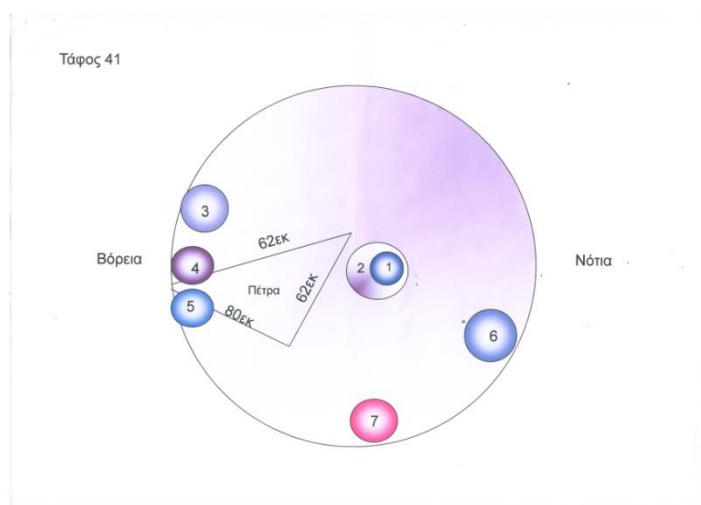


Figure 4.312: Schematic sketch of Tomb 41 (E. Meranou)

16 vessels and 24 diagnostic sherds were found in this tomb, making up a total of 38 individual vessels. 27 are DP, accounting for 71%; 8 RP vessels account for 21%, whilst there are two cookpots (5%) and one unidentified ware spout. Type 2 is again, the most dominant, accounting for half of the entire tomb assemblage.

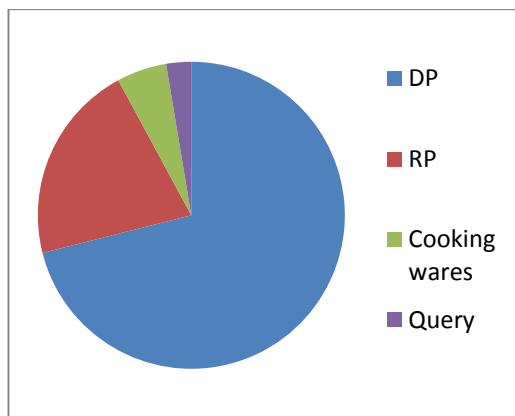


Figure 4.313: Tomb 41, general ware distribution

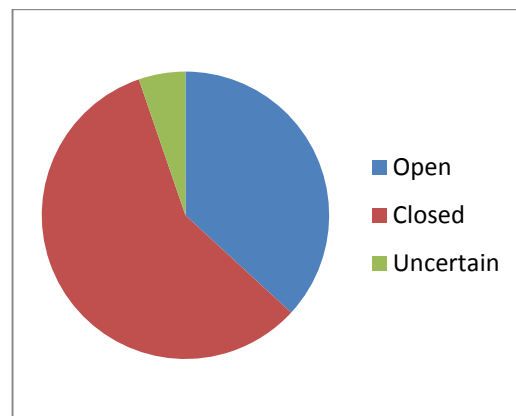


Figure 4.314: Tomb 41, general shape distribution

Closed vessels are more dominant in this tomb, accounting for 22, or 58%, whilst there are 14 open (37%) and only two (5%) of uncertain shape. The closed vessels are represented by DP medium sized jugs with cutaway spouts homogeneous in shape and fabric with those from other *Ammoudhia* tombs. There are also two DP (2) juglets, both undecorated with cutaway spouts, and fragments of a RP (6) amphora. An almost complete RPSC flask, 41.21 (Figure 4.317) has a small flat base, flaring rim, ovoid body and two opposing disc lugs, as well as zigzag incisions, generally similar to other flasks of this type.

Open vessels are made up of fragments of small bowls, although the majority are fragmentary and cannot be identified beyond a 'general open' classification. The bowls that can be identified are undecorated, one (41.22) is in DP (2) and has a vertical loop handle, whilst 41.23 is a DP (1) example with two small tablet lugs. There is a partially reconstructed cooking pan (41.9), which, like 20.38 (Figure 4.290) is a fine example, in RP (6) with a ledge rising from the rim. Finally, cookware is represented in this tomb by both Types 6 and 9. 41.12 and 41.13 form the flat base

and rim from a Fabric 9 cookpot, which is fragmentary, but similar to those from other tombs. 41.5 (Figure 4.318) is a complete Type 6 example of a one-handed cooking pot with a flat base and flaring rim similar to those found in Tombs 1, 3, 6, 19 and 43.

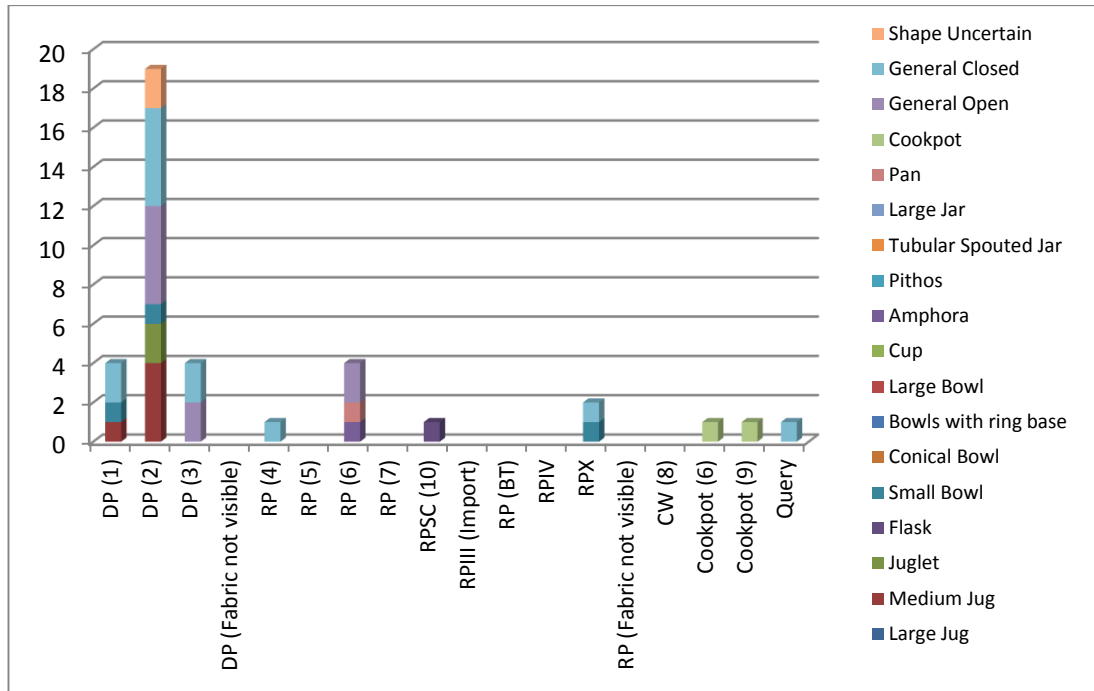


Figure 4.315: Tomb 41, ware to shape distribution

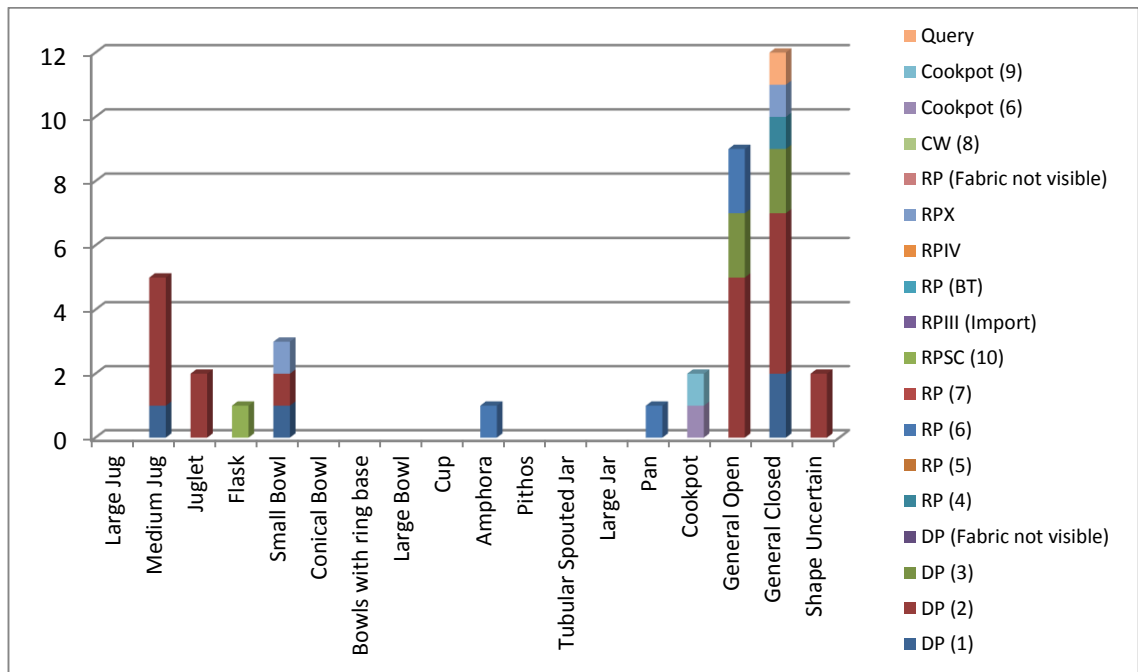


Figure 4.316: Tomb 41, shape to ware distribution

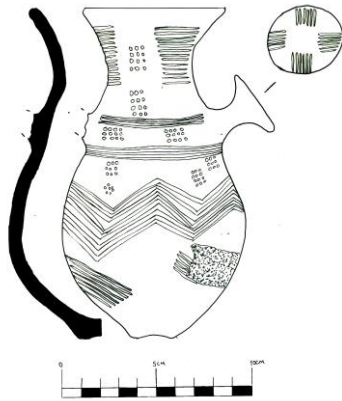


Figure 4.317: 41.21

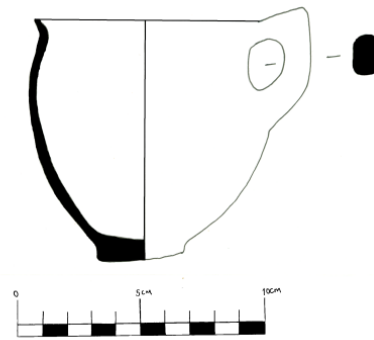


Figure 4.318: 41.5

Decoration is rare in this tomb, with only four decorated vessels. The RPSC flask 41.21 (Figure 4.317) is the most highly decorated example, but there are also three decorated sherds. One (41.17) is a DP (1) body fragment from a closed vessel carrying the west coast circle and dot motif; whilst 41.40 and 41.41 are fragments from larger, coarse vessels both with fragmentary wavy line relief. Finally, there is a single undecorated, biconical spindle whorl from this tomb, similar to 8.12.

The fragmentary nature of the ceramics from this tomb makes it difficult to date beyond a general EC-MC classification. However, the presence of an intact ECI vessel coupled with the general similarities between vessels from this tomb and those classified as EC (above) suggest that this tomb has its origins in the EC, but may have been in use into the MC. Therefore a loose ECI-MCI date is suggested.

TOMB 42 (ECI-MCI)

The entrance to Tomb 42 was discovered to the eastern part of the dromos that also contained the entrance to Tomb 40B (Figure 4.309). Tomb 42 is a sub-rectilinear shaped chamber measuring 1.47m on the north-south axis, and 1.28m on the east-west (including the entrance-way and dromos, the maximum length is 3.20m. The remaining depth maximum is 55cm. A narrow aperture at the westernmost edge opens onto a wider square floor. The fragmentary crania and remains of at least two

individuals were found against the northern wall, whilst the majority of vessels were clustered around the tomb entrance, vessels 42.6 and 42.7 seem to be related to the human remains (Figure 4.319).

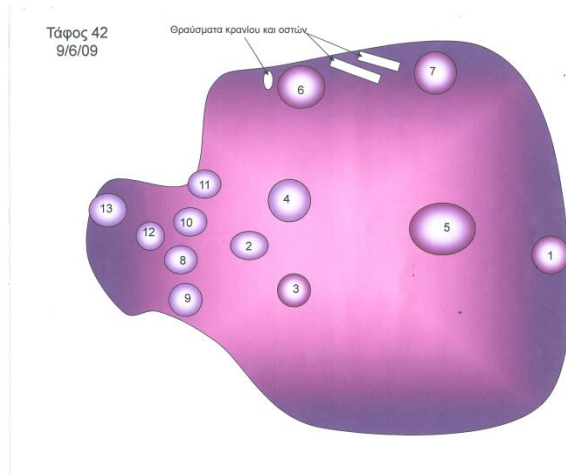


Figure 4.319: Schematic sketch of Tomb 42 (E. Meranou)

The tomb contained 16 vessels and 32 diagnostic sherds accounting for 58 individual vessels. 37 of these occur in a form of DP, accounting for 64% (30 of these are in Fabric 2). RP accounts for 19 vessels or 33%, and there are two cooking pot fragments (3%). Although DP (2) is again, the dominant ware, there is a wider variety of wares represented within this tomb, including ECI-II wares RPSC and RPI.

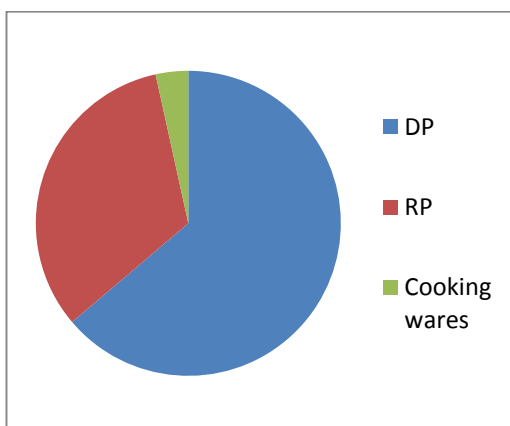


Figure 4.320: Tomb 42, general ware distribution

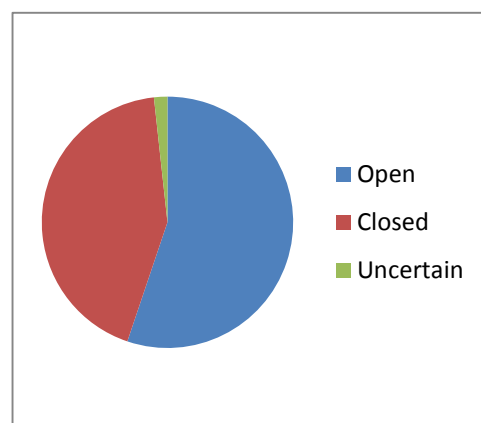


Figure 4.321: Tomb 42, general shape distribution

Shapes are evenly split, with 32 open, accounting for 55% 25 closed (43%) and one uncertain shape (2%). Closed vessels are dominated by jugs and juglets, in particular medium sized jugs, the majority of which occur in DP (2). Several are cutaway spouted; however, there are also two examples of small, round spouted juglets with mid-neck handles. 42.4 (Figure 4.324) is an intact RP example, similar to those DP examples from tombs 15 and 16. There are also two undecorated flasks, one (43.13) in DP (2), the other (42.58) is an unidentified RP example (Figure 4.321).

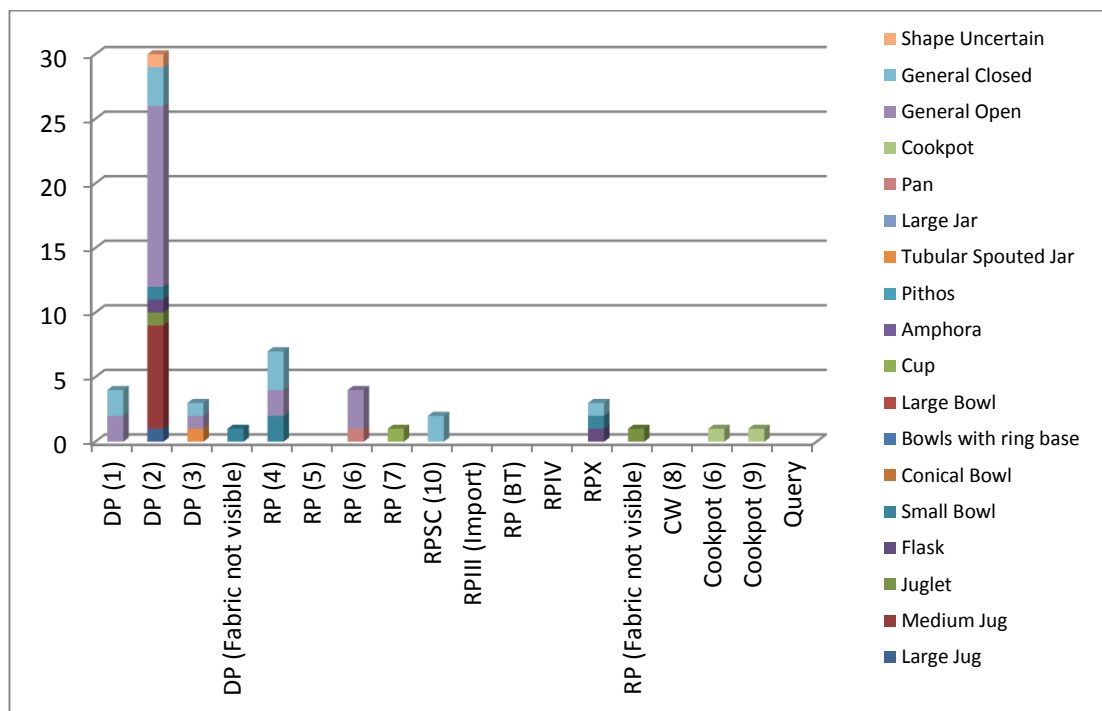


Figure 4.322: Tomb 42, ware to shape distribution

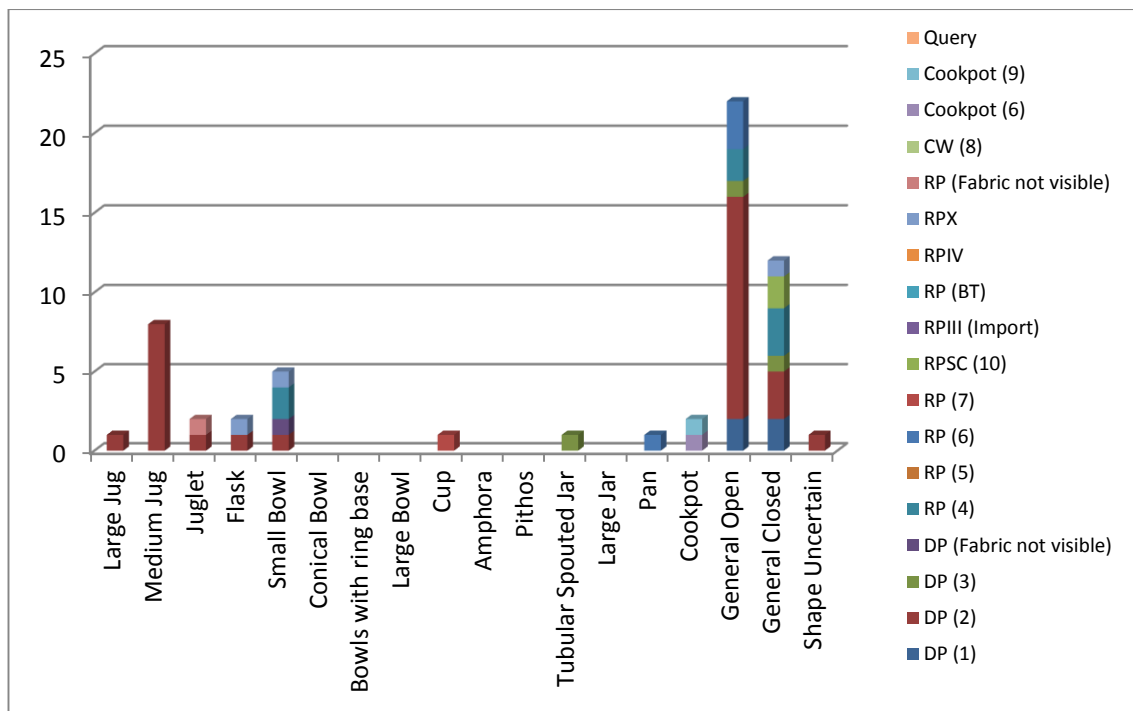


Figure 4.323: Tomb 42, shape to ware distribution

This tomb contains a rather wide distribution of wares and shapes. As well as ECI-II wares, there are also some diagnostic ECI-II shapes to be found in this tomb. A single RPI (7) cup (Figure 4.326) bears considerable similarities with vessel 1.4 (Figure 4.27). Fragments of a tubular spouted jar (42.10) were also found. There are also some deep hemispherical bowls very similar to those found in Tomb 10. However, several vessels can be dated to a later, MC date. As well as the round-spouted juglets mentioned above, there is also a bowl with a wishbone handle (42.5 – Figure 4.327). Finally, cooking vessels are also present, in the form of two cooking pot fragments (Fabrics 5 and 6) and a fragmentary cooking pan (42.14); like 41.9 and 20.38, this is a rather fine, RP (6) example with a ledge handle and a thick red slip.

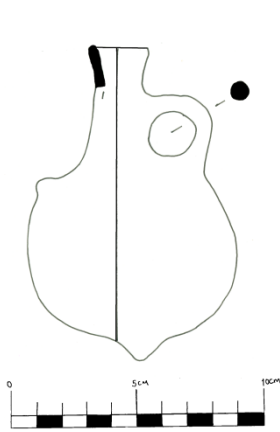


Figure 4.324: 42.4



Figure 4.325: 42.58

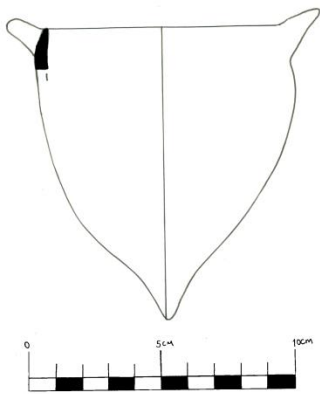


Figure 4.326: 42.1

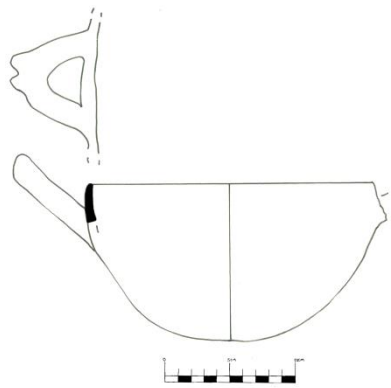


Figure 4.327: 42.5

Decoration occurs on 12 vessels, eight of these carry incised/impressed motifs of typical west coast/*Ammoudhia* design. Four carry relief decoration of bands or wavy lines (all of which occur only on larger vessels). This tomb also contains a single spindle whorl, conical in shape, with the common radiating incised parallel line decoration.

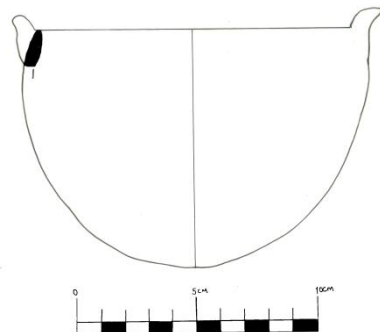


Figure 4.328: 42.6

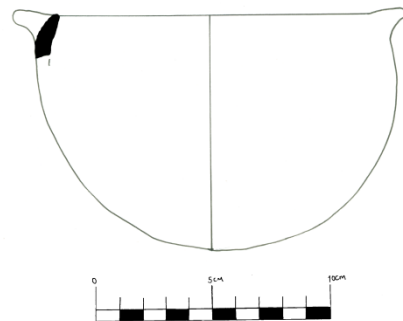


Figure 4.329: 42.7

Tomb 42 contains a confusing mixture of both very early wares and shapes alongside MC types. The relatively wide range of wares and shapes points to an early date, with some use continuing into the MC. The human remains were found in relation to vessels 42.6 and 42.7 (Figures 4.328 and 4.329), both of which are deep hemispherical bowls with horn lugs similar to the numerous examples from Tomb 10, that are dated to the EC. In the absence of absolute dating from this tomb, a general ECI-MCII date must be applied.

TOMB 43 (ECI-III)

The final tomb to be excavated was discovered was in a poor state, with the southern end almost completely destroyed by previous construction work (E. Meranou, personal communication). However, more intact tomb walls were found to the north, east and west with a maximum depth of 53cm. The bottom of the chamber revealed a round tomb measuring 2.40m north-south and 2.42m east-west. Very fragmentary human remains were scattered in the east of the tomb (Figure 4.330).

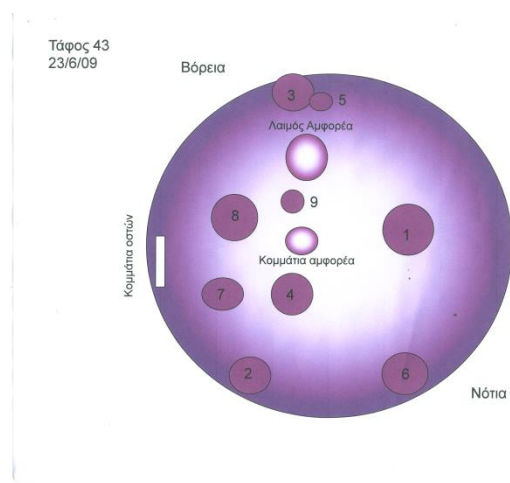


Figure 4.330: Schematic sketch of Tomb 43 (E. Meranou)

Ten vessels and nine sherds were recovered from this tomb, accounting for 18 individual vessels. Unusually, RP is dominant in this tomb, accounting for nine vessels or 50% of the assemblage; although there are also eight DP examples (44%)

and one cookpot (6%) present. The RP is made up of three RP (4), two RP (5), one RP (6), one unidentified RPX and two RPSC (10). Again, this tomb is unusual as it also has a larger ratio of Type 1 amongst the DP examples, with four, as opposed to two each in Types 2 and 3.

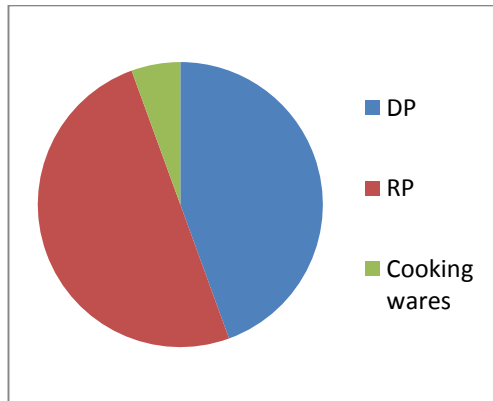


Figure 4.331: Tomb 43, general ware distribution

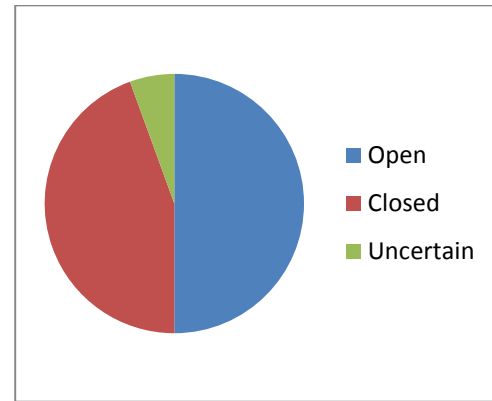


Figure 4.332: Tomb 43, general shape distribution

Like Tomb 42, the ratio of open to closed vessels is quite even, with nine open (50%), eight closed (44%) and one of uncertain shape (6%). The vessel shapes are evenly distributed with a rather wide range of shapes considering the small assemblage. The typical DP jug and RP small bowl fragments are present; however, there are a few vessels found in this tomb that are unparalleled. For example, 43.1 (Figure 4.335) is a small, thick-walled bowl with a large horizontal handle, pierced vertically, in a type of RP inconsistent with the traditional *Anmoudhia* repertoire. Similar vessels are found at Vounous, where Stewart identifies them as ‘spoons’ (Stewart 1962: 343) and are found in either RPI or RPI Coarse (1962: 343). They are also found at Marki in mainly ECI-II contexts and are called ‘ladles’ (Frankel & Webb 2006: 115-116). 16 were found in EC contexts at Psematismenos-*Trelloukkas*, where they occur in RP Mottled (Georgiou *et al.* 2011: 205-206). These ‘ladles’ are present in small amounts at Karmi (Webb 2009: 25), *Alambra-Mouttes* (Barlow 1996: 294, 397), Nicosia- *Ayia Paraskevi* (Kromholz 1982: 90-91) and in flat and round based types at *Sotira-Khaminouhdia* (Herscher 2003: 164-166). Other open vessels include a RP (4) small bowl with vertical loop handle (43.6), fragments from a RP (5) tubular spouted jar (43.3) and a large DP (3) two-handled jar (43.2).

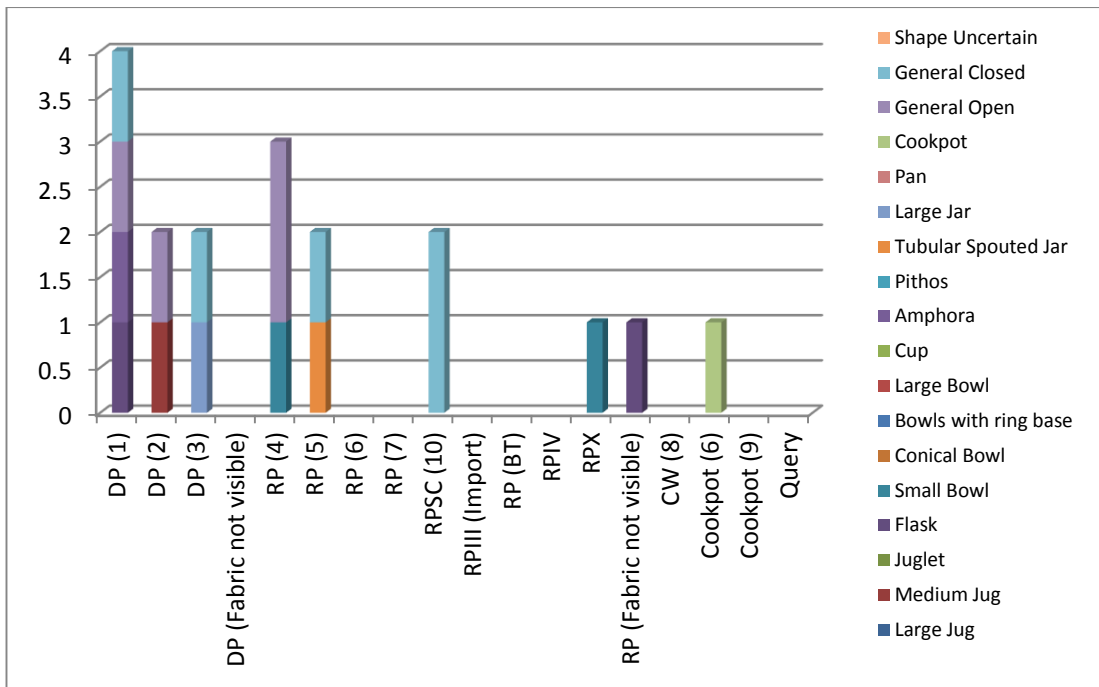


Figure 4.333: Tomb 43, ware to shape distribution

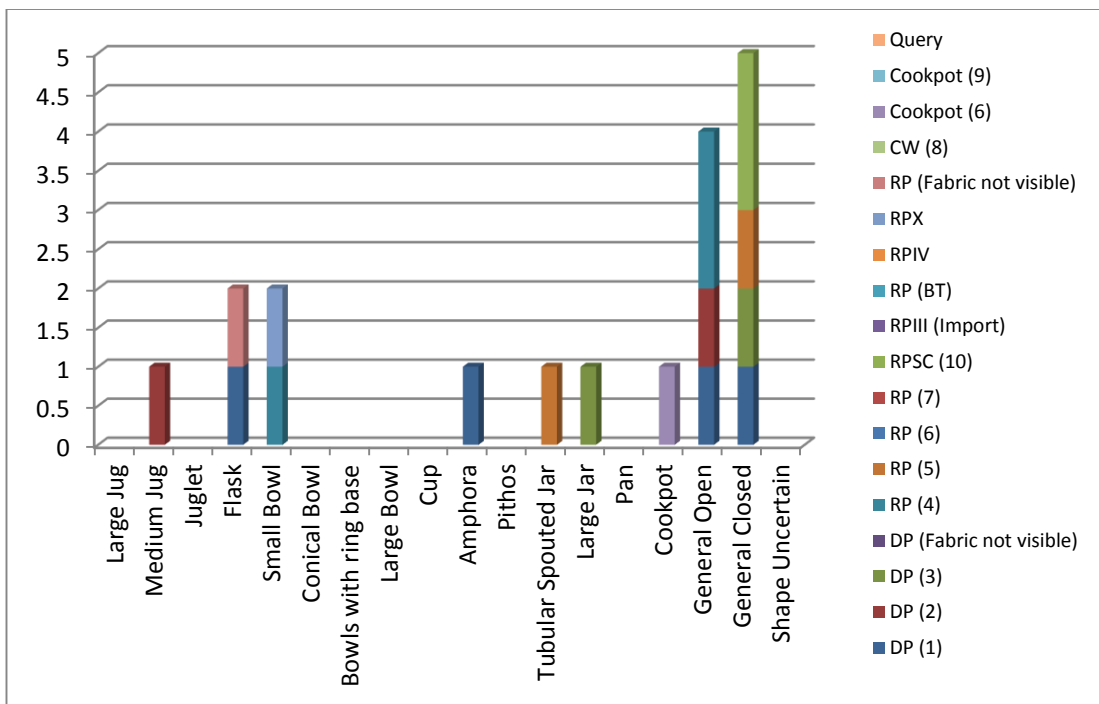


Figure 4.334: Tomb 43, shape to ware distribution

Closed vessels are represented by two flasks; 43.5 is a DP (1) example which appears to have two opposing loop handles similar to 19.13, although both are now missing. 43.7 is an undecorated RP flask, intact with many inclusions erupting on the surface, although the interior fabric is not visible. Amphora 43.4 (Figure 4.336) is an unusual

DP (1) example that is differentially fired, having a buff body and black neck and rim, as well as two horned hands with an extra bar across the centre. The firing and shape is reminiscent of vessels 6.43. There is also an upwards tapering neck from a closed RPSC flask or jug (43.16). Finally, a single biconical spindle whorl (43.9 – Figure 4.139) was found in this tomb and is discussed above.

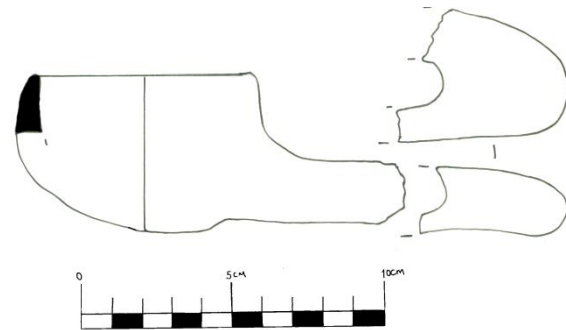


Figure 4.335: 43.1



Figure 4.336: Figure 43.4

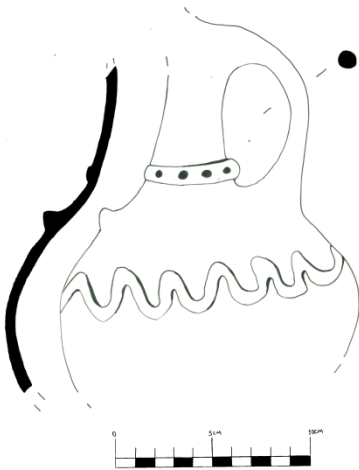


Figure 4.337: 43.15

Decoration occurs on six vessels or sherds in this assemblage (33%); 43.15 (Figure 4.337) is a cutaway spouted jug and the only vessel to carry relief decoration – a relief band around the neck/shoulder and a wavy line around the upper body. The

remainder consist of the typical highly decorated RPSC neck and disc lug, the base of which as radial parallel lines, two examples of incised and impressed west coast motifs and incised handles.

Although this is a small ceramic assemblage, there are several vessels diagnostic of an EC date; the presence of RPSC coupled with a tubular spouted jar, wide mouthed flask and an amphora with direct parallels in Tomb 6 (see above), as well as the singular biconical incised spindle whorl all suggest an ECI-II date, possibly into the ECIII.

Tomb Overview

In order to bring all of this data together, the following series of graphs and tables represent the entire assemblage from all of the tombs. By examining the contents of the tombs both as individual assemblages and as an entire cemetery, it is possible to identify differences and similarities that might otherwise be missed. Figure 4.338 shows the percentage of decorated vessels in each tomb, whilst Figure 4.339 presents the tombs in chronological order with an image of a representative open and closed vessel where appropriate. Table 4.5 provides a list of the contents of each tomb including general ware to shape ratios, whilst Tables 4.6 and 4.7 provide exact numbers of specific wares and shapes for each tomb. These graphs will be referred to in later chapters, when dealing with chronology, typology and observable changes over time, but are presented here to provide a complete account of the entire tomb content data.

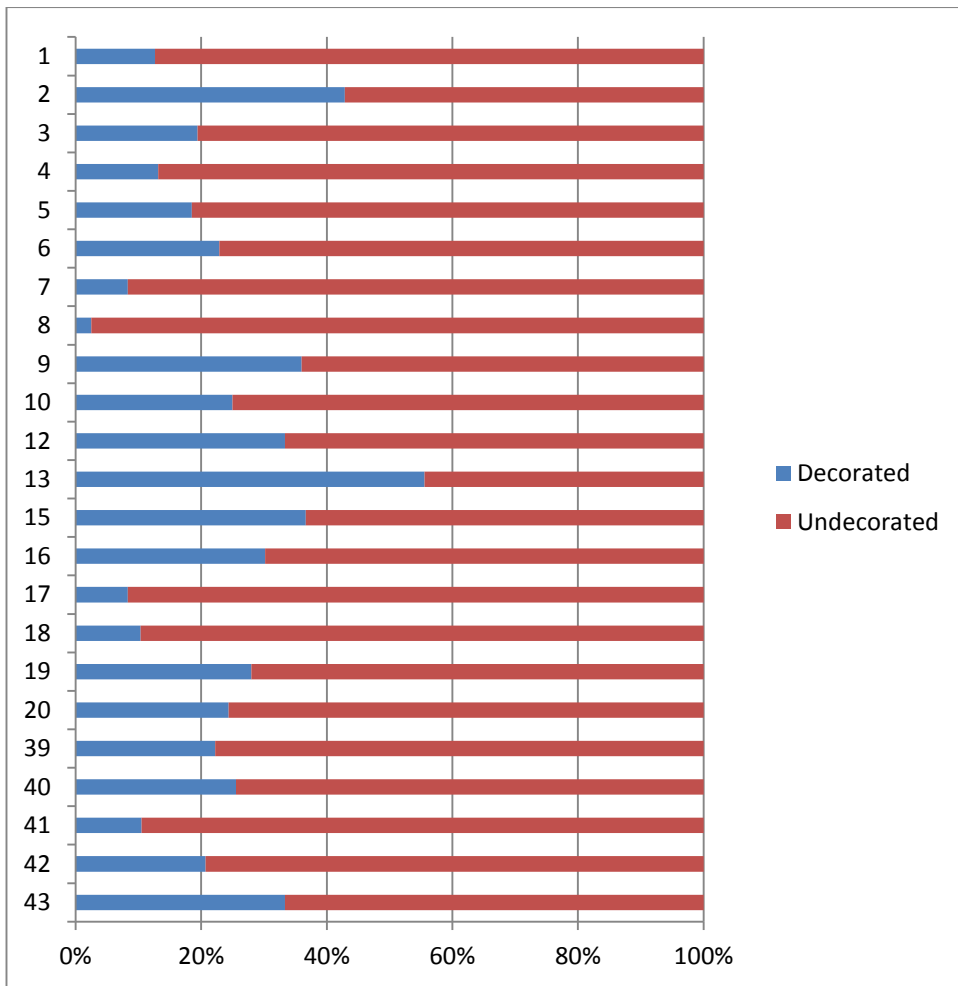


Figure 4.338: Percentile of decorated vessels by tomb (not including Tombs 11, 14, 21 and 38)

Tomb	Number of Burials	Minimum Number of vessels	Open: Closed vessels	DP – RP – Cookware	Non-Ceramic grave goods	Proposed Date
1	1+	103	48-51	52-41-10	Spindle whorl	ECI-III
2	1+	35	16-17	26-6-3	Spindle whorl, beads, picrolite flake	ECIII-MCIII
3	?	60	29-20	39-9-12	Spindle whorl	ECII-MCI
4	?	38	20-17	18-12-8		ECI-III
5	1+	27	10-12	23-2-2	Spindle whorl	ECIII-MCII?
6	2	153	83-67	97-40-15	2 spindle whorls, picrolite pendant, beads, spacers, stone blade, bone point, whetstone, picrolite flake, pebbles	ECI-MCI
7	?	16	5-7	12-1-3		EC?-MC?
8	?	40	22-15	27-4-8	2 spindle whorls	ECIII-MCI
9	?	50	8-40	43-6-1	Spindle whorl, Picrolite pendant	MCI-II
10	1	20	12-7	14-3-3		ECI-MCII
11	?	2	1-1	2-0-0	Stone spindle whorl	EC?-MC?
12	?	33	13-18	25-4-4		EC-MCI
13	1+	36	16-17	25-7-4	2 spindle whorls, metal earring, beads, spacers, pebbles	ECIII-MCIII
14	?	4	2-2	1-1-2	Stone spindle whorl, whetstone	EC?-MC?
15	1	30	6-23	24-4-0	Metal earring, beads, picrolite bead, spacers	MCI-III
16	2	125	52-70	89-32-4	Metal object, beads, picrolite bead	ECI-MCIII
17	?	12	7-5	8-1-3	Metal axe	EC?-MC?
18	?	29	10-17	16-11-2	Spindle whorl, metal knife, whetstone	ECI-MCI
19	1+	75	31-44	57-14-4	Spindle whorl, beads, spacers, mace head, pebbles	ECIII-MCIII
20	1+	41	11-30	28-13-0	7 spindle whorls, pot disc, beads, whetstone, pebbles	ECIII-MCIII
21	0	2	1-1	1-1-0		MC
38	1+	3	0-3	2-1-0	Spindle whorl	EC-MC
39	1+	45	19-3	36-7-2		MCI-II
40A	1+	94	63-24	70-20-3	Limestone bowl	ECIII-MCII
40B	1+	3	2-1	0-3-0		ECIII-MCII
41	0	38	14-22	27-8-2	Spindle whorl	ECI-MCI
42	2+	58	32-25	37-19-2	Spindle whorl	ECI-MCI
43	1+	18	9-8	8-9-1	Spindle whorl	ECI-III

Table 4.5: The *Ammoudhia* tombs, their general contents and proposed date

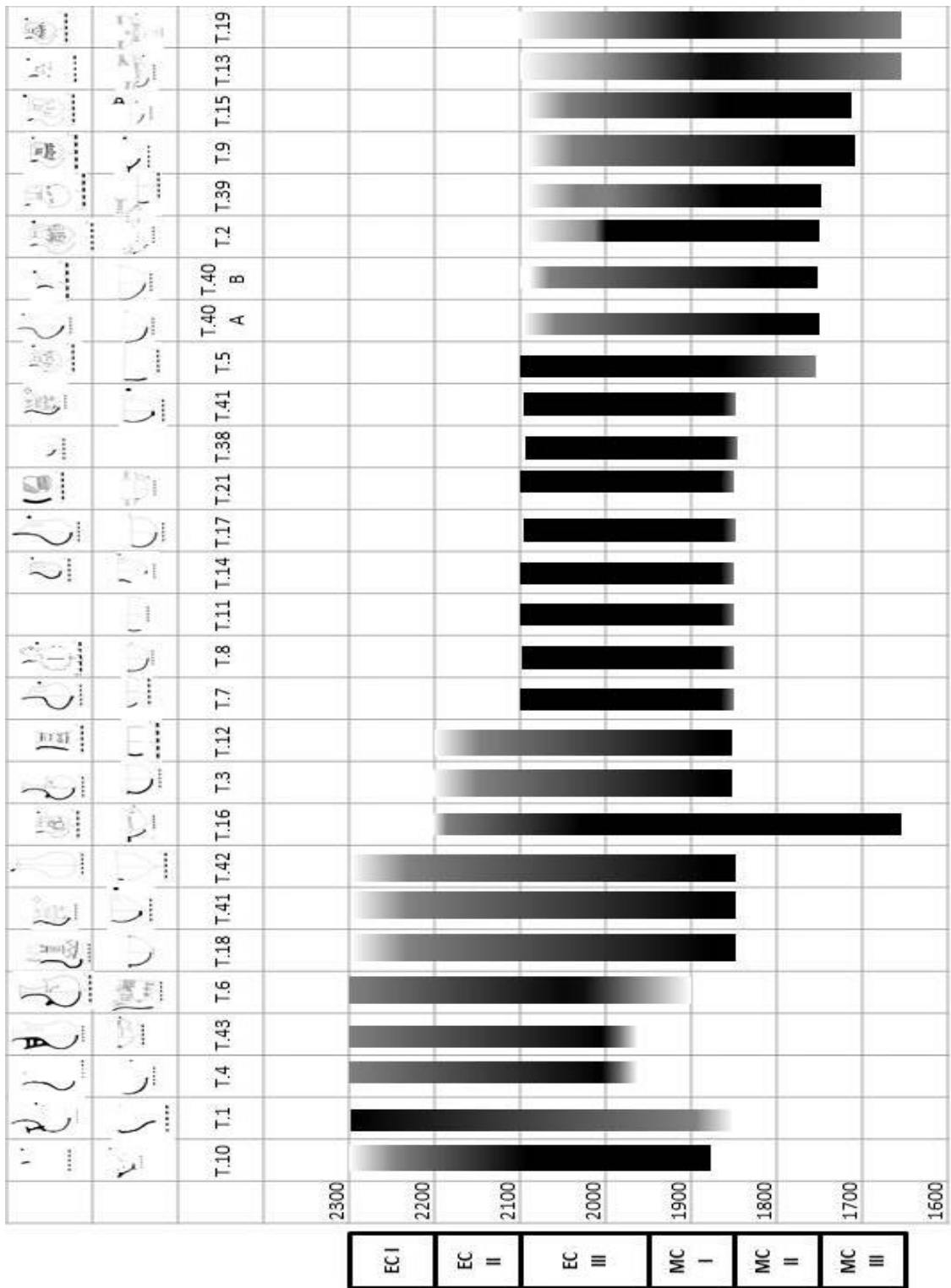


Figure 4.339: Chart showing approximate date ranges of *Ammoudhia* tomb use

Ware/Tomb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	38	39	40a	40b	41	42	43 total		
DP (1)	5	3	4	1	1	9		2		1	1	2	4			17	2	1	8	2			4	22		4	4	4	101	
DP (2)	35	22	32	13	18	69	10	19	37	13	1	22	19	1	19	67	4	12	35	19		2	29	38		19	2	30	587	
DP (3)	9		1	3	3	15	2	5	2			1				1	2	3	5	1				10		4	2	3	72	
DP (Intact)	3	1	2	1	1	4		1	4				2		6	4			9	6			3					1	48	
RP (4)	9	3	1	4	2	4	1	2	3	2		2	2	1	4	27		3	9	8		1	5	14	3	1	3	7	121	
RP (5)	10	2	6	3		8		1	2	1		1	3			1	1	4	3					2			2		50	
RP (6)	4	1	1			11		1								1		2	1	3		1	3			5	1	4	39	
RP (7)	14					5																						1	20	
RPSC (10)	3			4		6						1	2					1	1	1					1	1	2	2	24	
RP III (Import)																1													1	
RP (BT)			1			3										1		1											6	
RP IV				1																									1	
RPX								3								1										1	2	1	3	12
RP (Intact)	1								1										2	1								1	6	
CW (8)	6	2	4	5	4	2	1	1	1	1		2	2	1	1	1	1	1	1				2	2					37	
Cookpot (6)	4	1	7	3	2	11	1	7	1	2			1	1	3	2	1	4						1			1	1	54	
Cookpot (9)			1								2	1														1	1	1	6	
Query						1		1							1	1								1		1	1		6	
TOTAL	103	35	60	38	27	153	16	40	50	20	2	33	36	4	30	126	12	29	75	41	2	3	45	94	3	38	18	58	1191	

Table 4.6: Number of wares according to tomb

Shape/Tomb	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	38	39	40a	40b	41	42	43 total		
Large jug	10	2	5	2	1	7		2	1	2		2	2		1	1	1	7	5					1		1		53		
Medium jug	3	3			4	6	1		2	1				1	7	3	1	1	9	15			2	1		5	8	1	74	
Juglet	1	4	3	2	1	7	1	2	9	3			3	1	9	20			7	11		2	2		1	2	2		93	
Flask	3	2	1	2		5	1	1	2			1	3		2	2		1	2	2					1	2	2		35	
Small bowl	10	2	2	2	1	15		6	3	6	1	2	7		3	14	2	1	7	4	1		3	8	2	3	5	2	112	
Conical bowl	1					2																							3	
Ring based bowl		1								1						2														4
Large bowl	1		1	1		2		1		1					1									2					10	
Cup	1		1																							1			3	
Amphora			1			3						2	1					1	2						1		1		12	
Pithos						3												1												4
Tube spouted jar	3	1				1		1							1				1							1	1		10	
Large jar	1	1	1			3		1	1									1											10	
Pan	6	2	4	5		4	2	1		1		2	2	1	1	1	1	1	1	1			2	2	1	1	1		40	
Cooking pot	4	1	8	3	2	11	1	7	1	2		2	2	1	3	2	2	1	4							2	2	1	60	
General open	22	8	12	9	7	45	2	5	3	1		7	5		3	30	2	6	19	5		1	18	51		9	22	4	296	
General closed	33	6	10	11	6	36	4	10	26	1	1	13	8		4	44	3	6	19	3	1	15	22		12	12	5	311		
Shape unknown	4	2	11	1	5	3	4	3	2	1		2	3		1	4		2					3	7		2	1		61	
TOTAL	103	35	60	38	27	153	16	40	50	20	2	33	36	4	30	126	12	29	75	41	2	3	45	94	3	38	58	18	1191	

Table 4.7: Vessel shape according to tomb

The Kissonerga-Ammoudhia Petrological Data

Since handmade ceramics tend to be idiosyncratic, it can prove difficult (and perhaps misleading) to be overly rigorous in their classification (Vaughan 1987: 279). Therefore, where classification was ambiguous, a 'lumping' approach was adopted. Even so, in the petrographic analysis, nine separate micro-fabrics were identified. These nine can perhaps be lumped again into three basic categories:

1. Calcareous clays with microfossils (2 identifiable fabrics)
2. Fine silty clays with igneous (and occasional, rare calcareous) detritus, often reduced (4 identifiable fabrics).
3. Fine to medium silty clays dominated by the presence of argillaceous rock fragments (hereafter ARFs) (3 identifiable fabrics).

The divisions of Types 1 and 3 into further classes are both clear and rational divisions that seem to clearly represent separate choices (perhaps different clays) and manufacturing techniques as well as vessel form and function. However, the division of Type 2 into four separate classes is rather more ephemeral. The clays in all of these samples can easily be argued to come from the same or similar source and are separated more specifically on the presence (or absence) of certain inclusions, such as organic matter or the presence of calcareous material along with the more ubiquitous igneous fragments. These can occur simultaneously in the same clay beds, so it may be misleading to think of these as distinct separations, but, for the purposes of this thesis, it is important to recognise these different choices made by the *Ammoudhia* potters.

These micro-fabrics do not necessarily correspond to the macro-typology presented above. To avoid confusion with the sub-ware fabrics identified above, Roman numerals will be used to identify these nine micro-fabrics.

The nine identified *Ammoudhia* micro-fabrics presented below, with more detailed microscopic descriptions provided in Appendix 5.

FABRIC I: Fine fabric with microfossils and organic matter	
Wares represented: RPSC (10)	Samples: 4C, 4D
FABRIC II: Relatively coarse fabric with microfossils and limestone fragments	
Wares represented: CW (8)	Samples: 4E, 10B
FABRIC III: Fine silty fabric with igneous inclusions	
Wares represented: DP, RP (2 and 4)	Samples: 5C, 15D, 15F, 15H, 15J
FABRIC IV: Fine silty fabric with igneous inclusions and micritic limestone	
Wares represented: DP, RP (2 and 4)	Samples: 15C, 15E
FABRIC V: Fine silty fabric with igneous inclusions, micritic limestone and organics	
Wares represented: DP (1)	Samples: 10A, 15G
FABRIC VI: Fine silty fabric with igneous inclusions and organic matter	
Wares represented: DP (2)	Samples: 4B, 5B, 10C, 15I
FABRIC VII: Fine silty fabric with igneous inclusions, frequent ARFs and organics	
Wares represented: DPC, RPC (3 and 6)	Samples: 5A, 15A, 4A
FABRIC VIII: Medium fabric with igneous inclusions and frequent ARFs	
Wares represented: RP (5 and 6)	Samples: 10E, 10F
FABRIC IX: Fine fabric with dominant ARFs and few inclusions	
Wares represented: Cooking pot, RPC (6)	Samples: 10D, 15B

Table 4.8: The *Ammoudhia* fabrics as defined by petrographic analysis.

Fabrics I and II are the only fabrics identified that are clearly from a calcareous, sedimentary source.

Fabric I

Fabric I is dominated by the presence of microfossils, in particular, radiolaria, although other species and bioclasts occur (Figures 4.340 and 4.341). Other inclusions include small rounded fragments of ultra-fine grained limestone or chalk (no microfossils were identifiable in these fragments), and ARFs of varying sizes and shapes.

ARFs are fragments of detrital sediments such as claystone, siltstone and mudstone (Whitbread 1986: 82). By applying classifications developed for the study of soil micromorphology, Whitbread identified four classes of argillaceous inclusions (1986: 79). By applying these criteria, the inclusions identified in the *Ammoudhia* samples can be convincingly argued to be ARFs. They have sharp boundaries, are optically only slightly active and vary from sub-rounded to sub-angular. Many also exhibit polygonal cracking. These can vary in density and colour from red to light brown through to blue or black (Vaughan 2003: 215), but they almost always take on the same colour as the surrounding matrix. Although likely to be a result of natural processes (Vaughan 2003: 215), it is also possible that they were added as temper (Whitbread 1986: 82). Vaughan also uses the term ARF to describe the inclusions she observed in BR ware, and these can also be related to what has been termed 'Textural Concentration Features' or TCFs (e.g. Dikomitou 2011).

Mineral inclusions are relatively rare in this fabric and include biotite mica, quartz and rare pyroxene lathes in the clay matrix.

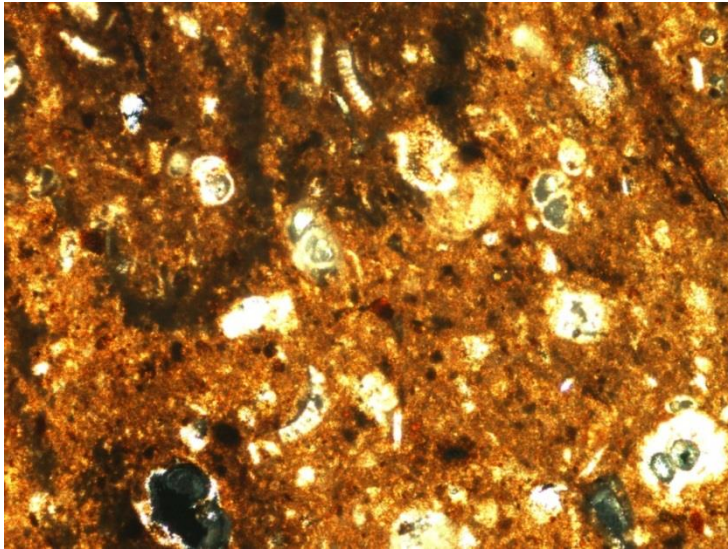


Figure 4.340: Fabric I, RPSC sample 4D (XPLx25). Microfossils, burnt areas and clay striations are all clearly visible.

The frequent occurrence of elongated planar voids with reduced halos is indicative of the use of organic matter as temper and the soft to medium hardness coupled with the fact that the samples are routinely oxidised suggest a low and even firing temperature. Clay striations are visible in these samples, although there is no evidence to suggest this is a result of human activity. Clay striations can occur naturally when two slightly different types of clay mix; this is especially common in alluvial environments (Dikomitou 2011: 109).

Fabric II

Fabric II is the coarsest of the *Ammoudhia* fabrics, although this is relative, as the Kissonerga ceramics in general are recognisable for their particularly fine fabrics. It is rather chaotic, with various voids and inclusions randomly oriented (Figure 4.341). The clay is identifiable by the presence of microfossils, although in this case there are fewer than in Fabric I and they are not complete fossils (as in Fabric I) but broken up and fragmentary. There are also frequent occurrences of large granules of micritic limestone and smaller grains of fine-grained limestone. Like Fabric I,

quartz, biotite and ARFs occur, and there are also rare occurrences of altered igneous (basalt) rock fragments.

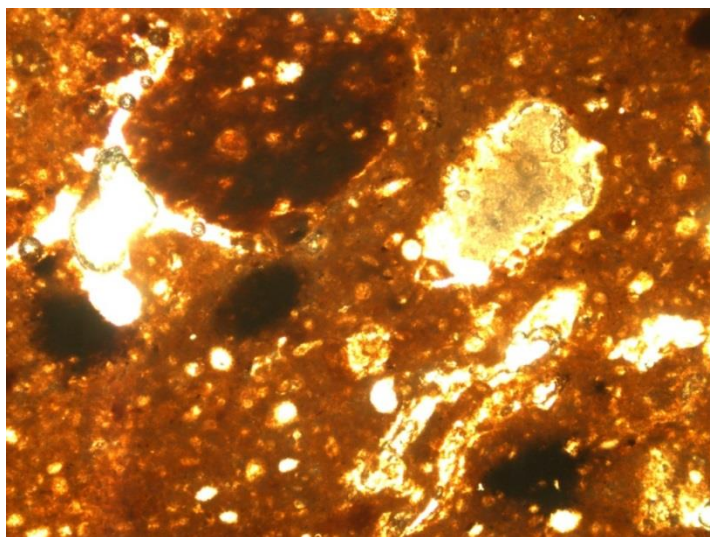


Figure 4.341: Fabric II, CW sample 4E (PPL x25). Showing the co-existence of sedimentary and igneous inclusions. Note the large ARF and slightly smaller limestone fragment in centre. The rock fragment in the bottom right corner is basalt.

This fabric matches Fabric Type 8 as described above and in Appendix 4, and both samples come from the flat bases of tripod pans.

As discussed above, Fabrics III to VII are all very similar and likely come from the same clay source. It is relatively common for clays that may be from the same bed to have slightly different mineral signatures, especially if they are from an alluvial source (Dikomitou 2011: 82). All are very fine and from a silty source and are restricted to DP and one type of RP. In fact, all DP samples occur in one of these fabrics; from the macro analysis, it is clear that the wares 1-4 all occur in a variation of this clay signature.

Fabrics III to VI are all extremely similar, exhibiting the same very fine and silty matrix, with individual fabrics defined through the addition or absence of identifiable inclusions.

Fabric III

Fabric III is the most common and also the finest. It is of a very fine silty fabric, very well sorted with very few inclusions and voids (Figure 4.342 & 4.343). The inclusions are generally igneous and are most likely part of the clay matrix. There is no evidence for added temper, or any organic material.

Firing temperatures for DP are assumed to be very high, possibly over 750°C (Herscher 2003: 152) and the hardness of the samples coupled with the lack of calcareous materials and other inclusions backs this up. There may be two different firing techniques occurring, with the most common being a reduced atmosphere resulting in the typical 'blue core' distinguishing DPBC defined herein as Fabric Type 2 (Herscher 2003: 152). However, there are two examples of this fabric occurring in a fully oxidised environment (15H and 15J), representing what appears to be a local type of RP (4).



Figure 4.342: Fabric III, DP sample 5C (XPLx10). The clear colour differentiation observed in DP, from thin oxidised outer margin to blue core. Note the fine texture and clear alignment to vessel surface.

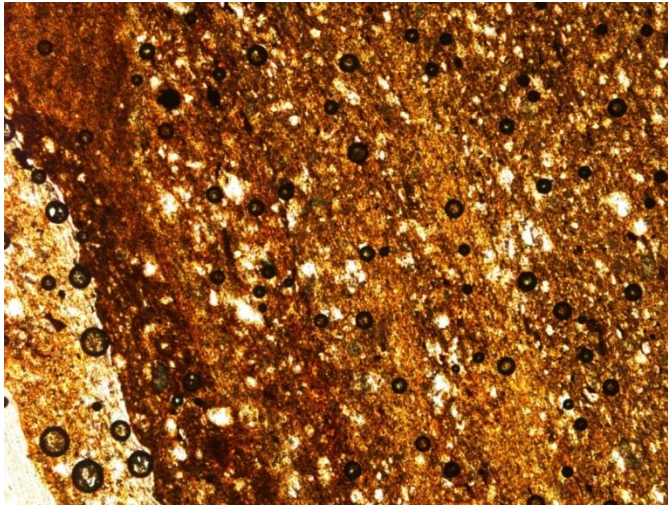


Figure 4.343: Fabric III, RP sample 15H (XPLx10). Fully oxidised version of fabric III (the black circles are air bubbles - errors in the section making process).

Fabric IV

Fabric IV is extremely similar to Fabric III, with the addition of micritic limestone fragments, which occur relatively frequently in the clay matrix (micritic limestone, or microcrystalline calcite, refers to very fine grained dense sediment with a crystal size less than $5\mu\text{m}$ [MacKenzie & Adams 1994: 110, fig. 129]). They range in size from coarse to fine sand and the majority are sub-rounded and of varying sphericity, suggesting that they are part of the clay source and not added temper. Like Fabric III, these represent subwares Types 2 and 4. The DP example has a thick, obscuring blue core and a thin outer oxidised margin, whilst the RP example is fully oxidised. Both appear to have been fired at high temperatures.



Figure 4.344: Fabric IV, DP sample 15C (PPLx10). Again note the clear colour differentiation; the sub-rounded light grey inclusions are micritic limestone.

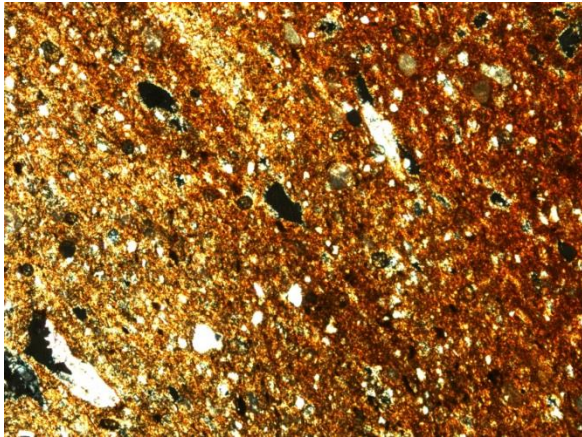


Figure 4.345: Fabric IV, RP sample 15E (XPx10). Fully oxidised, the co-occurrence of igneous and sedimentary inclusions is visible.

Fabric V

Fabric V is similar again to Fabric IV, being of the same, fine silty texture, but is characterised in this instance by abundant long planar voids that show clear evidence of burning around them, so much so that a black core exists where a concentration of organics seems to have occurred and is made up of reduced organic material (Figure 4.346).

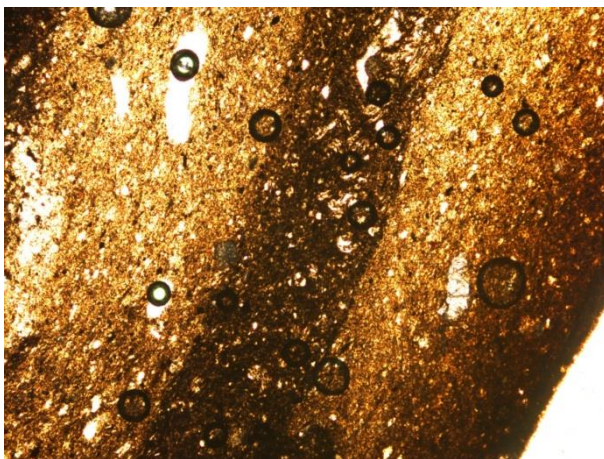


Figure 4.346: Fabric V, DP sample 15G (PPLx10). The central reduced area surrounding organics is clearly visible (the black circles are air bubbles - errors in the section making process).

This fabric is restricted to samples matching DP (1) as identified in the typological analysis; a DP subtype, recognised by Åström (1972a) that occurs without a blue

core, but with the typical drab surface. Like the other wares in this silty fabric, the matrix is extremely well sorted, with a restricted range of inclusions, although micritic limestone is still present. The addition of large amounts of elongated organic material (probably grass or straw) is suggestive of a deliberate added temper. The relative softness of this form of DP (Mohs 3, as opposed to 4-5 for the DPBC) combined with the incompletely oxidised section suggest a lower firing temperature than that for Fabrics III, IV and VI.

Fabric VI

One of the more common types found in this fine, silty clay selection (Figure 4.347), very similar indeed, to Fabric III, this sub-type can be clearly differentiated by the inclusion of organic material, similar to type V above. In this case, the fabric occurs exclusively in DP (2) vessels of a larger type (mostly medium sized closed vessels, such as jugs). The matrix is still well sorted and the range of inclusions still restricted, although there are a greater number of igneous rock fragments visible (mostly very altered dolerite and basalt); these are not clearly aligned, but appear in a more random formation. In each sample, the clay is entirely reduced, suggesting high, fast firing but making it difficult to identify mineral inclusions.

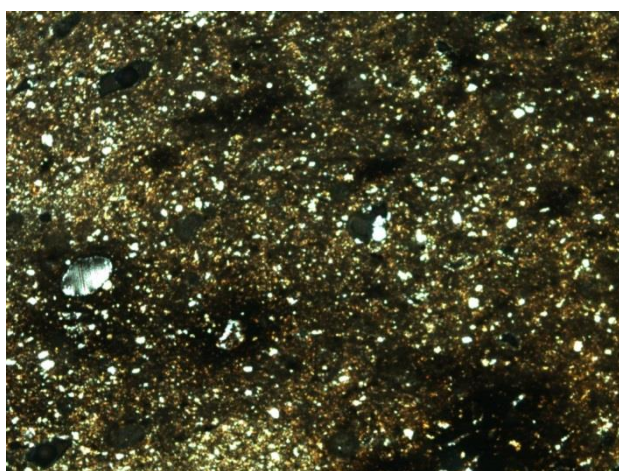


Figure 4.347: Fabric VI, DP sample 5B (XPLx10). Note the numerous burnt out voids and reduced fabric.

The remaining three fabrics are characterised by numerous ARFs. The clay source for these fabrics may very well be the same silty mix that occurs in all of the *Ammoudhia* samples except I and II. Fabric VII in particular occurs in a type of DP (3), whilst VIII still has similar igneous inclusions, although the texture is not as fine as III to VII. Fabric IX has little or no identifiable mineralogy, so is more difficult to type.

Fabric VII

Fabric VII seems to encompass all of the characteristics that are seen in III-VI. These include fine and coarse igneous material, some limestone fragments, frequent burnt out voids (organic material), and also the frequent occurrence of ARFs varying in size from granules to silt and of varying shape and angularity (Figure 4.348). Several ARFs have polygonal cracking and shrinkage margins, suggesting that these were already hard when incorporated into the clay; the different rate of expansion in heat, compared to the surrounding matrix also suggests a slightly different composition to the clay matrix (Vaughan 2003: 215). The matrix and inclusions are all still visibly aligned to the vessel margins.

This is a poorly sorted fabric, accounting for the coarser versions of DP (3) and RP (6). This fabric is found in larger vessels such as large bowls, jars and pithoi. The reduced blue core and hard nature of the DP samples (Mohs 4-5) is indicative of high and rapid firing temperatures (Herscher 2003: 150; Vaughan 2003: 218).

Although the occurrence of a RP (6) example from a large bowl (Figure 4.349) shows that this fabric was not exclusive to the DP repertoire, but produced a relatively fine, hard fabric able to maintain the structural integrity of larger vessels.

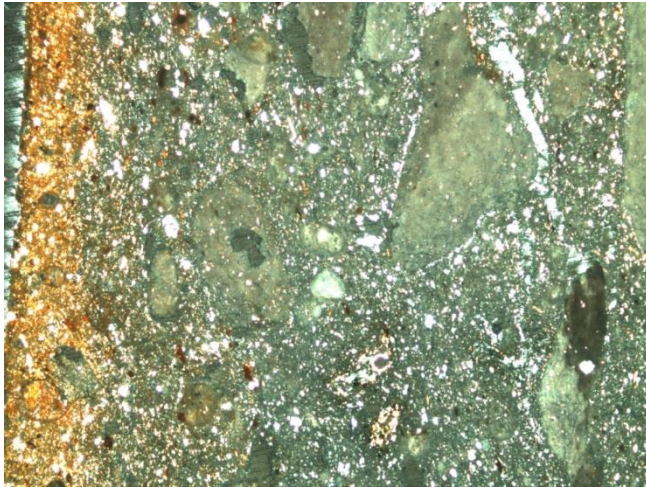


Figure 4.348: Fabric VII, DP Coarse sample 15A (XPx10).

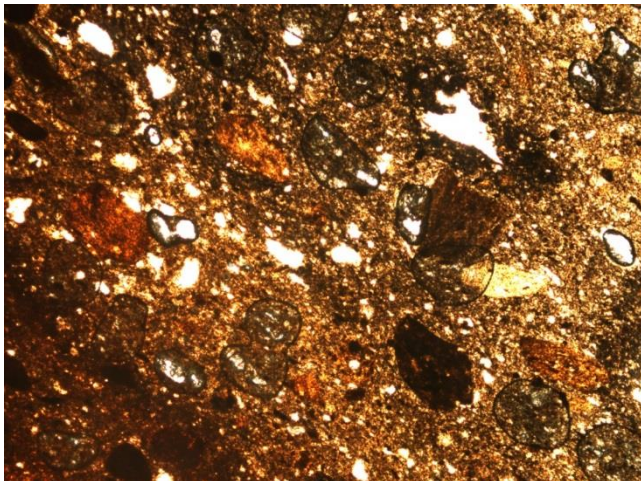


Figure 4.349: Fabric VII, RP Coarse sample 4A (PPL x10). The numerous ARFs are visible here as are igneous rock fragments and burnt out voids.

Fabric VIII

Fabric VIII is a slightly coarser version of the same fabric as III to VII, poorly sorted, with similar igneous inclusions but is characterised by the numerous ARFs that are clearly visible without magnification. Under the microscope they can be identified as mudstone or siltstone fragments, some with shrink rims around them (Figure 4.350). There is otherwise no evidence of added temper or preparation.

The relatively soft nature of this fabric and the dark grey core suggests a relatively low firing temperature, with incomplete oxidisation. This fabric occurs solely in RP (in both Fabric Types 5 and 6), and shows similarities on a macro scale with examples of RPI from Tombs 1 and 6 (not part of the current sample).

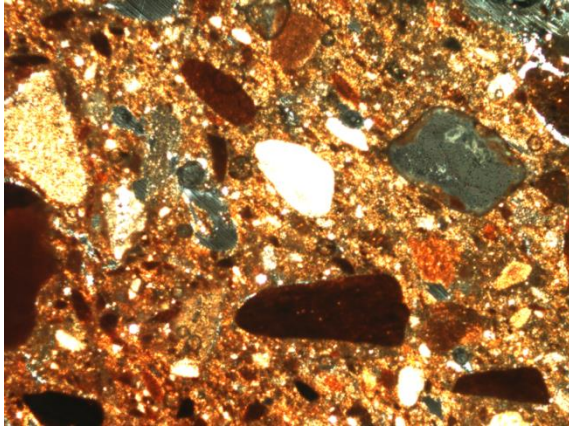


Figure 4.350: Fabric VIII, RP Coarse sample 10E (PPL x10). The chaotic mix of large ARFs, igneous rock fragments and fine inclusions is visible.

Fabric IX

Fabric IX is very similar in outward appearance to Fabric VIII, being dominated by the presence of large ARFs (Figure 4.351), so much so that in places they are so numerous and tightly packed that the fabric can be said to be grain supported. This poorly sorted mix is in random orientation and contains very little other information. There is no evidence of added temper (organic or otherwise) and there is a lack of identifiable minerals in the matrix. In this instance there are no pyroxenes or basalt fragments such as occur in the other fabrics. Only rare examples of biotite lathes and rounded quartz grains give any clue. The rounded and spherical nature of the quartz may signify sand, either in the matrix itself or possibly as added temper.

Both samples can be identified as conforming to Type 6; one sample comes from a cooking pot, the other from a slipped RP bowl. This backs up the observation made above, where a single fabric type was identified for these two separate wares. The large number of pebble to granule sized inclusions makes sense, as they are probably functional and will stop thermal cracking.

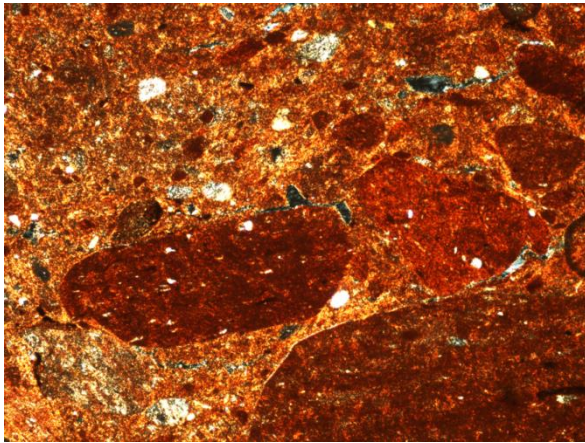


Figure 4.351: Fabric IX, sample 15B (XPLx25).

Clay Sampling Experiment

As described in Chapter 3, an attempt was made to collect samples from various locations in the vicinity of Kissonerga and compare these to the *Ammoudhia* samples. Figure 4.352 shows the six sample areas and Table 4.9 gives a brief description of the location and the clays (a petrographic description of each clay sample is provided in Appendix 5).



Figure 4.352: Map showing clay sample locations (Google Earth, accessed 20/02/2015)

Sample No.	Location	Description
1	34°50"16N, 32°25"55E Centre of Tala, dried stream bed that would once have fed the stream where Sample 3 was taken. 3.5km west of Kissonerga.	Fine calcareous clay, consistent with background geology of mainly Lefkara chalks and marls. Significant colour differentiation led to 3 samples being taken: 1.1 is very pale brown (10YR 8/3) 1.2 is light reddish brown (5YR 6/4) 1.3 is light gray (2.5Y 7/2)
2	34°51"20N, 32°24"59E Taken from banks of an old stream bed, south-east of the Mavrokolympos Reservoir. 4km north-east of Kissonerga.	Distinctive light grey (5Y 7/2) typical of the grey-green sandstone found mixed with the siltstone and mudstone of the Mamonia mélange. Background geology also consists of radiolarian cherts, limestone quartzitic sandstones and serpentinite overlain by Pleistocene terrace deposits.
3	34°49"50N, 32°23"40E Taken from the mouth of a dried up stream bed, next to the coastal road, at the southernmost tip of Kissonerga Bay (0.8m north of Kissonerga- <i>Skalia</i>)	Very pale brown (10YR 8/2) calcareous alluvial deposits mixed with Pleistocene coastal terraces of calcarenite and sand.
4	34°51"22N, 32°24"2E Taken from old river bed just west of the Mavrokolympos Reservoir. 1km west of Sample 2. 4km from Kissonerga.	Distinctive Reddish brown bentonitic clay (5YR 5/4) associated with the Mamonia Complex. Although in the same mélange as Sample 2, it lacks the grey-green sandstone represented in Sample 2.
5	34°51"4N, 32°23"48E Sample taken from the banks of the Mavrokolympos River, centrally between the Mavrokolympos Reservoir and the coast. 3.5km from Kissonerga.	A very mixed deposit combining similar Mamonia geology to Sample 2 described above, but by a small Kannaviou bentonitic outcrop. Thus, 4 samples were taken: 5.1 Light brown (7.5YR 6/4) 5.2 greenish grey (Gley 1 6/1 10Y) 5.3 light greenish grey (Gley 1 7/1 10Y) 5.4 pale yellow (2.5Y 7/3)
6	34°48"49N, 32°24"9E The closest sample to Kissonerga – taken from the Agrokalamni river bed 0.2km south of Kissonerga- <i>Ammoudhia</i> .	Pale yellow (2.5Y 7/3) clay, primarily showing characteristics of the coastal Pleistocene terraces of calcarenite, sand and gravel.

Table 4.9: Clay sample location and short description

Three samples were taken from the clay bed defined as Sample 1. The first (1.1) consists of a fine, silty matrix with poorly sorted medium sand sized grains representing the largest inclusions. The presence of numerous microfossils coupled with the presence of rare quartz, mica and igneous rock fragments means that this sample shares similarities with Microfabric I from *Ammoudhia*. Although not entirely the same, it points to a similar, calcareous clay source for RPSC vessels.

Samples 1.2 and 1.3 both combine a mix of ARFs and limestone that cannot be compared to any of the *Ammoudhia* samples.

Sample 2 is from a Mamonia source 4km from Kissonerga. The variety of inclusions in this sample is generally similar to *Ammoudhia* samples III-IX. In particular the high fired sample colour is in keeping with Microfabric VIII. However, the clay sample lacks the diagnostic ARFs seen in the pottery (Vaughan does suggest that these can be manufactured (2003: 215) as part of the pot making process). Although there are similarities, there are also discrepancies, with the presence of muscovite and microfossils in the clay, not observed in the pottery.

Sample 3 was taken from the same river bed as Sample 1, but at a point on the coast, within 1km of Kissonerga. Like Sample 1 this shares similarities with Microfabric I from *Ammoudhia*, with frequent microfossils. The low fired sample colour is also similar to Microfabrics I and II and although not identical, this sample is the closest match to *Ammoudhia* Microfabrics I and II.

Sample 4 is another sample from underlying Mamonia geology. Although the underlying mineralogy is similar and the clay colours generally match the *Ammoudhia* wares, the dominant combination of ARFs and limestone does not match any of the *Ammoudhia* samples.

Four samples were taken from the Sample Area 5, because of the geological mix of a Mamonia outcrop and Kannaviou Formation. Sample 5.1 contained more calcareous material, but the remainder were all homogenous with dominant ARFs similar to *Ammoudhia* samples VII-IX in particular. The background minerals such as mica and quartz are also generally similar to the *Ammoudhia* samples, with some differences – e.g. the mica identified in the pottery samples is biotite, whilst in these clay samples it is muscovite that is most common.

Finally, Sample 6 is geographically the closest to Kissonerga, from the mouth of the Agriokalami River. This sample contains a general mix of limestone, ARFs, quartz and mica that is broadly shared by all six samples, but is of a more sandy texture consistent with the coastal Pleistocene terraces. Although this is the closest in distance, this sample does not accurately match any of the *Ammoudhia* microfabrics.

These clay samples are representative of the geology of the landscape around Kissonerga, with Mamonia outcrops overlying Lefkara chalks and marls, with more recent Pleistocene terrace deposits (see Figure 2.5). Some of these samples represent a broadly similar, but not identical mineralogy to the *Ammoudhia* ceramics. Whilst the clay matrices and inclusions observed in the micro samples from *Ammoudhia* match in a general way to the clays, it is impossible to state that any of the locations sampled match specific wares at *Ammoudhia*. However, certain conclusions can still be drawn from this study (see Chapter 5).

CHAPTER 5

DISCUSSION: CONTEXTUALISING KISSONERGA-AMMOUDHIA

Establishing a Chronology

From the evidence presented in this thesis, it is likely that the *Ammoudhia* cemetery was in use from the very early EC right through to the MCII-III; i.e. over 500 years. Survey evidence points to the *Ammoudhia* cemetery being a large necropolis (Hadjisavvas 1977: 225) and this thesis only has scope to study the ceramics from the currently excavated tombs. Therefore, it is possible that there are tombs yet to be discovered that may in time yield further chronological information.

Towards an Absolute Chronology

The three useful radiocarbon dates from Tombs 1, 10 and 16 generally conform to the existing evidence from ECI-MCI sites (see Table 2.2 and Table 4.4), if somewhat earlier than was expected (at least in the case of sample 55362, Tomb 16). However, while confirming a general EC-MC date, the range covers the Philia phase through to the MCI, and further refinement is not possible with the current evidence.

Radiocarbon dates (especially from short-lived samples) are still rare for this period (Manning 2014: 207) and refining the dates/periods and relationships with the archaeology continues to be a work in progress (Peltenburg *et al.* 2013; Knapp 2013; Manning 2013, 2014).

When compared to the series of well stratified dates from Marki-*Alonia* (Frankel & Webb 2006: 35), *Ammoudhia* Tombs 1 and 10 seems to be contemporary with Marki phases C and D(ECI-II), but there is also a possibility of a date as early as the Philia facies or later in the ECIII/MCI (Frankel & Webb 2006: 35-37). Tomb 16 corresponds

to dates from Marki sources from phases D, E, F, G and H (Frankel & Webb 2006: 37), a range encompassing the ECI-II, ECIII and MCI (Frankel & Webb 2006: 35).

The *Ammoudhia* dates also generally conform to the radiocarbon dates from Sotira-*Kaminoudhia* (Manning & Swiny 1994; Herscher & Swiny 2003: 502-5). However, the Sotira range of dates is so wide (see Table 2.2), that it is not possible at this stage to hypothesise, beyond the suggestion that the sites were likely contemporary at points during the EC. With the possible exception of Tomb 16, they do not match the dates from *Alambra-Mouttes*, which all date to the second millennium Cal. BC (Coleman 1996: 339).

The possibility that Tombs 1 and 10 might have a date corresponding to the Philia period requires attention. As presented in Chapter 2, the Philia facies remains a problematic period that is largely defined on the basis of ceramic identification (Webb 2007: 199). Only four radiocarbon dates exist from Philia strata and three of these come from Marki-*Alonia*, suggesting a date of 2400-2200 Cal. BC (Frankel & Webb 2006: 35). There is a Philia presence at Kissonerga-*Mosphilia* (Peltenburg *et al.* 1998) and a single radiocarbon date was produced from Pit 916, with a 68.2% range of 2575-2465 Cal. BC and a 95.4% range of 2835-2340 Cal. BC, giving a mean of 2515 Cal. BC (Manning & Peltenburg 1998: 14). This is at least a century earlier than the Marki-*Alonia* dates; although the Philia stratum at Kissonerga-*Mosphilia* was disturbed and the single date cannot be taken as completely secure (Peltenburg *et al.* 2013: 324). The *Ammoudhia* dates do not overlap with the *Mosphilia* one, and there is no evidence for Philia ceramics in any of the *Ammoudhia* tombs. Therefore, it currently remains more likely that the tombs date to the EC rather than the Philia phase, and on the present evidence, it remains uncertain how large a gap in time there was between the abandonment of *Mosphilia* and the earliest burials at *Ammoudhia*.

Whilst the Tomb 1 sample is largely in keeping with the EC date suggested by the ceramics, how does one explain the possibility of an earlier date for Tomb 10 and especially Tomb 16? There are three possible explanations for the inclusion of both EC human remains and typologically MC ceramics (and even some MCII-III in the case of Tomb 16).

Firstly, there was an error in the radiocarbon dating process. Whilst this is possible, the similarities between the three usable dates coupled with the fact that they generally match the period suggested for the cemetery is against this. Secondly, there is an error in the relative chronology. The relative chronology is certainly not 100% accurate and is constantly being refined as new evidence is presented. Indeed, this thesis has illustrated through both typological evidence and radiocarbon dating that DP can now be convincingly argued to date to the very Early Bronze Age (at least at Kissonerga), it could therefore, also be argued that other wares and shapes might occur somewhat earlier in the archaeological record in the south-west. A later date was originally proposed for Tomb 10 due mainly to the presence of a ring-based bowl (10.4 - Figure 4.95). Since ring-based vessels are not found in Cyprus until late in the MC (Herscher, 2003: 218) this was used as a chronological marker to date this tomb. However, this vessel is unusual, not to say unique (see Chapter 4) and might represent a precocious element in an otherwise EC tomb. The remaining vessels all generally agree to an ECI-MCI range. Tomb 16 ceramics all conform to a date no earlier than ECIII and are of types found on MC sites elsewhere on the island (e.g. imported vessel 16.38 (Figure 4.39), thus arguing for a date towards the end of the proposed range for this sample.

The third possibility is that the tombs were reused over time. Evidence for tomb reuse was found at Bellapais-*Vounous*, Lapithos-*Vrysi tou Barba*, the Karmi cemeteries and possibly Psematismenos-*Trelloukkas* (Dikaios 1940: 72-4, Stewart & Stewart 1950: 80, 131, 162; Herscher 1978: 296-7; Webb *et al.* 2009: 22, 27, 239-240;

Georgiou *et al.* 2011: 344) where the presence of clearly identifiable ECI-II vessels (or sherds) in otherwise ECIII-MC assemblages argues for tombs being systematically cleaned out to allow for new (later) inhumations (Webb *et al.* 2009: 239-40). It is possible that this also occurred at Kissonerga-*Ammoudhia* in those tombs containing mainly ECIII-MC ceramics and one or two ECI-II anomalies (e.g. Tombs 13, 19, 41 and 42), as well as Tomb 16 and possibly Tomb 10. Whether the tombs date to an earlier period and were then used by a later group, or they were in continuous use, but cleared out on occasion, is impossible to confirm. Some tombs (such as Tomb 1, 6 and 43) seem to have been in use exclusively during the ECI-II and show no evidence of tomb reuse.

A Relative Chronology

From the *Ammoudhia* evidence it is now possible to state with certainty that DP dates to a considerably earlier period than originally proposed (Åström 1972a: 83). The radiocarbon evidence confirms EC dates for Tombs 1 and 10 (and possibly Tomb 16), and DP is the dominant ware in each of these tombs. An argument could be made for Tomb 16 (and possibly Tomb 10) being reused and the tooth dating to an earlier inhumation. However, almost the entire Tomb 1 assemblage dates to the ECI-II. The presence of DP vessels alongside RPSC and RPI (and in such high numbers) in clear ECI-II shapes is convincing evidence that DP dates to the earliest EC at Kissonerga.

Although a radiocarbon date was not forthcoming, Tomb 6 also provides unambiguous evidence for DP co-existing with early wares and shapes. It is not only the dominant ware, with over twice as many DP to RP vessels, it also occurs in early shapes (for example, the conical bowls [6.45 & 6.46 - Figures 4.104, 4.105] are extremely similar to the RPI (7) decorated example from Tomb 1). This thesis provides very strong evidence for DP already being commonly used at this early

date and argues that this ware has a long history in the west and may even have its roots in the Chalcolithic period (Herscher 2003: 2180).

The *Ammoudhia* RP also clearly has an ECI-II presence, easily recognised in the distinctive and well documented wares RPI and RPSC (Stewart 196; Herscher 2003; Georgiou *et al.* 2011). RPI (7) is only found in three tombs, whilst RPSC is widely distributed, among 11 tombs, in small numbers. The local RP types (4, 5 and 6) also have a presence in these early contexts, although in both Tombs 1 and 6, it is RPI (7) that is the most common RP sub-ware.

The tomb by tomb analysis illustrates the disparity in the number of vessels and the wares, shapes and decorative motifs present in each tomb (Figures 4.338 & 4.339; Tables 4.5, 4.6 & 4.7), suggesting that some tombs date to an earlier or later period within the EC-MC (Keswani 2013: 208-9).

At least four tombs (1, 4, 6 and 43) have clear ECI-II ceramics. Tomb 1 is arguably the earliest of the *Ammoudhia* tombs; the wares and shapes all have solid ECI-II characteristics and there are no examples of any diagnostically MC vessels. Tombs 4 and 43 likewise appear to be of an exclusively EC date, and have some typical ECI-II types, but are of a more general EC character; Tomb 43 is the only *Ammoudhia* tomb where DP is NOT the dominant ware (only just – there are 8 DP vessels and 9 RP ones - Tables 4.5 & 4.6). Tomb 6, the richest tomb in the assemblage also seems to date to the EC, but contains some evidence for use into the MCI.

The remaining tomb assemblages can only be placed in the more general ECIII-MCII category (Figure 4.339), with some exhibiting more typically EC characteristics, whilst others (2, 9, 15 and 16), do not seem to date to any earlier than MCI-II. Later (ECIII-MC) dates were applied to tombs that contained no examples of ECI-II wares, shapes or decorations *and* contained examples of ceramics that clearly dated to the

MC (see Chapter 3). Tomb 16 in particular appears to contain the latest ceramics with a clear MC repertoire, which is extremely interesting considering the 2200-1890 Cal. BC date discussed above.

In these later tombs, the same general wares occurred (with the exceptions of RPI and RPSC), although the range was often more restricted (Table 4.6). For example, Tomb 4, a relatively small assemblage of 38 vessels, relatively dated to the EC, contains at least nine different wares; whilst Tomb 15, a similar sized tomb containing 30 vessels is restricted to only three wares, all of which are very fine table wares, suggesting an increase in uniformity over time.

Typological developments can be observed in both RP and DP vessels when examples from early and later tombs are compared. RPI (7) is absent, and when the odd example of RPSC occurs, it is generally fragmentary, or often only represented by a sherd (e.g. Tomb 13, Tomb 19), possibly representing tomb clearance as described above. The number of RP (4) vessels increases (there are 27 examples in Tomb 16, compared to 9 in Tomb 1 and only 4 in Tomb 6 – all equally large assemblages). However, the RP shapes remain split between open and closed with no observable change in preference over time.

Developments in DP are clearly observable. The number and proportion increases hugely over time (Tables 4.5 & 4.6). In earlier tombs it accounts for around half the vessel total; Tomb 1 contains 50% DP and Tomb 4 only 47% (the least amount of DP from any tomb). This increases considerably in later tombs, where DP (2) can account for as much as 86% (Tomb 9) (Keswani 2004: 204, 214; 2013: 220-1). Changes in shape and surface treatment of DP are also visible over time. In earlier tombs the ratio of open to closed DP vessels is mostly equal (e.g. Tombs 1, 4 and 6). However, in tombs which already contain MC markers (see Chapter 3), a marked preference for small closed vessels in DP is clear, with a 70/30 ratio in favour of closed vessels

in Tombs 15, 16 and 19. Other typological changes are also evident; vessel walls appear thinner, and there is greater conformity in size, shape and surface treatment, with dark matte slips becoming more common (e.g. vessel 15.9, Figure 4.74). Thin walls, a blue core and dark matte slip are all characteristics of Base Ring ware, the common ware of the LC (Åström 1972b: 126-198). Herscher has argued that DP may be a precursor to BR (1981: 81) and this assemblage and that of *Kissonerga-Skalia* now offers a large enough corpus to observe these developments (Crewe 2008: 85-86).

A similar pattern is observed in changing vessel forms (Table 4.7), again indicating chronological differences (Keswani 2004: 204, 214; 2013: 220-1). A larger and more varied selection occurs in the earlier tombs, where a wide variety of idiosyncratic shapes occurs. In later tombs, the variety of shapes and decorative motifs shrinks as certain forms (such as juglets) become more common. Small bowls are the most common shape in early tombs, but these are superseded by pouring vessels in later tombs.

More specifically, there are certain phenomena that can be observed over time. Changes in decorative motifs can be observed, as earlier tombs contain considerably fewer decorated vessels (Figure 4.338), and, when they do occur, tend to be found on larger vessels in the form of relief wavy lines or highly incised RPSC vessels. In what may be termed later tombs, decoration becomes more popular; relief bands still occur, although incised and impressed motifs are most common on small fine juglets and flasks, as represented in Tombs 9, 13, 15, 16 and 19. Tomb 13 is notable as it contains the highest percentage of decorated vessels (51%).

As well as evidence for a growing uniformity, later tombs also contain fewer cooking vessels. For example, Tombs 9 and 13 contain 2% and 3% cooking vessels respectively; whilst Tomb 15 contains no examples of cookware at all (the only

intact tomb to do so). The earliest tombs, 1 and 6 both contain 10% cookware, whilst Tomb 4 contains 21% (Tombs 3 and 8 also contain 20% cooking vessels, actually a larger percentage than RP classifications [15 and 10% respectively]). This suggests a more communal spirit to the earlier inhumations where death and funerary ritual is rather individualised, and tied up with communal feasting (Keswani 2004: 82). There is an increased uniformity to the later burials, not apparent in the earlier tombs (Keswani 2004: 82). Although this is a trend that can be observed to change over time, there may be other factors behind the presence of cooking vessels in tombs (Webb 1992: 107; Georgiou *et al.* 2011: 342, 346; Keswani 2013: 209), which will be further discussed in Chapter 6.

Although there is clear evidence of Philia occupation in Kissonerga (Peltenburg *et al.* 1998: 20-1), there is no evidence of any activity at Kissonerga-*Ammoudhia* during the Philia period. The EC-MC settlement, Kissonerga-*Skalia* also has a Philia component (Crewe: personal communication), although in this case it represents probably the earliest occupation (or it may represent settlement shift from *Mosphilia*, rather than two separate occupations).

There is also no evidence for *Ammoudhia* continuing into the LC. The ceramics date to the MCIII at the very latest. LCIIa ceramics are being discovered at Kissonerga-*Skalia*, suggesting that the settlement continued to be inhabited beyond the period of the excavated *Ammoudhia* tombs (Crewe: personal communication). Current excavations at *Skalia* are still in the upper, MC strata, meaning that there remains a lack of evidence for an EC settlement in Kissonerga. The radiocarbon dates and ceramics from *Ammoudhia* attest to a strong EC presence in Kissonerga, in the period between the latest phases at Kissonerga-*Mosphilia* (Peltenburg *et al.* 1998) and those currently under investigation at Kissonerga-*Skalia* (Crewe *et al.* 2008, 2010).

Therefore, the question of the EC settlement location is still unanswered. In his survey, Hadjisavvas identified a settlement in the immediate vicinity of *Ammoudhia*

(1977: 224) which has since disappeared under construction programmes that took place in the area during the 1980s and 90s. It is likely that either this lost settlement and/or an earlier phase of *Kissonerga-Skalia* is the living area of the *Ammoudhia* dead.

Unfortunately, the spindle whorls (with the possible exception of 43.9 – Figure 4.139) and the non-ceramic grave goods such as metal tools, ornaments and stone beads are all of a general type found island-wide from the *Philia* period through to the LC, with little spatial or chronological differences (Stewart 1962: 260; Åström 1972a: 160; Coleman 1996: 138-9; Swiny 1986: 13, 30, 2003: 235; Frankel & Webb 2006: 244; Georgiou *et al.* 2011: 310; Keswani 2013: 207, 241, 246). This makes them of little use in establishing a chronology beyond confirming a very general EC-MC date. The two picrolite pendants appear to be of a much earlier date. The adapted cruciform (9.59, Figure 4.152) can be dated originally to the Middle Chalcolithic period (Peltenburg 1998: 233-4; 2006: 97-99, 2011), these cruciform figurines are occasionally found in Bronze Age contexts (e.g. Swiny 2003: 236). The fact that the Chalcolithic sites of *Kissonerga-Mosphilia* and *Lemba-Lakkous* are both in the immediate vicinity explains the existence of this pendant, which may have been found by a Bronze Age inhabitant of *Kissonerga* and reused (E. Peltenburg: personal communication). The incised drop pendant from Tomb 6 has its closest parallels in the Pre-Pottery Neolithic (Guilane *et al.* 2011: 794, 1205), but remains ambiguous.

The Kissonerga-Ammoudhia Material Culture

The Ceramic Character

The number of vessels in each tomb varies considerably. Unfortunately, several tombs had already been disturbed, or in some cases, almost completely destroyed by the time of excavation; however, there remains evidence that some tombs contain

significantly more vessels than others. Tombs 1, 6 and 16 are the richest, ceramically, with 103, 153 and 126 vessels respectively. These tombs were all discovered more or less intact. Although Tombs 10 and 15 were also largely intact, they contained a total of 20 and 30 vessels respectively. Therefore, it is possible to conjecture that some tombs contained more vessels than others (interestingly, Tomb 15, along with Tomb 13, is one of the richest in non-ceramic grave goods). Whether these tombs contained more burials, is again, sadly, a moot point, as it is impossible to identify the number of burials in each tomb or reconcile vessels to burials. The majority of tombs have between 30 and 50 vessels, suggesting that this was the customary amount, making Tombs 1, 6 and 16 seem extraordinarily rich.

There is an average of 42.55 vessels per tomb at *Ammoudhia*. When disturbed tombs 11, 14, 21 and 38 are removed (along with the 11 vessels that were discovered in these tombs), this number rises to 51.30 vessels per tomb. However, even the lower mean of 42.55 is still very high. The otherwise extremely rich cemetery of *Bellapais-Vounous* has a mean of 20.9 pots per chamber and in the south, *Psematismenos-Trelloukkas* has a similar figure of 18.8 (Georgiou *et al.* 2011: 335; Keswani 2013: 209, Table 5.10). Although at *Sotira-Kaminoudhia* it is considerably smaller (Swiny *et al.* 2003: 115, 117, 128, 134-5; Keswani 2004: 204; 2013: 208-9, Table 5.10). This discrepancy cannot be explained as a chronological difference, since the two richest tombs at *Kissonerga-Ammoudhia* (1 and 6) are contemporary with both *Bellapais-Vounous* and *Psematismenos-Trelloukkas*.

Typological Evidence

This investigation has shown that *Kissonerga-Ammoudhia* conforms in a general way to the island-wide ceramic tradition (Stewart 1962, Åström 1972). Shapes are similar and there is still a sizable RP presence. As at contemporary sites, the ceramics exhibit a distinct regional identity and almost all appear to be locally made, with very few vessels imported from elsewhere on the island and none from outside

Cyprus. More specifically, the assemblage exhibits some explicitly local adaptations, in particular, the extremely large number of DP vessels, confirming the hypothesis that this part of the island is the 'home' of DP (see Frankel's map, Figure 2.3 for 2009 ratios).

Wares

Chapter 3 described the difficulties involved in establishing a typology for this assemblage and argued for using the criteria of style, chronology and technology together to define the wares. By applying this typology, eleven distinct wares occurring in ten different fabric types were identified (see Chapter 4 and Appendix 4). These occur in very different quantities (Figure 4.3); the most common is Type 2, which accounts for 50% of the entire assemblage and can be identified as identical to DPBC identified by Herscher (1976: 13; 2003: 152-153).

As discussed in previous chapters, there are very few sites that have correspondingly large amounts of DP as *Ammoudhia*. The current evidence from Kissonerga (and survey evidence from the areas around Kissonerga and Chrysochou Bay) strongly suggests a production centre in this area. The fact that the DP at Kissonerga varies in shapes, styles and manufacturing techniques from the south coast DP (e.g. Episkopi-*Phaneromeni* and Sotira-*Kaminoudhia* [Herscher 1981, 2003]) suggests separate (local) production centres.

When DP is found at other sites outside of the south-west, it is accepted as an import from this area, and microscopic and technical analyses have backed this proposal (Summerhayes 1996: 178-179; Frankel & Webb 2012a: 5-6). The type of DP found elsewhere on Cyprus is almost always found to be DPBC, or DP (2). DP (1) is generally not found (although the initial identification by Åström seems to be this type [1972a: 179, 276]). Likewise, the coarser Type 3 is also not found out-with the south-west. This exported DP is highly likely to occur in closed shapes, cutaway

spouted jugs being most common (Frankel and Webb, 2006: 140), suggesting that these vessels were transported for their contents (Herscher 1991: 48).

Like DP Types 1 and 3, the local RP fabrics (4-6) are not found at other sites and seem to represent local traditions. However, Type 7 is very similar to the RPI described by Stewart (1962: 225) and occurs in similar shapes. This may reflect an imported ware, although distinctive regional traits can also be observed; possibly suggesting that RPI was initially introduced (possibly going back to the Philia phase), but adapted by local potters to fit into the Kissonerga aesthetic.

RPSC is the most readily comparable of the wares found at *Ammoudhia*. As discussed in previous chapters, it is well attested in the south-west of the island, and small numbers also occurred in early contexts at Marki (Swiny 1981: 73; Herscher, 2003: 150; Georgiou *et al.* 2011: 288-291; Frankel & Webb 2006: 137). The RPSC at *Ammoudhia* may represent imported vessels from the south coast; although (like RPI) it exhibits some different characteristics, such as disc lugs, thinner walls and harder fabrics in keeping with the ceramic technology observed in the *Ammoudhia* assemblage. The calcareous nature of the RPSC fabric might suggest that it comes from a different clay source than the majority of the assemblage, although calcareous clays are also abundant around Kissonerga and a local production cannot be ruled out.

Some of the minor wares may also be comparable to other sites; for example, the RP (Black Topped) ware is found all over Cyprus and the few *Ammoudhia* examples can be said to conform to that tradition. The single sherd of RPIV can be compared to RPIV from Episkopi-*Phaneromeni* (Herscher, 1981: 82). The CW and cooking pot fabrics are similar in a very general way to those RP cooking vessels from other sites. This is perhaps due to the functional restrictions placed on these types of vessels (Frankel & Webb 2006: 100-101; 132-137).

Forms

The shapes found in the *Ammoudhia* assemblage do not differ widely from other excavated cemeteries from this period (Gjerstad 1934; Dikaios 1940; Stewart & Stewart 1950; Stewart, 1962; Herscher 1978, 2003; Åström 1972a; Todd 1985; Herscher & Swiny 1992; Herscher & Fox 1993; Barlow 1996a; Frankel and Webb; 1996, 2006, 2007; Georgiou 2000, 2001, 2002, 2009; Georgiou *et al.* 2011). The high proportion of finely made jugs and juglets and small bowls is typical. Pouring vessels account for just under half of the identifiable shapes (47%), open or serving vessels such as bowls accounting for 24% and the remainder is made up of a range of cooking vessels and a very few large storage vessels. The low number of coarse and cooking wares is also typical of a funerary repertoire (Webb 1992: 107).

There is a slight tendency for DP vessels to occur more frequently in closed shapes and RP in open. Closed vessels such as jugs and juglets are broadly similar with those that occur throughout Cyprus. The large jugs found at *Ammoudhia* correspond well to similar types found in cemeteries (Stewart, 1962; Todd, 1985; Barlow, 1996a; Frankel and Webb, 1996; 2006; Herscher 2003), although exhibit specifically regional traits. Several of the cutaway spouted jugs are decorated with a row of punctures to the neck, a motif that can be directly compared to jugs from sites on the south coast; in particular *Sotira-Kaminoudhia* and *Episkopi-Phaneromeni* (Herscher 2003: 147).

Juglets also conform to shapes found all over Cyprus from the ECIII through the MC and beyond. Juglets with cutaway spouts are more common in a funerary context and are frequently decorated, with distinct regional motifs (Barlow, 1996a: 279, Herscher 2003: 126; Frankel & Webb 2006: 120). However, in the *Ammoudhia* assemblage it is round spouted juglets that are most common (Figure 4.66). Flasks, although corresponding in general shape and size to the rest of Cyprus tend to exhibit local idiosyncrasies such as the cotton reel lugs, which are considered diagnostic of the west coast (MacLaurin 1980: 719).

The small bowls found at *Ammoudhia* generally conform to the island-wide traditions (Stewart: 1962). The various shapes and types of bowls defined in Chapter 4 occur in differing numbers at various sites on Cyprus, although there are very few direct comparisons to be made; rather a generally shared tradition of shape and size but with specifically regional traits is observed. For example, bowls with horizontal lug handles and vertical loop handles are found at various sites and offer only general comparisons (Frankel and Webb, 2006: 112; Stewart, 1962: 334; Herscher, 1988: 144; Barlow, 1996: 292, 317). Bowls with vertical lugs can be directly compared to those from *Sotira-Kaminoudhia* (Herscher 2003: 156), as well as more generally with those from *Bellapais-Vounous* and *Marki-Alonia* (Stewart 1962: 333; Fig: CXXXIX 37-42; Frankel and Webb, 2006: 111).

Conical bowls have been discussed previously as they are chronologically diagnostic. There are similarities with tulip bowls from *Bellapais-Vounous* (Stewart, 1962: 330 and CXLII: 20) and *Episkopi-Phaneromeni* and *Psematismenos-Trelloukkas* in the south (Herscher: personal communication; Georgiou *et al.* 2011: 59); in particular vessel 108.18 from *Psematismenos-Trelloukkas* (108.18), (Georgiou *et al.* 2011: 59). The RPSC deep conical bowl 6.175-180 can be directly compared to examples from the south coast (*Episkopi-Phaneromeni*) and the north (*Yialia*), both described by MacLaurin (1980: 209, 250, Figs. 103:4, 128:3).

The storage vessels such as jars and pithoi also tend to share only broadly similar shapes and sizes with the rest of Cyprus, but, again a few more specific comparisons can occasionally be made. For example, the tubular spouted jar 1.10, which can be compared to a similar RPI bowl from *Bellapais-Vounous* (Stewart, 1962: CXXII, 2).

Cooking pans are found at several sites (Frankel and Webb, 2006: 132, Stewart, 1962: 341, Barlow, 1996: 293, Herscher, 2003: 188-189). These pans appear similar to Type A pans found at *Marki-Alonia* which occur in all strata from the earliest to MCII

(Frankel and Webb, 2006: 130). 13 examples were also recovered from Alambra-Mouttes (Barlow, 1996a: 293-296); although these all have handles and lack the tripod bases. Several examples have also been discovered on the south coast in funerary contexts (Herscher and Swiny, 1992: 76, 80; Herscher, 2003: 188-189).

Just under a quarter (23%) of the *Ammoudhia* vessels carried some form of decoration. With the exceptions of the few clear imports and RPSC (which is always highly decorated with incised motifs), the majority of vessels were undecorated. When decoration does occur, it is either in an incised or impressed form, occurring most frequently on small fine vessels. There may be a functional explanation for this; a fine matrix with few inclusions makes a more suitable canvas for incised decoration (Barlow 1991: 55; Webb 1994: 16). Alternatively, the choice of clay may have been influenced by the anticipated desire for incisions. The high percentage of intact DP and RP wares carrying incised and impressed decoration all occur in these small fine forms. The motifs tend to be restricted, with the majority of incised vessels carrying a type of decorative 'target' motif accepted to be a local, west coast type (MacLaurin 1980: 720).

Relief decoration also occurs, but in small numbers (only 48 examples have been identified) and occur more frequently on larger vessels such as amphorae, large jars and bowls. Relief motifs are more common on RP vessels and when they do occur are not as regionally distinct as the incised decoration. Wavy lines, inverted Ys and cordons all conform to motifs found at other EC-MC sites on the island (Morris 1985).

Inter-site Comparisons

There are very few vessels found in the *Ammoudhia* assemblage that can be directly compared to those from other sites. However, these few examples may provide evidence for direct links to other parts of the island. Tomb 16 is the only tomb that

contains clear imports, providing links to Lapithos and the north coast (E. Herscher: personal communication). However, more general comparisons can also be made. In particular, some RP vessels show stronger similarities, especially those earlier forms such as RPSC and RPI. Tombs 12 and 13 contain RPSC vessels (Figures 4.32 & 4.33) that exhibit strong parallels to vessels described by MacLaurin as coming from the Chrysochou Bay area (1980: 710). Vessel 18.11 is a complete flask with decoration and a basket handle, similar to ones found in the Zintilis Collection (Lubsen-Admiraal 2003: XII), which, unfortunately, lacks a context.

Perhaps obviously, the most similar comparisons can be made with sites from the west coast. There are no completed EC-MC excavations in the west as yet, but survey and on-going excavations at Kissonerga-*Skalia* and Prastio-*Mesorotsos* have already provided scope for some comparisons. The *Skalia* pottery is very similar to *Ammoudhia* (Crewe *et al.* 2008: 115). The strong correlation between the two sites and comparably large amounts of DP suggests that *Ammoudhia* may constitute a burial place for the *Skalia* dead. Further excavations and comparisons will no doubt provide illumination.

Although no excavations have yet taken place in the area around Chrysochou Bay, there are interesting parallels with survey ceramics (MacLaurin 1980: 256; Maliszewski 2013). Shapes and decorative motifs of vessels found in this area are very similar to *Ammoudhia* types and DPBC is commonly found (Maliszewski 2013). The RPSC found in this area is also very similar; indeed, the RPSC from Tombs 12, 13 and 18 shows more similarities with those found in Chrysochou than those from the south coast (Appendix 2). In fact, Tomb 13 contains several vessels that seem to share traits with this area and may constitute a geographical link.

Further east, similarities still occur and general comparisons can be made, but there is a fall-off in the proportion of DP. At sites such as Prastio-*Mesorotsos*, Sotira-

Kaminoudhia and *Episkopi-Phaneromeni*, fairly strong similarities can still be observed and it is possible that technological information is being shared, regarding the possible exploitation of Mamonia clays and the manufacture of DPBC (Swiny 1981; Herscher 1981; Herscher 2003: 152-3; Vaughan 2003). This number sees a fall-off to the east, as RP accounts for over 90% of assemblages and WP becomes more common (see Figure 2.3). Interestingly, although the Cal. BC dates suggest that some *Ammoudhia* tombs may be contemporary with *Sotira-Kaminoudhia* and *Psematismenos-Trelloukkas*, there is no evidence at *Ammoudhia* for the ubiquitous RP Mottled that dominates both of these assemblages (Herscher 2003; Georgiou *et al.* 2011), suggesting that this ware is restricted to a small geographical area.

This pattern continues on the central plain, where RP dominates and DP represents a very small collection of imported closed vessels. The site of *Marki-Alonia* provides particularly useful contemporary comparisons. The site has also been extremely well published (Frankel & Webb 1996, 2006; Sneddon 2002), making it possible to compare general trends observed over time. For example, the observation that small bowls are common in earlier tombs but are replaced by pouring vessels in later ones is mirrored at *Marki-Alonia* (Webb 1992: 89). The DP at *Marki* has also proven useful, as it consists of only DP (2) jugs or juglets, one example carrying the west coast 'target' decorative motif, suggesting possible communication between *Kissonerga* and the central plain (Frankel & Webb 1996: 156).

Other sites on the central plain such as *Alambra-Mouttes*, *Deneia-Kafkalla* and *Politiko-Troullia* have no direct connections with the west coast and contain very limited numbers of DP. However, these sites are not all fully excavated or published and further investigations may provide additional information.

As discussed in Chapter 2, the north coast evidence, for various reasons, is problematic. There are a few possible similarities between vessels at *Ammoudhia* and

the type site of Bellapais-*Vounous*, especially in the earlier tombs, such as 1 and 6. However, this does not go beyond basic shapes, and no direct comparisons can be made. Bellapais-*Vounous* is a well-documented assemblage and offers a rare opportunity for meaningful comparisons, although the elaborate and ritualistic vessels found at *Vounous* are not present at *Ammoudhia* (Dikaios 1940; Stewart & Stewart 1950; Manning 1993: 48; Dunn Vaturi 2003: 72; Keswani 2013: 210).

Lapithos-*Vrysi tou Barba* also offers good opportunities for comparisons (Gjerstad *et al.* 1934; Åström 1972a; Herscher 1978) and indeed, one of the few obvious imports has been identified as having the Lapithos area as its likely source (E. Herscher: personal communication). Recent re-evaluations at Karmi-*Lapatsa* and *Palealona* (Webb *et al.* 2009) and *Ambelikou-Aletri* (Merrillees 1984; Webb 2012) also show some general similarities with the west and a flask found at *Ambelikou-Aletri* has been identified as a west coast type (Webb: 2012).

Very little DP has been recorded in the north, with the exception of the six vessels found at Lapithos-*Vrysi tou Barba* (Åström 1972a: 83). The *Ammoudhia* RPSC and RPI do appear to share general similarities with examples from Bellapais-*Vounous* (Stewart 1962: CII-CVII). However, the current geo-political situation in Cyprus makes comparisons limited, in most cases, to the re-evaluation of old publication records and museum collections.

As discussed above, the *Ammoudhia* tombs contain a large number of vessels when compared to other cemeteries. This cannot altogether be explained as a chronological difference, as the two richest tombs at *Ammoudhia* (1 and 6) both date to the EC, contemporary with Bellapais-*Vounous* and Psematismenos-*Trelloukkas*, but also with Sotira-*Kaminoudhia*. There is also no evidence for more than two burials in either of these tombs; it can therefore be argued that the Kissonerga-*Ammoudhia* tombs are generally rich in ceramics, with some tombs being very rich indeed. However, the extraordinary amounts of metal and what may be termed prestige

goods found at *Vounous* is almost entirely lacking at *Ammoudhia* (Dikaios 1940; Stewart & Stewart 1950; Manning 1993: 48; Webb *et al.* 2009: 232; Keswani 2013: 207; Knapp 2008: 82-87, 2013)

Petrographic Evidence

Clay types and sources

The clay matrix is the most abundant substance visible in any ceramic thin section (Peterson 2009: 13). However, clay particles are classed as under 0.2mm in diameter, meaning that most of the extremely fine grained mineralogy is impossible to identify and the matrix can only be generally categorised using observable properties such as birefringence and isotropy (Peterson 2009: 13). Therefore, most identification is limited to coarser fraction inclusions.

The evidence from EC-MC Cyprus suggests that potters are fully aware of the properties of different types of clay, but in general make use of the clays available to them locally, although willing to travel a considerable distance in some instances for certain types (Vaughan 1987, 1991, 2003; Dikomitou 2011; Frankel & Webb 2012a). The *Ammoudhia* potters seem to be no exception, they are perhaps fortunate to have these very fine clays almost on their doorstep and are familiar with its properties, showing considerable skill and knowledge at manufacturing vessels from this fine clay source.

The micro analysis illustrated the conservative choices made in clay selection, with seven of the nine micro-fabrics identified as likely to come from a similar silty clay source. The two calcareous fabrics (I and II) are restricted to specific wares (RPSC and CW respectively). The presence of foraminifera is evidence of an originally pelagic environment; such calcareous chalk and limestone beds occur frequently, and are island-wide (Cyprus Geological Survey 2012), making it extremely difficult in this instance to determine whether these fabrics were produced locally or

constitute imports. In the case of Fabric I, the restricted nature of this fabric (only occurring in RPSC vessels) suggests that this fabric in particular, may be an import (arguably from the south-west, see above). Fabric II though, occurs in CW vessels and it is likely that these coarse, everyday vessels are produced locally, and similar clays were found less than 1km from Kissonerga (Table 4.9). Coarser clay was chosen, probably for functional reasons, as these are vessels that would be repeatedly exposed to high temperatures and would need to withstand thermal cracking (Arnold 1985: 23; Rice 1987: 156; Tite & Kilikoglou 2022: 1-8; Frankel & Webb 2006: 100-101; 133-137; Dikomitou 2011: 134, 251).

The remaining seven can be sub-divided into a collection of fine, hard fired fabrics (III-VI) and three coarser types of the same silty clay with characteristic ARFs (VII-IX). Clay analysis (Chapter 4 and Appendix 5) confirms that the non-calcareous clays observed in the DP (1), DP (2) and RP (4) samples are consistent with local clays and a general match to those overlying Mamonia outcrops in the vicinity of Kissonerga (Vaughan 1987: 116; Cyprus Geological Survey 2012; Z. Zomeni: personal communication).

The examination of local clay samples suggests that the *Ammoudhia* potters were carefully selecting clays to suit their purposes, and were willing to travel some distance to collect the appropriate clays. Table 4.9 and Figure 4.352 indicate that although there are several clay sources in the immediate vicinity of Kissonerga, these are all relatively calcareous. The clays with the closest mineralogical signature to the *Ammoudhia* ceramics are those from Mamonia outcrops around the Mavrokolympos River, approximately 4km north-east of Kissonerga (Figure 4.352). At Sotira-Kaminoudhia, Vaughan observed that the Sotira potters travelled *at least* 20km to their closest Mamonia outcrops in the Dhiarizos Valley (2003: 218-9). This suggests that Mamonia clays were desirable and deliberately chosen for certain

types of vessels and wares, in particular DP, despite the effort involved in procurement.

It is important to recognise that the term 'Mamonia clay' is not a particularly helpful one. As discussed previously, the Mamonia Terrane is an extremely complex geological lithology, which can consist of igneous, sedimentary and metamorphic rocks. Any clay from a Mamonia outcrop may therefore consist of a variety of minerals and inclusions. In this instance it is used to refer to a specific silty type of clay that only occurs in relatively small Mamonia Complex outcrops in the west and south-west of Cyprus (Figure 2.5). This may explain why DP is thought to originate in the west/south-west (Guldager Bilde 1993: 22; Herscher 2003: 152-3; Frankel & Webb 2006: 140, 2012a: 5-6).

Unfortunately, like Vaughan's similar experiments (1987: 206), the experimental firing of these clay samples did not produce any comparable evidence with the *Ammoudhia* ceramics, beyond a uniform red colour that can be compared to the majority of RP found at the site. It is difficult to replicate the reducing atmosphere used by the ancient potters (Vaughan 2003: 218), as modern kilns allow for the flow of oxygen. Although the samples presented here offer an opportunity to observe the modern clay mineralogies, the question of how the distinctive blue core is manufactured is still an open one, although it certainly seems to be related to reducing oxygen during the firing process (Herscher 1981: 81, 2003: 152-3; Vaughan 2003: 218; Nancy Hocking – personal communication).

Preparation

This analysis has provided evidence for some of the preparation techniques used by the *Ammoudhia* potters. The fine nature of the clays in some of the fabrics may be evidence for clay sorting. This practice can include hand sorting (i.e. picking out the largest inclusions by hand), fine sieving or crushing and settling in water such as is carried out to create slips. Sorting can be identified by a uniform grain size; a range

of grain sizes and heavier rock fragments is strong evidence that sorting did not occur (Vaughan 2003: 217).

Fabric I is fairly well sorted and the rounded nature of the limestone inclusions and the intact nature of the microfossils is strong evidence that little or no mechanical sorting occurred, certainly the clay cannot have been crushed, although larger rock fragments may have been picked out. The coarse and poorly sorted nature of Fabric II also indicates that no sorting occurred in its manufacture.

Fabrics III-VI are all well sorted with few inclusions over 1mm on the long diameter. The fact that the differing inclusions found in each one of these fabrics can be found occurring naturally in the same clay source makes it difficult to determine whether these examples were mechanically sorted or not.

Fabric VII can be described as poorly sorted. This fabric contains a range of inclusions including large ARFs, igneous rock fragments, limestone, and the more general siliclastic minerals as well as several possible burnt out organics. The relatively large number of inclusions can be explained by the fact that this fabric is most commonly used to create large, coarser vessels. It does not explain, though, whether these inclusions were purposefully added or if they occurred naturally and this coarser version of clay was specifically chosen for these vessels precisely because it was already rich in a variety of inclusions.

The same may be said for fabrics VIII and IX, which share a similar groundmass to Fabrics III-VII but are poorly sorted and dominated by ARFs. If Vaughan is correct, then these can be formed during the clay mixing process (1987: 205). Although it is possible they were added as temper (Whitbread 1986: 82).

It is not always possible to determine by angularity if inclusions are naturally occurring or added by hand, since both highly angular and spherical pieces can occur in naturally formed sediments and soils. However, those which are added by hand are often crushed first and therefore are more likely to have an angular appearance (Peterson 2009: 10). There is very little evidence for this in the *Ammoudhia* sample, with the majority of inclusions being sub-rounded to well-rounded (Figure 5.1).

Grain size (most volumetrically abundant grains) ^a	Sediment name	Sedimentary rock name
>256 mm (very coarse)	boulders	
64–256 mm	cobbles	conglomerate (rounded fragments) or breccia (angular fragments)
4–64 mm	pebbles	
2–4 mm (coarse)	granules	
from 2 mm (medium) to 62.5 μm (fine)	sand	sandstone
62.5–4 μm	silt	siltstone
<4 μm (very fine)	clay ^b	claystone

mudstone (shale) (bracketed between siltstone and claystone)

^a μm = micrometre = 10^{-6} m. The grain sizes in this table are arbitrary but not random: 256 mm is 2^8 mm, 64 mm is 2^6 mm, 62.5 μm is $(1/2^4)$ mm, and 4 μm is almost exactly $(1/2^8)$ mm.

^b Clay can have two meanings: in terms of *grain size* clay refers to grains less than 4 μm in size; in terms of *composition* clay refers to certain types of sheet silicate mineral. However, most clay-sized particles in sedimentary rocks are, in fact, clay minerals.

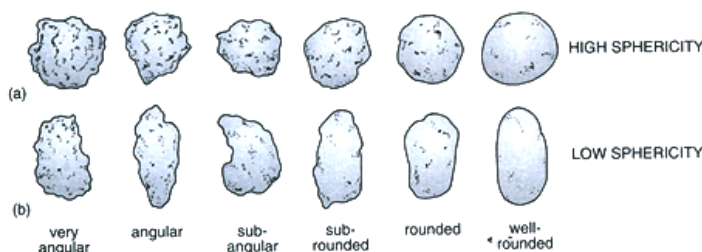


Figure 5.1: Grain size according to the Wentworth Scale and chart illustrating grain shape and sphericity (Palmer & Easterbrook 2007: 81).

Voids are caused during the firing process by either the release of gas, clay shrinkage or of organic matter destroyed in firing (Peterson 2009: 13). Organic matter can be identified by the areas of blackened clay surrounding the voids (Peterson 2009: 13) and they can be a desired result of the manufacturing process. The presence of voids inhibits the spread of thermal cracks making them advantageous in the manufacture of cooking pots (Frankel & Webb 2006: 100-101;

132-137). The orientation of voids and inclusions can also be a useful tool in identifying forming techniques (Peterson 2009: 12). In fact, the majority of *Ammoudhia* fabrics are all clearly aligned parallel to the vessel surface; the exceptions are Fabrics I, II and IX, which all have a more random, scattered appearance.

Several of the *Ammoudhia* fabrics also contain voids with burnt halos, strongly suggestive of an organic presence (Fabrics I, V, VI and VII). While it is possible that organic matter may be included randomly in the process of procurement and manufacture, it is also possible that this constitutes deliberately added temper (e.g. Barlow & Idziak 1989). Voids are particularly noticeable in Fabrics V and VI. Fabric V has a very strong presence of elongated planar voids with considerable blackening in the centre of the sherd section, indicating a concentration of organic matter (grass or straw). Fabric VI is wholly consistent with Fabric III, with the addition of organic matter. When it is considered that these two fabrics are found in similar types of vessels (jugs/juglets) but that Fabric III represents small and very fine examples and VI represents larger and slightly coarser examples then it is possible to suggest that organic matter may have been added to VI purposefully, possibly to maintain the integrity of the very fine and thin vessel walls.

Altogether this sample represents a manufacturing tradition that did not include adding temper as routine. All of the wares consist of less than 10% inclusions (the vast majority of which are less than 1mm in diameter). Any additional tempers are lacking, with the possible exceptions of organic material and ARFs, which, it can be argued, are not added temper, but a desired result of the clay mixing process (Whitbread 1986: 82; Vaughan 2003: 215). Fabrics VII, VIII and IX in particular contain a large number of ARFs, probably part of the original clay matrix and formed during the mixing process as discussed above.

Firing

This research suggests that certain characteristics used to define EC-MC ceramic nomenclature are based almost entirely on firing techniques. Fabrics may be compositionally and technologically identical, and any change in colour a variation of the manufacturing technique (Vaughan 1987: 80). The Kissonerga-*Ammoudhia* sample demonstrates that different firing techniques were practiced for different fabrics and the *Ammoudhia* potters were experts in controlling temperature and firing environment, producing some of the most sophisticated ceramics of the EC-MC.

An important part of the firing process is the amount of oxygen to which a pot is exposed. When oxygen is abundant and evenly distributed, vessels appear completely oxidised with an even colour throughout (Shepherd 1956: 125; Vaughan 1987: 72). When there is differential access to oxygen, colour changes are observed, both on the vessel surface, when mottling or fire clouding occurs, and in the fabric itself where it can result in a variation in colour such as the black core seen in Fabric II, or in extreme circumstances in the almost entirely reduced samples of DPBC (Vaughan 1987: 72-75).

The softer fabrics (I, II, VIII and IX) at *Ammoudhia* are all indicative of a lower temperature, certainly under 650°C and possibly considerably lower (Vaughan 1987: 68). The existence of significant amounts of limestone in these fabrics and the presence of intact fossil shells in Fabrics I and II are also in accordance with low temperatures (Shepherd 1956: 125; Vaughan 1987: 68). Fabrics I and IX are evenly coloured throughout, suggesting a fully oxidised environment, whereas Fabrics II and VIII exhibit a thick dark core, indicative of either low temperatures or not high enough for long enough or insufficient oxygen, resulting in a reducing atmosphere (Shepherd 1956: 125).

Fabrics III-VII display characteristics consistent with being fired at a higher temperature, and cooled rapidly, specifically in the hardness of the fabrics and in most cases the lack of limestone inclusions (Vaughan 1987: 72). In the case of RP examples in Fabrics III and IV, these must have been fired in well oxidised environments as they exhibit an even red colour throughout.

The DP examples of Fabrics III, IV, VI and VII all exhibit very thick and distinctive blue cores; some have a thin margin of red, oxidised fabric visible at the vessel exterior, but others are completely reduced. To achieve the blue core (in this case, specifically on BR ware) Vaughan suggested that pit fires were used, often lined and packed with fuel and then covered with mud or other material (1987: 72). To quickly reach the very high temperatures required, fast burning fuel such as brushwood, grass or straw would be selected. Once the desired temperatures have been reached, the pit would be sealed, thus restricting the flow of oxygen and providing a reducing atmosphere which results in a very hard fabric. The very fine nature of the paste in some cases coupled with rapid heating and a build-up of gasses severely inhibits oxygen and results in the distinctive blue core (Vaughan 1987: 75).

There are several vessels in the *Ammoudhia* assemblage that display characteristics of both oxidised and reduced atmospheres, illustrating that it often depended on a vessel's position in the fire and its access to oxygen. This phenomenon is clearly illustrated in the examples of Fabrics III and IV, where both DP and RP examples occur, showing that the same clay is being used, but the final appearance is dependent on firing conditions. Vaughan observed this possibility of two categories in one vessel in her study of BR ware (1987: 79-80).

In Fabric V, a slightly different firing environment is observed. Accounting for vessels which are classified as DP, but lack the distinctive blue core (identified as Type 1 in the typological analysis). Rather, they are recognised by the large number

of planar organic voids observed in the centre of the section, running parallel to the vessel surface and occur almost exclusively as small, often decorated, bowls. This fabric is still consistent with the fine silty clays found in the other fabrics, but in this instance is somewhat softer (Mohs 3-4) suggesting a lower temperature and tends to be fully oxidised (although some examples exhibit a thin dark grey core).

Surface treatment

There is little microscopic evidence for surface treatment in the *Ammoudhia* sample. When slips can be observed they appear to be a very fine version of the vessel fabric, with little, if any, differences beyond the extremely fine texture. This fine grain can be explained through the sorting process, as described above, where clay is suspended in water (and perhaps hand-sorted or ground first) and then collected (Vaughan 1987: 62).

A few of the cooking pots occurring in the *Ammoudhia* assemblage are covered with a thick layer of white paste. Petrographic analysis shows that this is made up of crushed and wetted limestone or chalk. This type of surface treatment is relatively rare, but not unknown in EC-MC cooking pots. It occurs in approximately 80% of the currently excavated cooking pots at *Kissonerga-Skalia* (L. Crewe: personal communication). It is currently best documented at *Marki-Alonia* where it is present on a number of *Philia* cooking pots (Frankel & Webb 2006: 100) and one ECIII-MCI example (Frankel & Webb 2006: 136, fig. 4.50). There are at least seven examples at *Ammoudhia* occurring in six tombs and in various different sizes and forms of cooking pot. Possible functions for this type of surface treatment have yet to be fully investigated, but at *Marki-Alonia* there is clear evidence of burning (Frankel & Webb 2006: 100), arguing for a functional explanation, possibly increasing thermal resistance (L. Crewe: personal communication); and further evidence from *Kissonerga-Skalia* might provide further illumination.

Comparing the Typological and Petrographic Classifications

It was proposed in the introduction to this thesis that a petrographic analysis would allow for comparisons between the micro and macro analyses to observe if what is immediately visible is mirrored microscopically. This sample suggests that, at *Ammoudhia*, it is. The results demonstrate that the classifications originally proposed in Chapter 4 are reinforced by the petrographic analysis. This suggests that what is observed stylistically is not superficial, but the product of deeply ingrained traditions. Technological and manufacturing traditions can be deeply ingrained and much harder to alter than aesthetic, surface style, so although material culture may superficially appear very different, the underlying technologies can prove that the traditions are actually the same, as observed in the case of RP (4) (Sackett 1990; Lemonnier 1992; Irvine 2004: 175; Schlanger 2005: 29; Graham 2006: 57-72).

There are certainly some micro identifications that can be confidently matched to the macro ones. Micro-fabric I is a clear match for Fabric Type 10, occurring only in the ware RPSC. Clays formed by the weathering of carbonate rocks, such as limestone, are certainly present in the geology of western Cyprus; however, the lack of calcareous clays elsewhere in the *Ammoudhia* assemblage is indicative that this fabric may represent an import, as discussed above (Swiny 1981: 73; Lubsen-Admiraal 2013: 10; Herscher 2003: 150). This may also be a chronological distinction, since RPSC represents some of the earliest vessels in the assemblage.

Micro-fabric II is also a clear match to Type 8, which is found only in CW. The poorly sorted and random nature of the inclusions and voids is possibly a functional choice, to stop thermal cracking (Arnold 1985: 23; Rice 1987: 156; Tite & Kilikoglou 2002: 1-8; Frankel & Webb 2006: 100-101; 133-137).

VII, VIII and IX, can also be identified with the coarser fabric types (3, 5 and 6), where identification at macro level is made easier since the characteristic ARFs are

clearly visible to the naked eye. There is less distinction between the coarser RP (6) and the more common cooking pot ware (also identified as Type 6). The fabric identified in the typological analysis appeared to the naked eye to be indistinguishable and these wares were separated on the basis of vessel shape and function, rather than fabric or manufacture. This identification is backed up by the petrological analysis, where RP (6) occurs in Fabrics VII, VIII and IX and Cooking pot (6) occurs in Fabric IX (only one sample of Cooking pot (6) was obtained, so it is possible that this ware also occurs in the same range of fabrics). It has already been observed (above) that this may be a functional choice (Arnold 1985: 23; Rice 1987: 156; Tite & Kilikoglou 2022: 1-8; Frankel & Webb 2006: 100-101; 133-137; Dikomitou 2011: 134, 251).

The finer micro-fabrics III-VI likewise are restricted to types 1, 2 and 4. Two of the subgroups (V and VI) are also restricted to one fabric type (1 and 2 respectively). This may suggest that, although probably from the same clay source, specific choices were being made during the manufacturing process to achieve differing results. The fine nature of this fabric may have a functional rationale, as this particular fabric accounts for some of the finest ceramics in the assemblage.

An unexpected but potentially important result of these tests illustrates that the processes used in the manufacture of both RP (4) and DP (2), are largely identical. The same clays were selected for both of these wares (and for DP Fabric 1) and it is only through the firing process that colour and hardness differentiations occur, as the RP (4) receives more oxygen at an even rate than the DP (2). At first this seems to suggest that DP is in fact a sub-division of RP as per Phillip (1983: 48). However, it is perhaps too soon to jump to conclusions. These types are restricted to specific clay choices and manufacturing techniques that are not mirrored in the other types of RP found at *Ammoudhia*, and it is so far, only in this assemblage where these similarities are evident. It could be equally valid to argue in the other direction; that

(in this instance) RP (4) may actually be part of the DP technological repertoire, having more in common with DP (2) than it does with other forms of RP. It is possible that RP (4) may represent a local west coast hybrid, where a vessel is made to look like RP but is manufactured according to the local tradition (i.e. DP). This is extremely interesting, and goes against the arguments I presented in my MRes (2006) where the evidence from a traditional typological analysis pointed to the RP and DP coming from very different manufacturing traditions as per Herscher (2003: 216). Whilst this was certainly the case at Sotira-*Kaminoudhia* (Herscher 2003: 216); this thesis requires me to revise my previous argument (2006) and state that DP (2) and RP (4) are, in fact, products of the same manufacturing tradition.

Inter-site Petrographic Comparisons

The petrographic analysis illustrates the local, regional character of the *Ammoudhia* ceramics. This is in keeping with the few similar studies conducted in Cyprus (Barlow 1996; Vaughan 2003; Dikomitou 2011), which demonstrate that vessels are produced using locally available clays, with few imports. Nevertheless, comparisons can be made, both specifically in the few cases where direct comparisons exist; and generally, where manufacturing techniques and technology can be compared.

Although the various sedimentary/bioclastic fabrics that have been identified at most sites may be generally compared to *Ammoudhia* Fabric I, the limited petrographic evidence from other sites on Cyprus has not provided any samples that can be directly compared with any of the nine *Ammoudhia* classifications.

The most directly comparable studies are those conducted by Sarah Vaughan at Sotira-*Kaminoudhia* and surrounds (1987, 1991, 2003). Examples of DPBC occur occasionally in igneous fabrics, but the majority occur in Vaughan's Type 6, made up of radiolarian shale and siltstone (2003: 215). Vaughan argues that this fabric is

used exclusively for wares with an unreflective lustre and darker slips (such as DPBC) and she argues for a Mamonia source and identifies an outcrop west of Sotira, in the Dhiarizos Valley, where a sample matched the characteristics of the Sotira ceramics (1991: 351-2).

There are certainly similarities between the Sotira-*Kaminoudhia* DP samples and those from Kissonerga-*Ammoudhia* (including the existence of ARFs, silty matrix, firing procedures and lack of added temper), there are also clear differences. The Sotira-*Kaminoudhia* samples contain more igneous material and even the typical DP fabric (Vaughan's Type 6) contains considerably more calcareous material than that found at *Ammoudhia* (Vaughan 2003: 215). Altogether, this comparison demonstrates similar clay choices and manufacturing techniques, but with some differences that can largely be explained by mineralogical variations in the clays selected.

This is interesting when Stephen's study of earlier Philia pottery is taken into account. In this study, there is very little in common between samples from Sotira-*Kaminoudhia* and Kissonerga-*Mosphilia* (Stephen 1998: 173). However, the similarities observed between *Ammoudhia* and Sotira-*Kaminoudhia* herein only apply to DP. The Sotira-*Kaminoudhia* RP seems to have little in common with the RP from *Ammoudhia* (Vaughan 2003).

The only other published petrographic study comes from Alambra-*Mouttes* (Barlow 1996b). Whilst the general technology seems to be broadly similar, firing temperatures appear to be uniformly hotter and atmosphere more controlled (reduced) at *Ammoudhia* (Barlow 1996b: 440). Unfortunately, since this study pertains only to igneous and sedimentary clays local to Alambra-*Mouttes* there is little that can be said in comparison to *Ammoudhia*.

At Marki-*Alonia*, the published microscopic study initially involved electron microprobe analysis rather than a petrographic one (Summerhayes 1996). This study is still useful for comparisons, especially in the samples of DP. The Marki-*Alonia* DP is made up of predominantly quartz and calcareous inclusions with some igneous inclusions also present (Summerhayes 1996: 178). The preponderance of calcareous inclusions compares more with the Sotira/Episkopi area than with *Ammoudhia* (Vaughan 1991: 351-352; 2003). This evidence is further backed up by some of the manufacturing techniques observed in the Marki-*Alonia* DP mirroring those seen at Episkopi-*Phaneromeni* and Sotira-*Kaminoudhia* (Frankel & Webb 1996: 157). The CW at Marki-*Alonia* is igneous character (Summerhayes 1996: 178), unlike *Ammoudhia* CW, which is one of the few sedimentary/calcareous fabrics.

Dikomitou's petrographic analysis of the Marki-*Alonia* clays indicate that some fabrics were restricted to specific types, but others were used more generally for various wares (2011: 229-233). Dikomitou observes that her Fabrics IV and VIII are exploited for both cooking pots and for RP jars (Dikomitou 2011: 254); a phenomenon that is also observed at *Ammoudhia* in one of the few fabric cross-overs. Although none of her fabric types directly match those at *Ammoudhia*, her type XIII contains similarities, being the finest recorded, with mudstone fragments and numerous TCFs (Dikomitou 2011: 190). Dikomitou's TCFs can be directly related to Vaughan's ARFs (the term elected for use in this thesis).

Although not a petrographic analysis, recent XRF analyses conducted by Frankel and Webb (2012a) also provide evidence for differential clay selection and argue for DP being imported to these sites (see Chapter 2). Although Knapp and Cherry suggest that similar clays are found in south-western river valleys (1994: 74-80), the DP from Ambelikou-*Aletri* and Marki-*Alonia* does not correspond chemically with these samples, suggesting a different source (Frankel & Webb 2012a: 5-6). The samples from Marki-*Alonia* and Ambelikou-*Aletri* do, however, correspond with

each other, suggesting the same source for the DP found at both of these sites (Frankel & Webb 2012a: 5-6).

The evidence from other sites illustrates that when DP can be compared to RP and other wares, considerable differences in both clay selection and general manufacturing techniques are evident. Whilst in some cases this is explained by the fact that the DP is imported, it is also apparent at sites where DP is locally manufactured, such as *Sotira-Kaminoudhia* and *Episkopi-Phaneromeni* (Herscher 1981, 2003: 152; Vaughan 2003: 215-219). The fact that *Ammoudhia* DP (2) and RP (4) are made with the same clay and forming techniques backs up the argument given above, that rather than DP being part of the RP repertoire, at *Ammoudhia*, it may be the other way round.

Tentative comparisons can also be made with Robertson's unpublished study of the *Kissonerga-Mosphilia* ceramics (1989). There are certainly similarities between the *Ammoudhia* sample and Robertson's description of a selection of the *Mosphilia* wares (RB/B and SW); both are composed of mudstone matrices with ARFs and few other inclusions (Robertson 1989). It could be argued that similar local clay sources were being exploited during the Late Chalcolithic, which may in turn have implications for the understanding of the technological evolution of ceramics in western Cyprus. Clearly, more analysis is required in this potentially important area of research.

Spindle Whorls

Spindle whorls are common in both settlement and cemetery contexts during the EC-MC, with over 450 published examples (Davies 1995: 77; Crewe 1998: 14; Keswani 2013: 207, 270). Their proliferation and clear usewear illustrate that they were primarily functional objects, albeit ones that could be personalised and imbued with style.

There are no whorls at *Ammoudhia* weighing over 100g (the heaviest is 19.17 at 87g), therefore it can be argued that short staple wools were most common, as is reflected throughout Cyprus (Crewe 1998: 13; Frankel & Webb 2006: 173). The mean weight of the *Ammoudhia* whorls is 47.92g, in keeping with those recorded from contemporary sites (e.g. Frankel and Webb [2007:125] list 40.5g at Deneia, 46.6g at Episkopi-Phaneromeni and 52.8 at Alambra-Mouttes).

Most tombs contain a single whorl, however, Tomb 20 contains seven, allowing for a more nuanced study. Of these, three are small and light (under 3cm in height and diameter, under 30g in weight), two can be described as medium (3-4cm in height, 3-4.5cm in diameter and 30-60g in weight), whilst the final two are relatively large (3-4cm in height, 5-6cm diameter and 60-80g in weight). This even distribution suggests that the occupant(s) of Tomb 20 may have been involved with the spinning of a variety of (relatively) fine fibres (Crewe 1998: 13; Frankel & Webb 2006: 173; Georgiou *et al.* 2011: 302).

The majority of the *Ammoudhia* whorls are conical in shape (80%) and 17 (65%) are decorated, fitting this general pattern of ECIII-MCII whorls. Only one (43.9) is suggestive of an earlier date; this is a biconical example and the smallest of the *Ammoudhia* whorls, at 1.9cm high and only 23g in weight (see Table 4.3 for comparisons). This whorl is an outlier when compared to the full whorl assemblage and has more in keeping with those Philia and ECI-II examples described by Crewe (1998: 28-9) and Frankel and Webb (2006: 160-3).

Decorative motifs are also fairly homogenous island-wide, although Frankel and Webb argue that, on the central plain, whorls are generally similar to those from neighbouring sites (2006: 195). Since whorls are unlikely to be objects that were commonly traded, they argue that movement of whorls implies movement of people, and inter-site comparisons of types and decoration might be a useful area of

future study (2006: 195). Unfortunately, in most cases the *Ammoudhia* whorls can only be compared to those from other sites in a general way. Only two examples might offer further comparisons; whorls 6.19 and 19.17 are similar to example P8467 from Marki-*Alonia*, which has been dated to ECIII-MCI (Frankel & Webb 2006: 166), as well as more general comparisons with Prastio-*Lakries* (Rupp *et al.* 1993: 384, fig. 3.3).

Finally, it is interesting to note that a few tombs also contains a number of disc lugs, which offer a round, flat, decorative medium similar to a spindle whorl. Indeed, five examples from Tomb 6 are decorated with a similar decorative pattern to the *Ammoudhia* spindle whorls. The majority of these lugs occur in RPSC, although two RPI (7) examples also occur; one on a Tomb 1 flask 1.14 (Figure 4.77) and another from Tomb 6 (Figure 5.2), which carries a central circular motif that could be taken to represent the perforation on a whorl. Tomb 3 also contained a disc lugs sharing the same decorative similarities with the spindle whorls (Figure 5.3) and Tomb 12 also contains one highly decorated DP example (Figure T12.2 – 12.32).

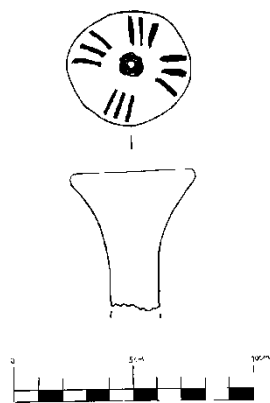


Figure 5.2: Disc lug 6.146

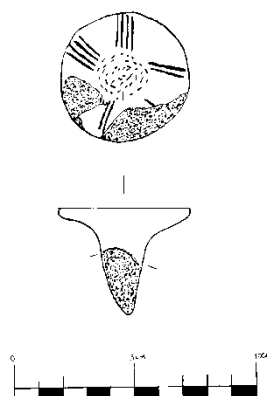


Figure 5.3: Disc lug 3.68

Non-Ceramic Grave Goods

The metal, beads and stone tools from *Ammoudhia* described in Chapter 4, are all in keeping with those found at the other EC-MC sites around Cyprus (Gjerstad 1934, Dikaios 1940; Stewart 1962; Krumholtz 1982; Swiny *et al.* 1986, 2003; Balthazar 1990; Coleman *et al.* 1996; Frankel & Webb 2006, 2007; Todd 2007; Webb & Frankel 2009; Georgiou *et al.* 2011; Knapp 2013; Keswani 2013). The small number of these artefacts, in particular metal, is comparable to sites on the south coast. For example, six metal artefacts were also recovered from five tombs at Psematismenos-*Trelloukkas* (Georgiou *et al.* 2011: 303), compared to some 700 from *Lapithos-Vrysi-tou-Barba* (Gjerstad 1934, Knapp 2013: 315), or Vounous, where over 50% of tombs contain some metal (Dikaios 1940; Stewart & Stewart 1950; Webb *et al.* 2009: 232; Keswani 2013: 207). It is clear that *Ammoudhia* fits more with the south coast examples in this case.

Keswani (2004: 76) suggests that there is a typical collection of non-ceramic grave goods that she refers to as “the full complement of status goods...” (2004: 76). Consisting of an axe, hook tanged metal weapon or tool, tweezers, a metal scraper and ring, whetstone, bone needle and cattle bones, such as was found at *Alambra-Mouttes* Tomb 102 (Keswani 2004: 76; Coleman *et al.* 1996: 118-9). This tomb contained a single male burial (Coleman *et al.* 1996: 118-9), and it may be argued that this assortment represents a set of tools that can be associated with males (Keswani 2004: 76). Whilst this set occurs repeatedly in tombs across the island, the general lack of gender identification means that this remains speculative, and Keswani goes on to argue against jumping to gender assumptions that can be “strongly influenced by our own cultural biases” (2004: 69).

Several tombs or cemeteries only contain a selection of this ‘set’; including *Kissonerga-Ammoudhia*, where at least five of the items are present, although not in

the same tomb. Metal is present in Tombs 13, 15, 16, 17 and 18 (see Chapter 4, Table 4.5). Tomb 18 contains both a 'feminine' spindle whorl and a 'masculine' blade and whetstone (and although there was no metal found, the remaining three tombs with whetstones also contained at least one spindle whorl). Unfortunately, the lack of excavation recording coupled with the poor preservation means that these artefacts can rarely be related to particular inhumations. Unlike the ceramics, these items all conform to a general EC-MC typology and are therefore not particularly useful in refining chronology or identifying relationships with other sites. However, the presence of metal, tools and jewellery in tombs can be used to infer certain economic, ritual and/or socio-cultural behaviours which will be discussed further in Chapter 6.

CHAPTER 6

DISCUSSION: BEYOND AMMOUDHIA

Kissonerga-Ammoudhia in a Mortuary Context

It is never easy for scholars to confidently state that they have an understanding of the behaviour of past people. Chapter 2 presented the state of research into EC-MC death and burial and discussed the difficulties involved in establishing evidence for funerary ritual when said evidence is ephemeral and open to conjecture and misrepresentation (Webb 1992: 96; Sneddon 2002: 5; Keswani 2004, 2013). However, some tombs at *Ammoudhia* do offer a glimpse of some of the rituals involved in a west coast EC-MC burial.

When compared to other EC-MC tombs, the *Ammoudhia* evidence points to general similarities with specific, regional differences. Like most EC-MC cemeteries, *Ammoudhia* is situated on a ridge, clearly visible in the landscape and with a good viewshed (Sneddon 2002: 3). Unlike some other cemeteries, however, it is not in sight of the settlement, *Kissonerga-Skalia*. Hadjisavvas originally identified two burial grounds and a settlement (1977: 225) and it may be that there are other cemeteries or sub-cemeteries around the area. This would be in keeping with other sites such as *Bellapais-Vounous* and the *Karmi* cemeteries, which have at least two cemetery areas, and *Marki-Alonia*, which has at least five (Frankel & Webb 2006: 283-5).

Tomb Architecture

Because of the rescue nature of the excavation, information on tomb architecture is unfortunately very limited, due mainly to the initial destruction of the tombs by bulldozers and compounded by the pressures laid on the excavators to complete

excavations in an extremely short space of time. The remaining evidence suggests that the *Ammoudhia* tombs fit the general EC-MC chamber tomb profile, especially in comparison to the south coast evidence (Swiny *et al.* 2003: 104; Keswani 2004; 2013; Georgiou *et al.* 2011). The tombs are single chambered, circular or ellipsoid in shape being on the small side, at around 2m diameter (Webb 1992: 88). They are cut into bedrock, and there is evidence that there was originally a dromos and stepped entrance (Stewart 1962: 215-6; Duryea 1965: 3; Swiny *et al.* 2003: 104). There is little evidence for elaborate tomb architecture that can be observed in the north of the island (Dikaios 1940; Stewart & Stewart 1950: 40; Swiny *et al.* 2003: 108-9; Webb *et al.* 2009: 205-206; Georgiou *et al.* 2011: 331-2; Keswani 2013: 202).

Tomb	Dromos	Entrance stone	Shelf/bench	Pit
4		Yes		
6	Yes	Yes	Yes	
13			Yes	Yes
15				Yes
16				Yes
17				Yes
19		Yes		Yes
20				Yes
39	Yes			
40B	Yes	Yes		
41		Yes		
42	Yes			

Table 6.1: The architectural features visible in the *Ammoudhia* tombs

Some architectural features remain in a few of the *Ammoudhia* tombs that are worthy of investigation and can be compare to funerary architecture from contemporary sites (Table 6.1). Although mostly destroyed, there are still a few surviving examples of dromoi and tomb entrances. Tombs 6, 39, 40B and 42 all have evidence of surviving entranceways (and Tomb 6 contains several important features which will

be discussed below). Tomb 39 has a single dromos measuring 32cm in width, but with no other features remaining, whilst Tombs 40B and 42 share a dromos (Figure 4.309). There is no evidence for any ritual activity on this dromos, however, the entrance to Tomb 40B was sealed with a large stone.

As well as Tomb 40B, four other tombs (4, 6, 19 and 41) also contained a single very large stone (approximately between 0.5m and 1m), originally used to block the entrance at the final closure of the tomb. In the case of Tombs 4 and 19 these were found disturbed on the tomb floor. However in both Tomb 6 and Tomb 40B, these stones remain in situ, blocking the tomb entrance (see Figures 4.189 & 4.309). Such stones are a common method used for sealing tombs and are found in many EC-MC tombs (Stewart & Stewart 1950: 47, 51, 62, 82; Duryea 1965: 5, 7, 12, 19, 26; Herscher 1978: 712; Swiny *et al.* 2003: 118-9; Webb *et al.* 2009: 205; Georgiou *et al.* 2011: 341-2).

Internal features such as benches, niches and cupboards occur in various EC-MC tombs, but are more common on the north coast, in particular at Vounous-Bellapais (Gjerstad *et al.* 1934: 39; Dikaios 1940: 9, 14, 30, 33, 39, 62; Stewart & Stewart 1950: 289-291; Dunn-Vaturi 2003: 92-3). They also occur in tombs at Alambra-Mouttes and Marki-Alonia (Coleman *et al.* 1996: 118-120; Frankel & Webb 2007: 18-20), but are rare on the south coast, where there is only one example of a small triangular niche in Tomb 108 at Psematismenos-Trelloukkas (Georgiou *et al.* 2011: 107, 108 fig. 2.101, 342). At Ammoudhia benches occur within Tomb 6 and Tomb 13 (although Tomb 13 may be an example of taking advantage of a natural slope in the bedrock rather than a manufactured feature [E. Raptou: personal communication]). A body was carefully placed on each of these benches, and both appear to have been wearing jewellery; a bead necklace in the case of Tomb 6, and a metal earring in Tomb 13.

There are eight examples (in six tombs) of small shallow pits dug into the otherwise flat tomb floor. These pits appear to be the receptacles of either human remains or

discrete caches of ceramic vessels (usually small round spouted juglets), or both (Table 6.2). There is a slight preference for a location in the north of the tomb with an east-west orientation (Tombs 16, 17, 20 and 19), with two in the west (15 and 16), one in the east (Tomb 13) and one in the centre (Tomb 20). Two tombs (16 and 20) contain two separate pits (although the Tomb 20 examples appear to be irregular, natural depressions in the bedrock, exploited for mortuary purposes). The remaining six exhibit clear evidence of manufacture (E. Raptou: personal communication). Unfortunately, dimensions were not recorded in the case of Tombs 17 and 19, making comparisons difficult, but Tombs 13, 15 and 16 hint at some uniformity in size and shape. The examples in Tomb 13 and the west of Tomb 16 each measure 1m x 0.6m, whilst the pits from Tomb 15 and the north end of Tomb 16 measure 0.6m x 0.3m and 0.7m x 0.5m respectively. The dimensions (width = approx. half length) for each of these pits suggests some conformity, but with only four examples this is impossible to confirm.

Tomb	Location in Tomb	Dimensions (m)	Contents
13	East	1 x 0.6 x 0.2	Juglets
15	West	0.6 x 0.3 x 0.15	Juglets
16	West	1.1 x 0.6 x 0.4	Human bones, beads, 2 juglets
16	North	0.7 x 0.5 x 0.5	Human bones, beads, 2 juglets
17	North	Unknown	Ceramic sherds
19	North	Unknown	Human bones
20	North	0.3 x 0.3 x 0.1	Human cranium
20	Centre	0.09 x 0.07 x 0.15	None

Table 6.2: Details of the pits found in *Ammoudhia* tombs

Although several architectural features are common throughout EC-MC chamber tombs, pits do not occur within tombs anywhere else in the current literature. Bellapais-*Vounous* exhibits some evidence for sloping floors and some irregularities

in otherwise flat floors (Dikaios 1940: 97; Stewart & Stewart 1950: 134-5), however these appear to be naturally occurring (Dikaios 1940: 97). Pits were recorded at both Lapithos-*Vrysi-tou-Barba* (Herscher 1978: 706, 716) and at Karmi-*Lapatsa* (Webb *et al.* 2009: 235, 239). However, in both cases these pits were cut into the bedrock outside the tombs. The Lapithos examples were rectangular (approximately 1m x 0.5m) and arranged in regular rows over the exposed bedrock (Herscher 1978: 706, 716). They were empty on excavation, so their function remains uncertain, although Keswani has proposed that they constitute temporary burial features used in multi-stage funerary programme (2004: 192, 2013: 204). The two examples from Karmi-*Lapatsa* are described as 'scoops' rather than pits (Webb *et al.* 2009: 235), and were found to contain comingled human bones and a number of ceramic vessels (Webb *et al.* 2009: 235), suggesting a stage in a multi-stage ritual, possibly as part of a tomb reuse ritual (Webb *et al.* 2009: 235; Keswani 2013: 203).

Table 6.2 shows the location, dimensions and contents of the *Ammoudhia* pits. With the exception of the small, natural hole in the centre of Tomb 20, all were used as receptacles either for human remains, ceramic vessels (often juglets) or both. The pits in Tombs 13, 15 and 17 only contain vessels, and in the case of Tombs 13 and 15 these are all small, incised, round spouted juglets. The two pits in Tomb 16 both contained mingled human remains, two juglets and beads, suggesting a formalised ritual performed for both individuals. This may be a ritual similar to that proposed for Lapithos or Karmi (Keswani 2004: 192, 2013: 203-4), but in this instance, performed within the tomb itself; or it might represent a single/final deposition for these individuals. For the time being, the meaning behind these pits is uncertain and these features remain unique to Kissonerga-*Ammoudhia*.

Evidence for Mortuary Ritual at Kissonerga-*Ammoudhia*

Ritualistic behaviour

The EC-MC represents the period immediately before the appearance of large temples and unified religions of the Late Bronze Age. The current scholarly opinion is that EC-MC kin groups used mortuary rituals to both maintain their connection with ancestral ideologies and to assert prestige (Keswani 2004: 17). Webb has also argued that, unlike other, more incidental archaeological evidence, funerary remains represent a purposeful deposition and therefore reflect conscious social behaviour (1992: 87).

A degree of spatial conformity has been observed at other EC-MC sites, where there is a preference for locating bodies or certain vessels in a particular spot in a tomb, possibly commensurate with some part of a funerary ritual (Dikaios 1940: 98-100; Stewart 1962: 295; Herscher 1978: 784-5, 788; Webb *et al.* 2009: 235-6). There is very little evidence for such patterns at *Ammoudhia*. This is in part due to the emergency nature of the excavation, but also as a result of taphonomic disturbances over time. Appendix 7 shows the strata of Tomb 20, and the extremely chaotic nature of the tomb contents, which were broken and scattered throughout the tomb, making it difficult in most cases to ascertain the original position of a vessel.

Where in situ skeletal evidence remains, it can be observed that inhumations are placed in various parts of the tomb, with no cardinal point or particular area being favoured (with the exception of the bodies placed on the benches or in pits described above). The human remains at *Ammoudhia* are poorly preserved, and at the time of writing, no demographic information has been obtained. There is evidence for multiple inhumation (although there is no evidence for any more than two inhumations in a single tomb), which is relatively common during the period. Around half of the tombs at Bellapais-*Vounous* containing more than one burial (Dikaios 1940: 72-4), although only single inhumations occur at Sotira-*Kaminoudhia*

(Swiny *et al.* 2003: 127-8, 133-4); whilst at Psematismenos-*Trelloukkas*, the majority of tombs contained single inhumations but larger groups of 2-4, and in one instance, nine individuals were recorded (Georgiou *et al.* 2011: 343).

The issue of tomb clearance has already been discussed above as it pertains to the issue of chronology. It should also be noted here as an aspect of ritual behaviour. Frankel and Webb suggest that in the north coast cemeteries it was the practice to move aside earlier burials to make way for more recent ones (2009: 22-27, 2010: 194; also Stewart & Stewart 1950: 221) and the occasional sherd from earlier vessels is evidence of this. This may well be the case at *Ammoudhia*, with some tombs (such as Tomb 19) that would otherwise be clearly dated to the MC, containing a single RPSC sherd.

However, like Psematismenos-*Trelloukkas*, this clearly did not take place in every tomb (Georgiou *et al.* 2011: 344). Tombs 1, 4 and 43 have no evidence for use beyond the ECII-III and Tomb 6 does not show any evidence for use beyond the MCI. However, the very large number of vessels found in Tomb 6, ranging from ECI to MCI, might suggest continued use, but with the contents remaining within the tomb in this instance. Finally, if clearing did take place then it must have ceased around the ECIII-MCI, as all of the final depositions and tomb closures occur at this time. This is in keeping with current evidence which suggests that this behaviour ceased at this time (Stewart & Stewart 1950: 146; Herscher 1978: 296-7; Webb *et al.* 2009: 239; Georgiou *et al.* 2011: 344). Webb argues that this change signifies a shift in the concept of the tomb as a final, as opposed to temporary resting place at some point during the ECIII-MCI (2009: 240).

Tomb 6 is the only tomb to exhibit evidence of ritual behaviour on the dromos and tomb threshold. Two pithoi were found on either side of the tomb entrance with the handle to a RPSC jug (the remainder was found inside the tomb). The procedure of

placing large storage vessels outside the doorway to a tomb is mirrored in Tombs 87, 111 and 152 at *Vounous* (Stewart & Stewart 1950: 139, 183, 185, 226, 229) and implies that there may have been continued funerary ritual occurring after the original deposition (Keswani 2013: 229).

Tomb 6 can perhaps be taken as a 'type tomb' for *Ammoudhia*. It is the best preserved (thanks to its sunken floor) and contained the largest assemblage of grave goods. As well as the preserved dromos and evidence for ritual, a shelf containing a burial surrounded by grave goods remained intact. The exceptionally high number of vessels found in this tomb (153) is also unusual, when compared to other, richer cemeteries. The largest number of vessels found in a single chamber at *Bellapais-Vounous* was 57 (Keswani 2004: 204, Table 4.8) and at *Psematismenos-Trelloukkas* it is 69 (Keswani 2004: 204, Table 4.8; Georgiou *et al.* 2011: 335).

An interesting phenomenon that is most clearly observed in Tomb 6 is the inclusion of large, ovoid pebbles or manuports. These pebbles occur in five of the *Ammoudhia* tombs (Table 4.5, Figure 4.154). In most instances they were discovered scattered around the tomb with no evidence for careful placement. However, in Tomb 6 they were discovered *in situ*, carefully placed on top of the body in the north-west corner (E. Raptou: personal communication). There is very little evidence for such behaviour in the current archaeological record. Three such pebbles were recorded at *Kalavassos-Panagia Church* (Todd 2007: 257) and several were recorded at *Psematismenos-Trelloukkas*, however, these appear to have been used in a fire (Georgiou *et al.* 2011: 311). The placement of pebbles as part of a funerary ritual is attested in the Neolithic period at *Shillourokambos* (Guilane *et al.* 2011: 799) and a single ovoid pebble was recorded in the centre of Tomb 158 at *Souskiou-Laona*, immediately beneath the final inhumation (Crewe *et al.* 2005: 56, fig. 16.6). River or sea pebbles do not generally occur naturally in limestone cut tombs, and the careful placement in Tomb 6 certainly points to ritualistic behaviour.

The presence of large amounts of animal bones and large serving vessels and bowls in tombs has led to the premise that feasting was a part of EC-MC funerary ritual (Stewart & Stewart 1950: 122; Herscher 1997: 34; Keswani 2004: 33, 48, 68, 152; Webb & Frankel, 2008, 2010: 196-7; Webb *et al.* 2009: 241-2; Georgiou *et al.* 2011: 355-6). Unfortunately, no animal bones have so far been identified at *Ammoudhia*. The emergency nature of the excavation meant that all bones (which were already extremely fragmentary (e.g. Tomb 20 – Appendix 7) were collected together and are awaiting analysis. It is to be hoped that future analyses will help determine if there are any such faunal remains at *Ammoudhia*.

There is however, evidence for burning in three tombs – 6, 15 and 20. According to Dr Raptou, Tomb 6 contained a discrete dark ashy area immediately to the left of the tomb entrance, whilst the floor of Tomb 15 had a hard, blackened patch in the centre. A discrete ashy area was also found in Tomb 20 in the immediate vicinity of the larger pit and human cranium in the north of the tomb (Appendix 7).

Tomb ceramics

By far the majority of vessels found at *Ammoudhia* are typical EC-MC pouring and serving vessels of jugs and bowls, similar to those found in other EC-MC tombs and settlements. However, with the exception of cooking pots and pans (see below) the *Ammoudhia* ceramics do not exhibit clear evidence of use before deposition as is seen at Marki-Alonia and Psematismenos-Trelloukkas (Sneddon 2002: 3; Webb 1992: 89; Georgiou *et al.* 2011: 194). This does not automatically signify that vessels at *Ammoudhia* were manufactured specifically for funerary use; the robust nature of DP (for example) coupled with taphonomic erosion makes it difficult to identify evidence for use on these vessels.

There are however, a few vessels that may point to a ritual, rather than utilitarian purpose. Tomb 6 contains several vessels that are difficult to reconcile to a domestic or every day function. At Psematismenos-Trelloukkas, Georgiou explicitly links

conical bowls with authority and ritual (2011: 357), and this may be the case with the three examples from *Ammoudhia*. The highly unusual two-legged version of a cooking pan from Tomb 6 would appear to have a non-functional purpose (see Chapter 4 -Figure 4.125). Tomb 19 also contained an elaborate vessel (19.8 – Figure 4.100) which cannot support its weight unaided. This bowl is an elaborate and additive version of the other elongated lug bowls described in Chapter 4.

The popularity of small juglets is well attested from the MC through the LC (Åström 1972b, 2001; Herscher, 2001: 16-18; Keswani 2013: 228-9). Their appearance in tombs during the MC arguably represents a libation ritual (Webb 1992: 89-91; Keswani 2013: 229). Their existence in almost every tomb at *Ammoudhia* from the ECIII onwards is in keeping with this argument and their occasional deposition in discrete areas (such as the pit in Tombs 13, 15 and 16) suggests that they (or their contents) were considered separate to the bulk of vessels deposited in the tomb.

There is also a little evidence for composite vessels in the assemblage. Tomb 9, contains an almost complete double spouted composite jug (9.14-16- Figures 4.55, 4.131). The motif of two small bowls and cup is possibly meaningful as it appears on other composite vessels and scenic compositions; in particular (Morris 1985: 88, 107, fig. 22, Pl. 170). These vessels are found in small numbers at sites across the island from the ECIII onwards (Keswani 2013: 220), and may represent a change in the form of cult vessels and their function, from shared consumption (feasting) to more formalised libation and offering (Webb and Frankel 2008: 293). Tomb 16 contains a miniature juglet and pedestal that appears to come from a composite vessel (16.26 – Figure 4.132), although nothing remains of the actual vessel. This tomb also contains fragments from two bowls in the ‘sea urchin’ style (MacLaurin 1980: 721, fig. 123.12-13), which both carry the relief figure of a stag rising from the rim (16.21 and 16.30 – Figures 4.101 and 4.102). Webb & Frankel suggest that the presence of modelled

animals on vessels, and particularly horned animals, are present on vessels used for ritual shared consumption at *Vounous* (2008: 289).

As well as evidence for non-functional vessels, most tombs also contain cooking pots and pans. Although occurring in very small numbers, the presence of cookware in tombs is suggestive. This is a relatively common occurrence in EC-MC tombs, where cooking amphorae were found in tombs at *Alambra-Mouttes* (Barlow 1996: 117) and *Sotira-Kaminoudhia* (Herscher 2003: 106). The presence of cookware in tombs coupled with the large number of serving and mixing vessels arguably represents evidence for feasting (Keswani 2004: 82). Several of the *Ammoudhia* cooking pots and pans show some evidence of use (cooking pots 1.16, 4.26, 5.10, 14.2, 16.20, and pans 4.8, 4.21, 6.49, 10.13, and 13.6), with clear burning to the base or underside, although whether these vessels were used frequently before deposition or not is uncertain.

Does the deposition of a pot in a tomb represent a person or a community? Keswani observes that the size of tombs and number of vessels increases through the EC-MC; which, she argues, can be explained by the increased socio-political importance of funerary ritual (2004: 63). Evidence for this includes increased conspicuous consumption, increased communal formalised rituals and status displays by the living, as reflected in the increased number of eating/drinking vessels (Keswani 2004: 63, 82, 2013: 224, 228).

Whether the individual vessels deposited in tombs at *Ammoudhia* are representative of the deceased person or of the living taking part in the funerary rituals is impossible to say. It is extremely difficult during this period to identify the individual (Clarke 2005: 136), and very little indeed can ever be known about EC-MC beliefs, beyond the assumption that they had some kind of belief in post-mortem survival (Webb 1992: 87-89). The less than complete record of EC-MC

mortuary data means that any conclusions must therefore be tentative and unlikely to ever be comprehensively understood (Webb 1992: 96; Sneddon 2002: 5). In the specific case of *Ammoudhia*, the general conformity observed in tomb ceramics coupled with the changes observed over time in numerous tombs does suggest that this is artefactual evidence of community, where individual behaviour conforms to a communal ideal.

The possible re-use of tombs suggests links with the ancestors and a continuity of culture and community spirit (Keswani 2004, 51, 2013: 211). However, this practice ceased during the ECIII (Stewart & Stewart 1950: 146; Herscher 1978: 296-7; Webb *et al.* 2009: 239; Georgiou *et al.* 2011: 344) and this is also the case at *Ammoudhia*.

Changes in vessel shapes and an increasing homogeneity or conformity into the MC signify socio-cultural changes and possible restrictions and control placed on what constituted a suitable mortuary vessel (Webb *et al.* 2009: 241; Keswani 2004: 81-2, 145, 2013: 217). While Keswani argues for this as evidence of a growing sense of kinship (2013: 217), it is also in the later tombs at *Ammoudhia* where some tentative evidence for the individual, or groups can be identified, which might be argued instead to represent an emerging elite, although not at the level argued by Manning and Knapp (Manning 1993; Knapp 2008, 2010, 2013).

Inter-site Comparisons

Can the mortuary behaviour seen at *Ammoudhia* be compared to tombs and cemeteries from elsewhere, both on Cyprus and the wider Mediterranean? Direct comparisons have been explicitly made above, and a picture emerges of a generally similar island-wide mortuary process involving the construction of chamber tombs in collective cemeteries. The dead are deposited within these tombs along with several grave goods and accompanying rituals, which may have involved feasting and/or libations (Webb & Frankel 2008: 288; Keswani 2004: 82, 2013: 228-9). They are also possibly the subject of further ritualistic behaviour including movement or

removal of remains (Dikaios 1940: 72-4, Stewart & Stewart 1950: 80, 131, 162; Herscher 1978: 296-7; Webb *et al.* 2009: 22, 27, 239-240; Georgiou *et al.* 2011: 344). These processes remain much the same throughout the EC-MC, but with increasing complexity of tomb architecture and grave goods, with the number and range of goods differing across the island (Keswani 2004: 55; Frankel & Webb 2007: 151; Webb & Frankel 2010, 2013; Georgiou *et al.* 2011: 361). This suggests a broad island-wide belief system with people across the island exhibiting similar behaviours but with differing levels of investment and complexity over space and time.

Tentative comparisons with the wider eastern Mediterranean can also be made. The practice of burying the dead out-with the living area in a designated space became the norm throughout the region during the Early Bronze Age (Wheeler 1974: 417; Keswani 2004: 39; Massa & Şahoğlu 2011: 165); although several different types of graves occur and the size and scope of cemeteries varies enormously (Keswani 2004: 39; Massa & Şahoğlu 2011: 165). In western Anatolia pithos burials and pit tombs are common (Keswani 2004: 39; Massa & Şahoğlu 2011: 166), with a wider variety of cists, pits and pithos burials found in on the Central Anatolian Plain well into the 2nd millennium BCE (Massa & Şahoğlu 2011: 167). Chamber tombs are known in Syria during the mid-3rd millennium BCE (Keswani 2004: 39). However, the Souskiou cemeteries provide a very early local template of a discrete mortuary area that does not seem to be influenced by external sources, and where tomb clearance and reuse was also practiced (Crewe *et al.* 2005; Peltenburg 2006; 2011). While two pit burials were found in Philia contexts at Kissonerga-Mosphilia (Lunt *et al.* 1998: 72), these were predated by 13 chamber tombs found in a discrete mortuary area (but still within the settlement) and dating to the Late Chalcolithic Period 4b (Lunt *et al.* 1998: 70-72, 86-89). Currently, the question of whether the tradition of chamber tombs in cemeteries was introduced from the mainland or represents an indigenous development remains undetermined (Keswani 2004: 55).

Although tomb architecture and style vary considerably on the mainland (unlike Cyprus) the deposition of the dead with grave goods such as pottery, jewellery, spindle whorls and metal tools and weapons, and some evidence of feasting and other rituals is also apparent at several sites throughout Anatolia and the Near East during the EBA (Keswani 2004: 38-9; Kouka 2011: 50; Massa & Şahoğlu 2011: 166). Tomb reuse such as is observed at Bellapais-*Vounous* and possibly *Ammoudhia*, is also common in western Anatolia (Massa & Şahoğlu 2011: 166).

Ceramics demonstrate more direct connections to the mainland. RPP ware shares strong parallels with a type of ware found in western and central Anatolia, related to the burial of elites in that region (Kouka 2009: 46; Şahoğlu 2011: 139). More specifically, certain characteristics familiar to EC vessels and found in the *Ammoudhia* ceramic record have their roots in EB Anatolia, particularly the area of Tarsus (Goldman 1956; Schaar 1985: 37; Mellink 1991: 168-170; Peltenburg 1991: 31, 33; Swiny 2003: 68). Vessel forms such as cutaway spouts and cooking pans have clear parallels (Peltenburg 1996: 24-5, 2007: 147; Webb 2007: 201; Webb & Frankel 2011: 31; Şahoğlu 2011: 140), while vessel features such as loop handles with plugs thrust through the vessel wall also occur earlier in western and south-central Anatolia (Mellink 1991: 172-3; Frankel, Webb & Eslick. 1996: 43; Peltenburg 1996: 25, 2007: 147). Relief decoration, certain motifs and the use of white filling also have their antecedents in the Anatolian archaeological record (Bolger 1983: 42, 2007: 173; Frankel, Webb & Eslick 1996: 49; Peltenburg 2007: 147). However, there are no examples of direct imports (Peltenburg 1996: 26, 2008: 153); Cypriot examples represent a form of emulation and hybridisation, rather than continued contact with the mainland for which there is no current evidence beyond the *Philia* phase (Swiny 1989: 14; Peltenburg 1996: 20-22, 2007: 147, 154; Frankel & Webb 2006: 307; Kouka 2009: 40; Webb *et al.* 2009: 252).

The *Ammoudhia* assemblage seems to conform only in a very general way to the evidence from outside Cyprus, and no direct parallels can be made. There is a scarcity of evidence for mortuary behaviour or ritual from EBA Anatolia (Massa & Şahoğlu 2011: 164, 166) and the evidence that does exist does not suggest any great similarities or contact between Anatolia, the Aegean world or Cyprus (Massa & Şahoğlu 2011: 170). Kissonerga-*Ammoudhia* fits with the Keswani's argument (2004: 55) that although many of the ceramic traditions of the EC and some mortuary rituals and behaviours may hail originally from the mainland, others already existed in Cyprus and the overall theme is one of local adaptations of a shared cultural system, related to responses to post-Philia developments (Keswani 2004: 55; Georgiou *et al.* 2011: 361).

Social/Cultural Evidence

Identifying the Individual

There is little evidence for individual status at Kissonerga-*Ammoudhia*; in keeping with the evidence from contemporary sites on Cyprus (Coleman *et al.* 1996: 329, 344; Swiny *et al.* 2003: 54; Frankel & Webb 2006: 314; Georgiou *et al.* 2011: 361), the emphasis seems to be on community.

Collective burials and indeed multiple burials in the same tomb may imply group identity and/or social and political status (Keswani 2004: 1, 11). By burying their dead in a communal cemetery the inhabitants of Kissonerga seem to conform to the first of these proposals. By choosing to bury their dead in a large communal necropolis rather than individual burials, the inhabitants have created a 'dead zone'. The act of deposition is a communal act and further ritual episodes such as the revisiting of tombs with new burials or tomb clearance reinforces these rituals and community ties (Keswani 2004: 24, 54; Webb *et al.* 2009: 232, 240).

Some tombs or collections of tombs may represent specific kin groups within the larger community (Keswani 2004: 17, 38, 2013: 217; Webb & Frankel 2010: 194; Georgiou *et al.* 2011: 357). Although much of the cemetery was already destroyed before the archaeological excavation, evidence remains for a relationship between certain tombs. Spatially, this is best illustrated with Tombs 40A, 40B and 42 (Figures 4.295, 4.296, 4.305). Tombs 40A and 40B are possibly part of a two-chambered tomb, whilst 40B and 42 share a dromos, with the entrance to both tombs very close together.

The cluster of tombs 15, 16 and 17 share several similarities in tomb architecture and contents as well as occurring as a discrete unit, some distance to the west of the main 2000 excavations (Figure 3.7). All three tombs contained ceramics dating to the latter part of the *Ammoudhia* sequence. Each contains a pit cut into the tomb floor, described above (Tomb 16 contains two), and each contains a metal object (Figures 4.143, 4.144, 4.147). Unfortunately, Tomb 17 was severely disturbed by construction, but the range of finds from both Tombs 15 and 16 are extremely similar, both containing metal objects, small disc beads, picrolite beads and numerous small juglets. Tomb 16 contained considerably more ceramic vessels (126 compared to 30 from Tomb 15); however, it does contain at least 2 burials, compared to the single inhumation from Tomb 15.

The metal objects at *Ammoudhia* are few and in keeping with the evidence from the south coast, where metal only occurs in a few tombs (Swiny *et al.* 2003; Georgiou *et al.* 2011: 303, 356). Earrings and pendants found in situ in Tombs 13 and 15 are more likely to have been personal possessions, and the presence of metal in a few of the *Ammoudhia* tombs does suggest some kind of preferential access (Georgiou *et al.* 2011: 357). The blade from Tomb 17 (Figure 4.144) is heavily worn to one side, indicating sustained use and arguing that this is a personal possession rather than an item made specifically as a funerary object. The fact that several of the metal

objects occur in a discrete cluster of tombs (15, 16 and 17) might also suggest a group of people, slightly separate from the main population, who have a greater degree of wealth. This is particularly the case in Tomb 16, which contained a metal object (possibly the tange from a hook-tanged spear – see Chapter 4) and a very large number of ceramics. This tomb was fairly intact at excavation, with only the roof missing (E. Raptou: personal communication), and with evidence for only two inhumations, giving a mean of 63 vessels per burial. This is a large number, even when compared to that of Bellapais-*Vounous* (Keswani 2013: 209). It may be relevant that the only two clear imports in the entire *Ammoudhia* assemblage also come from this tomb, and suggest links with the north. It is possible that this small cluster represents a group of individuals with north coast contacts and preferential access to metal, wishing to exhibit a degree of separateness whilst still conforming to the communal mortuary behaviour. These tombs all contained some of the latest ceramics in the *Ammoudhia* assemblage and this would fit the general pattern of an increase in displays of social identity and affiliations from the ECIII onwards (Sneddon 2002; Keswani 2004: 54).

It is possible to argue that in some cases, personal adornment objects might help identify an individual. Beads are the most common form of adornment and occur in seven tombs. In the case of Tombs 15 and 16 these beads were found in association with human remains, suggesting that they were actually worn by the individual, and this is reflected across the island (Stewart 1962: 260; Krumholtz 1982: 285; Cullen *et al.* 1986: 117; Swiny 1986: 30, 2003: 235; Frankel & Webb 2006: 244; Georgiou *et al.* 2011: 308). The two heterogeneous picrolite pendants are also likely to be a form of personal adornment.

The presence of spindle whorls in tombs has been argued to represent the individual, since these are seen as personal objects, with little or no exchange value (Davies 1995: 75; Frankel & Webb 2006: 197). These items are also traditionally

argued to represent females (Crewe 1998: 36; Bolger 2003: 75). Since spindle whorls are not found in 'high status' (i.e. metal rich) tombs, they are conjectured to represent a specific class of textile worker (Crewe 1998: 36-7). Kissonerga-*Ammoudhia* is unusual in this regard, as one tomb (18) contains both a RP spindle whorl (18.7) and a metal knife (18.32). Like the evidence from Psematismenos-*Trelloukkas*, despite containing a metal object, Tomb 18 is not a richly endowed tomb (Georgiou *et al.* 2011: 357). It contained 29 vessels, mostly of a coarse, functional, everyday character. There were no small juglets, and decoration in this tomb is extremely limited. However, there is a clear preference for large, storage jugs, jars and pithoi, which Georgiou *et al.* argue might represent status, or perhaps venerable old age (2011: 345, 357). Unfortunately, the human remains from this tomb were extremely fragmentary so a number of individuals could not be determined. However, the ratio of 29 pots is somewhat lower than the *Ammoudhia* mean of 42.55 arguing for a single inhumation.

Tomb 20 contained seven spindle whorls; an extremely large number considering that two is the maximum in any other tomb. This tomb contained two individuals, possibly examples of these textile workers mentioned by Crewe (1998: 36-7). The other finds from this tomb included a whetstone (suggesting that the tomb may also have originally contained a metal object), beads and a pot disc, an ambiguous object that occurs at several Chalcolithic and Bronze Age sites (Swiny 1986: 109, 2003: 398-9; Coleman *et al.* 1996: 218; Peltenburg 1998: 197-8; Frankel & Webb 2006: 178-181). Although often pierced, this example is unpierced and its function remains uncertain; a generally accepted proposal is that these objects may have functioned as jar stoppers (Swiny 1986: 109-110, 2003: 399; Frankel & Webb 2006: 180). One vessel (20.60) is an extremely small flask with two opposing piercings or string holes. This miniature flask was found in very close proximity to the cranium within the northern pit, thus arguing for it being in situ. It is possible that this small vessel was actually worn around the neck of the deceased.

Finally, it is also possible when looking at potters' behaviour to perhaps recognise individual hands at work. There are several vessels (particularly in the same tombs), which were arguably made by the same hand. The two conical bowls in Tomb 6 are a good example, and several of the jugs and juglets in Tombs 6 and 15 are a very similar size, shape and technique to suggest the same hand at work.

The *Ammoudhia* Social Trajectory

Recent research by Webb and Frankel (2008, 2010, 2013), suggests that after the collapse of the Philia system, at least two disparate social trajectories existed during the EC (Chapter 2). On the north coast, where societies were more invested in the Philia system, societies became structured around social competition exhibited through conspicuous consumption and elaborate ritual (Webb & Frankel 2013: 76). In the centre and south, a different post-Philia social trajectory is observed. The limited mortuary expenditure and lack of conspicuous display and consumption points to a more socially inclusive society with an emphasis on community and where social identity was limited and probably determined by age, gender and social roles (Webb & Frankel 2013: 73).

Georgiou *et al.* argue that understanding the processes that went into forming these different post-Philia trajectories is "a major challenge for future research" (2011: 361). This research has added to that challenge by providing the first evidence for a slightly different west coast trajectory. In general terms, *Ammoudhia* seems to fit more with the south coast trajectory than the northern one, as suggested by Webb & Frankel (2013). The small, single chambered tombs with few metal objects and little or no evidence for elaborate ritual or conspicuous consumption is in keeping with the evidence from the south (Webb & Frankel 2008, 2010, 2013; Swiny *et al.* 2003; Georgiou *et al.* 2011).

However, several factors diverge from this southern model. Evidence for ritual behaviour taking place on the dromos of Tomb 6 is more in keeping with the behaviours observed on the north coast (Stewart 1962: 215-6; Duryea 1965: 3; Keswani 2004: 204, Table 4.8; Georgiou *et al.* 2011: 335); as is the practice of tomb clearance and reuse (Dikaios 1940: 72-4, Stewart & Stewart 1950: 80, 131, 162; Herscher 1978: 296-7; Webb *et al.* 2009: 22, 27, 239-240; Georgiou *et al.* 2011: 344; Webb & Frankel 2013: 64). The large number of vessels and range of wares and decorative motifs is also more in keeping with the north coast evidence (Dikaios 1940; Stewart & Stewart 1950; Herscher 1978; Webb & Frankel 2008, 2010, 2013). More specifically, the large number of jugs in the *Ammoudhia* assemblage suggests alcohol consumption as part of the mortuary ritual, as observed in the north (Webb & Frankel 2013). In the south it is bowls that are the most common vessel, evidence which is arguably more in keeping with shared food as part of the funeral (2013: 70).

ECI-II vessels at *Ammoudhia* exhibit a greater range of shapes, wares and decoration than those from south coast contexts (Herscher 1989, 1991, 1997, 2013; Georgiou *et al.* 2011). However, the shapes and decorative motifs seen at *Ammoudhia* are not derived from the north, but seem to be an entirely local adaptation in keeping with a local aesthetic; as is the preference for DP, which this thesis has shown, is a local adaptation dependent on the peculiar geological signature of western Cyprus. Perhaps, what is observed at *Kissonerga-Ammoudhia* is another, distinct 'western' trajectory, where remnants of the horizontal, integrated Philia culture remain, integrated with strong local traditions that might have their roots in the Late Chalcolithic as per Peltenburg (1993: 96).

Is there any evidence for continuity from the Chalcolithic at *Ammoudhia*, or does it represent a complete break in culture, as is observed elsewhere? There are no Philia vessels in the assemblage and *Kissonerga-Ammoudhia* offers little evidence towards an explanation of events and processes taking place in *Kissonerga* during the mid-

3rd millennium. However, most of the vessel forms (and their associated functions) were imported at some point mid-3rd millennium (Dikaios 1962: 202; Mellink 1991: 173; Peltenburg 1996: 24-5, 2007: 147; Webb & Frankel 1999, 2011: 31; Frankel 2000: 168; Webb 2007; Kouka 2011; Bachhuber 2014). What is observed at *Ammoudhia* seems to be an EC society with all of the accoutrements that one would expect of an established post-Philia culture (Herscher 1981, 1991; Merrillees 1991; Frankel 1994, 2005, 2009; Frankel & Webb 2006: 307).

However, there are also some indications of a level of continuity with the Chalcolithic way of life. This research and that by Vaughan (1987, 1991) have demonstrated that DP is a product of the unique Western Cypriot geology, which was consciously selected (Vaughan 2003: 218-9) but also required a certain amount of knowledge and practice to produce (Vaughan 1987: 71-80). The *Ammoudhia* DP can now be dated to the very early EC, where it already appears as a refined technology. Herscher's argument that DP represents an example of continuity of technology from the Chalcolithic seems probable (2003: 218). The similarities in fabric appearance, texture and mineralogy between DP and the Late Chalcolithic wares RB/B and SW back this up. All three exploit clays from a Mamonia source (Robertson 1989), and RB/B already represents advances in technology, where one can observe the trials of the potters as they attempt to reduce calcareous inclusions and fire at higher temperatures (Bolger 1998: 96, 2007: 173). Ceramics from the Late Chalcolithic at *Kissonerga-Mosphilia* already involve considerable standardisation of hardness, surface treatment and clay preparation that would normally be associated with the EC (Wallace 1995; Bolger 2007: 174).

The diagnostic Philia ware, RPP, is found in Period 5 at *Kissonerga-Mosphilia* and recent evidence indicates that this homogenous ware was produced at a centralised location, probably somewhere on the north coast (Dikomitou 2010, 2011; Webb & Frankel 2013: 264). At *Mosphilia*, these imported vessels exist side by side with local

Late Chalcolithic RB/B and SW (Bolger 1998: 96, 2007: 182) and it is likely that certain Chalcolithic traditions did not disappear, but carried on or were incorporated into the Philia traditions (Bolger 2007: 179).

Evidence from Kissonerga-*Mosphilia* argues for extended connections with Anatolia during the Late Chalcolithic period, independent of the Philia phase (see Chapter 2 and Peltenburg 1998: 256-9, 2007: 142, 153; 2013: 342; Bolger 2007: 175, 182; Webb & Frankel 2007). It may be that the *Ammoudhia* trajectory is a product of this sustained process of contact and adaptation of both material goods and ideologies at Kissonerga (Peltenburg 2007: 142, 244, 153). The acculturation model proposed for Kissonerga-*Mosphilia* might explain why it is currently the only site that exhibits evidence for any continuation from the Late Chalcolithic into the Philia phase (Peltenburg *et al.* 1998; Bolger 2007: 181), and why some Chalcolithic traits seem to have continued to be adapted into the EC at *Ammoudhia*. Clearly, this is an avenue that deserves further attention.

While the north and south coast certainly followed two separate cultural paths during ECI-II, there is evidence for continued communication between the two areas and certain trade routes appear to be maintained (Webb & Frankel 2013: 278). This is not necessarily the case in the west. Although the presence of RPSC and RPI argues for contact with both the north and south, geographical and social isolation meant that, after the very early EC, there is little current evidence for communication with other sites until the ECIII, leaving Kissonerga somewhat “out of the loop” (Bolger 2007: 183).

This relative isolation seems to vanish during the ECIII, where some changes in mortuary behaviour took place across the entire island, including *Ammoudhia* (Webb 1992: 88; Webb & Frankel 2008: 291; Webb *et al.* 2009: 240; Keswani 2013: 228-9). Any evidence for tomb reuse ceased at this time (Stewart & Stewart 1950: 146; Herscher

1978: 296-7; Webb *et al.* 2009: 239; Georgiou *et al.* 2011: 344), and the island-wide preference for small juglets as part of the mortuary ritual is very much in evidence in later tombs at *Ammoudhia* (Keswani 2013: 228-9). The changes in vessel morphology described in Chapter 5 suggest a change in corporate identity from the ECIII onwards, where ideas on what constitutes an acceptable mortuary vessel are more rigidly imposed. DP traditions also alter at this time (Chapter 5), and these aesthetic preferences may be in response to increased demand, as DP becomes the ware of choice for funerary vessels. The evidence from Tomb 16 in particular illustrates these changes, with DP accounting for 70% and small juglets, often with a matte dark slip are preferred. Tomb also contained metal and two imported vessels; rare evidence for external contacts and possibly for an asserted identity during the ECIII.

It is also during the ECIII that DP jugs and juglets begin to appear in the repertoires of sites further east along the south coast (Frankel 2009: 21, fig. 2; McCarthy *et al.* 2009), the central plain (Frankel & Webb 1996: 156, 2006: 140) and the north-west (Frankel & Webb 2012a: 5-6; Webb 2012; Maliszewski 2013: 45), suggesting that Kissonerga is once more part of an island-wide trade network, possibly involving a liquid product. During the ECIII there is evidence of DP arriving at sites around the island, but very little for imported ceramics at *Ammoudhia* (the two vessels from Tomb 16 are the only definite imports), highlighting the importance of recognising the complexities of human interaction and exchange in EC-MC Cyprus.

A funerary assemblage can only provide limited information regarding the economy of the living society. The low number of metal objects may signify some kind of social status, but there remains little or no evidence for any kind of centralised control, such as observed in the Aegean during this period (Peltenburg 1996: 21-2). Storage vessels might possibly represent control of resources, but it is

misleading to conjecture on their function at Kissonerga-*Ammoudhia*, without evidence from the parent settlement.

Since this thesis has been occupied with establishing a context for Kissonerga-*Ammoudhia*, it has been necessary to concentrate on identifying connections between *Ammoudhia* and the outside world as a frame of reference. However, it is important to recognise that EC-MC Cyprus does not follow a core-periphery model and it would be misleading to think of the west as peripheral to the rest of the island solely because of a lack of archaeological information. Consequently, by bringing the west into the wider debate, this research hopes to enhance an understanding of the workings of both the societies of EC-MC Kissonerga, and of Cyprus as a whole.

CHAPTER 7

CONCLUSIONS

Kissonerga-*Ammoudhia* is a cemetery; all of the material evidence presented within this thesis is the record of how the community of Kissonerga dealt with the death of their loved ones. Funerals and rituals are conducted by the living in line with specific ideologies. However, these customs are not static, each funeral represents a reinterpretation that can either reinforce old traditions or repudiate them (Keswani 2004: 160). By examining this assemblage and in particular, the ceramics, this thesis has introduced the material from Kissonerga-*Ammoudhia* and illustrated some of the regional choices and behaviours that indicate a society that is aware of and part of the wider EC-MC world, but with its own technological traditions and rituals that may indicate some links to the past.

Not only does this work represent the first presentation of western funerary ceramics and other grave goods, but allows, for the first time, meaningful comparisons with contemporary sites. By applying an interdisciplinary approach of a traditional typological study followed by a microscopic examination, this research has produced evidence for the distinct regionalism present in western Cypriot ceramics (in the form of DP ware) and laid the foundations for a clearer understanding of the chronological and technological sequence that lies behind the distinctive material culture observed at *Ammoudhia*.

Since one of the major problems in the region is the lack of excavated and published EC-MC sites, it was important to first provide clarity and context to the *Ammoudhia* assemblage, to allow it to be integrated into the wider narrative. To facilitate this, I proposed two main research aims. The first was to present the entire corpus of evidence, paying particular attention to the ceramics. The second was to analyse this evidence in order to both contextualise Kissonerga-*Ammoudhia* and to provide

information regarding the people who lived in Kissonerga in the late 3rd millennium BCE, their technology, economy, mortuary rituals and possible links with other sites on Cyprus and the mainland.

Contextualising Kissonerga-Ammoudhia

To begin to answer these questions, the assemblage was first conserved, recorded and analysed (as per the methodology set out in Chapter 3). A working typology was produced that identified ten fabric types occurring in eleven separate wares. The *Ammoudhia* ceramic assemblage did not initially appear to fit conveniently into the existing ceramic typology of EC-MC Cyprus. Unlike every other published site of the period, the dominant ware is not Red Polished ware; 68% of the ceramics occur in a form of Drab Polished ware. The large number of DP vessels found at Kissonerga is, so far, unique and illustrates the distinct, regional nature of the ceramic material culture.

Chapter 3 described the difficulties involved in establishing a typology and argued for using the criteria of style, chronology and technology together to define the wares. Once this typology was established it became clear that creating a wholly new classification system for the west would not be useful. In fact, since the wares could, with a few adaptations, fit reasonably well into the existing system, the traditional typology could be utilised and the *Ammoudhia* assemblage could then be compared to other sites and a chronology established.

By applying this typology to each separate tomb assemblage (Chapter 4), a relative chronological framework was produced. By examining the material in this way it was then possible to observe the overwhelming dominance of DP in every tomb, and also the co-occurrence of DP alongside wares and shapes that could confidently

be dated to a more specific EC or MC date. In order to refine and back up the relative chronology, radiocarbon dates were also produced from three tombs.

These are the first radiocarbon dates to be obtained from an EC-MC site in the west and the results generally back up the proposed relative sequence, with a slightly earlier date than expected for Tomb 16. The ECI-II date for Tomb 1 has confirmed the relative date proposed in the examination of the ceramics. Similar dates can then be inferred for tombs containing similar ceramics wares and shapes, such as Tombs 4, 6 and 43. The relative chronology proposed in Chapter 5 argues that DP occurs early in the *Ammoudhia* assemblage, since it is present in tombs that contain otherwise ECI-II shapes, and in some instances, also occurs in those shapes (such as conical bowls). Thus, it can now be convincingly argued that this ware occurs considerably earlier in the west than was originally suggested (as per Herscher 2003: 218).

The radiocarbon dates for Tomb 16 (and possibly Tomb 10) are slightly earlier than the proposed relative chronology. This (and the presence of ECI-II sherds among otherwise MC vessels) is possible evidence for some of the *Ammoudhia* tombs being cleared out and reused during the EC. These radiocarbon dates are somewhat limited, as they cover a wide period ranging from the ECI-MCI, but generally they do reinforce the proposed relative chronology.

Examining each individual tomb assemblage allowed for a more nuanced look at the changes over time in the number and character of ceramics deposited in the tombs. There is a clear and observable move towards uniformity in the MC. Tombs dating to the EC exhibit a very wide range of wares, shapes and motifs compared to the MC tombs. These later tombs (such as 9 and 15) illustrate the increased popularity of DP to the detriment of other wares and a move towards conformity

and standardisation that may correlate to the increased cultural homogeneity of the later MC and into the LC on Cyprus.

Although no radiocarbon dates were produced for the MCII-III, the ceramics and grave goods in tombs such as 9, 13, 15, 16 and 19 all argue for the cemetery being in use through this period. Thus the *Ammoudhia* cemetery can be argued to date from ECI to MCII or possibly III, covering much of the period currently missing in the archaeological record for the west.

Chapter 5 presented evidence to the nature of the *Ammoudhia* ceramic character. As well as the typological study, this research applied a petrographic analysis to a sample of *Ammoudhia* ceramics. This analysis reinforced the typological categories of wares as set out in Chapter 4 and helped to establish the technological character of the ceramic material culture.

The petrographic analysis also provides important information regarding the perceived similarities or differences between DP and RP at Kissonerga-*Ammoudhia*. It had been argued both that DP represents a local variation of RP (Phillip 1983: 48, 52), or that DP constitutes a separate ware with its own manufacturing techniques and styles (Herscher & Fox 1993: 71). This study has revealed that there is microscopically very little difference between DP (2) and what may be termed local RP (4). This is contra previous microscopic studies, where the petrographic or chemical signatures for DP do not conform to those of the local RP (Vaughan, 1987, 1991, 2003; Summerhayes 1996: 178).

What this evidence implies is that firstly, DP can be argued to be imported to these other sites (from the south-west), since the chemical or petrographic signature does not match those of the local wares. Secondly, it does not necessarily mean that either Phillip or Herscher are wrong. It is possible that what is observed at Kissonerga-

Ammoudhia is a case where one type of local RP is manufactured using the technology usually identified with DP. Thus DP does have a different manufacturing process from the majority of RP found at sites out-with the south-west. At Kissonerga-*Ammoudhia*, however, DP (2) and RP (4) are microscopically identical. The differences visible to the naked eye and during the macro analysis are due solely to firing conditions, with RP (4) being exposed to a stronger and more even flow of oxygen. Therefore, in this regional locale, both the DP (2) and RP (4) constitute variations of the same local ceramic.

The petrographic analysis confirms a sophisticated manufacturing process with specific clay sources being exploited and considerable technological skill. The majority of samples exhibit a silty matrix corresponding to clays from a Mamonia source. This was confirmed in the results of the clay sampling tests conducted in the vicinity of Kissonerga. Provenance studies of ceramics in Cyprus are difficult (Vaughan 1991: 399) and this experiment was not able to identify the exact source of the *Ammoudhia* clays. However, the test was able to confirm that the most likely clay source for the majority of the *Ammoudhia* ceramics (all of the DP and most of the RP) is indeed from a Mamonia source, with very few calcareous inclusions. The area that produces a similar blend of minerals today is to be found near the Mavrokalympos Dam, approximately 4km north of Kissonerga. This is a considerably shorter distance than the inhabitants of Sotira-*Kaminoudhia* were known to travel for similar clay sources (Vaughan 2003: 218-9).

Interpreting Kissonerga-*Ammoudhia*

By placing the ceramics into a typological and chronological framework it was then possible to compare the assemblage to contemporary sites. This produced useful information concerning the similarities and differences observed geographically and chronologically, as well as identifying the few imported vessels in the *Ammoudhia*

assemblage. Through these comparisons, it was found that the Kissonerga-*Ammoudhia* ceramics conform to the general EC-MC standard, exhibiting a distinct regional character within a broader, island-wide schema.

The presence of RPI and RPSC in ECI-II contexts suggests that immediately post-Philia, communications were maintained for a short while with both the north and the south of the island. After this short period, there is very little evidence of contact and Kissonerga appears to be somewhat isolated for a time, and distinct, locally adapted technologies, rituals and possibly ideologies came into play. By the ECIII-MCI, evidence for the island-wide changes to mortuary ritual, including the cessation of tomb reuse, increased vessel uniformity, and the presence of imported vessels all suggest an increase in external contacts, confirmed by the increasing presence of DP at distant sites.

By examining the complete grave good assemblage and tomb architecture, this research was also able to provide some evidence for mortuary ritual at *Ammoudhia*. The EC-MCI radiocarbon dates for Tombs 10 and 16 coupled with the occasional fragments of EC ceramics found in later tombs, has led to the proposal that some (not all) tombs at *Ammoudhia* were cleared out and reused during the EC. The general collection of grave goods, including ceramics, metal and jewellery and tomb architecture again all point to broadly similar ritual behaviour as identified at other cemetery sites. There is some evidence for extended rituals taking place, for example, in the dromos of Tomb 6. However, there are other features that are entirely local, without reference, such as the pits found in several tombs containing juglets and human remains, which appear to be an entirely local phenomenon. The large number of vessels found at *Ammoudhia* is also unusual.

Answering questions regarding behaviour of ancient people is problematic. However, the *Ammoudhia* ceramics have also begun to provide some basic evidence

regarding the technological and socio-economic behaviours of the Kissonerga inhabitants and these can be tentatively compared to similar studies. It is therefore possible that this assemblage may be able to provide evidence concerning the socio-political trajectory of the west during the EC.

Attempts were made in Chapter 6 to identify the individual person, or group where possible. This highlighted the similarities between the small group of tombs 15, 16 and 17. The inclusion of metals, the use of pits and the discrete location of this tomb cluster possibly suggest a group of people who consider themselves somewhat different, whilst still being part of the community, and have preferential access to metal and possible connections to the north coast.

This thesis has produced evidence for a post-Philia 'western trajectory' that shares similarities with both the south and north, but with few of the competitive prestige objects found in northern cemeteries. This conforms to the regional model suggested by more recent excavations and suggests a case for both a segmentary society and possibly an emerging hierarchy during the ECIII.

By bringing the evidence from the typological and petrographic analysis together *and* comparing this evidence with published research from other EC-MC sites around Cyprus it becomes possible to observe more ephemeral evidence for behaviour and society in the EC-MC. Tentative hypotheses can now be proposed for the mortuary behaviours that took place at Kissonerga-*Ammoudhia* and how those behaviours may reflect the community. The behaviours observed in this study point to a community making their own individual technological and social choices, that may be based fundamentally on the natural resources available to them. Evidence exists for links with other parts of the island, to the south, east and north at different times. This is a culture that is aware of, and generally fits into the island-wide narrative, but has strong links to its past (which are not necessarily the same links

felt by other Cypriot communities of the period) and ultimately is content to make its own choices and maintain a strong, regionally distinct style of its own.

Recommendations for Future Research

This thesis has answered some of the recurring questions regarding western Cypriot EC-MC ceramics and aims to provide a framework for future research. However, as a rescue excavation conducted under severe time constraints, the lack of recorded information, plans and stratigraphic information means that some evidence is lost or limited and there are certain areas that this research was unable to pursue.

Questions regarding feasting remain open, until bones can be analysed. Evidence for the placement of bodies and grave goods and the relationships between human remains and grave goods/features is completely lost. As a cemetery assemblage, *Ammoudhia* is also prey to the problems that are found at most cemeteries in Cyprus (Chapter 2). The lack of stratigraphy and established relationships between tombs makes defining a chronological sequence difficult, especially in cases where tomb re-use is possible.

The fact that this is an initial study means that it has also raised further questions and highlighted areas of research where information is still lacking.

Further research in these areas would be of considerable benefit in aiding our understanding of EC-MC chronology, society and technology. They are as follows:

Further Research and Refinement of Kissonerga Ceramics

The 2000 and 08-09 excavations at Kissonerga-*Ammoudhia* were the first excavation of this cemetery, although Hadjisavvas (1976) observed that there was evidence of tombs occurring over a large area. If the opportunity presents itself, it would be extremely useful to conduct a limited excavation of further *Ammoudhia* tombs,

without the extremely short timescale and restrictions placed on previous excavators in salvage operations.

It is also imperative that the findings from *Kissonerga-Ammoudhia* are compared to those from the on-going excavations at *Kissonerga-Skalia*. Since it is likely that *Ammoudhia* is the final resting place of some of the *Skalia* residents (and it is those residents who made the ceramics and placed them in the tombs) it is important that the classification systems used by both projects can be easily integrated and meaningful comparisons can be made. Although *Kissonerga-Ammoudhia* has produced the largest funerary ceramic assemblage and amount of DP to date, this is dwarfed by the ceramic assemblage at *Kissonerga-Skalia*, which is certainly the largest assemblage both of DP and of EC-MC ceramics in western Cyprus (Crewe 2008). As a settlement site, *Kissonerga-Skalia* also offers greater opportunities to study vessels with a more everyday domestic function, such as cooking pots and pans. This should lead to a more refined classification of the cooking wares than can be provided in this sample, and perhaps lead to these wares being integrated into the DP or RP typology. Moreover, this can lead to a more nuanced understanding between ritual funerary behaviours and the behaviours relating to everyday life.

Since *Kissonerga-Skalia* is still under excavation, this should be a continual process and the choice to use simple, numerical classifications in this thesis reflects the position that a final typology for the region should not be set only by the ceramics from one excavation of a funerary nature, but should encompass a wider range of both settlement and cemetery ceramics.

It might also be possible to further identify evidence for the same individuals or groups that have been tentatively identified at *Ammoudhia*.

Investigation of the Chrysochou Bay Region

This thesis has confirmed the regional nature of EC-MC ceramics in the west and has illustrated the paucity of excavated and published sites of the period. Although this study goes some way to remedy this lack of information, there are still regions where no excavations have taken place and therefore our understanding is minimal. Of primary importance to this research, is the area around Polis/Chrysochou Bay. Surveys, chance finds and items confiscated by the Cyprus Department of Antiquities point to a prehistoric presence, including Chalcolithic and EC-MC occupation (MacLaurin 1980: 256; Maliszewski 2013). Evidence presented herein suggests that there are stylistic and possibly technological similarities between the ceramics at *Ammoudhia* and this area, and further investigation could provide evidence for links between the west and the north coast. This region has remained relatively unscathed until recently; however, recent construction work has led to an increase in tourism and urbanisation, meaning that investigating this area should be a matter of some importance.

Continuation of Scientific Analyses

By applying a petrographic analysis to the ceramics from Kissonerga-*Ammoudhia*, this thesis has illustrated the benefits of applying scientific techniques. However, the assemblage could certainly benefit from further petrographic analysis. In particular, the inclusion of RPI (Fabric 7) and further examples of cooking pots would greatly enhance an understanding of the choices involved in making these vessels, including clay choice, inclusions and functionality.

The application of other scientific methods such as trace element analysis or XRF/D would also be of value, in particular in the question of clay sources. Finally, residue analyses could be utilised to identify contents, both of *Ammoudhia* vessels and those DP vessels exported to sites further afield. Excavations at Kissonerga-*Skalia* and

Prastio-Mesorotsos are currently taking measures to allow for this type of analysis (L. Crewe & A. McCarthy: personal communications).

Understand Kissonerga in the Late 3rd Millennium BCE

The residents of Kissonerga had a long history of living in this location, and there is considerable evidence to suggest that this was continuous at least throughout the Chalcolithic period and into the Philia. By the beginning of the EC some Kissonerga inhabitants began to bury their dead on the *Ammoudhia* plateau, although evidence for their settlement at this time is elusive. This area requires further attention as Kissonerga is one of the few locations that might be able to help answer the current debates regarding the nature of Philia contact and the subsequent regionalism of the EC. Further attention to the relationships between *Ammoudhia*, *Skalia* and *Mosphilia*, the Chalcolithic and the Early Bronze Age is deserved, but out-with the scope of this thesis.

Now that this thesis has established that DP can be dated to the EC and laid the foundations for the chronology of Kissonerga-*Ammoudhia* it should be possible to take this further and investigate how these ceramics fit into a wider chronology. A possible explanation for the early appearance and high numbers of DP at Kissonerga is that the technology and manufacturing techniques represent a long-lived tradition dating back as far as the Late Chalcolithic period (Herscher 2003: 218). This in turn could explain why, in the south and west, the Philia phase does not have the strong presence observed in the north (Webb and Frankel 2013). It is possible that this can be observed in ceramics, with similarities between Late Chalcolithic wares and Early Cypriot wares in the south-west arguing for a continuation of traditions. Macro and microscopic comparisons between some Late Chalcolithic wares and DP in the Kissonerga area illustrate similarities in clay choices and technology that deserves further study.

This hypothesis is as yet unclear and possibly superficial visual comparisons should be approached with some caution. However, this transition certainly requires further examination and the evidence presented in this thesis regarding the early chronology of DP now allows for meaningful comparisons. Clearly, this could be of great benefit in the on-going pursuit to understand the processes involved in the Chalcolithic – Bronze Age transition on Cyprus.

Final Remarks

This research presents a significant corpus of evidence from an area still largely unknown. The evidence suggests a culture aware of and following the general technological, social and economic trends of EC-MC Cyprus, but with a strong regional character and traditions. This research therefore, provides a context and a classification system that can be used as a foundation for future research to begin to understand the society, technology and relationships of EC-MC inhabitants of western Cyprus.

The evidence presented in this thesis represents further continuity in ceramic traditions whilst the residents adapted to the changing socio-political nature of Bronze Age Cyprus. Their funeral customs are in line with the rest of the island, but without the individualising nature of the north coast behaviours. Reuse of tombs shows that people were cognizant of their forebears and continued to adapt their funerary behaviours according to their regional preferences. By the MC, DP vessels, already dominant at Kissonerga, had begun to be observed elsewhere, demonstrating that the western Cypriot idiom had become more integrated into the wider pan-Cypriot system. This is most evident in the concept that DP is a precursor to BR, the archetypal ceramic of the emerging urban and international LC. Therefore, the *Ammoudhia* cemetery possibly provides a link in an unbroken chain between the Chalcolithic and the Late Bronze Age in Cyprus.

BIBLIOGRAPHY

A Campo, A.L. 1994 *Anthropomorphic Representations in Prehistoric Cyprus: A Formal and Symbolic Analysis of Figurines, c. 3500-1800BC*. Studies in Mediterranean Archaeology Pocketbook 109. Jonsered: Paul Åströms Förlag.

Antoniadou, S. & Pace, A. (eds.) 2007 *Mediterranean Crossroads*. Athens: Pierides Foundation.

Arnold, D.E. 1985 *Ceramic theory and cultural process*. Cambridge: Cambridge University Press.

Åström, P. 1966 *Excavations at Kalopsidha & Ayios Iakovos in Cyprus*. Studies in Mediterranean Archaeology Volume II. Lund: Paul Åströms Förlag.

Åström, P. 1972a *The Middle Cypriote Bronze Age. The Swedish Cyprus Expedition, Volume IV Part 1B*. Lund: The Swedish Cyprus Expedition.

Åström, P. 1972b *The Late Cypriote Bronze Age. Architecture and pottery. The Swedish Cyprus Expedition, Volume IV Part 1C*. Lund: The Swedish Cyprus Expedition.

Åström, P. 1989 *Katydhata: A Bronze Age Site in Cyprus*. Studies in Mediterranean Archaeology LXXXVI. Göteborg: Paul Åströms Förlag.

Åström, P. (ed.) 2001 *The Chronology of Base-Ring Ware and Bichrome Wheel-Made Ware*. Stockholm: The Royal Academy of Letters, History and Antiquities.

Åström, P. & Wright, G.R.H. 1963 *Two Bronze Age tombs at Dhenia in Cyprus. Opuscula Atheniensia IV (226-276)*.

Bachhuber, C. 2014 *The Anatolian context of Philia material culture in Cyprus*. In Knapp, A. & van Dommelen, P. (eds), *The Cambridge Prehistory of the Bronze and Iron Age Mediterranean*, New York (136-156).

Barlow, J.A. 1989 Red Polished ware: Towards clarifying the categories. *Report of the Department of Antiquities, Cyprus* (51-59).

Barlow, J.A. 1991 New light on Red Polished ware. In Barlow, J.A., Bolger, D.L. & Kling, B. (eds.), *Cypriot Ceramics: Reading the Prehistoric Record*. University Museum Monograph 74. Philadelphia: University of Pennsylvania Press (51-56).

Barlow, J.A. 1994 Notes on decoration of Red Polished ware. *Report of the Department of Antiquities, Cyprus* (45-51).

Barlow, J.A. 1996a Pottery. In J.E. Coleman *et al.* *Alambra. A Middle Bronze Age Settlement in Cyprus. Archaeological Investigations by Cornell University 1974-1985*. Studies in Mediterranean Archaeology Volume CXVIII. Jonsered: Paul Åströms Förlag (237-323).

Barlow, J.A. 1996b Appendix 6. Technical studies of Alambra pottery. In J.E. Coleman *et al.* *Alambra. A Middle Bronze Age Settlement in Cyprus. Archaeological Investigations by Cornell University 1974-1985* Studies in Mediterranean Archaeology Volume CXVIII. Jonsered: Paul Åströms Förlag (437-46).

Barlow, J.A. & Idziak, P. 1989 Selective use of clays at a Middle Bronze Age site in Cyprus. *Archaeometry* 31 (66-76).

Barlow, J.A., Bolger, D.L. & Kling, B. (eds.) 1991 *Cypriot Ceramics: Reading the Prehistoric Record*. University Museum Monograph 74. Philadelphia: University of Pennsylvania Press.

Belgiorno, M.R. 1985 A Red Polished amphora decorated with an Anatolian idol from Pyrgos. *Report of the Department of Antiquities, Cyprus* (45-46).

Belgiorno, M.R. 2000 Archaeological, metallurgical and historical evidence at Pyrgos (Limassol). *Report of the Department of Antiquities, Cyprus* (1-17).

Belgiorno, M.R. 2002 Rescue-excavated tombs of the Early and Middle Bronze Age from Pyrgos (Limassol). Part 1. *Report of the Department of Antiquities, Cyprus* (1-33).

- Biers J.C. & Soren D. (eds.) 1981 *Studies in Cypriote Archaeology*. UCLA Institute of Archaeology, Mongraph 18. Los Angeles: University of California.
- Binford, L.R. 1972 Mortuary practices: their study and their potential. In L.R. Binford (ed.) *An Archaeological Perspective*. New York: Seminar Press (208-243).
- Birmingham, J. (ed.) 1973 *The Cypriot Bronze Age, Some Recent Australian Contributions to the Prehistory of Cyprus*. Australian Studies in Archaeology. 1. Sydney: University of Sydney.
- Blake, E. & Knapp, A.B. (eds.) 2005 *The Archaeology of Mediterranean Prehistory*. Oxford: Blackwell.
- Bolger, D. 1989 Regionalism, cultural variation and the culture-area concept in late prehistoric Cypriot studies. In Peltenburg, E.J. (ed.) *Early Society in Cyprus*. Edinburgh: Edinburgh University Press (142-152).
- Bolger, D. 1991 Early Red Polished ware and the origin of the "Philia Culture". In Barlow, J.A., Bolger, D.L. & Kling, B. (eds.), *Cypriot Ceramics: Reading the Prehistoric Record*. University Museum Monograph 74. Philadelphia: University of Pennsylvania Press (29-34).
- Bolger, D. 1996 Figurines, fertility and the emergence of complex society in prehistoric Cyprus. *Current Anthropology* 37 (365-73).
- Bolger, D. 2003 *Gender in Ancient Cyprus*. Walnut Creek: AltaMira Press.
- Bolger, D. 2007 Cultural interaction in 3rd millennium BC Cyprus: evidence of ceramics. In Antoniadou, S. & Pace, A. (eds.) *Mediterranean Crossroads*. Athens: Pierides Foundation (163-188).
- Bolger, D., Maguire, L., Quye, S., Ritson, S. & Stephen, F.M.K. 1998 The Pottery. In Peltenburg, E. *et al.* *Excavations at Kissonerga-Mosphilia 1979-1992. Lemba Archaeological Project II.1A*. Studies in Mediterranean Archaeology Volume LXX:2. Jonsered: Paul Åströms Förlag (93-147).

Bolger, D. & Serwint, N. (eds.) 2002 *Engendering Aphrodite: Women and Society in Ancient Cyprus*. CAARI Monographs Volume 3. Boston: American School of Oriental Research.

Bolger, D., McCartney, C. & Peltenburg, E. 2004 *Regional Interaction in the Prehistoric West: Lemba Archaeological Project Western Cyprus Survey*. British Archaeological Reports International Series. Oxford: Archaeopress.

Bolger, D. & Maguire, L.C. (eds.) 2010 *Development of Pre-state Communities in the Ancient Near East*. Oxford: Oxbow.

Bolger, D. & Webb, J. M. 2013 The ceramics. In Peltenburg, E. (ed.) *ARCANE Volume II: Cyprus*. Turnhout: Brepols (39-128).

Bombardieri, L., Fassataro, D., Menozzi, O. & Jasink, A.M. 2009 The Kouris Valley Survey Project 2008 preliminary report. *Report of the Department of Antiquities, Cyprus* (118-129).

Bombardieri, L., Fassataro, D., Menozzi, O. & Jasink, A.M. 2009 Preliminary excavations at Erimi-Laonin-tou Parakou. *Report of the Department of Antiquities, Cyprus* (131-162).

Bombardieri, L. 2012 Detecting a sequence: stratigraphy and chronology of the workshop complex area at Erimi-Laonin tou Porakou. In Georgiou, A. (ed.) *Cyprus, An Island Culture: Society and social relations from the Bronze Age to the Venetian period*. Oxford: Oxbow (48-64).

Bowman, S. 1990 *Interpreting the Past: Radiocarbon Dating*. Berkeley/Los Angeles: University of California Press.

Bunnens, G. (ed.) 1996 *Cultural Interaction in the Ancient Near East. Papers Read at a Symposium Held at the University of Melbourne, Department of Classics and Archaeology (29-30 September 1994)*. Abr-Nahrain Supplement 5. Louvain: Peeters Press.

Campbell, S. & Green, A. (eds.) 1995 *The Archaeology of Death in the Ancient Near East*. Oxbow Monograph 51. Oxford: Oxbow.

Carpenter, J.R. 1981 Excavations at Phaneromeni 1975-1978. In Biers, J. C. & Soren, D. (eds.) *Studies in Cypriote Archaeology*. Los Angeles: University of California (59-78).

Carter, E. & Parker, A. 1995 Pots, people and the archaeology of death in northern Syria and southern Anatolia in the latter half of the third millennium BC. In Campbell, S. & Green, A. (eds.) *The Archaeology of Death in the Ancient Near East*. Oxbow Monograph 51. Oxford: Oxbow (96-119).

Catling, H.W. 1944 *Cypriot Bronzework in the Mycenaean World*. Oxford: Clarendon Press.

Catling, H.W. 1962 Patterns of settlement in Bronze Age Cyprus. *Opuscula Atheniensia* IV (129-69).

Chelazzi, F. & Davit, P. 2010 Archaeometric applications in the Kouris river valley: preliminary morphological and compositional studies on Red Polished ware from survey. In Jasink, A.M. & Bombardieri, L. (eds.) *Researches in Cypriote History and Archaeology*. Firenze: Firenze University Press (135-146).

Clarke, J. 2003 Insularity and Identity in Prehistoric Cyprus. In Guilaine, G. and Le Brun, A. (eds.) *Le Néolithique De Chypre: Actes Du Colloque International Organise Par Le Departement Des Antiquites De Chypre et L'Ecole Francaise D'Athenes Nicosie 17-19 Mai 2001*. Bulletin De Correspondance Hellenique, 43 (203-18).

Clarke, J. (ed.) 2005 *Archaeological perspectives on the transition and transformation of culture in the Eastern Mediterranean*. Oxford: Oxbow.

Collard, D. 2011 *Altered States of Consciousness and Ritual in Bronze Age Cyprus*. Unpublished PhD Thesis. University of Nottingham.

Coleman, J., Barlow, J., Mogelonsky, M. & Schaar, K. 1996 *Alambra. A Middle Bronze Age Settlement in Cyprus. Archaeological Investigations by Cornell University 1974-1985*. Studies in Mediterranean Archaeology Volume CXVIII. Jonsered: Paul Åströms Förlag.

Conkey, M.W. & Hastorf, C.A. (eds.) 1990 *The Uses of Style in Archaeology*. Cambridge: Cambridge University Press.

Constantinou, G. 1982 Geological features and ancient exploitation of the cupriferous sulphide orebodies of Cyprus. In Muhly, J.D., Maddin, R. & Karageorghis, V. (eds.) *Early Metallurgy in Cyprus 4000-500 B.C.* Nicosia: The Pierides Foundation (13-23).

Courtois, L. 1970 Note préliminaire sur l'origine des différentes fabriques de la poterie du Chypriote Récent. *Report of the Department of Antiquities, Cyprus* (81-85).

Crewe, L. 1998 *Spindle Whorls: A study of form, function and decoration in Prehistoric Bronze Age Cyprus*. Jonsered: Paul Åströms Förlag.

Crewe, L. 2004 *Social Complexity and Ceramic technology on Late Bronze Age Cyprus: The new evidence from Enkomi*. Unpublished PhD thesis. University of Edinburgh.

Crewe, L. 2009a Tomb 1 (1956) at Galiporni and the Middle-Late Cypriot transition in the Karpas Peninsula. *Report of the Department of Antiquities, Cyprus* (89-115).

Crewe, L. 2009b Regionalism and the first appearance of Plain White Handmade ware in the Middle-Cypriot Bronze Age. In Hein, I. (ed.) *The Formation of Cyprus in the 2nd Millennium B.C. Studies in Regionalism during the Middle and Late Bronze Ages*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften (79-91).

Crewe, L., Lorentz, K., Peltenburg, E. & Spanou, S. 2005 Treatment of the dead: Preliminary report of investigations at Souskiou-Laona Chalcolithic cemetery, 2001-2004. *Report of the Department of Antiquities, Cyprus* (41-67).

Crewe, L., Croft, P., Graham, L. & McCarthy, A. 2008 First preliminary report of excavations at Kissonerga-Skalia. *Report of the Department of Antiquities, Cyprus* (105-121).

Croft, P.W. 1998 Animal remains. In Peltenburg, E.J. et al. *Excavations at Kissonerga-Mosphilia 1979-1992. Lemba Archaeological Project II.1A. Studies in Mediterranean Archaeology Volume LXX:2*. Jonsered: Paul Åströms Förlag (207-214).

- Croft, P.W. 2003 The animal remains. In Swiny, S., Rapp G. & Herscher E. *Sotira Kaminoudhia: An Early Bronze Age Site in Cyprus*. Cyprus American Archaeological Research Institute Monograph Series 4. Boston: American Schools of Oriental Research (439-448).
- Croft, P.W. 2006 Animal bones. In Frankel, D. & Webb, J.M. *Marki-Alonia, an Early and Middle Bronze Age Settlement in Cyprus; Excavations 1995-2000*. Studies in Mediterranean Archaeology Volume CXXIII:1: Savedalen: Paul Åströms Förlag (263-282).
- Cullen, T., Todd, I. A & Wheeler, E. 1986 Catalogue of finds, in Todd, I. *Vasilikos Valley Project 1: The Bronze Age Cemetery in Kalavastos Village*. Studies in Mediterranean Archaeology Volume LXXI:1. Göteborg: Paul Åströms Förlag (40-127).
- Darvill, T. & Timby, J. 1982 Textural analysis: a review of potentials and limitations. In Freestone, I., Johns, C. & Potter, T. (eds.) *Current Research in Ceramics: Thin Section Studies*. London: British Museum Press (73-89).
- David, N., Sterner, J. & Gavua, K. 1988 Why pots are decorated. *Current Anthropology* 29 (365-389).
- David, N. & Kramer, C. 2001 *Ethnoarchaeology in Action*. Cambridge: Cambridge University Press.
- Davies, P. 1997 Mortuary practice in Prehistoric Bronze Age Cyprus: Problems and potential. *Report of the Department of Antiquities, Cyprus* (11-26).
- Demetriou, A. (ed.) 2011 *Proceedings of the IV International Cyprological Congress (Lefkosia 29 April – 3 May 2008)*. Volume A'2 – Ancient Section. Lefkosia: Society of Cypriot Studies.
- Diacopolous, D. 2004 Investigating social complexity through regional survey: Second-generation analysis of Bronze Age data from the Canadian Palaipaphos Survey Project, Southwestern Cyprus. *Journal of Mediterranean Archaeology*, 17:1 (59-85).
- Dickinson, O. 1994 *The Aegean Bronze Age*. Cambridge: Cambridge University Press.

- Dikaios, P. 1940 Excavations at Vounous-Bellapais in Cyprus, 1931-2. *Archaeologica* 83 (1-168).
- Dikaios, P. 1945 Archaeology in Cyprus, 1939-45. *Journal of Hellenic Studies* LXV (104-105).
- Dikaios, P. 1951 Principal acquisitions of the Cyprus Museum 1937-1939. *Report of the Department of Antiquities, Cyprus* (200-202).
- Dikaios, P. 1962 The Stone Age. In: Dikaios, P. & Stewart, J.R. *The Swedish Cyprus Expedition IV: 1A* Lund: The Swedish Cyprus Expedition.
- Dikaios, P. 1969 *Enkomi: Excavations 1948-1958*. Mainz am Rhein: Verlag Philipp von Zabern.
- Dikaios, P. & Stewart, J.R. 1962 *The Swedish Cyprus Expedition IV: 1A* Lund: The Swedish Cyprus Expedition.
- Dikomitou, M. 2007 Analysis of clays and fabrics, in Frankel, D. & Webb, J.M. 2007 *The Bronze Age Cemeteries at Deneia in Cyprus*. Studies in Mediterranean Archaeology Volume CXXXV: Savedalen: Paul Åströms Förlag (107-122).
- Dikomitou, M. 2010 A closer look at Red Polished Philia fabrics. Inquiring into ceramic uniformity in Cyprus, ca. 2500-2300 B.C. *The Old Potter's Almanack* 15/2 (1-6).
- Dikomitou, M. 2011 *Ceramic production, distribution and social interaction. An analytical approach to the study of Early and Middle Bronze Age pottery from Cyprus*. Unpublished PhD dissertation, University College, London.
- Dunn-Vaturi, A. 2003 *Vounous: C.F.A. Schaffer's Excavations in 1933 Tombs 49-79*. Studies in Mediterranean Archaeology Volume CXXX. Jonsered: Paul Åströms Förlag.
- Duryea, D. 1965 *The Necropolis of Phaneromeni and Its Relations to Other Early Bronze Age Sites in Cyprus*. Unpublished Master of Arts Thesis. University of Missouri.

- Faber, E.W., Day, P.M. & Kilikoglu, V. 2009 Fine grained Middle Bronze Age Polychrome ware from Crete. In Quin, P. (ed.) *Interpreting Silent Artefacts: petrographic approaches to archaeological ceramics*. Oxford: Archaeopress (139-156).
- Falconer, S. E. & Fall, P. L. 2008 Bronze Age settlement and landscape of Politiko-Troullia 2005-2007. *Report of the Department of Antiquities, Cyprus* (183-208).
- Falconer, S. E., Fall, P.L., Hunt, J. & Metzger, M.C. 2010 Agrarian settlement at Politiko-Troullia. *Report of the Department of Antiquities, Cyprus* (183-198).
- Falconer, S. & Fall, P. 2013 Household and community behaviour at Bronze Age Politiko-Troullia, Cyprus. *Journal of Field Archaeology* 38 (101-119).
- Flourentzos, P. 1982 Selected antiquities of Red Polished ware from Cypriote private collections. *Opuscula Atheniensi* XIV:3 (21-26).
- Flourentzos, P. 1988 Tomb discoveries from the necropolis at Ayia Paraskevi, Nicosia. *Report of the Department of Antiquities, Cyprus* (121-127).
- Flourentzos, P. 2008 *Annual Report of the Department of Antiquities for the Year 2008*. Lefkosia: Maria Hadjicosti (Director of the Department of Antiquities).
- Fragnoli, P. & Levi, S. 2011 Petrographic analysis of pottery from Pyla-Kokkinokremnos: preliminary report. In Karageorghis, V. & Kouka, O. (eds.) *On Cooking Pots, Drinking Cups, Loomweights and Ethnicity in Bronze Age Cyprus and Neighbouring Regions*. Nicosia: A. G. Leventis Foundation (101-106).
- Frankel, D. 1973 Recent developments in the Cypriot Middle Bronze Age. In Birmingham, J. (ed.) *The Cypriot Bronze Age, Some Recent Australian Contributions to the Prehistory of Cyprus*. Sydney: University of Sydney (23-44).
- Frankel, D. 1974 Inter-site relationships in the Middle Bronze Age of Cyprus. *World Archaeology Volume 6* (190-208).
- Frankel, D. 1978 Pottery decoration as an indicator of social relationships: A prehistoric Cypriot example. In Greenhalgh, M. & Megaw, V. (eds.) *Art in Society*. London: Duckworth Press (147-160).

Frankel, D. 1981 Uniformity and variation in a Cypriot ceramic tradition, two approaches. *Levant* 13 (88-107).

Frankel, D. 1988 Pottery production in prehistoric Cyprus: Assessing the problem. *Journal of Mediterranean Archaeology* (27-55).

Frankel, D. 1991 Ceramic variability: measurement and meaning. In Barlow, J.A., Bolger, D.L. & Kling, B. (eds.), *Cypriot Ceramics: Reading the Prehistoric Record*. University Museum Monograph 74. Philadelphia: University of Pennsylvania Press (241-253).

Frankel, D. 1993 Inter and Intrasite variability and social interaction in Prehistoric Bronze Age Cyprus: Types, ranges and trends. *Bulletin of the American schools of Oriental Research* 292 (59-72).

Frankel, D. 1994 Color variation on prehistoric Cypriot Red Polished pottery. *Journal of Field Archaeology* Vol.21. No.2 (205-219).

Frankel, D. 2000 Migration and ethnicity in prehistoric Cyprus: technology as habitus. *European Journal of Archaeology* 3 (167-187).

Frankel, D. 2002 Social stratification, gender and ethnicity in third millennium Cyprus. In Bolger, D. & Serwint, N. (eds.) 2002 *Engendering Aphrodite: Women and Society in Ancient Cyprus*. CAARI Monographs Volume 3. Boston: American School of Oriental Research (171-180).

Frankel, D. 2005 Becoming Bronze Age: acculturation and enculturation in third millennium BC Cyprus. In: Clarke, J. (ed.) *Archaeological perspectives on the transition and transformation of culture in the Eastern Mediterranean*. Oxford: Oxbow (18-24).

Frankel, D. 2009 What do we mean by 'regionalism'? In Hein, I. (ed.) *The Formation of Cyprus in the 2nd Millennium B.C. Studies in Regionalism during the Middle and Late Bronze Ages*. Vienna: Verlag der Osterreichischen Akademie der Wissenschaften (15-27).

Frankel, D. & Webb, J.M. 1996 *Marki-Alonia, an Early and Middle Bronze Age Town in Cyprus; Excavations 1990-1994*. Studies in Mediterranean Archaeology Volume CXXIII:2: Jonsered: Paul Åströms Förlag.

- Frankel, D., Webb, J.M. & Eslick, C. 1996 Anatolia and Cyprus in the third millennium BCE. A speculative model of interaction. In Bunnens, G. (ed.) *Cultural Interaction in the Ancient Near East. Papers Read at a Symposium Held at the University of Melbourne, Department of Classics and Archaeology (29-30 September 1994)*. Abr-Nahrain Supplement 5. Louvain: Peeters Press (37-50).
- Frankel, D. & Webb, J.M. 1998 Three faces of identity: ethnicity, community and status in the Cypriot Bronze Age. *Mediterranean Archaeology* 11 (1-12).
- Frankel, D. & Webb, J.M. 2000 Excavations at Marki-Alonia, 1999-2000. *Report of the Department of Antiquities, Cyprus* (65-94).
- Frankel, D. & Webb, J.M. 2001 Population, households and ceramic consumption in a Prehistoric Cypriot village. *Journal of Field Archaeology* 28/1-2 (115-129).
- Frankel, D. & Webb, J.M. 2006 *Marki-Alonia, an Early and Middle Bronze Age Settlement in Cyprus; Excavations 1995-2000*. Studies in Mediterranean Archaeology Volume CXXIII:1: Savedalen: Paul Åströms Förlag.
- Frankel, D. & Webb, J.M. 2007 *The Bronze Age Cemeteries at Deneia in Cyprus*. Studies in Mediterranean Archaeology Volume CXXXV: Savedalen: Paul Åströms Förlag.
- Frankel, D. & Webb, J.M. 2012a Pottery production and distribution in Prehistoric Bronze Age Cyprus. An application of pXRF analysis. *Journal of Archaeological Science*. doi:10.1016/j.jas.2011.12.032 (1-8).
- Frankel, D. & Webb, J.M. 2012b Household continuity and transformation in a prehistoric Cypriot village. In Parker, B.J. & Foster, C.P. (eds.) *New Perspectives in Household Archaeology*. Winona Lake, IL: Eisenbrauns (473–500).
- Freestone, I., Johns, C. & Potter, T. (eds.). 1982 *Current Research in Ceramics: Thin Section Studies*. London: British Museum Press.
- Gale, N.H. 1991 Metals and metallurgy in the Chalcolithic period. *Bulletin of the American Schools of Oriental Research* 282/3 (37-62).

- Gale, N.H., Stos-Gale, Z. & Fasnacht, W. 1996 Appendix 2. Copper and copper working at Alambra. In Coleman, J. *et al.* *Alambra. A Middle Bronze Age Settlement in Cyprus. Archaeological Investigations by Cornell University 1974-1985 Studies in Mediterranean Archaeology Volume CXVIII.* Jonsered: Paul Åströms Förlag (359-426).
- Georgiou, A. (ed.) 2012 *Cyprus, An Island Culture: Society and Social Relations from the Bronze Age to the Venetian period.* Oxford: Oxbow.
- Georgiou, G. 2000 An Early Bronze Age tomb at Psematismenos-Trelloukkas. *Report of the Department of Antiquities, Cyprus* (47-63).
- Georgiou, G. 2001 Three Early Bronze Age tombs from the hills of Larnaka District. *Report of the Department of Antiquities, Cyprus* (49-65).
- Georgiou, G. 2002 The necropolis of Agia Paraskevi revisited. *Report of the Department of Antiquities, Cyprus* (49-65).
- Georgiou, G. 2008 The settlement of Alampra-Mouttes revisited. *Report of the Department of Antiquities, Cyprus* (133-143).
- Georgiou, G. 2009 The dynamism of central Cyprus during the Middle Cypriot III: Funerary evidence from Nicosia Agia Paraskevi. In Hein, I. (ed.) *The Formation of Cyprus in the 2nd Millennium B.C. Studies in Regionalism during the Middle and Late Bronze Ages.* Vienna: Verlag der Osterreichischen Akademie der Wisswnschaften (65-79).
- Georgiou, G., Webb, J.M. & Frankel, D. 2011 *Psematismenos-Trelloukkas. An Early Bronze Age Cemetery in Cyprus.* Nicosia: Department of Antiquities, Cyprus.
- Giardino, C. 2002 Archaeometallurgical investigations on the Early-Middle Bronze Age finds from the area of Pyrgos (Limassol). *Report of the Department of Antiquities, Cyprus* (33-48).
- Gibson, A. & Woods, A. 1997 *Prehistoric Pottery for the Archaeologist.* London: Leicester University Press.

Given, M., Knapp, A.B. *et al.* 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., Knapp, A.B. 2003 *The Sydney Cyprus Survey Project: Social approaches to regional archaeological survey*. Monumenta Archaeologica 21.

Gjerstad, E. 1926 *Studies in Prehistoric Cyprus*. Uppsala: Uppsala Universitets Årsskrift.

Gjerstad, E., Lindros, J., Sjöqvist, E. & Westholm, A. 1934 *The Swedish Cyprus Expedition. Volume I. Finds and Results of the Excavations in Cyprus 1927-1931*. Stockholm: Victor Pettersons Bokindustriaktiebolag.

Goldman, H. 1956 *Excavations at Gözli Kule, Tarsus II*. Princeton: Princeton University Press.

Grace, V. 1940 A Cypriote tomb and Minoan evidence for its date. *American Journal of Archaeology* XLIV (10-52).

Graham, L. 2006 *Manufacturing Identity: An Isochrestic Approach to the Ceramics from Kissonerga-Ammoudhia*. Unpublished MSc (Res.) dissertation. University of Edinburgh.

Graham, L. 2008 Manufacturing Identity: An isochrestic approach to the ceramics from Kissonerga-Ammoudhia. In McCarthy, A. (ed.) *Island dialogues: Cyprus in the Mediterranean Network. Proceedings of the Postgraduate Cypriot Archaeology Conference (POCA), 2006*. Edinburgh: University of Edinburgh Archaeology Occasional Papers 21.

Graham, L. 2012 The necropolis of Kissonerga-Ammoudhia: New ceramic evidence from Early-Middle Bronze Age Western Cyprus. In Georgiou, A. (ed.) *Cyprus, an Island Culture. Society and Social Relations from the Bronze Age to the Venetian Period*. Oxbow: Oxford (38-47).

Greenhalgh, M. & Megaw, V. (eds.) 1978 *Art in Society*. London: Duckworth Press.

- Guilaine, G. and Le Brun, A. (eds.). 2003 *Le Neolithique De Chypre: Actes Du Colloque International Organise Par Le Departement Des Antiquites De Chypre et L'Ecole Francaise D'Athenes Nicosie 17-19 Mai 2001*. Bulletin De Correspondance Hellenique, 43.
- Guilane, J., Briois, F. & Vigne, J.D. 2011 *Shillourokambos. Un établissement pré-céramique à Chypre. Le fouilles du secteur 1*. Paris: Ecole Française d'Athènes.
- Guldager Bilde, P. 1993 Prehistoric pottery. In Sørensen, L.W. & Rupp, D. (eds.). *The Land of the Paphian Aphrodite Vol. 2. The Canadian Paliapaphos Survey Project*. Studies in Mediterranean Archaeology Volume CIV. Göteborg: Paul Åströms Förlag (1-36).
- Hadjisavvas, S. 1977 The archaeological survey of Paphos. A preliminary report. *Report of the Department of Antiquities, Cyprus* (222-232).
- Hegmon, M. 1992 Archaeological research on style. *Annual Review of Anthropology* 21 (517-536).
- Hein, I. (ed.) 2009 *The Formation of Cyprus in the 2nd Millennium B.C. Studies in Regionalism during the Middle and Late Bronze Ages*. Vienna: Verlag der Osterreichischen Akademie der Wissenschaften.
- Hennessy, J. B. 1973 Cyprus in the Early Bronze Age. In Birmingham, J. (ed.) *The Cypriot Bronze Age, Some Recent Australian Contributions to the Prehistory of Cyprus*. Australian Studies in Archaeology. 1. Sydney: University of Sydney (1-10).
- Hennessy, J. B., Eriksson, K. O. & Kehrberg, I. C. 1988 *Ayia Paraskevi & Vasilia: Excavations by J.R.B. Stewart*. Studies in Mediterranean Archaeology Volume LXXXII, Göteborg: Paul Åströms Förlag.
- Herscher, E. 1976 South coast ceramic styles at the end of the Middle Cypriote. *Report of the Department of Antiquities, Cyprus* (11-19).
- Herscher, E. 1978 *The Bronze Age Cemetery at Lapithos, Vrysi to Barba, Cyprus. Results of the University of Pennsylvania Museum Excavation 1931*. Unpublished PhD dissertation, University of Pennsylvania.

Herscher, E. 1981 Southern Cyprus, the disappearing Early Bronze Age and the evidence from *Phaneromeni*. In Biers, J. & Soren, D. (eds.) *Studies in Cypriote Archaeology*. UCLA Institute of Archaeology, Monograph 18. Los Angeles: University of California (79-85).

Herscher, E. 1988 Kition in the Middle Bronze Age: The tombs at Larnaca-Ayios Prodromos. *Report of the Department of Antiquities, Cyprus* (141-164).

Herscher, E. 1991 Beyond regionalism: Towards an islandwide Early and Middle Cypriot sequence. In Barlow, L.A., Bolger, D.L. & Kling, B. (eds.) *Cypriot Ceramics, Reading the Prehistoric Record*. University Museum Monograph 74. Philadelphia: University of Pennsylvania Press (45-50).

Herscher, E. 1997 Representational relief on Early and Middle Cypriot pottery. In Karageorghis, V., Laffineur, R. & Vandenaabee, F. (eds.) *Four Thousand Years of Images on Cypriote Pottery: Proceedings of the Third International Conference of Cypriote Studies Nicosia, 3-4 May 1996*. Nicosia: A. G. Leventis Foundation (25-36).

Herscher, E. 2001 Early Base Ring ware from *Phaneromeni* and Maroni. In Åström, P. (ed.) *The Chronology of Base-Ring Ware and Bichrome Wheel-Made Ware*. Konferenser 54. Stockholm: The Royal Academy of Letters, History and Antiquities (11-21).

Herscher, E. 2003 The ceramics. In Swiny, S., Rapp G. & Herscher E. *Sotira Kaminoudhia: An Early Bronze Age Site in Cyprus*. Cyprus American Archaeological Research Institute Monograph Series 4. Boston: American Schools of Oriental Research (145-204).

Herscher, E. & Swiny, S. 1992 Picking up the pieces. Two plundered Bronze Age cemeteries. In Ionnides, G. K. (ed.) *Studies in Honour of Vassos Karageorghis*. Nicosia: A G Leventis Foundation (69-93).

Herscher, E. & Fox, S. 1993 A Middle Bronze Age tomb from western Cyprus. *Report of the Department of Antiquities, Cyprus* (69-80).

Herscher, E. & Swiny, S. 2003 Chronology. In Swiny, S., Rapp G. & Herscher E. *Sotira Kaminoudhia: An Early Bronze Age Site in Cyprus*. Cyprus American Archaeological Research Institute Monograph Series 4. Boston: American Schools of Oriental Research (495-505).

Hitchcock, L., Laffineur, R. & Crowley, J. (eds.) 2008 *DAIS: The Aegean Feast. Proceedings of the 12th International Aegean Conference, University of Melbourne, Centre for Classics and Archaeology 25-29 March 2008*. Liège: Université de Liège.

Hladík, J. 2014 The activities of the UNESCO Secretariat with regard to the implementation of the 1954 Hague Convention and its two (1954 and 1999) Protocols, the 1970 Convention and the 1995 UNIDROIT Convention and the UNESCO Restitution and Return Committee. In Pilides, D. & McCarthy, A. (eds.) *Protecting the Cultural Heritage of Cyprus: Joining efforts in preventing the illicit trafficking of cultural heritage*. Nicosia: Department of Antiquities, Cyprus (63-74).

Hocking Reid, N. 2001 Lessons from the kiln: reduction firing in Cypriot Iron Age pottery. *Near Eastern Archaeology* 64 (3) (133-9).

Hodder, I. 1979 Pottery distributions: Service and tribal areas. In Millett, M. (Ed.) *Pottery and the Archaeologist*. London: Institute of Archaeology Occasional Paper No. 4. (7-25).

Hodder, I. (ed.) 1981 *Pattern of the Past: Studies in Memory of David Clarke*. Cambridge: Cambridge University Press.

Hodder, I. 1987 *The Archaeology of Contextual Meaning*. Cambridge: Cambridge University Press.

Höflmayer, F. & Eichmann, R. (eds.) 2014 *Egypt and Southern Levant in the Early Bronze Age*. *Oriente-Archäologie* Band 31.

Hole, F. 1984 Analysis of structure and design in prehistoric ceramics. *World Archaeology* Vol. 15 No.3 (326-347).

Horejs, B., Jung, R. & Pavuk, P. 2010 *Analysing Pottery*. Bratislava: Comenius University.

Iakovou, M. 2008 The Palaepaphos urban landscape project: Theoretical background and preliminary report 2006-2007. *Report of the Department of Antiquities, Cyprus* (263-290).

Ionnides, G. K. (ed.) 1992 *Studies in Honour of Vassos Karageorghis*. Nicosia: A G Leventis Foundation.

Irving, A. 2004 *Style and Near Eastern Ceramics*. Unpublished M Phil Thesis. University of Manchester.

Jasink, A., Bombardieri, L., Menozzi, O. & Fossataro, D. 2008 The Kouris Valley Survey Project 2007 preliminary report. *Report of the Department of Antiquities, Cyprus* (160-189).

Jasink, A.M. & Bombardieri, L. (eds.) 2010 *Researches in Cypriote History and Archaeology*. Firenze: Firenze University Press.

Jones, R.E. 1986 *Greek and Cypriot Pottery; A Review of Scientific Studies*. Athens: The British School at Athens Occasional Paper 1.

Karageorghis, V. 1958 Finds from Early Cypriot cemeteries. *Report of the Department of Antiquities, Cyprus* 1940-48 (115-52).

Karageorghis, V. 1974 *Excavations at Kition 1: The Tombs*. Nicosia: Department of Antiquities, Cyprus.

Karageorghis, V. & Demas, M. 1988 *Excavations at Maa-Palaeokastro 1979-1986*. Nicosia: Department of Antiquities.

Karageorghis, V. & Michaelides, D. (eds.) 1997 *The Development of the Cypriot Economy from the Prehistoric Period to the Present Day*. Nicosia: Leventis Foundation (71-106).

Karageorghis, V., Laffineur, R. & Vandenaabeele, F. (eds.) 1997 *Four Thousand Years of Images on Cypriote Pottery: Proceedings of the Third International Conference of Cypriote Studies Nicosia, 3-4 May 1996*. Nicosia: A. G. Leventis Foundation.

Karageorghis, V. & Kouka, O. (eds.) 2009 *Cyprus and the East Aegean: Intercultural contacts from 3000 to 500 BC*. Nicosia: A. G. Leventis Foundation.

Karageorghis, V. & Kouka, O. (eds.) 2011 *On Cooking Pots, Drinking Cups, Loomweights and Ethnicity in Bronze Age Cyprus and Neighbouring Regions*. Nicosia: A. G. Leventis Foundation.

- Kassianidou, V. 2013 Metals. In Peltenburg, E. (ed.) 2013 *ARCANE Volume II: Cyprus*. Turnhout: Brepols (231-249).
- Keswani, P. 2004 *Mortuary Ritual and Society in Bronze Age Cyprus*. Monographs in Mediterranean Archaeology 9. London: Equinox.
- Keswani, P. 2005 Death, prestige and copper in Bronze Age Cyprus. *American Journal of Archaeology* 109 (341-401).
- Keswani, P. 2013 Burial practices in 3rd millennium Cyprus: A chronological overview. In Peltenburg, E. (ed.) *ARCANE Volume II: Cyprus*. Turnhout: Brepols (161-230).
- Kilikoglou, V., Hein, A. & Maniatis, Y. (eds.) 2002 *Modern Trends in scientific studies on ancient ceramics. Papers presented at the 5th European meeting on ancient ceramics, Athens 1999*. BAR International series 1011. Oxford: Archaeopress (1-8).
- King, R.H. 1987 An investigation of the geographical origins of pottery from southwestern Cyprus and the source materials used in their manufacture. In Rupp, D. (ed.) *Western Cyprus Connections, An Archaeological Symposium, Studies In Mediterranean Archaeology* 77. Göteborg: Paul Åströms Förlag (215-221).
- Knapp, A.B. 1986 Production, exchange and socio-political complexity on Bronze Age Cyprus. *Oxford Journal of Archaeology* 5 (35-60).
- Knapp, A.B. 1990 Production, location and integration in Bronze Age Cyprus. *Current Anthropology* 31 (147-76).
- Knapp, A.B. 1993 Social complexity: incipience, emergence and development on prehistoric Cyprus. *Bulletin of the American School of Oriental Research* 292 (85-106).
- Knapp, A.B. 1994 Emergence, development and decline on Bronze Age Cyprus. In Mathers, C. & Stoddart, S. (eds.) *Development and Decline in the Mediterranean Bronze Age*. Sheffield Archaeological Monographs 8. Sheffield: J. R. Collis & Sons (271-304).

Knapp, A.B. 1996 The Bronze Age economy of Cyprus: Ritual, ideology, and the sacred landscape. In Kharageorghis, V. & Michaelides, D. (eds.) *The Development of the Cypriot Economy from the Prehistoric Period to the Present Day*. Nicosia: Leventis Foundation (71-106).

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.

Knapp, A.B. 2003 The archaeology of community on Bronze Age Cyprus: Politiko Pharades in context. *American Journal of Archaeology* 107 (559-580).

Knapp, A.B. 2006 Orientalization and Prehistoric Cyprus: The social life of oriental goods. In Riva, C. & Vella, N. (eds.) *Debating Orientalization: Multidisciplinary Approaches to Change in the Ancient Mediterranean*. Monographs in Mediterranean Archaeology 10 (48-65).

Knapp, A.B. 2008 *Prehistoric and Protohistoric Cyprus. Identity, Insularity and Connectivity*. Oxford: Oxford University Press.

Knapp, A.B. 2013 *The Archaeology of Cyprus: From earliest prehistory through the Bronze Age*. Cambridge: Cambridge University Press.

Knapp, A.B. & Cherry, J.F. 1994 *Provincance Studies and Bronze Age Cyprus: Production, Exchange and Politico-Economic Change*. Monographs in World Archaeology 21. Madison: Prehistoric Press.

Knapp, A. B., Webb, J. M. & McCarthy, A. (eds.) 2013 *J.R.B. Stewart – An Archaeological Legacy*. Studies in Mediterranean Archaeology CXXXIX. Uppsala: Paul Åströms Förlag.

Knapp, A. B. & van Dommelen, P. (eds.). *The Cambridge Prehistory of the Bronze and Iron Age Mediterranean*, New York.

Kouka, O. 2009 Cross-cultural links and elite identities: the eastern Aegean/western Anatolia and Cyprus from the early third millennium through the early second millennium B.C. In Karageorghis, V. & Kouka, O. (eds.) *Cyprus and the East Aegean: Intercultural contacts from 3000 to 500 BC*. Nicosia: A. G. Leventis Foundation (31-47).

- Kouka, O. 2011 Symbolism, ritual feasting and ethnicity in Early Bronze Age Cyprus and Anatolia. In Karageorghis, V. & Kouka, O. (eds.) *On Cooking Pots, Drinking Cups, Loomweights and Ethnicity in Bronze Age Cyprus and Neighbouring Regions*. Nicosia: A. G. Leventis Foundation (43-56).
- Kramer, C. 1985 Ceramic ethnoarchaeology. *Annual Review of Anthropology*, Vol. 14 (77-102).
- Kromholtz, Susan F. 1982 *The Bronze Age Necropolis at Ayia Paraskevi (Nicosia): Unpublished Tombs in the Cyprus Museum*. Göteborg: Paul Åströms Förlag.
- Lemonnier, P. 1992 *Elements for an Anthropology of Technology*. Ann Arbor: University of Michigan.
- Lemonnier, P. 1993 *Technological Choices: Transformations in Material Culture Since the Neolithic*. London: Routledge.
- Loney, H.L. 2000 Society and technological control: A critical review of models of technological change in ceramic studies. *American Antiquity* Vol. 65, No.4 (646-668).
- Lunt, D.A., Peltenburg, E. & Watt, M.B. 1998 Mortuary practices. In Peltenburg, E.J. et al. *Excavations at Kissonerga-Mosphilia 1979-1992. Lemba Archaeological Project II.1A*. Studies in Mediterranean Archaeology Volume LXX:2. Jonsered: Paul Åströms Förlag (65-92).
- MacLaurin, M.L.G. 1980 *Cypriote Red Polished Pottery and its Regional Variations, Vol. 1-4*. Unpublished PhD thesis: University of London.
- MacKenzie, W.S. & Adams, A.E. 1994 *A Colour Atlas of Rocks and Minerals in Thin Section*. London: Manson Publishing.
- Maguire, L. 1995 Tell el Dab'a. The Cypriot connection. In Vivian Davies, W. & Schofield, L. (eds.) *Egypt, the Aegean and the Levant. Interconnections in the Second Millennium BC*. London: British Museum Press (54-65).

Maguire, L.C. 2009 Design execution sequences in White Painted, Proto-White Slip and White Slip pottery. In Hein, I. (ed.) *The Formation of Cyprus in the 2nd Millennium B.C. Studies in Regionalism during the Middle and Late Bronze Ages*. Vienna: Verlag der Osterreichischen Akademie der Wissenschaften (39-48).

Maier, M. & Karageorghis, V. 1984 *Paphos: History and Archaeology*. Nicosia: The A. G. Leventis Foundation.

Malinowski, B. 1925 *Magic, Science and Religion and Other Essays*. New York: Doubleday.

Maliszewski, D. 1997 Notes on the Bronze Age settlement patterns of western Cyprus c.2500-c.1050 B.C. *Report of the Department of Antiquities, Cyprus* (65-85).

Maliszewski, D. 2013 *Chalcolithic and Bronze Age Pottery from the Field Survey in Northwestern Cyprus, 1992-1999*. British Archaeological Reports International Series 2457. Oxford: Archaeopress.

Maniatis, Y. (ed.) 1989 *Archaeometry: Proceedings of the 25th International Symposium*. Amsterdam: Elsevier.

Manning, S.W. 1993 Prestige, distinction and competition: The anatomy of socioeconomic complexity in fourth to second millennium B.C.E. Cyprus. *Bulletin of the American Schools of Oriental Research* 292 (35-58).

Manning, S.W., 2001. The chronology and foreign connections of the Late Cypriot I period: Times they are changing. In: Åström, P. (ed.) *The chronology of Base-ring ware and Bichrome Wheel-made ware. Proceedings of a colloquium held in the Royal Academy of Letters, History and Antiquities, Stockholm, May 18-19, 2000*. Stockholm: Kungl. Vitterhets historie och antikvitets akademien (69-94).

Manning, S.W. 2013 Cyprus at 2200 BC: rethinking the chronology of the Cypriot Early Bronze Age. In Knapp, A. B., Webb, J. M. & McCarthy, A. (eds.) *J.R.B. Stewart – An Archaeological Legacy*. Studies in Mediterranean Archaeology Volume CXXXIX. Uppsala: Paul Åströms Förlag (1-22).

Manning, S. W. 2014 A radiocarbon-based chronology for the Chalcolithic through Middle Bronze Age of Cyprus (as of AD 2012). In Höflmayer, F. & Eichmann, R. (eds.) *Egypt and Southern Levant in the Early Bronze Age*. *Oriente-Archäologie Band 31* (207-240).

Manning, S. & Swiny, S. 1994 Sotira-Kaminoudhia and the chronology of the Early Bronze Age in Cyprus. *Oxford Journal of Archaeology* 13 (149-172).

Manning, S.W. & Peltenburg, E. 1998 Towards a dated framework: Radiocarbon chronology. In Peltenburg, E. *et al.* *Excavations at Kissonerga-Mosphilia 1979-1992. Lemba Archaeological Project II.1A*. Studies in Mediterranean Archaeology Volume LXX:2. Jonsered: Paul Åströms Förlag (12-21).

Mashkour, M., Choyke, A.M., Buitenhuis, H. & Poplin, F. (eds.) 2000 *Archaeozoology of the Near East IVA. Proceedings of the fourth international symposium on the archaeology of southwest Asia and adjacent areas*. Groningen: Centre for Archaeological Research and Consultancy, Publication 32.

Massa, M. & Şahoğlu, V. 2011 Western Anatolian burial customs during the Early Bronze Age. In Şahoğlu, V. & Sotirakopoulou, P. (eds.) *Across. The Cyclades and Western Anatolia during the 3rd Millenium B.C*. Istanbul: Sakip Sabanci Museum (164-171).

Mathers, C. & Stoddart, S. 1994 *Development and Decline in the Mediterranean Bronze Age*. Sheffield Archaeological Monographs 8. Sheffield: J. R. Collis & Sons.

McCarthy, A. (ed.) 2008 *Island dialogues: Cyprus in the Mediterranean Network. Proceedings of the Postgraduate Cypriot Archaeology Conference (POCA), 2006*. Edinburgh: University of Edinburgh Archaeology Occasional Papers 21.

McCarthy, A., Blakeman, B., Dalton, M., Graham, L., Hill, I. & Ritchie, G. 2009 The Prasteio-Mesorotsos Archaeological Expedition: First preliminary report of the 2008 Survey. *Report of the Department of Antiquities, Cyprus* (59-88).

- McCarthy, A., Blakeman, B., Collard, D., Croft, P., Graham, L., McCartney, C. & Stork, L. 2010 The Prastio-Mesorotsos Archaeological Expedition: Second preliminary report of the 2009 excavations. *Report of the Department of Antiquities, Cyprus* (53-76).
- Mellink, M. 1969 Excavations at Karata -Semayuk in Lycia, 1968. *American Journal of Archaeology*, 73 (319-33).
- Mellink, M. 1991 Anatolian contacts with Chalcolithic Cyprus. *Bulletin of the American Schools of Oriental Research* 282 (165-175).
- Merrillees, R.S. 1962 Opium trade in the Bronze Age Levant. *Antiquity* 36 (287-292).
- Merrillees, R.S. 1973 Settlement, sanctuary and cemetery in Bronze Age Cyprus. In Birmingham, J. (ed.) *The Cypriot Bronze Age, Some Recent Australian Contributions to the Prehistory of Cyprus*. Australian Studies in Archaeology 1. Sydney: University of Sydney (44-58).
- Merrillees, R.S. 1977 The absolute chronology of the Bronze Age in Cyprus. *Report of the Department of Antiquities, Cyprus* (33-50).
- Merrillees, R.S. 1979 Pottery trade in Bronze Age Cyprus. *Report of the Department of Antiquities, Cyprus* (115-134).
- Merrillees, R.S. 1984 Ampelikou-Aletri. A preliminary report. *Report of the Department of Antiquities, Cyprus* (1-13).
- Merrillees, R.S. 1988 C.F.A. Schaeffer's excavations at Bellapais-Vounous in 1933. *Report of the Department of Antiquities, Cyprus* (63-69).
- Merrillees, R.S. 1991 The principles of Cypriot Bronze Age pottery classification. In Barlow, L.A., Bolger, D. L. & Kling, B. (eds.) *Cypriot Ceramics, Reading the Prehistoric Record*. University Museum Monograph 74. Philadelphia: University of Pennsylvania Press (237-241).

- Merrillees, R.S. 1992 The absolute chronology of the Bronze Age in Cyprus: a revision. *Bulletin of the American School of Oriental Research* 288 (47-52).
- Middleton, A. & Freestone, I. (eds.) 1991 *Recent Developments in Ceramic Petrology*. London: British Museum Press Occasional Paper 81.
- Millett, M. (ed.) 1979 *Pottery and the Archaeologist*. London: Institute of Archaeology Occasional Paper No. 4.
- Moran, W.L. 1992 *The Amarna Letters*. Baltimore: The John Hopkins University Press.
- Morris, D. 1985 *The Art of Ancient Cyprus*. Oxford: Phaidon Press.
- Muhly, J.D., Maddin, R. & Karageorghis, V. (eds.) 1982 *Early Metallurgy in Cyprus 4000-500 B.C.* Nicosia: The Pierides Foundation.
- Muhly, J.D. 1989 The organisation of the copper industry in the Late Bronze Age. In Peltenburg, E. J. (ed.) *Early Society in Cyprus*. Edinburgh: Edinburgh University Press (298-314).
- Myres, J. L. & Ohnefalsch-Richter, M. 1899 *A Catalogue of the Cyprus Museum*. Oxford: Clarendon Press.
- Nicolaou, I. & Nicolaou, K. 1988 The Dhenia 'Kafkalla' and 'Mali' tombs. *Report of the Department of Antiquities, Cyprus* (71-120).
- Olin, J. & Franklin, A. 1982 *Archaeological Ceramics*. Washington DC: Smithsonian Institution Press.
- Orton, C., Tyers, P. & Vince, A. 1993 *Pottery in Archaeology*. Cambridge: Cambridge University Press.
- O'Shea, J.M. 1984 *Mortuary Variability: An Archaeological Investigation*. New York: Academic Press.
- Palmer, D. & Easterbrook, G. 2007 *S260 Geology Book 2: Earth Materials*. Milton Keynes: The Open University.

Papaconstantinou, D. (ed.) 2006 *Deconstructing Context: A Critical Approach to Archaeological Practice*. Oxford: Oxbow.

Papaconstantinou, D. 2013 Settlement planning and architecture. In Peltenburg, E. (ed.) *ARCANE Volume II: Cyprus*. Turnhout: Brepols (129-160).

Parker, B.J. & Foster, C.P. (eds.) *New Perspectives in Household Archaeology*. Winona Lake, IL: Eisenbrauns.

Parker Pearson, M. 1993 The powerful dead: archaeological relationships between the living and the dead. *Cambridge Archaeological Journal* 3 (2) (203-229).

Parker Pearson, M. 1999 *The Archaeology of Death and Burial*. College Station: Texas A & M University Press.

Peacock, D.P.S. 1970 The scientific analysis of ancient ceramics: a review. *World Archaeology Vol. 1* (375-389).

Peltenburg, E. 1983 The prehistory of western Cyprus: Ktima lowlands investigations 1979-1982. *Report of the Department of Antiquities, Cyprus* (46-52).

Peltenburg, E. 1989a The beginnings of religion in Cyprus. In Peltenburg, E. J. (ed.) *Early Society in Cyprus*. Edinburgh: Edinburgh University Press (108-126).

Peltenburg, E. (ed.) 1989b *Early Society in Cyprus*. Edinburgh: Edinburgh University Press.

Peltenburg, E. 1993 Settlement discontinuity and resistance to complexity in Cyprus, ca. 4500-2500 BCE. *Bulletin of the American Schools of Oriental Research* 292 (9-23).

Peltenburg, E. 1996 From isolation to state formation in Cyprus, c3500-1500 BC. In Karageorghis, V. & Michaelides, D. (eds.) *The Development of the Cypriot Economy*. Nicosia: University of Cyprus and Bank of Cyprus (17-44).

- Peltenburg, E. (ed.) 2006 *The Chalcolithic Cemetery of Souskiou-Vathyrkakas. Investigations of Four Missions from 1950-1997*. Nicosia: Department of Antiquities.
- Peltenburg, E. 2007 East Mediterranean interactions in the 3rd millennium BC. In Antoniadou, S. & Pace, A. (eds.) *Mediterranean Crossroads*. Athens: Pierides Foundation (143-161).
- Peltenburg, E. 2008 Nitovikla and Tell el-Burak: Cypriot mid-second millennium B.C. forts in a Levantine context. *Report of the Department of Antiquities, Cyprus* (145-159).
- Peltenburg, E. 2011 The prehistoric centre of Souskiou in southwest Cyprus. In Demetriou, A. (ed.) *Proceedings of the IV International Cyprological Congress (Lefkosia 29 April – 3 May 2008). Volume A'2 – Ancient Section*. Lefkosia: Society of Cypriot Studies (681-690).
- Peltenburg, E. (ed.) 2013 *ARCANE Volume II: Cyprus*. Turnhout: Brepols.
- Peltenburg, E. et al. 1998 *Excavations at Kissonerga-Mosphilia 1979-1992. Lemba Archaeological Project II.1A*. Studies in Mediterranean Archaeology Volume LXX:2. Jonsered: Paul Åströms Förlag.
- Peltenburg, E., Bolger, D., Kinsey, M., McCarthy, A., McCartney, C. & Sewell, D. 2006 Investigations at Souskiou-Laona settlement, Dhiarizos Valley, 2005. *Report of the Department of Antiquities, Cyprus* (77-105).
- Peltenburg, E., Frankel, D. & Paraskeva, C. Radiocarbon. 2013 In Peltenburg, E. (ed.) 2013 *ARCANE Volume II: Cyprus*. Turnhout: Brepols (313-338).
- Pilides, D. & McCarthy, A. (eds.) 2014 *Protecting the Cultural Heritage of Cyprus: Joining efforts in preventing the illicit trafficking of cultural heritage*. Nicosia: Department of Antiquities, Cyprus.
- Philip, G. 1983 Kissonerga-Skalia ceramics in Peltenburg, E. J. The Prehistory of West Cyprus: Ktima Lowlands investigations 1979–1982. *Report of the Department of Antiquities, Cyprus* (46-53).

Plog, S. 1980 *Stylistic Variation in Prehistoric Ceramics*. Cambridge: Cambridge University Press.

Plog, S. 1983 Analysis of style in artefacts. *Annual Review of Anthropology* Vol. 12 (125-142).

Price, N.P.S. 1979 *Early Prehistoric Settlement in Cyprus, 6500-3000 BC*. Oxford: British Archaeological Reports International Series 65.

Pulak, C. 1998 The Uluburun shipwreck: An overview. *International Journal of Nautical Archaeology* 27.3 (188-224).

Quin, P. (ed.) 2009 *Interpreting Silent Artefacts: petrographic approaches to archaeological ceramics*. Oxford: Archaeopress.

Renfrew, C. & Bahn, P. (eds.) 2005 *Archaeology: The Key Concepts*. London: Routledge.

Rice, P.M. 1984 *Pots and Potters: Current Approaches in Ceramic Archaeology*. UCLA Institute of Archaeology, Monograph 24. Los Angeles: University of California.

Rice, P.M. 1987 *Pottery Analysis. A Sourcebook*. Chicago: University of Chicago Press.

Riva, C. & Vella, N. (eds.) 2006 *Debating Orientalization: Multidisciplinary Approaches to Change in the Ancient Mediterranean*. Monographs in Mediterranean Archaeology, 10.

Robertson, A. 1989 Unpublished petrographic analysis of Kissonerga-Mosphilia ceramics. University of Edinburgh.

Robertson, A., Rigby, S., Dixon, J., Wade, B., Boulton, S. & Kinnaird, T. 2004 *Honours Geology and GPG Excursion to Cyprus: Unpublished Field School Handbook*. University of Edinburgh, School of Geosciences.

Rupp, D. (ed.) 1987 *Western Cyprus Connections, An Archaeological Symposium, Studies In Mediterranean Archaeology* 77. Göteborg: Paul Åströms Förlag.

- Rupp, D., Clarke, J.T., D'Annibale, C.D. & Stewart, S. 1992 Canadian Paliapaphos Survey Project: 1991 Field Season. *Report of the Department of Antiquities, Cyprus* (285-292).
- Rye, O.S. 1981 *Pottery Technology: Principles and Reconstruction*. Manuals on Archaeology 4. Washington DC: Taraxacum.
- Sackett, J.R. 1990 Style and ethnicity in archaeology: the case for isochrestism in Conkey, M.W. & Hastorf, C.A. (eds.) *The Uses of Style in Archaeology*. Cambridge: Cambridge University Press (32-43).
- Şahoğlu, V. 2011 Early Bronze Age pottery in coastal Western Anatolia. In Şahoğlu, V. & Sotirakopoulou, P. (eds.) *Across. The Cyclades and Western Anatolia during the 3rd Millenium B.C.*, Istanbul: Sakip Sabanci Museum (136-143).
- Şahoğlu, V. & Sotirakopoulou, P. (eds.) 2011 *Across. The Cyclades and Western Anatolia during the 3rd Millenium B.C.*, Istanbul: Sakip Sabanci Museum.
- Schaar, K.W. 1985 House form at Tarsus, Alambra and Lemba. *Report of the Department of Antiquities, Cyprus* (37-44).
- Schiffer, M.B. & Skibo, J.M. 1997 The explanation of artifact variability. *American Antiquity* Vol. 62, No.1 (27-50).
- Schiffer, M.B., Skibo, J.M., Griffiths, J.L., Hollenback, K.L. & Longacre, W.A. 2001 Behavioural archaeology and the study of technology. *American Antiquity* Vol. 66. No.4 (626-637).
- Schlangar, N. 2005 *The Chaine Opératoire*. In Renfrew, C. & Bahn, P. (eds.) *Archaeology: The Key Concepts*. London: Routledge. (24-31).
- Shackley, M.S. 2011 An introduction to x-ray fluorescence in Shackley, M. Steven (ed.) *X-Ray Flourescence Spectrometry (XRF) in Geoarchaeology*. New York: Springer (7-44).
- Shepard, Anna O. 1956 *Ceramics for the Archaeologist*. Washington DC: Carnegie Institution of Washington.

Sherratt, A. 1981 Plough and pastoralism: aspects of the secondary products revolution in Hodder, I. (ed.) *Pattern of the Past: Studies in Memory of David Clarke*. Cambridge: Cambridge University Press (261-305).

Sillar, B. & Tite, M.S. 2000 The challenge of 'technological choices' for materials science approaches in archaeology. *Archaeometry*, 42 (2-20).

Sinopoli, C. 1991 *Approaches to Archaeological Ceramics*. New York: Plenum Press.

Skibo, J. M. 1989 Ceramic style analysis in archaeology and ethnoarchaeology: bridging the gap. *Journal of American Archaeology* Vol. 8 (4) (388-409).

Skibo, J. M. 1992 *Pottery Function: A Use-alteration Alternative*. New York: Plenum.

Sneddon, A. 2002 *The Cemeteries at Marki: Using a Looted Landscape to Investigate Prehistoric Bronze Age Cyprus*. British Archaeological Reports International Series 1028. Oxford: Archaeopress.

Sørensen, L.W. & Rupp, D. (eds.) 1993 *The Land of the Paphian Aphrodite Vol. 2. The Canadian Paliapaphos Survey Project*. Studies in Mediterranean Archaeology Volume CIV, Göteborg: Paul Åströms Förlag.

South, A. 1987 Contacts and contrasts in Late Bronze Age Cyprus: The Vasilikos Valley and the west. In Rupp, D. (ed.) *Western Cyprus Connections, An Archaeological Symposium*. Studies In Mediterranean Archaeology Volume LXXVII. Göteborg: Paul Åströms Förlag (83-95).

Steel, L. 2004 *Cyprus Before History*. London: Gerald Duckworth & Co. Ltd.

Stephen, F. 1998 Red Polished (Philia) ware – analyses and results. In Peltenburg, E.J. et al. *Excavations at Kissonerga-Mosphilia 1979-1992. Lemba Archaeological Project II.1A*. Studies in Mediterranean Archaeology Volume LXX:2. Jonsered: Paul Åströms Förlag (171-174).

Stewart, E. & Stewart, J.R. 1950 Vounous 1937-1938. Field report on the excavations sponsored by the British School of Archaeology at Athens. *Svenska Institutet I Rom Skrifter XIV*. Lund: Gleerup.

Stewart, J.R.B. 1962 The Early Cypriote Bronze Age. In Dikaios, P. & Stewart, J.R. *The Swedish Cyprus Expedition IV: 1A* Lund: The Swedish Cyprus Expedition (205-401).

Stewart, J.R.B. 1988 *Corpus of Cypriot Artefacts of the Early Bronze Age. Part I.* Studies in Mediterranean Archaeology Volume III:1. Göteborg: Paul Åströms Förlag.

Stewart, J.R.B. 1992 *Corpus of Cypriot Artefacts of the Early Bronze Age. Part II.* Studies in Mediterranean Archaeology Volume III:2. Göteborg: Paul Åströms Förlag.

Stewart, J.R.B. 1999 *Corpus of Cypriot Artefacts of the Early Bronze Age. Part III:1.* Studies in Mediterranean Archaeology Volume III:3. Göteborg: Paul Åströms Förlag.

Summerhayes, G. R. 1996 Electron microprobe analysis of pottery. In Frankel, D. & Webb, J.M. *Marki-Alonia, an Early and Middle Bronze Age Town in Cyprus; Excavations 1990-1994.* Studies in Mediterranean Archaeology Volume CXXIII:2: Jonsered: Paul Åströms Förlag (175-180).

Swiny, S. 1981 Bronze Age settlement patterns in southwest Cyprus. *Levant* Vol. 13, (51-88).

Swiny, S. 1986 *The Kent State University Expedition to Episkopi Phaneromeni. Part 2.* Studies in Mediterranean Archaeology Volume LXXIV:2, Nicosia: Paul Åströms Förlag.

Swiny, S. 1989 From roundhouse to duplex: a reassessment of prehistoric Cypriot Bronze Age society. In Peltenburg, E.J. (ed.) *Early Society in Cyprus.* Edinburgh: Edinburgh University Press (14-31).

Swiny, S. 1991 Reading the prehistoric record: A view from the south in the late third millennium B.C. In Barlow, J.A., Bolger, D.L. & Kling, B. (eds.) *Cypriot Ceramics, Reading the Prehistoric Record.* University Museum Monograph 74. Philadelphia: University of Pennsylvania Press (37-45).

Swiny, S., Rapp G. & Herscher, E. 2003 *Sotira Kaminoudhia: An Early Bronze Age Site in Cyprus.* Cyprus American Archaeological Research Institute Monograph Series 4. Boston: American Schools of Oriental Research.

Tite, M. and Kilikoglou, V. 2002 Do we understand cooking pots and is there an ideal cooking pot? In: Kilikoglou, V., Hein, A. & Maniatis, Y., (eds.) *Modern Trends in scientific studies on ancient ceramics. Papers presented at the 5th European meeting on ancient ceramics, Athens 1999*. BAR International series 1011. Oxford: Archaeopress (1-8).

Todd, I. 1985 A Middle Bronze Age tomb At Psematismenos-Trelloukkas. *Report of the Department of Antiquities, Cyprus* (55-71).

Todd, I. 1986 *Vasilikos Valley Project 1: The Bronze Age Cemetery In Kalavastos Village*. Studies in Mediterranean Archaeology Volume LXXI:1. Göteborg: Paul Åströms Förlag.

Todd, I. 1988 The Middle Bronze Age in the Kalavastos area. *Report of the Department of Antiquities, Cyprus* (133-140).

Todd, I. 2007 *Vasilikos Valley Project 11: Kalavastos Village Tombs 52-79* Studies in Mediterranean Archaeology Volume LXXI:11. Sävedalen: Paul Åströms Förlag.

Vaughan, S. J. 1987 *A Fabric Analysis of Late Cypriot Base Ring Ware: Studies in Ceramic Technology, Petrology, Geochemistry and Mineralogy*. Unpublished PhD thesis, University College London.

Vaughan, S. J. 1991a Material and technical characterization of Base Ring ware: A new fabric typology. In Barlow, J.A., Bolger, D. L. & Kling, B. (eds.) *Cypriot Ceramics, Reading the Prehistoric Record*. University Museum Monograph 74. Philadelphia: University of Pennsylvania Press (119-130).

Vaughan, S. J. 1991b Late Cypriot Base Ring ware: Studies in raw material and technology. In Middleton, A. & Freestone, I. (eds.) *Recent Developments in Ceramic Petrology*. London: British Museum Press Occasional Paper 81 (337-368).

Vaughan, S. 2003 Petrographic analysis of pottery from Sotira. In Swiny, S., Rapp G. & Herscher, E. 2003 *Sotira Kaminoudhia: An Early Bronze Age Site in Cyprus*. Cyprus American Archaeological Research Institute Monograph Series 4. Boston: American Schools of Oriental Research (145-204).

Vermeule, E. T. & Wolsky, F. Z. 1990 *Toumba tou Skourou. A Bronze Age Potters' Quarter on Morphou Bay in Cyprus*. Cambridge, Massachusetts: Harvard University Museum of Fine Arts, Boston Cyprus Expedition.

Vigne, J.D., Carrère, I., Saliège, J. F., Person, A., Bocherens, H., Guilaine, J. & Briois, J.F. 2000 Predomestic cattle, sheep, goat and pig during the late 9th and the 8th millennium Cal. BC on Cyprus: preliminary results of Shillourokambos (Parekklisha, Limassol). In Mashkour, M., Choyke, A.M., Buitenhuis, H. & Poplin, F. (eds.) *Archaeozoology of the Near East IVA. Proceedings of the fourth international symposium on the archaeology of southwest Asia and adjacent areas*. Groningen: Centre for Archaeological Research and Consultancy, Publication 32 (83-106).

Vivian Davies, W. & Schofield, L. (eds.) 1995 *Egypt, the Aegean and the Levant. Interconnections in the Second Millennium BC*. London: British Museum Press.

Wallace, S. 1995 *Recognising Change in Systems of Prehistoric Ceramic Production: A Statistical Approach to Identifying Standardisation in Ceramic Attributes, Applied at Kissonerga-Mosphilia, Cyprus*. Unpublished undergraduate dissertation. The University of Edinburgh.

Washbourne, R.M. 2000 *Out of the Mouths of Pots. Towards an Interpretation of the Symbolic Meaning of Cypriot Bronze Age Funerary Artefacts Including Examples in the University of Canterbury's Logie Collection*. Studies in Mediterranean Archaeology and Literature Pocket Book 158. Jonsered: Paul Åströms Förlag.

Webb, J.M. 1992 Funerary ideology in Bronze Age Cyprus – Towards the recognition and analysis of Cypriote ritual data. In Ioannides, G.K. (ed.) *Studies in Honour of Vassos Karageorghis*. Nicosia: Society of Cypriot Studies (87-99).

Webb, J. M. 1994 Techniques of pottery manufacture at Marki Alonia. *Archaeologia Cypria* III (12–21).

Webb, J.M. 2002a New evidence for the origins of textile production in Bronze Age Cyprus. *Antiquity* 76/292 (364-371).

Webb, J.M. 2002b Engendering the built environment: Household and community in Prehistoric Bronze Age Cyprus. In Bolger, D. & Serwint, N. (eds.) *Engendering Aphrodite: Women and Society in Ancient Cyprus*. CAARI Monographs Volume 3. Boston: American School of Oriental Research (87-101).

Webb, J.M. 2006 Material culture and the value of context: a case study from Marki, Cyprus. In Papaconstantinou, D. (ed.) *Deconstructing Context: A Critical Approach to Archaeological Practice*. Oxford: Oxbow (98-119).

Webb, J. M. 2009 Deneia: A Middle Cypriot site in its regional and historical context. In Hein, I. (ed.) *The Formation of Cyprus in the 2nd Millennium B.C. Studies in Regionalism during the Middle and Late Bronze Ages*. Vienna: Verlag der Osterreichischen Akademie der Wissenschaften (27-38).

Webb, J.M. 2010 The ceramic industry of Deneia: crafting community and place in Middle Bronze Age Cyprus. In Bolger, D. & Maguire, L.C. (eds.) *Development of Pre-state Communities in the Ancient Near East*. Oxford: Oxbow (174-182).

Webb, J.M. 2012 A west coast flask of Middle Cypriot date from Ampelikou: a note on a regional style and its chronology. *Report of the Department of Antiquities, Cyprus* (In Press).

Webb, J.M. & Frankel, D. 1999 Characterizing the Philia facies: material culture, chronology, and the origin of the Bronze Age in Cyprus. *American Journal of Archaeology* 103 (3-43).

Webb, J.M. & Frankel, D. 2001 *Corpus of Cypriote Antiquities 21. Eight Middle Bronze Age Tomb Groups from Dhenia in the University of New England Museum of Antiquities*. Studies in Mediterranean Archaeology Volume XX:21. Jonsered: Paul Åströms Förlag.

Webb, J.M. & Frankel, D. 2007 Identifying population movements by everyday practice: the case for 3rd millennium Cyprus. In Antoniadou, S. & Pace, A. (eds.), *Mediterranean Crossroads*. Athens: Pierides Foundation (189-216).

Webb, J.M. & Frankel, D. 2008 Fine ware ceramics, consumption and commensality: mechanisms of horizontal and vertical integration in Early Bronze Age Cyprus. In Hitchcock, L., Laffineur, R. & Crowley, J. (eds.) *DAIS: The Aegean Feast. Proceedings of the 12th International Aegean Conference, University of Melbourne, Centre for Classics and Archaeology 25-29 March 2008*. Liège: Université de Liège (287-295).

Webb, J.M. & Frankel, D. 2009 Hearth and home as identifiers of community in mid-third millennium Cyprus. In Karageorghis, V. & Kouka, O. (eds.) *On Cooking Pots, Drinking Cups, Loomweights and Ethnicity in Bronze Age Cyprus and Neighbouring Regions*. Nicosia: A. G. Leventis Foundation (29-42).

Webb, J.M. & Frankel, D. 2010 Social strategies, ritual and cosmology in Early Bronze Age Cyprus: An investigation of burial data from the north coast. *Levant* 42 (185-209).

Webb, J.M. & Frankel, D. 2013 Cultural regionalism and divergent social trajectories in Early Bronze Age Cyprus. *American Journal of Archaeology*, 117 (59-81).

Webb, J.M., Frankel, D., Manning, S. & Sewell, D. 2008 Early and Middle Bronze Age occupation in the Maroni Valley, Cyprus: surface survey at Psematismenos-Trelloukkas. *Report of the Department of Antiquities, Cyprus* (87-105).

Webb, J.M., Frankel, D., Eriksson, K.O. & Hennessy, J.B. 2009 *The Bronze Age Cemeteries at Karmi Palealona and Lapatsa in Cyprus. Excavations by J.R.B. Stewart*. Studies in Mediterranean Archaeology Volume CXXXVI. Sävedalen: Paul Åströms Förlag.

Weinstein Balthazar, J. 1990 *Copper and Bronze Working in Early through Middle Bronze Age Cyprus*. Studies in Mediterranean Pocket Book 84. Jonsered: Paul Åströms Förlag.

Wheeler, T.S. 1974 Early Bronze Age burial customs in western Anatolia. *American Journal of Archaeology* 78 (415-425).

Whitbread, I. K. 1986 The characterisation of argillaceous inclusions in ceramic thin sections. *Archaeometry*, 28 (79-88).

Whitbread, I. K. 1989 A proposal for the systematic description of thin sections towards the study of ancient ceramic technology. In Maniatis, Y. (ed.) *Archaeometry: Proceedings of the 25th International Symposium*. Amsterdam: Elsevier (127-138).

Whitbread, I. K. 1995 *Greek Transport Amphorae: A Petrological and Archaeological Study*. Athens: British School at Athens, Fitch Laboratory Occasional Paper 4.

Williams, D.F. 1979 Ceramic petrology and the archaeologist. In Millett, M. (ed.) *Pottery and the Archaeologist*. London: Institute of Archaeology Occasional Paper No. 4 (73-77).

Wiseman, R.M. 1996 Petrographic analysis of pottery from Alambra. In Coleman, J. et al. *Alambra. A Middle Bronze Age Settlement in Cyprus. Archaeological Investigations by Cornell University 1974-1985*. Studies in Mediterranean Archaeology Volume CXVIII. Jonsered: Paul Åströms Förlag (437-446).

Republic of Cyprus Geological Survey websites and date accessed:

http://www.moa.gov.cy/moa/gsd/gsd.nsf/dmlIntroduction_en/dmlIntroduction_en?OpenDocument (accessed 24/12/12)

http://www.moa.gov.cy/moa/gsd/gsd.nsf/dmlTroodos_en/dmlTroodos_en?OpenDocument (accessed 24.12.12).

[http://www.moa.gov.cy/moa/gsd/gsd.nsf/All/CE3B2485DC97BB83C22572A3004645C9/\\$file/Geological%20Map%20Cyprus_en.jpg?OpenElement](http://www.moa.gov.cy/moa/gsd/gsd.nsf/All/CE3B2485DC97BB83C22572A3004645C9/$file/Geological%20Map%20Cyprus_en.jpg?OpenElement) (accessed 24/12/12).