Making cities

Economies of production and urbanization in Mediterranean Europe, 1000–500 bc

Edited by Margarita Gleba, Beatriz Marín-Aguilera & Bela Dimova
Making cities
Making cities
Economies of production and urbanization in Mediterranean Europe, 1000–500 bc

Edited by Margarita Gleba,
Beatriz Marín-Aguilera & Bela Dimova

with contributions from
David Alensio, Laura Álvarez, Giovanna Bagnasco Gianni, William Balco,
Lesley Beaumont, Jeffrey Becker, Zisis Bonias, Simona Carosi, Letizia
Ceccarelli, Manuel Fernández-Götz, Eric Gailledrat, Giovanna Gambacurta,
David García i Rubert, Karina Grömer, Javier Jiménez Ávila, Rafel Journet,
Michael Kolb, Antonis Kotsonas, Emanuele Madrigali, Matilde Marzullo,
Francesco Meo, Paolo Michelini, Albert Nijboer, Robin Osborne, Phil
Perkins, Jacques Perreault, Claudia Piazza, Karl Reber, Carlo Regoli,
Corinna Riva, Andrea Roppa, Marisa Ruiz-Gálvez, Joan Sanmartí Grego,
Christopher Smith, Simon Stoddart, Despoina Tsiafaki, Anthony Tuck,
Ioulia Tzonou, Massimo Vidale & Jaime Vives-Ferrándiz Sanchez
CONTENTS

Contributors ix
Figures xiii
Tables xvii

Chapter 1 Making cities: economies of production and urbanization in Mediterranean Europe, 1000–500 bc
Bela Dimova, Margarita Gleba & Beatriz Marín-Aguilera
Definitions of urbanism 2
Urbanism and textiles 2
Contributions to this volume 3
Cover illustration 4

Part I Eastern Mediterranean

Chapter 2 Argilos: the booming economy of a silent city
Jacques Perreault & Zisis Bonias

Chapter 3 Regional economies and productions in the Thermaic Gulf area
Despoina Tsiafaki
Thermaic Gulf economies and production 22
Ancient Therme and its harbour 26
Conclusion 34

Chapter 4 Production activities and consumption of textiles in Early Iron Age Eretria
Karl Reber
Eretria in the Early Iron Age 39
Eretria’s economic situation 41
The production and consumption of textiles 41
Conclusion 45

Chapter 5 Productive economy and society at Zagora
Lesley A. Beaumont

Chapter 6 Making Cretan cities: urbanization, demography and economies of production in the Early Iron Age and the Archaic period
Antonis Kotsonas
Urbanization 58
Demography 66
Economies of production 69
Conclusion 71

Chapter 7 Production, urbanization, and the rise of Athens in the Archaic period
Robin Osborne

Chapter 8 Making Corinth, 800–500 bc: production and consumption in Archaic Corinth
Ioulia Tzonou
Eighth century, to the end of the Geometric period and the transition into the Early Protocorinthian, 720 bc 95
Seventh century, the Protocorinthian and Transitional period into Early Corinthian, 720–620 bc 97
Sixth century, the Corinthian period, 620–500 bc 98
Conclusion 100
Part II Central Mediterranean

Chapter 9 Making cities in Veneto between the tenth and the sixth century BC  
GIOVANNA GAMBACURTA
- Urbanization criteria 107
- Landscape and population 109
- Settlements 110
- Necropoleis 111
- Borders and shrines 112
- Inscriptions 114
- Myths 115
- Conclusion 116

Chapter 10 Attached versus independent craft production in the formation of the early city-state of Padova (northeastern Italy, first millennium BC)  
MASSIMO VIDALE & PAOLO MICHELINI
- Materials and methods 124
- General patterns of industrial location 126
- Methodological issues 128
- The craft industries through time 130
- New craft locations: size and size variations through time 131
- Duration of urban craft workshops 132
- Ceramic, copper and iron processing sites: size versus duration of activities 133
- Discussion 134
- A historical reconstruction 138
- Onset of proto-currency and the issue of remuneration 141
- Conclusion 142

Chapter 11 Resource and ritual: manufacturing and production at Poggio Civitate  
ANTHONY TUCK

Chapter 12 Perugia: the frontier city  
LETIZIA CECCARELLI & SIMON STODDART
- Geology and culture 161
- History of research 163
- The emerging city from the rural landscape 165
- The topographical development of the city 166
- The city and its hinterland 168
- The rural settlements associated with the city 169
- Conclusion 172

Chapter 13 Tarquinia: themes of urbanization on the Civita and the Monterozzi Plateaus  
GIOVANNA BAGNASCO GIANNI, MATILDE MARZULLO & CLAUDIA PIAZZI
- Approaching themes of urbanization at Tarquinia 177
- On the positioning of the protostoric site of Calvario and its road links 178
- The Calvario village on the Monterozzi Plateau and its economic activities during the eighth century BC 180
- The process of urbanization based on the evidence for the fortifications 185
- The limits of Tarquinia before its fortification, a theoretical approach 188

Chapter 14 Prolegomena to the material culture of Vulci during the Orientalizing period in the light of new discoveries  
SIMONA CAROSI & CARLO REGOLI
- New data from Poggio Mengarelli Necropolis 195
- Conclusion 202
Chapter 15  Defining space, making the city: urbanism in Archaic Rome

Jeffrey A. Becker
Making civic space – the Forum Romanum and its environs 206
Monumentality 210
Peri-urban evidence 211
Discussion 214

Chapter 16  Commodities, the instability of the gift, and the codification of cultural encounters in Archaic southern Etruria

Corinna Riva
Agricultural surplus and a new funerary ideology 220
Oversize vessels and fixing the gift 221
Codification in the encounter 222
Conclusion 226

Chapter 17  The Etruscan pithos revolution

Phil Perkins
The pithos as artefact 232
Making pithoi 236
Using pithoi 240
Socio-economic agency of pithoi 243
Pithoi, economic development, and inequality 245
Pithoi, economic growth and cities 248
Conclusion 250

Chapter 18  Birth and transformation of a Messapian settlement from the Iron Age to the Classical period: Muro Leccese

Francesco Meo
The Iron Age village 259
The Archaic and Classical settlement 266
The Hellenistic period and the end of the town 276

Chapter 19  Indigenous urbanism in Iron Age western Sicily

Michael J. Kolb & William M. Balco
Settlement layout 282
Demographic changes 286
Production, consumption and exchange 288
Ritual and cultic activity 290
Conclusion 291

Part III  Western Mediterranean

Chapter 20  Colonial production and urbanization in Iron Age to early Punic Sardinia (eighth–fifth century bc)

Andrea Roppa & Emanuele Madrigali
Colonial production and amphora distribution in Iron Age Sardinia 299
Case studies: Nora and S’Urachi 301
Discussion 305
Colonial economies and urbanization 309

Chapter 21  Entanglements and the elusive transfer of technological know-how, 1000–700 bc: elite prerogatives and migratory swallows in the western Mediterranean

Albert J. Nijboer
Movement of peoples and goods 314
Iron 316
The alphabet 319
Early monumental architecture 321
Discussion and epilogue 323
Chapter 22  Making cities, producing textiles: the Late Hallstatt Fürstensitze  
Manuel Fernández-Götz & Karina Grömer  
Monumentality, production and consumption: the settlement evidence  
Textile use and display in funerary contexts  
Conclusion  
329

Chapter 23  From household to cities: habitats and societies in southern France during the Early Iron Age  
Éric Gailledrat  
A question of time  
A contrasted image  
From one Mediterranean to another  
The evanescent settlement  
The emergence of the fortified group settlement  
The oppida of the sixth–fifth centuries BC  
The house in the context of the group settlement  
Craftspeople, crafts and workshops  
Conclusion  
345

Chapter 24  Urbanization and early state formation: elite control over manufacture in Iberia  
(seventh to third century BC)  
Joan Sanmartí, David Asensio & Rafel Jornet  
The historical process  
Craft in its social context  
Conclusion  
367

Chapter 25  Productive power during the Early Age (c. 650–575 BC) at the Sant Jaume Complex  
(Alcanar, Catalonia, Spain)  
Laura Álvarez, Mariona Arnó, Jorge A. Botero, Laila Font, David Garcia i Rubert,  
Marta Mateu, Margarita Rodés, Maria Tortras, Carme Saorin & Ana Serrano  
The Sant Jaume Complex  
Production in the Sant Jaume Complex chiefdom  
Conclusion  
385

Chapter 26  Not all that glitters is gold: urbanism and craftspeople in non-class or non-state run societies  
Marisa Ruiz-Gálvez  
Craftspeople and workshops in Iberia  
Workshops in Iberia  
The Iberians as a House Society  
Conclusion  
395

Chapter 27  Urbanization and social change in southeast Iberia during the Early Iron Age  
Jaime Vives-Ferrándiz Sánchez  
Iberian urbanization: connectivity and dispersed territories  
Local economies into broader networks  
Agricultural intensification  
Urbanization, institutions and political authority  
Conclusion  
409

Chapter 28  ‘Building palaces in Spain’: rural economy and cities in post-Orientalizing Extremadura  
Javier Jiménez Ávila  
Cancho Roano as a phenomenon  
The ‘post-Orientalizing’ world  
Post-Orientalizing economies  
Countryside and cities  
Final remarks  
425

Part IV  Conclusion

Chapter 29  Craft and the urban community: industriousness and socio-economic development  
Christopher Smith  
447
Contributors

David Alensio
Department de Prehistòria, Història Antiga i Arqueologia, Universitat de Barcelona, C/ Montalegre 6-8, 08001 Barcelona, Spain
Email: davidasensio@ub.edu

Laura Álvarez Estapé
Independent scholar
Email: laura.alvarezestape@gmail.com

Giovanna Bagnasco Gianni
Dipartimento di Beni Culturali e Ambientali, Università degli Studi di Milano, via Festa del Perdono 7, 20122 Milano, Italy
Email: giovanna.bagnasco@unimi.it

William Balco
Department of History, Anthropology, and Philosophy, University of North Georgia, Barnes Hall 327, Dahlonega, GA 30597, USA
Email: william.balco@ung.edu

Lesley Beaumont
Department of Archaeology, Faculty of Arts & Social Sciences, The University of Sydney, A18, Sydney, NSW 2006, Australia
Email: lesley.beaumont@sydney.edu.au

Jeffrey Becker
Department of Middle Eastern and Ancient Mediterranean Studies, Binghamton University – State University of New York, 4400 Vestal Parkway East, PO Box 6000, Binghamton, NY 13902-6000, USA
Email: beckerj@binghamton.edu

Zisis Bonias
Ephorate of Antiquities of Kavala-Thasos, Erythrou Stavrou 17, Kavala 65110, Greece
Email: zbonias@yahoo.gr

Simona Carosi
Soprintendenza Archeologia Belle Arti e Paesaggio per l’area metropolitana di Roma, la provincia di Viterbo e l’Etruria meridionale, Palazzo Patrizi Clementi, via Cavalletti n.2, 00186 Roma, Italy
Email: simona.carosi@beniculturali.it

Letizia Ceccarelli
Department of Chemistry, Materials and Chemical Engineering ‘G.Natta’, Politecnico di Milano, Piazza Leonardo da Vinci 32, 20133 Milano, Italy
Email: letizia.ceccarelli@polimi.it

Bela Dimova
British School at Athens, Souidias 52, Athens 10676, Greece
Email: bela.dimova@bsa.ac.uk

Manuel Fernández-Götz
School of History, Classics and Archaeology, University of Edinburgh, William Robertson Wing, Old Medical School, Teviot Place, Edinburgh, EH8 9AG, UK
Email: M.Fernandez-Gotz@ed.ac.uk

Eric Gailledrat
CNRS, Archéologie des Sociétés Méditerranéennes, UMR 5140, Université Paul Valéry-Montpellier 3, F-34199, Montpellier cedex 5, France
Email: eric.gailledrat@cnrs.fr

Giovanna Gambacurta
Dipartimento di Studi Umanistici, Università Ca’ Foscari Venezia, Palazzo Malcanton Marcorà, Dorsoduro 3484/D, 30123 Venezia, Italy
Email: giovanna.gambacurta@unive.it

David Garcia I Rubert
Departament de Prehistòria, Història Antiga i Arqueologia, Universitat de Barcelona, Carrer Montalegre 6, 08001 Barcelona, Spain
Email: dgarcia@ub.edu

Margarita Gleba
Dipartimento dei Beni Culturali, Università degli Studi di Padova, Piazza Capitaniato 7, Palazzo Liviano, 35139 Padova, Italy
Email: margarita.gleba@unipd.it

Karina Grömer
Natural History Museum Vienna, Department of Prehistory, Burgring 7, 1010 Vienna, Austria
Email: karina.groemer@nhm-wien.ac.at
Figures

1.1 Map indicating the volume coverage. 4
2.1 Argilos, aerial view. 10
2.2 Argilos, general plan. 10
2.3 Small furnace in building E. 11
2.4 View of building L. 12
2.5 Plan of Koutloudis area with buildings H, L, P, and Q. 13
2.6 Building L, press-bed in room 4. 13
2.7 Building Q, room 1. 14
2.8 Building L, room 11, crushed amphorae. 16
2.9 Dividing wall between L7–L8 with remains of clay over the lower courses of stone. 17
2.10 Building L, facades of L2–L3. 18
3.1 Thermaic Gulf region. 22
3.2 Iron sword, grave offering, Nea Philadelphia cemetery, late sixth century bc. 24
3.3 Miniature iron wagon, grave offering, Sinos cemetery, late sixth century bc. 25
3.4 Methone. Pottery kilns in Building A at Sector B. 26
3.5 Ancient settlement at Karabournaki, aerial view. 27
3.6 Ancient settlement at Karabournaki, storeroom with pithoi. 28
3.7 ‘Eggshell’ type vases made at the pottery workshop at Karabournaki. 29
3.8 Karabournaki settlement metal workshop. 30
3.9 Weaving tools from the Karabournaki settlement. 31
3.10 Loom weight with stamp depicting a satyr. Karabournaki settlement. 32
3.11 Karabournaki: distribution of textile production tools within the excavated area. 33
4.1 Map of Geometric Eretria. 40
4.2 Plan of the Sanctuary of Apollo in the eighth century bc. 40
4.3 Spindle whorl with dedication, from the Sanctuary of Apollo. 42
4.4 Cruche à haut col C41 (tankard) from the Aire sacrificielle. 42
4.5 Cruche à haut col C37 (tankard) from the Aire sacrificielle. 43
4.6 Fragment of linen from Grave 10 in the Heroon Necropolis. 44
4.7 Close-ups of wool weft-faced textiles from the Heroon Necropolis. 45
5.1 View of Zagora promontory from the northeast. 48
5.2 Plan of Zagora. 49
5.3 Aerial view of Trench 11, partially excavated. 52
6.1 Map of Crete showing sites mentioned in the text. 58
6.2 Plan of Karphi. 59
6.3 Plan of the Knossos valley. 62
6.4 Plan of Prinias. 64
6.5 Plan of Azoria. 65
6.6 Knossos North Cemetery: maximum and minimum number of cremation urns over time. 68
6.7 Knossos North Cemetery: number of cremation urns per year. 68
6.8 Fortetsa Cemetery: number of burials over time. 68
6.9 Fortetsa Cemetery: number of burials per year. 68
6.10 Reconstruction of the pottery workshop at Mandra di Gipari, near Prinias. 70
7.1 Attica, 1050–900 bc. 80
7.2 Attica, 900–800 bc. 80
7.3 Attica, 800–700 bc. 81
7.4 Attica, 700–600 bc. 81
7.5 Attica, 600–500 bc. 85
8.1 Map of the northeast Peloponnese showing sites mentioned in the text. 90
8.2 Corinth: Geometric Period multiphase plan (900–720 bc). 91
8.3 Corinth: Protocorinthian to Transitional Period multiphase plan (720–620 bc). 91
8.4 Corinth: Corinthian Period multiphase plan (620–500 bc). 92
8.5 Corinth: fifth century bc multiphase plan. 93
13.3 Plan of the Villanovan village on the Monterozzi Plateau. 181
13.4 Plans of some of the Villanovan huts. 183
13.5 Finds from the huts. 184
13.6 Walls, gateways and roads of ancient Tarquinia. 185
13.7 Tarquinia, Bocchoris Tomb, lid. 189
14.1 Location of the excavation area at Vulci. 196
14.4 Textile fragment from the ‘Tomb of the Golden Scarab’. 198
14.5 Detail of the grave goods from Tomb 35 during excavation. 199
14.6 Tomb 29 during excavation. 200
14.7 Tomb 29: detail of the traces of cloth on the lid of the sheet bronze stamnos. 201
14.8 Tomb 72: a textile with colour pattern of small red and white checks. 202
15.1 Plan of Rome’s territory in the Archaic period. 206
15.2 Area of the Volcanal and the Comitium in the seventh and sixth centuries bc. 207
15.3 Reconstructed plan of Rome within the so-called ‘Servian Wall’. 208
15.4 Sketch plan of the area of the Forum Boarium and Velabrum in the seventh century bc. 210
15.5 Phase 1 of the so-called ‘Auditorium site’ villa. 212
15.6 Phase 2 of the so-called ‘Auditorium site’ villa. 212
15.7 The Republican ‘Villa delle Grotte’ at Grottarossa. 213
16.1 White-on-red pithos with lid, Cerveteri. 223
16.2 Figurative decoration of the Gobbi krater. 224
16.3 Black-figure amphora, Vulci, side A. 226
16.4 Black-figure amphora, Vulci, side B. 226
17.1 Pithos types 1–6. 233
17.2 Distribution map of Etruscan pithoi within the study area in Etruria. 240
17.3 Comparison between the altitude of pithos find spots and the range of altitude. 241
17.4 Map of sample area. 242
17.5 Distribution of architectural terracottas, pithoi, amphorae, and tiles. 249
18.1 Muro Leccese and the other Iron Age settlements in the Salento peninsula. 260
18.2 Muro Leccese, find spots of Early Iron Age and Archaic ceramics and structures. 261
18.3 Muro Leccese, Cunella district, traces of two huts. 262
18.4 Muro Leccese, DTM with location of the Iron Age ceramics and structures. 263
18.5 Vases and decorative motifs characteristic of matt-painted ware from Muro Leccese. 264
18.6 Vases imported from Greece and Greek apoikiai. 265
18.7 The Messapian era road network in the Salento peninsula. 267
18.8 Muro Leccese, Palombara district. 268
18.9 Muro Leccese, Palombara district. Vases. 270
18.10 Muro Leccese, Cunella district. Plan of the residential building. 272
18.12 Muro Leccese, Masseria Cunella district. Tombs 1 and 2. 274
18.13 Muro Leccese, fourth century bc walls. 275
19.1 Map of Sicily, showing the Bronze Age sites mentioned in the text. 282
19.2 The defensive wall at Bronze Age site of Mursia, Pantelleria. 283
19.3 The Late Bronze Age excavations at Mokarta. 283
19.4 Monte Bonifato, showing its steep approaches. 284
19.5 Map of western Sicily showing the Iron Age sites mentioned in the text. 284
19.6 The urban layout of Eryx. 285
19.7 The urban layout of Segesta. 286
19.8 The orthogonal grid and Iron Age/Classical/Hellenistic finds of Salemi. 287
19.9 The archaeological sites of Salemi territory. 287
19.10 The temple of Segesta, facing west. 291
20.1 Map of Sardinia showing sites mentioned in the text. 300
20.2 Plan of Nora and the Punic quarter under the forum. 301
Main amphora types discussed.

Dating profiles of amphora types.

Plan of nuraghe S’Urachi and cross-section of the ditch in area E.

Dating profile of the amphora types from the case study at nuraghe S’Urachi.

Dating profiles of Phoenician amphora types.

Early iron and the distribution of Huelva-Achziv type fibulae on the Iberian Peninsula.

Three copper alloy bowls dated to the decades around 800 bc.

The Phoenician, Euboean, Etruscan and Latin alphabetic letters.

Early monumental architecture in Italy and Spain.

Provenance of ceramics from the ninth century bc, pre-Carthage Utica (Tunis).

Fürstensitze north of the Alps and selected sites in Mediterranean Europe.

The Heuneburg agglomeration during the mudbrick wall phase.

Indicative lifespans of selected Fürstensitze sites.

Aerial view of the gatehouse of the Heuneburg lower town during the excavation.

Large ditch at the south foot of wall 3 at Mont Lassois.

Reconstructed monumental building in the Heuneburg Open-Air Museum.

Fired clay loom weight and spindle whorls from the Heuneburg.

Comparison between grave textiles and other textiles.

Tablet-woven band, reproduced after a textile from Hochdorf.

Functions of textiles in graves.

Map of the south of France showing the main settlements of the Early Iron Age.

Mailhac (Aude).

Examples of apsidal floorplans of wattle-and-daub (a) or cob houses (b–d).

Examples of rectangular floorplans of houses with one or more rooms.

Pech Mało (Sigean, Aude).

Examples of functional combinations of apsidal and rectangular floorplans.

Early examples of urban planning combining blocks of houses with a system of streets.

Examples of rectangular floorplans; d–e) houses of La Liquière.

Montlaurès (Narbonne, Aude).

Map of northern Iberia showing the sites mentioned in the text.

Pottery workshop of Hortes de Cal Pons.

Bases of Iberian amphorae.

Les Guàrdies (El Vendrell).

Castellet de Banyoles.

Mas Castellar de Pontós.

Coll del Moro de Gandesa.

Sant Antoni de Calaceit.

Els Estinclells.

General location of the area under study.

View of Sant Jaume.

Plan of Sant Jaume.

Aerial view of La Moleta del Remei.

Sample of matrices and tools from the so-called goldsmith’s graves at Cabezo Lucero.

Iberian tombs with grave goods connected with weighing metal.

Spatial distribution of tools in rooms of Iberian oppida.

Iberian funerary pillars crowned by heraldic beasts.

Reconstructions: a) La Bastida de les Alcusses; b) El Castellet de Banyoles.

Bronze horseman from La Bastida de Les Alcusses and reconstruction as a sceptre.

Map of the study area showing the main sites mentioned in the text.

Metallurgical workshop at La Fonteta.

Plan of Alt de Benimaquia and local amphorae.
27.4 Plan of El Oral.
27.5 The territory of El Puig d’Alcoi and the secondary rural settlements.
27.6 Different furnaces for iron metalwork from La Cervera.
27.7 Plans of walled settlements: a) Covalta; b) Puig d’Alcoi; c) La Bastida de les Alcusses.
27.8 Aerial view of the storerooms at La Bastida de les Alcusses.
27.9 Plan of Block 5 at La Bastida de les Alcusses.
27.10 Weapons ritually ‘killed’ in the West Gate, La Bastida de les Alcusses.
28.1 Cancho Roano: a) general plan; b–c) reconstructions of the external rooms.
28.2 Map of sites considered as post-Orientalizing palatial complexes.
28.3 La Mata.
28.4 Post-Orientalizing settlements: a,d) El Chaparral; b) La Carbonera; c) Los Caños.
28.5 Millstones and amphorae from post-Orientalizing sites in Middle Guadiana.
28.6 Storage building at the Orientalizing site of El Palomar, Oliva de Mérida.
28.7 Greek pottery from Cancho Roano, late fifth century BC.
28.8 Antique (sixth-century BC) goods in post-Orientalizing contexts.
28.9 The Orientalizing site of Medellín.
28.10 Ancient toponymy in southwestern Iberia.

Tables

7.1 Sites in Attica, late eleventh to seventh century BC. 78
8.1 Dates: abbreviations and chronology. 90
9.1 List of criteria for defining cities. 108
9.2 Inventory of houses and buildings with their shape, dimensions and chronology. 111
10.1 Variations through time of principal type of craft occupation. 128
10.2 Variations through time of the maximum area of all craft occupations. 129
10.3 Padova, average duration in years of the main craft occupations for each period. 129
10.4 Padova, the development of craft industries as monitored in 29 craft workshops. 130
10.5 Positive correlation between size and duration of activity of craft workshops. 134
10.6 The composition of funerary vessels in the earliest graves from Padova. 140
17.1 Type 1. 234
17.2 Type 2. 234
17.3 Type 3. 235
17.4 Type 3A. 235
17.5 Type 3B. 235
17.6 Type 3C. 236
17.7 Type 4. 236
17.8 Type 5. 237
17.9 Type 6. 237
17.10 Chaîne opératoire of Etruscan pithos manufacture. 238
21.1 Number of iron artefacts per phase at Torre Galli (c. 950–850 BC). 318
Chapter 6

Making Cretan cities: urbanization, demography and economies of production in the Early Iron Age and the Archaic period

Antonis Kotsonas

Mediterranean urbanization, c. 1000–500 BC, including its demographic and economic correlates, has been the focus of several collective research projects of the last two decades. These projects have sought to integrate the insights of major theorists like Max Weber, Numa Denis Fustel de Coulanges and Gordon Childe, with the results of fieldwork and other research on different sites and regions of especially Greece and Italy (e.g. Damgaard Andersen et al. 1997; Attema 2004; Osborne & Cunliffe 2005). Crete receives no discussion in these studies, but the island’s cities have attracted considerable attention in chapters in collective works on urbanization which pursue diachronic and cross-cultural perspectives (e.g. Morris 1991; Haggis 2013; Fitzsimons 2014), and they have been discussed at length in region-specific analyses which have proliferated in the last decade (e.g. Sjögren 2003; Wallace 2010a; 2010b; Whitley 2014; Gaignerot Driessen 2014; 2016; 2017; Haggis 2014a; 2014b; 2015; 2020; Lefèvre-Novaro 2014; 2020).

Crete was renowned for its many cities in Classical antiquity. This was largely due to Homer, who refers to the island’s 100 cities in the Iliad (2.649) or 90 cities in the Odyssey (19.174) (on Homer and Crete see Kotsonas 2018). These references may have been promoted by the pronounced political fragmentation of the island in historical times. Indeed, Paula Perelman (2004) has inventoried 49 Archaic and Classical Cretan poleis, and roughly as many other settlements on the island. Although the degree to which all these Cretan poleis were functioning as city-states is open to debate, James Whitley (2014, 143–4; based on the data from Hansen & Nielsen 2004) has made an interesting comparison between the number of polities on Crete and other Aegean and Mediterranean islands in the sixth century BC. This comparison reveals that Sicily, which is four times bigger than Crete, only had a few more cities than the Aegean island. Also, Cyprus, which is comparable in size to Crete, and Euboea, which is less than half the size of Crete, had four times fewer poleis. Although unpretentiously gross, this comparison has the merit of highlighting the high number of Cretan poleis.

The plethora of Cretan cities contrasts with the state of the research on the vast majority of these sites. In 1901, the Cambridge Classicist William Henry Denham Rouse responded to the first systematic excavations of settlement sites on the island, Knossos and Phaistos in particular, as follows: ‘Crete has yet ninety-eight cities left to explore; it is too soon to explain everything’ (Rouse 1901, 274). This is probably still the case after more than a century. Past and current research has offered many valuable insights but large-scale systematic fieldwork remains limited thus hindering any nuanced, ground-up understanding of synchronic and diachronic variation in the development of Cretan cities. Indeed, Donald Haggis, who has made major recent contributions on the subject of Cretan cities through his excavations at Azoria and through published work on urbanization, almost echoes Rouse in noting (pers. comm. 2017): ‘Ironically, about cities on Crete we know next to nothing’. As Haggis (2014a, 14–15; 2014b, 120; 2015, 219–21) explains, Crete’s rich and early record of public inscriptions and the fascination of ancient historians and philosophers with the island’s institutions has had two unfortunate effects: a) it set Cretan cities firmly within the purview of the historian, and b) it basically rendered their physical morphology and material condition as irrelevant.

My paper is conceived as a response to these concerns, as indicated by the reference of my title to ‘Making Cretan Cities’. This title is more than a twist on the title of the conference that led to the present volume, and of other relevant literature (e.g. Creekmore & Fisher 2014); indeed, it is intended as a reaction to recent important literature which aims to promote the ‘reading’ and ‘writing’ of Cretan communities (e.g. Gaignerot Driessen
space, and site abandonment. The broad chronological overview is balanced by closer attention to five sites: Karphi, Malia Pezoula, Knossos, Prinias and Azoria (Fig. 6.1). These sites are chosen because they have received extensive fieldwork, and also because they capture some of the different conditions and the major developments that characterize Cretan urbanization in different parts of this broad time-span.

Bronze Age Crete had a notable tradition of large urban centres, which is fairly exceptional for the Aegean (Whitelaw 2017). Habitation typically centred on lowland and coastal sites, and urbanization increased markedly over the Protopalatial and Neopalatial periods, but decreased gradually after the mid-second millennium BC (Whitelaw 2017, especially figs. 7.3, 7.9, 7.10). In the end of the Bronze Age, the Minoan settlement pattern was largely dismantled; numerous lowland and coastal sites were abandoned and many new sites were established at defensible locations, often at a distance from the coast (see, e.g. Nowicki 2000; 2002; Wallace 2010a, 54–68; Wiener 2021). The new settlement pattern persisted – with considerable modifications – to the Classical period.

In pursuing this approach, I return to an argument I have made before (Kotsonas 2002) on the importance of the seventh century BC for the physical, political and socio-economic transformation of Cretan cities. However, the present analysis brings in new and less well-known evidence and recent fieldwork, which expand and enrich the range of current interpretations and generate hitherto underexplored perspectives on Cretan urbanization, demography and economy.

Urbanization

This section explores urbanization in Crete from the beginning of the Early Iron Age to the end of the Archaic period by focusing on questions of settlement size, nucleation and the formalization of physical

Figure 6.1. Map of Crete showing sites mentioned in the text (J. Wallrodt, revised by C. Stefanou).
Making Cretan cities: urbanization, demography and economies of production

However, the small sites of this type have largely remained obscure. An exception to this rule is the site of Malia Pezoula, which was fully excavated recently, and remains little known. Located on a low rocky hill lying southwest of the prehistoric palace and town of Malia, and commanding a view of the north coast of Crete, Malia Pezoula is a defensible but not inaccessible site which dates from the eleventh and tenth centuries BC (Mandalaki 2006). The site involves a stand-alone building complex, which has a central room supplied with benches and a bin, and is surrounded by 15 more rooms (including storerooms), which preserve evidence for two architectural phases. The coarse and plain ware ceramics and other finds suggest the storage and consumption of foodstuffs on a domestic scale. Trial trenches in the immediate vicinity established that this compound stood in isolation, and identified remains of tools and small-scale industrial activities in an area with flattened rock immediately south of it.

Malia Pezoula covers only 0.04 ha (Mandalaki 2006, 1134) and is unlike any other excavated Cretan settlement sites of comparable size are typically classified as farmsteads (Haggis 2005, 34–6; cf. Sjögren 2003, 40–2). However, only a few Cretan Early Iron and Archaic sites have hitherto separated by paved streets. A small temple barely stands out in the settlement layout, but shrines and evidence for cult are attested in several rooms, which has been taken to suggest decentralized authority. However, recent fieldwork has raised the possibility of two buildings of special function at different parts of Karphi (Wallace 2012, 5–7, 12, 18, 41–42, 52, 58–59 on Buildings A1 and MG1).

John Pendlebury (1939, 16, 303–5) attributed the dismantling of the Cretan Bronze Age settlement pattern and the establishment of Karphi and other such sites to some threat from the sea. This interpretation remained popular for long, but has now waned. Recent attention to the ecology, economy and settlement pattern of the micro-regions surrounding these sites has led to major advances in interpretation (Haggis 1993; 2013; Nowicki 1999; 2000; 2002; Wallace 2003; 2010a, 49–166; 2010b), including the observation that the new defensible sites vary markedly in their extent, from less than half a hectare to 4 ha (Wallace 2010a, 62, fig. 11), and also in the size of the population they held (Nowicki 2002, 156).

Large or medium-sized defensible sites are well documented by the excavations at Karphi, Kavousi Vronda and Kastro, and elsewhere (see e.g. Nowicki 2000). However, recent fieldwork has raised the possibility of two buildings of special function at different parts of Karphi (Wallace 2012, 5–7, 12, 18, 41–42, 52, 58–59 on Buildings A1 and MG1).
been – tentatively – identified as farmsteads, and all are inadequately researched (Sjögren 2003, 40–2, 48; Wallace 2010a, 71–2, 332–6). If it is a farmstead, Malia Pezoula would be the first of its kind in Crete to be fully excavated, and a rare breed for the Aegean as a whole. The site could have been economically and politically dependent on a larger site (cf. Wallace 2010a, 71–2), suggesting a level of settlement hierarchy that was previously poorly documented in this period. Alternatively, it could be part of a cluster of interconnected sites, like those identified by Haggis (1993; 2005, 81–5; 2013) in east Crete.

The abandonment of Malia Pezoula in the tenth century BC conforms to a much broader pattern of settlement abandonment. At the time, more than half of the Cretan settlements, which had been established in the end of the second millennium BC, were swept away. According to Saro Wallace (2010a, 231–66; 2010b, 66–8; cf. Nowicki 2002, 168–72; Gaignerot-Driessen 2017, 515–16), the abandonment of these sites relates directly to the concurrent trend for settlement nucleation, which is observed in many of the surviving sites, some of which grew further over time and later became the island’s Classical _poleis_.

Relying on surface investigations of dozens of sites, Wallace’s model is probably the most elaborate to date and has considerable strengths. However, I find it is somewhat lacking in the coverage of individual stratigraphic contexts and, more generally, of the major lowland sites that survived the end of the second millennium BC (Kotsonas 2011a), which is why I place particular emphasis on the case study of Knossos below. Haggis (2014a, 120, 138; 2014b, 13–15; 2015, 225–8) has also stated his appreciation of Wallace’s model, but he has also expressed some concern over its emphasis on the formative role of the tenth century BC, a period which is poorly represented in the excavation record of Crete, as few Protogeometric settlements have been excavated to any considerable degree. Also, as Haggis observes, Wallace’s model is too gradualist to account for the complexity of excavated settlements, and it reduces the emergence of Cretan _poleis_ in the seventh and sixth centuries BC to little more than the intensification and the formalization of socio-economic conditions and structures developed in the tenth century BC. The cases of Prinias and especially Azoria, which are treated below, suggest a much more complex and discontinuous model of urban and societal development.

The emphasis that Wallace and other authors place on the new defensible sites that characterize the transition from the Late Bronze Age to the Early Iron Age is reasonable, but it has tended to downplay or obscure the complexity of settlement patterns on Crete of this period, and especially the evidence from major lowland sites that survived the upheavals of the period. Knossos and Phaistos are well-known examples of this phenomenon and show signs of nucleation in the tenth and ninth centuries BC (Wallace 2010a, 68–71). However, there are more sites of this type, including Grivila in the district of Rethymno, northeast of the town of Perama. Situated on a low hill, which overlooks the Mylopotamos plain and controls what was probably the main ford of the ancient river Oaxos, Grivila is an extensive Bronze Age site showing continuous occupation into the Early Iron Age, as confirmed by trial trenches and surface investigations (Platon 1951, 441; Hood _et al._ 1964, 56–8). Grivila confirms that in the Mylopotamos plain, as in other major lowlands of Crete, at least one major, probably urban centre of the Bronze Age survived the upheavals of the end of the second millennium BC.

Knossos is the best explored of these lowland sites which present continuous occupation (Hatzaki & Kotsonas 2020). However, excavated settlement remains of the Early Iron Age are here sandwiched between Minoan and Roman strata, and they are almost invariably disturbed by later stone robbing. This has led to uncertainties and varying interpretations over the nature and extent of the Early Iron Age settlement.

The first scholar to address this issue was Stylianos Alexiou in 1950. To account for the different cemeteries and burial plots found around the Knossos valley, Alexiou (1950, 296–7) suggested that Knossos in this period was small in size and was surrounded by a number of villages, each with its own burial ground. In his view, habitation in the Knossos valley was scattered, and the Classical _polis_ emerged through _synoecism_, in accordance with a model described by Aristotle (Politics 1252b).1

A different interpretation of the character of the settlement of Early Iron Age Knossos emerged among the British excavators in the late twentieth century (e.g. Hood & Smyth 1981, 16–18; Coldstream 1984). According to this, Knossos of the period was nucleated and was served by the surrounding cemeteries, but remained small in size. Satellite settlements, including a coastal site under modern Heraklion, were located at considerable distance. The principal proponent of this view, Nicolas Coldstream (1984; 2000, 260–1; 2004, 59–61; 2006, 584–8), envisaged a nucleated settlement of 12.5 ha extending from the area of the Minoan palace to the east slopes of the Acropolis hill.

Coldstream’s rejection of Alexiou’s case for dispersed occupation is convincing, but his argument for a relatively ‘small Knossos’ is questionable. Indeed, it is challenged by the recent excavation of evidence for Protogeometric occupation in a test trench under the Roman Villa Dionysus. In Coldstream’s view, a distinct Protogeometric hamlet is represented by this
site, which lies less than 300 m north from the north limit of his reconstruction of Early Iron Age Knossos (Coldstream 2000, 299; Coldstream & Hatzaki 2003, 299–300). However, this find can now be seen to lie well within the wide scatter of Early Iron Age – including Protogeometric – material revealed by the Knossos Urban Landscape Project (KULP), as discussed below.

More recently, Todd Whitelaw (2000, 225, table 1; 2004, 156, fig. 10.8) proposed a more dynamic model of settlement development, which involved considerable expansion and contraction. According to Whitelaw’s estimates, the site grew from 4 ha in the eleventh century BC (Subminoan period), to 7 ha in the tenth and ninth centuries BC (Protogeometric period), then jumped to 27 ha in the eighth century BC (Geometric period), and shrank to 10 ha in the seventh century BC (Orientalizing/Protoarchaic period). On the other hand, Lena Sjögren (2003, 31, 39) estimated that Knossos extended over c. 11.5 ha in the eighth century BC and perhaps grew to 35 ha in the seventh century BC.

The size of Early Iron Age Knossos can be revisited in the light of the findings of the Knossos Urban Landscape Project, an intensive urban survey covering the Knossos valley, which commenced in 2005 and is directed by Todd Whitelaw of the British School at Athens and University College London, and Maria Bredaki and Andonis Vasilakis of the Ephorate of Antiquities of Heraklion. The distribution pattern of the material which was collected by KULP and dates from this period (Fig. 6.3) was recognized as surprisingly extensive since preliminary study of the pottery by Whitelaw in the first years of the project (Grammatikaki et al. 2005–2006, 108; Bredaki et al. 2006–2007, 108; Kotsonas et al. 2012, 221–4; Kotsonas et al. 2018, 66–72). Fairly dense scatters of sherds from this period extend over an area that is very extensive relative to the norm for Aegean sites of the Early Iron Age. Although this distribution includes both domestic and burial contexts, the study of the material and the distinction between residential and outlying burial areas has helped generate a new estimate for the settlement of Protogeometric to Orientalizing/Protoarchaic Knossos, which is much larger than previously assumed and covers 50–60 ha (Kotsonas 2019; Hatzaki & Kotsonas 2020, 1038). This area is much larger than Coldstream’s Knossos and does not involve the surrounding villages proposed by Alexiou. Indeed, KULP yielded no evidence for outlying villages in the vicinity of the Fortetsa cemetery, nor has any such evidence been recognized in the area around the North Cemetery that was available to be surveyed. Satellite sites are only attested by rescue excavations beyond the area surveyed by KULP, and one such site was at coastal Heraklion (Rethemiotakis & Englezou 2010, 198–9).

The argument for a ‘large Knossos’ fits the picture of prosperity that is indicated by the rich discoveries made in its extensive cemeteries (Brock 1957; Coldstream & Catling 1996; Antoniadis 2017). Indeed, Coldstream has observed that: ‘if the size of a community were measured by its cemeteries, then Early Greek Knossos would be by far the largest city of its time in the Aegean world’ (Coldstream 2006, 584; cf. 1984, 312; 2004, 62). The Homeric epics also suggest the authority of the site by having Idomeneus, the king of Knossos, lead the large Cretan contingent that sailed to Troy (Iliad 2.645–52; Kotsonas 2018). Lastly, the conception of Knossos as a centre of considerable economic and political influence over north central Crete pervades many recent interpretations of sites like Eltyna, Prinias and the Idaean Cave (Matthäus 2000a, 274; 2000b, 541–2; Rizza 2008, 302; Rethemiotakis & Englezou 2010, 197–200).

The notable increase in the size of Knossos during the Early Iron Age begs the question of any decisive moment of expansion. Coldstream (1984, 319; 2000, 260; 2004, 61; 2006, 587) argued for a considerable expansion to the north in the late eighth century BC (Late Geometric period), with continued increase in the seventh century BC (Orientalizing/Protoarchaic period). One could relate this argument to the rise in the number of burials that is attested in the Knossos North Cemetery in the eighth century BC (Cavanagh 1996, 659–64; see below). On the other hand, Whitelaw (2000, 225, table 1; 2004, 156, fig. 10.8) drew on the data available before the beginning of KULP to estimate that Knossos grew dramatically in the eighth century BC, as explained above, whereas Sjögren argued for a notable expansion only in the seventh century BC (2003, 31, 39).

The current degree of chronological resolution of the evidence from KULP does not allow for any firm conclusions on the pace and decisive moment of expansion, but the plotting of the closely datable material suggests that the settlement was extensive already in the Protogeometric period, i.e. the tenth and ninth centuries BC (the latter century being favoured by the evidence for increase in the number of burials, on which see below). There is a tendency for Protogeometric sherds to be clustered on the eastern slopes of the Acropolis, raising the question whether this might have been the focus of the earliest post-Bronze Age settlement. On the contrary, the material of the eighth and seventh century BC is denser on the northern half of the site (especially in the northeast section), possibly indicating a shift of focus to flatter land (Kotsonas 2019).

Notwithstanding the changes involved in the process of urbanization in Early Iron Age Knossos, there is some scant evidence for continuity in the
Figure 6.3. Plan of the Knossos valley showing the surface scatter of Early Iron Age pottery collected by KULP (light blue), and comparing the estimates for the size of Early Iron Knossos provided by Coldstream (green line) and KULP (red line). Also indicated are the locations of: the Minoan palace (purple), Early Iron Age tombs (black crosses), and other Early Iron Age material (black dots) (T. Whitelaw).
topography and the layout of the settlement through this period. Indeed, the area of the Roman Villa Dionysus has yielded walls of the tenth to ninth century bc that show similar orientation to walls of the late eighth century bc (Coldstream & Hatzaki 2003, 300), though this orientation is standard in the west part of the city from the prehistoric through Roman occupation, and is dictated by the gradual slope of the land. Also, the burial locations used by the Knossians in the Early Iron Age do not change considerably between the Protogeometric period on the one hand (tenth and ninth centuries bc), and the Geometric and Orientalizing/Protoarchaic on the other (eighth and seventh centuries bc) (Antoniadis 2017, 29–38). Large clusters of tombs occur to the north and the west of the settlement, and only isolated examples to the east and the south.

The density of occupation of Early Iron Age Knossos cannot be easily estimated. The few well-explored Cretan sites of the earlier or later part of the Early Iron Age are densely built (e.g. Wallace 2010a, 104–13, 233-60, 271–84; see also above, on Karphi, and below, on Prinias), but all are on constrained hilltop locations. In Knossos, excavations in the area of the Unexplored Mansion and the Little Palace North have indicated the existence of unbuilt areas of considerable size (Coldstream 1992; Hatzaki et al. 2008). As Coldstream noted: ‘Long and continuous stratified sequences in any given trench are unknown; the site of a house in one period could often become open ground in the next – and vice versa’ (Coldstream & Hatzaki 2003, 299; cf. Coldstream 2006, 587). This suggests that habitation nuclei may have shifted over time within the overall settlement area.

Coldstream’s ideas on the critical stage of the late eighth century bc for urbanization in Knossos is echoed in recent work on other Cretan sites and regions. For example, Gortyn and Phaistos are often taken to have been synoecized in the late eighth or seventh centuries bc (contra Wallace 2010a, 337–8). The critical nature of the (late) eighth century bc for Cretan urbanization has also been highlighted in recent synthetic works on the archaeology of south-central Crete (Lefèvre-Novaro 2014, 180–4) and the Mirabello area (Gaignerot-Driessen 2016, 147–50). In favouring this chronological focus and centring the discussion around the rise of the polis, these works seem to follow an agenda which pervaded Anglophone scholarship on Early Iron Age Greece during the 1980s and 1990s (e.g. Snodgrass 1980; Morris 1987) and also influenced my own work at the time (Kotsonas 2002), but which has waned markedly in recent years because of shifting ways of thinking about early Greek communities and of the notable difficulties in tracing the material correlates of the early polis (Hall 2014, 68–90; Whitley 2020). However, the studies of south-central Crete and the Mirabello area in the Early Iron Age are commendable in developing bottom-up perspectives on urbanization and socio-political development, which remain to be evaluated further with the final publication of domestic assemblages and the refinement of ceramic sequences in these micro-regions – both issues being in need of much further work.

Notwithstanding the significance of developments in the eighth century bc, I identify clearer evidence for an important phase transition through much of Crete in the seventh century bc, as exemplified by the last two sites considered in this section, Prinias and Azoria. These two sites were founded during the transition from the Late Bronze Age to the Early Iron Age, like Karphi or Malia Pezoulia; however, unlike these last two sites, Prinias and Azoria were continuously occupied to the Archaic period. Azoria had its physical landscape radically transformed in the latter half of the seventh century bc, and I think there may be evidence for a comparable development at Prinias in the mid- to late seventh century bc. This transformation produced the well-preserved town plans that characterize the two sites, but it also heavily obscured the earlier phases of occupation.

Prinias is strategically located on a triangular-shaped plateau called Patela, which controls a route connecting the southern and northern parts of central Crete (Fig. 6.4). Although the remains of two settlements of the Final Neolithic and Bronze Age have been identified in the vicinity of the Patela, the hill itself was only settled in the thirteenth century bc and was occupied until the mid-sixth century bc, at which time the site was destroyed (Rizza 2008). The Patela hill is surrounded by cliffs and is accessible only from the west (but this area was fortified at some uncertain point; see Rizza 2008, 76–80), which makes Prinias one of the defensible locations settled at the end of the Bronze Age. Pockets of material and – to a lesser extent – architectural remains of the end of the second and the beginning of the first millennium bc are attested in different parts of the site, but the preserved settlement plan largely dates from considerably later. The detailed study available for a specific city quarter at the southern part of the site revealed that nearly all surviving architecture dates from the mid-seventh to the early sixth century bc and has obliterated earlier architectural phases almost entirely (Rizza & Pautasso 2015). Material of similar date predominates in the published assemblages from nearly all other areas of the site (Rizza 2008), raising the possibility of an extensive remodelling of Prinias during the last century of occupation.
In the Early Iron Age, Azoria housed one of the numerous small communities around the plain of Kavousi, including Kastro and Vronda which were mentioned above. By the end of the seventh century BC, most of these sites were abandoned and their population moved to Azoria, which grew a lot in size and flourished as an urban settlement until its destruction in the early fifth century BC (Haggis 1993; 2005; 2013; 2014a; 2014b; 2015; Fig. 6.5). The site expanded to at least 15 ha and was radically rebuilt in a planned way within a single phase. Megalithic, roughly concentric terrace walls were erected to physically support the hillsides and notionally tie the community together, while a thick cobble fill covered earlier levels. The labour and resources invested in creating domestic and communal spaces increased drastically, and new kinds of architecture designed as foci for supra-household interaction were introduced at this time.

The new kinds of architecture are best represented by two building complexes (see especially Haggis et al. 2007; 2011a; Fitzsimons 2014, 231–44): first is the Monumental Civic Building, a single large hall with a permanent-seating arrangement for assemblies and feasting. The food was prepared immediately to the south, in the Service Building, which involved store-rooms, kitchens and an olive press. A different mode of dining is indicated by the layout of the Communal...
Figure 6.5. Plan of Azoria (2017) (R.D. Fitzsimons; courtesy of the Azoria Project).
Dining Building, which is internally differentiated into separate dining rooms serviced by kitchens and storage rooms. One of the most notable patterns observed in these buildings and in the surrounding houses of Azoria (which contrasts with the evidence from earlier Cretan sites) is that the animal and plant remains and associated tool kits are characterized by a lack of evidence for primary-stage processing. It seems that the urban centre was mainly a consumption zone, with production and processing taking place in the outskirts of the city and also in outlying farmsteads. Interestingly, archaeological evidence from both central and east Crete suggests that farmsteads spread considerably across the island’s lowlands in the seventh and sixth centuries BC (Sjögren 2003, 40–2, 48; Wallace 2010a, 332–6).

A second notable pattern seen at Azoria concerns the degree of material elaboration at the houses in the urban centre (see especially Haggis et al. 2011b; 2013, 72–7; Fitzsimons 2014, 223–31). These houses are much larger than the Cretan houses of the Early Iron Age, and they show clearly differentiated functional spaces, which contrast the combined living, working and food producing rooms, which characterize earlier houses. On the one hand, the elaboration of these houses is considerably higher than is typical for Archaic Greece, and on the other, these houses show little differentiation between them. Judging by their form, their assemblages, their physical location within the settlement, and their relationship to public space, these houses must have been inhabited by elite groups, which maintained privileged access to the community’s wealth and power.

The Monumental Civic Building and the Communal Dining Building at Azoria recall the epigraphic attestation of public buildings, such as agoras and men’s clubs (andréia), in Cretan inscriptions of the sixth century BC (Gagarin & Perlman 2016, 93–5, 274, 278, 497, 500; cf. Wallace 2010a, 282; Lefèvre-Novaro 2014, 166–7). It is perhaps surprising that such structures are largely missing from the excavated portion of Prinias, the main building phase of which is only slightly earlier than that of Azoria. Indeed, in some respects, the excavated layout of Prinias, with its densely spaced and less markedly differentiated structures, looks more backwards, to Karphi, than forward, to Azoria, with its large and monumental structures of communal character, its extensive storage and food preparation facilities, and its large and complex houses with clearly differentiated functional spaces. Although relatively small in size, Azoria provides the best evidence we have for urbanization in Crete, most notably for the development of a nucleated urban plan within a short time-span, and the erection of monumental communal buildings. More broadly, Azoria provides an exceptionally rich insight into the transformation of the physical and socio-economic landscape of the island’s communities in the seventh and sixth centuries BC. As emphasized by Haggis, urbanization in Crete is not incidental to the process of state formation, but a critical part of it (Haggis 2014a, 138; 2015, 254–5; Fitzsimons 2014; cf. Kotsonas 2002, 48–50).

Further insights on Cretan urbanization in the Early Iron Age and the Archaic period are provided in the following sections, which discuss key aspects of demography and of the economies of production on the island in the period in question. The discussion highlights a range of evidence which reaffirms the formative role of the seventh century BC for many communities on the island.

**Demography**

Questions of demography were first introduced into discussions of Early Iron Age Greece by Anthony Snodgrass in 1977 (Snodgrass 1977, 10–18; 1980, 22–4) and have received (slowly) increasing attention in the last three decades. Such questions have largely been addressed on the basis of two kinds of evidence: the size of settlements (e.g. Morris 1991, 29–34; Hall 2014, 74–5), and the fluctuation in the number of burials at a given site (e.g. Snodgrass 1977, 10–18; 1980, 22–4). In Crete, population estimates have largely been based on the size of settlements. I elaborate on this approach below, but I place more emphasis on burial evidence from the extensive cemeteries of Knossos.

The excavation of considerable parts of several defensible sites dating from the end of the second millennium BC has allowed for reliable estimates of their population. For example, Karphi, which extends over 3 ha and is densely built, is taken to have housed between 625 and 1200 inhabitants (Nowicki 1987, 246; 1999, 158; 2000, 162; 2002, 156). Most defensible sites, however, were smaller in size and population. For example, Kavousi Vronda, which covered only 0.5 ha and shows a modestly dense pattern of occupation, is estimated to have had 100–150 inhabitants (Day 2016, 221; Klein & Glowacki 2016, 26). Lastly, in its 0.04 ha, the building complex at Malia Pezoula is likely to have housed a single extended family.

The notion that nucleated settlements grew in size and, accordingly, in population in the course of the Early Iron Age is explicit in gradualist approaches to Cretan settlements (Wallace 2010a, 236–8; 2010b, 67–8). This makes harder any estimate of the population of larger and long-lived urban centres. Ian Morris (1991, 29, 33; 2006, 74; 2007, 217, 219) estimated that Knossos extended over 100 ha (including the areas of the cemeteries) and housed a population of 1250–2500 in the beginning of the Early Iron Age, which grew to at

---

Chapter 6
least 5000 by c. 700 BC. Relying on the same estimate for the size of Knossos, Jonathan Hall (2014, 75) proposed a population figure of 1200–2500 to 3000–5000. A different estimate, based on his above-mentioned model of settlement development at Knossos, is provided by Whitelaw. Whitelaw (2000, 225, table 1; 2004, 156, fig. 10.8; followed by Wiener 2021) proposed that the population of the city grew from 800–1000 people in the eleventh century BC (Subminoan period), to 1400–1750 in the tenth and ninth centuries BC (Protogeometric period), then jumped to 5400–6750 in the eighth century BC (Geometric period), and shrank to 2000–2500 in the seventh century BC (Orientalizing/Protoarchaic period). The new evidence from KULP and the revised estimate of the size of Knossos (50–60 ha) has invited a reconsideration of the population estimate for the site in the Early Iron Age: according to Whitelaw, if occupation densities were in the range of 50–100 people/ha, the site would have housed some 2500–6000 inhabitants at its peak (Kotsonas 2019; cf. Whitelaw et al. 2019; for comparison, see Whitelaw 2017, 125, 144). Higher densities are assumed by Wallace (2010a, 234–6; 2010b, 68), as she takes Protogeometric and Geometric Phaistos to have occupied some 50 ha (its maximum in the Early Iron Age) and to have housed a population of 13,000 (contrast the much lower estimate of 13 ha offered in Sjögren 2003, 33, 39). Likewise, for Archaic Azoria, which covered more than 15 ha, she estimates a population of 6000 people.

Fluctuations in the number of burials have hardly been used for population estimates in the literature on Early Iron Age and Archaic Crete. This partly depends on the understanding that such fluctuations cannot be taken as a direct index of fluctuations in the living population at a given site, and may depend on social and ideological developments affecting traditions of – or access to – formal burial (Morris 1987, especially 72–86). Nonetheless, it is worth considering how the burial record of Early Iron Age Knossos – the only Cretan site with a wealth of published burial data from this period – relates to questions of demography.

Because of the widespread use of collective tombs, estimates on the number of burials at Knossos is fraught with difficulties. In his study of the burials from the extensive Knossos North Cemetery, William Cavanagh (1996, 659) noted: ‘Given the fragmentary nature of the evidence, disturbances caused by the repeated use of the tombs, robbing and dilapidation, it is very difficult to produce reliable statistics’ on the number of burials; the problem is aggravated by the time constraints that the excavators had for excavating and documenting the tombs of this site. To compensate for these problems, Cavanagh (1996, 659–60, fig. 9) produced a graph with two estimates of the number of burials at the Knossos North Cemetery (Fig. 6.6): a minimum estimate of 422 jars that typically contained cremations (these are both fine and coarse ware storage vessels, which are collectively – and confusingly – named pitheoi); and a maximum estimate of 671 urns, which also includes amphoras and kraters, two vessel types that are known to have held cremations only occasionally. As Cavanagh (1996, 660) noted, ‘the truth probably lies somewhere between’ these two estimates.

The estimates in question revealed relatively low numbers of burials for the earlier part of the Early Iron Age and a peak in the late eighth century BC. ‘No doubt … it is a result of an increase in population’ according to Cavanagh (1996, 660; but see the scepticism in Antoniadis 2017, 51–3), who connected this pattern to the increase in the number of burials identified on mainland Greek centres in the late eighth century BC, as well as to the northward expansion of the settlement of Knossos in the same period, which was hypothesized by Coldstream (see above). Significantly, Cavanagh produced a second graph (Fig. 6.7), in which he correlated the number of (potential) urns used in the different ceramic phases of the Early Iron Age with the estimated duration of these phases, which was uneven (with some individual phases extending over c. 20 years, and others over c. 50 years). This exercise revealed that the steep increase in the number of burials does not date from the late eighth century but from the second half of the ninth century BC, in the end of the Protogeometric period (Cavanagh 1996, 660, 662, fig. 10), which is a time of major expansion for Knossos, as now indicated by the findings of KULP discussed above.

Given the potential demographic value of Cavanagh’s analysis, I find it useful to compare the data from the Knossos North Cemetery to the data from the Knossos Fortetsa Cemetery, which basically covers the same time span (Brock 1957).6 The latter cemetery involves two clusters of tombs, but is smaller than the former. The tombs of Fortetsa were excavated in the interwar period by different scholars, hence the documentation of the fieldwork is uneven. Also, the site was published by James Brock, who did not participate in the excavations, several decades after these were held, which had an impact on the quality of documentation. Nonetheless, the different excavators of the tombs at Fortetsa systematically addressed the question of the number of burials in the excavation reports on the different tombs. These reports do not settle most of the vicissitudes that Cavanagh noted and make accurate statistics impossible, but they make possible a fairly reliable estimate of the number of burials.

Figures 6.8 and 6.9 are designed to compare to the charts by Cavanagh as closely as possible.7 These
Figure 6.6. Knossos North Cemetery: maximum and minimum number of cremation urns over time (courtesy of the British School at Athens).

Figure 6.7. Knossos North Cemetery: number of cremation urns per year (courtesy of the British School at Athens).

Figure 6.8. Fortetsa Cemetery: number of burials over time (V. Antoniadis, based on data provided by the author).

Figure 6.9. Fortetsa Cemetery: number of burials per year (V. Antoniadis, based on data provided by the author).
two charts suggest that Fortetsa yielded considerably fewer burials than the Knossos North Cemetery, but also reveal similar patterns of fluctuation over time. At both sites, numbers remain low for most of the Protogeometric period, and show a decrease in the Middle Protogeometric period which perhaps indicates that the length of the period is actually shorter than usually assumed (Kotsonas 2008, 34). In Fortetsa, as in the Knossos North Cemetery, the first peak in the number of burials comes in the late ninth century BC. However, unlike the Knossos North Cemetery, Fortetsa shows the highest peak in the number of burials in the early seventh century BC (Early Orientalizing/Early Protoarchaic period), rather than the late eighth. A significant part of this peak (roughly one third) is made up by the numerous early seventh-century BC burials in Fortetsa tomb P/I (Brock 1957, 98, 101). The notable increase in the number of early to mid-seventh burials manifested in this tomb has been observed – to a lesser extent – in other Knossian tombs (Kotsonas 2011b), but also in Tomb A1K1 at Eleutherna (Kotsonas 2008; cf. Agelarakis 2005) and tomb R at Aphrati (Levi 1927–1929), and is fairly representative of broader patterns of expansion in these cemeteries.

The notable increase in the number of burials in different Cretan cemeteries during the late eighth and especially the early to mid-seventh centuries BC may have some demographic significance. Indeed, this phenomenon may relate to the strong pattern of urbanization observed in Prinias and Azoria in the course of the seventh century BC. Conversely, the drop in the number of burials seen in both Fortetsa and the Knossos North Cemetery in the mid- to late seventh century BC cannot be taken to suggest a notable drop in population. Indeed, this drop can best be related to the demise of the established Knossian cemeteries from around 600 BC, to the probable introduction of different types of graves (single, as opposed to collective ones), to broader problems of the archaeological visibility of the sixth century BC in Knossos and other Cretan sites, and to major socio-political developments (Kotsonas 2002; Erickson 2010). In any case, this interpretation provides a warning against any straightforward interpretation of the demographic significance of major fluctuations in the number of burials.

**Economies of production**

A broad-based subsistence regime is assumed for Cretan communities throughout the Early Iron Age and the Archaic period. Earlier arguments for the development of economic strategies focused on pastoralism, which were based on the widespread attestation of defensible hilltop settlements in the transition from the Late Bronze to the Early Iron Age, have been found unconvincing (Wallace 2003; 2010a, 73–5). Nonetheless, the raising of live-stock is agreed to have been an important component of the Cretan economy through the first millennium BC, and is documented in textual sources from the Archaic period onwards (Chaniotis 1999, 192–205).

Other aspects of the economies of production in Early Iron Age and Archaic Crete have attracted less attention. However, scattered evidence from across the island sheds light on facilities and modes of production, and occasionally on their development through time.

Direct evidence for production facilities in Early Iron Age and Archaic Crete is relatively scarce with the exception of Knossos, which has yielded a range of remains from different phases. Several pottery kilns dating from the twelfth to the tenth centuries BC were recently unearthed at the Anetaki plot, west of the Minoan palace (which was ruined already by the end of the second millennium BC), while a seventh-century BC kiln was established immediately southwest of this palace (Coldstream & MacDonald 1997). To the northwest, just north of the Little Palace, Eleni Hatzaki excavated a Late Bronze Age domestic area that was given to open air industrial activity from the tenth to the seventh centuries BC (Hatzaki et al. 2008). This activity, which was probably located on the side of a road and not far from domestic remains, involved two clay-lined pans of enigmatic use. Archaeobotanical remains from this area indicate the deposition of oil production waste, which is excellent kiln fuel. In the seventh century BC, the same area carried one or two drains or water channels, and hearth pits with evidence for ironworking.

Metalworking installations remain rare in the archaeological record of Early Iron Age and Archaic Crete. However, the fill of a terrace at Anavlochos yielded displaced fragments of a metallurgical furnace, stone tools, few bronze and iron pieces and about 250 kg of iron slag, in association with Protogeometric to Late Geometric pottery (Zographaki et al. 2012–2013, 524–5). Also, seventh-century BC remains of the smelting of iron come from the sanctuary of Kommos suggesting the activity of transient ironworkers, while seventh- and sixth-century BC unfinished bronze offerings from Syme Viannou are taken to indicate that a bronze workshop was attached to this sanctuary (Lebessi 2002, 185–92; Lefèvre-Novaro 2014, 114; Birringer 2015). Evidence for other small-scale industrial activity is limited to a few sites (Sjögren 2003, 76–8; Wallace 2010a, 284–5). Most notable is the case of the domestic quarter immediately southwest of the palace of Phaistos, which included a pottery
Chapter 6

of the Late Bronze Age did not survive in the centuries which followed (Nosch 2020, 592). Tools for textile production which are found at many Cretan settlements of the Early Iron Age and the Archaic period suggest domestic production, but otherwise prevent any understanding of the scale and the organization of the industry.

Our understanding of this industry will be promoted significantly by the study of large bodies of textile tools from Karphi and Azoria by the members of the PROCON project (Gleba et al. forthcoming). The project is also revisiting the rare textile remains from Crete of this period. The largest body of such evidence comes from the Knossos North Cemetery and basically consists of mineralized textiles made of linen and wool (Cocking 1996). The wool textiles are woven in weft-faced tabby weave, which is a technique that is typical for Greece, the Eastern Mediterranean and the Near East (Gleba 2017).

In the Aegean Late Bronze Age, textile production involved an extensive labour force of women and children, while men (shepherds and flax cultivators) procured the fibre, and served as fullers and weavers (Nosch 2020, 592). Early Iron Age Crete and Archaic Crete has yielded poor evidence for gender roles in textile production. ‘A number of terra-cotta and stone weights used for weaving’, which were found in Room 7 at Kavousi Kastro, led Harriet Boyd (1901,
138, fn. 7) to identify in it ‘a workroom for the women of the family’. Conversely, the skeletal analysis of a male burial of the seventh century bc at Meseleroi, in east Crete identified deep grooves on the teeth, which resemble grooves often seen on the teeth of people who spin thread (Vogeikoff-Brogan & Kirkpatrick Smith 2009–2010). This find suggests that spinning was not exclusive to females, as is often assumed in the literature (cf. the evidence from Argilos presented by Perreault & Bonias, this volume).

Complex modes of production are indicated by finished objects and their find contexts. The richest evidence comes from the study of ceramics. Late ninth century bc (Protogeometric B) stylistic groups from Knossos and Prinias suggest the work of specialized potters/painters, and – in the case of Prinias – the consumption of this pottery by exclusive elite groups (Kotsonas 2013, 237–8). Also, prolific pottery workshops are identifiable in Knossos in the eighth century bc (Brock 1957, 148–9; Coldstream 1996, 318–19, 322–4).

An increased investment in the production and consumption of costly and elaborate artefacts can be identified from the late ninth century bc. The bronzes from the Idaean Cave, especially the tripods, the ‘shields’ and the bowls, particularly the pieces that carry figural decoration, attest to both a rise in economic surplus and the role of overseas connections, especially with the Near East (Kunze 1931; Matthäus 2000a; 2000b; Galanaki 2001). Cretan jewellery presents a comparable pattern, as evidenced especially by the Knossos ‘Tekke workshop’, which used gold, silver, amber and rock crystal to produce elaborate ornaments. My investigation of the distribution of these four, precious and largely imported materials in Knossian tombs reveals a marked drop at precisely the period the workshop was active (Kotsonas 2006). I have taken this to suggest that local elite groups controlled and regulated the flow of precious and exotic materials in eighth-century bc Knossos, and also managed the production and the distribution of the workshop’s output.

In the seventh century bc, craft specialization, mobility and the investment of surplus increased (cf. Kotsonas 2017). This is evidenced especially by the attestation of prolific sculpture workshops, the output of which is manifested most emphatically by the architectural sculpture of Temple A at Prinias (D’Acunto 1995), and the numerous incised stelae found in the cemetery of this site (Lebessi 1976). Most of the stelae show warriors in full armour, but one stele illustrates a woman holding a spindle and a distaff.

The best indirect evidence for a notable increase in the scale and intensity of production in seventh-century bc Crete is provided by storage vessels (pithoi) (Kotsonas 2002, 52; Brisart 2011, 243–53; Haggis 2013, 76; Lefèvre-Novaro 2014, 111–12). Although a systematic study of Cretan pithoi of the first millennium bc remains to be done, it is clear that these vessels increased in size and decorative elaboration during the seventh and sixth centuries bc. The production of Cretan pithoi apparently intensified in this period, during which groups of such vessels are found in extensive storage facilities at Azoria and Goulediana. The storage capacity of the facilities at both sites exceeds the needs of a single household and hints at community-level centralization and organization of foodstuffs. Indeed, the West Building at Azoria, which has an interior space of 140 sq. m and an estimated storage capacity of c. 31,000 l, dramatically affects our understanding of production economy not only in Archaic Crete but also in the entire Greek world (see especially Haggis & Mook 2017, 7–9). The scatter of fragments of Orientalizing/Protoarchaic and Archaic pithoi across the rural landscape, which is attested by surface surveys in central and east Crete, further indicates considerable changes in the scale and complexity of the production and consumption of foodstuffs on the island in the seventh and sixth centuries bc.

This brings the analysis to the issue of the economies of consumption, which is an important counterpart of the discussion above, but lies beyond the major research questions of this volume. Suffice it to say that this issue has received increased attention in recent years in the context of the archaeology of Crete. Most notably, the excavation at Azoria is the first project anywhere in the Classical Greek world to develop a set of research questions and methodologies specifically centred on urbanization and the economies of consumption.

Conclusion

In the last decade, the study of urbanization and socio-economic development in Crete of the first millennium bc has generated a fascinating and exceptionally dynamic discourse, which deserves close attention by specialists in other regions of Greece and the Mediterranean of the Early Iron Age and the Archaic period. The ideal way to promote this discourse and the understanding of Cretan cities is to test existing models of Cretan urbanization and current assumptions on the formative role of specific periods with problem-oriented, multi-pronged, systematic and extensive fieldwork, especially excavation at settlement sites. Such fieldwork can take us well beyond the textual paradigm that long dominated the study of Cretan cities and can generate a more nuanced understanding of the active and deliberate construction of urban and
social space. However, the history of research of the last decades suggests that Cretan archaeology of the first millennium BC can probably not support more than one or two such fieldwork projects at any one time. This means we also need to make the most of sites that have been researched extensively, but have hitherto not attracted the attention they deserve (often because they are not published in English); small sites like Malia Pezoula, to larger urban centres, like Prinias, Phaistos and Gortyn, can enrich the dataset provided by better known sites like Karkhi, Kavousi, Knossos or Azoria. Less well-known sites can greatly enhance our understanding of urbanization, demography and economy in Early Iron Age and Archaic Crete, and can provide invaluable insights into the ‘making of Cretan cities’.

Acknowledgements

I am grateful to Donald Haggis, Todd Whitelaw and the three anonymous reviewers for their advice on my text. I thank Vyron Antoniadis for his input in the section on demography, and Margarita Gleba and Bela Dimova for sharing advice and unpublished information on Cretan textile production in the Early Iron Age and the Archaic period. Several colleagues and institutions kindly prepared or provided illustrations, as acknowledged in the captions. This paper is dedicated to the memory of Jo Culter, a dear collaborator at KULP and co-organizer of the conference that led to this volume; I will miss Jo’s big smile.

Notes

1 Along the same lines, but independently of Alexiou, Nowicki envisages that ‘LM IIIC Knossos consisted of a great number of villages and hamlets scattered over a huge area … with several nuclei, the largest of which may have been in the area of old Minoan Knossos’ (Nowicki 2002, 153).

2 It is worth noting for comparative purposes that surface scatters of ceramics suggest a size of up to c. 40 ha for other Cretan Early Iron Age sites (Wallace 2010a, 62, fig. 11; 2010b, 67–8), and Phaistos is taken to have occupied a larger area of some 50 ha (Wallace 2010a, 234–6; 2010b, 68). Nonetheless, Haggis (2015, 228) has cautioned that in these cases ‘the actual distribution of material remains, their scale and meaning, by period, remain to be elucidated or at least critically evaluated’.

3 In more recent papers, Gaignerot Driessen (2017, 518–20) and Lefèvre-Novaro (2020) remain focused on the rise of the Cretan polis, but highlight the significance of the seventh (rather than – or in addition to – the eighth) century for this development. This comes, however, without due acknowledgement of earlier work which has argued for this at length (Kotsonas 2002) and, in the case of Lefèvre-Novaro 2020, of the groundbreaking relevant evidence from Azoria (Haggis 2014a; 2014b; 2015, esp. 229–31).

4 Haggis was the first to note this coincidence and to explain how my argument relates to his fieldwork at Azoria (Haggis 2014a, 120–1; 2014b, 11–17; 2015, 298, 230; 2020, 1079–83).

5 But note that Prinias Temples A and B are occasionally considered as andreia (Lamage 2019, 364–6), and also that early to mid-seventh century BC Azoria is poorly known yet, with the exception of the ‘Protoarchaic Building’ (on which see Haggis & Mook 2017, 16–19). In any case, the fortifications of Prinias compare to the monumental terrace walls of Azoria in terms of the energy invested in them and their symbolic role in tying the community together.

6 Numerous more tombs of the Early Iron Age have been excavated at Knossos, but the vast majority of these remains unpublished or is only known from preliminary reports. Accordingly, this material is not considered here. However, it is referenced in the entries I have composed for the online database of the project The Social Archaeology of Early Iron Age and Archaic Greece (http://aristeia.ha.uth.gr/index.php).

7 Figures 6.8 and 6.9 require some explanation. In the cases of a few tombs (P2 and P), the published reports give a straightforward list of urns and their date, but in most cases this information can be deduced from the descriptions of the excavation reports, which typically address explicitly the issue of the number of burials (these are inurned cremations, except for a couple of instances of inhumation), but are occasionally less straightforward than one would wish. Also, I drew information from Broc 1957, 147–51, as appropriate. Urns dated to more than one period (e.g. Middle Geometric – Late Geometric) were assigned to a specific period on the basis of probability as deduced from the numbers of burials securely assigned to the different periods. The Middle Orientalizing phase, which was established for the Knossos North cemetery material, was not used in the (earlier) publication of the Fortetsa cemetery. I have explained elsewhere that there is not enough ground to accept the existence of such a phase, and the material assigned to the Middle Orientalizing is best taken to belong to a transitional stylistic phase between the Early and Late Orientalizing periods (Kotsonas 2008, 35). For a different quantification of the burials from Fortetsa see Whitley 2015, 293, table 1.

8 This context was excavated and published as two different tombs, P and I, but it was explicitly identified as a single tomb, hence the conventional reference to Fortetsa tomb P/I, which I use.

9 I am grateful to Athanasia Kanta for sharing this information. For an overview of the excavation see Kanta 2018.

10 For the press see Haggis et al. 2011b, 46–61; for the ceramic kiln see Haggis & Mook 2014, 12–14; for the ironworking furnace see Haggis & Mook 2017, 17–18.

11 For textile production in Classical and Hellenistic Crete see Chaniotis 1999, 206–7. The weaving and dyeing
establishment at Ayios Georgios Papourea, which is mentioned in Wallace 2010a, 285, is not Archaic but Hellenistic in date, even though the structure has an Archaic phase.  

12 The more recent investigation of the same room produced no further weaving equipment (Gesell et al., 1995, 107).  

13 This excludes rock crystal, which is available on Crete.  


References


74


Large and complex settlements appeared across the north Mediterranean during the period 1000–500 BC, from the Aegean basin to Iberia, as well as north of the Alps. The region also became considerably more interconnected. Urban life and networks fostered new consumption practices, requiring different economic and social structures to sustain them. This book considers the emergence of cities in Mediterranean Europe, with a focus on the economy. What was distinctive about urban lifeways across the Mediterranean? How did different economic activities interact, and how did they transform power hierarchies? How was urbanism sustained by economic structures, social relations and mobility? The authors bring to the debate recently excavated sites and regions that may be unfamiliar to wider (especially Anglophone) scholarship, alongside fresh reappraisals of well-known cities. The variety of urban life, economy and local dynamics prompts us to reconsider ancient urbanism through a comparative perspective.