

# The Maritime Economy of Ancient Cyprus in Terms of the New Institutional Economics



Andreas P. Parpas





# The Maritime Economy of Ancient Cyprus in Terms of the New Institutional Economics

Andreas P. Parpas

ARCHAEPRESS ARCHAEOLOGY



ARCHAEOPRESS PUBLISHING LTD  
Summertown Pavilion  
18-24 Middle Way  
Summertown  
Oxford OX2 7LG

[www.archaeopress.com](http://www.archaeopress.com)

ISBN 978-1-80327-247-4  
ISBN 978-1-80327-248-1 (e-Pdf)

© Archaeopress and Andreas P. Pappas 2022

Cover: *Olympias*, the Hellenic Navy's reconstructed ancient Athenian *trieres* in 1987, at Flisvos at Palaeon Phaleron (photo: the author)

This book is available in print and as a free download from [www.archaeopress.com](http://www.archaeopress.com)



This work is licensed under a Creative Commons  
Attribution-NonCommercial-NoDerivatives 4.0 International Licence

*To Irene, Alexandros, Sophia Irena and Andrea*



# Contents

List of Figures .....	vi
List of Tables .....	viii
Preface .....	ix
Abbreviations .....	x
Chronology Chart .....	xi
<b>Chapter 1 The New Institutional Economics (NIE)</b> .....	1
INTRODUCTION .....	1
Economic History .....	2
The New Institutional Economics (NIE) .....	3
<b>Chapter 2</b>	
<b>Part I: The First Economic Cycle: The Maritime Economy of Ancient Cyprus During the Age of Internationalism (1450–1200 BC)</b> .....	7
INTRODUCTION .....	7
THE INTERNATIONAL HISTORICAL BACKGROUND .....	11
Cyprus' relations with the Great Powers of Egypt and Hatti .....	12
THE ECONOMIC AND SOCIO-POLITICAL LANDSCAPE OF LBA CYPRUS AND ITS INSTITUTIONS .....	14
THE URBAN ADMINISTRATIVE CENTRES AND SETTLEMENTS DURING THE FIRST ECONOMIC CYCLE .....	18
Enkomi .....	19
Hala Sultan Tekke .....	20
Kition .....	21
Maroni .....	21
Kalavassos <i>Ayios Dhimitrios</i> (KAD) .....	23
Alassa .....	25
Palaepaphos .....	27
Maa <i>Palaeokastro</i> .....	28
Pyla <i>Kokkinokremos</i> .....	29
Morphou <i>Toumba tou Skourou</i> and Myrtou <i>Pighades</i> .....	29
Peripheral settlements in north Cyprus .....	30
THE MARITIME ECONOMY, ITS INFRASTRUCTURE, ORGANISATION, AND DEVELOPMENTS .....	30
The maritime economy .....	30
Evidence from maritime archaeology .....	32
A typical trading port in the LBA Eastern Mediterranean .....	34
Harbour operation and administration .....	35
Tax and import duties, transit taxes and right to grant tax exemption .....	37
Cost, size, and ownership of ships .....	38
Did Alashiya possess a military fleet? .....	39
Pirates, coastal mariners, and economic mercenaries .....	40
INTERNATIONAL DEVELOPMENTS, RELATIONS, AND TRADE .....	41
The Amarna letters and diplomacy .....	41
Archives from Ugarit .....	46
Common maritime and mercantile zones and long-distance trade .....	48
International customary law and norms of the sea .....	50
INSTITUTIONS, INTERRELATIONS, AND INTENSIFICATION OF THE ECONOMY .....	53
State and private enterprise; nature of relations .....	55
COPPER PRODUCTION, EXPORT PROCESS, AND TRADE – AN INSTITUTIONAL ACTIVITY .....	58
WEIGHTS AND MEASURES, THE CONCEPT OF MONEY AND CREDIT .....	62
The concept of credit .....	63
DOCUMENTATION AND WRITING .....	63

THE ROLE OF TEMPLES AND SANCTUARIES IN THE MARITIME ECONOMY .....	64
CASE STUDY: THE ECONOMIC MODEL OF KALAVASOS AYIOS DHIMITRIOS (KAD) .....	65
KAD economic model .....	66
Olive Oil .....	66
Wine .....	71
Wheat .....	71
Other products .....	71
Conclusion .....	72
MARKETING SURVEY – INTERNATIONAL PRICES – COMPARISON TABLES AND CHARTS .....	73
Branding .....	73
Trade and prices of copper .....	74
Trade of tin .....	75
Trade and prices of wheat, barley, and emmer .....	75
The trade and prices of olive oil and aromatics .....	76
The trade and prices of wine .....	77
The trade and prices of textiles .....	77
Bronze products and the weapon industry, Cypriot cross-selling exports .....	79
Pottery, an added-value commodity .....	79
The aggressively open economy and human capital, Cypriots travelling and living overseas .....	80
Marketing survey summary .....	81
CONCLUSION .....	84

## Chapter 3

<b>Part II: The Second Economic Cycle: The Maritime Economy of Ancient Cyprus During Political Volatility, Economic Growth and Transformation (1200–525 BC) .....</b>	<b>85</b>
INTRODUCTION .....	85
THE INTERNATIONAL HISTORICAL BACKGROUND .....	86
The collapse of the LBA international system .....	87
The Assyrian Empire .....	89
The Neo-Assyrian Empire and Cyprus .....	90
The disintegration of the Assyrian Empire, the rise of the Achaemenids, and the surrender of Cyprus to the Persian Empire c. 525 BC .....	93
THE NEW ECONOMIC AND SOCIO-POLITICAL ENVIRONMENT .....	94
THE SECOND ECONOMIC CYCLE, URBAN ADMINISTRATIVE CENTRES AND CITY-STATES .....	97
Hala Sultan Tekke .....	97
The Kalavassos and Maroni Valleys .....	97
Alassa .....	98
Maa <i>Palaeokastro</i> and Pyla <i>Kokkinokremos</i> .....	98
Salamis-Enkomi .....	100
Kition .....	101
Palaepaphos .....	103
Idalion .....	104
Amathus .....	104
Kourion-Episkopi <i>Bamboula</i> .....	105
Soloi .....	105
Marion .....	105
Lapethos .....	105
Tamassos, Chytroi and Ledra .....	105
MARITIME ECONOMY AND INFRASTRUCTURE, SHIP CONSTRUCTION, LONG-DISTANCE TRADE, PORTS AND HARBOURS .....	106
The maritime economy, long-distance trade, and its new forms of organisation .....	106
Ports, harbours and anchorages .....	108
Merchantmen .....	110
Hull construction .....	112
Rigging .....	115
Tanit and Elissa shipwrecks, a typical Near Eastern maritime venture .....	116
Warships and sea warfare .....	117

Cost of ships.....	118
INTERNATIONAL DEVELOPMENTS AND RELATIONS DURING THE NEO-ASSYRIAN PERIOD .....	120
Cyprus in the shadow of the Neo-Assyrian Empire .....	121
The first state-controlled economy in history.....	121
The Assyrian naval presence in the Eastern Mediterranean.....	124
Customs, practices, and regulations governing international trade.....	126
A maritime transaction with an Assyrian royal merchant, <i>tamkārū</i> or ambassador, <i>qēpu</i> .....	128
THE PRODUCTION AND TRADE OF COPPER, IRON, AND SILVER. NEW FEATURES TO AN OLD INSTITUTION .....	128
DEMAND OF HIGH ADDED-VALUE MANUFACTURED PRODUCTS ALONG WITH PROCESSED AGRICULTURAL GOODS AND TEXTILES AND ITS EFFECT ON CYPRUS MARITIME ECONOMY .....	132
Metalwork and orientalising luxury products.....	132
Processed agricultural products. The Kekova Adasi, Kepce Burnu, and Cayagic Koyu shipwrecks .....	134
Textiles .....	135
NETWORKS OF INTERACTION AND THE CYPRIOT MARITIME COMMERCIAL AND CULTURAL EXPANSION IN THE MEDITERRANEAN .....	136
Who were the Phoenicians?.....	137
The Phoenician expansion and the Cypriot connection .....	138
Cyprus and the Aegean.....	140
Cypriot presence at Al-Mina .....	143
Cypriot ceramic trade networks in the southern Levant during the 8th and 7th centuries BC .....	143
Cyprus and Naukratis.....	145
SHIPS OF WAR AND NAVAL SERVICES. NEW AND DIVERSIFIED ACTIVITIES OF THE CYPRIOT ECONOMY .....	146
Ships-of-war and the probable cost and funding of naval expeditions .....	147
Weapon manufacture.....	148
MONEY, CREDIT, FINANCE, AND THE WEIGHTS AND MEASURES SYSTEM .....	150
DOCUMENTATION, WRITING, AND LANGUAGE .....	152
TEMPLES AND RELIGIOUS INSTITUTIONS .....	153
Case study – A plausible economic model of the involvement of the temple in the production and distribution of textiles, dyed wool, and garments .....	155
CASE STUDY – COPPER EXPORTS FROM SALAMIS –THE CONTINUITY OF AN INSTITUTION .....	157
MARKETING SURVEY – INTERNATIONAL PRICES – COMPARISON TABLES AND CHARTS .....	161
Branding.....	161
Trade and prices of metallurgy products, copper, iron and tin .....	162
Trade and prices of wheat, barley, and emmer .....	165
Trade and prices of textiles.....	166
Marketing survey summary .....	167
CONCLUSION .....	168

## Chapter 4

### Part III: The Third Economic Cycle The Maritime Economy of Ancient Cyprus in the Persian Empire Until its Annexation in the Ptolemaic Kingdom (525–295 BC).....

INTRODUCTION.....	170
THE INTERNATIONAL HISTORICAL BACKGROUND .....	173
A period of volatility and military conflict (525–449/48 BC).....	175
A period of economic development, the Peace of Kallias (449/448–411 BC) .....	177
Evagoras’ drive to become hegemon of Cyprus, the King’s Peace (411–387/386 BC).....	177
From the King’s Peace to Alexander the Great and the annexation of Cyprus in the Ptolemaic Kingdom (387/386–295 BC) .....	178
THE IONIAN REVOLT (499–494 BC) AND THE CYPRIOT UPRISING IN 498 BC.....	179
THE ECONOMIC AND SOCIO-POLITICAL LANDSCAPE OF CYPRUS AND ITS INSTITUTIONS .....	184
THE CITY-STATES DURING THE THIRD ECONOMIC CYCLE .....	185
Population.....	186
Salamis.....	188
Kition .....	189
Idalion.....	190
Amathus .....	190
Kourion.....	191

Palaepaphos-New Paphos .....	191
Marion .....	191
Soloi .....	192
Lapethos .....	192
Tamassos .....	193
THE MARITIME ECONOMY AND NAVAL INFRASTRUCTURE .....	193
The maritime and naval economies .....	193
Harbours, ports, and anchorages .....	193
Shipheds – Kition .....	196
New advances in warships .....	197
The sail-making industry .....	201
Evidence from maritime archaeology .....	201
The Alonessos shipwreck .....	202
The Mazotos, Ma’agan Mikhael, and Kyrenia shipwrecks .....	202
The Mazotos shipwreck .....	202
The Ma’agan Mikhael shipwreck.....	203
The Kyrenia shipwreck .....	203
Size of ships and nature of cargo .....	205
THE PERSIAN FISCAL ADMINISTRATION AND TRIBUTE SYSTEM.....	206
THE PERSIAN ROYAL NAVY IN THE MEDITERRANEAN AND THE TRIBUTE SYSTEM .....	210
THE CYPRIOT FISCAL ADMINISTRATION, AND PSEUDO-ARISTOTLE’S <i>OIKONOMIKA</i> , BOOK 2 .....	212
<i>Oikonomika</i> Book 2, Section 1.....	213
The handling of surpluses, the ‘Persepolis Fortification Texts’; and the ‘Idalion Archive’ .....	214
The ‘Persepolis Fortification Texts’ .....	214
The ‘Idalion Archive’ .....	214
The administrative ostrakon from the West Complex at Palaepaphos, Hadjiabdullah plateau.....	215
The Idalion Tablet. Revenues from land production and harvest, land ownership, hereditary transfer and sale of land.....	215
The Kourion Inscription. Land registry as proof of ownership and allocation of taxes .....	217
Revenues from the operation of ports and trade in market places.....	218
Revenues from copper mines and shipbuilding timber .....	219
THE INTERNATIONAL GRAIN TRADE.....	220
Production of grain in Cyprus .....	221
Athens’ grain shortage.....	221
Royal grain surplus.....	223
Cypriot grain trade.....	224
COINAGE, CREDIT, AND FINANCE.....	226
Coinage weights and standards.....	226
Linguistic variations and use of symbols and iconography.....	227
Political economy .....	227
Credit and finance .....	228
Finance for international trade – Demosthenes’ speech <i>Against Lakritos</i> .....	229
RELIGION, THE TEMPLES, AND SANCTUARIES .....	231
DOCUMENTATION – LANGUAGE.....	232
THE NAVAL WAR OF THE EASTERN MEDITERRANEAN (334–331 BC). CYPRIOT PARTICIPATION: A CASE-STUDY OF COSTS AND FINANCIAL IMPLICATIONS .....	233
Infrastructure.....	234
Ships .....	235
Crews .....	236
Provisioning.....	236
Pay.....	237
Summary and conclusions .....	237
MARKETING SURVEY – INTERNATIONAL PRICES – COMPARISON TABLES AND CHARTS .....	238
Trade and prices of metals.....	239
Trade and prices of grain .....	240
Trade and prices of wine .....	242
Trade and prices of olive oil.....	244

Trade and prices of salt .....	244
Cost of shipping .....	245
The movement and mobility of people, the human capital .....	245
Marketing survey summary .....	245
CONCLUSIONS .....	246
<b>Appendix: Weights and measures, prices and means of exchange, consumption, conversions and production rates .....</b>	<b>248</b>
<b>Bibliography .....</b>	<b>257</b>

## List of Figures

Figure 1:	Map of the international system and territorial states c. 1400 BC .....	11
Figure 2:	Cyprus and its major urban administrative centres, ports and settlements during the First Economic Cycle .....	18
Figure 3:	The Ashlar Building at Enkomi of administrative and religious character.....	19
Figure 4:	Enkomi ground plan .....	20
Figure 5:	Maroni and Kalavassos valleys .....	22
Figure 6:	Kalavassos Ayios Dhimitrios Building X, with an estimated total olive oil storage capacity of 50,000 l .....	24
Figure 7:	Silver figurine depicting a Hittite god, excavated at Kalavassos Ayios Dhimitrios .....	25
Figure 8:	Ayios Dhimitrios settlement .....	26
Figure 9:	Map of the Paphos area, showing the major copper-producing areas on the southern slopes of Mt Troodos in relation to the Palaepaphos urban centre.....	27
Figure 10:	Aerial photo of the Maa Palaeokastro settlement site; The north fortification walls at Maa Palaeokastro .....	28
Figure 11:	Ground plan of the 1981–1982 excavations at Pyla Kokkinokremos .....	29
Figure 12:	Reconstructed altar with horns of consecration made from ashlar masonry blocks at Myrtou Pighades .....	30
Figure 13:	The maritime economy of Cyprus during the LBA. ....	31
Figure 14:	Proposed organisation chart for the main port of Ugarit (drawing: Philipos Vasiliades).....	35
Figure 15:	The kingdom of Ugarit during the 13th century BC; The palace and residence of the elite officials and traders .....	47
Figure 16:	Schematic map of shipping routes in the Eastern Mediterranean originating from Cyprus .....	49
Figure 17:	Map of Cyprus, indicating the Upper and Lower Pillow Lavas and the distribution of ancient slag heaps .....	59
Figure 18:	Proposed bulk copper production and export process .....	61
Figure 19:	The sacred precinct in Area II at Kition.....	65
Figure 20:	International and local exchange mobilisation .....	66
Figure 21:	Kalavassos Ayios Dhimitrios olive oil production and long-distance trade.....	67
Figure 22:	Overland transport for 30,000 l of olive oil with a caravan of twenty donkeys.....	69
Figure 23:	Combination of land and sea transport .....	70
Figure 24:	KAD potential net annual gross income, over a good harvest year, from the long-distance trade of olive oil and exchange of wine.....	73
Figure 25:	Four-sided ceremonial bronze stand. The figure carrying the copper ingot towards a tree indicates the role between production and the trade of copper and elite ritual .....	74
Figure 26:	Prices of copper and tin in Egypt and Ugarit.....	75
Figure 27:	Prices per 100 litres of barley and wheat in Egypt, Hatti, and Ugarit at the end of the First Economic Cycle and the 19th Dynasty .....	76
Figure 28:	Proposed purple-dyed textile household/workshop installation at Hala Sultan Tekke settlement .....	79
Figure 29:	International commodity prices in the First Economic Cycle .....	83
Figure 30:	The Neo-Assyrian Empire in 700 BC.....	89
Figure 31:	Map of the sites where monuments and steles of Sargon II have been found outside the Assyrian heartland .....	92
Figure 32:	The stele of Sargon II from Kition; Front of Sargon's Najefahabad Stele .....	92
Figure 33:	Map of Cyprus showing the sites mentioned in the text .....	97
Figure 34:	Tomb 79 from the Salamis necropolis.....	100
Figure 35:	Plan of the area between Salamis and Enkomi, showing the location of the Salamis necropolis .....	101
Figure 36:	Aerial view of the excavated remains at Kition showing the fortification walls, the workshops, and the 'sacred area', 13th – 12th century BC.....	102
Figure 37:	The remains of Sanctuary I at Palaepaphos, showing the massive monolithic blocks .....	103
Figure 38:	Aerial view of the fortified palatial complex at Idalion .....	104
Figure 39:	Reconstruction of Kition's ancient harbour during the 4th century BC.....	109
Figure 40:	Typical LBA/IA hulls with keel and pegged mortise and tenon joints .....	113
Figure 41:	The original wreck at Kyrenia castle.....	114
Figure 42:	Ship graffito on a stele at Enkomi; ship graffito from Nahal Me'arot in Israel, dated 13th – 11th century BC.....	115
Figure 43:	Terracotta model of cargo ship from Kalo Khorio-Zithkionas .....	116
Figure 44:	Drawing of a typical oared galley from the relief in the palace of Sennacherib at Nineveh .....	117
Figure 45:	Olympias, the Hellenic Navy's reconstructed ancient Athenian trieres in 1987; Close-up of the rowing arrangements at three levels of a typical trieres galley.....	119
Figure 46:	Monthly LBA/EIA salaries in the Eastern Mediterranean; Estimated construction costs of ships .....	120
Figure 47:	Trading routes during the Neo-Assyrian period.....	122
Figure 48:	The Neo-Assyrian world trade network, karu .....	123
Figure 49:	The Yamanean and Assyrian conflict zone, showing piratic activities and raids in the triangle between the Levantine coast, Cyprus, and Kilikia .....	124
Figure 50:	Assyrian naval domination along the Levantine coast .....	125
Figure 51:	Luxury furniture with ivory decorations found in Tomb 79 at the Salamis Necropolis.....	133
Figure 52:	The cauldron found within the Salamis 'Royal Tombs' .....	134
Figure 53:	Map of trading routes in the Mediterranean during the Second Economic Cycle .....	137
Figure 54:	Cypriot White-Painted and Bichrome ceramics as shown in the fragments exported to Dor .....	144
Figure 55:	Typical iron and bronze weapons, as well as arrow heads of Cypriot manufacture .....	148

Figure 56: Distribution of Cypriot EIA weapons.....	149
Figure 57: The silver-studded iron sword from the dromos of Salamis Tomb 3, dated c. 600 BC. A quiver with arrows, a bronze spear and shield were found next to the sword .....	150
Figure 58: Greek Cypro-Syllabic inscription of King Onasicharis of Paphos.....	153
Figure 59: Proposed wool and purple-dyed textile and garment production for local distribution and long-distance trade ...	157
Figure 60: Eastern Cyprus, showing riverine routes from Tamassos via the Pedieos River, and Idalion via the Yialias River to Salamis .....	158
Figure 61: Copper trade routes from Cyprus to Mesopotamia during the First and Second Economic cycles, using sea, land, and river routes .....	160
Figure 62: Prices of copper, tin, and iron in Egypt, Babylonia, and Athens during the Second Economic Cycle.....	164
Figure 63: Prices of tin in Ugarit, Babylon, and Athens.....	164
Figure 64: Prices of barley and emmer in Egypt at the beginning of the Second Economic Cycle.....	165
Figure 65: Price variation of barley per 15,000 l barley in Egypt at the beginning of the Second Economic Cycle.....	165
Figure 66: The Persian Empire.....	174
Figure 67: The Northern Gate at Palaepaphos, seen from inside the city .....	181
Figure 68: The Vouni Palace; The East and West Complex at Palaepaphos Hadjiabdoullah .....	183
Figure 69: Salamis' harbours and probable location of shipsheds.....	194
Figure 70: The 'closed port' at New Paphos .....	195
Figure 71: Reconstructed section of the Kition shipshed, phase 1 .....	197
Figure 72: Ramps and slipway structures of Kition's shipsheds; Location of Kition shipsheds .....	198
Figure 73: Inscription on the base of a statue at the temple of Palaepaphos; Bronze ram fitted on 'Olympias' .....	200
Figure 74: Replica of the Kyrenia shipwreck, Kyrenia II.....	204
Figure 75: Reconstruction of the amphorae found at the site of the Kyrenia shipwreck .....	205
Figure 76: Darius' tomb at Persepolis .....	206
Figure 77: Cyrus' tomb at Pasargadae.....	207
Figure 78: Ostrakon ID A 446 from Idalion; Ostrakon ID A 443 from Idalion.....	215
Figure 79: Administrative ostrakon with Cypro-Syllabic inscription from the West Complex at Palaepaphos Hadjiabdoullah.....	216
Figure 80: Grain cultivation dominated Cyprus' agriculture in 1844 .....	221
Figure 81: Lusignan period steady decline in population; Fluctuation in grain production .....	222
Figure 82: The Cypriot navy during the siege of Tyros, attacked from the Sidonian port .....	234
Figure 83: Ratios of silver to copper from First, Second and Third Economic Cycles.....	240
Figure 84: Ratios of silver to iron, and copper to iron from Yamana in Babylon 550 BC and in Athens 500 BC - 350 BC.....	240
Figure 85: Prices of copper and iron in Babylon 550 BC, and Greece 500-300 BC .....	240
Figure 86: Prices of grain in the Near East and Athens from the First, Second, and Third Economic Cycle.....	242
Figure 87: Prices of wine in the Near East and the Aegean from the First, Second and Third Economic Cycles .....	243
Figure 88: Prices of olive oil, First to Third Economic Cycles .....	244
Figure 89: Comparison of prices in Athens of salt during the siege of Athens with top-quality wine and copper .....	245

## List of Tables

Table 1:	Major buildings in urban administrative centres.....	57
Table 2:	Comparison table of the prevailing international prices in the Near East market during the First Economic Cycle.....	82
Table 3:	Cypriot participation in the navies and armies of foreign powers (9th/8th centuries BC to 525 BC).....	147
Table 4:	Ratios of silver to metals.....	163
Table 5:	525–449/48 BC.....	176
Table 6:	411–387/386 BC.....	177
Table 7:	387/386–295 BC.....	178
Table 8:	Tonnage of mixed cargo from Sidonian ships to Egypt in 475 BC (After Stager 2003: 242, Table 3.).....	206
Table 9:	Total farmland and areas under crops in the 19th and 20th centuries (Jenness 1962: 66–71).....	221
Table 10:	Estimated sources of grain in Athens in the mid 4th century BC.....	222
Table 11:	Approximate absolute values and approximate average ratios of values of metals during the Third Economic Cycle in Greece.....	239
Table 12:	Prices and values of grain from the First to the end of the Third Economic Cycle.....	241
Table 13:	Prices and values of wine from the First to the Third Economic Cycle.....	243
Table 14:	Comparison of prevailing international commodity prices in the Eastern Mediterranean during the Third Economic Cycle.....	246

## Preface

Some 52 years ago and 25 kg lighter, I served as a communications and radar operator in the Cypriot navy. During my military service I developed an affinity for matters of the sea that I carried with me for the rest of my life. Perhaps this might be the reason that most of my books have to do with historical affairs related to the sea.

In my professional life, as the Managing Director of the Near Eastern operations of a multinational organisation based in Dubai I was introduced to the New Institutional Economics (NIE) theory whose norms I applied extensively in my daily business. I have seen first-hand how institutions, the role of which is to define the rules of the game, can bring economic growth and success, as well as how they benefited the organisations reporting to me, how they evolved and transformed, as well as what uncertainty and chaotic volatility was created in their absence and malfunction.

Therefore, I decided to write this book and try to reconstruct the maritime economy of ancient Cyprus by bringing together my knowledge and first-hand experience in NIE analysis and love as well as interest for the sea and Cyprus' ancient history. No such attempt has been made before and I hope my work and ideas can pave the way for scholars and researchers to deal with this very interesting subject even further.

In writing this book I am greatly indebted to my colleagues in the firm I worked in, who introduced me to NIE and cooperated with me for its implementation during my fifteen years of service in Dubai for the twelve Near Eastern countries that were under my responsibility. I also wish to thank Professor A.B. Knapp for reading through an early draft of the First Economic Cycle of my book and for his helpful and insightful comments and criticism, as well as the lively discussions we had. I am also indebted to Professors Theodoros Mavrogiannis and Maria Iacovou of the University of Cyprus for their guidance, support and constructive comments. I also want to thank Dr Chris Monroe for his useful comments and suggestions and Dr Christina Ioannou for reading through the final draft and for her input and suggestions, as well as the useful discussions we had in relation to Part Three of the book.

Last but not least, my special thanks go to Dr Artemis Georgiou, an Assistant Professor of Research at the University of Cyprus for her input and assistance during the final stages of the First and Second Economic Cycles. Her thorough and diligent work helped me fill in the gaps in my knowledge of Cypriot Archaeology. I should also like to acknowledge her valuable advice on editing and restructuring the way I presented some of my thoughts and ideas. We agreed on many topics, we even agreed that there are topics on which we disagree. For any errors or omissions in the book I am solely responsible.

As always, my special acknowledgements and thanks go also to my long-standing associates, Stavros Lazarides and Philipos Vasiliades for his graphics and illustrations, as well as to my niece Katerina Parpas for her illustrations and artistic work. My thanks also go to Arhaeopress management and editing team for their excellent work and cooperation. I would also like to express my appreciation to the Department of Antiquities in Cyprus for their cooperation and permission for the use of photographs from their archives and archaeological sites.

Finally, I would like to say that I am a great believer in using actual Greek words and names instead of the traditional Latin versions. Therefore, for example, I write Kition instead of Citium, Herodotos instead of Herodotus, Kilikia instead of Cilicia, Ptolemaios instead of Ptolemy, *emporion* instead of emporium, *trieres* instead of trireme, and so on. In the case of internationally acknowledged names, such as Alexander the Great, I do not go for the Greek version. Of course, if it were 'latinised' into Alexandrus Magnum I would definitely go for Megas Alexandros !

Andreas P. Parpas

# Abbreviations

ARU	Archaeological Research Unit
BASOR	Bulletin of American Schools of Oriental Research
CJ	Canaanite jar
CTH	Laroche, E. 1971. Catalogue des Textes Hittites
<i>dbn</i>	<i>Deben</i>
EA	El Amarna
EIA	Early Iron Age
HST	Hala Sultan Tekke
IA	Iron Age
KAD	Kalavassos <i>Ayios Dhimitrios</i>
KAMBE	Kalavassos Maroni Building Environments
KBo	Keilschrifttexte aus Bogazkoy
KTU	Die Keilalphabetischen Texte aus Ugarit
KUB	Keilschrift Urkunden aus Bobazkoy
LBA	Late Bronze Age
LPG	Liquid Petroleum Gas
LC	Late Cypriot
MBA	Middle Bronze Age
MC	Middle Cypriot
MTC	Maritime Transport Containers
NIE	New Institutional Economics
PULP	Palaepaphos Urban Landscape Project
RDAC	Report of the Department of Antiquities Cyprus
RLW	Red Lustrous Wheel made
RS	Ras Shamra
TSJ	Transport stirrup jar
TSPA	Thin Section Petrographic Analysis
Ug.skl	Ugaritic Shekel

## Chronology Chart

Relative chronology	Absolute chronology (Approximate date)	Economic Cycles
Late Cypriot IIA	1450–1350 BC	First Economic Cycle (1450–1200 BC)
Late Cypriot IIB	1350–1300 BC	
Late Cypriot IIC	1300–1200 BC	
Late Cypriot IIIA	1200–1100 BC	Second Economic Cycle (1200–525 BC)
Late Cypriot IIIB	1100–1050 BC	
Cypro-Geometric I	1050–950 BC	
Cypro-Geometric II	950–900 BC	
Cypro-Geometric III	900–750 BC	
Cypro-Archaic I	750–600 BC	
Cypro-Archaic II	600–480 BC	
Cypro-Classical I	480–400 BC	
Cypro-Classical II	400–300 BC	Third Economic Cycle (525–295 BC)
Hellenistic	300–50 BC	



## Chapter 1

# The New Institutional Economics (NIE)

### INTRODUCTION

The current global economic volatility and uncertainty and the need to find a rational response to the rather complex process that drives today's international economies makes studies on ancient economic history an invaluable asset. This work deals with economic change over time and its purpose is to reconstruct the maritime economy of ancient Cyprus. Therefore, I will work within boundaries defined by economic cycles instead of the traditional boundaries of political, cultural and physical geography, historians and archaeologists are used to. This way, I believe, there is a better chance to reach my objective, which is to connect ancient Cyprus to its maritime economic history, which was a truly international affair.

This present work comprises three parts that correspond to three different economic cycles spanning from 1450–295 BC.

The first part, under the title 'The First Economic Cycle: The Maritime Economy of Ancient Cyprus during the "Age of Internationalism" (1450–1200 BC)', deals with the period between 1450–1200 BC, a period of intense economic development and complexity. The First Economic Cycle is characterised by strong territorial, centrally controlled states. Around 1450 BC the highly centralised states and palatial systems that dominated the global economy of the LBA<sup>1</sup> period embarked on a journey of globalisation and stable financial integration, as well as international transactions and activities. This unique financial and social environment marked by stable and functioning institutions, international diplomacy, safety and mobility, which created a common maritime and mercantile zone and long-distance trade that maximised wealth accumulation for all people of Eastern Mediterranean, collapsed and came to an end c. 1200 BC. The year 1200 BC, which is the end of the First Economic Cycle, is also considered the end of an era and a new beginning. For the reasons cited above, these two hundred and fifty years, that comprise the First Economic Cycle, are unique in the history of Eastern Mediterranean. For the same reasons they are also unique for the history of Cyprus. The island, for the duration of this period, aligned and integrated its maritime economic activities with the stable international system. Cyprus' success during this

period is attributed to an aggressively open economy based on its functioning institutions and a diverse export portfolio – with copper as its star product. If, God forbid, the 21st-century Covid-19 pandemic developed to its worst scenario, we might be confronted with the kind of institutional failures that contributed to the collapse of the stable financial international system that distinguishes the end of our First Economic Cycle.

The second part, 'The Second Economic Cycle: The Maritime Economy of Ancient Cyprus during Political Volatility, Economic Growth and Transformation (1200–525 BC)' deals with the period between 1200–525 BC, that is from the time most of the stable political and financial international system of Eastern Mediterranean collapsed until c. 525 BC, when Cyprus came under the direct influence of the Persian Empire. The year 1200 BC again marks the end of an era and the beginning of a new one, characterised by an initial period of turmoil, economic volatility and downturn caused by the collapse of the strong territorial, centrally controlled states. After this initial period there followed an eventual recovery, economic growth, entrepreneurship, and transformation, and the strong territorial states gave way to a network of smaller states. The period of volatility and uncertainty, as from the start of the first millennium, gave way gradually to a more stable world system, when the network of smaller states came under the control of one dominant military and economic power, the Assyrian Empire. Assyria's domination brought economic stability by the creation of a tight, state-controlled, Assyrocentric economic network, characterised by efficient communications and mobility. After its demise in the late 7th century BC, and as from the late 6th century BC, the Near East came under the influence of a new master, the Persian Empire. In the first centuries of the Second Economic Cycle, Cyprus' geopolitical environment and maritime economy did not follow strictly the international trend. After the collapse of the international stable economic system its maritime activities continued and expanded across the Aegean – all the way to Iberia as well as to the Levant. In the meantime, the island underwent a process of institutional transformation and internal fragmentation, with the creation of a number of independent city-states,<sup>2</sup> each having its own economic system through which individual maritime economies

<sup>1</sup> See Chronology Chart and Abbreviations.

<sup>2</sup> There are several terms used to describe the Cypriot kingdoms, e.g. polities, city-kingdoms, polis-states, polis-kingdoms (Iacovou 2013c: 16). In this book we will be using the term city-state.

grew and expanded. Cyprus took advantage of the stable Assyrian state-controlled economy to consolidate its position and flourish, as well as maximising its wealth accumulation. As from 525 BC, the island came – for the first time in its history – under the direct influence and custody of one master, the Persian Empire. The year 525 BC, for the island, was, yet again, the end of one era and beginning of another.

The third part of this work, ‘The Third Economic Cycle: The Maritime Economy of Ancient Cyprus in the Persian Empire until its annexation in the Ptolemaic kingdom (525–295 BC)’ deals with the period from the time Cyprus surrendered to the Persian Empire until its city-states were abolished and the whole of Cyprus was annexed as a unified province within the Ptolemaic kingdom of Egypt. As already stated, the year 525 BC, for Cyprus, marked the start of a new phase. During the 200 years that Cyprus was subject to the influence and custody of the Persian Empire it was the first time that the island came under political and military control of a dominant imperial power that imposed its own fiscal administration and compulsory tribute system. The Cypriot city-states and their respective kings learned how to survive by aligning their policies with the interests of the Persian Empire. This way they retained the right to manage their own internal affairs without the presence of a resident satrap. At the same time, they had to manage a careful balancing act between their Persian overlords and Athenian efforts to put them under their influence. This was a period of naval warfare and conflict in which Cyprus had an active participation. Its naval economy benefited by supplying the Persian navy with fully equipped, line-of-battle warships and trained crews. It also benefited by prolonged periods of peace during which its international long-distance trade and services thrived. The Cypriots joined Alexander the Great’s Empire in 331 BC and eventually became embroiled in the merciless wars of his successors. In the process they lost their independence, and the Cypriot city-states, with hundreds of years of history, were abolished and the whole of the island was annexed as a unified province within the Ptolemaic kingdom of Egypt. The year 295 BC was a complete game-changer for Cyprus’ culture, economy, and political status.

### Economic History

Ancient economic history can look back on a long and significant tradition. There are many studies and schools on economic theory of the ancient world. We can start with the ‘Bucher-Meyer debate’, move to Rostovtzeff’s work on the economic history of the Hellenistic world, and to Moses Finley’s influential book *The Ancient Economy*, as well as the economic theories of the ‘formalist’ and ‘substantivist’ schools, to name a few. It is not the intention here to go over these

theories in detail. This has been dealt with in length and in detail already in other more specialised works.<sup>3</sup> I will attempt, however, a short introduction on the Universe of Economic History<sup>4</sup> in order to lay the ground for the book’s economic approach.

The Bucher-Meyer debate of primitivism versus modernism dominated the scene of ancient economic history at the beginning of the 20th century. Karl Bucher, a professor at the University of Leipzig, in his 1893 book, *Die Entstehung der Volkswirtschaft*, translated into English under the title *Industrial Evolution*,<sup>5</sup> advanced the theory that ancient economy never overcame the stage of closed household economy. This view came to be called ‘primitivist’. For Bucher, the basis of ancient economy was domestic production to meet the needs of the household. Mercantile exchange was only a secondary process. Capital was an unknown component in Bucher’s primitive ancient economy. Eduard Meyer, a professor at the University of Halle, rejected Bucher’s primitive theories. Meyer, along with Karl Julius Beloch, took quite an opposite approach, that of an ancient economy comparable to early modern capitalism.<sup>6</sup> Their view came to be called ‘modernist’. Meyer, by having ancient Greece as a benchmark, advanced the theory of developed ancient economies with mercantile exchange, division of labour, standardised industrial production and long-distance trade.

The book by the Russian historian, Michail Ivanovic Rostovtzeff,<sup>7</sup> *The Social and Economic History of the Hellenistic World*, published in 1941, advocates a modernistic view on the Hellenistic economy.<sup>8</sup> The book divided the ancient economy into four sections, agriculture, forestry, mining, and fishing; although trade was given a secondary role, it has been a useful basis in analysing progress and advancing modernism in the Hellenistic world. Rostovtzeff claimed that the available archaeological data, integrated with historical sources, had proved that the Eastern Mediterranean region was a series of interlocking markets. He supported the idea that the economies of the ancient world were only quantitatively, not qualitatively, different from the economies of modern times.<sup>9</sup>

The debate of primitivism versus modernism of the ancient economy continued between the economic theories of the substantivist school and those of the formalist school respectively. The substantivists argued that economic processes in the ancient world

<sup>3</sup> E.g. Aubet 2001; Bresson 2016; Finley 1999; Hicks: 1969; Liverani 1988; Manning 2018; North 1990; Polanyi 1957; Polanyi *et al.* 1957; Smith: 1976.

<sup>4</sup> Bresson 2016: 2.

<sup>5</sup> Bucher 1893.

<sup>6</sup> Beloch 1899; Meyer 1895.

<sup>7</sup> Rostovtzeff 1941.

<sup>8</sup> Dross-Krupe and Marie Louise Nosch 2016.

<sup>9</sup> Rostovtzeff 1933.

were embedded within social and political structures. There was little technical innovation, no concept of investment, and no sustained real economic growth. Polanyi and Finley,<sup>10</sup> the latter more concerned with the classical Greek and Roman imperial economies, are two of the most prominent members of the substantivist school of thought. Very briefly, Moses Finley believed that the ancient economy was primitive and based largely on agricultural production. There was an absence of economic thought and capitalist mentality. He argued that the ancient economies were localised, with small-scale family manufacturing units, characterised only by small advances in technological innovation and progress. His work was influenced by the earlier work by Polanyi, who accepted three main drivers for ancient economies and societies: reciprocity, redistribution, and commercial exchange based on treaty trade, also known as administered trade. According to Polanyi's arguments, trade that depended on supply and demand, and the concept of market and market prices, was absent before the 4th century BC. Polanyi employed data from the Old Assyrian and Old Babylonian periods to argue that trade was administered and controlled by the palace and the temple. He argued for the absence of the typical elements of private enterprise, i.e. risk, profits, and fluctuation of prices in the market. In his influential 1963 article 'Ports of Trade in Early Societies' he simply promoted the idea that modern economic theory should not apply to primitive and prehistoric societies.<sup>11</sup> Finley adopted Polanyi's ideas that economy in antiquity was not a separate sphere of activity but, rather, embedded within society. He supported the idea of a command type, static economy that depend on the household, οἶκος in Greek, and the status of the ruling aristocracy.

This model of ancient economy was challenged by the formalists, who argued instead for the existence of rational and independent forces in the economy. According to the formalist school of thought decisions were made based on economic parameters and not solely on social or ideological grounds embedded in traditional ancient frameworks and controlled exclusively by the state. Formalists like Hicks<sup>12</sup> argued that ancient economies operated according to modern norms. For them the modern concepts and propositions of formal economics, created to explain market forces at work, are indeed applicable to ancient economies. They support that mercantile or market trade could coexist with treaty trade and one was not mutually exclusive of the other. They drew support for their arguments from the existence of modern economic practices in the ancient textual and material culture records, i.e. market forces at work, supply and demand,

the concept of profit and entrepreneurship. They challenged Polanyi's theories that economy was not regulated by market mechanisms (supply-demand-price) by drawing evidence of entrepreneurship from the well documented records of the Old Assyrian trade network. They also argued that, although the code of Hammurabi indicates that the Babylonian state and palace maintained strict mechanisms for controlling and administering trade, it was the powerful and independent merchant families and firms, with their private capital and appetite for risk, who dominated the overland trading networks of Mesopotamia. In the Eastern Mediterranean, archaeological evidence, from both land and underwater excavations, together with historical sources, support the existence of surplus production used for long-distance trade, proving the operation of non-static, complex and entrepreneurial market economies.

Historians specialising in ancient economy today admit that this battleground to do with ancient economies – of opposing pairs of either-or, primitivism-modernism, substantivism-formalism, non-market-market, etc. – is a fruitless, counterproductive exercise. Classifying pre-modern economies as one type versus another focuses on a compartmentalised model, and does not take into account the full evidence and leads, eventually, to debates about nothing.<sup>13</sup> Historians, archaeologists, social and economic scientists are simply talking passed each other, without realising how interdependent and interconnected they are. This does not help them to address the real problem of how to describe ancient economies and the real drive behind them, namely institutions.

### The New Institutional Economics (NIE)

Research on ancient economic history at the turn of the 20th and 21st century revealed the need for a new methodological approach. What evolved was New Institutional Economics (NIE), an expansion of the Old Institutional Economics of Veblen and Commons, and used both for economic analysis and economic theory.<sup>14</sup> By giving emphasis to the institutions behind ancient economies, NIE can build general models around rationality and market integration.<sup>15</sup> It recognises the role of institutions in building trust and confidence, the mitigation of risk, elimination of instability and volatility, and creation of opportunities. Therefore, in the view of the author, and many scholars specialising in the subject, NIE is more productive in highlighting and explaining the economic activities of ancient societies.

<sup>10</sup> Finley 1973; 1977; Polanyi 1957; 1968.

<sup>11</sup> Polanyi 1963.

<sup>12</sup> Hicks 1969.

<sup>13</sup> Manning 2018: 5.

<sup>14</sup> Commons 1934; Veblen 1899.

<sup>15</sup> Bresson 2016; Manning 2018: 18, n.6.

The present and future of any society is connected to its past by its institutions and their continuity. Institutions can be formal (the constitution, kingship, state) or informal (code of conduct, customary law). They can affect key features and the performance of an economy, e.g. costs, ownership, exports (long-distance trade), exchange, and production. Institutions endure not because they are efficient but because they are designed to benefit elites.<sup>16</sup> Institutions include rules and contractual relations, as well as unwritten codes of conduct, norms of behavior and customs and beliefs. In the process, rules must be understood along with motivations to follow them.<sup>17</sup> If we can identify these institutions and track their continuity and evolution, we can track the society's history. We will thus try to reconstruct, as far as possible, Cyprus' history and maritime economy by tracking its institutions and institutional system, and their continuity, which provided the rules and structure to its society. In our analysis we will employ, therefore, the New Institutional Economics (NIE) approach to examine relationships between changes in economic performance and behaviour on the one hand, and institutions and cultural norms and technological advancements on the other.

NIE has been put forward by three Nobel Prize-winning scientists: Ronald Coase, Oliver Williamson, and Douglas North – the latter considered to be its founding father. NIE is explained in a comprehensive book written by Douglas North in 1990 on *New Institutional Economics History (NIEH) – Institutions, Institutional Change and Economic Performance*. NIE is used in economic analysis and history, as well as political science, for a variety of applications, including, among others, the process of change and transactional activity and its impact on cost. The core concept and cornerstone of NIE is transactional cost theory, property rights, methodological individualism, rational choice, the relation of sponsor-agent, and the cost and availability of information. The aim of NIE is to establish within historical chronological context the connections between institutions and performance.<sup>18</sup> According to NIE analysis, good institutions lead to good economic outcome. Ask NIE the question why some countries do better than others and you will be given the answer – institutions.

Douglas North in his article, 'A Framework for Analyzing the State in Economic History',<sup>19</sup> gives two general types of explanations for the state and its institutions to exist. The first explanation is based on contract theory, and the second on predatory or exploitation theory.

According to the contract theory the state 'plays the role of wealth maximizer for society. In the absence of the state, economic growth of any kind would be impossible' whereas 'a contract that limits each man's activity relative to others is an essential condition for economic growth'. According to the predatory or exploitation theory, the state is 'the agency of a group or class' and its function is 'to extract income from the rest of the constituents in the interest of that group or class'. Therefore, on account of both theories 'the creation of the state is an essential precondition for economic growth' but at the same time it can be 'the source of man-made economic decline'.<sup>20</sup>

By applying the norms of NIE analysis we understand how Cyprus' institutions have been the key instruments for the success of its maritime economy. To amplify on the role of institutions we will quote verbatim from J.G. Manning: 'Institutions, in North's initial formulation, are the rules of the game in a society. They can be formal or informal, include both laws and norms, and constraints of actions as well as enablers of it. As such the institutions of a society determine its economic performance. The historical path dependency of institutions, the tendency once in place for an institution to remain in place is a notable feature of NIE analysis.'<sup>21</sup>

Institutions as the rules of the game reduce uncertainty and provide structure to everyday life. They are the guide to human interactions and creations of human beings and consequently can be altered by them. An important feature and function of institutions is to benefit the elites and their organisations. As we will see in the course of our research, institutions are transactional and operate in a market environment according to written and unwritten laws, norms and customs. They continue to exist as long as they are useful. As long as they serve their purpose, the inherent centrifugal forces of the system cannot overthrow them. In theory an institutional system is intended to reproduce itself without major changes. In practice, however, it is confronted by constraints from within, such as endogenous transformation of the socio-political equilibrium, but also from exogenous forces as a result of phenomena, events, or confrontations with other groups and societies.<sup>22</sup> In all cases the reproduction process can be halted. The old dominant groups and institutions are challenged by the new

<sup>16</sup> Manning 2018: 29; Ogilvie 2011.

<sup>17</sup> Menard and Shirley 2014: 1.

<sup>18</sup> Alston 2008; Manning 2018: 28, n. 79.

<sup>19</sup> Lo Cascio 2006: 220; North 1979.

<sup>20</sup> North 1979: 249–259, see the definition of a state on page 250 as an organisation with a comparative advantage in violence.

<sup>21</sup> Manning 2018: 28.

<sup>22</sup> Such an example, among many in world history, is the Covid-19 pandemic. The pandemic that resulted from the spread of the virus is an exogenous phenomenon that will test regional and international institutions and their endurance. Two such institutions that may well be severely tested are EU unity and US global leadership. It will also test many national health system institutions. The US leadership will most probably have to reconsider its overall public health policy.

groups that eventually succeed either to break them up and absorb them or to replace them and impose new institutional systems and configurations.<sup>23</sup>

It is important to distinguish between institutions and organisations. Institutions are the rules and organisations the players or actors.<sup>24</sup> Such an example can be the game of football: The constitution and set of rules that define how the game should be played is the institution; the Football Associations<sup>25</sup> that organise the game and the teams and football players who play the actual game are the organisations.

In general, the institutions can be classified into four broad sections:<sup>26</sup>

- Political (the state and its rules or other forms of authority, e.g. kingship, presidency and their extensions – army, legislation, diplomacy)
- Symbolic (religion or other worldviews)
- Reproduction of persons (kinship and demography)
- Production and trade of material goods (economics, standards, documentation, long-distance trade)

Organisations are a response to, and a consequence of institutional systems. They can also be classified within four broad sections:<sup>27</sup>

- Political parties and bodies (elder and elite councils and assemblies, regulatory bodies and agencies)
- Economic bodies (trading and entrepreneurial firms or family firms, partnerships, unions, guilds, manufacturing workshops, farms)
- Religious and social bodies (churches, sanctuaries, temples, associations)
- Educational bodies (schools, universities, scribe schools)

Institutions determine and provide opportunities in a society. Organisations exist to take advantage of these opportunities. The existence of institutions and organisations and the enforcement of rules and constraints entail costs that can affect the performance

of the economy. This is why NIE is sometimes defined as the economy of transactional cost. As organisations evolve, they alter the institutions. At the same time, how they evolve is influenced by the institutions themselves. Organisations in the course of achieving their objectives can become a major agent of institutional change.

Morris Silver<sup>28</sup> was among the first to pick up on Douglas North's work. In his 1995 book, *Economic Structures in Antiquity*, he used NIE concepts, especially transactional cost theory, to analyse the ancient economies of the classical world and the ancient Near East. Jean-Jacques Aubert<sup>29</sup> in his book *Business Managers in Ancient Rome* used another NIE core concept, the principal or sponsor-agent relationship, to explain business relations in ancient Rome. Elio Lo Cascio<sup>30</sup> approached the Roman economy by utilising concepts from NIE analysis. Likewise, Dennis Kehoe fell back on NIE theories to explain the reciprocal relation between Roman legislation and agriculture. Recently, NIE has been employed by Professor Brian Muchs<sup>31</sup> to explain the ancient Egyptian economy from 3000–30 BC, and by Professor Alain Bresson<sup>32</sup> to investigate the making of the ancient Greek economy. J.G Manning<sup>33</sup> also used NIE extensively in his book, *The Open Sea*. NIE analysis was used in *The Cambridge Economic History of the Greco-Roman World* as the organising principle and means of integrating text and material culture into the same story, with the aim of understanding economic performance.<sup>34</sup> We will try and do the same in the case of ancient Cyprus.

NIE analysis can also help us understand decision-making processes. For example, in the same way the Athenians shared risk and financed their naval and maritime supremacy with the concept of *trierarchy*,<sup>35</sup> it has been suggested that the Near Eastern royal and entrepreneurial societies shared risk and capital investment by forming joint ventures, *hubur*, and partnerships. We will analyse this process in the course of this book.

Of course, NIE analysis is not without criticism. Among such critics are G. Clark<sup>36</sup> and Deidre McCloskey.<sup>37</sup> McCloskey is especially critical of NIE since, in her opinion, it is too rational, too narrow and analytic. Another general criticism is that if Karl Polanyi was wrong to miss market activity in antiquity, then NIE

<sup>23</sup> Bresson 2016: 27.

<sup>24</sup> Bresson 2016: 20.

<sup>25</sup> Two examples, among many in our times, are the Cyprus Football Association (ΚΟΠ) and the English Premier League.

<sup>26</sup> Bresson 2016: 26.

<sup>27</sup> North 1990: 5.

<sup>28</sup> Silver 1995.

<sup>29</sup> Aubert 1994.

<sup>30</sup> Lo Cascio 2005.

<sup>31</sup> Muchs 2016.

<sup>32</sup> Bresson 2016.

<sup>33</sup> Manning 2018.

<sup>34</sup> Dros-Krupe and Nosch 2016: 296–297; Manning 2018: 29; Morris 2007.

<sup>35</sup> On the concept of *trierarchy*, see Gabrielsen 1994.

<sup>36</sup> Clark 2007.

<sup>37</sup> McCloskey 2015.

is faulted to be too transactional, seeking always to operate in the marketplace. The answer to this view is that institutions and economic performance do not come out of thin air; they derive from a particular culture at a particular place and time and established within a particular equilibrium. This is exactly the reason why this work follows NIE directives and its analysis. For the case of Cyprus, the institutions were not only products of the particular internal political environment, but also of the commercial and trading activities in its region, the Near East and the Aegean. They existed together with the elite establishment and organisations of the island, and as long as they kept the equilibrium between their support to the island's economy and the forces for change they could keep themselves intact.

We will proceed to analyse in more detail how we can apply NIE and understand the way institutions can provide a framework for growth and opportunities to intensify the economy. We will do that by looking at two success stories. The first is the growth in the US economy in the 19th century, and the second is the success of the federal state of the United Arab Emirates (UAE). We will compare their successes with a disaster story – the failure of Iraq in the 20th century, one of the top five countries in the world in oil reserves.

The important state institutions that evolved in the 19th century in the US were the constitution and its presidency, the concept of ownership, equal opportunity for all, and norms of behaviour rewarding hard work. This institutional system encouraged and sponsored the evolution of economic and political organisations – Congress, political parties, farms, trade houses, private enterprises, shipping, banks. These organisations evolved and took advantage of opportunities and incentives to increase productivity, innovation, and intensification of economic growth. The country's institutions evolved with the organisations and amended political and judicial frameworks, and changed and improved attitudes and norms of behaviour that fueled further growth and prosperity.

We can employ NIE to explain another success story, that of the United Arab Emirates (UAE). The federation of UAE consists of seven emirates, each with a strong tribal character and its own territory and ruling family. They all belong to the federal state of UAE, which is the only internationally recognised body. The capital of the federal state is in the emirate of Abu Dhabi and its ruler is the president of the UAE federal government. The vice president is the ruler of Dubai. Together with the other rulers they form a governing council that presides over the federal government, which has responsibility for foreign affairs, defense, and fiscal and monetary policies. Each and every emirate runs independently its

own internal affairs, including, among others, policing, transport, airports, harbours, education, hospitals, the legal system, trade and commerce. There is one federal budget, and although each emirate runs its own internal budget, they all contribute in proportion to their income to the federal budget. The richest emirate with the majority of oil reserves is Abu Dhabi, in spite of the fact that Dubai is the centre of commerce. The UAE's financial strength is its oil reserves, much in the same way that copper was for Cyprus in the LBA. Their success lies in the fact that they have institutionalised their operations at the federal level (fiscal and monetary policies, federal law, production and trade, as well as international relations) and achieved a workable cooperation and alignment with the organisations running operations at the emirate level. In the process, they became more advanced and more productive and efficient. Dubai, for example, has created an international brand unprecedented in the history of the Near East, and, we dare say, the world. The secret of their success is functioning institutions.

In Iraq we have the opposite picture. The modern state of Iraq was created by the British, between 1914 and 1932. The League of Nations gave the British the mandate to establish constitutional and democratic institutions for the benefit of the country. The British, instead of doing this, tried to establish a mirror image of their own monarchy, headed by a puppet king, for the sole purpose of serving their interests and looting the country's wealth. They failed to set up the necessary institutions that would have encouraged the evolution of organisations to fuel and grow the economy. This led to revolutions, overthrow of the monarchy, and the establishment of one-party rule that brought Saddam Hussein to power. The country's wealth was monopolised by the state, private enterprise was suppressed, and institutions and organisations failed to legitimise themselves before the people and to align themselves in a way that would fuel economic and social growth. The Americans, who took over in late 20th century, failed even more miserably. They imposed a non-unifying constitution that encouraged sectarianism and division, militarised the population and failed in its mission as one of the most important institutions in the country. They discouraged the evolution of productive and innovative organisations. Law and order disappeared from the country and its natural wealth was looted left, right and centre. This led to the establishment of ISIS, who destroyed and terrorised the region and created a refugee movement of people similar to the situation at the end of the LBA, which is considered one of the possible reasons for the volatile environment that brought about the destruction of cities of the likes of Ugarit.

## Chapter 2

# Part I: The First Economic Cycle: The Maritime Economy of Ancient Cyprus During the Age of Internationalism (1450–1200 BC)

### INTRODUCTION

The aim of this chapter, ‘The First Economic Cycle’, is to reconstruct the maritime economy of Cyprus<sup>1</sup> during most of the Late Bronze Age (LBA), between 1450–1200 BC.

We have strong evidence to suggest that the island of Cyprus was referred to, by other polities of the Eastern Mediterranean, as Alashiya. There has been an extensive scholarly debate of the whereabouts of ancient Alashiya, mentioned in so many Near Eastern texts, and its identification with Cyprus. According to recent petrographic analysis<sup>2</sup> on a representative sample of the cuneiform tablets of the Amarna Letters in Egypt<sup>3</sup> from Alashiya, and of the recently discovered tablets from Alashiya in Ugarit, ancient Alashiya is now identified with Cyprus or part of it, a view supported by the majority of scholars for some time now. The identification of the possible place of origin of the tablets from Alashiya to the sites of Kalavassos or Alassa not only places Alashiya on Cyprus, but it might serve as an indication of a probable location of its royal or administrative centre during the last part of the LBA. Furthermore, the latest discovery of the Idalion archive, dated to the end of the 4th century BC, where one of the inscribed sherds mentions the name Alashiya, reveals that the Semitic-speaking inhabitants of Cyprus, at that time and surely earlier, called Cyprus Alashiya.<sup>4</sup> This combination of compelling evidence, whose detailed study is beyond the scope of this book, seems to settle the matter once and for all that Alashiya was either part, or all of Cyprus.<sup>5</sup>

Endorsing the theoretical framework of NIE, and combining economic theory and practice together with text and archaeology, this work will concentrate on the functions and continuity of the institutions that existed on the island and how these institutions interacted and laid down rules, reduced uncertainty, and provided

structure to the island’s maritime economy. We will argue that it was the state institutions, in combination with a diversified export product portfolio headed by the rich copper reserves and maritime infrastructure, together with the organisations and entrepreneurial societies at the urban administrative centres, which contributed to Cyprus’ growth and to its maritime economy, elevating the island to a prominent position in the region. The result of all these factors created an ‘international urban-oriented complex society’.<sup>6</sup> The diversified complexity of its society fuelled progress and intensified its economy. Most importantly it was the state institutions that managed internationalisation and regulated and facilitated long-distance maritime trade and provided the mechanisms for production processes.

This present work will support the view that during the First Economic Cycle there was a state in Cyprus, or over a large part of Cyprus, with an associate number of urban administrative centres, that was known outside the island as the Kingdom of Alashiya. These urban administrative centres were chiefdoms that can be loosely described as organised societies.<sup>7</sup> The state was in political control and had the overall supervision and overview of the production process and long-distance trade of the island’s important resource – copper. The urban administrative centres were locally organised societies that were in the process of gradually developing into regional and socially stratified polities and were putting pressure on the state for more autonomy and a larger slice of the exchange and the island’s wealth.

The analysis here is influenced by Douglas North’s statement that forms the cornerstone of NIE theory: ‘The creation of the state is an essential precondition for economic growth’.<sup>8</sup> Without a doubt, in Cyprus during the LBA there was real economic growth. It is the opinion of the author that this economic growth was predominantly due to the existence of the state and the associated institutions. In this work we will concentrate on and emphasise those institutions that

<sup>1</sup> Amadasi Guzzo and Zamora 2018; Goren *et al.* 2003; Knapp 2008.

<sup>2</sup> Goren *et al.* 2003.

<sup>3</sup> For details on Amarna Letters or Amarna Diplomacy refer to ‘The Amarna Letters and Diplomacy’ section in this chapter.

<sup>4</sup> Amadasi-Guzo and Zamora 2018.

<sup>5</sup> There are still some objections, quite unfounded in the present author’s opinion, see Merrillees 1992.

<sup>6</sup> Knapp 1986: 35, 45.

<sup>7</sup> South and Todd 2002: 67–68.

<sup>8</sup> North 1979: 250.

constituted the state and supported and motivated the intensification of the economy, especially the production and long-distance trade of copper.

There is compelling textual and sufficient circumstantial evidence for the existence of an institutionalised state, but insufficient direct material culture evidence to support this proposal. The institutionalised state, with its king and representative to the outside world, the king of Alashyia, was the only entity that was interacting with the regional and highly centralised states and palatial systems that characterised the global economy of the LBA. This is contrary to the situation on the Syro-Palestinian coast, where, during the LBA, apart from Ugarit, we have various other principalities, headed by their own individual kings, being internationally recognised, such as the leaders of Sidon,<sup>9</sup> Tyros,<sup>10</sup> Amqu,<sup>11</sup> Byblos,<sup>12</sup> and others.

This book does not intend to deal with the views and perceptions put forward by various scholars on the nature of the state, nor the kind of urban administrative centres that existed on the island at the time, whether of hierarchical, heterarchical or devolved nature. Additionally, the whereabouts of the administrative and palatial centre of the state<sup>13</sup> will not concern us, nor whether its ruler or king was an absolute king or a *primus inter pares*. These subjects have been dealt with in endless and lengthy discussions, as well as in great detail in the works of numerous scholars specialising on the subject.<sup>14</sup> Instead we will analyse and deal with the institutions that existed on the island, trying to identify their endurance and continuity as well as their role and interactions, and how they defined the rules of the game for the state and the organisations in Cyprus during the economic cycles under consideration.

In spite of the fact that there was a single principal state institution on the island, on the strength of the available evidence, we cannot argue convincingly that during the end of the First Economic Cycle this was a strong central authority. Bernard Knapp, one of the foremost authorities on the subject, writes that it seems indisputable ‘[...] that socio-political and economic power were centralized in a royal personage [...]’ and ‘[...] I see the power vested in a singular institution [...]’.<sup>15</sup> In an earlier work he also wrote ‘that

some form of centralized organization still existed [...], seems indisputable [...] And yet about 1400–1200 BC, it is equally clear [...] that the island’s various mineral, material and exotic resources increasingly came under the control of local elites.’<sup>16</sup>

In Cyprus during the LBA the merchant communities and local ruling elites and the associated administrative urban centres shared the same institutions with the state. As it will be demonstrated in the sections that follow, the state laid out the rules and had political control, but did not exercise total administrative control over all exchange activities. Eventually, the state was only one of the economic agents of the island. In spite of its political control and the fact that it was the major economic and political power on the island, apart from the production and trade of bulk copper, according to the evidence, at the end of the First Economic Cycle, it was not in absolute control of all the economy.<sup>17</sup>

The state enterprise, run by the king, and private enterprise, run by the local ruling elites at the urban administrative centres, cannot be considered mutually exclusive of each other. The author agrees with the statement that it may be misleading to distinguish sharply between private and public spheres of the LBA political economy<sup>18</sup> of ancient Cyprus. When we are trying to reconstruct the socio-political environment and economy of ancient Cyprus, we cannot afford to fall into the trap of working with opposite pairs. On the subject I will quote Edgar Peltenburg, who said it will be more productive ‘to move away from bipolar, structuralist approaches to the nature of the LBA Cypriot society that have tended to treat interdependent aspects as exclusive models like Royal-Non-Royal, Hierarchy-Heterarchy, State-controlled trade-Entrepreneurial trade.’<sup>19</sup>

Without trying to introduce modern ideas into the analysis, we will attempt here to explain the function of the island’s institutions with the help of the New Institutional Economics theory (NIE). We will examine initially how the island’s organisations, which ran the urban administrative centres that were associate members of the state, were supported and how they benefited by these institutions. By the end of the First Economic Cycle and beginning of the Second Economic Cycle, the centrifugal forces of these urban administrative centres and their organisations triggered an acceleration of the process for their state formation that was already in progress. This event, together with the international turmoil and volatility, eventually became the agent of change that dismantled the state

<sup>9</sup> RS 94.2483.

<sup>10</sup> RS18.031 and RS 20.168.

<sup>11</sup> RS 17.039.

<sup>12</sup> Wen Ammon’s tale.

<sup>13</sup> For some useful discussion on the subject and monumentality on ancient Cyprus, see Knapp 2008: 359–381; Peltenburg and Iacovou 2012; Wright 1992: 273–278.

<sup>14</sup> Iacovou 2005: 129, 2012; Keswani 1996: 239, 2004: 85; Knapp 1986; 1997; 2008: 144–153, 340; 2013; Manning and De Mita 1997; Merrillees 1992; Peltenburg 1996; Peltenburg and Iacovou 2012; Sherratt 1998: 297; Singer 1999: 721; Steel 2004: 181–186; Steiner 1962.

<sup>15</sup> Knapp 2013: 473.

<sup>16</sup> Knapp 1997: 66.

<sup>17</sup> A similar set up existed in Ugarit; McGeough 2011: 69. For a similar concept, that of informal economy, see Andreou 2019: 161–165.

<sup>18</sup> Peltenburg 2012: 8; Monroe 2009 supports the same for Ugarit.

<sup>19</sup> Peltenburg 2012: 8.

institutions, which so successfully served the island's interests during the First Economic Cycle period. The features of the dismantled institutions did not vanish into thin air but were eventually and gradually transferred and shared by the urban administrative centres that gradually completed their own process of state formation. By that time, we have reason to believe that state authority may have been claimed and that it was shared by more than one urban administrative centre. Thus, during the Second Economic Cycle the geopolitical environment of the island is characterised by territorial fragmentation and polycentrism expressed by the formation of independent city-states. To summarise, the secret of the survival and continuity of the Cypriot urban administrative centres during the crisis years was the transformation and continuity of the island's institutions. This was the essential precondition for the establishment and continuation of economic growth.

Every society has the capacity to produce and consume. The products that are produced in order to reach the consumer have to go through the vital link of a distribution process. In ancient Cyprus, with an export oriented and outward maritime economy, all levels of society were involved in one way or another in production, exchange, and transactions, and especially when the process of trade became more complex. The production and exchange of products, the resulting trade and its more complex form, long-distance trade, are specific institutions that involved all elements of society.<sup>20</sup> Therefore this book, at its core, supports that during the First Economic Cycle there was inclusivity in ancient Cyprus.<sup>21</sup>

Chris Monroe in his influential article 'Scales of Fate: Trade, Tradition, and Transformation, in the Eastern Mediterranean' analysed textual evidence for the relationship between rulers and traders, related to state trade and entrepreneurial trade, respectively for Ugarit, Hattusha, and Egypt. By doing so he convincingly demonstrated inclusivity, i.e. the coexistence, co-operation and interdependency between rulers and traders. During the narrative we will try to demonstrate how the same factors applied to Cyprus and how it contributed to the success of the island's society and economy. This was a process that continued right through from the First Economic Cycle to the end of the Third Economic Cycle.

During this research it became clear that a number of scholars writing about ancient Cyprus had strayed

into two pitfalls: The first is that archaeology has been used as the beginning and end of research. All efforts to reach a balance between history and archaeology tend to implicitly subordinate history to archaeology. At the same time, of course, we must acknowledge that archaeology makes a colossal contribution to our knowledge and understanding of ancient Cyprus. The second common pitfall is that scholars writing about Cyprus' ancient history and archaeology, with a few exceptions, are mostly looking telescopically and almost exclusively towards the Aegean and ignore the massive evidence that connects Cyprus to the Near East. In my work I will try to follow a more pragmatic and balanced approach.

Therefore, in this book, concerning all three economic cycles, we will try to reach meaningful and defensible results concerning Cyprus' maritime economy by analysing and synthesising concepts and conclusions from both material culture and textual evidence. Reconstruction of trade based on the archaeological record alone 'entails serious difficulties when it comes to an economic reading of the data'.<sup>22</sup> Specialists such as McAdams, as well as Hodder and Orton, have demonstrated shortcomings in archaeology in terms of fully reconstructing on its own the fairly large-scale socioeconomic mechanisms, such as trade.<sup>23</sup> Therefore the aim is to integrate in the archaeological record textual evidence that is properly examined and filtered, and vice versa, and to try and reach a consensus and a commonly supported conclusion that will facilitate scientific economic analysis. Due to the scarcity of information, it will be tempting to follow a 'soft' or descriptive and cultural approach only. I will not do this, but will try throughout the book to extend the approach to a more systematic and mathematical analysis and documentation of economic performance,<sup>24</sup> especially in relation to international markets. Three separate variables are identified to try to describe the Cypriot ancient economy: (i) the institutional structures and systems within which the exchange took place; (ii) the mechanisms and quantities of exchange of goods and services; and (iii) the motivation and ideology of those who took part in the exchange.<sup>25</sup> The approach and methodology used is influenced by my engineering and business background, as well as by my professional training in economics, methodical analysis and deductive logic, and the fact that I have lived and worked for most of my professional life outside Cyprus, in Greece, but mostly in the Near East.

<sup>22</sup> Aubet 2001: 98.

<sup>23</sup> Hodder and Orton 1976; McAdams: 1974.

<sup>24</sup> A useful reference is Paul Samuelson's 1940 work, in Manning 2018: 18, n. 7, that advanced the history of economics from a predominantly verbal-graphical exposition, to systematic and thorough mathematical treatment.

<sup>25</sup> John K. Davies followed the same variables in his influential articles on the economy of the ancient world. Davies 1998; 2001; 2005.

<sup>20</sup> Aubet 2001: 9.

<sup>21</sup> It is because there was no inclusivity in the Iraqi society in the first decades of the 21st century, after the criminal and short-sighted invasion of that country by the Americans and their allies, the Iraqi economy and state collapsed, and ISIS was born. The non-inclusive sectarian Iraq that was created is the main reason for this disaster.

Knowing that the available data from Cyprus itself is insufficient to allow a reasonable reflection, I will try to build a regional picture of the diplomatic relations, regional trading, and maritime patterns, and we will try to define Cyprus' place in this picture. In spite of Cyprus' unique socio-political features and idiosyncratic nature, its maritime economy and trade was an international activity and as such it could not exist in vacuum. The market conditions, the available trade routes, the way products were traded and by whom, and the fluctuation of international prices and exchange values in the neighbouring countries would all influence and reflect on the economic performance of the island. For this purpose, data, no matter how fragmentary, is used from neighbouring countries, especially Ugarit and the dominant powers of the region, Egypt and Hatti, as well as from maritime archaeology in shipwrecks, e.g. Uluburun, Cape Gelidonya, and Point Iria.

It is proposed that during the First Economic Cycle a common maritime and mercantile zone existed in the Eastern Mediterranean, something similar to the concept referred to as 'The Great Power Club'.<sup>26</sup> Along with the other polities/regions of the Eastern Mediterranean, Cyprus became an active participant in this common zone. As Susan Sherratt has correctly pointed out, the coastal urban centres of Cyprus played a 'central role in the creation and maintenance of an eastern Mediterranean coastally based economic and cultural community.'<sup>27</sup> Cyprus' participation in this community was a major feature of its institutional system that was handling its long-distance trade activities.

The maritime economy and long-distance trade of Cyprus, among other factors that we will examine in the course of this book, was also based on knowledge of prices and exchange values, as well as exchange mechanisms, traditions and cultures prevailing in the international market. This knowledge was necessary for both its export products, but also for its imports. For example, it was not only essential to know the international exchange values and prices of its exports, like copper and olive oil, but also the prices and exchange values for its imports, e.g. silver, tin, ebony, lapis lazuli, etc. For this reason, we will not shy away from using prevailing and available values and prices from Hatti, Egypt and Ugarit, the major trading partners of the island.

As stated already, a common maritime and mercantile zone was gradually formed from the late MBA, reaching its peak in the LBA. It is estimated that there were 'forty to fifty producing, trading and consuming centres in

the eastern Mediterranean basin',<sup>28</sup> among them the Cypriot coastal centres. During the First Economic Cycle most of these centres were active members of this common zone and the intensive interactions between them produced a common economic and commercial culture through market exchange, maritime connectivity, and the standardisation of goods and weights and measures. Therefore the close relationship that existed between Ugarit and Cyprus, especially with Enkomi, make the evidence from Ugarit of particular interest, as their maritime economies, which were closely related, belonged to the same maritime zone and both operated on the same trade networks.<sup>29</sup> We will not forget, however, the important differences that existed between them, such as the different systems of governance, the different Ugaritic and Akkadian cuneiform tradition versus Alashiya's Cypro-Minoan syllabic tradition, and the different internal political organisation of their societies. Based on the current evidence, Alashiya's institutions and organisations did not follow the Ugaritic practice of well-documented bureaucracy, unless, of course, they used perishable material for their records, for example waxed wooden boards that did not endure the test of time. Nevertheless, eighty years of research and seventy archaeological campaigns at Ugarit in Northern Syria, a short distance from Cyprus' busy *emporion*, has accumulated an enormous wealth of knowledge for the history of the ancient kingdom of Ugarit which can prove extremely useful for our work.<sup>30</sup> It has been argued that we cannot afford to look at the history of Cyprus 'from outside and through external textual sources'<sup>31</sup> alone, and that each region must be studied 'from within' on the basis of its own archaeological record.<sup>32</sup> We will try here to reconcile and align material culture from 'within', and the textual as well as other evidence from 'outside'. We cannot afford to ignore relevant information from 'outside', especially primary contemporary information that can shed light on our efforts to reconstruct Cyprus' ancient history, especially maritime history, that was so closely associated and influenced by the outside world. I want to be on record that I regard the Alashiyan letters unearthed at Amarna and Ugarit as evidence from 'within'.<sup>33</sup>

No matter how idiosyncratic Cyprus was, as long as its economy was dependent almost entirely on long-distance trade it could not exist in vacuum. Thus, although this present study might be criticised for the extensive use of data from Ugarit and other regions, I

<sup>26</sup> Cohen and Westbrook 2000 :7; Liverani 2000: 20.

<sup>27</sup> Sherratt 1998: 292.

<sup>28</sup> Manning 2018: 43.

<sup>29</sup> Broodbank 2013: 445–505.

<sup>30</sup> Watson and Wyatt 1999.

<sup>31</sup> Iacovou 2014a: 119, n.7.

<sup>32</sup> Iacovou 2018: 21.

<sup>33</sup> These important texts have not been the subject of focused and thorough study by Cypriot historians and archaeologists; this is long overdue.

am still a firm believer that, under the circumstances and scarcity of information from Cyprus itself, it is impossible to write about Cyprus’ maritime economy during the LBA without analysing and taking into account data from its neighbouring counties. After all, we are dealing with an outward, international operation; and trying to think ‘outside the box’ might pay dividends here. For these reasons, apart from Ugarit, we will also draw from the evidence of political and trade relations between Cyprus and Egypt – one of the largest political economies in the region and one of Cyprus’ most important trading partners.

To highlight the continuity of Cyprus’ ancient history and define the durability of its maritime economy the same methodology will be followed for the Second and Third Economic Cycles. A balance will be sought between the island’s own individual character and its position within the surrounding environment, and how international developments, features, practices and exchange values might, in the long term, have influenced its approach and response within a Mediterranean context.

Care will be taken in this approach, and, although deductive logic will be attempted in the argumentation, this will be done cautiously, being aware not to mirror

image and get carried away with direct analogies that might lead to erroneous conclusions. During the analysis, it will always be kept in mind that Cyprus was a highly idiosyncratic case with its own unique socio-political character and system.

**THE INTERNATIONAL HISTORICAL BACKGROUND**

Before proceeding with the main narrative, it will be useful to set up in summary the international scene and historical background, as well as Cyprus’ position and role in the region.

Before 1500 BC, the Near East region was characterised by regional territorial states and political fragmentation. This changed during the First Economic Cycle between 1450– 1200 BC. During this period, we see the creation of strong, territorial and centrally controlled states that became part of an integrated and interconnected international system. As can be seen in Figure 1, over these 250 years the territorial states that dominated the region were: the Elamite Kingdom in western Iran, Kassite Babylonia in south Mesopotamia, the Mitani Kingdom, succeeded by the Assyrians, in northern Mesopotamia, the New Kingdom in Egypt, the Hittite New Kingdom in Anatolia, known as Hatti, and the Mycenaean palatial centres in the Aegean. These

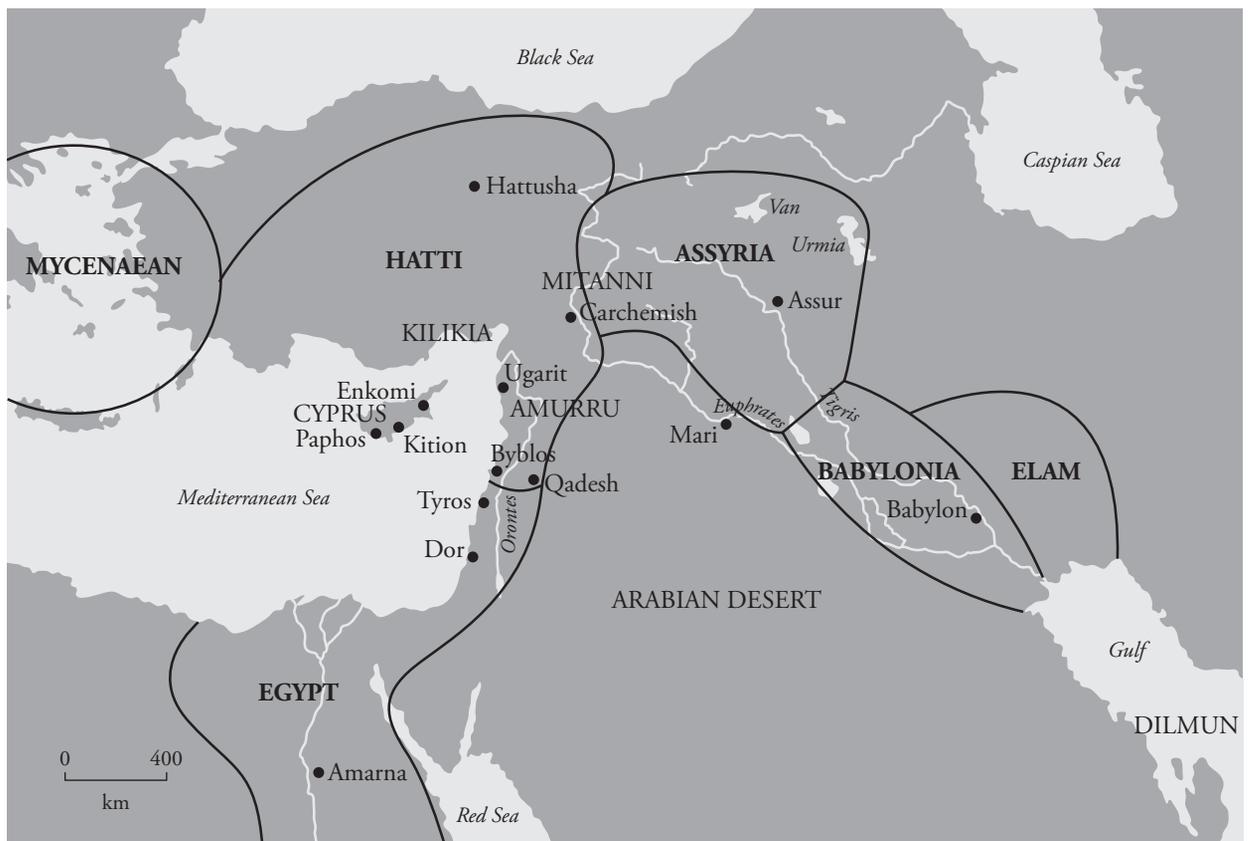


Figure 1: Map of the international system and territorial states c. 1400 BC (drawing: Philipos Vasiliades).

states formed what has been described in political terms as the ‘Great Powers Club’.<sup>34</sup> This international system was maintained by regular contacts between all participants, who had a fairly good idea of their place in the hierarchy of the system. While this internationalism was maintained through political relations, regional trade and exchange, there was a constant situation of rivalry and competition which, in certain cases, resulted in military confrontations. These confrontations were either direct or through proxy wars involving the vassals of the dominant powers.

For most of the First Economic Cycle period, Cyprus and the Syro-Palestinian states were sandwiched between the interests of Egypt and Hatti. Although the Syro-Palestinian states maintained a semi-independent status and managed on their own their internal affairs, they were politically sub-ordinates to either Egypt or Hatti; they were vassal states and had to accept either direct control of their territory or influence by proxy. Thus, in 1400 BC, the Egyptians extended their territorial control up to Ugarit, whose king became an Egyptian vassal. Eventually the Hittites replaced the Egyptians, and c. 1340 BC they extended their influence to Ugarit and further south up to Qadesh.

Cyprus, being an island, was not readily accessible and therefore not easily controlled by either of these Great Powers in the same way that they controlled the Syro-Palestinian states. In spite of its small size, one might think of it as an associate member in the ‘Great Powers Club’, and its king appears to address the Pharaoh of Egypt as ‘brother’, and vice versa, a sign of an elevated status above the political and military power of the island. This might be due to its importance as the major producer and exporter *par excellence* of copper in the region. We have a similar situation in the 21st century, with the State of Qatar in the Persian/Arabian Gulf. Qatar, as one of the top three global producers and exporters of natural gas and LPG, has a political influence in the region much greater than might be expected from its small size. This influence has many ways of expression, the most notable being the state-controlled Al Jazeera News Network, which is rated among the top international news stations in the world with unprecedented coverage, recognition, and, most importantly, influence.

### **Cyprus’ relations with the Great Powers of Egypt and Hatti**

The 13th century BC is characterised by the conflict of the two superpowers, Egypt and the Hittite kingdom over territory in Syria and the Levant. The Egyptian king, Seti (1294–1279 BC), extended Egypt’s reach into Syria by putting the regions of Amurru and Qadesh

under Egyptian control. This led to the inconclusive battle of Qadesh in 1275/74 BC that eventually returned Qadesh and Amurru to Hittite control under the treaty of Qadesh in 1258 BC. There was no explicit struggle between the two superpowers over Cyprus, which seems to have been neutral during the conflict, but from the sequence of events it is clear that at least indirect influence over copper-rich Cyprus was among the desired prizes of the war. Most probably the Hittites considered Alashiya, being northwest of Qadesh, as part of their bargain in the treaty. This is probably the reason they tried so hard to become the island’s suzerain, as they did with Ugarit from c. 1340 BC. However, the validity of the interpretation of the texts implying Hittite domination over Cyprus, as will be explained in the course of this section, is disputed and open to criticism.

The military race for control of the territories between Egypt and the Hittite Empire, over the Levant and Syria, lasted for almost half a century. Usually, when two superpowers or even regional powers fight for control of territory the losers are the small countries caught in proxy wars in the middle. This is the case in the 21st century, with Syria being caught in the power struggle over influence in the Near East between two other super powers, USA and Russia. To add to this complex state of affairs we see two regional powers, Turkey and Iran, trying to take advantage of the inability of the two superpowers to reach a conclusive result over their dispute.<sup>35</sup>

There is no evidence that the antagonism between Egypt and Hatti had a similar devastating effect on Cyprus. On the contrary, the material evidence testifies to a working economy fuelled by the island’s international sales of copper. We have no evidence that Alashiya had any restrictions in terms of supplying both superpowers with copper, either before or after the treaty. We do have evidence of considerable trade with both Egypt and Hatti apart from copper. In the case of Hatti this is attested by the huge number of Cypriot-type Red Lustrous Wheel made ceramic ware (RLW), found at Bogazkoy and other Hittite sites. Although great amounts of this RLW ware were locally produced, their presence suggests the export of organic products from Cyprus to Anatolia and Hatti. The fact that Alashiya, in the middle of the 14th century, during the Amarna era and later in early 13th century, was chosen by the Hittites as the place to exile senior members of their society, goes to show the friendly relations it might have enjoyed with the Hittites and its considerable political status, in spite of Hittite efforts at times to put the island under their rule. These efforts might have been defensively motivated for the protection of Hatti

<sup>34</sup> For more details on this the term, introduced by Liverani, see the section on ‘The Amarna Letters and Diplomacy’ in this chapter.

<sup>35</sup> Another example is the disaster of Yemen, caught in a proxy war between two regional powers, Iran and Saudi Arabia.

from pirates, who could use Cyprus as a spring board or a base of operation to attack Hatti.

The Amarna diplomatic correspondence that lasted up until 1322 BC, as we will see in the following sections, testifies to peaceful and business-like relations between Egypt and Alashiya. We have no evidence, textual or otherwise, before or after the Amarna diplomacy of any conflict between Egypt and Cyprus arising out of Egypt's wish to put Cyprus under its control. This is not the case with the Hittite kingdom,<sup>36</sup> where Alashiya was considered as a state of lesser rank. At least six Hittite documents suggest that, on four different occasions in different periods, Cyprus was under threat from the Hittite Empire.

The first occasion was in the late 15th century BC, just before the Amarna diplomacy, when the Hittite king Arnuwanda claimed, in a letter to king Madduwatta from West Anatolia, that Alashiya was under his sovereignty and its people paid him tribute. We know this from a controversial text referred to as the 'Indictment of Madduwatta', where Arnuwanda accused his western vassal of interfering and raiding Alashiya and enslaving Cypriot inhabitants while the island was under his authority.<sup>37</sup> This letter has other important implications as well, as it reveals, that apart from king Madduwatta, a vassal of the Hittite king, two other western Anatolian rulers not under the control of Hatti, Attarissya and the ruler of Piggaya, also raided and plundered Cyprus. In other words, Cyprus in late 15th century BC was under threat from neighbouring hostile forces and had issues to defend effectively its territorial integrity. Therefore, it might not be by accident that an elaborate fort network was established along its northern coastline and foothills of the Troodos mountains, although it is generally accepted that these forts, all inland, were erected for land administration and resource purposes, rather than to protect the region from external threats. This security network was most probably established not only to facilitate uninterrupted communication between the source of copper and the ports of export, but also at the same time to provide safety and security against raiders from western Anatolia.

The second occasion is in the late 14th century BC, around the end of the Amarna era. We have two letters that mention Alashiya as a place where Hittites sent their exiles,<sup>38</sup> suggesting that the island might have been under Hittite influence. Some scholars suggest instead that this might point to friendly relations between the two countries.

The third occasion is in late 13th century BC, when the Hittite King Tudhaliya IV recorded a treaty with Alashiya and which was kept in the temple of Ishtar, presumably the chief deity of the island.<sup>39</sup>

The fourth occasion is recorded by king Suppiluliuma II, c. 1200 BC.<sup>40</sup> In this letter the Hittite king reported engaging in three naval battles with a military fleet from Alashiya. A battle on land had followed in which the Hittites claimed victory. The Hittite king also reported his father, Tudhaliya, as having captured the king of Alashiya, together with his wives and sons, taking them captives to Hattusha. An annual tribute was imposed on the king of Alashiya and his senior prefect, which included an unrecorded amount of gold and four talents (130 kg) of copper, plus 33.6 litres of some kind of fragrance, or perhaps opium.<sup>41</sup> We therefore have textual claims by two successive Hittite kings, in the last quarter of the 13th century BC, that they put Alashiya under their control and enslaved its king. The propagandistic royal texts from Hatti are difficult to interpret and put into historical context, and, since no material culture from Cyprus supports their claims, before we give them much credence a more detailed investigation is warranted.

There is a great difference between the tribute Alashiya had to pay to the one that Ugarit was paying regularly to the Hittites. Taking into consideration that Alashiya was not a poor country then the tribute Niqmaddu II, king of Ugarit, paid to Suppiluliuma, king of Hatti, of five hundred Hittite shekels of gold (or 2000 silver shekels), dyed wool and garments, in addition to gold and silver cups,<sup>42</sup> is excessive when compared to Alashiya's, referred to above. This leads us to believe that, probably, what the Alashiyan king sent to Hattusha was not tribute but perhaps a gift to seal some sort of alliance or agreement, or even that the text does not refer to the king of Alashiya but to some regional chieftain or ruler in one of the emerging urban administrative centres. This latter might be the most reasonable explanation.

Following the treaty of Qadesh the regional volatility subsided, and, in the words of Liverani,<sup>43</sup> a state of 'conditional coexistence' prevailed. The stability that was provided after 1258 BC gave all mercantile regions/polities of the region, Cyprus included, the chance to enhance their maritime and exchange activities even further. This is especially true for Cypriot copper with its competitive advantage. The Cypriot copper

<sup>36</sup> Monroe 2009: 253–255.

<sup>37</sup> Beckman 1996, 31; KUB XIV 1 rev. 84–90 (CTH147).

<sup>38</sup> Beckman 1996: 31–32; KUB 14.14 and KUB 11.

<sup>39</sup> Beckman 1996: 32; KBo XII.39, (CTH 141).

<sup>40</sup> CTH 121, KBo 12.38.

<sup>41</sup> Beckman 1996: 32–33; Otten 1963; Singer and Singer 2014. For the island's production of fragrance, as well as for the discovery of a Middle Bronze Age perfume factory at Pyrgos *Mavrorahi*, see Belgiojorno 2008.

<sup>42</sup> Beckman 1996: 32–33, n. 28a; Monroe 2010: 27; PRU 4:40–44; RS 17.227.

<sup>43</sup> Liverani 1987: 67.

production capacity was greater than any of its competitors in the Sinai and the eastern desert. The island also benefited from its proximity to potential buyers and the abundance of energy, i.e. timber for charcoal.

However, the evidence suggests that, after the Qadesh treaty or shortly before, the Hittites tried to restrict trade between their vassals and potential enemies. According to textual evidence<sup>44</sup> they prevented traders from Ugarit from exporting horses, directly or indirectly, to Egypt. They also signed a treaty with Amurru<sup>45</sup> obliging its rulers not to trade with Assyria, nor to allow products from Assyria to pass through their land. Most probably copper was among their main concerns since it could be easily converted not only to Assyrian but Egyptian weapons as well. This was most probably their main interest in terms of Cyprus.

It also seems likely that another concern they had over Cyprus was the ability of the island to broker activities directed towards breaking the embargo the Hittites imposed against Egypt. Cyprus was at the periphery of both the Hittite and Egyptian kingdoms. As such it could serve as a smuggling hub, whereby Egyptian and traders from Ugarit, or even Hittite merchants, could meet to trade products for Egypt. This is perhaps the reason Tudhaliya IV instructed Ammistamru II specifically not to allow Hittite and Egyptian ‘messengers’ to use Ugaritic ports, and why Cypriot ports were not to export, directly or indirectly, to Egypt.<sup>46</sup> For the same reasons Cyprus might have been regulated and restricted to trade with the Aegean.

When two world systems clash and put trade restrictions on each other, it is easy for smart traders to take advantage and make a fortune out of the situation. We witnessed a similar situation during the first two decades of the 21st century AD, when the United States put trade restrictions and embargos on Iran. In no time, covert and underground trade networks were set up in ‘neutral’ countries facilitating Iranian purchases of embargoed products and sales of Iranian oil. There was so much profit involved that the traders involved in smuggling were willing to take the risk. This is most probably what happened during the First Economic Cycle in Cyprus, with the island providing not only the ‘neutral’ ground but some of the products and the smugglers as well.

Hatti’s efforts to put Cyprus under their control, and restrict trade with the Aegean, do not seem to have born fruit, otherwise how can we explain the rich finds of material culture, mostly ceramics, indicating

increased Mycenaean trade infiltration and contacts on and through the island. In addition, the island’s copper production and exports in the Near East not only appear to have continued, but also to have expanded westwards to the Aegean, Greece, and as far as Sardinia (the latter during the early Second Economic Cycle). Thus, it is reasonable to propose that the island was free of any episodes of effective external control from any of the regional superpowers.

This opening up of political and economic horizons, to the benefit of Cyprus’ copper exports, had another important beneficial outcome – Mycenaean trade expansion to Cyprus and the Levant.<sup>47</sup> In two articles, published in 1956 and 1960, Helen Kantor is in agreement with Jean-Claude Poursat<sup>48</sup> that Mycenaean Greece and the Aegean (*Ahhiyawa*) were among the primary contributors to a widespread Eastern Mediterranean *koine*. Both Kantor and Poursat advocate what the present author, being ethnic Greek, who lived and travelled extensively for over forty years in the Near East, has learned, i.e. that the Aegean, erroneously conceived as the West, and the Near East, erroneously considered as the barbarian East, operated for centuries in mutual respect within a shared universe of cultural and mercantile interconnectedness. In the opinion of this author, when the West, today, learns how to reconcile this fact, then we might have a chance to bridge the wide gap that exists between East and West.

#### THE ECONOMIC AND SOCIO-POLITICAL LANDSCAPE OF LBA CYPRUS AND ITS INSTITUTIONS

The successful and dominant position of Cyprus as the producer *par excellence* of copper and bronze artifacts during the LBA in the Near East is not disputed. Metal trade in the Near East during the Bronze Age provided the commercial base upon which other products could be traded.<sup>49</sup> This is what happened with Cyprus. Copper production and its trade in general represented the driving force behind Cyprus’ economy, but other activities had an important role to play as well. These were its long-distance trade and maritime activities linked to a diversified portfolio of potential products like (timber, olive oil, wine, textiles, pottery, etc.) used not only for local purposes and consumption but for export and exchange. All these operations created a complex socio-political environment that was unprecedented in the island’s history.<sup>50</sup>

<sup>44</sup> RS 17.450A and RS 20.252.

<sup>45</sup> Beckman 1966: 101. CTH 105.

<sup>46</sup> RS 17.450A and RS 20.252.

<sup>47</sup> Kantor 1947: 76–83.

<sup>48</sup> Poursat 1977 in Feldman 2006: 28.

<sup>49</sup> Kristiansen 2018: 10; Sherratt and Sherratt 1991.

<sup>50</sup> Knapp 1986; 1997; 2008; 2013; Knapp and Demesticha 2017; Manning and De Mita 1997; Muhly and Kassianidou 2012; Peltenburg 1996; 2012.

We lack unmistakable and direct textual and material culture evidence of how such a complex economic and socio-political environment was managed, and how the challenges of a large multi-disciplined industrial production and export were met. We also lack direct evidence of the bureaucracy and ruling elites with the necessary mechanisms and dominant ideology who would have managed the production and export of the large quantities of copper suggested by the Amarna diplomatic correspondence and by the composition and unified shape of copper ingots found in the material culture of Cyprus and the surrounding countries that point to Cyprus as the place of origin. We see in the material culture of the island an organisational set up comprising of a number of urban production centres and settlements capable of independent manufacture and exchange. We do not fully understand their interrelation, how they functioned, or how their social dynamics dealt with the complexities involved.

Nevertheless, we will endeavour to reconstruct this environment as far as possible, as well as the structure of the Cypriot maritime economy in the LBA, by defining and tracking the state institutions that provided the rules and structure of the island's society.

Examining Cyprus' socio-political set up and position in the Near East through NIE analysis we can understand how the state institutions had been, together with the organisations of the island, the key instruments for Cyprus' success during The First Economic Cycle. On the basis of the available evidence, we presume the political structure on the island was such that its state institutions were aligned with the organisations of the urban settlements of the island. The head of the state institutions was a ruler who represented the island in the international arena as its king. He was recognised as such by all the states of the region, including the two superpowers Egypt and Hatti and their closest trading partner Ugarit. He was assisted by his administration (senior governor, governors, ambassadors, scribes, royal merchants, etc), with the task of exporting the island's products, either in raw material form or as manufactured finished goods.

As a plausible working hypothesis, put forward for discussion purposes only, we can consider a state led by the king and an administration comprised of members of the ruling or upper elite, who, among them, included extended family members and other aristocratic and wealthy individuals. The most prominent had overlapping activities between official duties and private entrepreneurial interests. Some might even be leaders of the organisations in the urban administrative centres associated with the state and where part of the exchange activity was delegated. Below this level were the merchant and trading communities, ship

owners, and other less well connected provincial entrepreneurial figures, and then below them the wider urban and rural populations of artisans, farmers, and manual workers. It must be stressed that this is only a working hypothesis, and one presented with reservations; without hard, direct evidence for support, it creates more questions than answers. For the purpose of our analysis, however, a picture with reservations is perhaps better than no picture at all.

One of the main tasks of the institutional system headed by the king was to develop and manage external relations and international diplomacy, as well as long-distance trade, and to join the common maritime and mercantile zones in the region, which we will describe during our narrative for the First Economic Cycle. When Kristian Kristiansen refers to long-distance trade in his 2018 article 'Theorizing Trade and Civilization',<sup>51</sup> he considers maritime trade with its technologies, like ships and harbours, as the institutional system that formed the foundation pillar of the LBA. In Cyprus' case the state institutions provided the base for the creation of new and specialised social groups, and expanded the social, mercantile, as well as economic geography of the island's communities.

While the state institution in Ugarit was a dominant central institution, as far as exchange activities are concerned, it was neither a controlling nor an administrative one.<sup>52</sup> Likewise, the state institution in Cyprus that seems to have been less dominant than Ugarit, during the First Economic Cycle, that is the last part of the LBA, on matters of exchange it was neither controlling nor administrative.

An important feature and function of the state institutions was to benefit the elites of the island and their organisations. The state institutions continued to exist as long as they were useful; as long as they served their purpose the inherent centrifugal forces of the system could not overthrow them. These centrifugal forces were a result of the urbanisation that was already in progress within the various urban settlements of the island and of the multipolar political system. It is important to define the institutions and organisations of LBA Cyprus related to its economy and maritime trade:

#### Institutions

- The state and its kingship
- The international relations
- The long-distance trade and its associated features

<sup>51</sup> Kristiansen 2018.

<sup>52</sup> McGeough 2015: 94

- The legal norms and code of conduct (written and common oral law)
- Weights and measures
- Documentation
- Production process

#### Organisations

- The political bodies (councils, local elite assemblies and elders, committees, advising bodies)
- The economic bodies (trading and entrepreneurial firms, partnerships, guilds, manufacturing workshops, ship owners)
- The religious and social bodies (sanctuaries, temples, priesthood)

These above organisations ran the urban administrative centres that were associated with the state, and were woven together in the fabric of a common communication network. Although they were associated with the state they do not seem to have been under any strong and dominant island-wide administrative system. They supported a workforce who, apart from the production of agricultural products (olive oil, wine, production of textiles, pastoral activities, pottery production) had developed the specialised skills necessary to exploit the island's natural resources – especially copper processing. Those centres located on the coast, or near to a port of export, in addition developed maritime and international trade and exchange expertise.

Most of these urban administrative centres seem to have been 'capable of independent manufacture and exchange'.<sup>53</sup> Their cooperation, on internal and export matters, facilitated by the actions and rules of the state institutions, was compulsory. This was the only way that, for example, smelted copper from Apliki *Karamallos* could be exported from Enkomi on the other side of the island without internal conflicts.<sup>54</sup> For sure, this was done after consolidation, market segmentation, and understandings in terms of the internal sharing of the proceeds. We thus have an example of the state enforcing its production and export policies in a way that was mutually beneficial: the state gained efficiency in revenue extraction and the participating organisations increased their wealth by being part of the process and becoming more productive and efficient.<sup>55</sup> This resulted in a win-win economic environment and a distributed wealth society evidenced in Cyprus'

<sup>53</sup> Bell 2005: 190; Monroe 2000: 302.

<sup>54</sup> A large part of the Cypriot LBA copper oxhide ingots found outside Cyprus are traced to the area of Apliki, a traditional view that is increasingly challenged. Since most of Cyprus copper exports were most probably undertaken from Enkomi, then a reasonable deduction is that much of the Apliki copper might have ended up there for processing and export.

<sup>55</sup> Muchs 2016: 5.

material culture. We will examine in more detail in the course of this book how this economic model worked for the export of surplus agricultural products in a case study of the economic environment at *Ayios Dhimitrios* in the Vasilikos valley.

As already stated, institutions determine and provide opportunities in a society; organisations exist to take advantage of these opportunities. This is what happened to Cyprus during the LBA: by successfully participating and engaging in international diplomacy the state institutions opened up the export markets to the products and maritime services of the island. This included not only production and export of copper but also bronze artifacts, oil and aromatics, as well as timber and probably purple-dyed textiles and pottery. These activities provided opportunities to the economically active urban settlements of the island, run by organisations controlled by the elite and entrepreneurial sections of the society, and accelerated urbanisation and created a thriving maritime industry. The urban settlements grew in stature and financial power. The prosperity of the island is evident in the material culture and is expressed by the creation of new settlements, population increase, technological advances, and economic intensification.

It has been argued that a stratified society developed during this period.<sup>56</sup> The emergence of the state and the establishment of an institutional system created a new elite order and a peaceful and stable socio-political environment. This is evident not only from what has been described above but also from the absence of violent destruction of settlements, and little or no osteological evidence for warfare. With the new political order, the fortresses that appeared during the MC III-LCIA period (c.1750–1450 BC) for defensive and economic purposes, and for protecting and observing the movement and interaction of people and materials, were no longer needed and thus abandoned.<sup>57</sup> No further fortifications appear on the island until the end of the First Economic Cycle, i.e. the last part of LC IIC, which in any case, is mostly a result of external volatility. With the new political order, the possible appearance of a hereditary elite group has been suggested.<sup>58</sup> This group could have aligned itself with the newly legitimated institutions in ways that might have been either formal (i.e. written Civic Law) or informal (i.e. unwritten Common Law), and among other institutional features they promoted enforcement of property rights. We suggest that the enforcement of property rights was mostly informal and dictated by the rules of the institution that the elites and their organisations were

<sup>56</sup> Knapp 2013a; Peltenburg 1996.

<sup>57</sup> Crewe 2007; Monahan and Spigelman 2019: 152–155.

<sup>58</sup> Manning and Swiny 1994; Monahan and Spigelman 2019: 139; Peltenburg 1996.

part of. It has been suggested that non-hierarchical organisations can also assure property rights and enforce property transfer agreements in an informal manner.<sup>59</sup> Such an example, used by Professor Muchs to introduce enforcement of property rights in ancient Egypt, is that of the Jewish Magribi traders operating in North Africa during the 11th and 12th centuries AD and serving as agents to each other.<sup>60</sup> They agreed between them that if one member of the coalition was caught cheating, the remaining members would refuse to deal with him, effectively shutting down his business. The long-term cost of cheating on each other was disproportional to the benefit, thus the measure served as an effective deterrent and in this way, integrity of business and property among members of the coalition was preserved. Another example comes from medieval Europe, where foreign merchants grouped together in guilds and compelled all members to embargo any ruler who did not provide safety and security to them. In this way, by collectively sticking together and abiding by common rules, they safeguarded and guaranteed their property rights.<sup>61</sup>

In the same way, we may suggest that the leading ruling elites of the island, in alignment with the state institutions, agreed not to violate or attack each other's property, thus safeguarding everyone's integrity and enforcement of property rights. Along the same lines, Monahan and Spigelman argue for the established interconnected economy of Cyprus in the LBA, incorporated in its structure, apart from physical safety and institutional property right features.<sup>62</sup> NIE identifies property rights as a key institution that promotes economic choices and development<sup>63</sup> and shapes socio-economic behaviour and options. It is not unreasonable to propose that within the created peaceful environment and stable institutional system and socio-political stability of Cyprus during the First Economic Cycle, property rights were assured and enforced. The absence of direct material or documentary evidence can be accounted for by the fact that such institutions, as demonstrated, could be informal.

Such examples could be the elite buildings at KAD (Building X), *Alassa Paliotaverna* (Building II), and *Maroni Vournes* (Ashlar and West Building). They were used as residences for the elite as well as for administrative activities and as large-scale storing facilities. The existence of a common understanding and an informal property rights institution, whereby the leading elites of the island respected each other's property, could have encouraged them to make improvements, investments

and innovations, because they were assured that their investments were not in danger and expected to retain the bulk of the resulting benefits. It would make no sense to invest without assurances of property rights. That this was the case might be supported by the lack of any fortifications needed to defend property.

The economic intensification and development created a stratified political and social order, as evidenced in the architecture and rich findings in the mortuary sphere of the island. The monumental administrative and residential elite buildings, together with the rich burial findings and higher-order luxury items, are proof of power and prestige, as well as wealth and social inequality.<sup>64</sup> These ruling elite groups, which kept a close contact with the state institutions, had access to, and means of exploitation of the island's internal resources and production. They also had access to the external sources of information and communication as well as to the trade networks of the common maritime and mercantile zone. This stratified social order and inequality took place not only within the urban administrative settlements but also in between them. The quantity and type of luxury goods found within intramural burials in urban centres near the coast, in places like Enkomi, Hala Sultan Tekke, and *Ayios Dhimitrios*, is much richer than the corresponding ones in inland communities, such as *Ayia Paraskevi*, *Politiko*, and *Arediou Voupes*.<sup>65</sup> This suggests that the communities living on the coast were those who benefited most, and perhaps had a superior status to those inland, with the exclusion of *Alassa*. This is normal, as these were the ones driving the island's maritime economy and consequently regulated production and controlled exchange with export markets. They were the ones with most direct access and interaction with the state core institutions that were probably concentrated mostly on the coast. This alignment between state institutions and the organisations of the island is reflected both in the textual and material culture evidence, and narrows the interpretational gap between them.

We can therefore propose, according to the available evidence, that the economy was not exclusively controlled by a specific group: the king and his entourage. This way, positive development of its society was not blocked,<sup>66</sup> but the state institutions aligned themselves with the organisations of the island, specifically the councils and elders running the island's urban settlements and the entrepreneurial trading establishments, and created an environment that promoted opportunities and incentives. In other words, the state institutions, most members of which were involved in trade, especially bulk trade of copper,

<sup>59</sup> Muchs 2016: 5.

<sup>60</sup> Greif 1993: 2006.

<sup>61</sup> Greif 2006.

<sup>62</sup> Monahan and Spigelman 2019: 153.

<sup>63</sup> Manning 2018: 28; Muchs 2016: 4; North 1990: 3–10.

<sup>64</sup> Knapp 2018a: 15.

<sup>65</sup> Knapp 2018: 15; Keswani 2004: 134–136 and 143; Steel 2016.

<sup>66</sup> Bresson 2016: 21–22; North 1981: 158–186.

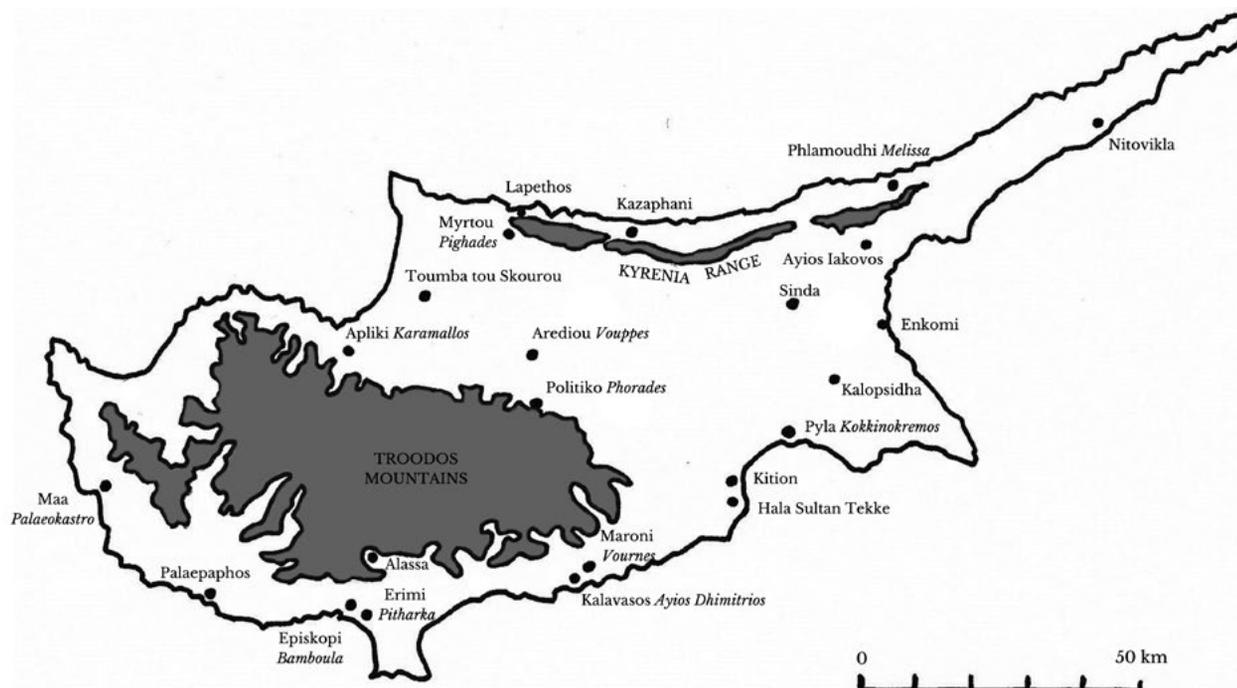


Figure 2: Cyprus and its major urban administrative centres, ports and settlements during the First Economic Cycle (drawing: Katerina Parpas).

left the actual day-to-day running of the business (trade of timber, agricultural products, pottery, textiles, aromatics, transport, tinker, and tramping activities) to private enterprise.<sup>67</sup> This may have transpired from the way they cooperated in the production of copper and olive oil. This promoted growth and productivity and enhanced technological advancements and international maritime trade, thus helping the island’s economy to reach its peak during this period. In summary, this was the result of inclusivity and an institutional system that comprised:<sup>68</sup>

- Political infrastructure (moderating institutions, international relations and recognition, security).
- Industrial infrastructure (energy, industrial production and tools, workforce, specialised craftsmen, miners, production of food, overland and marine transport means, finance, credit, legislation, shipbuilding).
- Social infrastructure.
- Physical infrastructure (roads, way stations, anchorages).

The success and intensification of the Cypriot economy, and consequently its maritime economy was the result of:

- Successful participation in international relations and long-distance trade, including

reciprocal gift exchange on the part of the king, and the state level institutional system.

- Clear understanding of the rules and structures in relations between institutions and organisations. This is evident from their relatively peaceful coexistence.
- Low-profile governance and administration with a matrix management structure and delegation of authority and regulation, as evidenced by the autonomy the urban administrative centres enjoyed.
- Opportunities, incentives, and encouragement for entrepreneurial activities.
- Development of diversified export portfolios, both in products and market sectors.
- Evolution of new settlements, organisations, and population growth.

When exogenous factors reduced the ability of the state institutions to continue to be useful to the elite classes and their organisations, then the centrifugal forces triggered by urbanisation and the organisations in control of the urban administrative centres prevailed and became the predominant agents of change.

**THE URBAN ADMINISTRATIVE CENTRES AND SETTLEMENTS DURING THE FIRST ECONOMIC CYCLE**

To facilitate our study, we will conduct a brief review of the island’s major urban administrative centres during this period, together with the two short-lived settlements of Maa Palaeokastro and Pyla Kokkinokremos.

<sup>67</sup> In a way similar to how it was undertaken in Assur during the Old Assyrian metal trade in Anatolia. See Barjamovic 2018: 129.  
<sup>68</sup> The same principles applied for the success of the Old Assyrian trade activities in Anatolia.

## Enkomi

We start with Enkomi, the most prominent LBA Cypriot metropolis, located near the east coast, c. 4 km inland on the common estuary of the Pediaios and Yialias rivers (Figure 35). The city was founded in late 17th century BC. Most probably the mouth of the Pediaios and Yialias rivers were navigable up to Enkomi, where a large lagoon served as the city's port<sup>69</sup> and with access to the sea via a navigable sea channel.<sup>70</sup> It was thus well protected against raids and southerly winds.

The urban administrative centre of Enkomi within the walls is estimated to be 16 ha, with an estimated population of 3200 inhabitants.<sup>71</sup> Knapp, who supports the view that in Cyprus, during the First Economic Cycle, there was one central state, is also of the opinion that Enkomi was its central administrative centre.<sup>72</sup>

The site was built on a *hippodamic* system, consisting of a large, vertical and horizontal road intersecting at the centre of the town, with smaller streets in between, forming residential quarters (Figure 4). These quarters were occupied by large-scale residential/administrative buildings, such as Building 18 and the Ashlar Building, later adapted to the sanctuary of the Horned God and the Double Goddess, as well as a number of sanctuaries and metallurgical installations, such as the 600 m<sup>2</sup> Fortress industrial complex. Dikaïos believes the Fortress became an elite residence, at some stage, while still producing copper at the same time.<sup>73</sup> Building 18 is one of the largest building complexes in the city.<sup>74</sup> Although it can be considered within an elite context, it is no longer viewed as a single architectural complex, like the Ashlar Building in quarter 6E, but instead a complex of smaller structures – even perhaps an 'upmarket' apartment block with individual units and open spaces extending over 1800 m<sup>2</sup>. In any event, the function of the building complex is not yet clear. Both the Ashlar Building and Building 18 could accommodate mercantile families or trading establishments of the types of the houses of Yabinu, Urtenu, and Rapanu at Ugarit. It is not unreasonable to suggest that they could

perform similar functions to Yabinu's 1000 m<sup>2</sup> house at Ugarit.

There is no evidence of any industrial primary smelting being carried out at Enkomi during the First Economic Cycle. This is evidence that the city's industrial activities were oriented towards the final stages of copper refinement and the most specialised, higher ends, of the supply and production chain. There are a great many copper workshops, especially in the Fortress area, with its industrial complex of fifty rooms, one of the largest of its kind on the island. The general industrial and social environment of the city, with its rich intramural burial chambers scattered in different areas, suggests the existence of a vibrant and cosmopolitan, as well as professional, urban society. Like Makshar Shapir in Mesopotamia,<sup>75</sup> no palatial monumental buildings were found to evidence an apparent central royal authority comparable to Enkomi's trading partners on the Syro-Palestinian coast, especially Ugarit.

The complexity of the entire socio-economic model, which required planning and control of uninterrupted supply of industrial raw material from distant and inland places, and tin from overseas, as well as supplies of foodstuffs and provisions for its workforce and inhabitants, testify to highly specialised and organised leadership. This leadership accumulated considerable resources that permitted it to establish a regional political, military, and economic administration. Although, eventually, Enkomi had to learn to share to a certain degree its near oligopoly of the copper industry with other urban centres during the LBA, it is still considered the dominant player on the island.



Figure 3: *The Ashlar Building at Enkomi of administrative and religious character. Its monumentality is comparable to similar buildings in Ugarit* (courtesy Department of Antiquities, Cyprus).

The degree of specialisation and the high skills of its workforce, especially in the bronze manufacturing

<sup>69</sup> The terms port and harbour are often used interchangeably in discussion of maritime infrastructure. To avoid confusion here, the common convention is followed, by which harbour refers to the protected and often partially or fully enclosed space used by vessels for shelter. By contrast, port, here distinguishes a facility or location where goods and people can pass between maritime and terrestrial context (Leidwanger 2013: 221). Anchorage denotes a natural bay or inlet that serves as a mooring or as an anchoring facility.

<sup>70</sup> Devillers 2008.

<sup>71</sup> This is estimated using an average population density of 200 persons per ha (Aperghis 2004: 13–15). This is the global average recommended by Doxiades and Papaioannou 1974: 52. For more discussion and comments, refer to Knapp 1997, and for objections Iacovou 2007.

<sup>72</sup> Knapp 2008: 340–341. South and Todd 2002: 67–68.

<sup>73</sup> Dikaïos 1969–1971: 1, 65–66, 1971: 2, 506–512; Pickles and Peltenburg 1998: 87.

<sup>74</sup> Karageorghis 2002: 104.

<sup>75</sup> Peltenburg and Iacovou 2012.

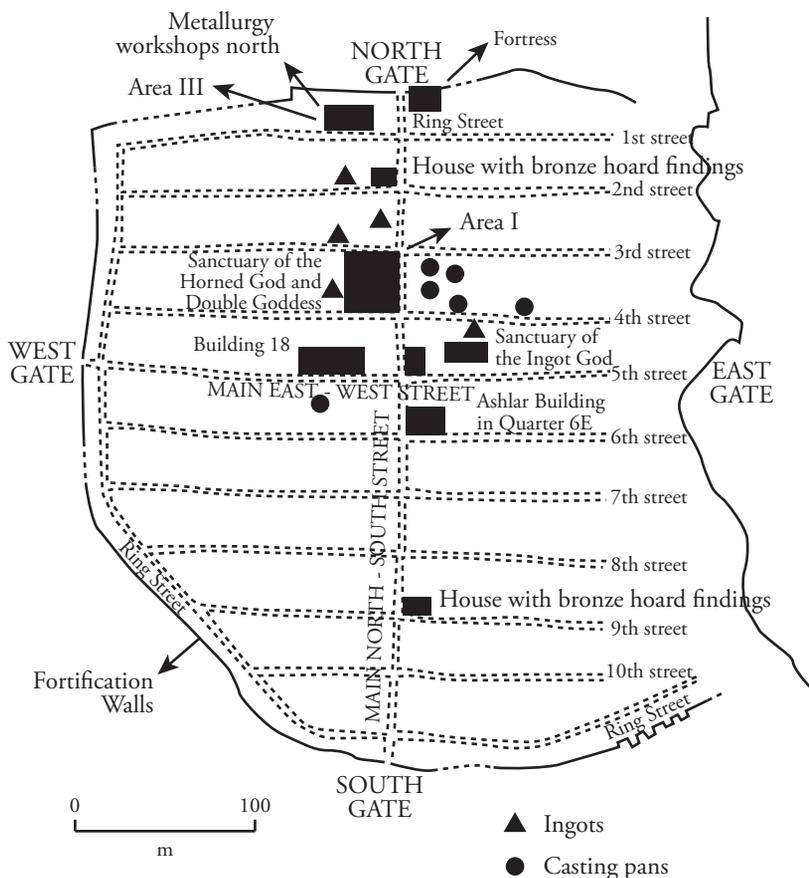


Figure 4: Enkomi ground plan (drawing: Philipos Vasiliades, after Webb 1999 and Buchholz 1988).

industry, contributed to a successful export-oriented economy that required knowledge and sustainable contacts of export markets and loyal clientele. The perfect location and its proximity to the northern Syrian coastline, a day’s trip from Ugarit, enabled the city to become the first and most busy manufacturing centre and *emporion* on the island.<sup>76</sup> It is generally accepted that during the First Economic Cycle its economic intensification helped Enkomi achieve advanced urbanism.

Enkomi is the site with the highest number of Cypro-Minoan tablets. Of the nine Cypro-Minoan tablets known, five were found at Enkomi, the other four at Ugarit. Almost 130 Cypro-Minoan inscriptions were found at Enkomi. This is a sign of a high level of literacy and a working bureaucracy. All these features are unmistakable evidence of institutional concentration at Enkomi.

It was not until the beginning of the LC IIC that Enkomi acquired its ‘Cyclopean’ defensive rampart. This might be an indication of the threat the city was facing from possible raids by seaborn raiders at that time. The city demonstrated continuous economic and social development up until its gradual and orderly

abandonment. The high sediment load of the two rivers (Pedieos and Yialias) from Mesaoria eventually silted up the channel to the sea, forcing its inhabitants to move in the end to Salamis.

**Hala Sultan Tekke**

Another important coastal urban administrative centre during the First Economic Cycle was Hala Sultan Tekke. The location of the site (known today as Dromolaxia Vyzakia) is on the south-eastern coast of Cyprus, south-west of the Larnaca Salt Lake. Its port facilities, among the island’s most important and busy, were located in a coastal lagoon with a navigable outlet to the sea. From mid 13th century BC onwards the build-up of alluvium progressively silted this lagoon and blocked its access to the sea, thus rendering it unsuitable for navigation. We have no archaeological evidence yet for the existence of the LBA port apart from numerous stone anchors.<sup>77</sup> It is anticipated that a shipyard existed at this port. It has also been suggested that other, smaller, anchorages, e.g. at Cape Kition, might have served the trade and movement of goods of the surrounding and nearby areas.<sup>78</sup>

<sup>76</sup> Bell 2012.

<sup>77</sup> Fisher and Burge 2018: 608.

<sup>78</sup> Michael 2014: 487.

Recent magnetometer surveys were conducted over an area of 23 ha. Professor Fischer, the most recent excavator of the site, estimates, subject to verification by further fieldwork, that the LC II Hala Sultan Tekke settlement could have been up to 25 ha, or even 50 ha,<sup>79</sup> with a tentative approximate population estimate between 5000, to a maximum of 10,000, inhabitants. The magnetometer map shows the outlines of a large walled structure, close to the proposed ancient harbour, that might eventually be identified with the administrative centre of the city. There are also indications of a city wall with moat.<sup>80</sup>

There is no evidence yet of any large storage and redistribution facilities like Building X at Kalavassos *Ayios Dhimitrios*, or Building II at Alassa *Paliotaverna*. Sufficient agriculture and farming products were locally produced, but there is no evidence that there was any surplus as such that could have been used for exchange.

Hala Sultan Tekke's income came from manufacturing and long-distance trade. There is evidence for metal work and copper workshops on an industrial scale, including the refinement of copper, and the production of bronze, silver, lead, and gold objects. The wealth evidenced from the Hala Sultan Tekke tomb findings are comparable to those of Enkomi.

The nearby rural settlement of *Trypes* is situated 1.5 km from Hala Sultan Tekke. It operated as a satellite settlement to its more cosmopolitan coastal urban neighbour, and was preoccupied in farming and cattle breeding, taking advantage of the proximity of a thriving port nearby. The two sites were most probably centrally administered and their relations were much like those between the elite site of Alassa *Paliotaverna* towards the neighbouring metalworking and agricultural producing site at *Pano Mandilaris*.

### Kition

Kition, 6 km to the east of Hala Sultan Tekke, was another coastal urban administrative centre with port facilities in place since the 14th century BC; it and Hala Sultan Tekke coexisted as two distinct administrative entities during this period.<sup>81</sup> Kition's strength and importance to maritime trade was much increased after Hala Sultan Tekke's abandonment.

The two main areas of excavation at Kition, Area I (*Chrysopolitissa*) and Area II (*Kathari*), produced evidence of residential and industrial use. The rich findings at Tomb 9 are evidence of a stratified economically active society with a wealthy elite at its upper level. Area II, spread up to 6000 m<sup>2</sup>, considered the sacred precinct, was reorganised extensively in the early 12th century BC. Workshops excavated in its northern sector are associated with metallurgy and at its western sector are associated with weaving and textile manufacture. They are also clearly associated with religion as well as with maritime activities associated with the port of the city at *Kathari*. Kition survived during the transition period from the First to the Second Economic Cycle, even increasing its political, commercial, and maritime activities. This is a strong indicator that it had a sustainable, socio-political and economic model, coupled with strong defences for its survival.

### Maroni

The two most important administrative urban centres in the Maroni area in the LBA were at *Vournes*, c. 500 m from the coast, and *Tsaroukkas*, right on the coast (Figure 5). By the 14th century BC we have evidence at *Tsaroukkas* and *Vournes* of tombs with exotic imports, as well as Mycenaean pottery, pointing to trading and exchange activities. At *Vournes* the LC IIC Ashlar Building (600 m<sup>2</sup>) was excavated, built on a previous LC I structure. The free-standing Basin Building, which could have been used for industry or religious rituals, was also discovered. The Ashlar Building, which seems to have been built in two phases, reached its most prosperous phase during LC IIC, at the end of the First Economic Cycle. The same holds for its neighbouring West Building, 430 m<sup>2</sup> (27 m x 16 m), used for storing and administrative purposes (Figure 5). During LC IIC it has been extended and used for textile working and dyeing, as evidenced in Rooms 8–15.<sup>82</sup> We also have evidence of metallurgy, and olive oil production in Room 4 and olive oil storing in Room 18. At *Tsaroukkas* harbour two LBA buildings, Buildings I and II, 20 m x 20 m each (Figure 5), were identified, with a possibility of two more.<sup>83</sup> The buildings seem to have been used for storing, metallurgy, weaving, olive oil and wine pressing. We thus have in the Maroni valley significant socio-economic activities and production<sup>84</sup> which peaked during the LC IIC, supported by a functioning port at *Tsaroukkas*. This is evidenced by more than thirty anchors found on the seabed at *Tsaroukkas*, as well as a number of pottery sherds, most dated to the LBA. Some of the three-hole anchors found, measuring 1 m in height, are among the largest examples ever

<sup>79</sup> This was estimated by Professor Fischer during a lecture given (22 October 2018) at the ARU of the University of Cyprus, in which he stressed that this is only a tentative working hypothesis, and further research is needed on the subject. For discussion and reservations, see Iacovou 2007.

<sup>80</sup> Fischer and Burge 2018.

<sup>81</sup> Keswani 1996: 223.

<sup>82</sup> Cadogan 2018: 112–113.

<sup>83</sup> Manning and De Mita 1997: 126.

<sup>84</sup> Manning *et al.* 2014: 11; Manning and De Mita 1997: 124.

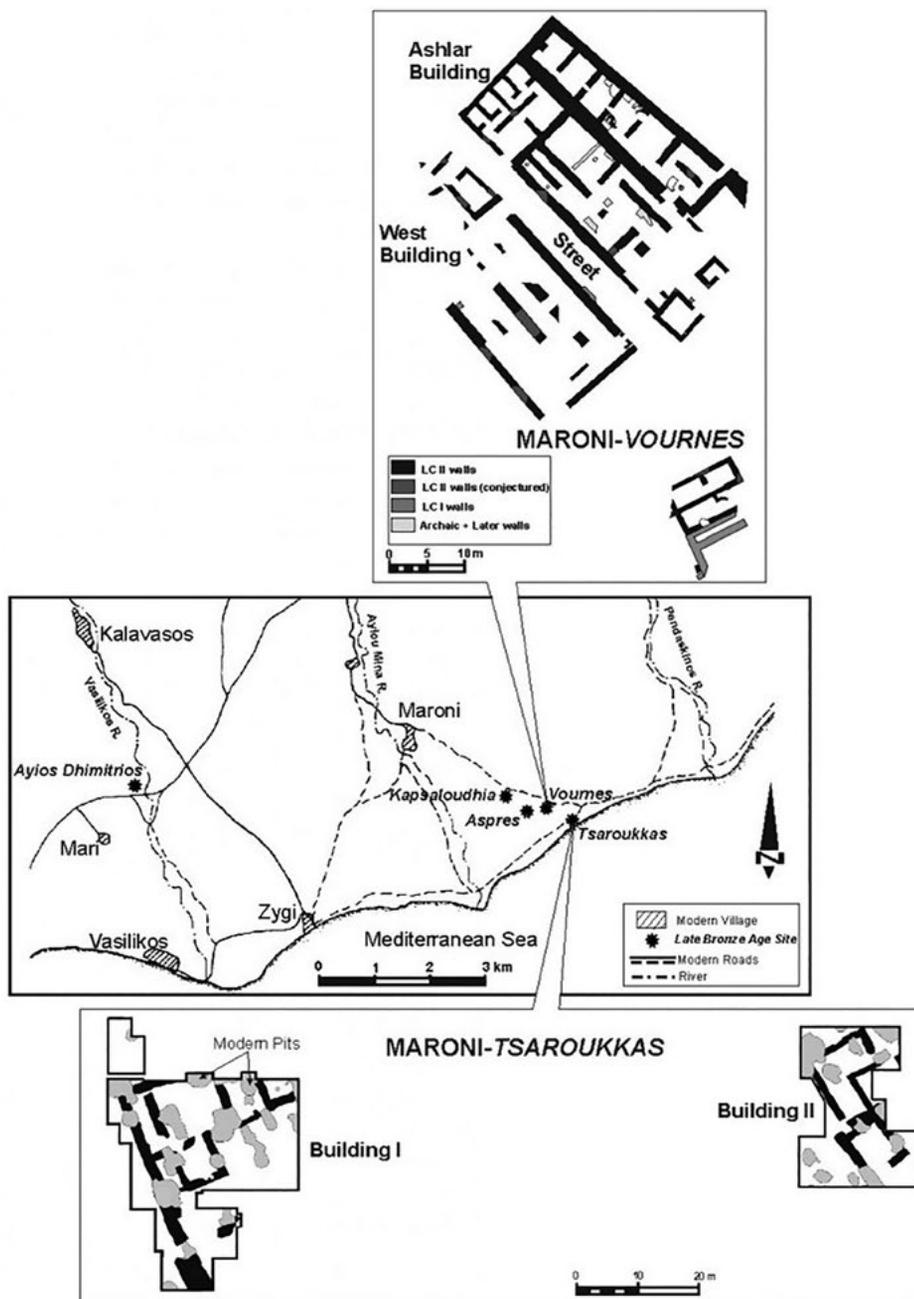


Figure 5: Maroni and Kalavastos valleys (map: Kalavastos Maroni Built Environment Project, courtesy KAMBE).

discovered.<sup>85</sup> Six anchors or press weights have also been found during land excavations. Three ceramic boat models excavated at Tsaroukkas give us a clear indication of the importance of maritime activities and sea-trade for the inhabitants of the settlement.<sup>86</sup>

Tsaroukkas most probably functioned as a sheltered anchorage and a gateway for the entire Maroni valley. From the evidence it can be argued that it was an *emporion* where foreign traders and seafarers would

trade their imported luxury and exotic goods for local raw materials and manufactured goods.

Both the Ashlar Building at Vournes and Building X at Ayios Dhimitrios (Figure 6), like other similar buildings elsewhere on the island during the same period, mark a social, economic, political, and architectural revolution.<sup>87</sup> They were the result of the opportunities and motivation given by the state institutions, resulting in population increases and economic intensification. The Ashlar Building, which is more modest than

<sup>85</sup> Sewell 2015: 188.

<sup>86</sup> Sewell 2015: 188.

<sup>87</sup> Cadogan 2018: 113.

Building X at Kalavassos *Ayios Dhimitrios*, suggests a less wealthy elite community residing at Maroni during the LC IIC compared to that at *Ayios Dhimitrios*. The estimated inhabited area is c. 26 ha of low-density occupation. The LC IIC population is estimated to have peaked in the region of 1000 to over 2500.<sup>88</sup> Both settlements were abandoned in an orderly manner after the LC IIC.

### Kalavassos *Ayios Dhimitrios* (KAD)

The most important administrative urban centre in the Vasilikos valley was the *Ayios Dhimitrios* settlement at Kalavassos, 6.5 km west of *Vournes* and 3.5 km from the coast. It was initially settled during the LC IIA,<sup>89</sup> and by the 14th century we have the same evidence of occupation and rich burials as at Maroni, as well as exotic imports that include Mycenaean pottery. The urban centre reached the peak of its development during the LC IIC for the same reasons that applied to Maroni above.

During the LC IIA to IIB *Ayios Dhimitrios* and *Vournes* became the focus of the Vasilikos and Maroni areas respectively. Their authority extended to their respective anchorages and functioning trading ports at *Tochni Lakkia* and *Tsaroukkas* respectively. Based on present evidence, it seems the settlement at *Ayios Dhimitrios* eventually became a more important administrative and elite centre than *Vournes*, with agricultural industrial production and monumental building structures. It is possible that both might have at some stage formed one entity where *Ayios Dhimitrios* was the leading partner. It has been suggested both might at some stage have become dependent on the larger urban administrative centres at Hala Sultan Tekke and Kition.<sup>90</sup>

At *Ayios Dhimitrios* we have evidence of a stratified society consisting of a ruling elite with a functioning administration and a rural population of peasant, non-elite social groups; we thus have indications of complexity and social inequality. This is clearly demonstrated in the architectural structures and tombs uncovered by the excavator of the site, Alison South, between 1979 and 1998. *Ayios Dhimitrios*, unlike *Vournes*, seems to have been built on a regulated urban setting. The administrative quarter of the settlement is located at its north-east area (Figure 8). It comprises of a number of structures with the Building X (1135 m<sup>2</sup>) being the most important edifice (Figure 6). The building was first constructed in the late LC IIB to early LC IIC and was later rebuilt with ashlar blocks c. mid LC IIC.<sup>91</sup> This was the time the settlement, and indeed the whole Kalavassos area, reached its peak. The function of

the building was for storing olive oil and for feasting and other administrative and bureaucratic activities, as evidenced by the inscriptions with Cypro-Minoan writing found within the building. The presence of a staircase and the robustness of its construction points to a two-storey building. It was most probably used for an elite residence, although we have no direct proof for this. It had two *pithos* storing rooms totalling 213 m<sup>2</sup>. The total storage capacity was c. 50,000 l. Based on the results of organic residue analysis, the majority of the storing capacity was used for olive oil. South of Building X another ashlar structure, Building XII, measuring 450 m<sup>2</sup>, was found. It was most probably used for public assembly. All these buildings were part of a large administrative and production complex that comprised at least six buildings, including Building XI, which was situated next to Building X, used for olive oil production (Figure 6).

There is no evidence of large-scale copper smelting at *Ayios Dhimitrios*, although there was limited metallurgical activity evidenced by concentrations of slag, a tuyere fragment, a collection of bronze weights, and possible metal workshops.<sup>92</sup> From the available evidence, we may support only the existence of small-scale smithing activity.

It has been argued<sup>93</sup> that exports of copper from the Kalavassos area reached their peak in mid 1250 BC, about the time Building X was reconstructed. We have no evidence to support such a proposal,<sup>94</sup> so we will consider, unless eventually proven otherwise, that up until that time the major source of income for the *Ayios Dhimitrios* urban centre derived from agricultural and pastoral products. Alison South suggests also the existence of certain domestic and other export-oriented crafts – spinning, weaving, wine pressing. All these activities point to the culmination of the economy of the region at about this time, as evidenced from its material culture.

From the rich findings in the tombs and the elite development of the settlement, it looks as if there were sufficient surplus to allow for exchange. This is attested by the exotic luxury products, including gold jewellery and Mycenaean pottery found in the mortuary of the settlement, among them the rich tombs 11, 13, 14 and 21. Tomb 11, for example, excavated next to Building X, yielded 434 gm of gold jewellery, including twelve earrings, three finger rings, four spirals, as well as necklaces and bracelets. A small silver figurine (6.2 cm high) of a Hittite god found at the site is an indication of elite contacts between KAD and Hatti (Figure 7). The uniqueness of the exotic findings at *Ayios Dhimitrios*, not seen elsewhere on the island, suggests direct exchange

<sup>88</sup> Manning *et al.* 2014: 24.

<sup>89</sup> South 1997: 173.

<sup>90</sup> Cadogan 2018: 116.

<sup>91</sup> South 1997: 172–173.

<sup>92</sup> South 2012: 37–40.

<sup>93</sup> Stos-Gale *et al.* 1997.

<sup>94</sup> van Brempt and Kassianidou 2016; van Brempt 2016.

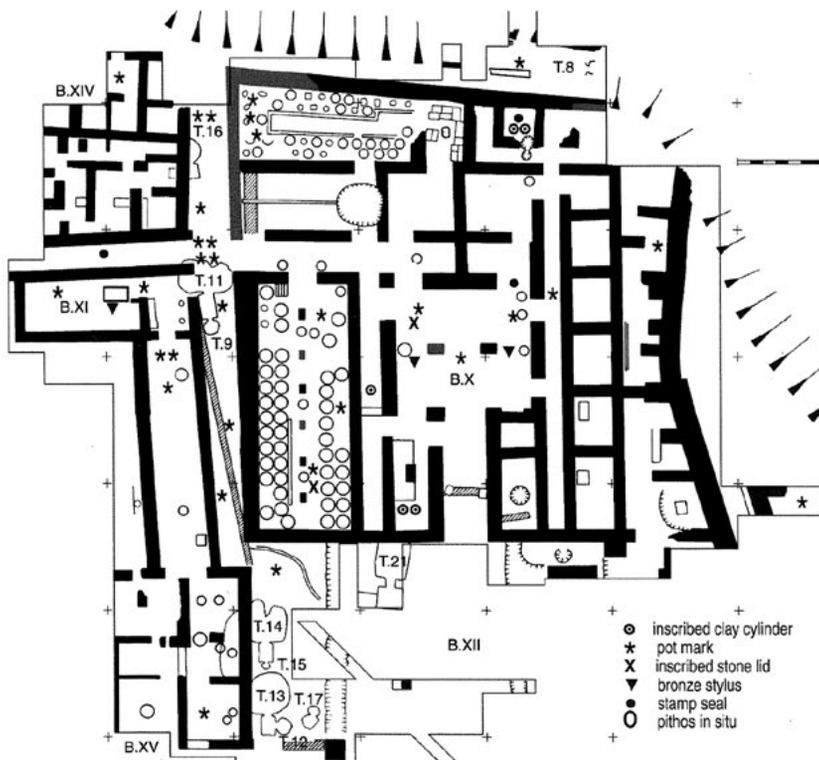
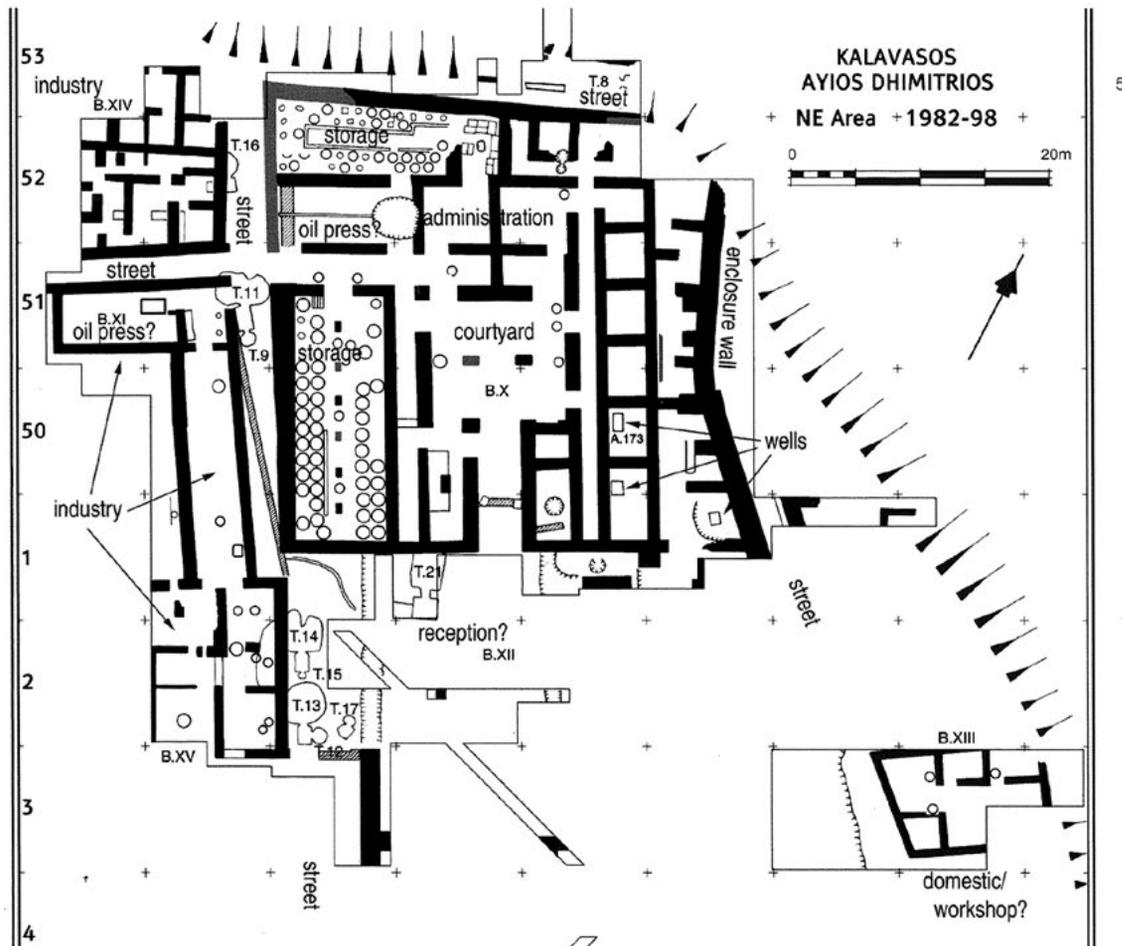


Figure 6: Kalavassos Ayios Dhimitrios Building X, with an estimated total olive oil storage capacity of 50,000 l. (after South 2015: 221; courtesy Alison South).

activities. The KAD settlement is a perfect example of a mercantile economy regulated by market mechanisms – risk, supply, demand, price, profit (see the discussion on Economic History in the introduction to Chapter 1). An indication of the mercantile character of *Ayios Dhimitrios* is the discovery of bronze weights filled with lead, calibrated to the weight standards in use in Syria and the Aegean. These bronze weights have stylistic parallels from other sites in Cyprus, the Near East, the Uluburun Wreck, Crete, and Egypt.<sup>95</sup>

The concentration of higher-order prestige goods, and the presence of a stratified society with status differentiation, indicate the establishment of a closely linked and hereditary social rank.<sup>96</sup> It is worth remembering the ‘servants of the king’ mentioned in Amarna Letter EA 40, with probable hereditary landholding rights, as at Ugarit.<sup>97</sup> It might not be unreasonable to think that some of the inhabitants of *Ayios Dhimitrios* belonged to this class. They were most probably motivated and encouraged by the state to invest in the agricultural industry. The state would benefit from additional income tax revenues and the individuals would see increases in their personal wealth. By employing NIE analysis, Professor Muchs<sup>98</sup> made the same argument for the ancient Egyptian economy. The state in Egypt was primarily interested in enforcing its own property rights to increase the efficiency of tax collection. When the state collapsed in the early 1st millennium BC this role was undertaken by the temples. Although Cyprus had its own particular way to manage its internal affairs, we may consider something similar might have happened, whereby the role was undertaken by the organisations, including the temples, of the urban centres that survived. Unfortunately for *Ayios Dhimitrios*, it was not to be one of the surviving ones. We will examine the reasons in more detail in the economic analysis that follows.

### Alassa

The Alassa urban administrative centre lies at the foothills of Mt Troodos in south-west Cyprus. It was one of Cyprus’ major developed urban administrative centres of the First Economic Cycle and comprised two close settlements, which might have been independent of each other, at *Paliotaverna* and *Pano Mandilaris*. S. Hadjisavvas, the excavator of the site, believes Alassa dominated the Kouris river valley and had under its control the manufacturing and trade of copper in the area, and the redistribution of staples through a complex administrative system.<sup>99</sup> Episkopi *Bamboula* on the coast most probably served as its trading port.

<sup>95</sup> Jones 2007: 303; Muhly 1985: 42; South 1989: 320; South *et al.* 1989: 26–27, 30.

<sup>96</sup> Keswani 2004: 142; Knapp 2018a: 14.

<sup>97</sup> Monroe 2009: 266.

<sup>98</sup> Muchs 2016: 5.

<sup>99</sup> Hadjisavvas 2017.



Figure 7: Silver figurine (6.2 cm) depicting a Hittite god, excavated at Kalavassos Ayios Dhimitrios (courtesy Department of Antiquities, Cyprus).

The large administrative Building II at Alassa *Paliotaverna* is testimony to a central political authority. It is a monumental, communal building of 1420 m<sup>2</sup>, with a courtyard of 440 m<sup>2</sup> that was most probably used for the delivery of tribute and redistribution of foodstuff and commodities. It demonstrates substantial *pithos* storage facilities, used for storing local agricultural production. According to Hadjisavvas it has all the characteristics of a palace. It is estimated that it was constructed after the Amarna era, and the excavator proposes that it was the probable administrative centre of the state of Alashiya in the 13th century BC. Building III, adjacent to Building II, was used for storing purposes and, according to Hadjisavvas, for the production of wine.

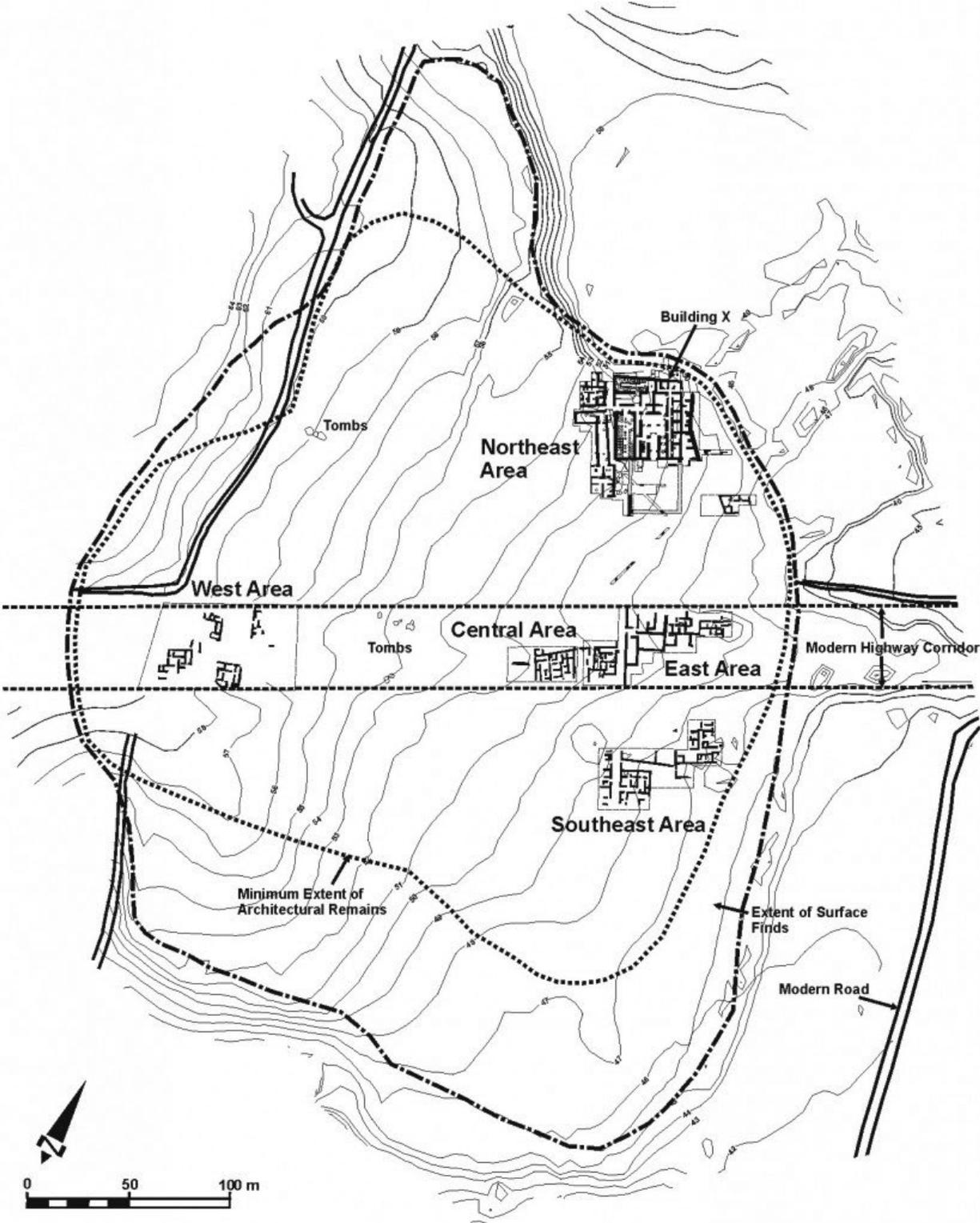


Figure 8: Ayios Dhimitrios settlement (map: Kalavassos Maroni Built Environments project, courtesy KAMBE).

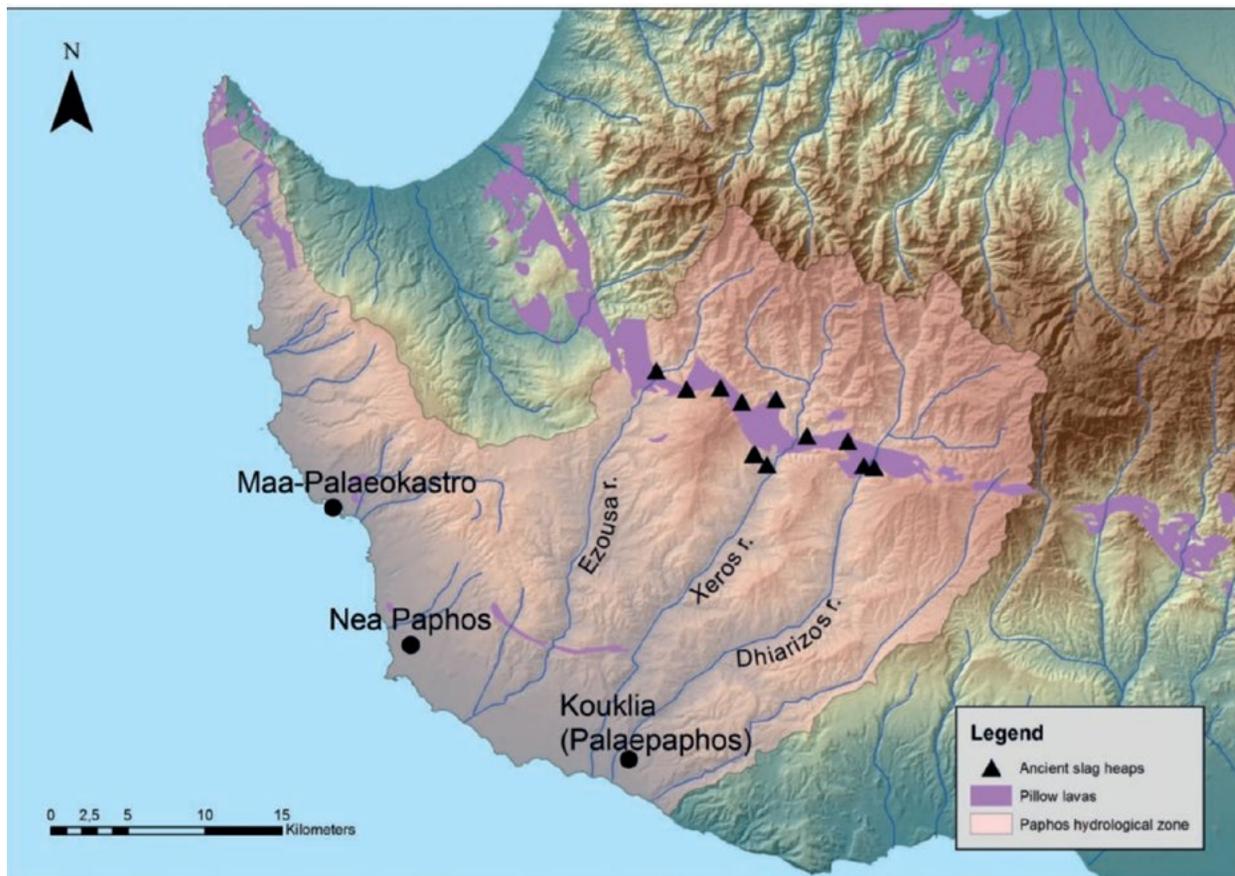


Figure 9: Map of the Paphos area, showing the major copper-producing areas on the southern slopes of Mt Troodos in relation to the Palaepaphos urban centre (map after Georgiou 2017: 211, courtesy Artemis Georgiou; digital data by the Cyprus Department of Geological Survey).

### Palaepaphos

The coastal administrative urban centre of Palaepaphos lies to the west of the island and served as gateway and a terminal link for the copper-producing areas of the southern slopes of Mt Troodos (Figure 9). In spite of numerous archaeological expeditions, its actual location, apart from traces of evidence at Kouklia, and true extent are not yet known. Palaepaphos' foundation horizon is assigned to the MC III–LC IA period (c. 1750–1777 to 1600 BC). During the latter part of the First Economic Cycle the evidence suggests that the centre acquired administrative urban features. This is evidenced by the rich findings from the tombs of the region, indicating a wealthy and stratified society.<sup>100</sup>

Like the LBA ports of the other major coastal centres, Palaepaphos' original anchorage, which served as the port of the city, is not yet found. Iacovou believes the most likely candidate for this anchorage is the area of *Loures*, to the south-east of the sacred sanctuary. This lagoon, providing natural protection from the strong south winds, was in visual contact with the sacred

area. Duncan S. Howitt-Marshall<sup>101</sup> suggests, in addition to the *Loures* lagoon, an offshore anchorage south of Palaepaphos, at Kouklia *Achni*, which served as an offshore maritime terminal. The proposal is supported by the discovery of 120 stone anchors next to the proposed anchorage.

One probable scenario could be that there was a lagoon serving as a port on shore<sup>102</sup> that was used to beach smaller boats, either by 'momentum beaching', i.e. driving the ship on shore with such momentum that the craft partially beaches itself; but this requires a sandy beach. A safer option would be by 'hauling out', accomplished by the manual lifting of the hull and dragging up the ship with ropes, or the employment of groundways or slipways.<sup>103</sup> 'Tide beaching' would be impossible, since tides are not a usual phenomenon in the Mediterranean. For larger and heavier merchantmen, impossible to beach, and in the absence of proper

<sup>101</sup> Howitt-Marshall 2012: 104–121.

<sup>102</sup> Archimandrite Kyprianos, in *Ἀρχιμαδρίτου Κυπριανού Ἱστορία Χρονολογική τῆς Νήσου Κύπρου*, published in Venice in 1788, makes reference to a lake near the sanctuary large enough to serve as a port, but silted in antiquity.

<sup>103</sup> Votruba 2017: 7–9.

<sup>100</sup> Keswani 2004: 134.



archaeological work is carried out both onshore and off, and a detailed study of the geomorphology of the area is conducted.

No matter how it was managed, the end result was that the site of Palaepaphos provided a very convenient stopover for resupply, the loading/reloading of cargoes, and ship maintenance. These factors helped Palaepaphos, as an urban coastal centre, not only to survive the turmoil and instability after the LBA, but to continue and consolidate its position even further.

**Maa Palaeokastro**

The Maa Palaeokastro settlement is located 26 km west of Paphos on a rocky peninsula between two natural harbours, suitable for anchorage of small ships, as shown in Figure 10. It was extremely short lived, c. 50 years, starting from the late LC IIC. It was a fortified way station with connections to the copper-producing areas to the north. However, its main function was trade, being on the maritime route between the Aegean and the Levant. The area excavated so far (c. 46,000 m<sup>2</sup>) might be only part of the total settlement. The material culture of the site leads us to suggest that Maa Palaeokastro had substantial trade activities with both the Levant and the Aegean. The evidence points to people from the Aegean being among its inhabitants.

There are architectural similarities between 13th-century Tell Nami in modern Israel and Maa. This might be an indication of the close contacts between Maa and the Levant, where Tel Nami might have played an important role.

Of significant importance is the corpus of balance weights found at the site. The weights conform to a variety of standards, including Aegean and Syro-Egyptian, but also Cypriot standards, such as those found at Enkomi and Kalavassos. This is evidence of the site’s cosmopolitan trading activity. It is worth noting that Maa yielded far more weights of the Ugarit standard than Enkomi.<sup>105</sup>

mooring facilities, Kouklia Achni, just 50 m or so from today’s shoreline, might have served as a purpose-built anchorage, with the large anchors being left in situ on the seabed for vessels to affix their mooring ropes to.<sup>104</sup> These anchors might have a ritual purpose as well, being deposited as offerings to the sacred sanctuary. This is only a working hypothesis until further

<sup>104</sup> Howitt-Marshall 2012: 113, 117.

<sup>105</sup> Bell 2005: 200.

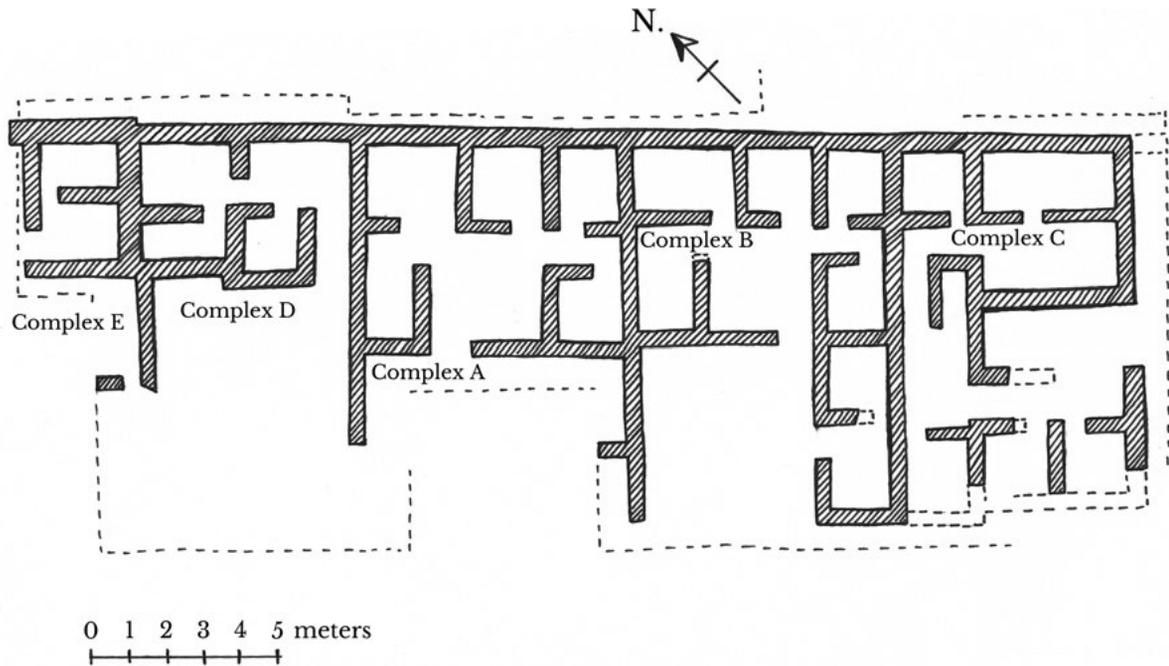


Figure 11: Ground plan of the 1981–1982 excavations at Pyla Kokkinokremos (drawing: Katerina Parpas, after Karageorghis and Demas 1984: fig. 4).

### Pyla Kokkinokremos

The Pyla Kokkinokremos settlement, located close to the Bay of Larnaca, 800 m from the coast, is contemporary with the settlement at Maa *Palaeokastro*. It was most probably occupied in the very late LC IIC for thirty years or so (Figure 11). The fortified site most probably had an anchorage nearby, or a closed harbour, since the sea in that area in antiquity was further inland than its shoreline today. It has been proposed that a possible prehistoric anchorage existed c. 150 m from the modern coastline.<sup>106</sup>

The site seems to have been a gateway to the coast from the Mesaoria plain. The overall settlement on top of the *Kokkinokremos* plateau, pending further archaeological work, might be even larger than the one at Maa. Due to its proximity to the Troulloi mines there is evidence of metallurgical activities at the settlement, although, like Maa, it operated mainly as a trading station. The majority of the weights found at Pyla conform to Syro-Egyptian standards, pointing to substantial trade relations with the Levant and Egypt, which makes sense given the orientation of the site. Worth noting are the two silver ingots (c. 2600 gm total weight) found at the site, which were most probably the result of the exchanges extensively carried out there.

Pyla *Kokkinokremos* has many similarities to Maa, but also a few differences, one of which is the way it

stopped functioning. According to Karageorghis and Demas, Maa *Palaeokastro* was violently destroyed, and its population abandoned the settlement in an orderly manner, while Pyla *Kokkinokremos* was abandoned in a hurry.<sup>107</sup> Their abandonment might not be irrelevant to the expansion and control over their surrounding areas by Palaepaphos and Kition respectively. It is worth noting that it is at about this time that Kition, with its monumental Temple I complex, and Paphos, with its sanctuary, were claiming regional dominance and control over their surrounding areas. Rather than the traditional view that the two sites were gateways and outposts of neighbouring inland sites, Sherratt proposes an association with piracy, suggesting the sites have been outposts or outflanking centres serving mercantile elites who broke away from Palaepaphos and Kition respectively.<sup>108</sup> Most probably both sites were operating independently, and in isolation from the established order on the island, by newcomer settlers or intermediary mariners, possibly in association with local elites. Both sites, like KAD, demonstrate features of mercantile economy regulated by market mechanisms identified above, i.e. risk, supply, demand, price, profit.

The life of both settlements extends to the Second Financial Cycle, when they ceased to exist shortly after 1200 BC. We will thus deal in more detail with the causes of their destruction in the Second Economic Cycle.

<sup>106</sup> Georgiou 2015; Knapp 2018: 41; Michael 2014: 483; Zomeni 2014: 215–216.

<sup>107</sup> Karageorghis and Demas 1988: 265.

<sup>108</sup> Sherratt 1998: 300–331, n. 15.

### Morphou *Toumba tou Skourou* and Myrthou *Pighades*

Morphou *Toumba tou Skourou*, on the bay of Morphou, might have been a regional administrative urban centre. Due to extensive destruction of the site for agricultural purposes, and subsequent limited archaeological excavations and visibility, our present knowledge of the site does not permit us to support the logical deduction that it was really a functioning urban administrative centre. What we know for sure is that it encompassed a quarter dedicated to the production of fine-ware pottery and *pithoi*.<sup>109</sup> The nearby settlement of Myrthou *Pighades*, although categorised as a sanctuary and cult centre (Figure 12), provides evidence suggesting that it served multiple functions, such as storage, production, and transport. It might have also served, together with Morphou *Toumba tou Skourou*, as a copper distribution and trans-shipment centre. Both settlements were abandoned at the end of the First, beginning of the Second Economic cycles.

### Peripheral settlements in north Cyprus

Due to limited archaeological work and non-accessibility of the sites in north Cyprus since 1974, there are important settlements that have still not been adequately investigated, among them Lapethos, Phlamoudi *Melissa*, and *Vounari*. At *Melissa* there is archaeological evidence of a large settlement that was operational up until the end of the First Economic Cycle, having storing and redistribution activities as well as workshops for the production of olive oil, ceramics, and copper. Very likely it was a satellite site that served a larger urban administrative centre, possibly Enkomi, or even, as a working hypothesis, Lapethos. All these sites in the north of Cyprus played an important role for the maritime economy of the island, and the fact we are unable properly to integrate them within this present study is a significant drawback, as there is an obvious imbalance of the maritime activities in favour of the south of the island.

### THE MARITIME ECONOMY, ITS INFRASTRUCTURE, ORGANISATION, AND DEVELOPMENTS

Historically, maritime trade generates production and growth. It is more cost effective and faster than land transport. Already time was money. During the First Economic Cycle it was the locomotive of the Cypriot economy. Because of its geostrategic position between the two competing regional powers, Egypt and Hatti, and its rich deposits of copper, Cyprus developed a maritime industry and economy capable of employing directly and indirectly a large number of its people, and in this way managed to create and maximise additional wealth.



Figure 12: Reconstructed altar with horns of consecration made from ashlar masonry blocks at Myrthou *Pighades* (courtesy Department of Antiquities, Cyprus).

### The maritime economy

The maritime economy was not a monopoly of the state but consisted of four components as shown in Figure 13. It was a combination of a state-administered economy and an economy based on private entrepreneurship. Both regulated by market forces and mechanisms.

#### *State maritime economy*

The state maritime economy was that part of the economy administered by the state itself. The state institutional system was the backbone of the state maritime economy, which was a combination of gift and market exchange. It handled the bulk exports of copper and probably timber, as well as part of the added-value finished bronze products of the island. As such, it coordinated the production and export process related to the royal reciprocal exchange trade. It kept a close eye on matters related to the copper industry – the main source of the state's political and financial power.

#### *Entrepreneurial Trade*

The entrepreneurial trade of the island was that part of trading conducted by the elite establishments and the organisations of the urban administrative centres, such as the old trading families and merchants. It was supported and facilitated by the export institutional

<sup>109</sup> Knapp 2008: 353, 377.

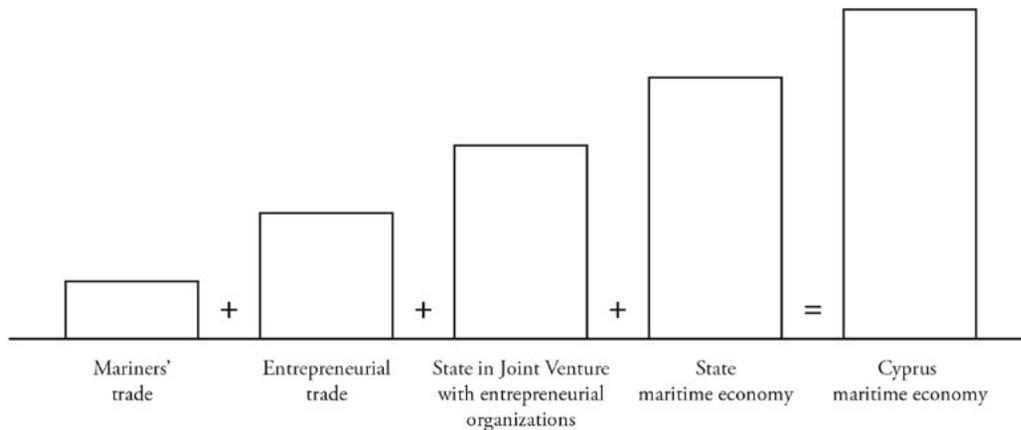


Figure 13: *The maritime economy of Cyprus during the LBA. The graph is pictorial and not intended to suggest comparative trading volumes (drawing: Philipos Vasiliades).*

system. We can suggest that part of the entrepreneurial trade was under the protection of the temples and sanctuaries erected at urban sites along the coast, e.g. Enkomi, Kition, and Palaepaphos. The state maritime economy that dominated the bulk export of the island's raw materials (mainly copper), as witnessed in the Amarna diplomacy, was slow and cumbersome. It might have taken months, even years, for the process to be completed through its structure. Instead, the private entrepreneurial trade that developed along with it was able to bypass the cumbersome formalities and be quicker and more efficient, and consequently more attractive – and profitable.

#### *Joint venture between the state and entrepreneurial trade*

From the evidence that we will discuss in the following sections, we can also presume that there were cases where the state and private enterprise entered into partnerships or joint commercial operations to raise working and venture capital, as well as to share and mitigate risk. In these cases, private enterprise took advantage of the internationalism of Cyprus institutions, while the state found it more beneficial, instead of being the sole owner of the process, to become the investing party or facilitator and sponsor of maritime trade. Its institutions provided the opportunities and contacts, as well as safe access to markets in return for royalties and taxes.

#### *Mariner trade*

Mariner trade was operated by small-scale commercial traders, economic mercenaries, and hired hands who acted as intermediaries and transporters, having the sea as their home.<sup>110</sup> The state institutions accepted their existence and even cooperated with them. Entrepreneurial trade and mariner trade were

responsible for the proliferation and development of the Cypriot maritime economy and maritime enterprise beyond the state economy, predominantly the bulk trade of copper. This maritime enterprise, which has been quite underrated, eventually grew to unprecedented volumes and geographic reach. The mariners and small-scale transporters of the First Economic Cycle continued their operations and grew eventually into Cyprus' main maritime driving force – the independent international shippers of the Second and Third Economic Cycle. The entrepreneurial mariner trade of the First Economic Cycle is evident from Cypriot pottery and material culture, found not only along the neighbouring Levantine and Syrian coasts, Egypt and the Aegean, but as far as Hatti and areas such as Marsah Matruh. Recent excavations at Marsah Matruh revealed that the majority of pottery found there comes from Cyprus. Although the origins of goods might not necessarily coincide with the origin of the transporters, we may suggest that it was a favourite stopover for resupply and maintenance of sea traffic and frequented by Cypriot seafarers who exchanged goods and products for local items, such as ostrich eggs, so popular back in the Levant and at home.<sup>111</sup> According to Sherratt, Cypriot pottery and fine ware found in abundance in the Eastern Mediterranean region 'simply indicate the central role of Cyprus in an East Mediterranean coastal trading and cultural community of the 12th century'.<sup>112</sup>

The agents of the trade networks, instrumental in the success of the Cypriot maritime economy, were the royal merchants, the private traders, the economic mercenaries and seafarers, as well as the travelling smiths. They connected Cyprus with the societies of the other members of the common maritime and mercantile zone, and transformed the physical geography into social and economic geography. The state institutions facilitated the process. International

<sup>110</sup> Artzy 1997; Sherratt 1998.

<sup>111</sup> Broodbank 2013: 403; White 2002.

<sup>112</sup> Sherratt and Sherratt 1991: 378, n. 21; Birney 2007: 27.

norms that governed the law of the sea were followed. Safety and mitigation of risk were provided. Knowledge of commercial trade routes was acquired. Improved mobile naval technologies and infrastructure were put in place. We should consider that an administration and a bureaucracy were established that could handle matters related to production and export activities, including coordination, quality control and supervision, compliance to standards, and inland river and land transport. This export institutional system was supported by a multi-disciplined executive bureaucracy that included a senior governor, deputies and ambassadors, scribes, travelling merchants, harbour superintendents, and all other supporting personnel.

The ownership of the information and communications was shared. The state economy and its institutions were the owners of the formal and state information. But those holding the important information in the market, i.e. where and when products and commodities were needed and by whom, were the entrepreneurs and private merchants residing in the ports or travelling the seas. Eventually 'the command centre of information and decision making, which translated into real economic power' was the seaport.<sup>113</sup>

As the palatial systems of Cyprus' trading partners were losing their purchasing power, especially in Egypt and Ugarit, Cyprus' state maritime economy was losing its grip on the strategically important sectors of accumulation of the economy. This seemed to be sufficient for the private entrepreneurs, merchants, travelling specialists, and traders, being the key players at seaports, that vital interface between Cyprus' economy and the international markets, to become more powerful. They eventually took over as the effective agents and brokers of economic power.

Unfortunately, no archaeological structures of any Cypriot ports of the LBA have been found yet. Nevertheless, we know that during this time, and especially towards the end of the First Economic Cycle, at least the following sites along the south coast were involved in long-distance trade: Enkomi, Kition, Hala Sultan Tekke, Pyla Kokkinokremos, Maroni Tsarroukkas, Tochni Lakkia, Episkopi Bamboula, Palaepaphos, and Maa Palaekastro. It would not have been possible for these coastal settlements to involve themselves in long-distance trade without harbours and anchorages. Through these harbours and anchorages, the private merchants who controlled entrepreneurial and mariner trade, wielded considerable power – due to their expert knowledge of international maritime networks and exchange. Furthermore, the Cypriot entrepreneurs who frequented overseas ports and anchorages, at the rich

emporium of Cyprus' trading partners, became the vital link for internationalisation. Such individuals were the Cypriot shippers and distributors, as well as travelling specialists, potters, etc., who conducted trade, and possibly even resided beyond Cyprus. Such a typical example might be Tel Abu Hawam, close to the bay of Haifa in Israel. This particular site served as a small frontal anchorage for shipping and storage, and could prove a useful example of Cypriot international private trading activity. The unusually high number of Cypriot imports, including utilitarian ceramic wares, might indicate the possibility of Cypriot traders and travelling specialists acting as outsourcing subcontractors to rich and well-connected merchants operating in busy emporia, such as Ugarit.<sup>114</sup>

### **Evidence from maritime archaeology**

Maritime archaeology is an important source of information for our work. For this reason, in all three economic cycles, we will pay particular attention to findings and information from shipwrecks. The study of shipwrecks, from the archaeological and historical perspectives, can be divided into four areas.

**Cargoes:** The examination and analysis of cargoes can provide valuable information in the context of trade routes, goods of trade, and the wider economic system that includes working capital as well as exchange in operation.

**Hull construction:** Hull construction can provide us with information on technological advancements and the motives of ship builders and owners. We may also gain insights into capital investments, costs, and related social, economic, and geographical factors

**Rigging:** Rigging is the technological element that gives a sailing ship its propulsion power. Its study is important to establish performance, speed, and the vessel's ability to travel on certain trade routes.

**Crew:** The study of those seafarers, mariners and traders who travelled, lived and worked on board is very important for understanding social dynamics and interactions, trade traditions, safety issues, and navigational matters related to sea travel.

For the First Economic Cycle we will examine the evidence from three major shipwrecks dated to the end of the 14th and 13th centuries BC respectively, and whose findings are closely related to Cyprus' maritime economy. All three had typical LBA technological features, employing single-masted, square-sail rigging, and were built according to LBA traditions and construction principles, i.e. the shell was built first,

<sup>113</sup> Stager 2001: 629.

<sup>114</sup> Artzy 2016.

with the strakes installed before the frame, giving the hull its shape and integrity, and with the planking joined by pegged mortises and tenons prior to internal support.

#### *The Uluburun Wreck (1325–1300 BC)*

Due to its particular characteristics and contents, the Uluburun wreck, discovered in 1982 off the coast of south Turkey,<sup>115</sup> is important for any study of ancient maritime trade in the Near East. Accordingly, it will feature in our case studies and comparison charts in the sections to come.

The doomed vessel was sailing from the Near East for western clientele in the Aegean, perhaps even further. Most probably, its last port of call was Mina el Beidha at Ugarit, but in all probability, it stopped at Cyprus as well, to load the approximate ten tons of copper ingots and 80 Cypriot fine-ware items that constituted about half its cargo value. Cyprus is not excluded from the possible countries that might have owned the enterprise. Although the crew was most likely Syrian, according to Pulak the excavator of the shipwreck, there are indications that Cypriot sailors might have been on board. The 149 balance pan weight standards it carried, as well as its mixed cargo composition and multi-ethnic crew might initially suggest a private entrepreneurial venture. The value of its cargo, however, estimated at least 7000 Ug.skl in silver,<sup>116</sup> suggests instead a state enterprise or royal shipment. In the opinion of the present author, as will be argued shortly, it was probably a combination of the two – a joint venture between the state and private entrepreneurs. As Pulak describes, apart from the approximately ten tons of copper ingots it carried in addition c. one ton of tin, almost a ton of terebinth resin in Canaanite jars, possibly wine, cobalt blue-turquoise and purple glass ingots, ebony logs, metal vessels of various compositions, fine Cypriot wares packed in *pithoi*, faience drinking cups, mostly in the form of ram's heads, seals of various origins, bronze weapons, jewellery of Canaanite and Egyptian design, 149 pan balance weights of nine different systems, other personal effects, and perishable food stuff. It also had 22 sandstone anchors totalling four tons in weight. The presence of a golden goddess statuette is testimony of divine protection culture among seafarers. The value of its cargo, the nature of the people on board, and its diverse cargo composition, all point to a joint venture enterprise between state and private interests. For example, the three large *pithoi* stacked full of brand-new

Cypriot pots<sup>117</sup> on the Uluburun ship is most probably part of that private enterprise.

#### *The Cape Gelidonya Wreck (1200 BC)*

The Cape Gelidonya wreck excavated off the coast of Turkey most probably originated either from a Levantine or from a Cypriot port, heading westwards.<sup>118</sup> The type of operation suggested by the Cape Gelidonya and Point Iria shipwrecks, dated c. 1200 BC, belong both to the First as well as to the Second Economic Cycle; they will therefore be discussed in both.

The Cape Gelidonya vessel carried c. one ton of pure Cypriot copper and various scrap bronze items and tools believed to be used for recycling. It is generally accepted that the primary objective of the ship's operation was trade. From the nature of its cargo and tools found on board for metalworking it is believed that there was a travelling smith on the ship. The Syrian and Egyptian weights found could indicate a Near Eastern venture rather than a Mycenaean one. The copper ingots are traced to the Apliki area on Cyprus, making the island perhaps the strongest contender for the ownership of the enterprise. Indeed, according to new analysis done on the ship's anchor and on some of the ceramics on board, it is now generally accepted that the ship might well have originated in Cyprus. From the available evidence it seems that part of the ship's business was the recycling of scrap metal. It is possible that scrap metal was bartered in small denominations and was thus an easy commodity to dispose of. Taking into consideration that its main load was one ton of copper, then the minimum value of its cargo, considering the price of 0.5 Ug.skl in silver per kg of copper, was about 500 Ug.skl. This required a much smaller working capital than the Uluburun shipwreck, suggesting a purely private enterprise.

The Cape Gelidonya wreck was most probably involved in 'tramping' from port to port.<sup>119</sup> exchanging items on a small scale and providing metalwork services. In effect it was like a small floating metal workshop involved in retail trade rather than sailing on a direct commercial or diplomatic mission.

#### *The Point Iria Wreck (1200 BC)*

The Point Iria wreck, dated to the end of the 13th century, was discovered in 1962 off the Argolid coast on the Peloponnese.<sup>120</sup> The ship, lost shortly before it was able to round Point Iria, carried a mixed cargo consisting of large transport vessels, mainly Cypriot

<sup>115</sup> Bass 1986; Bass and Pulak 1989; Pulak 1998; 2008.

<sup>116</sup> The prices used for the valuation of its 7000 Ug.skl minimum value are based on values from Ugaritic, Hittite and Egyptian sources. See Monroe 2016: 92 for revising the original estimate downwards from 12,000 Ug.skl.

<sup>117</sup> Bass 1986: 274.

<sup>118</sup> Bass 1967; 1973; 1988; 2013.

<sup>119</sup> Cline 2014: 101.

<sup>120</sup> Phelps *et al.* 1999.

*pithoi* and LH/LM IIB 2 jars, as well as medium-sized Cretan pottery and Cypriot jugs and amphorae.

The excavators, judging from the nature of the cargo, considered the ship of medium size, originating from Cyprus and plying the Cyprus–Crete–Argolid trade route. Most probably it offloaded part of its cargo in Crete, where it picked up local products for the Argolid. It was a private entrepreneurial venture, or even a mariner trade operation, typical of the close commercial relations and transactions between Cyprus and Mycenaean trading communities.

#### *Maritime Transport Containers (MTC)*

Transportation of goods was mostly achieved by the use of maritime transport containers (MTC). MTCs are large, bulky amphorae, or containers in general, for the transportation of primarily liquid food products such as wine and olive oil at sea. They were also used for other commodities, e.g. processed fish and dried fruit, but also resin and pitch. Finds of MTCs in ancient shipwrecks in sea as well as land excavations contribute greatly to our understanding of how goods were transported, as well as to the nature of maritime trade and its trading routes. The shape of a typical MTC is the key to understanding its function as a transport vessel. Their pointed ‘toe’ makes it unsuitable for storage, since it cannot stand on its own, and it must be placed on a stand or leaned against a wall. Aboard ship, amphorae were tightly packed in the hull, with the pointed toes of one level of vessels resting between the necks of the lower levels; thus they could be tied and stacked up in several tiers, and the hull of the ship put to maximum use.

#### *Tradition of construction for LBA merchantmen*

From the evidence of the hull remains from the Uluburun and Cape Gelidonya wrecks, both ships followed Eastern Mediterranean construction traditions and maritime cultures. The Cape Gelidonya vessel, reasonably considered now to be of Cypriot origin, demonstrates similarities in construction to the Uluburun shipwreck.<sup>121</sup> Therefore, the nautical archaeology findings for both shipwrecks point towards common construction technologies used by both Cypriot and Canaanite shipwrights (assuming, of course, the Cape Gelidonya ship was constructed in Cyprus). These findings are important in terms of shedding light on Cypriot shipbuilding knowhow and skills during the LBA and later years. The construction method used was based on the strake-oriented ‘shell first concept’ with mortise and tenon joints. Basically, the same construction method and joint methods continued to be used right through from the First to the Third Economic Cycles. We will thus defer a detailed

discussion on the construction of LBA merchantmen until Chapter 3, where we will examine more closely the evolution of the shipbuilding methods of LBA/IA merchantmen and ships-of-war in general.

#### **A typical trading port in the LBA Eastern Mediterranean**

Since no archaeological structures of Cypriot ports or anchorages during the LBA have been found, we can turn to its neighbouring countries for help. How did a typical port of the Eastern Mediterranean look, and how might it have operated in the LBA? A picture is worth a thousand words they say, and we are very fortunate to have such a picture – the painting of ships arriving at an Egyptian port from the wall of Ken-Amon’s tomb, an official to the court of Pharaoh Amenhotep III (1390–1353 BC), whose later years of reign coincide with the Amarna diplomacy.<sup>122</sup>

In this wall painting, the ships entering the Egyptian port could be from the Levant – even from Cyprus or the Aegean. These are the ships that frequented the Egyptian ports at that time. There are five vessels on the top level and two on the bottom; the bearded men and their profiles look Semitic and Eastern Mediterranean. There is no quay or wharf and subsequently the vessels seem to have been run up, or dragged, or slid on wooden sleepers or slipways along the beach, and then propped up on a dockside platform. They look medium-size ships, 10 m – 12 m long, estimated to be about ten tons average capacity and are the preferred type and medium size for short trips in the area.

Some of the vessels are already unloading. We see sailors stepping down the ladder and some of them carrying their precious cargoes on shore. On one of the boats the captain stands on the bow guiding the landing with a long pole. At the bottom level of the painting a customs official is entering in the harbour manual all the incoming cargo, presumably for import duty purposes, while the sailors are patiently waiting to declare their goods. In addition to the administration officials, who are in charge of registering all incoming and outgoing goods, there are also private merchants in attendance.

On the top level an Egyptian merchant is trading with his scales and the middle level shows a woman merchant who seems to hold a fly whisk in one hand and a scale in the other. Evidently the merchants must be equipped not only with Egyptian standards and measures but also international standards too. It is interesting to note between the bottom and middle levels a Syrian merchant who looks like he is trading slaves. Also of interest are the two Syrian women and

<sup>121</sup> Polzer 2011: 362; Pomey *et al.* 2012: 291; Pulak 1999: 237, fig. 6.

<sup>122</sup> Casson 1991: 15.

a child on the top level greeting an Egyptian official. This is an indication of families being transported on board merchant ships. What this painting tells us is that Egyptian ports and anchorages were organised sites capable of registering and handling foreign trade. They must have been organised in a way not too dissimilar to the harbours and anchorages of the Syro-Palestinian coast, and probably Cyprus. It also shows that long-distance trade in Egypt, unlike the prevailing opinion, was not all in the control of the state.

This is how a typical Egyptian anchorage of medium size might have looked. It is probable that bigger and busier ports might have wharfs and quays for the docking of larger ships. We have a reference to such quays in a port, capable of accommodating merchant ships, in a Ugarit letter (RS 17.133 = PRU 4: 118–119), in which we read of a Ugarit ship crushed on the quay, probably at Uru. Such permanent mooring arrangements would better suit larger merchantmen, of the likes of the Uluburun wreck – between 15 m – 20 m long and 20 tons capacity. Their weight and heavier construction make them less appropriate for beaching, thus requiring permanent docking facilities and mooring gear. We cannot claim that we know how a Cypriot port of trade might have appeared, but it is possible that it was not so very different from the one just described above and depicted on Ken Amon’s tomb.

**Harbour operation and administration**

In the previous section, in the absence of evidence from Cyprus of how a typical LBA port or anchorage might have looked, we turned to Egypt for information. Unfortunately, we have very little evidence either, or no evidence at all, from Cyprus of how ports were operated and administered during the LBA. Therefore, we have to look for relative information from maritime data in the neighbouring countries of the Near East and examine how far, if any, this information might apply to Cyprus.

*Ugarit*

Ugarit channelled most of its long-distance trade through two major ports very close to each other: Minet el-Beidha (known as the Mahadu port) and Ras Ibn Hani (Figure 15). The officials involved in maritime operations and their relative functions (Figure 14) are available from Ugaritic texts: harbour master, or overseer (*wakil kari*); ship’s captain (*b’l any*); royal merchant (*tamkārū*); merchant’s representative/agent (*bidaluma*); chief mariner (*rab malahhi*); overseer of merchants (*rab tamkari*); tax collector (*makisu*); salvage master; herald.

We owe to Bernard Knapp<sup>123</sup> a snapshot of a possible administrative structure in relation to harbour administration at Ugarit. It is possible to attempt a reconstruction of a more detailed and plausible administrative chart of the main port of Ugarit as shown in Figure 14. From the evidence, the governor, or prefect reporting to the king, had the general supervision of the

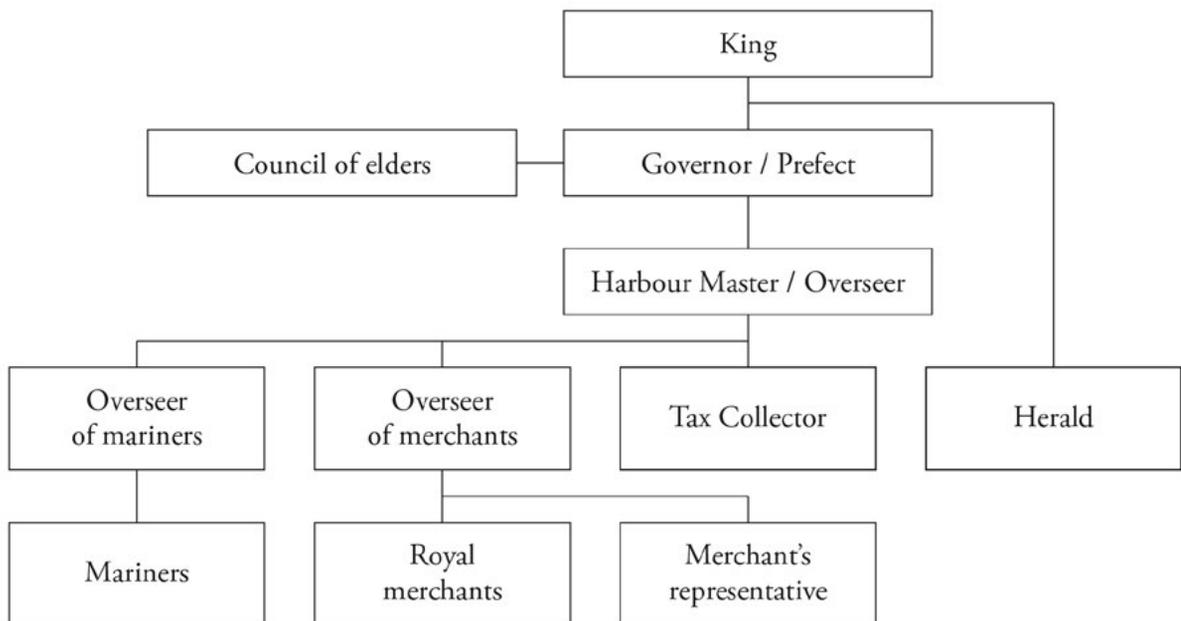


Figure 14: Proposed organisation chart for the main port of Ugarit (drawing: Philipos Vasiliades).

<sup>123</sup> Knapp 2018: 114, fig. 24.

port and was in charge of all maritime and mercantile operations related to sea trade; he managed the harbour master, or overseer, to whom he delegated the task of port supervision. The harbour master controlled the imposition of import and export duties and taxes; he also regulated the incoming business of foreign traders with the palace and the business community.

The merchants were supervised by the overseer of merchants, who reported to the harbour master. Import and export duties were collected by the tax collector, who also reports to the harbour master. The overseer of mariners was in charge of all marine matters related to the harbour.<sup>124</sup> A herald was appointed to collect directly the king's dues.<sup>125</sup> Furthermore, we understand from the procedures related to the protest launched by Addu Dayannu, king of Amqu (his merchants, carrying goods for the king of Ugarit, being improperly taxed), that the elders of the city had a certain supervisory role to play as well,<sup>126</sup> perhaps in the form of an advisory council. This organisational structure is in line with the principle that the king did not control, or own exclusively, all mercantile activities, but, as a general rule, he benefited from them. This harbour administration was more or less similar to the port organisations of other harbours along the Syro-Palestinian coast. It remains to say that this is only a working hypothesis, of course, and much can be discussed and questioned.

The wealthy and prominent merchant from Ugarit, Rasap-abu, apart from his entrepreneurial activities, seems to have been the harbour overseer or harbour master, tasked with the responsibility of receiving customs duties. Like Rabinu, he was a member of the *Marriannu* military elite. The large number of legal texts in his 80 m<sup>2</sup> residence makes us believe he also acted as a notary. The first Cypro-Minoan tablet<sup>127</sup> from Ugarit was found in his residence; this attests to his relationship to Alashiya, possibly commercial or maritime in nature. The long list of purchased items found in his house (expressed in silver and including tin and cups of copper and bronze) might indicate commercial connections with Cyprus, most probably Enkomi.<sup>128</sup> The harbour master reported to the governor or prefect, *rabisu*. The house of Urtenu, who was a prefect or governor, is a large (300 m<sup>2</sup>) ashlar, two-storey mansion. It is proof of his importance and wealth, deriving from his dual activities in politics and business. Urtenu was among the elite who governed Ugarit, most probably the second in command after the king, and as such he and his office were among the most powerful institutions in

the kingdom. He was not only a political figure, but also an entrepreneur involved in transactional activities and conducting price negotiations, as evidenced by several Ugaritic texts.<sup>129</sup>

The harbours must have been provided with extensive maintenance facilities, as ropes, oars, rudders, masts, and sails all require continuous attention. We know that in Venetian times returning galleys were periodically sunk in harbours to 'rinse' the hold of detritus, dirt, and vermin. There was always the need to dry out hulls on the beach, requiring sufficient space and workers, as well as specialised technicians. We have evidence of fourteen ships belonging to Charchemish within Ugarit's Mahadu port; we do not know why they were there, but it cannot be excluded that they were undergoing maintenance or repair.<sup>130</sup>

### Egypt

Apart from the information derived from the drawing on Ken Amon's tomb, we have evidence from Egypt of harbour officials who kept records of cargoes, and charged and received import duties. We also have evidence of the possible involvement of foreign traders in handling Egyptian trade. The harbour officials arranged meetings and accommodation for these traders.<sup>131</sup>

### Cyprus

In Alashiya, as we will see from looking at the Amarna letters later, we have textual evidence for the existence of an institutional hierarchy that comprised the king and governors, together with royal merchants and servants of the king, but we have no information whether or not they were involved in the administration of ports, nor how harbours and anchorages operated. Cypriot maritime activities through its ports, especially Enkomi, must have been substantial, and even comparable to the trade that the Ugarit ports handled. Therefore, it is not unreasonable to suggest that the comparable harbour administration at Ugarit might help us with the puzzle of Cyprus' probable harbour administration. Thus, in spite of the lack of evidence, we may suggest that Building Complex 18, and other buildings at Enkomi, could have been used as administration offices and residences for comparable officials who conducted trade and participated in the administration and operation of the port of the city. On the available evidence, however, it is prudent to consider this only as a working hypothesis.

<sup>124</sup> RS 17.133 = PRU 4: 118–119. His duties derived from his title and the role played in the trial at which Queen Puduhepa passed judgement.

<sup>125</sup> Monroe 2015: 25.

<sup>126</sup> Monroe 2009: 167; RS 17.039 = (PRU 4: 219–220).

<sup>127</sup> RS 17.006.

<sup>128</sup> Bell 2012: 183; RS 17.150; RS17.034.

<sup>129</sup> PRU 6.6, PRU 7A +B, PRU 4: 214, KTU 4.337.

<sup>130</sup> RS 34.147.

<sup>131</sup> Monroe 2015: 24, 25.

### Tax and import duties, transit taxes and right to grant tax exemption

We have no direct evidence, textual, material or otherwise, of how tax, import and transit taxes applied to the harbours of Cyprus, if any. We can, therefore, look again to the island's neighbours for clues.

#### Ugarit

A start can be made by first examining the evidence from the Ugarit letters in relation to tax and import duties, how such duties might have been waived, and the relevance for Cyprus.

#### RS 16.238+254

In the text below, from letter RS 16.238+254, we have evidence of King Ammistamru exempting from the usual customs, or duty levied on foreign trade, Sinaranu, a wealthy merchant and shipowner, who had arrived from Crete bringing oil, beer and grain.

The text reads as follows:

*From this day forth Ammistameu II son of Niqmepa, king of Ugarit, frees from claim, Sinaranu, son of Sigina. As Shapshu (the sun god) is clear he is clear. His grain, his beer, and his oil need not enter the palace. His ship is free from claim. If his ship comes from Kaoturi (Crete), he will bring his gift to the king, and the herald will not enter into his house. On account of the king, his lord, Sinaranu has worked hard, and his household is caring for children. May Ba'al, lord of Mt. Hazi, destroy whoever disputes these words.<sup>132</sup>*

Obviously, the king considered Sinaranu an exemplary member of Ugaritic society. His services to the crown and the community were much appreciated, and thus his shipment from Crete was exempted from any customs duties to the state. Of course, the monarch did not waive his own royalty rights.

#### PRU 3

Sinaranu's was not the only case where tax exemption was granted. According to letter PRU 3, two other merchants who traded with Egypt, Hatti and other countries were also tax exempted.<sup>133</sup> The implication of the tax exemption is that, in general, incoming and outgoing entrepreneurial shipping and trade were indeed subject to tax and duties unless waived by the king.

#### RS 17.424c+397B

The fact that import duties were imposed on incoming and outgoing cargoes in the ports of the Eastern Mediterranean can be further attested by letter RS 17.424c+ 397B. In the letter the king of Tyros wrote to the prefect of Ugarit to complain about the high taxes his ship's agents had to pay to the Ugaritic port authorities.

#### RS 20.168

A similar case is highlighted in Ugarit letter RS 20.168. The letter, which is badly fragmented, seems to suggest a dispute over special levies imposed on a Cypriot merchant by the Ugaritic authorities for the purchase of olive oil in Ugarit.<sup>134</sup>

#### KTU 4.172 (RS 15.093), KTU 4.206 (RS 17.074)

We also have two separate texts<sup>135</sup> indicating that 400 gold Ug.skl or 1600 silver Ug.skl. were paid on separate occasions as tribute. Most probably the tribute was paid at Mahadu harbour. We may assume that each piece of evidence refers to a different series of events. We lack details however of the nature of the payment and over what period of time it occurred, and whether or not it refers to annual tribute.

#### RS 17.039

In another letter (RS 17.039) from Ugarit<sup>136</sup> we learn how tariffs and taxes were collected from traders. In this letter, King Addu-Dayyanu of Amqu, complains to the prefect of Ugarit that the overseer of the merchant quarter at the harbour had improperly taxed his merchants who were carrying goods for the king of Ugarit. The letter suggests that the tax was normally paid in advance, perhaps annually; in this way, the merchants would carry on their business without interference. The fact that the complaint was addressed to the prefect and not the king illustrates the prefect's wide-ranging authority and responsibilities. The letter also suggests that the prefect's actions were overseen by the elders of the city.

#### RS 15.033

From RS 15.033<sup>137</sup> we understand that, apart from the king, the prefect had the power and authority to waive import taxes as well. Furthermore, in the same way he could approach caravans and check their merchandise; he could do the same for any ship leaving or entering the port.

<sup>132</sup> Monroe 2015: 26; RS 16.238+254, PRU 3: 107.

<sup>133</sup> Monroe 2015: 35, PRU 3: 165–166.

<sup>134</sup> RS 20.168.

<sup>135</sup> KTU 4.172 (RS 15.093) and KTU 4.206 (RS 17.074).

<sup>136</sup> Monroe 2009: 167, RS17.039.

<sup>137</sup> Monroe 2009: 167; RS15.033.

## Cyprus

From the Ugaritic letters referred to above, we understand that in the Near East incoming and outgoing, as well as transit shipping and trade was indeed subject to tax and duties as well as royalties. We have no such evidence from Cyprus. No matter how much we want to see its history 'from within' Cyprus could not be an exemption. It is, therefore, reasonable to expect that Cypriot traders and shippers had to pay import duties and royalties at ports of entry when they were doing business with neighbouring countries. Likewise, since Cyprus was a favourite destination and stop-over station for the supply of goods and provisions, for the hiring of personnel, and even for emergency maintenance, we can suggest Cypriot port authorities and harbours had the right to receive export and import duties and transit taxes as well as royalties on all Cyprus-bound and outgoing shipments. Overall, we may suggest these duties and taxes in general for incoming and outgoing cargo, as well as transit fees and royalties, must have been an important source of income for both the state and elite organisations of the island. Therefore, we can presume that an appropriate set up must have existed in the Cypriot ports to enable them to impose and receive these taxes and duties. Monroe considers a 10% duty on shipment a modest and reasonable fee.<sup>138</sup> We have evidence for taxes on ship charges of this magnitude in Athens in the Classical period. During the Achaemenid period in Egypt import duties levied seemed to vary from 10% to 20%.<sup>139</sup>

### Cost, size, and ownership of ships

We have no evidence that merchantmen during the LBA in general exceed 20 m in length or 20 tons capacity.<sup>140</sup>

<sup>138</sup> Monroe 2010: 15–29.

<sup>139</sup> Briant 2002: 385; Yardeni 1994: 67–78.

<sup>140</sup> It should be noted that, according to Ugaritic letter RS 20.212, there are suggestions for massive Ugarit cargo ships of up to 450 tons capacity. Monroe 2007: 1–8, in his article, 'Vessel Volumetrics and the Myth of the Cyclopean Bronze Age Ships', by revisiting the text of RS 20.212 and contextualising it among other relevant texts and archaeological evidence, without claiming to have finally resolved the issue, developed reasonable and defensible arguments why this cannot be the case. Broodbank 2013, considers Monroe's approach to be minimalistic, although he did admit that in Genoa in 16th century only 2% of the ships exceeded 30 tons capacity. Monroe's work is a perfect example of how archaeology and textual evidence, instead of trying to mutually exclude each other, can work in harmony to produce a defensible result in cases where textual and material evidence at first glance seem to be miles apart. It is beyond the scope of this work to go through Monroe's entire line of thinking and arguments that excluded the possibility of large ships beyond 20 tons capacity in LBA. It will suffice to selectively go through some of the evidence just to highlight the point. In his arguments and effort to reach a defensible conclusion, he identified a possible error in the transliteration and interpretation of the original text that produced erroneous conclusions. He also noted other related cases, like the riverboats and barges from Ur III (2112–2004 BC) transporting barley (Monroe 2007: 6) and carrying a maximum of 300 *kurru* down to a minimum of 60 *kurru*, which at 300 litres per *kurru* translates to a maximum load of barley of 49.5 tons and a minimum of 9.9 tons load capacity at 0.55 kg/litre of barley. Of course, these are barges and

According to a letter from Ugarit the cost of an average to large merchantman did not exceed c. 540 Ug.skl,<sup>141</sup> or 5 kg in silver. A smaller boat would have most probably cost less. The capital investment of 540 Ug.skl was not a small investment and only a state authority or rich elite merchants could have afforded it. Thus, the small-scale sea transporters must have used smaller boats in the region of 8 m – 10 m, like the ships at Cape Gelidonya and Point Iria.

Determining ownership of boats and ships in Cyprus, and indeed, for the rest of the Near East during LBA, is not a straightforward exercise. Since we have determined that Cyprus' maritime economy comprised of four components: state, entrepreneurial, joint ventures between state and entrepreneurial interests and mariner trade, it is reasonable to expect that ownership of ships and boats was not exclusively a state affair. Although we have evidence that the king had his own ships, we also have evidence of private ownership as well. This practice is also witnessed in neighbouring countries. Let us look at some of the evidence.

## Cyprus

### EA39, EA40

According to Amarna letters EA39 and EA40, we have a clear statement that the Alashiyan ships that arrived in Egypt were the king's ships. What is not absolutely clear is whether the ships were owned by the king or whether they were in the service of the king. I would propose that, for reasons of prestige and control of the process, the king and state owned their ships for diplomatic missions and transport of large bulk quantities of copper destined to the monarchs of the other states of the region. Thus, we may suggest that the ships referred to in EA39 and EA40 most probably belonged to the state.

### RS 113A+B

We also have an Ugaritic letter, RS 113A+B, sent to the king of Ugarit seeking his approval for the sale of ships to the king of Alashiya. The letter is fragmentary and difficult to interpret. The vessels that are described as 'their ships' were probably owned by private Ugarit merchants.

river boats that cannot equate to open sea transport, but reference to their sizes is useful. He also referred to the case of sea transport from the Old Babylonian texts related to a shipment from Dilmun carrying 611 talents of copper totalling about 18.33 tons (Monroe 2007:7). Although we do not have any evidence of the number of ships involved, a single ship of the capacity of the Uluburun ship, or two ships of the capacity of the Cape Gelidonya wrecks could do the trick. We also have from the same corpus of texts, evidence for ships of average capacity in the range of 6.6 tons.

<sup>141</sup> Monroe 2010: 24; 2009: 113–117; 2015: 18; RS 180.25, KTU 4.338.

RS 18.119 KTU 4.390

Another case of Cypriot merchants doing business in Ugarit with their own ship is attested by Ugaritic letter RS 18.119. The letter lists a number of mostly metal tools, weapons and 15 talents of copper and possibly purple-dyed material or textiles<sup>142</sup> connected with a ship that docked at Atalligu, one of Ugarit's ports. Because of the nature and composition of the cargo, the ship must have been small to medium, privately owned, and the enterprise could be part of mariner and small-scale commercial trade.

Both the Cape Gelidonya and Point Iria wrecks, which most probably originated in Cyprus, might have belonged to Cypriot private entrepreneurs. Because of the multipolar power system on the island, the rulers and elite households, as well as the trading families of the coastal settlements, could have owned their own ships or hired them out. Such a case, as we will see when looking at the KAD economy, could be the privately owned medium-sized boats that were transporting *Ayios Dhimitrios* olive oil from Tochni *Lakkia* to other settlements on the island, or to export markets. Ownership of ships by private individuals was encouraged by the state, which sought less risky ways of participating in trade and exchange.

*Ugarit*

Apart from ships in the ownership of the king, we have many cases of private ship ownership in Ugarit.

RS 16.238+254

In RS 16.238+254 the wealthy merchant Sinaranu, involved in numerous maritime and mercantile activities, had ships under his ownership.

KAJ 302 (=VAT 13637)

Letter KAJ 302 (=VAT 13637) reveals a case where royal provisions were delivered via private charter. Miniya, an entrepreneur acting on behalf of the king, seemed to have hired out a boat owned by Hisateya to transport 4000 l (50 *imeru*) of grain. The total wage he had paid for the trip was 80 l (one *imeru*). At the rate of five l of grain per day as wages per boatman (1800 l per year of grain per boatman, i.e. an annual cost of 20 Ug.skl per boatman), we can deduce that the boat was rented for sixteen days.<sup>143</sup>

RS 17.133

In the lawsuit settled by Queen Puduhepa (RS 17.133), we have evidence of a private individual who could afford to own a ship and invest capital to trade with it.

<sup>142</sup> The term '*irgmn*' might refer to purple dye; Knapp 2018: 109; McGeough 2015: 90; van Soldt 1990: 344, n.164.

<sup>143</sup> Monroe 2009: 95–96.

RS 19.126

In Ugaritic letter RS 19.126 (KTU 4.647=PRU 5 123) we have a clear distinction between the captain and the owner of the ship, indicating that captain and owner could be two separate individuals.

KTU 4.81

In letter KTU 4.81 we have the names of five individuals who were either owners or captains of ships.

RS 18.291 (PRU5 57=KTU 4.421)

We also have evidence (RS 18.291) of ships belonging to the king of Ugarit,<sup>144</sup> who profited by taxing private owners.

RS 94.2285+, RS 94.2412

From these letters (RS 94.2285+, RS 94.2412) we understand the king's commercial navy was employed to transport private cargoes of olive oil.

Therefore, from the evidence, at any given time in an LBA port in Cyprus and the Levantine coast, one might find boats owned or chartered by the state as well as vessels belonging to the elite families of the coastal cities, or private owners willing to rent them out or use them by themselves for private enterprise.

### Did Alashiya possess a military fleet?

On a Late Helladic IIIB (LCII) Mycenaean krater, dated to the 13th century BC, found at Enkomi Tomb 3, there is a scene of round mercantile boats used as war galleys, with helmeted armed warriors on deck facing each other, and men below deck thought to be rowers. This might suggest the type of warships the Cypriots might have had in times of naval warfare. These could be merchantmen suitably converted to carry armed warriors on specially constructed decks.

Other evidence we have of possible Alashiyan involvement in naval warfare is a Hittite document from Hattusha dated c. 1200 BC. The first column of the text recounts the conquest of Alashiya by Tudhaliya IV and the enslaving of its king and family and imposition of tribute. The third column refers to a naval victory by Suppiluliuma II against the Alashiyan.<sup>145</sup>

The part of the text that refers to the naval hostilities reads as follows:

*And the ships of Alashiya met me in battle three times. I eliminated them and I seized the ships and set them afire at sea. When I reached on dry land, once more then the*

<sup>144</sup> RS 18.291 (PRU5 57=KTU 4.421).

<sup>145</sup> Guterbock 1967; Knapp 2018: 108; KBo XII 38; Monroe 2009: 253.

*enemy from the land of Alashiya came against me [for battle] in droves. I [fought against] them.*<sup>146</sup>

From the text, we understand that the Hittites and the Cypriots were involved in naval and land armed conflict and that the Hittites came away victorious. We are also to understand that the battle must have taken place over Cypriot soil.<sup>147</sup> As stated already, the interpretation of the Ugaritic and Hittite texts is a complex and controversial matter, and the subject text is no exception. What we can safely understand from it is that both the Hittites and the Cypriots had military fleets with war ships and armies, and that they were, at a certain stage, engaged in an amphibious conflict against each other.

The Hittites, a terrestrial empire, were not a naval power; it is thus natural to assume that their fleet most probably comprised Ugarit warships, even perhaps mercenary ships from Lukka and Kilikia which they commanded. On the other hand, as far as Ugaritic ships are concerned, we have very little evidence that Ugarit had any strong military fleet, apart perhaps from a small force to defend themselves (and which proved insufficient when really needed). Whatever the case, from the text we are led to believe that a possible alliance of Hittite and Ugaritic naval forces, and perhaps western Anatolian mercenaries, defeated an Alashiyan navy.<sup>148</sup>

Some ten to fifteen years later, we have evidence<sup>149</sup> that the enemy forces who raided Ugarit passed first from Cyprus. They came in two lots of seven and twenty ships respectively. Following Emanuel's arguments,<sup>150</sup> they could have carried a considerable force of 350 and 1000 potential warriors respectively, assuming they used ships similar to the fifty-oared *pentekontoros*.<sup>151</sup> From the texts we understand that the Alashiyan king and his court were high up on a mountain, perhaps difficult to access. But wealthy coastal cities, such as Kition and Enkoki, were still accessible and at the mercy of the enemy. Why then were they not totally destroyed, like Ugarit? One possible answer is that access to their harbours was not easy, and they were probably defended by a standing military fleet and army. Therefore, from the turn of events Cyprus may have had some means of naval and military defence that helped to save it from serious trouble.

<sup>146</sup> Beckman 1996: 33; Emanuel 2018: 246.

<sup>147</sup> Knapp (2018: 122) thinks the Hittites were not as successful on land as they were at sea.

<sup>148</sup> Vita believes this led to the conquest of Alashiya by the Hittites and its inclusion in the naval defence organisation of the triangle between Kilikia, Cyprus and north Syria, headed by Hatti and Ugarit. Neither the archaeological nor historical evidence can endorse this claim however without further detailed investigation.

<sup>149</sup> RS 20.238 and RS 20.18.

<sup>150</sup> Emanuel 2018: 244.

<sup>151</sup> Emanuel 2014: 21–56.

### **Pirates, coastal mariners, and economic mercenaries**

No study on LBA Cyprus maritime and naval activities can be complete without addressing the island's relation with piracy, and indeed the subject of piracy in general in the Eastern Mediterranean. The subject of piracy during the LBA is a complex matter and its detailed discussion is beyond the scope of this work.<sup>152</sup> Touching the subject briefly, however, and addressing the question of the existence of piracy in the period, we tend to agree with Knapp's statement that 'Virtually all recent literature that treats the phenomenon of piracy or the activity of pirates during the Late Bronze Age asserts and assumes their existence, perhaps rightfully so'.<sup>153</sup>

There have been many attempts to define piratic activity, but we will consider it according to the generally accepted view, i.e. as an irregular, ongoing economic activity that involves maritime mobility and the use of ships for plundering and personal benefit. It is an activity that takes place either at sea or on land close to the coast.

The Mediterranean of ancient times was, in general, a chaotic and lawless area full of opportunities for quick profit making by 'any one with the skill, daring and funds to set out upon it'.<sup>154</sup> It is important to note that there is a very close relation between trade and piracy, since both depend on a flourishing system of maritime exchange. Thus, the LBA was the perfect milieu for such activities. Since piratic activity was dependent on the use of ships, anchorages and harbours were needed in strategic and isolated locations. Cyprus' position was perfect for such a base of operation. This is why, in the case of Cyprus, Liverani's statement that 'the indifference of palaces and their participation in these activities, was not always clear'<sup>155</sup> is of particular importance. We do not know how tolerant the institutions and organisations of Alashiya were, nor to what degree they turned a blind eye to the use of the island as a place of piratic operations or resupply. This is a complex matter as it could have worked both ways, against and in favour of the island's interests. Take, for example, the annual raids the island suffered at the hands of raiders from Lukka (EA 38). The same people used the island as a base of operation against Egypt, a matter that prompted the Pharaoh of Egypt to complain to the king of Alashiya.

The intensification of seaborne activities contributed to the general improvement of maritime technology, with the development of more seaworthy hull designs,

<sup>152</sup> There is already substantial scholarship and books on the subject, e.g. Artzy 1997: 1–16; Emanuel 2018: 241–255; Knapp 2018: 34–50; Wachmann 1998.

<sup>153</sup> Knapp 2018: 50.

<sup>154</sup> Broodbank 2013: 394.

<sup>155</sup> Liverani 2014: 383.

and, among others, oared galleys able to carry armed mariners on partial or full decks. No doubt Cyprus' marine technology benefited from these advances. As a consequence of these developments, we see the coastal urban centres improving their own technologies as well as bolstering their defences and placing armed mariners on vessels for the protection of their cargoes. A case in point is the assemblage of Syrian and Aegean weapons found on the Uluburun wreck, pointing to the presence of armed guards on board.

One interesting way of looking at sea raiders and piratic activities, that might fit Cyprus' socio-political system, comes from Michal Artzy's proposal.<sup>156</sup> She proposes looking at them as 'nomads of the sea', originally employed as hired hands, some kind of economic mercenaries, by the established political and economic system. They became useful to the trade and exchange network going on in the Eastern Mediterranean because of their trading contacts, navigation and maritime expertise, and their ownership of vessels. These fringe groups, whose home was the sea and any anchorage that could accommodate them, served as intermediaries to the elites and organisations of coastal sites. They provided their services as hired hands and emissaries to the established landed economic system and small-scale commercial traders. They served as transporters, traders and mercenaries to the highest bidder. They had no country, and their religion was the silver paid to them by the highest bidder for their services. Such groups were inevitably one of the components of the island's maritime economy, the mariner component (Figure 13).

The sea-going Lukka, who at times acted as hired hands and mercenaries to the Hittites, participated also in their own maritime activities and adventures; they could have joined other groups – Aegean, Canaanites, etc.

Eventually these hired mercenaries developed themselves as entrepreneurial traders, and through their knowledge of markets and trading routes they became merchants of the sea, at times even competing against their previous employers. They even brought their own traditions, settling at the coastal sites they frequented before, e.g. *Maa Palaekastro*, *Pyla Kokkinokremos*, *Marsa Matruh*, and the Kilikian coastline. Therefore, at some stage they became part of the established economic and maritime system. We do not know to what degree they were integrated in the establishment, or whether they carried out their newly legitimised activities on the fringes of the established order.

When the economy crumbled and their operations were no longer financially viable, the majority abandoned

their coastal homes and returned to the sea, where they reverted to marauding practices and plundering, joining forces with other pirates and the 'Sea Peoples' phenomenon. They could have attacked coastal polities, even the sites of their own ex-colleagues. An example of such a group, reported in the textual corpus, could be the *Shikala*, who lived in boats, and at certain stage they involved themselves in military conflict with Egypt and Ugarit, and were named as an enemy by the Hittite king. Other groups might have included the *Peleset*, the *Tjekker*, and others.

## INTERNATIONAL DEVELOPMENTS, RELATIONS, AND TRADE

We will endeavour next to examine Cyprus' international relations and participation and role in international diplomacy, as well as aspects of its long-distance trade, via historical interpretations of the relevant textual evidence, mainly from the Amarna letters from Egypt, and Ugarit's archives. In the process we will unfold aspects of the island's organisation and institutional systems related to its naval economy and their continuity.

### The Amarna letters and diplomacy

In 1887, an important cache of c. 350 documents, in the form of cuneiform tablets, was found at Tel el-Amarna in Egypt, the ancient site of the palace of King Amenhotep IV, better known as Akhenaten. These 'Amarna Letters' span the reigns of the Egyptian rulers of the 18th Dynasty: part of Amenhotep III's reign (1390–1353 BC), the whole of Akhenaten's reign (1353–1336 BC), and possibly that of Tutankhamun (1332–1322 BC). All but ten of these letters are documents received by the Egyptian court and written in Akkadian, the official language of the time, among them EA30 to EA40 from the king of Alashiya in Cyprus.

The Amarna tablets constitute political documents representing a tradition developed between the kings of the Near East to assist them in communicating and trading with each other, in pursuing and resolving their differences, and in establishing a common code of communication. Together with earlier archives from sites such as Mari, they constitute evidence of sophisticated relations and the existence of the first international system of how the kings of the Near East developed regular, diplomatic, commercial, and strategic relations. The Amarna diplomacy that emerges from these letters is particularly useful in our study, as it gives us first-hand textual evidence of how officials of the Near Eastern states, as well as members of the entrepreneurial community, interacted with each other, how a common maritime and mercantile zone functioned, how long-distance trade was conducted, and how Alashiya fitted into this system. Furthermore,

<sup>156</sup> Artzy 1997.

it gives us the opportunity to identify some of the institutions that existed in Cyprus, as well as internal mechanisms of its society.

In our study of the Amarna Letters and the archives from Ugarit, we will take care to filter the facts and not be misled by their propagandistic, rhetorical or emotional content, and interpersonal nature. Apart from status, the nature of Alashiya's Amarna correspondence reveals a strictly business relationship and the market forces at work, which suits our research admirably. In the words of Broodbank, they have an 'exceptionally pragmatic, commercial tone, with its chasing up for transactions'.<sup>157</sup>

Before we look into the Amarna texts in more detail, we must point out that similar diplomatic and trade activities between Egypt and Cyprus took place earlier, in the second part of the 15th century, during the reigns of Thutmosis III<sup>158</sup> and Amenophis III.<sup>159</sup>

#### *Commercial motives and social benefits*

In her book *Diplomacy by Design*, Marian Feldman, referring mainly to the comparison and striking connection of the letters and the International Artistic *Koine* luxury items, gives the following interpretation of the letters: 'The letters construct a world (patently idealized) of brotherly reciprocity among rulers in which exchanges are equal and emphasis is placed on acquiring prestige through giving rather than receiving'.<sup>160</sup>

The evidence supports that Alashiya's interest and participation in long-distance trade was primarily driven mainly by commercial motives, with concepts of supply and demand, profit, and entrepreneurship. The social value of acquiring status and prestige was equally important but did not overtake the commercial nature of the exchange process. Royal gifts were rarely given freely, for an obligation to reciprocate was immediately placed on the king receiving the gift. Quite often the reciprocal goods desired were clearly spelled out.<sup>161</sup> Thus, the king of Alashiya (letter EA 37) makes it very clear that he is interested in being paid in pure silver, while in his letter EA 34 he spells out in very precise terms the equivalency of his 100 talents of copper in Egyptian products and commodities. Furthermore, the scale and nature of Alashiya's trade of major raw material, copper and timber, suggests a commercial transaction rather than simple gift exchange. Thus, Liverani's summary of Alashiya's strategic and commercial interests is accurate and direct: 'The old

and intensive involvement of Assyria and Alashiya in trade activities, their strong position as producers or intermediaries in basic raw materials (Cypriote copper, Iranian tin) make in fact the Assyrian and Cypriote letters much more focused on commercial interest and on practical aspects than on gift ideology and on brotherhood relationships. They are also more realistic negotiations, avoiding the obsessive avidity in gold gathering and the relentless request for "more" values, so characteristic of the Mitanni and Kassite letters'.<sup>162</sup>

What transpires from the correspondence is that a competitive game over status was being played out.<sup>163</sup> There seems to be a continuous bargaining process and concern that a bad deal might harm the status of a participant. But the game went on, with offers and counter offers, conditional offers, delaying tactics, and strategies, all in search of the best deal. In the Amarna letters there is a very clear intention to 'profit'.<sup>164</sup>

As Stager puts it, 'merchants were operating in a competitive entrepreneurial environment, not in the Polanyianna world of market-less trade'.<sup>165</sup> Their kings and institutions, in practice, could not afford to behave otherwise.

Trade was conducted at state level for reasons of prestige and status and for the guarantee of integrity and proper discharge of obligations of payment and performance on both parties. As far as Cyprus' organisations and mercantile establishment were concerned, the role and performance of their internationally recognised institutions, and the proper discharge of their international obligations, derived from the royal exchange of gifts, and international correspondence, was of paramount importance. Success in these was key in maintaining the island's status and solid reputation as a reliable, trustworthy and credible partner.

#### *Establishment of international alliance, and diplomatic and trade relations*

From the badly damaged letter EA 33, it is evident that the king of Alashiya, as the internationally recognised leader of the state institutions of the island, was authorised to observe diplomatic protocols, initiate and conduct formal diplomatic relations and reciprocal gift exchange trade, at least as early as the beginning of the 14th century BC. Thus, we can deduce that the kingship of Alashiya was an institution, with international recognition that had continuity and a minimum duration of c. 150–200 years.

<sup>157</sup> Broodbank 2013: 398.

<sup>158</sup> Kitchen 2008: 1–8; Vigo 2010: 293.

<sup>159</sup> Jones 2007: 20; Lipinsky 1977: 213–217.

<sup>160</sup> Feldman 2006.

<sup>161</sup> Cline 1995: 144; Liverani 1990: 211–217.

<sup>162</sup> Liverani 1990: 215; Monroe 2009: 130.

<sup>163</sup> Dragmar and Guner 2000: 187.

<sup>164</sup> Zaccagnini 1987: 62–63.

<sup>165</sup> Bell 2005: 61; Stager 2001: 629–634.

*Recognition as head of state – Letter of Introduction*

It is important to recognise that personal greetings in the Amarna texts are first and foremost an assertion of legal and political status. This is evident from letter EA 39, in which the king of Alashiya addresses and recognises the king of Egypt in his official capacity as Pharaoh and head of state. The salutations are extended to the pharaoh himself and members of his household; they recognise those features that can identify him as head of state, i.e. the army, chariots, horses, and, most importantly, territory.<sup>166</sup>

We do not have evidence of the letters the pharaoh sent to the king of Alashiya, but it would be reasonable to assume they were along the same lines. It is important to observe that when the king of Ugarit addressed the king of Alashiya at the end of the 13th century, he used the same formula of salutations. Furthermore, he acknowledged that the king of Alashiya had an army and palaces, and was heading a state with territorial integrity. This means that Alashiya and its king were recognised internationally as a state and as a functioning sovereign institution for a period of at least 150–200 years. Letter EA 39 also serves as a letter of introduction, or reference letter, for the royal merchants of the king of Alashiya to the pharaoh of Egypt.<sup>167</sup>

*Trade conducted by royal merchants, DAM.GAR, tamkārū*

From Amarna Letter EA 39 we learn that part of the international long-distance trade was conducted on behalf of the king by royal merchants – the king of Alashiya calls the merchants travelling to Egypt ‘my merchants’. The Akkadian word for merchants in the text, DAM. GĀR, is translated as *tamkārū*, ‘royal merchant’. In his influential work, Liverani argued that *tamkārū* in the Near East were functionaries of their respective kings;<sup>168</sup> they were ambassadors legitimated by the king and equipped with quasi-diplomatic status. While they conducted trade for and on behalf of the king, the latter provided them with access to markets and trading rights for business of their own for a fee or a share of the profit;<sup>169</sup> and this is what the king of Alashiya might have done.

This information suggests a possible feature of the social and economic structure of Alashiya in the mid 14th century BC, the existence and reliance on a possible service system of royal dependent players for export and long-distance trade, with possible simultaneous

private interests of their own, like in Ugarit and other Near Eastern countries.

Reciprocal royal gift exchange was only the start, serving as an opener for the elite trading families and merchants to initiate their own entrepreneurial activities. It may be of interest here to mention Malinowski’s work with the Tobriand islanders.<sup>170</sup> The anthropologist found that when tribal chiefs were at the ceremonial centres exchanging their arm bands and necklaces according to custom, the men who served as crews on the canoes that transported the chiefs were busy trading on their own with the locals. In the same way as the real interest for the Tobriand islanders and their trading partners was the side business that was conducted together with the ceremonial exchange, the motivation for Alashiyan merchants and sailors who were transporting the royal exchange gifts across the sea was the entrepreneurial business opportunities presented to them. Perhaps here lies the answer of how the Cypriot jugs and containers carrying aromatic and perfumed oil found their way into the Egyptian, Hittite, and other markets of the Near East.

Furthermore, Letter EA 39 suggests that the ship accompanying the Alashiyan *tamkārū* was in the ownership of their king. This, in conjunction with Amarna Letter EA 40, which also confirms the existence of royal ships, makes us believe that a substantial part of Alashiya’s long-distance maritime trade of bulk raw materials was in the hands of the state. We have to remember, of course, that we do not know if the ships mentioned in EA 39 and EA 40 were owned by the king or were provided merely in the service of the king.

In the same letter, EA 39, we also learn that the king of Egypt was requested to grant duty-free status to the enterprises of the Cypriot *tamkārū*, ‘No one making a claim in your name’. Therefore, since duty-free status was requested for the royal business, we have to consider that the other private businesses were liable to import duties and taxes. According to the rule of reciprocity, the same arrangements of tax and duties must have applied to Cypriot ports, whereby all corresponding royal business of the Egyptian king could also be tax exempt, while private trades were liable to taxes and royalties. We can therefore detect here the existence of another institutionalised feature, that of maritime tax and duties, operating within the norms and customs of a common maritime and mercantile zone.

*The role of governor, rabisu*

Amarna Letter EA 40, written by an unknown senior governor from Alashiya to a corresponding official in Egypt, gives us a fair insight into the probable power-

<sup>166</sup> Westbrook 2000: 30.

<sup>167</sup> It has been suggested that it might have served as a form of passport. Saggs 1989: 48.

<sup>168</sup> Liverani 1962: 80–83, 112–115.

<sup>169</sup> Aubet 2001: 105–111; Dandamayev 1995: 523–530; Heltzer 1988: 7–18; McGeough 2015: 95; Parpas 2018: 85–87.

<sup>170</sup> Cline 1995: 149; Malinowski 1922.

sharing and governance arrangements on the island. In his letter, this senior governor seems to be vested with substantial executive powers.

The letter suggests that the island ‘was ruled by the traditional leadership, a king and governors.’<sup>171</sup> This could resemble the governance in Ugarit.<sup>172</sup> The term *rabisu* that appears in the text represents the office of the senior governor. This indicates a hierarchy of governors headed by a senior figure. The position of senior governor within Cyprus’ institutional system must have been a rather important and powerful one, as we can attest from the incident where the Hittite king claimed to have imposed tribute on Alashiya, levying it on both its king and the senior governor of the island.<sup>173</sup> The senior governor might have been living in a separate city from the Alashiyan king, in *umma*.<sup>174</sup> This might point to a separate office with executive powers and obligations, and perhaps rights to conduct private business for himself. We might reasonably presume this from Amarna Letter EA 40, where there is evidence of the unnamed senior governor conducting private reciprocal gift exchange trade with his opposite number in Egypt. The evidence suggests the governor was not restricted to official functions exclusively; evidently, he could engage in entrepreneurial activities for his own private benefit. These activities could have been direct, as evidenced in EA 40, in partnership, or under state sponsorship, even in joint venture.

Taking EA 39 and EA 40 together, we can already see a bureaucratic setup emerging. From the evidence, the king and his governor seem to share the same bureaucracy. This leads us to consider that the position of governor was part of the king’s organisation.

Together with the existence of a senior governor and scribes, we have evidence in EA 39 of royal merchants, DAM.GÀR, *tamkārū*, and in EA 40 of ‘servants of the king’ travelling overseas on royal business. There is also evidence of ships with their captain and crew belonging to the king. This indicates the possible existence of a service system with royal dependents that was still quite strong in the second part of the 14th century BC.

In EA 40, we see that in Alashiya there is a class referred to as ‘servants of the king’, who were considered sufficiently loyal to be sent overseas to attend to the business of the king. In Ugarit, these were individuals performing the king’s service and, according to Schloen,<sup>175</sup> they had hereditary occupation and were entitled to hereditary landholding.<sup>176</sup> From EA 40 they

appear to be under the directives of the executive branch of the kingdom of Alashiya, headed by the senior governor; they are therefore part of the administration of the king and the social stratification of Alashiya, which seems to have certain similarities to that of Ugarit.<sup>177</sup>

The terminology used in Letters EA 39 and EA 40 suggests that Cyprus, which had such close trading and mercantile relations and contacts with other Near Eastern countries, like Ugarit, might somehow have followed similar administrative systems in spite of its unique insular character. This is further amplified by Professor Heltzer’s suggestion: ‘Foreign trade relations by the royal authorities contributed greatly to creating similarities of social structures, and vice versa, for it furnished opportunities for intensive contacts between various countries and enhanced the role of maritime trade. There is today a great deal of archaeological evidence concerning trade relations among the countries of the area.’<sup>178</sup>

From the available evidence, it is not unreasonable to propose that Cyprus’ state maritime economy in the mid LBA was still operated by the institution of the king and a royal service system. As we move towards the end of the First Economic Cycle and into the beginning of the Second, the institution of the royal service system was already weakening as a result of international instability and volatility and changes in societal factors at home. In spite of this, however, the economy remained strong. Other independent players, the other indigenous ‘bosses’ on the island and constituent members of the state, already started claiming bigger stakes in the economy and political power. There is archaeological data consistent with this gradual erosion of royal authority<sup>179</sup> and its continuation, as well as transformation.

#### *Diplomatic relations – not always ‘milk and honey’*

Amarna Letter EA 35 is a long one, with many implications and more useful information that can help us understand further Alashiya’s institutions and international relations, as well as maritime trade generally.

The shipment of 500 (talents)<sup>180</sup> mentioned at the beginning of the text is a relatively large shipment of copper, weighing close to 15 tons, worth 75 kg of gold or 150 kg of silver, using the equivalency ratio of gold/

<sup>171</sup> Peltenburg and Iacovou 2012: 34.

<sup>172</sup> Vita 1999; Singer 1999.

<sup>173</sup> KBo XII 38 (CTH 121).

<sup>174</sup> Otten 1963: 10–13; Peltenburg 2012: 12; Steiner 1962: 13–16.

<sup>175</sup> Schloen 1995: 97.

<sup>176</sup> Monroe 2009: 266.

<sup>177</sup> Heltzer 1988: 10; McGeough 2011: 67.

<sup>178</sup> Heltzer 1988: 14.

<sup>179</sup> Peltenburg and Iacovou 2012: 351.

<sup>180</sup> For comments, see Moran 1992: 108, n. 2. In both letters EA 33 and EA 35, the word ‘talent’ is not explicitly mentioned. This leaves room for alternative interpretations, the prevailing one, however, is that stipulated by Moran, who believes it refers to talent.

silver/copper = 1:2:200, it is one and a half times more than the copper in the Uluburun shipwreck. It might have required two or three, medium to large ships to carry it to Egypt. It is the largest single shipment ever recorded being delivered to Egypt, and therefore it is very strange that the king of Alashiya had to apologise for the small size of the shipment unless it were part of a larger order. In any case, it attests to the substantial exports of copper from Alashiya to Egypt, and that copper was regarded as an international 'hard' currency exchanged for silver.

In the same letter, the king of Alashiya reminds the pharaoh of Egypt of delay of payments due for delivery of timber by Cypriot merchants from Alashiya to Egypt. We can consider that here we have evidence of either a joint venture between the state and private entrepreneurs to export timber to Egypt, or alternatively that the state executed the delivery of timber on behalf of private entrepreneurs on a back-to-back payment basis. In the second case, the king acts as an agent or sponsor, using his good offices to execute the order on behalf of the entrepreneurs against a handling fee or commission. This type of long-distance trade model is not unreasonable given the particular socio-political structure of the island. In any event, we have clear evidence of private entrepreneurial activity and market forces in operation, running counter to Polanyi's theories of market-less economies. We also understand how credit was extended with international trade, concealed as reciprocal royal gift exchange. It is worth noting that the king of Alashiya uses the word *simatu*, meaning payment due. This word that does not appear in any of the other Amarna Letters and is a very clear indication of the commercial nature of Alashiya's state transactions. It is also important to note that the issue was escalated to the highest level, becoming a political problem, because of the unreasonable delay in payment in silver by the Egyptians. It is possible that Egypt's pharaoh was delaying payment following the Alashiyan king's corresponding delay in delivering the copper due. We can therefore understand the level of importance of state institutions, and the dependence on performance and timely discharge of obligations for the maritime economy of the island.

The king of Alashiya cites the plague that hit Cyprus as an explanation for why he detained the pharaoh's messenger for three years. This may well be true, although we must keep in mind that when a messenger was detained and not returned to his master, it might be an indication of an inability to reciprocate with the expected payment or gifts. It was also an indication that things were not as they might be between the two royals,<sup>181</sup> or that there was even a chance of a break in diplomatic relations. On the other hand, it was also an

indication of the power and status of Alashiya, as only a powerful king could stand up to the pharaoh of Egypt, the most powerful ruler in the region.

A delay of three years in sending the 500 talents of copper might even suggest that the production capacity of copper in Cyprus, clearly under the control of the Alashiyan royal institution, might not have exceeded 500 talents per three-year period, which is five tons per year. On the other hand, the king recognises that this is a small amount, which in turn might suggest a much greater capacity. Such ambiguities and questions signify how little we know about the real production capacity of copper in LBA Cyprus.

The fact that the king asked the pharaoh of Egypt return to Cyprus the personal belongings of a Cypriot who died in Egypt is an indication that he was expected to represent Cypriot interests overseas, not only in matters of trade but also in a variety of other political and social matters.

In the same letter, EA 35, we have evidence of Alashiya having diplomatic relations and long-distance trade links with Hatti and Babylon, to whom they were supplying copper in the same way they did to Egypt. Can we detect some concerns on the part of Egypt for the continuation of such shipments?

In his communication EA 38 to the pharaoh of Egypt, the king of Alashiya reveals his vulnerability when it comes to defending the island from raiders, and possibly pirates, who are using Cyprus as a springboard for raids on neighbouring countries. The letter clearly reveals certain problems between Egypt and Alashiya – the pharaoh is upset by the fact that Cypriots are among the Lukkan force raiding Egyptian territory.

The fact that the pharaoh detained the messenger of the king of Alashiya leads us to believe that he revoked his exit permit to show his displeasure. This is the reason the king of Alashiya was concerned, and reminded the pharaoh that no such diplomatic incident had ever happened between the two countries before. Nevertheless, from the way the correspondence was exchanged, the king of Alashiya seems to have stood his ground and, although he represented a much smaller state, he faced the Egyptian king on an equal footing. Clearly, his power originated from his near monopoly on copper, and the functioning institutions capable of extraction, processing, and delivery. All the Amarna correspondence relating to Cyprus, especially Letters EA 35, EA 39 and EA 40, testify to established and strong institutions, recognised both on the island and overseas.

<sup>181</sup> Westbrook 2000: 33–34.

## Archives from Ugarit

Before we look at the evidence from Ugarit, it will be useful to draw a comparison between Ugarit and Cyprus, two neighbouring countries with close ties and much in common. The kingdom of Ugarit (Figure 15), covering c. 5500 km<sup>2</sup>, had a population estimated at its peak of 31,000 – 33,000, reached in the 14th century BC, when Suppiluliuma I, king of Hatti, increased its territory from 2200 km<sup>2</sup> by granting additional lands. This population is extrapolated from Yon's estimates of urban inhabitants as between 6000 and 8000,<sup>182</sup> and rural population estimates of no more than 25,000. (This data is only mentioned as a general reference; the available archaeological evidence counsels caution.<sup>183</sup>)

Ugarit, on the tell of Ras Shamra, was one of the busiest trading kingdoms of the South- Eastern Mediterranean in the LBA, operating from five ports. Its two major ports were Mahadu (Minet el Beidha) and Ras ibn Hani. Mahadu was only 1 km from Ugarit and must have been the main port of the kingdom. Ugarit was militarily weak, being a vassal of Hatti, but economically very strong. It was one of the greatest commercial states in the region and its main business was trading, conducted mainly in the urban city-state environment of its capital, the city of Ugarit. Its kings lived in a majestic 7000 m<sup>2</sup>, 90-room palace, with eight enclosed courtyards, occupying a substantial part of the city.<sup>184</sup> The centre was a focus for all trade in that area of the Mediterranean. The large mansions of its trading elite and entrepreneurial merchant society provide undeniable evidence of the successful partnership between crown and private enterprise.

Cyprus, in comparison, covers 9300 km<sup>2</sup>, and during the second half of the LC IIC operated out of the urban centres and settlements described earlier. We do not have an estimate of its population to compare with Ugarit, but on the available evidence, and taking into account that, in addition to its maritime trade, Cyprus was a major producer of copper, then its maritime activities must have been comparable to those of Ugarit. Perhaps its population could have been of a similar number, but we have no clear evidence to base this on.<sup>185</sup> Comparing Figure 15, showing the extent of the kingdom of Ugarit, with Figure 2, doing the same for Cyprus, we realise that Ugarit's naval and maritime operations were more concentrated around its capital, Minet el Beidha and Ras ibn Hani, while Cyprus' corresponding operations were more multipolar, diffused, and spread all along its coast. Ugarit's maritime operations were based mainly

on trade, while Cyprus' maritime economy was more diversified based on manufacturing and trading.

In the case of Ugarit, we have concentrations of political power, wealth, and commercial activity mainly inside the capital, or close by. Instead, in Cyprus we have a more diversified political and socio-economic environment, where wealth and power were geographically spread. This system gave Cyprus more flexibility and stability, as well as a lower centre of gravity to its economy. It had a lower profile in terms its wealth, stemming from the closed and insular character of its society. Enkomi, for example, only a day's trip from Ugarit, although most probably half the size of the walled part of the city of Ugarit, but a specialised and efficient manufacturing hub and a busy port of trade, had a very different profile. Enkomi's political and business model allowed it to prosper and continue trading in the early Second Economic Cycle, before its inhabitants moved to Salamis, in contrast to Ugarit, whose overheated economy and extravagant and concentrated show of wealth made it a sitting target and did not assist in its survival.

The discovery of tablets evidencing exchange of correspondence between the king of Ugarit and the king and officials of Alashiya provides an opportunity to reconstruct a small part of Cyprus' history and the continuity of its institutions in the last quarter of the 13th and first decade of the 12th century BC.

### RS 94.2475+2361

The discovery of RS 94.2475+2361 in the house of Urtenu in Ugarit, written at the end of the 13th century BC, reveals the name of one of the last kings of Alashiya, perhaps the last, Kushmeshusha. It also gives a new dimension to the status of the king and his international standing. The fact that Kushmeshusha addressed the king of Ugarit, Niqmaddu III, as 'my son' may be taken as a sign of some superiority,<sup>186</sup> supported, perhaps, by Ugarit's vassal status and Alashiya's independence. Whether this is something we should take literally is a matter of scholarly debate, which, on the strength of existing evidence, will take time to settle.<sup>187</sup>

Kushmeshusha's promise to send Ugarit 33 copper ingots, equivalent to about 900 kg of copper, worth c. 450 Ug.sk in silver, although of moderate size in itself when compared to the much bigger shipments to Egypt during the Amarna era, is a clear sign of the continuity and function of the state institutions and that the king was very much in control of processes and procedures

<sup>182</sup> Artzy 1997: 4; Yon 1992: n. 2.

<sup>183</sup> Vita 1999: 455; Yon 1992.

<sup>184</sup> Broodbank 2013: 392.

<sup>185</sup> Iacovou 2007.

<sup>186</sup> Peltenburg and Iacovou 2012: 346.

<sup>187</sup> It is interesting to note Liverani's opinion (1990: 197–202) that 'father' is used as a term of respect only, in terms of age, and should not be seen as a sign of dominance or superiority.

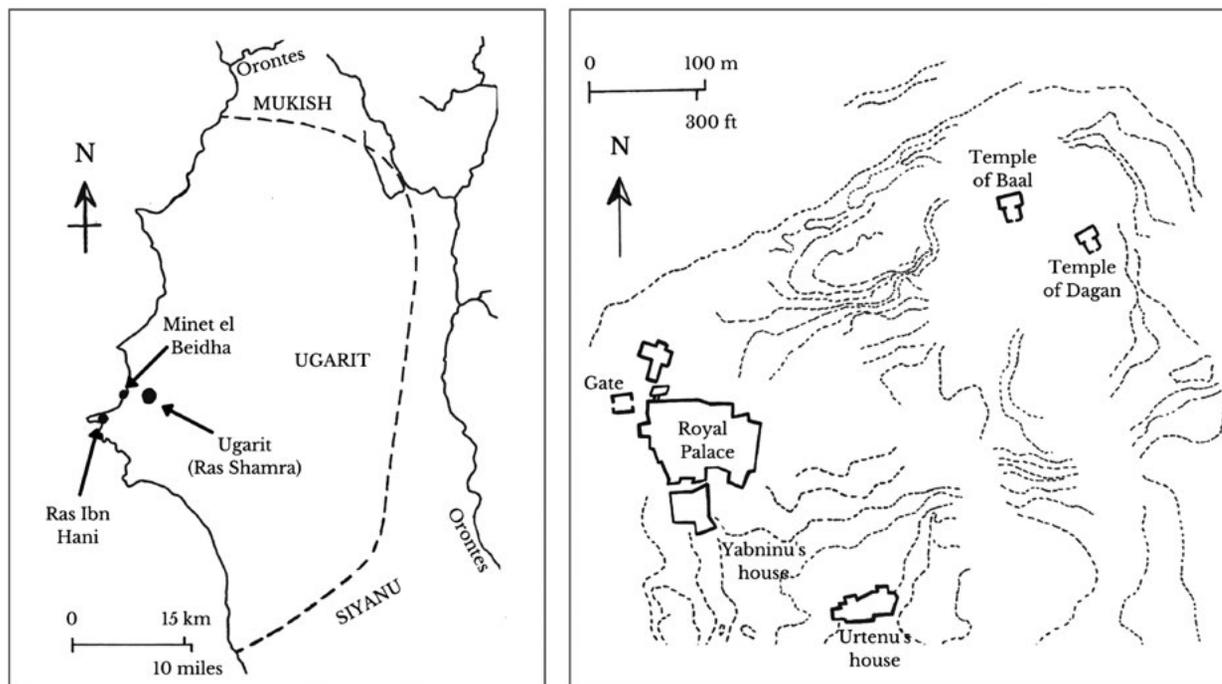


Figure 15: (Left) The kingdom of Ugarit during the 13th century BC, with its capital at Ras Shamra and the two main ports at Minet el Beidha and Ras Ibn Hani close by. (Right) The palace and residences of elite officials and traders in the kingdom's capital, with the religious precinct in the background (drawing: Katerina Parpas, after Broodbank 2013: 392).

in relation to international trade and gift exchange. Letter RS 94.2475 from Ugarit, in combination with Amarna text EA 33 reveal the duration of the kingship of Alashiya to have covered at least 150–200 years.

The following three letters (RSL.1, RS 20.238, RS 20.18) originate from the Rapanu archives, written during the last chaotic years in the region, and reveal the durability and continuity of Cyprus' state institutions:

#### RSL.1

RSL.1 was written by the king of Alashiya to the last king of Ugarit, Ammurapi. From its tone we can sense a position of authority and seniority on the part of the Alashiyan king, and perhaps military experience.<sup>188</sup>

#### RS 20.238

RS 20.238 was written from the king of Ugarit to the king of Alashiya. It becomes evident now that Ugarit is in a very difficult situation and no longer in control of its own destiny, with its army and navy assigned to defend Hatti instead. From the letter, it seems that the king of Ugarit has his back to the wall and looks to Alashiya for

help and advice. His declaration that he now falls to the feet of the Alashiyan king is a clear sign of his desperate situation and Alashiya's superiority.

#### RS 20.168

RS 20.168 deals with a plausible dispute in relation to a consignment of oil, written by King Niqmaddu to the king of Alashiya. The king of Ugarit refers to his counterpart in Alashiya as 'my father' and himself as 'your son'. It is noteworthy that the kings of Ugarit in their letters to the king of Alashiya make mention twice of the latter's palaces and army: 'May your palaces, [your] wives, [your infantry, your] chariots, [your] horses, and everything that belongs to the king of Alashiya, [my father], be very [wel]!'.<sup>189</sup>

The address follows the same format as the Amarna letters and is indicative of Alashiya's recognition, internationally, as a sovereign state with its own army. The fact that it refers twice to the king's palaces seems strong evidence that such palaces existed, something that has not yet been confirmed archaeologically. What is abundantly clear, however, is the close alignment of the state institutions of Alashiya and Ugarit.

A close relationship between the two royal houses might also be indicated by something the scribe wrote

<sup>188</sup> It has been suggested that the letter might have been written by the king of Carchemish, but (Goren *et al.* 2003: 24) petrographic and chemical examination has concluded that the tablet originates from Cyprus and the Carchemish link is no longer supported.

<sup>189</sup> RS 20.168.

on the back of the tablet,<sup>190</sup> requesting from the king of Ugarit ‘a fine table and five chairs’. This seems to suggest that the scribe was provided by the king of Ugarit and was a connecting link between Ugarit and Alashiya. Good relations between the two kingdoms is also confirmed by letters RS17.352 (PR4.55) and RSL 24.274, mentioning that two of the queen of Ugarit’s sons were exiled there.<sup>191</sup>

RS 20.18

RS 20.18 written from the senior governor of Alashiya, Eshuwara, to the king of Ugarit and was found in the Rapanu archives. Eshuwara reports a threat by twenty enemy ships to his location in the mountains. He even implies that the enemy ships which eventually left for Ugarit might be renegades from Ugarit. From the tone of the letter, we understand Eshuwara to be a person wielding considerable power and authority, and being able to address the king of Ugarit on equal footing.

RS 94.2173 and RS 94.2447+

Among the letters from Alashiya found in the Urtenu archives, two (RS 94.2173, RS 94.2447+) were written by two other governors from Alashiya. One was sent by governor Sinama,<sup>192</sup> and relates to horses,<sup>193</sup> and the other by the governor Sangiwa.<sup>194</sup> The latter addressed his letter directly to the king of Ugarit.<sup>195</sup> The correspondence of the Alashiya governors with the king of Ugarit, in the last months of the kingdom, reveal the endurance and strength of the state institutions of the island. It is even more noteworthy that such qualities of the functioning state institutions and bureaucracy are demonstrated at the period, when the state was supposed to be at its weakest.

RS 2177+249

RS 2177+249 is another letter, found in the Urtenu archives, written by an unnamed senior governor asking for the release of Alashiyans detained in Ugarit for unknown reasons.<sup>196</sup> The letter, presumably, was written by an Alashiyan governor acting on the instructions of his king.

The conduct of the governors of Alashiya suggests the continuous existence of a bureaucracy and organisation that included lower-level officials, with staff and at least a scribe from Ugarit, with expert knowledge of the protocol of international correspondence and trade. Therefore, for a span of at least 150 – 200

years the office of the Alashiyan governor projected a position characterised by continuity, prominence, and an executive power of dispersed nature at various levels. As stated already, this bureaucracy was still very much in control and functioning at the end of the 13th century BC, when Alashiya was placed under pressure by international turmoil and instability. This paradox well illustrates why we are still trying to understand how ancient kingdoms, including those in Cyprus, actually functioned.

### Common maritime and mercantile zones and long-distance trade

The regional states, kingdoms and polities of the Eastern Mediterranean had very close economic, cultural, religious, and maritime links. They integrated within their common trade networks and their maritime infrastructure accessible points of contact and exchange, where seafarers conducted their business and exchanged ideas, innovations, and material culture. Each one of these entities had its own distinct internal political structure and organisation. In spite of this, their royal and state institutions, as well as the entrepreneurial organisations, and the people who interacted with each other, within the international network that developed during the LBA for the purpose of conducting trade and moving goods across the region, had to have compatible and compliant external behavioural features. Additionally, they had to have matching external administrative and legal practices and a common code of conduct to govern, align and regulate their maritime and mercantile relations. Such compatibility was necessary to achieve the most efficient and compliant interaction and symbiosis.

These common denominators, trade relations and cultural interactions, created a common maritime and mercantile zone within the south-eastern regions of the Mediterranean: Liverani even refers to a concept similar to that of the ‘Great Powers Club’.<sup>197</sup> In the words of Knapp, citing Broodbank, during the 2nd millennium BC the Eastern Mediterranean, along with the Aegean, became ‘a single zone of maritime trade and innovation’.<sup>198</sup> Cyprus became a member of this single zone (or common zone or *koine*), and its participation was based on its institutional export system and international relations.

This common maritime and mercantile zone gradually formed from the Late MBA and reached its peak in the LBA. In the words of J.G. Manning, ‘The Bronze Age was the age of [...] large-scale trade networks across western Asia and the eastern Mediterranean, and the origin of

<sup>190</sup> RS 94.2475, RS 94.2361.

<sup>191</sup> Beckman:1966; 26. The letter RS 24.274 also reveals that the goddess Ishtar was worshipped in Cyprus; Knapp 1996: 41; 2008: 320.

<sup>192</sup> RS 94.2173.

<sup>193</sup> Ferrara 2012: 143.

<sup>194</sup> RS 94.2447+.

<sup>195</sup> Peltenburg and Iacovou 2012: 346.

<sup>196</sup> Vita 1999: 463.

<sup>197</sup> Liverani 2000: 20.

<sup>198</sup> Knapp 2018: 186; Broodbank 2010: 256.

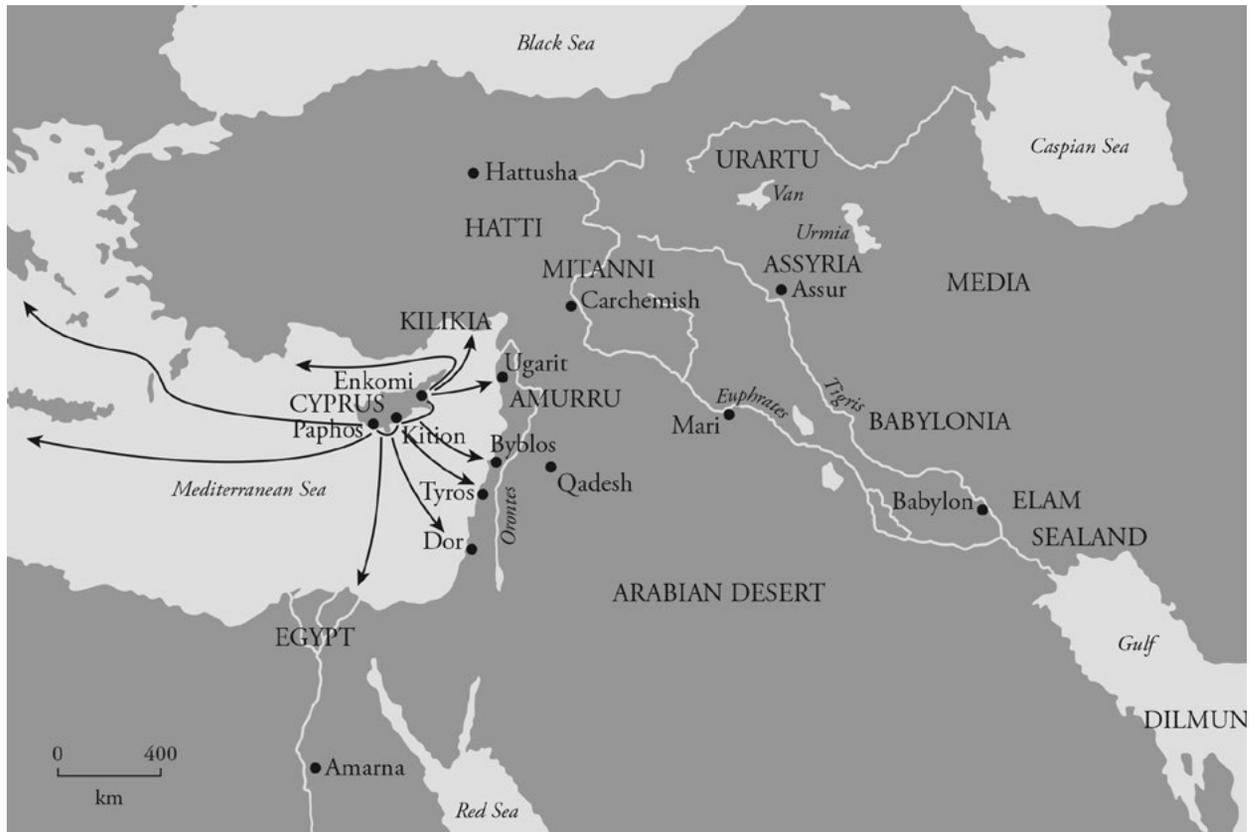


Figure 16: Schematic map of shipping routes in the Eastern Mediterranean originating from Cyprus (drawing: Philipos Vasiliades).

what Broodbank has called “pan-Mediterranean”.<sup>199</sup> As already mentioned, Broodbank<sup>200</sup> estimates that there were ‘forty to fifty producing, trading and consuming centres in the Eastern Mediterranean basin’.<sup>201</sup> Most of these centres were active members of the common zone, and the intensive interactions produced a common economic and commercial culture through market exchange, maritime connectivity, and the standardisation of goods and weights and measures.

This zone was based on international diplomacy and the maritime exchange network which was created and developed around it. Among other reasons, this network was created to overcome the inherent costs involved in long-distance trade, developing as a result of the driving forces of regional trading partnerships, creating an international brotherhood; its existence can be traced to the ancient trade routes of the state and entrepreneurial exchange networks. For these networks to function successfully, common and compatible concepts – legislation, codes of conduct, measures of wealth and values – had to be put in place. In other words, common maritime and mercantile features were developed and shared over

the financial, legal, and external political systems of the member countries of this *koine*. What followed was a set of common technical rules – measures and weight standards, standard maritime transport containers, common credit practices, and legal norms,<sup>202</sup> as well as the required trust and security needed for a potentially unstable and volatile maritime zone. There was clearly no lack of mobility or motivation, resulting in improved understanding and knowledge of the geography of the trade routes. Goods, ideas and services were exchanged more freely and with less risk.

During the First and early Second Economic Cycles, key advances in maritime infrastructure and technology took place. Among them was the development of the long-hulled oared galley and new type of rig with square brailed sails and top mount crow nest. These seafaring advances happened within the context of the common maritime and mercantile zone; the originators and agents of transfer and diffusion of these developments were its own members.

The people who travelled on these trading routes included traders, merchants, artisans, smiths, warriors, mercenaries, migrants, and diplomats. The social process that allowed for the mobility of these

<sup>199</sup> Manning 2018: 41.

<sup>200</sup> Broodbank 2013: 413.

<sup>201</sup> Manning 2018: 43.

<sup>202</sup> Knapp and Demesticha 2017; Monroe 2009.

people was the nexus of political alliances<sup>203</sup> between the members of the common zone which enabled safe and reliable access to its maritime routes. In the case of Cyprus, travel of traders, merchants, artisans and diplomats was achieved and supported by the institution of international diplomacy carried out by the king and his administration. The Uluburun and Cape Gelidonya wrecks demonstrate how trade was carried out along its routes, and how merchants with warriors or mercenaries travelled together.

The island became a constituent member of the fabric of the exchange network that facilitated the distribution and movement of the resources of the region and beyond. Like the Levant, it was a recognised point of contact and exchange where mariners and mercenaries of the sea converged to conduct their business and exchange ideas and products (Figure 16). Due to its size, it remained together with the Levantine kingdoms, below the 'Great Powers', but it is important to stress again that, unlike its Levantine neighbours, its status was that of an independent trading partner, not a vassal.

The close political ties, common technological maritime advances, and relations between Cyprus and the Levant, are attested by the appearance of similar types of boat engravings found in both countries. In the Levant these are found at Tell Nami, Akko and at Nahal ha-Me'arot, which is close to the coastal site of Tel Nami. In Cyprus similar graffiti are found at Hala Sultan Tekke, Kition and Enkomi (Figure 42). Tell Nami, Akko and Nahal ha-Me'arot, like Hala Sultan Tekke, Kition and Enkomi, served as international entrepôts and gateways during the Late LBA. It is not unreasonable to suggest that the boat engravings were done, *ex voto*, by captains and crew, as cultic offerings, for safe journeys. Such practices, in various forms, are found in all seafaring lands.<sup>204</sup> The cosmopolitan trading-hub nature of Tell Nami society, which is similar to its counterpart coastal sites in Cyprus, is evident from the rituals conducted at the site by a variety of traders and travellers, including Canaanites, Syrians, Egyptians, Cypriots, and Aegean people.<sup>205</sup> Tell Nami's trade connections were not different from those offered to other entrepôt/gateway anchorages of the Levant and Cyprus. This amalgamation of people – mariners, traders, financiers, intermediaries, coastal settlers, and others interacting with common zone – overlapped on the same trading trail; they would learn each other's habits, rituals, languages and traditions, and belonged to the same maritime and mercantile *koine*.

There are many other common features that bind the countries of the region closer together. In her book, *Diplomacy by Design*, Marian Feldman introduced the concept of 'International Style' or 'International Artistic *Koine*'. She supports that the International Style was a legitimate LBA artistic phenomenon<sup>206</sup> involving luxury products, whose internationalism is attributed to the interchange of motifs resulting from diplomatic exchanges of gifts by sovereigns of widely separate and different states. The main period of production of these items was the 14th and 13th centuries BC. Although several production centres existed, the stylistic affinities point to common and shared roots. There are many common features between the International Artistic *Koine* and the common maritime and mercantile zone. As a matter of fact, the International Artistic *Koine* or International Style thrived on the region's trading routes and points of contact, which were used for its proliferation.<sup>207</sup>

### International customary law and norms of the sea

The internationalism that characterises the period of LBA may well have led to the creation of a tacit understanding and obligation to all regional states and their institutions that their maritime activities should comply with the regional customary laws and norms of the sea.

For as long as Cyprus' state institutions were recognised by the other heads of state in the region as the sole authority on the island, then these institutions and their representatives were held accountable in terms of abiding by the customary laws and legislation that governed maritime trade in the South-Eastern Mediterranean. Any breach of this doctrine might have resulted in penalties, isolation, or even expulsion from the 'Club'. This was an obligation that applied to all member states, not only to Cyprus. This was the way to provide safety and minimise the risks at sea, and was common to all; the best way to protect the international trade they all profited from. According to Monroe, as far as Cyprus was concerned, the LBA was witness to the emergence of an Eastern Mediterranean system whereby 'intensification of Cypriot copper production and international diplomacy and law played a major role'.<sup>208</sup> Therefore, neither Cyprus' state institutions nor its organisations could afford to ignore their international legal obligations regarding compliance and risk their leading commercial advantage.

This was one of the reasons why, up and until the last part of the 13th century BC, a sizable part of Cyprus' state maritime economy, which was mainly the island's

<sup>203</sup> Kristiansen 2018: 8.

<sup>204</sup> Basch and Artzy 1985: 322.

<sup>205</sup> Artzy 1997.

<sup>206</sup> Feldman 2006: 26.

<sup>207</sup> Feldman 2006: 36–58.

<sup>208</sup> Monroe 2009: 242.

bulk copper exports, was still predominantly a state economy. This is in line with the general opinions of both Zaccagnini<sup>209</sup> and Liverani,<sup>210</sup> who also support that in the LBA the status of merchants was that of palace dependent, and that they would only become independent of the palace and act on their own much later, in the 12th century BC. Of course, it was in the state institution's interest to encourage the development of entrepreneurial trading by elite families and private traders, as this would mean additional income for the state coffers in the form of taxes and royalties. As already mentioned, Letter EA 35, among other things, might very well reveal such a case. One plausible interpretation of the text is that Cypriot private entrepreneurs channelled through their king their export of timber to the pharaoh of Egypt and were seeking, through the good offices of the state institution and the king, the payment due. The king's intervention to secure payment must have come at a price.

On any given day, all along and across the Eastern Mediterranean basin, from the Aegean to Kilikia, Ugarit, Cyprus, and the entire Levantine coast down to Egypt, any number of ships would have been circulating with their precious cargoes. No matter whether there were bilateral treaties between these countries or not, they all operated within a maritime *koine* and as long as they had common interests they had to abide by a minimum body of applicable legislation, i.e. the customary law both on land and sea.

We have textual evidence that the coastal states of the region, such as Ugarit, the Levantine kingdoms and Egypt, followed customary and common legal norms regarding safety and conflict resolution in relation to royal and private shipping on the open sea and coastal ports of trade.<sup>211</sup> They developed institutional features and systems as well as rules and regulations and legal procedures, followed up by diplomatic correspondence, to ensure the safety of sailors as well as the cargoes and property of royal and private shipping. In addition, they did all they could to respect each other's rights concerning damaged vessels and merchandise in their ports and along their shores. They set up mechanisms for compensation and held to account anyone violating these rules. The Hittite kingdom, although mostly a land-based player in the region, acted according to the established laws of the sea, as its economic interests were also at stake. We have every reason to believe that Cypriots followed the same rules, not only because it was in their interest to do so, but because they could not have existed in isolation in a region where they had such vital interests. It was therefore an obligation for them to safeguard their economy and long-distance

trade by developing institutions that would lay the rules of their compliance to regional norms and legislation.

We will now demonstrate how these legal norms applied, either as customary law or treaties, as well as how compliance was secured, by looking at the following examples involving Egypt, Hatti, Ugarit, Tyros, and Cyprus. But before doing so, we should just remind ourselves that, back in 1700 BC, Hammurabi had the same concern in terms of how to regulate riverine and maritime trade in the Babylonian state. His solution was stipulated in his legal code a system of compensation for loss or damage to any vessel and cargo,<sup>212</sup> as well as the additional costs of shipbuilding and the hiring of boats and crew. His code also specified a form of one-year warranty for newly built ships.

#### RS 17.133

In an incident, described in Letter RS 17.133 from the king of Hatti to the king of Ugarit, which most probably happened in a port under the direct control of the Hittite king, or in one of his vassal states along the Kilikian coast, an Ugarit ship was rammed by a vessel owned by a man of Hurrian origin named Shukku.<sup>213</sup> This action amounted to a violation of international sea law involving Ugaritian interests and a Hurrian national, in relation to a violation that took place in a third country. We do not know the country, but since the legal case was presented to the courts of justice in Hattusha it could not have taken place in Ugarit, which was under the administrative sphere of Carchemish, but in a port under the direct jurisdiction of the Hittite king, perhaps the Kilikian port of Ura.

The captain of the ship sued Shukku in the Hittite court of justice, demanding compensation for damages. The Hittite king, Tudhalivas IV, wrote to his vassal Ammistamru II, king of Ugarit,<sup>214</sup> informing him of the lawsuit brought before his court. The king's mother, Queen Puduhepa, was tasked to give a ruling. She held Shukku liable for intentionally crashing the loaded Ugarit ship into the harbour quay. Her verdict was: 'May Shukku reimburse his ship and his goods which were held in his ship's hold.'<sup>215</sup> Shukku was thus ordered to make good the damage to the ship and replace the cargo and property that was lost or damaged. The queen gave her verdict based on the Ugaritian captain's sworn testimony.

We may conclude that Queen Puduhepa was following an established legal norm, or that by her verdict she was creating a legal precedent, whereby anyone operating within the common maritime and mercantile zone of the South-Eastern Mediterranean who caused damage

<sup>209</sup> Zaccagnini 1987: 29.

<sup>210</sup> Liverani 1987: 69.

<sup>211</sup> Monroe 200: 174–81.

<sup>212</sup> Legal Code of Hammurabi, Laws 234–40.

<sup>213</sup> Elat 1991: 28–9; Monroe 2015:15.

<sup>214</sup> PRU V, 118f. 17, 133.

<sup>215</sup> RS 17.133 = PRU 4: 118–119, 18–22.

to a ship or its cargo, on the high seas or in port, was liable under the law to compensate in full for his illegal actions. The Alashyan state, and those merchants and seafarers involved in international long-distance trade, must have been aware of these laws and practices and were expected to respect and abide by them.

RS 18.031

The second example concerns a letter (RS 18.031) from the king of Tyros, who informed Ammurapi, king of Ugarit, that, following a heavy storm, one of Ugarit's royal ships bound for Egypt was shipwrecked in the waters near Tyros. The king of Tyros informed his counterpart in Ugarit that he should not be concerned and that he had taken care of the cargo and damages: the ship was already safe at Akko, on its way to its final destination in Egypt.<sup>216</sup>

Given the excellent and close trade and maritime relations between Alashiya and Ugarit, it is reasonable to assume that should the king of Alashiya be faced with a similar situation, he was expected to respond in a similar manner, and vice versa of course.

RS 94.2483

In this newly published letter (RS 94.2483) from the king of Ugarit to the king of Sidon, referring perhaps to the same incident mentioned above, the king of Ugarit declared that he had sent an emissary to Tyros to check on the royal ship and that the captain of the ship is nominated to be in charge of both cargo and ship. He also asks the cooperation of the Sidonian king in relation to the ship's journey.<sup>217</sup>

Thus, we have an example of clear institutional alignment and cooperation among the maritime states of the region, and an understanding that stranded ships with their cargoes were to be reinstated and returned to their owners. In this way, not only safety on the high seas was safeguarded but risks and damages were also mitigated. In addition, by aligning themselves with this code of practice, the states of the region managed to reduce and discourage piracy.

It is this code of practice that Esarhaddon cancelled with his treaty with Ba'al in 675–674 BC. With this treaty, Esarhaddon assumed ownership of any Tyrian ship and its cargo that was wrecked off the shores of Philistine, or within Assyrian territory. These rights assumed by Esarhaddon in this way cancelled a millennia-old code of practice in the South-Eastern Mediterranean.<sup>218</sup>

<sup>216</sup> Monroe 2015: 29; RS 18.031, 29PRU V, no. 59: 10–25; KTU II, no. 38, UT 2059.

<sup>217</sup> Knapp 2018: 109.

<sup>218</sup> For discussion on the treaty, see Parpas 2018: 87–94.

*Wen-Amon's tale*

An example involving Cyprus refers to a journey made by Wen-Amon. Although the incident took place later, in the 11th century BC, during the Second Economic Cycle, thus postdating the era of the First, it is not unreasonable to consider that the same rules applied during the LBA, and we can therefore include this incident in the same category of examples of interest to us here. During his return trip to Egypt, Wen-Amon ran into a storm and was blown to Alashiya. To his dismay, some men in the harbour seemingly tried to kill him and presumably rob him of his cargo. By good fortune, he met with Heteb (Hatiba) – the city's princess. Among the throng of people there was one, probably a member of a presumed council of elders, who spoke Egyptian, and through him Wen-Amon was able to successfully plea for his life and for the safety of his crew.

Wen-Amon referred to Alashiya as a place where, according to its good reputation and conduct in the past, justice and order prevailed, and asked to be treated according to the norms that governed the conduct and behaviour of members of the common maritime and mercantile zone of the region. Therefore, as an ambassador of Amon he expected to be granted asylum. Being aware of her obligations as a member of the common maritime zone, the princess prevented the men of the city from harming Wen-Amon and from looting his cargo, and gave him and his Levantine crew shelter. Although the papyrus breaks at this point, it seems safe to conclude that Wen-Amon returned safely and successfully to Egypt – or he would not have lived to tell his story!<sup>219</sup>

Like the king of Tyros in the previous example, the Alashyan princess demonstrated the same sensitivity in abiding by the long-standing and respected rules of the open seas. She provided safe access to Wen-Amon and his crew and assisted him, rather than take advantage of his predicament. From this incident it seems we have proof that the rulers of Alashiya were aware of the prevailing laws of the sea and the obligation their institutions were under to comply and abide by them. If princess Heteb had not prevented the men of the city from killing Wen-Amon and his crew, then she and her household would have been held liable and obliged to pay compensation for Wen-Amon's death and reimburse the Egyptian High Priest the total value of the cargo stolen as well. She would also have been liable to the king of Byblos for the loss of life of his men.

The doctrine of the liability of a local ruler for violations conducted in his or her territory could have its loopholes. Such was the case involving Wen-Amon, when robbed at Dor by a member of his own crew. On

<sup>219</sup> Aubet 2001: 362,

discovering the theft, Wen-Amon immediately notified the prince of Dor, most probably a pirate chief, and claimed that it was he who was responsible for his loss. He asked to be compensated as the robbery was carried out in his territory. The prince of Dor acknowledged the principle of the custom and was ready to pay should the culprit be under his direct authority. However, since the accused was in the employment of Wen-Amon he declined any responsibility. This, of course, was not the situation with princess Heteb, who could not avoid liability by using the same legal argument; the princess was bound under customary law – the guilty men were in her charge.

#### RS 17.346

In the same way that customary law and legal norms applied at sea they also applied to caravan trade and vice versa. As evidenced in Letter RE 17.346, Mashanda, a wealthy merchant from Ura, won a court case against the governor of Ugarit after being robbed by the soldiers of the king no less! He was able to prove his losses by producing under oath the clay tablet listing the goods carried by his caravan. He was awarded damages amounting to 4000 silver shekels, the value of the goods he was deprived of.<sup>220</sup>

#### RS 17.146

In another case (RS 17.146) involving the murder and robbery of merchants,<sup>221</sup> the local authorities at Carchemish, where the incident occurred, were held liable under treaty to pay three mina in silver for each person killed, plus compensation for the full value of the cargo. The terms of the treaty were that if the culprits were not caught and the cargo not recovered then the local authority was liable only for the deaths but not for the value of the cargo. In such a case, compensation for the loss of life was limited to three minas per person, a payment referred to as ‘blood money’. If we transfer the terms of the treaty to Wen-Amon’s case, princess Heteb would have been liable to pay a small fortune by ignoring applicable legal norms and customary laws.

#### RS [veria 25] and RS 20.168

A case of how a judicial matter could become a diplomatic incident is revealed by Letter RS [veria 25].<sup>222</sup> In this, addressed to the king of Ugarit, the king of Tyros accused an Ugaritian high official and merchant of taking merchandise from a Tyrian house without payment. The Tyrian king insisted that the king of Ugarit, who seemed reluctant to make the necessary arrangements to ensure a fair price, should take the necessary corrective action. This illustrates

that royal intervention was warranted and expected for international incidents. In other words, the king’s legitimacy was maintained by the performance of institutional and sovereign functions. This is the case explained in Letter EA 35, in which delay of a payment due to Cypriot entrepreneurs for the delivery of timber to Egypt was elevated right up to the king to secure royal intervention. The role of an arbitrator, recognised by the king of Alashiya, with respect to international disputes involving Cypriot long-distance trade activities is also evident in Letter RS 20.168, whereby the king of Ugarit refers to the Alashiyian king a matter concerning a trade dispute with a Cypriot merchant regarding a consignment of oil.

#### EA 30

In EA 30, we learn that the king of Mittani dispatched his envoy with gifts to the pharaoh of Egypt. The letter is addressed to the vassal kings and rulers of the coastal kingdoms to arrange safe passage of the envoy through their lands. The letter, which has the same purpose as EA 39, by the king of Alashiya to the pharaoh of Egypt not only requests safe passage for the envoy but also duty-free passage for the gift exchange cargo that he is carrying. This is another case of customary law and common practice that all members of the region had to follow. It is reasonable to presume that Alashiya’s institutions would have created and enforced such rules and regulations to respond to situations like this in a way that was compliant and respected the customary laws of the sea in the region.

As a conclusion, the king of Alashiya was expected and obliged to possess the necessary diplomatic skills, to have been trained in international diplomacy, and to have intimate knowledge of all international customary laws, which he and Cypriot traders and entrepreneurs involved in long-distance trade had to comply with. The state was also obliged to have in place the appropriate legal institutions and administrative apparatus to be able to enforce international law. It is reasonable to consider this was an additional cost the state expected to recover from the proceeds of taxes, duties and royalties, and other income from operations of the maritime economy.

### INSTITUTIONS, INTERRELATIONS, AND INTENSIFICATION OF THE ECONOMY

As mentioned above, Cyprus’ state institutional systems provided the framework and opportunities for organisations to grow and intensify the economy. They provided the rules, they reduced the uncertainty and strengthened the structures from which the ruling elites and their organisations benefited. In certain cases, they acted as sponsors and even formed joint commercial partnerships; they created the opportunities to maximise wealth for themselves and the ruling elite

<sup>220</sup> Monroe 2015: 14; RS 17.346 = PRU 4: 176–177.

<sup>221</sup> Monroe 2015: 14; RS 17.146 = PRU 4: 154 ff.

<sup>222</sup> Monroe 2009: 177.

groups associated with them. To highlight our point, we will look next at certain aspects of this.

#### *The state and private enterprise*

Towards the end of the First Economic Cycle, trading and mercantile activities in the Near East, including Cyprus, became progressively more entrepreneurial. The respective royal houses, although still in control of economic processes, became more and more 'facilitators' rather than exclusive owners of the business as such. The command-and-control style of governance was gradually delegated, giving way to a generally more entrepreneurial style of management. This allowed the existing and already prominent and wealthy trading families and households, as well as individuals, to expand and develop further their business interests. In the course of their maritime and mercantile activities, it was increasingly necessary to join forces with the state and carry out business on behalf, or under its sponsorship.

The dispersed wealth found in the Enkomi mortuary, evidencing the stratification of its society and existence of a mobile and vibrant commercial and industrial community, is the best evidence for this state of affairs. Evidence of the existence of active Cypriot entrepreneurs associated with the state is found in Letter EA 35 from the king of Alashiya to the pharaoh of Egypt. It is possible that the king was in some form of partnership with these traders, or that he was acting as their sponsor for the supply of timber to Egypt. In either case, we have a situation where the elite not only benefited from the institution but were seeking for more support. This case is similar to the one involving the wealthy Ugaritian merchant Sinaranu, who was granted by his king the lucrative franchise of the Cretan market.<sup>223</sup> In both instances, the state granted the concession and trading and commercial rights to the private entrepreneurs. Presumably, in both cases the services of the state came with a price tag. In another case, which we have already discussed,<sup>224</sup> we are informed of a Cypriot merchant or state official who was in Ugarit arranging the purchase of ships for or on behalf of the king of Alashiya. The suppliers of the ships in Ugarit were private individuals who needed their king's permission to conclude the deal. This reveals the complexity, and open as well as outward mercantile and seafaring strategies of the state involving private entrepreneurs for the purpose of intensifying the economy.

Further evidence comes also from the Uluburun wreck, whose cargo composition and other evidence is closely connected with Cyprus, and was most probably a predominantly royal shipment, with private

participation requiring 540 Ug.skl capital investment to build the ship, and a minimum working capital of at least 7000 Ug.skl for its cargo. This is definitely an investment that suited better a state enterprise. It would have been too big a risk for a purely entrepreneurial venture. From the composition of its cargo, however, and the people and crew on board, it was most probably a joint undertaking between the state and private enterprise.

#### *Long-distance trade*

Long-distance trade of large copper shipments was mainly conducted between the royal house of the state of Alashiya and the royal palaces of its trading partners. This is evident from the shipment of 113 talents of copper and 934 ingots of copper shipped to the pharaoh of Egypt by the king of Alashiya that was mentioned in the official correspondence between the two leaders.<sup>225</sup> Another example of state shipments of copper is king Kushmeshusha's promise to deliver 33 talents of copper to the king of Ugarit.<sup>226</sup> Evidence of a continuous and sustained activity of long-distance trade of copper, initiated or supported by the state, can be found in numerous other occurrences, such as the Uluburun shipwreck. This activity created diversity, motivation and opportunities, including the steady growth of a long-distance trade institution and tradition, not only for copper but for other export products from Cyprus. Such proof is found in Amarna Letters EA 34 and EA 35, in which the king of Alashiya and the pharaoh of Egypt traded olive oil-based aromatics from their respective countries. No doubt these royal exchanges gave rise to opportunities and encouraged trade in similar aromatics by private entrepreneurs, as evidenced by the great number of Cypriot aromatic containers and jugs found in Egypt.<sup>227</sup>

#### *Entrepreneurial and mariner trade*

The entrepreneurial and mariner trade, and urban small-scale commercial traders involved in tramping, benefited from the good international relations developed between Cyprus' institutions and its neighbours and trade partners, as well as from compliance to international customary laws and norms of the sea. This particular type of trade was intensified further as the First Economic Cycle approached its end c. 1200 BC. This is highlighted by the Point Iria and Cape Gelidonya wrecks, both typical tramping and private enterprise operations that most probably originated from Cyprus; both are dated c. 1200 BC and their study belongs to both the First and Second Economic Cycles.

<sup>223</sup> Monroe 2009: 181–189; RS 15.138+ = PRU 3: 101–102.

<sup>224</sup> KTU 2.42+2.43 (RS 18.113 A+B).

<sup>225</sup> Knapp and Kassianidou 2008: 135.

<sup>226</sup> RS 94.2475+RS 94.2361.

<sup>227</sup> Bushnell 2016; Fappas 2013: 159, n. 13; Knapp 1991; Merrillies 1962.

In letter *KTU 4.390* from Ugarit,<sup>228</sup> we have similar evidence of a ship from Alashiya in Atalligu, presumed to be one of Ugarit's other ports, operating on the mixed-cargo principle. This is evidence of the entrepreneurial and mariner components of Cypriot maritime economy, which was growing stronger and stronger due to the alignment and compatibility between institutions and private enterprise.

#### *Sharing of information and communication*

The state institutions were the owners of official information and communication in the international markets needed by the maritime economy to achieve cost optimisation and better efficiency. The availability of this information to traders and transacting parties reduced uncertainty and transactional costs. To highlight the point, we will refer to two letters that were found in the House of Urtenu in Ugarit and have been published recently.<sup>229</sup> The letters confirm the close commercial relations of private entrepreneurs and the palace of Ugarit, or officials working for the palace; they reveal trade practices that involved deliveries of olive oil by and on behalf of private entrepreneurs, facilitated by the king and his commercial navy.<sup>230</sup> In this particular case, the king of Ugarit was requested to provide sea transport for 300 jars of oil (3300 l). These are the kinds of data and contact details, as well as business practices, that the elites of *Ayios Dhimitrios* and other Cypriot entrepreneurs needed to be familiar with when conducting their long-distance trade at optimum efficiency. This is where the king of Alashiya, with his prestige and contacts within the palace of Ugarit, would have been very useful. The information need not only be of direct transactional commercial nature, it could also be the establishment of common legal rules and standardisation of weights and measures, among others. These would be good examples of how institutions benefitted the organisations.

#### **State and private enterprise; nature of relations**

We will now try to look in more detail at the nature of the relations between state and private enterprise and how these helped to drive the economy and maritime trade. In the absence of data from Cyprus, we will look first at the kingdom of Ugarit for evidence, and try to draw some logical deductions that could apply to Cyprus as well.

#### *Ugarit*

From information from the tablets found at the Royal Palace in Ugarit, and from the houses of prominent and wealthy merchants (e.g. Rapanu, Yabninu, Urtenu,

Rasap-abu) with proven relations to Cyprus, we understand that private entrepreneurs in Ugarit, apart from their own private interests, were also engaged in business with the state, as well as running important affairs of the state itself. From the nature of the transactions, it is evident that the separation of private and royal business was not so clearly defined – this was the core message in Monroe's seminal work in 2009.

#### Rapanu

The evidence from the Rapanu archives is that, while he conducted entrepreneurial business on his own account, at the same time he was part of the royal administration and service system. This is attested by the large number of international letters discovered in his large house (800 m<sup>2</sup>) instead of the palace. Four of these tablets relate to Alashiya,<sup>231</sup> while others evidence correspondence with the pharaoh of Egypt and the viceroy of Carchemish.

#### Yabninu

Yabninu seems to have been heavily involved in the trade of tin and copper, not only for his own benefit but also as a regulator of the monopoly of these important commodities on behalf of the state. He also had very close contacts with Alashiya, which is understandable bearing in mind Cyprus' substantial copper reserves. This is suggested by the fact that excavations in his large house (1000 m<sup>2</sup>) unearthed two tablets with Cypro-Minoan script and a *pithos* rim engraved also in Cypro-Minoan.<sup>232</sup> These are the highest concentrations of Cypro-Minoan finds outside Enkomi, and attest very close commercial relations with the island. Yabninu, apart from his commercial activities, had also a military rank and seems to have headed the administration of King Ammitamru II (1260–1235 BC).<sup>233</sup>

#### Urtenu

Another prominent Ugarit merchant running dual activities is Urtenu. Apart from his highly successful commercial activities and international business relations, he held the important position of prefect or governor. The discovery at his house (300 m<sup>2</sup>) of the three tablets from Alashiya written in Akkadian text is testimony to his close relations with Cyprus. It might even be an indication that he, and indeed the other prominent Ugarit merchants, could even have dispatched members of their staff to Cyprus to act as liaisons for their businesses and the handling of the necessary correspondence.

<sup>228</sup> Virolleaud 1965: 74; Knapp 2018: 109.

<sup>229</sup> RS 94.2285+; RS 94.2412; Vita 2017: 536.

<sup>230</sup> Vita 2017: 536.

<sup>231</sup> Ferrara 2007; Bell 2016: 182.

<sup>232</sup> RS 27.237

<sup>233</sup> Bell 2012: 182; Ferrara 2007.

### Rasap-abu

As we have seen, the wealthy and prominent merchant Rasap-abu also had dual functions and activities. Apart from his entrepreneurial activities, he served as a notary as well as harbour master. Like Rabinu, he was a member of the *Marriannu* military elite. The first Cypro-Minoan tablet<sup>234</sup> found at Ugarit was found in his residence (80 m<sup>2</sup>). This attests to the possibility of communications in Cypro-Minoan with his associates in Cyprus. A long list of purchased items found in his house, expressed in units of silver, which included tin and cups made of copper and bronze, might indicate commercial connections with Cyprus, most probably Enkomi.

All four entrepreneurs/state officials with close contacts to Cyprus lived and operated from large and prestigious residences located close to the palace.

#### *Trade between the palace and private entrepreneurs*

There are several texts from Ugarit that can shed light on specific ventures and their character, concerning the palace and private entrepreneurs. These are dealt with in detail by Monroe, in his important work published in 2009.<sup>235</sup> We will refer to just three of them to highlight our point. The first two tablets found at the palace concern large consignments of goods delivered to Yabninu.

#### RS 11.795

RS 11.795 involves large quantities of oil, tin, iron, perfume, wood and trees. Given the text's provenance and the large quantities, we can reasonably assume these are goods given to Yabninu to sell. The purpose of the tablet was to serve as proof of delivery and to track the return on the investment.

#### RS 15.062

RS 15.062 serves as a record of the delivery of silver and large quantities of goods with unit prices. Clearly, the purpose of the silver was for its use as working capital. The fact that the goods were delivered against unit prices is an indication that the palace intended to profit from this transaction.

#### TBR 107

In the third letter (TBR 107),<sup>236</sup> the Ugaritic king is informed by a merchant from Beirut that the wood he had ordered, after a certain delay, was now ready to be shipped.

The same business partnerships between state and private enterprise were also going on between private entrepreneurs themselves, as evidenced in the following texts:

#### RS 19.046

In RS 19.046, three investors appear to form a partnership of sorts and contribute silver to outfit, complete with crews, a ship or number of ships.<sup>237</sup>

#### RS 20.015

Another example of business between private entrepreneurs are the arrangements described in RS 20.015, whereby Rapanu undertook to transport Enbiyanu's casted copper.<sup>238</sup>

#### RS 19.050

In RS 19.050 we have a record of the business relations between Yabninu and Urha, two well-connected and wealthy Ugarit merchants.<sup>239</sup>

#### Cyprus

Due to the close trade and social ties between Cyprus and Ugarit, it is not unreasonable to expect that similar arrangements were in place in Cyprus as well. The state institution and its ruling elite could have acted in the same way for a share of the profits, and for receiving taxes and royalties on the business.

Apart from the Cypro-Minoan and other tablets evidencing close contacts between Cyprus and Ugarit, there is also material evidence on the island itself to support this fact. The tombs found in Enkomi with Ugarit burial customs could be an indication of Ugaritian people living there, perhaps involved in one way or another with the marketing of the copper produced in the numerous workshops excavated at Enkomi. They might also have even been involved in the transit trade, forwarding, or other administrative matters.

With all these close contacts with the Cypriot mercantile community and society, we may suggest that Ugaritic organisational practices and citizens might have been present to a certain extent in Cyprus. Broodbank, in his book *The Making of the Middle Sea*,<sup>240</sup> referring to merchants Ugarit, writes: 'This leaves no doubt that similar kinds of people existed throughout the Levant and Cyprus.'

#### *The Alashyian governors Sinama, Eswara, and Sangyia*

<sup>234</sup> RS 17.006.

<sup>235</sup> Monroe 2009: 181-189.

<sup>236</sup> Monroe 2009: 128.

<sup>237</sup> Monroe 2015: 18; RS 19.046 (PRU 6 138).

<sup>238</sup> RS 20.015.

<sup>239</sup> Monroe 2009:135; RS 22.393; RS 19.050.

<sup>240</sup> Broodbank 2015: 395.

Location	Building	Type	Size m <sup>2</sup>
Alassa	Building II and III	Administration	1860
KAD	Building X	Administration/storing	1130
KAD	Building XII	Assembly	450
Maroni Vournes	Ashlar Building	Administration/industrial	600
Maroni Vournes	West Building	Storing	430
Enkomi	Fortress	Industrial	600
Enkomi	Ashlar Building 6E	Religious/residential/administration	925
Enkomi	Building 18	Secular/ residential	1800

Table: 1 Major buildings in urban administrative centres.

The Alashyan governors Sinama, Eswara and Sangyia, the second highest in the Alashiyan hierarchy, are attested to have originated correspondence with Ugarit, the latter two with the king of Ugarit himself. They might have had the same dual functions and privileges described above. They held official positions, but at the same time they might have been running their own private business as well as joint ventures with the state, or under the sponsorship of the state. In other words, they could have been acting in the same way as Rapanu, Urtenu, Rasap-abu, and Yabninu at Ugarit, i.e. operating from residential and administrative premises, similar to the ones found in Ugarit, located island wide, and perhaps among those buildings listed in Table 1. The view that these governors might have dwelt in one or other of the Alashiyan urban centres is a view explicitly, and very rightly, shared by Knapp.<sup>241</sup>

The alignment between the state and the private business community was a necessary and natural feature for the smooth evolution of the royal maritime economy of the First Economic Cycle into the entrepreneurial maritime economy of the Second. This transition did not happen overnight – it was a gradual affair. In the process, and taking into consideration the cost of setting up and maintaining a profitable maritime activity, there was a necessity to mitigate and share the risk. The best way to do this was to get the king on board – state institution would provide legitimacy, credibility, and access to international contacts and markets.

#### EA 39

The Cypriot royal merchants might not have been in Egypt exclusively on the king's business, but for business in joint venture with the king. They might even have been in Egypt for their own private interests, whereby the king would be entitled to commission.

#### EA 40

As we see in the Amarna text EA 40, we have the evidence of the unnamed senior governor of Alashiya,

presumably conducting private reciprocal gift exchange with the corresponding official in Egypt. From the evidence, it seems the governor was not restricted solely to official functions – he could engage in entrepreneurial activities for his own private benefit. These activities could have been direct, as evidenced in EA 40, or with the involvement and sponsorship of the state.

#### KTU 2.42+2.43 – RS 18 113 A+B

It is not unreasonable that the official or merchant from Alashiya looking to buy ships in Ugarit for his king from private entrepreneurs might have been looking for business for himself at the same time. Evidently, the interests of state (institution) and private enterprise (organisation) were very much interrelated.

#### TBR 107

Regional royal trade was not restricted to royal houses (TBR 107).<sup>242</sup> This could also apply to Cyprus. Therefore, we might expect to see private entrepreneurs and middlemen from the Levant and the Aegean trading not only directly, or in partnership with their counterparts in the coastal urban organisations of Cyprus, but also with the state on the island.

#### RS 15.138+ = PRU 3:101-02

We may suggest that the king of Alashiya developed franchising relationships with the mercantile community of his country, similar to the one the king of Ugarit developed with his. Such an example (RS 15.138+ = PRU 3:101-02) is the merchant Sinaranu, who was granted the Cretan franchise.

#### RS 19.046 (PRU 6 138)

The same joint ventures (RS 19.046 (PRU 6 138) between private entrepreneurs in Ugarit<sup>243</sup> could also have been running between private entrepreneurs in Cyprus as well.

<sup>241</sup> Knapp 2013: 444.

<sup>242</sup> Monroe 2009: 130; TBR 107.

<sup>243</sup> Monroe 2015: 18.

On the financial front there was a need for the provision of working and venture capital to keep up production and build and equip ships. And on the diplomatic front it was necessary to keep and preserve existing diplomatic and trade relations. The state could provide both, as well as effective protection against piracy.

### COPPER PRODUCTION, EXPORT PROCESS, AND TRADE – AN INSTITUTIONAL ACTIVITY

Cyprus is considered the copper producer *par excellence* in the Near East during the LBA. This was due to the island's abundant copper resources, as well as compelling textual evidence and reports that the bulk of known ingots found on land in the Near East and the Mediterranean, plus we have those found within the Uluburun and Cape Gelidonya wrecks and made of copper consistent with Cyprus' copper mines, most of them believed to be from the northwest areas of Apliki, Mavrovouni, and Skouriotissa.<sup>244</sup> It has been argued that, although exports of Cypriot copper had already started in the second half of the MBA,<sup>245</sup> the bulk trade of copper, which was dominated by Cyprus, began in the 14th century BC, about the time of the Amarna letters, and reached its peak in the 13th century.

According to studies conducted on the overall production of copper in ancient Cyprus, it has been estimated that about 200,000 tons of copper were produced overall.<sup>246</sup> These activities generated at the same time c. 4 million tons of slag.<sup>247</sup> It is important to note, however, that the majority of the slag deposits that have appeared to date are dated well after the Bronze Age, e.g. the massive slag heaps found at Kalavassos.<sup>248</sup> This fact is not so helpful in our efforts to estimate the volume of production during this period,<sup>249</sup> which must have been significant. This is evident from lead isotope analyses of copper ingots dated to this period and which identify Cyprus as the place of origin.<sup>250</sup>

Sulphur copper ores of the type that exist in Cyprus have a relatively low copper content. This means copper production required an enormous amount of both ore and energy for extraction: to produce 200,000 tons of copper would require c. 60 million tons of charcoal, which in turn would require 1200 million m<sup>3</sup> of pinewood; such quantities of timber would require c. 150,000 km<sup>2</sup> of forest.<sup>251</sup> According to studies, the Cyprus forests were quite capable of regeneration while supplying the required energy. By comparison, the mines

of Feynan, which were among Cyprus' competitors, produced only 200,000 tons of slag. One disadvantage these mines had compared to Cypriot copper was that they were not close to large forests, and therefore it was very expensive for them to produce energy for the processing of refined copper ingots. They probably delivered their product in primary smelted form only, leaving their clients to undertake further processing, requiring additional energy. Cypriot copper, delivered in refined ox-hide-ingot form, provided a competitive advantage.

Cyprus copper resources and mineral wealth were distributed around the foothills of the Troodos Mountains (Figure 17). From the evidence available, we understand that primary smelting took place at rural smelting workshops close to the mines, while refining and the final process stages took place in the workshops mainly in coastal urban centres, near to the port of export.<sup>252</sup> This explains the presence of metallurgical remains in such sites, e.g. Enkomi, which seems to have been the major manufacturing location and port of export for Cypriot copper during the LBA.

Copper production involved the mining and crushing of ore, the cutting of wood, and the production of charcoal for energy before the processes of roasting and smelting. It was a labour-intensive activity requiring technological skills and knowhow, as well as a large workforce comprising both skilled and unskilled labourers. The final process and refining, which, as mentioned above, took place in the urban centres close to the port of export, required additional skills and specialised workers.

The standard shape, weight and quality was the result of controls and branding by the central authority, who administered the general overview of production and long-distance trade of copper in Cyprus. The entire process required regulated quality control and supervision for uniformity and adherence to standards. Delivery times were also important, as well as logistics and transport arrangements (by land and sea). On top of that, credit and finance had to be provided, as well as risk management and safety. Clearly, the whole export process needed long-term marketing, customer retention strategies, and good trading relations.

This was a complex operation, whereby large quantities of copper had to be processed, and distributed – e.g. the consignments evidenced in the Amarna Letters, or the cargo of the Uluburun shipwreck. Such operations could not be managed on an ad hoc basis. The management of all these activities, that lasted for centuries, points to a state-level society, and the need for functioning institutions, centrally managed and supervised, which

<sup>244</sup> Muhly and Kassianidou 2012: 121–122; Stos-Gale *et al.* 1997.

<sup>245</sup> Muhly 1972: 204; Muhly and Kassianidou 2012: 128.

<sup>246</sup> Constantinou 2010; Iacovou 2013c: 21.

<sup>247</sup> Muhly 1996.

<sup>248</sup> Weigerber 1982: 26.

<sup>249</sup> Cattling 1964: 20; Knapp 1999: 99–101; Weigerber 1982: 24.

<sup>250</sup> Stos-Gale and Gale 1994: 99–104, 116–121.

<sup>251</sup> Constantinou 1982: 22; 1983: 19; 1992: 70–71.

<sup>252</sup> Muhly and Kassianidou 2012.

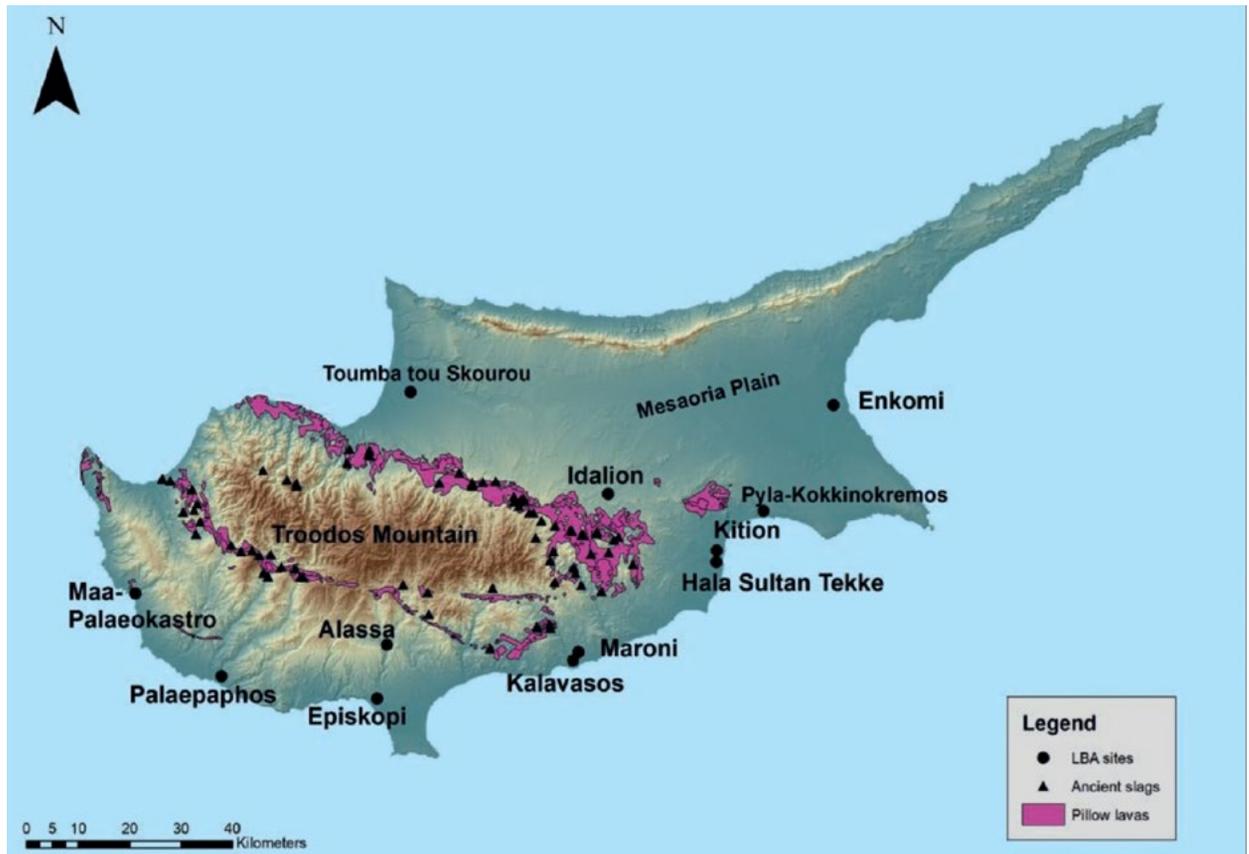


Figure 17: Map of Cyprus, indicating the Upper and Lower Pillow Lavas and the distribution of ancient slag heaps (after Georgiou 2017: 208, fig. 1; digital data from the Cyprus Department of Geological Survey; courtesy Artemis Georgiou).

would lay down the rules and structures required. The support and regulation of the state was vital for the success of the system.<sup>253</sup>

Thus, as a working hypothesis, we propose a model whereby all this complexity was facilitated by state institutions, in cooperation with elite administrative urban centres close to the production areas, which could mobilise and administer the process, as shown in Figure 18.

We do not know exactly how this process was managed.<sup>254</sup> The traditional model of exchange is for the miners and metallurgy workers to have been employed on a full-time basis, leaving subsistence support to the elite organisations by means of agricultural villages producing surpluses. Another model is for the metallurgical craft specialisation to have been a part-time occupation, thus each household might have been additionally engaged in subsistence activities. The exchange of specialised metallurgical

services, therefore, was not necessarily the key organising principle of every-day economic life.<sup>255</sup> Such an arrangement might have existed at the mining settlement of Apliki *Karamallos*,<sup>256</sup> where an LC IIC building evidencing metalworking and textile activities has been excavated.

By the middle of the 13th century BC, i.e. towards the end of the First Economic Cycle, significant changes might have taken place, as evidenced from the architectural modifications identified at the so-called 'Fortress' building at Enkomi:<sup>257</sup> the single, integrated industrial entity was turned into a number of separate, and seemingly independent, residential units/workshops. Such developments could be attributed to small, family-based enterprises, but how they operated, how independent were they, and who controlled them, are still matters for speculation. Pickles and Peltenburg argued that they were no longer dependent on a central system of raw material supply, but instead were essentially operating in small-scale,

<sup>253</sup> Similar institutions were in place for the Old Assyrian metal trade in Anatolia (Barjamovic 2018: 129) and at Ugarit, where the evidence suggests the state was a major node in the network of exchanges, facilitating the circulation of goods within the kingdom of Ugarit (McGeough 2015: 85–86).

<sup>254</sup> Knapp 2013: 354, fig. 94, 437–438.

<sup>255</sup> McGeough (2015: 92–93) suggests it is likely that Ugarit households were involved in subsistence activities, including agriculture, textile, and olive oil production.

<sup>256</sup> Smith *et al.* 2015: 329.

<sup>257</sup> Pickles and Peltenburg 1998.

independent environments. Alternatively, if we look at it from a financial point of view, as advocated by NIE directives, this was a typical result of economic planning and out-sourcing, done to reduce operational costs. Thus, small-scale workshops cannot be taken as evidence that the central supervisory system was collapsing. On the contrary it was becoming more sophisticated and more cost conscious. Even if the production and export of copper was now relying on small independent sub-suppliers, it still needed some form of central co-ordination from the point where the ore was extracted from the Troodos Mountains to the delivery of the finished product to the end user. The absence of such integrated arrangements would result in absolute chaos, simply because the economy was not mature enough to handle the complexity of such diverse market forces.

Thus, with the available evidence, we are unable to reach any definite conclusion on the actual mechanisms of how this complex process was managed and eventually evolved. Furthermore, these mechanisms changed in such an unpredictable manner over time that it becomes even more challenging to define the process.

This has been characteristically highlighted by Knapp, who points out that we remain at the outer perimeter of understanding who mined the copper and how they lived, who produced the ingots and from which ores, and who orchestrated their distribution throughout an economic system spread across the Bronze Age Mediterranean world.

#### *Trade of copper*

From the evidence to date, we understand that the trade of bulk copper was reserved as a royal business, restricted to the state and possibly a few selected ruling elites, such as those who participated in the Uluburun wreck venture. Copper was considered of high value and a rare commodity, through which power and status was acquired. In spite of this, towards the end of the First Economic Cycle we have evidence that smaller quantities of copper were also traded at a private entrepreneurial level. Let us examine some of the textual evidence for both cases.

*UT 90, UT 2110, UT 2056*

As attested from a series of letters from Ugarit (UT 90, UT 2110, UT 2056), upon arrival of a cargo of copper shipped by the royal authorities in Alashiya to the king of Ugarit at the Mahaddu port,<sup>258</sup> the harbour master arranged directly for its distribution to the various merchants inland.<sup>259</sup> Evidently, the shipment was made

on a consolidated cargo basis on behalf of a number of consignees. This is one of the reasons why we see incised secondary marks on many oxhide ingots, which could have been intended as consignee or owner marks. The involvement of the harbour master, an official reporting directly to the king, makes us believe that the shipment and its distribution was a state enterprise.

*RS 94.2475, RS 94.2361*

In texts RS 94.2475, RS 94.2361 we learn that the king of Alashiya promised the king of Ugarit he would send 33 talents of copper.

*EA33, EA 34, EA 35, EA36, EA40*

It is abundantly clear from the Amarna Letters that bulk trade of copper with Egypt was a state monopoly. This is evidenced from the 113 talents of copper and 934 (ingots) of copper shipped to the pharaoh of Egypt from the king of Alashiya:<sup>260</sup> EA 33 – 200 (ingots) of copper and 10 talents; EA 34 – 100 talents; EA 35 – 500 (ingots) of copper; EA 36 – 120 (ingots) of copper and 100 (ingots) of copper weighing one talent; EA 40 – 14 (ingots) of copper and three talents of refined copper.

*KTU 4.390; UT 2056; RS 18.132*

From *KTU 4.390; UT 2056; RS 18.132* we learn that a Cypriot ship<sup>261</sup> which docked at the port of Atalligu included in its cargo one talent of copper, as well as bronze tools on a ship coming from Alashiya. Judging from the nature of the cargo, this shipment was a private enterprise.

*KTU 4.394*

Another text, *KTU 4.394*, reports the loss at sea of a cargo that included copper.<sup>262</sup> We have no evidence whether it was a private or state enterprise.

#### *Copper used as currency*

Another example evidencing that copper was used as currency, and that not all trade of copper was exclusively in royal hands, comes from the tomb of the Egyptian physician Nebamun, dated in the reign of Amenhotep II. The painting in the tomb depicts Nebamun receiving payment from a wealthy Syrian in the form of an oxhide ingot. This is evidence that there was small-scale unofficial trade in copper in this period. Possibly the wealthy Syrian obtained the oxhide ingot in the free market, supplied by Cypriot entrepreneurs or through mariner trade that included small quantities of copper among the freely traded sub-elite goods and other products, e.g. pottery. We also

<sup>258</sup> Linder 1981: 33; UT 2110; UT 2056.

<sup>259</sup> Linder 1981: 33; UT 90.

<sup>260</sup> Knapp and Kassianidou 2008: 135.

<sup>261</sup> *KTU 4.390*.

<sup>262</sup> *KTU 4.390*; Hoftijzer and van Soldt 1998: 334–339.

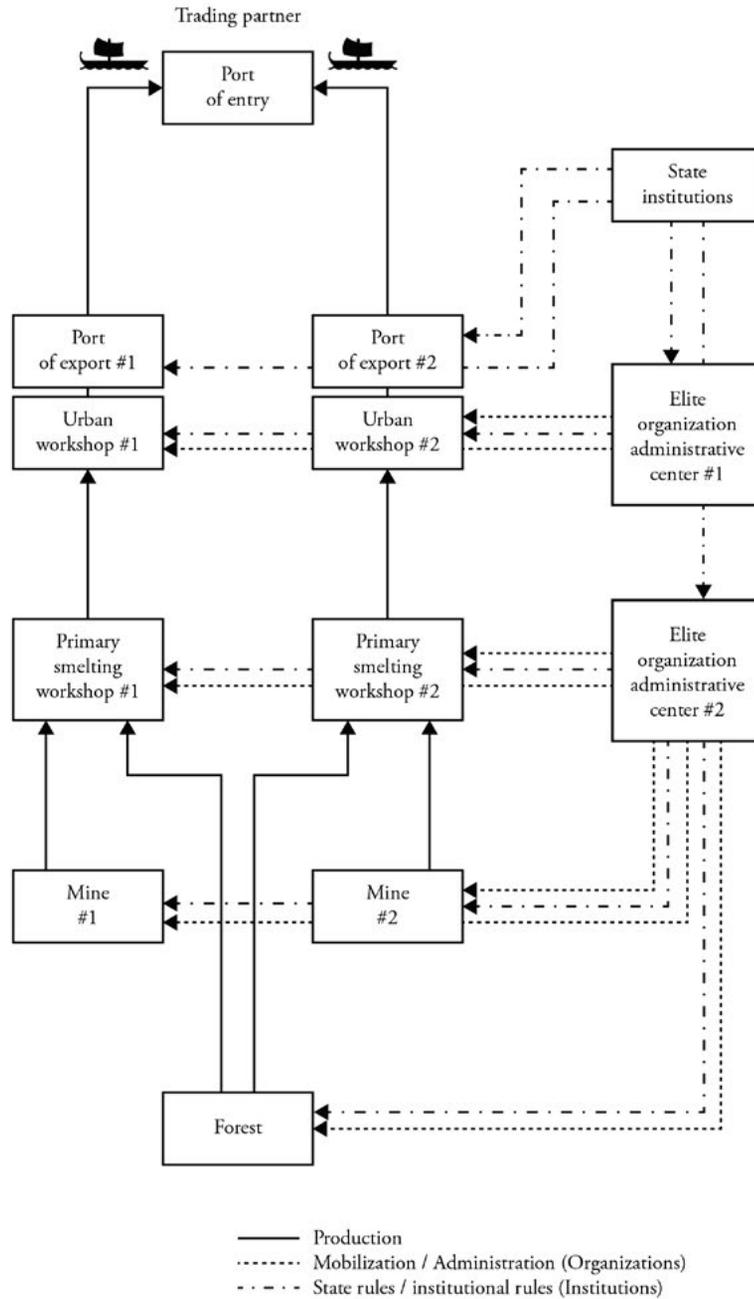


Figure 18: Proposed bulk copper production and export process (drawing: Philipos Vasiliades).

have an indication of larger value transactions. From text EA 34 we understand that the exchange value of 100 talents of copper was worth one gold-trimmed ebony bed, one Egyptian chariot with gold, *subito*, two horses, two pieces of linen, fifty linen shawls, two linen robes, fourteen beams of ebony, seventeen *habannatu*-jars of sweet oil, four pieces of high-quality flax, and four shawls.

#### Travelling smiths

The nature of the Cape Gelidonya shipwreck, as stated above, already reveals a level of private enterprise.

The main purpose of the venture was trade, and the vessel was on a tramping operation from port to port, involving, among others, a travelling smith with a metallurgical workshop and one ton of copper and recycled bronze. The ship most probably originated in Cyprus. Other similar evidence reveals a smith from Beirut (*nsm birtym*) who travelled to Ugarit, presumably by ship, to get supplies of copper.<sup>263</sup> He could equally have travelled to Cyprus for the same purpose.

<sup>263</sup> Heltzer 1978: 30–33; Linder1981: 37.

## WEIGHTS AND MEASURES, THE CONCEPT OF MONEY AND CREDIT

The countries of the region had to have a common language to identify the medium of exchange, the measure of value and store of wealth. Such is the role of money – a socially constructed economic institution<sup>264</sup> that provides the means of standardising value and prices for products and services, and for facilitating the recording and accumulation of wealth. Before money there was barter, a much slower method of exchange. Money in the LBA was a language of value that consisted of weights of precious or semi-precious metals, as well as grain or barley. In principle it differed very little from how we understand money and currency today.

The societies in the Eastern Mediterranean and Mesopotamia had a common vision of the ideology and socio-economic meaning of weights and weighing. This is evident from their iconography, as well as from their poetry and hymns. We have many such examples from Babylonia, Assyria, Hatti, Ugarit, Egypt, and the Aegean.<sup>265</sup> Thus, the balance pan, scales and weights rank among the most important tools of exchange. For the entire region, the scale and its weights are images loaded with common meaning

The weight unit that was constant in all the Near East was the talent. It was based on the basic weight unit of shekel typical of Mesopotamia and the Semitic Levant. It was a representative load of about 30 kg, the amount a person could reasonably carry. The talent was subdivided into minas and shekels; one talent was equal to 60 minas, but for each region one mina had a different number of shekels.

During the LBA, four major systems were developed with regionally distinct features (see the Appendix): the Mesopotamian and Carchemish systems, the Syro-Egyptian or Ugarit system (the most commonly used), and the Hittite system. Another regionally used system was the Palestinian or Syrian *necef* system, which was also used in Cyprus during the First Economic Cycle, with shekel weight between the Ugaritic and Hittite systems c. 10.3 g. We have evidence from the 9th century BC Tomb 79 of the ‘Warrior Trader’ at Lefkandi that this standard was still in use during the Second Economic Cycle.<sup>266</sup> It might not be a coincidence that the weight of the first Cypriot coins, the silver *siglos*, issued at the end of the Second Economic Cycle and the beginning of the Third was very close, c. 10.55 g.<sup>267</sup> This can be considered as a remarkable evidence of continuity.

All systems had the same units of weight, the talent, mina, and shekel. The Mesopotamian and Carchemish systems had 60 shekels to a mina, the Syro-Palestinian 50 shekels, and the Hittite 40 shekels. The three sets of systems – at a ratio of 6:5:4 – were all in use at the same time, and thus traders could easily convert from one system to another. Tribute was paid accordingly, e.g. the Hittites demanded payment from their vassals in Hittite minas.

Accordingly, weight conversion for the purpose of quantifying transactions, and calculating value and profit, was easily defined and a weighing *koine* for the whole region was established.<sup>268</sup> Value was expressed mainly in gold, silver, copper, or grain, mostly barley. The familiarity with multiple standards was necessary to maintain trust between long-distance traders. Egypt had, in addition, its own system subdivided into *debens*, whose weight in the New Kingdom was 91 g, subdivided into ten *qedets*. Each *qedet* was 9.1 g, very close to one Ug.skl (9.4 g).

As far as Cyprus is concerned, we know from the Amarna Letters and the correspondence from Ugarit that they traded their copper in talents. Since they traded with regional countries, the talent referred to in the texts must have complied to the weighing systems of the region. A large stone excavated at Hala Sultan Tekke has been identified by Paul Åström as a possible talent weight; it weighed c. 27 kg and had an inscribed sign on it.<sup>269</sup> A weight of 28.8 kg, considered to be a talent, was also found at Pyla *Kokkinokremos*.<sup>270</sup> We have further evidence that stone and metal weights comparable to one Ug.skl (9.4 g) and one Egyptian *deben* (91 g) were used. Numerous weights of the Mesopotamian system (one skl = 8.4 g) were found at Enkomi,<sup>271</sup> as well as in the Uluburun wreck, whose cargo has so much to do with Cyprus.<sup>272</sup> Weights of the Ugaritic standard were also reported on the island,<sup>273</sup> and the Uluburun<sup>274</sup> as well as the Cape Gelidonya<sup>275</sup> wrecks. Additionally, weights of the Syrian *necef* system, of similar weight to the weights at Lefkandi and the first Cypriot *siglos*, were also found on the island.<sup>276</sup>

Thus, Cyprus, from the available evidence, does not seem to have developed its own distinct institutional weight system, but possibly employed the systems and practices of its trading partners. This seems a logical deduction, taking into consideration the intense internationalism of its economy.

<sup>268</sup> Monroe 2009: 52.

<sup>269</sup> Jones 2007: 20, n. 78.

<sup>270</sup> Courtois 1984: 83.

<sup>271</sup> Courtois 1984: 115, 131–132.

<sup>272</sup> Pulak 2000: 259, 265, n. 12

<sup>273</sup> Courtois 1984: 116, 132–133; Petruso 1984.

<sup>274</sup> Pulak 2000: 259, 265, n. 11.

<sup>275</sup> Bass 1967: 139, 142.

<sup>276</sup> Courtois 1984: 116, 133.

<sup>264</sup> Bresson 2016: 260; Muchs 2016: 8.

<sup>265</sup> Monroe 2009: 45–47

<sup>266</sup> Kroll 2008: 37–48; Popham and Lemos: 1995.

<sup>267</sup> Markou 2012: 280.

## The concept of credit

It is not possible for any economy, especially a maritime one, to function and operate without the concept of credit. We do not know how Cypriots financed their fixed capital needs during the First Economic Cycle, nor how they handled their working or venture capital. We have no clues as to the existence of money lenders or financing institutions, nor what was used as guarantees and collateral. For reference purposes, however, we will mention some indicative examples of how the concept of credit applied to neighbouring countries.

In Assyria loans for commercial ventures were granted against collateral that was usually the personal property of the borrower or members of his family, or both. We have many such cases in Assur, e.g. a case documented in text *KAJ 39*,<sup>277</sup> where a loan for a caravan venture was secured against collateral consisting of immovable property of the debtor. These loans were secured against payment of high interest on top. The credit industry also encouraged debt slavery: it was customary for desperate debtors to pledge their wives and children as collateral. Such a case is reported in text *TR 3021* from Assyria, recording a loan of one talent and ten minas of tin, impressed with the city's official seal. The letter stipulates that no interest will accrue for two years, but the debtor must deliver his wife and daughter to the creditor's house as collateral until he repays the loan.

In Ugarit a badly damaged Ugaritic letter, *RS19.046*, is interpreted as a list of payments relating to the crewing of a ship. One possible suggestion of how the owner of this particular maritime enterprise had financed the wages of his crew and the provisions for the trip was by finding sponsors to provide the finance or guarantees in return for a share of the profit. There are similarities here to the Venetian galley system. According to the system, a ship commander (patron) could be sponsored by up to ten guarantors, who provided the finance or letters of guarantee for the loans. Another case with international implications that might extend to Cyprus is in *RS 17.130*. In this letter the merchants from Ura in Kilikia, who were doing business in Ugarit with a royal endowment from Hatti, were granted the right to take the debtor and his wife as settlement for money due. This right was restricted only to people – not property. We can argue by the same logic that this could have applied to Cypriots too. Whether it could have been enforced or not is another matter.

Again from Ugarit we have another example, *RS 18.132 (KTU 4.394)*,<sup>278</sup> whereby, according to a plausible interpretation, the palace compensated some of the

losses incurred by the suppliers of copper in a venture where the ship was lost at sea. The amount reimbursed was at least 30 Ug.skl; the loss was 120 Ug.skl. From the (damaged) text we understand that the compensation was paid in among two to four individuals, perhaps the owners of the boat. This is further evidence of the palace acting as the institution encouraging individual entrepreneurs to form a partnership in a joint venture. We do not know the circumstances surrounding the reimbursement, but the compensation seems to be some sort of royal insurance, similar to modern export credit insurance given to exporters by the state to encourage them to develop export activities in risky environments and markets. In this way a working capital loan could be obtained much more easily – the lender will be more inclined to advance a loan knowing that the palace will step in and compensate in case of calamity. We see, therefore, how ruling institutions assisted and opened opportunities for organisations and private entrepreneurs to further their businesses. This was done not out of charity, but for their own benefit and to keep an indirect and discreet watchful eye on private business.

## DOCUMENTATION AND WRITING

During the LBA, and almost to the end of the 2nd millennium BC, the writing system used on the island to express the local languages spoken by its inhabitants is known as the Cypro-Minoan script. However, documentation is not only expressed in written form but also in the form of witness, human memories, and testimonies. Thus, writing was complemented by oral tradition and mnemonic techniques. Documentation was an important institutional feature; it could be used by authorities and organisations to enforce the transfer of ownership of goods and other movable or immovable property; it could also be used to witness, record, supervise, and monitor.

In Cyprus no written archives have been found so far that can be dated to the LBA. However, according to M. Weber, 'Nothing could be more misleading than to describe the economic institutions of antiquity in modern terms'.<sup>279</sup> Therefore it is wrong to doubt the effectiveness of the institutional system, which laid down the rules overseeing the socio-political and industrial system in LBA Cyprus, on the grounds that no written archives have been found to document how and to what extent control and supervision were exercised. The development of writing, even today, did not replace completely such non-written documentation, especially when strengthened and reinforced by public feasts, purpose gatherings, celebrations, and rituals.

<sup>277</sup> Monroe 2015: 19.

<sup>278</sup> Monroe 2009: 78; 2015: 18–19.

<sup>279</sup> Weber 1909: 45.

Even in Egypt, with its rich written tradition, recent studies have recognised that witness, memories, and oral testimonies continued to document economic activities alongside writing, especially in the case of private transactions. These studies revealed that some activities were less likely to be documented in writing than others, and that the use of writing only increased over time.<sup>280</sup>

We can consider that this is what was happening during the LBA in Cyprus. The Cypro-Minoan script, the LBA Cypriot script that was in existence since c. 1600 BC, was progressively used by and served both the state institutions and the entrepreneurial community. The discovery of a fragmented clay tablet at the Enkomi Fortress, dating to the 15th century BC and bearing a Cypro-Minoan inscription, may constitute evidence of the use of writing in the metallurgical industry for recording purposes.<sup>281</sup> The same argument may hold for the olive oil industry, as evidenced perhaps from the clay inscriptions and other examples of writing found at KAD.<sup>282</sup> On the other hand, it has been argued that it is far from certain whether the Cypro-Minoan texts recovered on the island actually represent the inventories and transaction records of a centralised bureaucracy.<sup>283</sup>

Because the state had limited administrative control over the organisations running the settlements and coastal urban centres, the enforcement of any practice based solely on written documentation would not have enhanced the ability of the state to supervise production and extract state revenues. Therefore, from the evidence we have, it seems it had chosen to operate on a cost-effective manner, with the minimum of writing, and relied largely on oral and mnemonic recording of transactions. This might explain the use of short documentation and markings.<sup>284</sup> Brief documentation and pictorial markings were also easier to be used by members of the general population, thus transactional costs were kept to a minimum – a fundamental pillar of the NIE transactional cost theory. The markings on *pithoi* from *Palaeotaverna* and *Bamboula* with wooden, cylindrical rollers representing a series of griffins,<sup>285</sup> is clear evidence on the matter.

The existence and use of seals in Cyprus within areas and places of metalworking, textile and olive oil production in association with weights and balances is well attested. This can lead us to the suggestion that they might have been used for direct administrative reasons. The absence of the unmistakable use of these

seals for document sealing might be due to the possible employment of perishable material for writing and sealing, e.g. waxed wood, which did not survive the test of time.<sup>286</sup> Wooden writing tablets from the Uluburun wreckage suggest that correspondence written at sea played an important part in entrepreneurial trade by private merchants.<sup>287</sup> The fact that writing boards were used for official letters and documents is attested in Hittite and Ugaritic texts that describe messengers being dispatched to foreign palaces with wooden writing tablets.<sup>288</sup> That this is a practice used in Cyprus might be supported by a reference in a letter from the Hittite Queen Puduheba to the king of Alashiya – ‘Whenever the messengers reach you let “my brother” send out a rider to me, and to the lords of the country let them present the wooden tablets.’<sup>289</sup> This does not explain the absence of sealing on containers or doors, found in Syria and elsewhere. Nevertheless, it might be that this was not a practice followed in Cyprus.<sup>290</sup> Seals were also common for adornment, personal use, and votive purposes.

It is possible that recent studies emphasising the limitations of ancient Egyptian authorities in using written documentation when dealing with the private sector of the economy might also apply to Cyprus. It has been observed that information collected in local and private documentation was rarely passed on to the central administration, and if it was then only in summary form.<sup>291</sup> Furthermore, it is argued that central authorities could not audit local and private transactions because they were catalogued and indexed only in the memories of local and private transacting parties.<sup>292</sup> Any additional cost to enforce written documentation on private transactions could not be recovered by increased efficiency of extraction. It was only with the passing of time that this situation was improved, and private transactions were documented in written form, as was done for state affairs.

#### THE ROLE OF TEMPLES AND SANCTUARIES IN THE MARITIME ECONOMY

Religion, politics and economics go hand in hand during the LBA in the Near East. Although we do not have hard, direct evidence, it is plausible that this also applied to Cyprus, where sanctuaries and temples acted as protectors of trade, manufacturing, and seafaring. They were the venues for local festivals and centres of cult and ritual. Symbolically, they were the guarantors

<sup>280</sup> Muchs 2016: 6.

<sup>281</sup> Dikaios 1969–1971: 500, 503, 516; Muhly and Kassianidou 2012: 128.

<sup>282</sup> South 2015: 220–223.

<sup>283</sup> Iacovou 200: 632; Sherratt 1998; Snodgrass 1994: 172.

<sup>284</sup> Dikaios 1971: 881–891; Hirschfeld 1993; Iacovou 2008b: 632.

<sup>285</sup> Smith 1994.

<sup>286</sup> Papasavvas 2013: 79–94; Smith 1994; 2007: 7–8; Webb 2002: 111–154.

<sup>287</sup> Monroe 2018: 216.

<sup>288</sup> Bachhuber 2006: 354.

<sup>289</sup> Laroche 1971: 24, cat. no. 17.

<sup>290</sup> Papasavvas 2013: 79–94; Webb and Weingarten 2012.

<sup>291</sup> Muchs 2016: 6; Eyre 2013: 194–201.

<sup>292</sup> Muchs 2016: 6; Eyre 2013: 342–347.

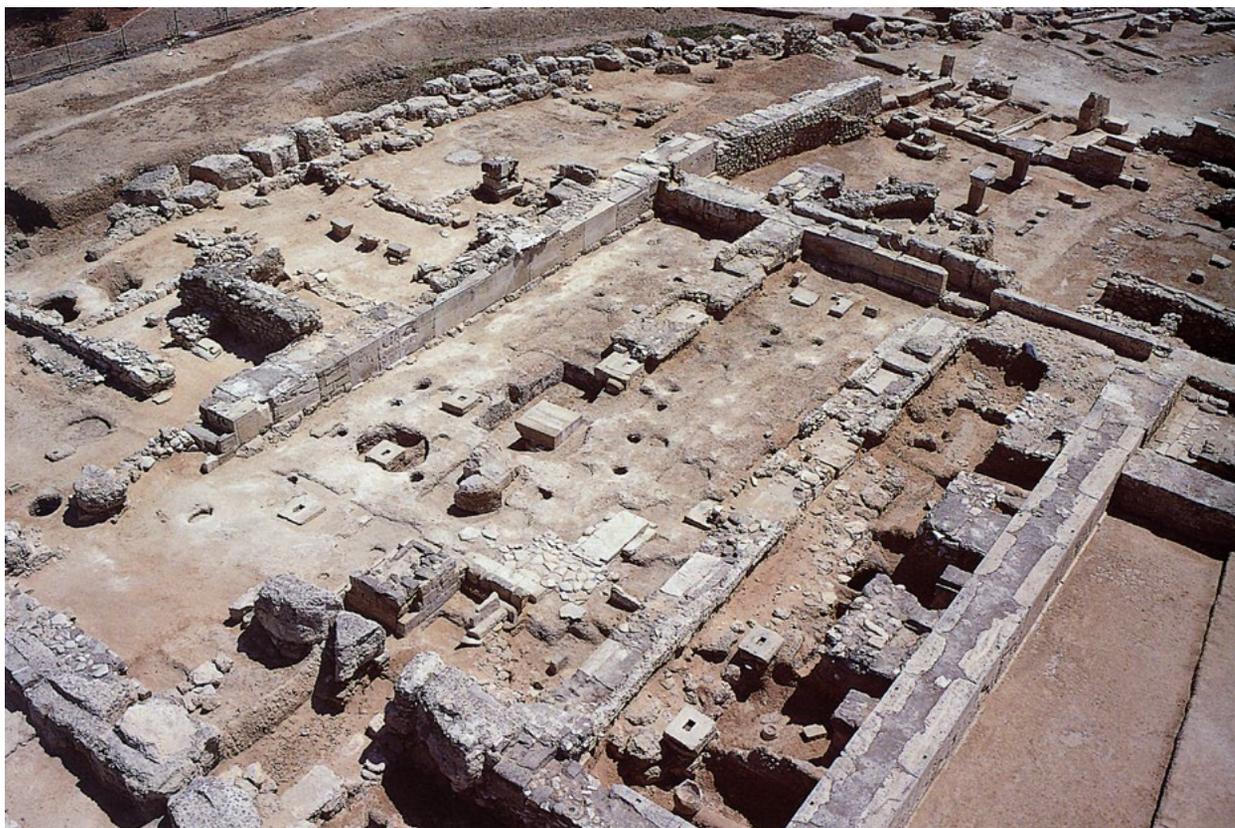


Figure 19: The sacred precinct in Area II at Kition, which was reorganised extensively at the beginning of the 12th century BC, indicating metallurgy workshops in the northern area and textile manufacture in its western part, clearly associated with religion and the port of the city (courtesy Department of Antiquities, Cyprus).

of stability and social order and, most probably, the providers of oracular consultations. They became the conduits through which institutional rules and regulations were propagated and applied.

At the sanctuaries of Kition there is evidence of copper production<sup>293</sup> going back to the end of the LC IIC, when monumental sacred temples started becoming a sign of authority. The metallurgy workshops at Enkomi were next to the temples of the gods associated with smelting and mining – strong evidence of the relationships between metallurgy and religion. The same is true for seafaring. Evidence, such as the scratching of ships on the wall of Temple 1 in Area II of the sacred precinct of Kition (late 1200 BC), as well as on the walls of Temple IV,<sup>294</sup> attests to this. On the southern façade of Temple 1, we have 19 examples of ship graffiti,<sup>295</sup> unmistakable evidence of the links between cult and seafaring. The presence of numerous anchors within the sacred precinct at Kition is also interpreted as a form of dedication by mariners to the divinities worshipped at that site, and are thus further indications of the bonds between maritime trade and religion. We also

know from Wen-Amon's narrative that there were gods onboard with the sailors to protect them and their cargo. On the Uluburun wreck there was a golden statuette of a divinity, most probably associated with seafaring.

#### **CASE STUDY: THE ECONOMIC MODEL OF KALAVASOS AYIOS DHIMITRIOS (KAD)**

The state institutions of LBA Cyprus during the First Economic Cycle fulfilled their roles as providers of regulations, as well as structure and opportunities in society. They managed successful participation in international diplomacy, and in the process they intensified the island's market and gift exchange trade with the rulers, elite societies, and entrepreneurial establishments of neighbouring countries.

The state was instrumental in establishing reliable and efficient production and export processes and mechanisms, not only for the major commodity of the island, copper, but for other products and goods, e.g. bronze, timber, olive oil, wine, textiles, and pottery. They helped in opening the international markets to the private traders and entrepreneurs of the island. Inland communications (riverine/maritime mobility and maritime infrastructure) were established to facilitate

<sup>293</sup> Amadasi-Guzzo and Karageorghis: 1977.

<sup>294</sup> Karageorghis 2002: 105.

<sup>295</sup> Artzy 1987; Basch and Artzy 1985; Knapp 2018: 140.

trade, and these and similar actions gave opportunities and the impetus for the island’s rural and urban societies and settlements to acquire organisational features and grow – becoming more mobile, productive and efficient (see Figure 20). It also gave them the opportunity to operate on the principle of comparative advantage and division of labour, and specialise in the production of commodities and products, other than copper, which would keep them in the exchange relationship.<sup>296</sup>

These settlements created surplus production that allowed them to trade and exchange not only within the island but also overseas in long-distance trade. For this they needed inland transport arrangements, as well as ports of export, to connect them with the international trade networks and markets: examples of this can be said to be the KAD administrative urban settlement, and possibly Tochni *Lakkia*, which may have operated as its anchorage.

**KAD economic model**

Let us now look at a working hypothesis of a plausible economic model for the KAD urban administrative centre. Its size is estimated to be c. 8.5 ha – 11.5 ha,<sup>297</sup> and its population is now given between 850 – 1150 inhabitants, which is lower than previous estimates of 1500 inhabitants.<sup>298</sup> From the available evidence to date, it seems that its economy was mainly based on agriculture, especially olives and olive oil. In this study, we will not go into detailed calculations of land and labour requirements, nor general rates of production and consumption of oil, as these factors have already been dealt with in great detail in many other studies and papers.<sup>299</sup> We will concentrate mostly on the

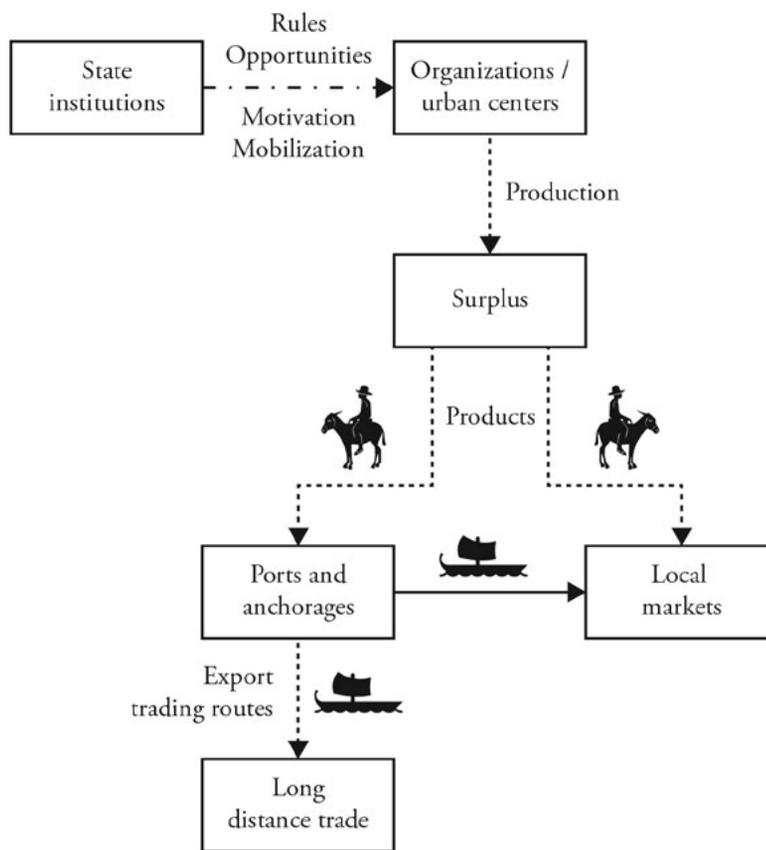


Figure 20: International and local exchange mobilisation (drawing: Philipos Vasiliades).

distribution and marketing of the KAD olive oil surplus, specifically the means of transport and related costs, and, above all, with the plausible income for the ruling elite of KAD from the long-distance trade of surplus olive oil and possibly other agricultural products, e.g. wine and possibly resin.

**Olive Oil**

Much of the olive oil processed at KAD was most likely produced on elite controlled plantations<sup>300</sup> that developed over the 200–300 years of occupation of the urban centre and the surrounding areas and settlements. It is reasonable to suggest that the elite inhabitants of the KAD urban centre, and their dependents, who over several generations attended the plantations and grew new olive trees, must have had certain ownership rights over their investment.<sup>301</sup>

The fields around KAD in a ‘good year’, variably occurring in two or three years depending on environmental conditions,<sup>302</sup> were capable of producing

<sup>296</sup> Kristiansen 2018: 9–10; Bresson 2016: 343–345.

<sup>297</sup> South 2014: 72.

<sup>298</sup> South 1996.

<sup>299</sup> The work of Keswani (2015; 2018) and Manning and Fisher (2018) is relevant. In her calculations, Keswani, assumes KAD’s storage capacity was geared to handle the olive oil production in a ‘good year’ of an average productivity of 20 kg per tree per year. Considering that every 5 kg of olives would produce 1 l of oil, then to produce 50,000 l per year would involve 12,500 trees ((50,000 x 5) ÷ 20). For an olive plantation with a density of 100 trees/ha, would occupy 125 ha. For a density of 50:50 mixed cultivation with grain and other crops then 218.75 ha would be required (Keswani 2015: 9, table 2). The hectares needed to support even a mixed cultivation including cereal crops and pasture could certainly be found within the proposed catchment area of KAD (Keswani 2015; 2018: 149; Manning and Fisher 2018: 130). The number of workers needed to harvest and process the 50,000 l of oil would vary between 189–463 (Keswani 2015: 18, table 6), meaning

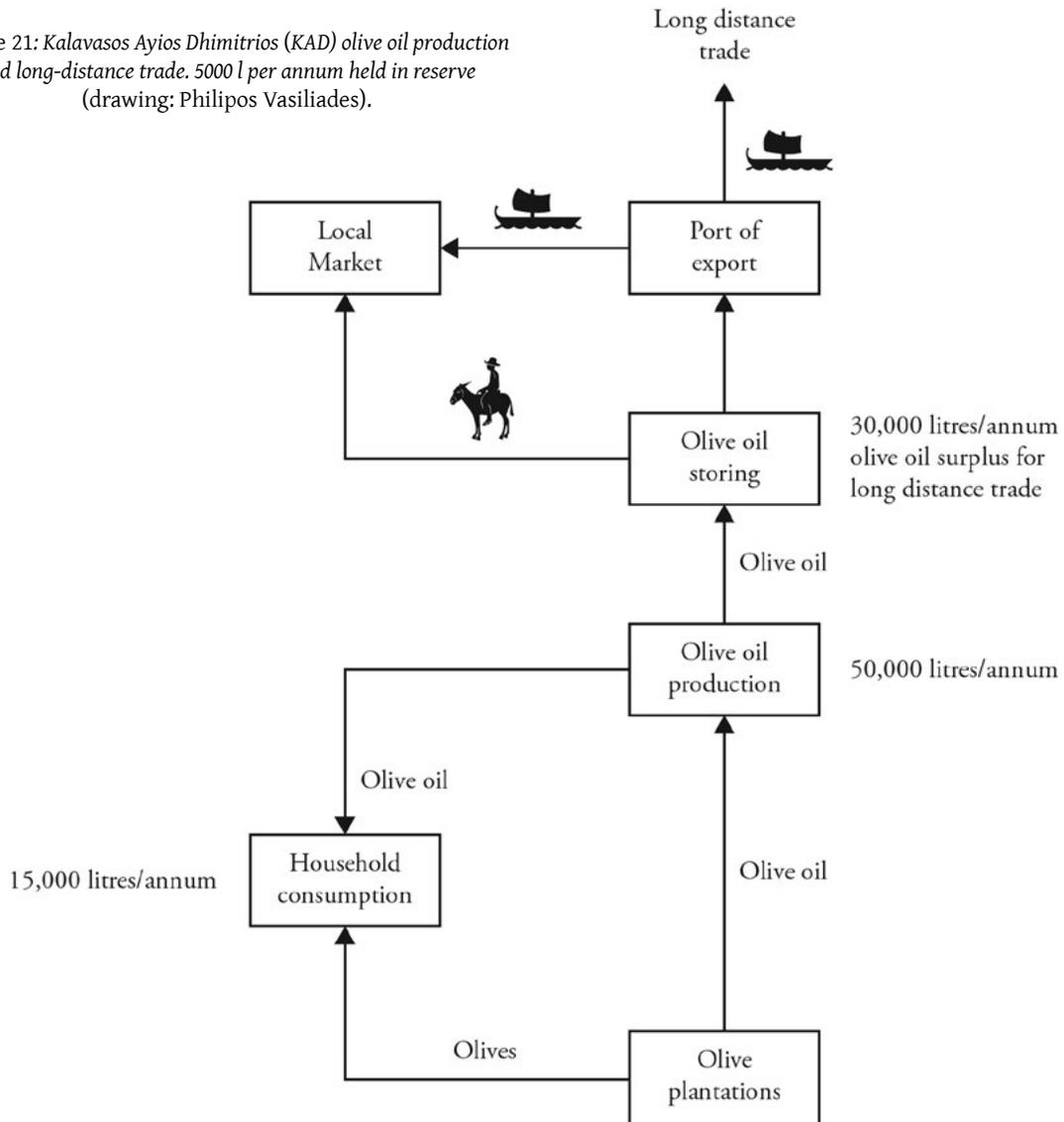
that the majority of KAD inhabitants must have been involved in agricultural production.

<sup>300</sup> Keswani 2018: 149.

<sup>301</sup> Keswani 2015; Manning and Fisher 2018: 123.

<sup>302</sup> Keswani 2015: 7, fig. 3.

Figure 21: Kalavassos Ayios Dhimitrios (KAD) olive oil production and long-distance trade. 5000 l per annum held in reserve (drawing: Philipos Vasiliades).



enough olive oil to fill the entire 50,000 l capacity of Building X *pithoi*,<sup>303</sup> stored within Building X (Figure 6), particularly the *Pithos* Hall and the North Magazine. To calculate the required oil for household consumption of the KAD inhabitants we can take into consideration that the notional average consumption of olive oil per person was 15 l per year.<sup>304</sup> This means the total annual household consumption for the entire population was 12,750 – 17,250 l. For the purpose of our calculation, and rounding up the figures, we take the total average household consumption that was distributed directly among the population to be 15,000 l per year.

Thus, one could argue that the elite authorities in Building X in a good year would have had up to 35,000 l per annum surplus olive oil storage capacity, leaving 15,000 l for other products, for example wine. For the purpose of our calculation let us consider that they

could have 30,000 l of oil per annum available for trade and exchange in the local market as well as for export (see Figure 21). The extra 5000 l could have been used for redistribution or reserve purposes in case of years of bad harvest. Due to adverse climatic conditions, it might have taken some years before a good harvest occurred again.<sup>305</sup>

We do not know the price of olive oil in Cyprus so we will take as a benchmark the average price in Ugarit, one of the major trading partners of the island. There is a range of prices calculated for oil in Ugarit depending mostly on its quality. For the purpose of this work, we will use the average price of 0.1 Ug.skl in silver per litre, as calculated by Vita.<sup>306</sup> Thus, the value of 30,000 l of oil in the Ugarit market would be 3000 Ug.skl (30,000 x 0.1) in silver, or 28.2 kg (3000 x 9.4) in silver. We do not know how much of this value would go into the pockets of the

<sup>303</sup> Keswani 2015; 2018: 149; Manning and Fisher 2018: 130.  
<sup>304</sup> Keswani 2015: 14–25; Manning and Fisher 2018: 126–127.

<sup>305</sup> Keswani 2015: 7.  
<sup>306</sup> Vita 2017: 525–544.

KAD elite. It can be assumed that the cost of middlemen and merchant profits, as well as import duties and taxes, would be half the market price.<sup>307</sup> Therefore, the other half, i.e. 1500 Ug.skl in silver, or about 14 kg (1500 x 9.4) in silver, can be reasonably considered as the actual net exchange value for the KAD elite. It must be emphasised that this is the income for a good year, which might take several years to occur again. Nevertheless, the average amount received over the years was substantial and a serious source of finance for the KAD elite, and this helps us to understand the possible reasons behind investing in storage capacity at Building X.

If the olive oil were to be traded on the island, then we do not know the likely prices, but it would make sense for elites at KAD to try to achieve the same average value they would have realised in Ugarit, although one has to expect lower prices for the home market. This is perhaps an additional reason for them to concentrate in the lucrative export markets.

The KAD economic model proposed in this book avoids the non-productive battleground between primitivism and modernism, and concentrates on institutionalised long-distance trade and its mechanisms, made possible by surplus production, supported by archaeological data.<sup>308</sup> The KAD economic model, which is in line with Kevin Greene's<sup>309</sup> point of view that the primitivist model for ancient economies is too minimalistic, succeeds in demonstrating how complex and dynamic the Cypriot economy was. The KAD model bears a resemblance to the olive oil production in Tripolitania described in David Mattingley's work.<sup>310</sup> Based on fieldwork in Libya, Mattingley argued convincingly that the production of Tripolitania olive oil was much greater than was needed for the local inhabitants, therefore, like the KAD economic model, production for export was the most likely and logical explanation. We are thus dealing, in both cases, with a non-primitive economy based on market forces, with concepts of supply and demand and employment of capital in play.<sup>311</sup>

<sup>307</sup> Barjamovic 2018: 123–124; Dercksen 2014: 75–83; Larsen 1967. As a guideline of the 50:50 split between producer/supplier and market price, we have figures from the Anatolian trade of the Old Assyrian trading families c. 1880 BC. (i) Tin purchased in Assur at an average rate of 15:1 was sold in Anatolia at an average rate of 7:1. Therefore c. 50% of the market price went to cover middlemen costs, merchant profits, and taxes and import duties, leaving only 50% for the Assur trading families. (ii) The producer/supplier intake was reduced further in the case of textile trade. Textiles bought in Assur for 4–5 shekels in silver were exchanged in Anatolia for up to 14 shekels in silver. As a guideline we take the 50:50 split of the metal trade.

<sup>308</sup> Goransson 2007: 198.

<sup>309</sup> Green 1986.

<sup>310</sup> Mattingley 1988; 1988a.

<sup>311</sup> Goransson 2007: 198, 199.

### Local trade

The surplus production could have been used for exchange, either locally to neighbouring urban centres such as Kition and Hala Sultan Tekke,<sup>312</sup> or preferably for long-distance trade, mainly along the Syrian coastline, and perhaps Kilikia. Let us look first at the local option. Although we have no evidence, so far, of large agricultural storage facilities at Hala Sultan Tekke<sup>313</sup> and Kition, it is reasonable to consider that large urban centres on the island were capable of having their own olive oil production. Therefore, the probability for KAD to have exchanged anything but a modest portion of its large surplus of oil in the local market of neighbouring urban centres is small. Furthermore, from the analysis that will follow, it will transpire that it was more cost effective to use the oil surplus production for long-distance trade rather than trade it locally using overland transport methods. Nevertheless, we will analyse and investigate the advantages and disadvantages for both local and long-distance trade of the KAD oil surplus. G. Cadogan left open the probability that 'in the Late Bronze Age Maroni and Kalavastos may have been frontier stations under the control of the Larnaca bay cities'.<sup>314</sup> Andreou<sup>315</sup> highlighted the importance of olive oil production at *Ayios Dhimitrios* for both intra-island and external exchange.<sup>316</sup>

The important question of the transportation of this surplus production of 30,000 l of oil can be addressed first.

#### Local trade transportation option 1

Looking at the first option, which would have involved land transport using donkeys (the domestication of camels took place much later) to carry goods from KAD to the nearest large urban centre, say Kition or Hala Sultan Tekke (see Figure 22), as riverine transport was not possible in this case.

To calculate the number of donkeys required, we need to convert litres of olive oil to kg. For our calculation we use the conversion of 0.92 kg per litre of oil. Therefore 30,000 l of oil weighs 27,600 kg (30,000 x 0.92). A donkey can carry about 1/3 of its weight,<sup>317</sup> which would be about 50–60 kgs, say 60 kg. Thus 460 donkeys (27,600 ÷ 60) would be required for transportation.

The distance from KAD to Hala Sultan Tekke or Kition for example, depending on the route, is c. 50–60 km. This would entail a two-day trip with an overnight stop, taking into consideration that a fully loaded donkey

<sup>312</sup> Cadogan 2018: 114.

<sup>313</sup> Fischer and Burge 2018: 606.

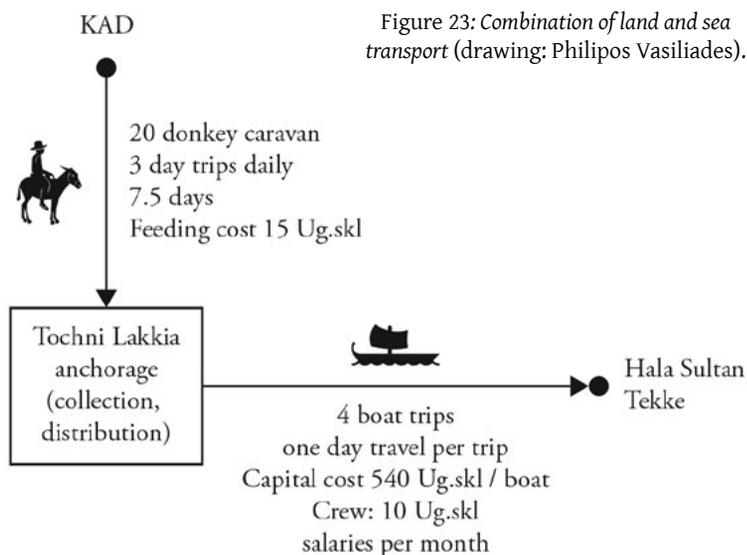
<sup>314</sup> Cadogan 2018: 116.

<sup>315</sup> Andreou 2016: 163.

<sup>316</sup> Knapp 2018: 146.

<sup>317</sup> Monroe 2010: 13.





grain wheat and 2.5 Ug.skl in silver for fodder, a total of 15 Ug.skl in silver.

As for the costs involved for the shipment by sea of olive oil from Tochni Lakkia to Kition or Hala Sultan Tekke, the proposed model suggests that either two large boats or four medium-sized ones would have been sufficient for the trip. It seems logical to consider that the medium-sized boats would be preferred, and that partial delivery would apply. Therefore, only one such vessel was required for transporting the oil in four partial shipments. In case of more spread deliveries, more partial shipments were needed, making sense for elites at KAD to out-source the transportation by sea and subcontract the task to a captain with a boat, a typical marine transporter. The capital investment of a medium to large boat would not exceed 540 Ug.skl in silver.<sup>324</sup> Another option was to deliver part of the surplus olive oil to those intermediary marine traders who traded by tramping from port to port.

The annual salary for sailors was 1800 l of grain, or 20 Ug.skl (1800 ÷ 90) in silver per year.<sup>325</sup> This equates to 1.6 Ug.skl in silver per month, meaning that a four-member crew with a captain would cost c. 10 Ug.skl in silver per month, plus expenses. For four partial shipments, taking into consideration idle time, approximately two weeks would be needed – meaning a salary cost of c. 5 Ug.skl in silver for the transport of the entire load. To these costs we have to add the charges of the boat owner, who could have been the captain of the ship or a marine transporter, even a trading family or a firm owning ships. We do not know these costs, but for a short half-

<sup>324</sup> Monroe 2015: 18; RS 18.025 = KTU 4.339.  
<sup>325</sup> LH 239; Monroe 2009: 95; 2010: 7. The notion of 1 Ug.skl silver per month is not a recorded measure of salary but a nominal estimate. It is based on a standard wage for unskilled labour and represents a reasonable estimate for a minimum wage.

day trip they could only be a fraction of the land transport costs. Evidently, transportation option 2 would have been a much more attractive proposition for the entire operation. Option 1 was longer, cumbersome, and more expensive. We can therefore suggest that any internal island trade between coastal settlements was most likely conducted by cabotage, short boat trips from port to port, compared to outright land transport.

An acceptable scale of relationship between the cost of maritime and land transport remains to be determined. As demonstrated in the case of the transport of the KAD olive oil surplus this was in the order of magnitude of 5:90, or c. 1:20. Based on prices mentioned in Diocletian’s ‘Edict on Maximum Prices’ in the Late Roman Empire, a relationship of 1:40 has been proposed.<sup>326</sup> This ratio was determined on a theoretical basis and cannot be considered universally valid. However, in both calculations a common conclusion is reached that overland transport is tens of times higher<sup>327</sup> than that of maritime transport. Moreover, another factor that must also be taken into consideration is that sea transport is also much faster than land transport.

*Long-distance trade*

From the previous analysis we may understand it was more preferable for the majority of KAD olive oil surplus to be channelled through long-distance trade to the more lucrative export markets on the Syrian coast, even Kilikia. Intermediaries or third-party traders might have delivered to far-away destinations, e.g. Mesopotamia and Hattusha respectively. It is reported that oil and wheat might have been sent from Alashiya to Ugarit.<sup>328</sup> We also know that the wealthy merchant Sinaranu imported olive oil, *samnu*, from Crete to Ugarit. Why not from Cyprus, being much closer and where trade was more frequent and regulated?

*Long-distance trade transportation option 3*

Looking at transportation costs for long-distance trade to export markets, such as Ugarit, the transportation principle is the same as for option 2 (Figure 23). The only change is the final destination, thus transport costs would have been higher. The salaries of a captain and a four-member crew would not exceed the already stated monthly cost of 10 Ug.skl in silver. The food and lodgings and other incidental expenses could be

<sup>326</sup> Duncan-Jones 1982: 366–369.  
<sup>327</sup> Bresson 2016: 81.  
<sup>328</sup> Yon 2000: 192.

another 10 Ug.skl in silver maximum. Therefore, the average cost for the crew salaries and their expenses would not exceed 20 Ug.skl in silver. The charges of the ship owner are unknown, but even taken together with the average cost of the crew it would still be a fraction of the value of the cargo. An additional cost to be taken into consideration is the amount of import tax that levied at Mahaddu (Ugarit's major port), which could have been as high as 10% of cargo value,<sup>329</sup> as well as royalties paid to the palace.

We may assume that the surplus olive oil was exported in the previously mentioned maritime transport containers (MTC), locally made Canaanite jars (CJ), or perhaps Group II or IB1 Cypriot *pithoi*.<sup>330</sup> Although Group II Cypriot *pithoi* were used mostly for storing purposes, there are cases where they were also used for transporting liquids, e.g. the Cape Iria and Uluburun wrecks.<sup>331</sup> MTCs were generally used to transport olive oil, wine and fish products. Other commodity products, e.g. grain, were loaded into the ship's hull, probably in sacks.

### Wine

From the previous calculations, the elite administration at Building X, apart from the 35,000 l capacity for olive oil, had an additional spare storage capacity of up to 15,000 l. The most plausible product to be used for this spare capacity would be wine. It is reasonable to suggest that wine was produced at the settlement, as it was made at *Alassa Palaotaverna*.<sup>332</sup> To support grapes at the settlement we have evidence of pips found in Building I, associated with a sunken *pithos*, as well as in Buildings III, VIII and X.<sup>333</sup> Press beds that might have been used for making olive oil and also wine have been found in the east and central areas of KAD.<sup>334</sup> We can estimate that 5000 l of wine could have been used for local consumption and the remaining 10,000 were available for exchange, mainly on the island, or even for export.

The value of this plausible surplus of wine in the Ugaritic market can be calculated at a price of 0.026 Ugaritic shekels in silver per litre.<sup>335</sup> Therefore, the value of the 10,000 litres of wine would be 260 Ug.skl (10,000 x 0.026) in silver, or about 2.5 kg in silver. If the wine were to be traded in Egypt instead of Ugarit it would have been worth much less, about 66 Ug.skl (10,000 x 0.066) in

silver, or 620 g in silver.<sup>336</sup> On the other hand, if traded in Hatti, the wine would be twice the price in Egypt but half the price in Ugarit. If instead the wine were to be traded inter-island then the price would be impossible to estimate in the local market, but it would make sense for KAD elites to try to achieve, as with the olive oil, at least the same value they would have realised in Ugarit. This seems most unlikely since home products would have been cheaper. As the price of wine also depends on its origin and quality, and thus reputation, it is not possible on the strength of the available evidence to put a price on the value of wine in the LBA in Cyprus.

Egypt, Ugarit, and the Syro-Palestinian coast had a long tradition of wine production. Egypt, in particular, was a populous and large agricultural country with a thriving agricultural industry hundreds of years before the LBA.

During the Middle Kingdom, and possibly Second Intermediate Period, when there was a demand in Egypt for olive oil and wine, we have evidence of large Cypriot ceramic imports. This might indicate Cypriot long-distance trade of agricultural products, including plausibly wine and olive oil. It has been estimated that at that time a ship a day entered the harbour of Avaris. We cannot exclude the possibility that among them there were Cypriot ships carrying Cypriot agricultural products.<sup>337</sup>

### Wheat

For the grain needs of the population, calculations can be based on a consumption rate of about 200 kg/annum.<sup>338</sup> Therefore, the annual need for grain for a population of 850 to 1150 people was between 170,000 kg – 230,000 kg.

We have no evidence of any grain storage facilities on the site<sup>339</sup> but there was sufficient arable land around the settlement to grow enough grain to feed the population, and that, in the absence of major granaries, we may consider that families and household units managed their own production and storing. This solution might suggest some kind of household autonomy under elite control and supervision.<sup>340</sup>

### Other products

We do not know how diverse was the economy of the Kalavassos area, or whether the ruling elite and the community of the settlement could have had income from other activities. There is no material evidence of copper extraction from the Kalavassos mines during

<sup>329</sup> Monroe 2010: 28. There is no specific documentation on this figure. It may be used provisionally to estimate how the crown could have profited from maritime trade.

<sup>330</sup> Sherratt 1998: 300–301, n. 15 and 305.

<sup>331</sup> Knapp and Demesticha 2017: 90. For discussion, see Knapp 2018: 144–148.

<sup>332</sup> Hadjisavvas and Chaniotis 2012: 159.

<sup>333</sup> Hansen 1989: 82–92; Steel 2004: 290.

<sup>334</sup> Keswani 2015: 15; South 1980: 40–42.

<sup>335</sup> Monroe 2016: 92; Zamora 2000: 490; Vita 2017: 531.

<sup>336</sup> Monroe 2016: 92.

<sup>337</sup> Crewe 2012; Marcus 2006; Maguire 1990; 1995; Stager 2001.

<sup>338</sup> Padgham 2014: 20, Manning and Fisher 2018: 129.

<sup>339</sup> Manning and Fisher 2018: 129–131; Manning 2019: 101–108.

<sup>340</sup> Andreou 2016: 162; Manning and Fisher 2018: 129–133.

the LBA. South's excavations<sup>341</sup> produced no material culture evidence of large-scale metallurgical activities at KAD. Furthermore, the study done under the NARNIA framework<sup>342</sup> revealed no significant copper production in the area during this period. At best, we might have some domestic metallurgical activities.<sup>343</sup> Therefore, on the available evidence we cannot claim that production and distribution of copper contributed to the economy of the settlement. The evidence at KAD does not support the existence of industrial textile production either. We must consider that any such activity was most probably small in scale and most of it done on a domestic basis.

## Conclusion

On the strength of the available evidence, we may suggest that the economy of KAD was based on local agricultural resources, mainly olives and olive oil, which in a 'good year' yielded a handsome surplus net income of c. 14 kg silver, their share from c. 28.2 kg in silver per year, which is the average value of 30,000 l of oil on the Ugarit market (Figure 24). It is plausible that they could have had an additional income of 2.5 kg in silver from exchange of other agricultural produce surplus, e.g. wine, which, for the purposes of this study, we may assume was mostly traded directly locally at the exchange price it would get in the Ugarit market. The net combined intake of 16.5 kg silver was a very substantial income, almost comparable to revenues from exports of copper. The KAD elite would have used such income for local and overseas exchange and for obtaining exotic luxury imports and improving their infrastructure. The wealth of the community is evident in rich burials and other material culture of the settlement, for example in Tomb 11 we have c. 434 g of gold jewellery, worth close to one kg of silver.

As we know, the costs and logistics of overland trade were much higher compared to those of sea transport. Therefore, in the case of possible local exchange, the best option for the KAD elite was to use a combination of short-distance overland transport to Tochni *Lakkia* and then on by sea. They did not need a large fleet or elaborate port facilities: for the transport of their surplus production of olive oil and wine they would require only five or six medium-sized boat trips per year. The optimum solution was to subcontract this to the marine intermediaries and transporters who owned such small- or medium-sized boats that could have beached on shore, or marine traders who operated their medium-sized boats by tramping from port to

port; hence the lack of evidence of docks or quays. Tochni *Lakkia* has been severely eroded so even if there were any docking or harbour facilities they are not preserved.<sup>344</sup>

From the proposed profile of the KAD economy, we can suggest that any seaborne trade originating from the site involved the mixed cargo principle, like the Uluburun wreck<sup>345</sup> and the Alashiyan ship at Atalligu in Ugarit,<sup>346</sup> and, together with their main product, olive oil, they probably marketed additional products. The type of imported, exotic luxury goods, which included Mycenaean pottery, is evidence of direct maritime trade and access to information and international trade networks and contacts.

The region does not seem to have established a diversified economy based on a portfolio of a wide range of products, nor did they develop a copper industry that could have broadened their economy. Taking into consideration that a good harvest year might occur only once in several years, this would also represent a serious drawback to the stability of their economy. In addition, their export clientele base was most probably very narrow due the limited range of their export portfolio. Their main product, olive oil, did not have the oligopoly characteristics of copper, being a perishable commodity subject to competition, and most probably its market value deteriorated in the turmoil and volatile environment of the transition period between the First and Second Economic Cycles.

There is no credible explanation why they did not develop a copper industry, in spite of the proximity of the ore-rich Kalavastos mines. Most probably they were happy with the average income they had from the trade of oil. If this were the case, it might not be unreasonable to suggest that they did not have the equivalent economic model to Enkomi, Kition, or Palaepaphos, to sustain them through the collapse of the international LBA economic order.

These views might be considered controversial and contestable, but, according to the available evidence, these might well be the reasons why the site was abandoned in the early years of the Second Economic Cycle. The economy of KAD was based on a shallow foundation of olive oil production, and any surplus was most probably exported to a limited and select number of clients along the Syrian coastline and perhaps also Kilikia. When they were unable to trade their surplus for various reasons and lost their main sources of income: either because their long-distance trade partners had vanished or had lost their purchasing power; or

<sup>341</sup> South 2012: 37–40.

<sup>342</sup> Van Brempt and Kassianidou 2016: 539–553.

<sup>343</sup> Although oxhide ingot finds below the Maroni *Vournes* Ashlar Building might suggest the presence of a metallurgical workshop which was active before the Ashlar Building in LC IIC, and oxhide ingot fragments found at Maroni *Tsaroukkas* might suggest the same, such isolated cases cannot support the presence of industrial metallurgy activities in the Kalavastos and Maroni areas.

<sup>344</sup> Andreou 2014: 53–54.

<sup>345</sup> Pulak 2000: 147–50.

<sup>346</sup> RS 18.132 = KTU 4.390.

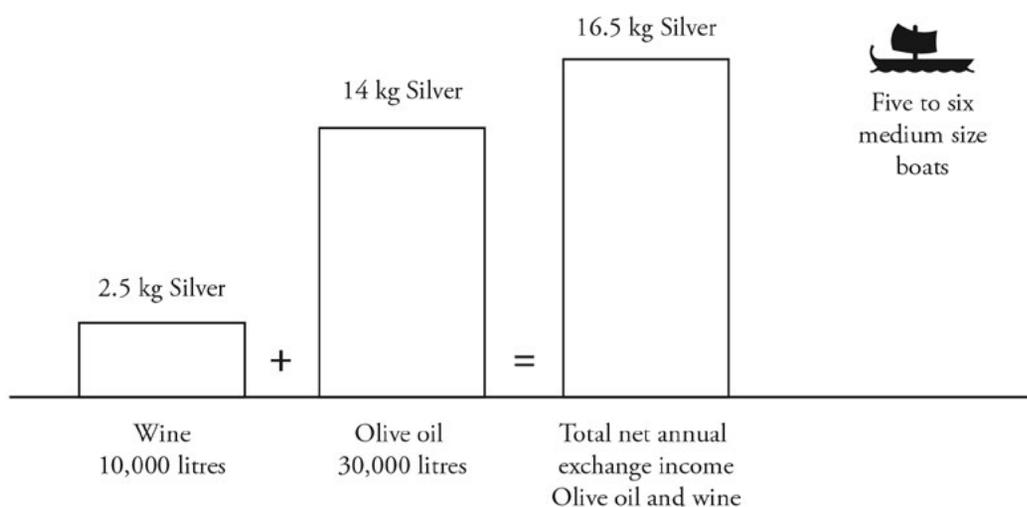


Figure 24: KAD potential net annual gross income, over a good harvest year, from the long-distance trade of olive oil and exchange of wine (drawing: Philippos Vasiliades).

their trading channels and maritime networks no longer functioned because the sea lanes were not safe due to increased piratic activity and marauding; or extraordinary destruction events, e.g. the phenomenon described as the ‘Sea Peoples’.

We should not, of course, exclude internal reasons, resulting from the huge inequality between the ruling elite and the 95% or more workforce of impoverished farmers and herdsmen. The unstable economic situation might have led the workers and less privileged inhabitants of the settlement to seek refuge and better living conditions outside the KAD settlement. This may have resulted in the loss of productivity that eroded accumulation of surpluses and revenues. Nor can we exclude the possibility that their supply power was lost because of probable crop failure, although there is no evidence to support this.<sup>347</sup> All in all, the situation on the island was clearly volatile and unstable, with concomitant political and economic uncertainty, meaning that the region could no longer fall back entirely on its domestic income to sustain and support their presence at KAD.

#### MARKETING SURVEY – INTERNATIONAL PRICES – COMPARISON TABLES AND CHARTS

To define and evaluate the prospects and opportunities of Cyprus’ long-distance trade it will be useful to conduct what one might define as a ‘marketing survey’ for its major products in its main export markets. This can be done by examining the commercial options for Cypriot products, and possible prices and values in the international market, as well as the commercial practices and conduct of Cypriot merchants overseas. By so doing we can identify the market forces at work

and how they affected and formulated long-distance trade tactics and strategies.

#### Branding

Before analysing the marketing strategy of the Cypriot export industry in relation to the prevailing international exchange values, it should be pointed out that the Cypriot industry in general, and long-distance trade in particular, had a ‘branding’ strategy in place. In modern terms, branding is how the promise of the supplier to the consumer is conveyed and expressed. Andrew Bevan writes that commodity branding is about establishing bonds of trust between producers, distributors, and buyers and sellers (and in particular the latter).<sup>348</sup> The most important aspect of a branding strategy is how this promise and bond of trust is communicated and achieved. In simple terms, this is done either in writing, verbally, or visually (logos, trademarks, packaging, shape and appearance, etc.). Branding conveys messages of product quality, functionality, and reliability. From the evidence, the ancient Cypriot manufacturers and exporters had the same perceptions of branding as their modern counterparts – and, for copper, their branding message was conveyed visually.

The characteristic shape of the oxhide copper ingot was an important part of the branding strategy of copper exports from ancient Cyprus. The shape was particular to the way Cypriot copper was manufactured and exported: it was a declaration of origin and a guarantee of standardisation in weight and quality. The fact that oxhide copper ingots, as well as miniature ingots, are found within religious contexts, e.g. at the sanctuary of the Ingot God, is confirmation of a dual message:

<sup>347</sup> Knapp and Manning 2016: 99–149.

<sup>348</sup> Bevan 2010: 37.

commercial and cultic. The ceremonial stone oxhide-shaped ingot mould found within Ahat-Milkou's palace at Ras-ibn Hani,<sup>349</sup> one of the ports of Ugarit, emphasises the internationalisation of the brand and its elevation into the royal 'ideology' of Ugarit, Cyprus' most important trading partner.

Another such similar case of branding might be argued for the head of the Cypriot Base-Ring juglet, resembling an opium poppy (*Papaver somniferum*) seed-head. It has been suggested that the probable modelling of the juglet's head on the organic original was done to identify and advertise its contents.<sup>350</sup> The particular shape defined the type, origin, and quality of its contents. Judging from the vast number of these juglets found in Egypt, the Levantine coast, and Hatti, the shape represented the marketing 'message' particularly well.<sup>351</sup> It was so successful that in Hatti it prompted a large number of local imitations. Another ceramic example one might cite is the Cypriot *pithoi* – used predominantly for storage but often as maritime transport containers.<sup>352</sup> Their particular shape and ways of use would seem to signify origin and purpose.

The characteristic bronze stands, e.g. rod tripods and four-sided stands, (Figure 25), represent a very successful product with a wide circulation locally and overseas. Its brand image, conveying a visual message of prestige, luxury and quality, prompted their forms and technology to be widely imitated from the Levant, to Crete, and as far as Sardinia.<sup>353</sup>

Cypriot entrepreneurs did not exclusively use indigenous brands, but also internationally accepted ones, e.g. Canaanite jars. The use of these Canaanite brands is a measure of Cypriot internationalism. These vessels were less liable to break and could be stacked in interlocking layers within the holds of ships, or placed individually on stands, arrayed in groups on racks, or in a variety of other useful configurations. They marked the start of an amphora tradition that continues even to the present day.<sup>354</sup>

*Trade, prices, and exchange values of products and commodities*

We can now turn to the important aspect of trade, prices, and exchange values of products and commodities, by attempting 'marketing' surveys for a range of products (copper, tin, grain, olive oil, wine, textiles, bronze artifacts) in the markets of Egypt, Ugarit, and

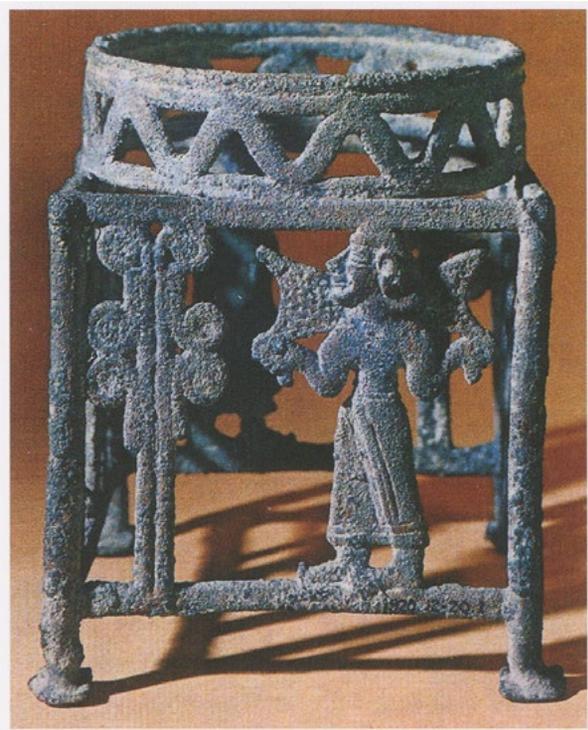


Figure 25: Four-sided ceremonial bronze stand. The figure carrying the copper ingot towards a tree indicates the role between production and the trade of copper and elite ritual (courtesy Department of Antiquities, Cyprus).

Hatti. (The bases and sources on which these prices are computed are tabulated in the Appendix.)

For bulky products we will carry out a case study based on the value of cargo loads carried by an Uluburun-size ship using international prices. The results of this survey can help identify the opportunities and barriers that the Cypriot traders, entrepreneurs, and state institution involved in long-distance trade had to deal with.

It was these international prices and exchange values that determined opportunities and influenced the policy and strategies of the Cypriot state and private maritime and mercantile communities. As deduced from the KAD case study, the net income to the Cypriot maritime economy, after accounting for intermediary costs, merchants' profits, and the import duties and taxes, might have been in the order of 50% of the international market prices, depending on the market. Of course, in highly regulated markets like Egypt, where prices might have been fixed at higher levels by the pharaoh's fiscal policies, we cannot expect Cypriot long-distance traders to have been allowed a share in the inflated margins.

**Trade and prices of copper**

Copper was Cyprus' major export product, with prices that varied from region to region and from period to

<sup>349</sup> Craddock et al. 1997; Lagarce et al. 1983.

<sup>350</sup> Merrillees 1962: Pls. 42–43.

<sup>351</sup> Merrillees proposal is not universally accepted. For discussion, see Knapp 1991: 25.

<sup>352</sup> Knapp and Demesticha 2017.

<sup>353</sup> Papasavvas 2013: 170.

<sup>354</sup> Bevan 2014: 391.

period, depending on availability, competition, supply and demand, as well as price regulation.

#### *Average prices of Copper in Ugarit*

The prices of copper from Cyprus in the LBA are unknown, but we do know the prices from Ugarit and Hatti,<sup>355</sup> where the ratio of gold, silver and copper was settled at 1:4:800.<sup>356</sup> One talent of copper (28.2 kg) was worth 15 Ugaritic shekels of silver, and therefore, 1 kg of copper was worth 0.532 Ug.skl (15 ÷ 28.2) in silver. By taking the different prices in Hatti (slightly higher) and the prices worked out by Heltzer,<sup>357</sup> Monroe concludes a reliable average price to be 0.5 Ug.skl in silver/kg of copper. This is the generally accepted price followed in this study.

#### *Average prices of copper in Egypt*

In Egypt the different equivalencies in metal values depended on the period.<sup>358</sup> For most of the New Kingdom period in the 18th (1550–1295 BC) to the 19th (1295–1186 BC) Dynasties, the ratio for gold, silver, copper was settled at 1:2:200.<sup>359</sup> It is reported that the price of silver to copper fluctuated between 1:96 and 1:104, and here an average is calculated for silver to copper at 1:100.

#### *Case study: Copper in Ugarit*

Taking the copper cargo of the Uluburun wreck at c. 10 tons, then at 0.5 Ug.skl in silver/kg this translates to 5000 Ug.skl in silver or 47 kg (5000 x 9.4 g) in silver.

Assuming the approximate ratio of gold, silver, copper as 1:4:800,<sup>360</sup> then 10 tons of copper would correspond to c. 50 kg (10,000 ÷ 200) in silver (see Figures 26 and 29).

#### *Case study: Copper in Egypt*

A consignment of 10 tons of copper in Egypt for most of the New Kingdom period during the 18th – 19th Dynasty was calculated at a ratio of 1:100, i.e. 100 kg in silver (Figures 26 and 29), or about 1098 *dbn* (100,000 ÷ 91) in silver. Due to volatility and uncertainty, these prices increased to 166.6 kg silver for 10 tons of copper at the beginning of the Second Economic Cycle. These factors are looked at in more detail in Chapter 3.

### Trade of tin

Cyprus is not a producer of tin. During the First Economic Cycle, tin was predominantly imported from

Ugarit and its origin was mainly Afghanistan and Iran. The price of tin in Ugarit was the same as copper, i.e. 15 Ug.skl per talent, c. 0.5 Ug.skl per kg.<sup>361</sup> Thus, the Uluburun cargo of 1 ton of tin was worth c. 500 Ug.skl. At the equivalent ratio of 1:200 to silver this translates to 5 kg silver per 1 ton of tin (Figure 26).

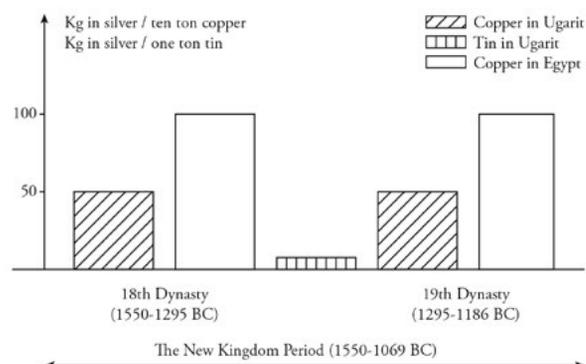


Figure 26: Prices of copper and tin in Egypt and Ugarit (drawing: Philipos Vasilades).

### Trade and prices of wheat, barley, and emmer

Cyprus has relatively enough fertile and arable land to achieve self-sufficiency in agricultural products, including wheat and barley, which, together with olives, were the basic dietary staples of its population during the LBA. In 1950 the percentage of the island's land (9251 km<sup>2</sup>) used as arable land was c. 57%.<sup>362</sup> However, Cyprus' agricultural potential is limited by its semi-arid to arid climate.<sup>363</sup> The granary of Cyprus, the Mesaoria plain, falls into the category of dry farming, and in spite of the historical sources portraying the island as 'blessed' and having plentiful agricultural produce,<sup>364</sup> it might be that 'much of its landscape was marginal rather than blessed.'<sup>365</sup> Nevertheless, it is plausible that during favourable climatic conditions the island was not only self-sufficient but it might have been an exporter of grain.<sup>366</sup> On the other hand, the possibility of bulk surpluses of any one crop, including grain, except perhaps olives, as evidenced by the KAD surplus storage facilities, might have been limited. Therefore, during periods of prolonged aridity and drought the population might have had to rely on foreign imports of food.

It is reported that in the Amarna period grain was imported from Egypt to Cyprus.<sup>367</sup> This would make sense due to the low prices of barley in Egypt during

<sup>355</sup> KTU 4.337; Monroe 2010: 22–23; Stieglitz 1979.

<sup>356</sup> Heltzer 1978: 199; Monroe 2010; Papasavvas 2018; Stieglitz 1979: 18, 20.

<sup>357</sup> Heltze 1999: 447.

<sup>358</sup> For a useful discussion, see Muchs 2016: 114 and Papasavvas 2018.

<sup>359</sup> Papasavvas 2018; Muchs 2016: 114.

<sup>360</sup> Heltzer 1978; 1987; 1999: 447; Papasavvas 2018; Stieglitz 1979: 18, 20.

<sup>361</sup> KTU 4.337; Monroe 2010: 22.

<sup>362</sup> Christodoulou 1959: 104–108; Manning 2019:107.

<sup>363</sup> Manning 2019: 101.

<sup>364</sup> Plin. *HN* 5.35; Strab. 14.6.5

<sup>365</sup> Iacovou 2013c: 21

<sup>366</sup> Iacovou 2013c: 21; Manning 2019: 104.

<sup>367</sup> EA 34, 32–41; EA 36; Moran 1992.

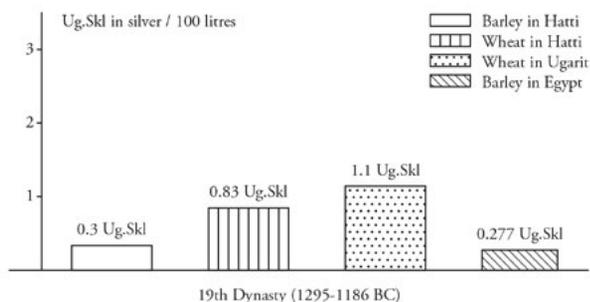


Figure 27: Prices per 100 litres of barley and wheat in Egypt, Hatti, and Ugarit at the end of the First Economic Cycle and the 19th Dynasty (1295-1186 BC) (drawing: Philipos Vasilades).

the 18th and 19th Dynasties. On the other hand, it has been suggested that wheat might have been sent from Alashiya to Ugarit.<sup>368</sup> All these ambiguities and mixed signals show how little we know about Cyprus' trade in agricultural products during the LBA. The prices of grain in LBA Cyprus being unknown, to make some sense of the mechanisms behind its trade the prices from Ugarit and Hatti<sup>369</sup> can be used, as well as those from Egypt.<sup>370</sup>

*Average prices of wheat in Ugarit*

1 Ugaritic shekel in silver was equivalent to 90 l (one Ugaritic *parisu*) of wheat in Ugarit, i.e. 1.1 Ug.skl in silver per 100 l (Figure 27).

*Average prices of wheat and barley in Hatti*

In Hatti, the cost of 150 l of wheat (3 Hittite *parisu*) was 1 Hittite shekel in silver, i.e. 120 litres per Ug.skl, or 0.83 Ug.skl (1 ÷ 120) in silver per 100 l. Barley in Hatti was 0.3 Ug.skl in silver per 100 l (Figure 27).

*Average prices of barley in Egypt*

From actual records<sup>371</sup> we know that the price of barley in Egypt at the end of the 19th and the beginning of the 20th Dynasty was c. 2.2 *dbn* copper per *h3r*-sack (76.56 l), i.e. 0.277 Ug.skl in silver per 100 l (Figure 27). Of course, prices varied before harvest or according to a good or bad year and according to the political situation. Still the price of barley at 0.277 Ug.skl in silver per 100 l was four times cheaper in Egypt than in Ugarit.

*Case study: Wheat in Ugarit*

For the calculations of plausible consignments of wheat in Ugarit a price of 1.1 Ug.skl per 100 l of wheat, or 90 l per Ug.skl in silver, can be assumed. Thus for a ship of the size of the Uluburun wreck, we thus have a capacity

of 47 *kor* or c. 15,000 l.<sup>372</sup> Therefore, as evident in Figure 29, the value of a full cargo of wheat on the Ugaritic market was 166 Ug.skl (15,000 x 0.0111) in silver. This would have made consignments of grain from Cyprus a less appealing venture when compared to copper and olive oil shipments. Evidently for long-distance shipments of grain to be attractive, economy of scale was required which could have only been achieved with larger ships. This, as will be seen during the discussion on the Third Economic Cycle, happened much later during the latter part of the Third Economic Cycle and Hellenistic times.

*Case study: Barley in Egypt*

A 15,000 l consignment of barley in the 19th Dynasty was 41.5 Ug.skl (15,000 x 0.277 ÷ 100) in silver (Figure 29).

*Case study: Wheat and barley in Hatti*

As seen in Figure 29, for a similar consignment of 15,000 l of wheat and barley in Hatti the prices were: for wheat 15,000 x 0.0083 Ug.skl/l = 124.5 Ug.skl in silver; for barley 15,000 x 0.0030 Ug.skl/l = 45 Ug.skl in silver.

*Average prices of emmer in Egypt*

On the other hand, records from Egypt expressing the value of emmer in the 19th Dynasty indicate a low price of 1 *dbn* of copper per *h3r*-sack (76.56 l). A consignment of 15,000 l of emmer in Egypt in the 19th Dynasty was worth 18.75 Ug.skl ((15,000 x 0.277 ÷ 2.2) ÷ 100) in silver (Table 2).

The market forces created by the variation in prices would decide the behaviour of merchants and traders. Thus, it would make sense for Cypriot entrepreneurs, or the Alashiyan royal house, during the 18th and 19th Dynasties to import Egyptian emmer or barley.<sup>373</sup> Market forces would be the driver for any probable Cypriot wheat deliveries to Ugarit.<sup>374</sup>

**The trade and prices of olive oil and aromatics**

Olive oil and its processed products (aromatics, etc.) were among the most important export commodities of the Cypriot economy during the LBA after copper and, probably, purple-dyed textiles. As such, it was a significant component of the island's maritime economy. As seen in the case study for the economic model of KAD, the elites there built a *pithos* storage facility (Building X) with a capacity of up to 50,000 l of olive oil. The most likely customers for KAD's surplus oil were over on the Syrian coastline. From M. Yon

<sup>368</sup> Linder 1981: 33; UT 2061; Yon 2000: 192.  
<sup>369</sup> Monroe 2010: 27, table 3.  
<sup>370</sup> Muchs 2016: 114.  
<sup>371</sup> Cernny 1934: 173-178; Muchs 2016: 114.

<sup>372</sup> Monroe 2009: 278.  
<sup>373</sup> EA 36, Moran 1992.  
<sup>374</sup> Linder 1981: 33; UT 2061; Yon 2000: 192.

we know that there is a possibility that oil was traded from Alashiya to Ugarit, and the Amarna Letters (EA 34) and Papyrus Anastasi IV, 15.1–5 reveal that Cypriot oil was exported to Egypt from Alashiya. According to the Papyrus Anastasi two types of oil were exported (*dft* and *ynb*),<sup>375</sup> indicating that various qualities of oil, including aromatics, were produced and exported. The Uluburun wreck provided evidence of several Canaanite jars containing olive pits, attesting to the transport of whole olives (although their origin cannot be traced).<sup>376</sup> From Ugaritic letter RS 20.168 and *KTU* 4.352=RS 18.042, we know that Cypriot traders were buying olive oil in Ugarit; and as the Ugarit merchant Sinaranu imported oil from Crete, why not also from Cyprus which was closer and had better communication links.

Up until recently, a reliable price for oil from the Near East, especially Ugarit, was not known and various scholars have tried to make estimates by analysing various texts, the interpretations of which pose problems. By bringing together a number of administrative texts, J.P. Vita<sup>377</sup> has proposed a minimum price of 0.6 Ug.skl in silver and a maximum of 1.6 Ug.skl in silver per *kadu*-jar of oil. The average price was calculated at 1.1 Ug.skl in silver per *kadu*-jar of oil. Each *kadu*-jar of oil is 11 Ug.skl per l. Therefore, the average price of oil in Ugarit is considered as 0.1 Ug.skl in silver per l, and this is the price we will follow in our calculations.

For comparison purposes, the price of wine in Ugarit was 0.285 Ug.skl in silver per 11-l jar of oil,<sup>378</sup> which is c. half the minimum price of oil. C. Monroe<sup>379</sup> considers a jar of olive oil to be c. half a shekel, which is a little lower than the minimum price of 1 *kadu*-jar of oil calculated by Vita. The reason we have such a variation of prices of oil is because of the various qualities that are possible and the origin of the product. Aromatic oils hold an added value because of the specialised treatment and knowhow involved. Thus, a small bottle of aromatic oil or perfume was very highly priced, as evidenced from Hittite laws recorded in KBo 626+, where a small *zipatani* of fine/good oil cost 2 shekels of silver. For comparison purposes, and according to the same law, 1 *zipatani* of honey would cost 1 shekel of silver.<sup>380</sup>

#### *Case study: Olive oil in Ugarit*

From the above, for a consignment of 15,000 l, a ship of the size of the Uluburun vessel based on prices from Ugarit might carry the following minimum, average, maximum values of olive oil: minimum 818 Ug.skl in

silver ((0.6 ÷ 11) x 15,000); average 1500 Ug.skl in silver (0.1 x 15,000), or 14.1 kg silver (Figure 29 and Table 2); maximum 2182 Ug.skl in silver ((1.6 ÷ 11) x 15,000).

#### **The trade and prices of wine**

During the LBA, wine became a commodity product accessible not only to the privileged few but also to the wider population. From Ugarit there is textual evidence of privately owned vineyards and wine was made and traded privately. Cypriot wine prices are unknown, but price guides from other Near Eastern countries are available.

#### *Prices of wine in Ugarit*

On the basis of text 4.219, Zamora<sup>381</sup> calculated the price of wine in Ugarit as 0.026 Ug.skl in silver per l, i.e. c. 50% of the minimum price for olive oil. It is also very close to the price of resin from Deir el Medina, calculated at 0.023 Ug.skl in silver per l.<sup>382</sup>

#### *Prices of wine in Egypt*

Based on the above document, the price of wine in Egypt has been calculated to be 0.0066 Ug.skl in silver per l,<sup>383</sup> i.e. c. 3.5 to 4 times cheaper than in Ugarit, which could be due to lower quality wine or higher production volumes.

#### *Prices of wine in Hatti*

The price of wine in Hatti, established in the new Hittite copy of Hittite Law 183,<sup>384</sup> is 0.013 Ug.skl in silver per l, i.e. twice the price in Egypt, but half the price in Ugarit.

As the prices evidently vary substantially – by location and quality – it seems unproductive to try and extrapolate a corresponding price for Cyprus wine.

#### *Case study*

From the available evidence, therefore, for a consignment of 15,000 l, a ship of the size of the Uluburun wreck size might carry the following values of wine (Figure 29 and Table 2) – Ugarit: 15,000 x 0.026 = 390 Ug.skl in silver, or 3.6 kg in silver; Egypt: 15,000 x 0.0066 = 99 Ug.skl in silver, or 0.9 kg in silver; Hatti: 15,000 x 0.013 = 195 Ug.skl in silver, or 1.833 kg in silver.

#### **The trade and prices of textiles**

Textile production in LBA Cyprus was predominantly a household activity intended to meet the needs of the

<sup>375</sup> Knapp 1996: 48; 2018: 146.

<sup>376</sup> Pulak 2008.

<sup>377</sup> Vita 2017.

<sup>378</sup> *KTU* 4.219; Zamora 2000: 490; Vita 2017: 531.

<sup>379</sup> Monroe 2009; 2016.

<sup>380</sup> Fappas 2013: 160, n. 17.

<sup>381</sup> *KTU* 4.219=RS 16.179; Zamora 2000: 356, 490. See Monroe 2016: 92 for a brief discussion on the inherent ambiguity and limitations of the estimated figures.

<sup>382</sup> Monroe 2016: 92.

<sup>383</sup> Monroe 2016: 93; Papyrus Turin 1907/08.

<sup>384</sup> Hittite Law 183; Hoffner 1997: 146; Monroe 2016: 93.

family. Evidence for spinning and weaving (spindle-whorls, loom weights and other textile-related tools) are found in practically every settlement during the LBA in Cyprus, but this should not be taken to indicate a specialisation in industrial production: it remained by and large a household occupation of, presumably, female members of the community, since it covered an essential human need. There is, however, enough evidence of industrial production at certain coastal urban centres, where most probably more specialised purple-dyed textiles and garments of higher added value were produced. This made textiles a potentially very profitable industry and its products potential export commodities.

Material evidence that textiles were produced (and dyeing activities performed) has been found at various coastal urban centres of the island, including Hala Sultan Tekke,<sup>385</sup> Kition,<sup>386</sup> Palaepaphos,<sup>387</sup> and Maroni *Vournes*.<sup>388</sup> Textiles were also produced at inland settlements, e.g. Apliki *Karamallos*,<sup>389</sup> and at the MBA site of Erimi *Laonin tou Porakou*.<sup>390</sup> The latter was a busy textile community involved in different textile activities, including dyeing using vegetal material. The community was not only involved in specialised working activities but was also reproducing and transmitting its specialised knowhow, which helped the proliferation of such skills and the growth of the industry. Kition is another settlement that deserves special mention, specifically the western workshops, where, in relation to Temple 1 and the port, there is clear evidence for industrial-scale production of textiles which was centrally controlled, most probably, by the temple. Evidently at Kition we have a four-tier economy, comprising religion, copper processing, textile processing, and trade. There are also indications suggesting the export of Cypriot textiles to neighbouring Near Eastern countries.

#### 'Ezekiel's poem' on the naval power and trade of Tyre

Although 'Ezekiel's poem' on the naval power and trade of Tyros, thought to be dated between 580–570 BC, postdates the LBA, it is perhaps relevant for this study of the First Economic Cycle. From the poem it appears that Cyprus was a major producer and supplier of purple, blue, and red textiles.<sup>391</sup>

#### KTU 4.390=RS 18.119

According to the interpretation of the ship's manifest in this text, the term '*irgmn*' might refer to purple-dyed

material,<sup>392</sup> suggesting that its cargo possibly contained textile material.

#### IBoT.1.31 and KBo 18.175

Two inventories from Hatti (*IBoT.1.31 and KBo 18.175*) mention linen from Cyprus.<sup>393</sup> The first letter refers to 37 items of linen from Cyprus, and the second to 39 linen shirts, among them two in red colour, probably purple or red-dyed.

#### RS 96.2006

From *RS 96.2006* there is material evidence from Ras Shamra's residential quarter in Ugarit of ceramic weights, connected with textiles, inscribed with Cypro-Minoan script.<sup>394</sup>

On the other hand, from letter EA 34 we learn that the king of Alashiya asked the pharaoh of Egypt to send him large quantities of linen and luxury linen shawls and robes. Linen represents the largest part of the Egyptian economy and is one of its main export products. From the time of the Old Kingdom, Egypt had a thriving textile industry, making it unlikely that Cyprus exported quantities of textiles to Egypt. M. Vigo has, in fact, suggested the opposite, i.e. that Cyprus was importing Egyptian linen which it turned into luxury and prestigious garments, forwarding them to the Syrian and Anatolian markets.<sup>395</sup>

The prices of wool and textiles (or garments) from Cyprus are not known, but the prices from Ugarit and Hatti may be referred to for guidance in relation to international trade. Textiles and garments were light and easy to transport, and, being in high demand, were also easy to sell as a 'cross-selling' product, along with the island's major export commodity – copper.

In our case study for textiles, we will consider the quantity of textiles or dyed wool required to yield 1000 Ug.skl in silver in the international market. The fact that wool could be transported in bulk, crude form is attested, much later, when Hieron II, tyrant of Syracuse, loaded 520 metric tons of wool on the *Syracuse* in c. 240 BC.

As seen from the Uluburun wreck, as well as from *KTU 4.390*, standard practice was to operate on a mixed-cargo model, making textiles a potential 'cross-selling', long-distance export commodity.

#### Prices of textiles in Ugarit

In Ugarit the price of wool was between 1 – 7 Ug.skl in silver per talent, depending on whether it was woven,

<sup>385</sup> Fischer and Burge 2018: 608.

<sup>386</sup> Smith *et al.* 2015: 337.

<sup>387</sup> Iacovou and Mylona 2019.

<sup>388</sup> Cadogan 2018: 112–113; Manning and De Mita 1997: 118.

<sup>389</sup> Smith *et al.* 2015: 329.

<sup>390</sup> Bombardieri and Muti 2018: 25–38.

<sup>391</sup> Diakonoff 1992: 173–176.

<sup>392</sup> Knapp 2018: 109; McGeough 2015: 90; van Soldt 1990: 344, n. 164.

<sup>393</sup> Mantzourani *et al.* 2019: 16; Vigo 2010: 291–294.

<sup>394</sup> Vita and Matoian 2014: 319 and 324.

<sup>395</sup> Vigo 2010: 293.

or on the colour it was dyed.<sup>396</sup> One talent of purple wool would cost c. 5 Ug.skl in silver.<sup>397</sup> Some specialised studies suggest that 1 g of dyed wool would require 1 – 3 murex glands,<sup>398</sup> i.e. for 1 talent of dyed wool (c. 30 kg) would need 3000 – 9000 murex glands depending on the quality required.

The price of a finished product, e.g. a ritual purple-dyed garment, was c. 25 Ug.skl in silver. The cost of simple garments started at 2 Ug.skl in silver,<sup>399</sup> and 1 talent of linen garment would cost 4 Ug.skl in silver.<sup>400</sup>

#### *Prices of textiles in Hatti*

In Hattusha, according to Hittite Law 182, ritual purple-blue garments were between 20 – 30 skl in silver.<sup>401</sup>

#### *Case study: textiles in Ugarit and Hatti*

To yield textiles or garments worth 1000 Ug.skl in silver, the following quantities would have to be produced in Ugarit and Hatti (Figure 29 and Table 2): Ugarit: 40 ritual purple garments (40 x 25), 250 talents (7500 kg) of purple wool (250 x 4), 250 linen garments (4 x 250); Hatti: 33 – 50 ritual purple garments.

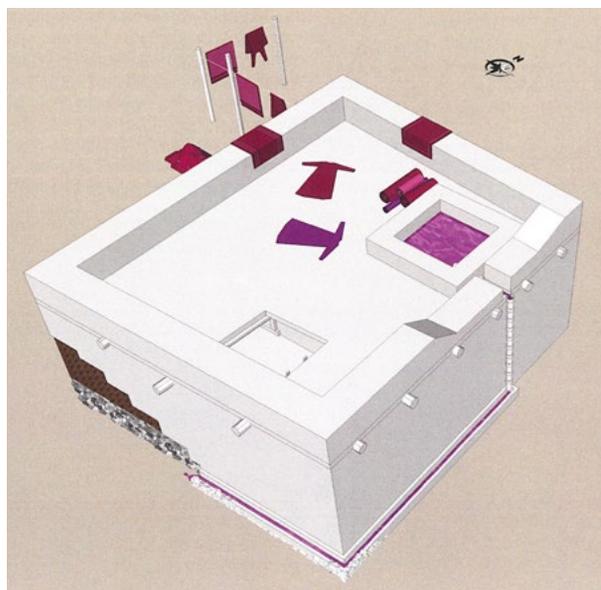


Figure 28: Proposed purple-dyed textile household/workshop installation at Hala Sultan Tekke settlement (after Fisher and Burge 2018: 618, Fig. 10.9; courtesy the authors).

### **Bronze products and the weapon industry, Cypriot cross-selling exports**

<sup>396</sup> RS 21.184A (4.707); RS 18.28 (4.341); RS 15.62 (4.158); Vita and Matoian 2014: 317.

<sup>397</sup> Vita and Matoian 2014: 321.

<sup>398</sup> Bresson 2016: 356–357.

<sup>399</sup> Stieglitz 1979: 19; Monroe 2010: 26.

<sup>400</sup> RS 15.035 (4.146); Vita and Matoian 2014: 325.

<sup>401</sup> Monroe 2010: 26.

In the later part of the LBA, especially during LC IIC, Cyprus was characterised by the increase in the production of bronze artifacts and products. We do not know how many bronze products the Cypriots made and were exporting, but it stands to reason that in their marketing activities they should have done some ‘cross-selling’, i.e. that together with their main export commodity product, copper, they were exporting at the same time manufactured bronze products – perhaps luxury items such as bowls, jags, and basins.

In quite a few cases, the added value due to skilled labour and related production costs could have allowed Cypriot producers and exporters of bronze products maximum margins – of the order of seven times compared to the cost of the raw material. This is supported by a text in Ugarit<sup>402</sup> referring to a large bronze basin weighing one talent at the price of 100 Ug.skl; this translates to 3.55 Ug.skl/kg, which is seven times the cost of its raw material. Examples of a Cypriot bronze product that might have allowed comparable margins are the bronze stands, as well as the rod tripods and four-sided models, i.e. the ingot bearer stand presently at the British Museum.

Weapon manufacture might have been another bronze product range that could have been included with Cypriot exports and benefitted its maritime economy.<sup>403</sup> The Uluburun consignment of 10 tons of copper and 1 ton of tin could have produced c. 21,400 (11,000 ÷ 514) such weapons, weighing an average of 514 g each. This would be sufficient for the Egyptian army of 20,000 soldiers who fought at Qadesh against the Hittites. It is quite possible that this battle was fought on both sides with weapons made from Cypriot copper. The Uluburun cargo of copper and tin was equivalent to 55 (11,000 ÷ 200) tons in silver. If it were to be exported as finished product, its final price could have been several times the raw material value. Such a case could be the additional cargo of the Cypriot ship at Atalligu – besides its 15 talents of copper it carried six shields and five javelins, presumably made of bronze.<sup>404</sup>

### **Pottery, an added-value commodity**

Cyprus played a major role in marketing and selling pottery as an added-value commodity. During the 14th and 13th centuries Cyprus became an important producer and supplier of pottery in the entire region, especially in the Levant. The Cypriots manufactured and exported not only their own White Slip and Base-Ring bowls and jugs, which were eventually replaced by locally influenced Aegean style, wheel-made ceramic production,<sup>405</sup> but it seems they were also marketing

<sup>402</sup> Monroe 2010: 23; Ug. 5.38: 25–27.

<sup>403</sup> Papasavvas 2012: 124; 2018.

<sup>404</sup> McGeough 2015: 90.

<sup>405</sup> Iacovou 2008b: 630; Sherratt 1998: 258.

most of the imported Aegean- or Mycenaean-type pottery that reached the Levant.

Pottery may not be worth much in itself, but taking into account the massive scale at which Cypriot pottery was traded, it must have been of considerable value to the island's maritime economy, in particular for producers and traders, as well as transporters. However, pottery, a low-valued product, could not have been the primary object of directed trade.

In the Ugaritic texts, we have no reference to Aegean traders. Taking into consideration the Cypro-Minoan marks on some Mycenaean vessels found there, and the substantial trade going on between Cyprus and the Levant, it has been argued, with good reason, that Aegean pottery was trans-shipped to Ugarit via Cyprus, most probably Enkomi. Care must be taken not to forget that the origin of pottery does not necessarily reveal the origin of the people who transported it, nevertheless Cypriot pottery, found almost everywhere in the material culture of the Levant, including Tel Akko, Tell Abu Hawam, and Tel Nami, is clear evidence of the island's thriving exports of pottery.

Cypriot pottery as a traded product on its own, and not as containers for other goods, was not targeting elite members of the society but mainly the middle to lower end of the market. This is why there is no mention in royal correspondence of any pottery being traded. It was mostly marketed on a mixed-cargo basis, by entrepreneurial private traders, as well as by marine intermediaries and sea transporters.<sup>406</sup> The state maritime economy was mostly interested in high-value bulk sales of copper, and therefore it let private enterprise deal with this lower end of the market. It was part of the symbiotic character of Cyprus' political system. We can fall back on NIE analysis to explain the success and proliferation of Cyprus pottery. It may have started as an *ad hoc*, 'back-yard' business, encouraged by private venture capital, but the institutional export framework opened up opportunities for it and allowed it to grow and expand.

The small-time private players and urban entrepreneurs involved in this business took advantage of this opening, and the island's perfect geostrategic location, and developed it into a fully fledged and complex mass production industry, capable of improvisation and able to withstand changes in style and local competition. It became an important element of Cyprus' maritime economy and revenues: this is evident in the material culture of the island, as well as within neighbouring Levantine urban centres and settlements.

Cypriots also produced the maritime transport containers (MTC) used to move bulk organic cargoes

over long distances by sea. It has been suggested that the form of the 'Canaanite' transport amphorae was emulated locally in Cyprus.<sup>407</sup> Furthermore, although Cypriot *pithoi* were predominantly made for larger storage purposes they were also used as containers for sea shipments. Cyprus' pivotal role in international exchange along the routes of the common maritime and mercantile zone is proved by the fact that Group II *pithoi* are found in the majority of known LBA wrecks. To highlight in general the importance Cypriot pottery played in LBA long-distance trading, we need only list the Cypriot pottery on the Uluburun vessel, comprising c. 80 examples of fine wares, among them Base-Ring II, White Slip II, White Shaved, and oil lamps (some brand new), and c. 40 of coarse wares – wall brackets, bowls, a pitcher, and nine Group II *pithoi*.<sup>408</sup>

### **The aggressively open economy and human capital, Cypriots travelling and living overseas**

Cyprus' long-distance trade was strong not only for the reasons cited above, but also as a result of the island's outward character of its trading and seafaring community. The maritime and seafaring activities opened up its society and broadened its cosmopolitan character. For this reason, Cypriot merchants and traders, as well as royal envoys and craftsmen, travelled outside Cyprus, involving themselves in commercial activities, as illustrated in the following examples:

*EA 39 and EA 40*

The royal merchants and servants of the king referred to in letters EA 39 and EA 40 have been already discussed in detail above.

*KTU 2.42+2.43=RS18 113 A+B*

According to the interpretation of text KTU 2.42+2.43=RS18 113 A+B, found in Ugarit palace, room 77,<sup>409</sup> a trader or an official from Alashiya was negotiating to buy ships on behalf of his king.

*KTU 4.338=RS18.025*

Another fragmentary (and difficult to interpret) letter from Ugarit, *KTU 4.338=RS18.025*, refers to the financing of a ship for the king of Byblos. Among the people who approached the palace in Ugarit to mediate for this matter were individuals from Alashiya.

*RS 34.153 (RSO 7 35)*

In another letter – RS 34.153 (RSO 7 35) – from the Urtenu archives, we have evidence of actual horse trading carried out between the king of Alashiya and the palace

<sup>406</sup> Sherratt 1998: 298.

<sup>407</sup> Jones and Vaughan 1988.

<sup>408</sup> Monroe 2010: 21; Pulak 1998; 2000; 2008.

<sup>409</sup> Knapp 2018: 106, 112; *KTU 2.42+2.43=RS18 113 A+B*.

in Ugarit. From the most plausible interpretation of the letter, we understand that one of the king's trusted messengers accompanied the shipment and was intending to contact the prefect Urtenu to arrange the exchange.<sup>410</sup>

#### RS 20.168

The badly fragmented letter RS 20.168 suggests a dispute over special levies imposed by the Ugarit authorities on the purchase of olive oil in Ugarit by a Cypriot merchant who most probably travelled there for this purpose.

#### KTU 4.352=RS 18.042

In a letter involving traded goods with the palace of Ugarit<sup>411</sup> there is a mention of 660 (jars) of oil, estimated to be 7260 l, delivered to Abiramu, a merchant from Alashiya. The text suggests an exchange with more highly priced products from Cyprus.<sup>412</sup>

In addition to travelling overseas, Cypriots seem to have set up trans-residential communities in areas where they had vital commercial interests. Although it is challenging to try and trace the origin of people through the extant texts and archaeological remains, there are a few examples worth considering, starting with the Cypriot community of families and residents of various households who might have lived overseas, such as in Ugarit.<sup>413</sup> We also know from archaeological funerary evidence that people from Ugarit did live in Enkomi, so perhaps reciprocal bilateral arrangements were made for citizens of the two countries to live freely anywhere they chose.<sup>414</sup> There is evidence that Cypriots might have lived in Tiryns, in the Argolid, during the 13th century BC,<sup>415</sup> and there does seem to have been close commercial relations between Tiryns and Cyprus, indeed Cypriots might have been involved in metalworking and ceramic workshops within Tiryns. We have evidence of Mycenaean clay transport containers, generally used for shipping olive oil and wine, manufactured with Cypro-Minoan signs, intended for the Cypriot market.

The Cypriot community in Ugarit might have been a commercial one for the purposes of conducting and facilitating trade between Cyprus and Ugarit. We know from letter RS 19.96 that a similar community from Ashdod, creating an Ashdodite trading station, existed

in Ugarit<sup>416</sup> as well. This was a result of the open-trade policies of Ugarit which commercial communities of neighbouring countries took advantage of. Another such community in Ugarit comprised a group of Kilikian merchants from Ura. The king of Hatti, Hattushili III, regulated the terms of their stay, and how business was to be conducted, in a letter he addressed to the king of Ugarit, Niqmepa.<sup>417</sup> We do not know if similar arrangements might have applied to the Cypriots residing in Ugarit given the fact that Cyprus, unlike Ura, a vassal of Hatti, was an independent state and its citizens might have been treated differently.

### Marketing survey summary

From the prices and case studies of the surveys in the previous sections, a comparison table can now be compiled (Table 2, Figure 29).

From the comparison table we can identify market forces at work and draw some useful conclusions, as well as understand the parameters and motivation behind the long-distance trading policies and strategies of Cyprus export institutions, merchants, and maritime trade operators during the First Economic Cycle:

- (i) As indicated in Figure 29, the Cypriot maritime economy was based on a diversified portfolio of products. From the comparison table and graph it is abundantly clear that the stand-out product among Cypriot exports, and thus the driving force behind its maritime economy, was copper. Cypriot copper, exported in branded form as standard oxhide ingots, as evidenced from archaeological finds on land and seabed, was of consistently high quality and uniform composition. Available in large quantities and readily and easily transportable, this elevated Cypriot copper supplies and exports in general to a highly respected and prestigious position.
- (ii) The price of copper in the Egyptian market for most of the 18th and 19th Dynasties was twice as much compared to that in Ugarit and Hatti. Egypt was predominantly a command economy whereby trade was tightly controlled by the palace. Consequently, prices were dictated according to palace interests and directions. It appears that the high price suited the palace's economic strategy. Instead, Ugarit was a market economy and market forces could influence prices.

We know the prices of copper in international markets, i.e. at Ugarit and Egypt, but we do

<sup>410</sup> Monroe 2009:189; RS 34.153.

<sup>411</sup> *KTU 4.352=RS18.042*; Viroilleaud 1965: 117–118.

<sup>412</sup> Fappas 2013: 162.

<sup>413</sup> Knapp 2018: 106, 109; *KTU 4.102 = RS 11.857*; Monroe 2015: 32.

<sup>414</sup> Hadjisavvas 2017: 469 suggests the text of RS.11.857 refers to people from Ugarit living at Enkomi. Vita 1999: 459, on the other hand, puts forward the hypothesis that these Alashiyans were in fact prisoners of war, or persons detained for some reason.

<sup>415</sup> Cline 2014: 87–88.

<sup>416</sup> Vidal 2006: 275.

<sup>417</sup> *RS 17.130+=PRU 4:103-04*; Monroe 2015: 19–20.

Product	Quantity	Value in Ugarit shekels (Silver)
Copper in Ugarit (1550–1186 BC)	10 tons	5319 Ug.skl (50 kg silver)
Copper in Egypt 18th and 19th Dynasties	10 tons	10638 Ug.skl (100 kg silver)
Wheat in Ugarit	15,000 litres	166 Ug.skl (1.56 kg silver)
Wheat in Hatti	15,000 litres	124.5 Ug.skl (1.17 kg silver)
Barley in Hatti	15000 litres	45 Ug.skl (0.4 kg silver)
Barley in Egypt end of 19th Dynasty	15,000 litres	41.5 Ug.skl (0.39 kg silver)
Emmer in Egypt 19th Dynasty	15,000 litres	18.75 Ug.skl (0.18 kg silver)
Wine in Ugarit	15,000 litres	390 Ug.skl (3.6kg silver)
Wine in Egypt	5,000 litres	99 Ug.skl (0.9 kg silver)
Wine in Hatti	15,000 litres	195 Ug.skl (1.833 kg silver)
Olive oil in Ugarit Average price	15,000 litres	1,500 Ug.skl (14.1 kg silver)
Purple-dyed ritual garment in Ugarit	40 pieces	1,000 Ug.skl (9.4 kg silver)
Linen garments in Ugarit	250 pieces	1,000 Ug.skl (9.4 kg silver)
Purple wool in Ugarit	250 talents/7.5 tons	1,000 Ug.skl (9.4 kg silver)
Bronze basin weighing 1 talent	Ten pieces	1,000 Ug.skl (9.4 kg silver)

Table 2: Comparison table of the prevailing international prices in the Near East market during the First Economic Cycle.

not know at what prices the Cypriots exported their copper to these markets. Nor do we know the volume of Cyprus’ long-distance trade in copper to these countries, or to any other country for that matter. We do not know from which port the vessel wrecked off Uluburun, which was carrying ten tons of Cypriot copper in a westerly destination, was sailing – although

most probably it was a port in Ugarit. Thus, it is possible that Ugarit, being the busiest and most successful trading hub in the region, with trans-shipment activities both to the east and west, could have been a larger market for Cypriot copper than Egypt, in spite of the latter’s greater size. Of course, Ugarit and Egypt were not the only markets for Cypriot copper. We know from the Amarna Letters that the export institutions of the island were dispatching copper directly to Hatti and Babylon. The Cypriot copper within the Uluburun wreck, heading towards the Aegean, testifies to Cypriot exports of the metal to Greece and the West. According to a study conducted by Gale and Stos-Gale, the percentage of Cypriot copper supplied to Crete was between 16% and 29% of total imports depending on the period.<sup>418</sup> It should also be considered that the Levantine kingdoms were also among Cyprus’ direct clientele.

- (iii) Prices for grain made this a less attractive export proposition than copper. Prices in Ugarit for agricultural products in general were higher than those in Hatti and Egypt. The prices in Egypt reflected the economies of scale within a large agricultural country and the state control of prices. Trade in grain became more attractive much later, when larger ships could carry greater loads and benefit from the economy of scale.

Wine in Ugarit, on the other hand, was more rewarding. Its price could also vary depending on quality and origin. It could have been a possible export product for Cypriot merchants and producers, especially if traded on the mixed-cargo principle. That wine was a product associated with long-distance trade might also be evidenced from the Uluburun wreck; of the 150 jars on board, perhaps around half could have carried wine, although its place of origin is impossible to trace.<sup>419</sup>

- (iv) Olive oil was a very valuable product with a multitude of uses, among them as a means of exchange. It is likely that oil and oil-based aromatics were perhaps among the most successful of Cypriot export products after copper. The average price of 0.1 Ug.skl per litre of oil in Ugarit was a rather attractive price. In silver the price oscillated between 0.05 – 0.15 Ug.skl per litre,<sup>420</sup> depending on quality and demand. This might explain why the KAD elite built a large facility for surplus oil. As evidenced

<sup>418</sup> Kristiansen 2018a: 96; Gale and Stos-Gale: 2007.

<sup>419</sup> Monroe 2016: 90.

<sup>420</sup> Vita 2017: 539.

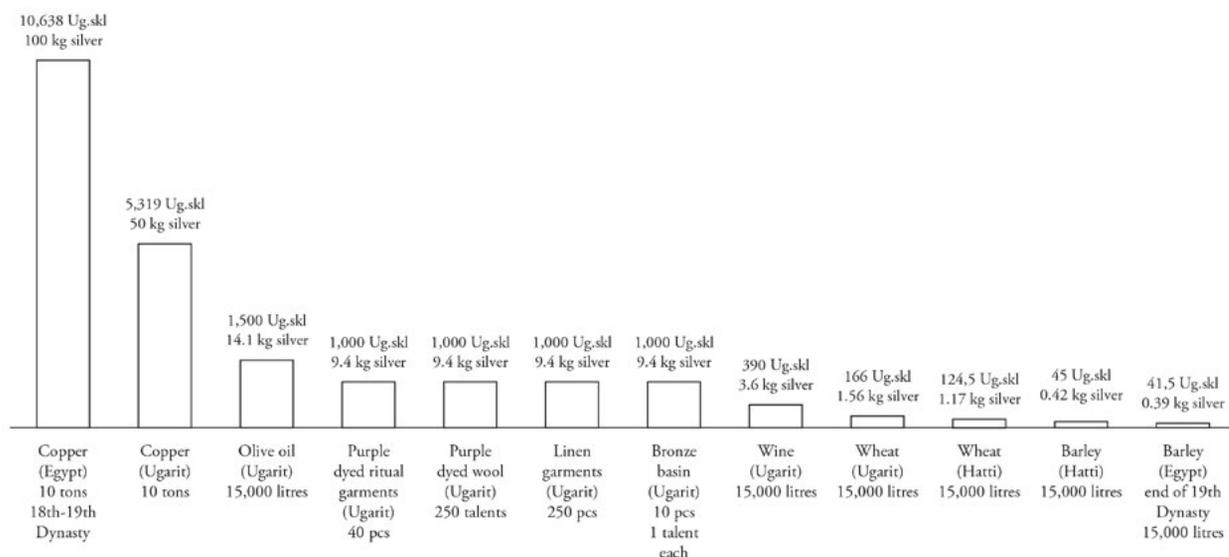


Figure 29: *International commodity prices in the First Economic Cycle* (drawing: Philipos Vasiliades).

from Cypriot pottery found in all regions of the Near East, including Egypt and Hatti, olive oil, and oil-based aromatics and other perfumes, might have been welcomed and additional items offered within the range of Cyprus' diversified product portfolio.

- (v) Purple-dyed textiles, although not yet entirely evidenced, could potentially have been another successful Cypriot export product. The most attractive prices were those realised for ritual purple-dyed garments; the amounts guaranteed by Hittite Law 182 must have widened the eyes of the island's textile producers. Linen garments and purple wool were handsomely priced as well: a consignment of purple-dyed wool of 15 tons on a ship of the Uluburun capacity could sell in Ugarit for almost 20 kg in silver, 40% of the corresponding value of the consignment in copper on the Uluburun wreck, and 30% above what a similar consignment of olive oil was worth on the Ugaritic market.
- (vi) Table 2 and Figure 29 also help to explain how important copper was to the maritime economy, especially when exported in finished products, for example the bronze basin weighing one talent, where selling prices were sometimes up to seven times more than the cost of the raw materials.
- (vii) Also important to the maritime economy was the production and export of Cypriot pottery, as well as the re-export and distribution of Aegean pottery. These were added-value products traded at the private entrepreneurial and marine intermediary level.

(viii) Summarising, the maritime economy of Cyprus, which was the driving force of its export business, was strong and sustainable. Apart from its principle product, copper, it had a diversified portfolio of natural resources, agricultural goods, and high added-value finished products, all based on domestic raw materials – copper, olive oil, textiles, pottery.<sup>421</sup> In a nutshell, it was based on a very low centre of gravity economic model: to go wrong, a combination of multiple and exogenous parameters would have to go wrong. The success of Cyprus' long-distance trade and maritime activities can be attributed to the alignment of its institutions with the state and private players involved in its maritime economy.

The Cypriot maritime economy, by product grouping, can be split into three components: (1) the raw material component, primarily copper and timber, is by far the biggest in tonnage and value; (2) the second component is the finished products, comprising mainly bronze manufactured products and artifacts, as well as pottery and, potentially, textiles; (3) the third component is the agricultural products, mainly olive oil and oil-based aromatics, the latter could have been very highly priced in relation to their weight and volume.

Thus, the key to the success of Cyprus' long-distance trade was an 'aggressively open economy'<sup>422</sup> based on a diverse export portfolio and on its institutions.

<sup>421</sup> For a useful discussion on diversification and growth of added-value production applicable to Cyprus during the LBA, refer to Sherratt 1998: 294.

<sup>422</sup> Sherratt 1998: 301.

## CONCLUSION

Cyprus during the First Economic Cycle underwent an unprecedented period of economic intensification and social development. The progress of its maritime economy accelerated in such a way as to give the island a prominent place among the countries of the region. The successful interaction and participation in international diplomacy and the maritime exchange network made Cyprus a leading member of the common maritime and mercantile zone in the Eastern Mediterranean region.

The secret of its success was based on two platforms – its institutions and its diversified export portfolio, headed by its exports of copper. The state institutions provided rules, structure, and the motivation not only in terms of their own operations, but also to the elite entrepreneurial establishments and mariner trade, which was operated by the small-scale merchants, intermediaries, and transporters who proved so vital to the successful continuity of the island's maritime economy: they managed 'internationalisation' and regulated and facilitated long-distance trade. Trading was not restricted to luxury items but was extended to basic consumer goods. Institutional development initiated growth, as is evident from the population increase, technological advancements, and the innovations that resulted in increased urbanism and living standards. The organisations that ran the urban settlements, by aligning themselves with institutional directives, managed to benefit and expand further their social development.

The island's successful long-distance trade thrived on a diversified export portfolio. Its leading product, copper, was complemented by a range of other products – timber, olive oil, ceramics, finished bronze products, and, potentially, wine and textiles. Clearly, Cyprus during the LBA had a sustainable economic model that helped it survive the turmoil and volatility of the first

decades of the Second Economic Cycle. As far as copper and bronze products were concerned, as long as the process and technology of production was mastered, and the distribution and transportation means were in place, their marketing and long-distance trade was not a big issue. These were suppliers' market-type products, and there was a limited number of suppliers in a region in which they were so much in demand. It was like an oligopoly. For the other products – wheat, olive oil, wine, textiles – it might well have been a different story. Apart from Cyprus' arid environment and plausible lean years for agricultural production, the other regions in the Near East had their own long tradition and production. Egypt, for example, had its own massive capacity for agricultural products and a long tradition in textiles; Ugarit and the Levant had the same for wine. For the maritime economy of Cyprus, and its traders, to be successful across their entire diversified portfolio of export products, and also in their activities related to the import of commodities and luxury products, they would have had to develop sophisticated marketing and exchange techniques and establish trusted, long-standing, and reliable trading channels, and the associated nexus of communications and contacts.

There is no reliable information on which to base a credible estimate of the size of the maritime economy of Cyprus in the LBA; we cannot even use data derived from the economies of neighbouring countries to provide a rough comparison. For illustrative purposes only there are the relevant Ugaritic texts,<sup>423</sup> revealing that the kingdom of Ugarit paid to the king of Hatti, Tudhaliya IV, 50 mina in gold as an annual tribute. This translates to 200 mina (50 x 4) in silver, or 91.2 kg (200 x 0.456) in silver. Considering this was a small percentage of its economy, then the only deduction from this is the order of magnitude of the wealth of the busy trading *emporion* in the common mercantile and maritime zone of which Cyprus was an active member.

<sup>423</sup> Beckman 1996: no. 37; Monroe 2010: 27; PRU 4: 150–151; RS 17.059.

## Chapter 3

# Part II: The Second Economic Cycle: The Maritime Economy of Ancient Cyprus During Political Volatility, Economic Growth and Transformation (1200–525 BC)

### INTRODUCTION

The Second Economic Cycle starts with the period immediately after 1200 BC, when the stable political and financial international system of the LBA started collapsing, until 525 BC, when Cyprus came under the control and influence of the Persian Empire.<sup>1</sup>

The Second Economic Cycle is characterised by an initial period of turmoil, economic volatility and downturn caused by the collapse of the strong and territorially centrally controlled states. The year 1200 BC is considered as the beginning of the Second Economic Cycle because it can be considered to represent the approximate average time of the end of an era, both for the Eastern Mediterranean world and Cyprus. It is the time when the collapse of the international order and the international economic volatility and uncertainty accelerated an irreversible process of change, both on the economic and socio-political fronts. The Mycenaean world was in retreat from 1250 BC; Hattusha and the entire Hittite Empire, after a period of volatility, collapsed c. 1190–1180 BC; Egypt had the two unsettling encounters with the ‘Sea Peoples’ in 1207 BC and 1177 BC; and Ugarit, Cyprus’ closest trade partner, after decades of uncertainty, was destroyed between 1190–1185 BC. Therefore c. 1200 BC can be considered as the weighted average year that international events caught up with the island and change started to have its effect not only on economic but on socio-political matters.

The year 525 BC is considered as the end of the Second Economic Cycle because it represents the beginning of a new era for the island. This is the year Cyprus came, for the first time in its history, under the direct influence and custody of one master – the Persian Empire. This had a profound influence on Cyprus’ fiscal matters and the independence of its maritime economy. It is also about this time that Cyprus entered a new monetary world system with the issue of coinage. This created a numismatic culture and an important new institution that served as a stabilising pillar and as a springboard for further growth of the island’s maritime economy.

In the Second Economic Cycle we examine how the Cypriot institutions and political system, as well as its

maritime economy, were affected by the disappearance of the highly centralised institutional states and palatial system that characterised the LBA global economy. At the same time the Cypriot maritime economy is examined to see how it adapted to deal with new economic, social and political concepts, new markets, trade patterns and trading partners, as well as new competing regional states, new trade networks, new products, innovations, and practices. A reconstruction is attempted of Cyprus’ commercial and maritime activities and involvement in the Phoenician trade expansion in the West, its own expansion in the Aegean, in Egypt and the Levant, as well as how the rise of the Assyrian Empire accelerated the territorialisation of its city-states and influenced its mercantile and maritime activities and geopolitical position in the Eastern Mediterranean. At the end of the Second Economic Cycle, Cyprus was among the first to monetise its economic activities by the issue and use of coinage. We will try to define the positive contribution of the introduction of Cypriot currency to its economy.

In the same way New Institutional Economics (NIE) were used to explain how the island’s institutions played a pivotal role in its history and maritime economy during the First Economic Cycle between 1450–1200 BC, NIE analysis is again employed to track the transformation, evolution and continuity of these institutions during the Second Economic Cycle, from 1200–525 BC. By tracking the continuity and transformation of the institutional systems that provided the new rules and structure to the island’s society we can reconstruct Cyprus’ history and maritime economy for the period under consideration.

Before embarking on the reconstruction of Cyprus’ new economic and socio-political landscape – by following the 12th-century BC international crisis, which, among other things, witnessed Mycenaean Greeks (c. the 12th and 11th centuries BC), Canaanite Phoenicians, and other Levantine economic migrants (c. the 9th and 8th centuries BC, perhaps even earlier) to the island, which changed Cyprus’ demographic composition and broadened its world – it will be useful to try and understand the crisis itself. What were its causes and who and what caused the collapse of the stable institutional system and the destruction of the LBA cities and kingdoms of the Eastern Mediterranean? Scholars specialising in this field put the blame

<sup>1</sup> Briant 2002:48; Stylianou 1992: 413; Watkin 1987.

on a variety of causes.<sup>2</sup> One such could have been earthquakes. According to recent research, Greece and the Aegean, as well as the Eastern Mediterranean, were struck by a series of earthquakes beginning c. 1225 BC and lasting until 1175 BC. It is highly unlikely, however, that earthquakes alone caused the collapse of long-established dominant kingdoms and their societies. Another contributor could have been climate change – drought and famine, as well as illnesses and pandemics.<sup>3</sup> Various theories and proposals have been put forward whose detailed examination is outside the scope of this work. However, although climate change and its effects could have produced social tensions and clashes due to the struggles for access to limited resources, they cannot be the sole reason for the end of the LBA system.

Another proposal put forward is social unrest and internal revolutions. The disruption of international trade and reduced access to raw materials and other sources of income had widened the gap between the privileged ruling elites and the classes of ordinary men and women. This could have caused unrest and dissatisfaction that perhaps initiated internal rebellion and attacks against the ruling classes. This is a plausible, but it is only an unproven hypothesis that, on its own, cannot account for the unprecedented collapse of the LBA. The most frequently mentioned cause, supported by numerous inscriptions and documents, is the arrival of the ‘Sea Peoples’ and other maritime invaders who attacked by sea and land the wealthy city-states of the Aegean and Eastern Mediterranean. These sea marauders became an easy scapegoat for the failure of the societies and economies of Eastern Mediterranean. They are held accountable not only for the disruption of international trade routes that obstructed the normal process of long-distance trade and brought economic instability, but also for the physical destruction of wealthy trading hubs of the likes of Ugarit and other major centres. From a more careful scrutiny of the evidence the validity of these claims must be treated with caution. Ugarit was never reoccupied after its destruction, which was caused by physical devastation from invading enemy forces, but most importantly due to the collapse of the international trade that was the lifeblood of the city’s booming economy.

We thus have to consider that there is currently no scholarly consensus as to the cause or causes of the collapse of these multiple interconnected societies.<sup>4</sup> It is plausible that the destruction was brought about by a combination of causes, yet without doubt it was not a sudden phenomenon but the result of a long process which resulted in change

and transformation and institutional failure. Using NIE, one can examine this long process, which eventually resulted in the collapse of the dominant and established institutions of the LBA. During this process of change and transformation the ability of established institutions to maintain rules, reduce uncertainty and provide orderly structures to everyday life, and solutions to problems, was seriously curtailed. They were unable to prevent the collapse of the vital trading routes and commercial structures. The established institutions were looked on to provide the infrastructure and laws, thus maximising the wealth of elite groups and society alike. However, outside players entered the game, and the established and dominant institutions were no longer the dominant players: they lost the important attribute of being able to function as benefactors to the elite and organisations within their society. Their usefulness was compromised and their existence challenged; they could not guarantee satisfactory economic performance – the prerequisite for institutions to remain in place; their reproduction process was either halted or changed, since they could neither handle the endogenous pressures and transformations that affected internal socio-political equilibrium, nor could they successfully confront external threats to the source of income, prosperity, and the physical existence of their cities. Thus, the dominant regional central states collapsed or lost their power. The task to create the essential preconditions for economic growth was gradually transferred and delegated to the smaller city-states that replaced the failed, established order.

#### THE INTERNATIONAL HISTORICAL BACKGROUND

As we did for the First Economic Cycle, before proceeding with the main narrative a summary of the international scene and historical background, as well as Cyprus’s position and role within it, will be useful. The writing of the historical background of the Second Economic Cycle, especially in its first centuries, is handicapped by the scarcity of information. The available information for this period, from 1200–900 BC, is limited to reports from Egypt. They are the most detailed available, but always, understandably, looking at things from a biased Egyptian point of view. Assyrian textual records between 1050–935 BC are rare, but suffice to open a small window into the history of the period. From 900 BC onwards they became more readily available, in the form of Royal Annals and inscriptions, and prove to be a valuable source of information, although they must be treated with care to differentiate between facts and propaganda. The Bible is a useful source of information, but its bias and religious character need to be taken into account. For the last part of the period, reports from Greek historians start to shed some light on the course of events. In many instances, and for long periods, for the majority of cases we have to rely on archaeology as the only reliable source of information.

<sup>2</sup> Bachhuber and Roberts 2009; Cline 2014: 139–170; Fisher and Burge 2017; Killebrew and Lehmann 2013; Knapp and Manning 2016; Ward and Joukowski 1992.

<sup>3</sup> The Covid-19 pandemic that caused widespread economic volatility and health systems collapse from 2020 can be such an example.

<sup>4</sup> Cline 2014: 140.

## The collapse of the LBA international system

### *Egypt*

At the start of the Second Economic Cycle, Egypt was dominated by the 20th Dynasty (1186–1069 BC). Among the dynasty's best-known kings was Ramesses III (1186–1156 BC), who ruled Egypt for thirty years: he described, from an Egyptian-biased point of view, what happened in the Eastern Mediterranean in the 12th century BC. In his narrative and pictorial account, he claimed an enemy from the sea, known as the 'Sea Peoples', invaded Egypt, and, on or about 1177 BC, the invaders were defeated by the Egyptian army, both on land and sea. Although the interpretation of the data is still debated among historians, what is clear is that Egypt lost its dominant position in the region, and after the assassination of Ramses III the true glory of the Egyptian New Kingdom came to an end, and although Egypt still remained a powerful territorial state it was only a shadow of the strong central regional power of the First Economic Cycle.

### *The Hittite Kingdom*

There is general consensus among scholars that the Hittite capital, Hattusha, was destroyed c. 1190–1180 BC. Massive immigration from the West and the Sea Peoples, have been traditionally blamed for the destruction that brought down the entire Hittite kingdom. A more credible suggestion, however, as to who might have destroyed Hattusha is the old enemy of the Hittites from the northeast, the Kashka, who contributed to the downfall of the Hittite Kingdom after it was weakened by famine, drought, and, most importantly, the interruption of the international trading routes. All these are still unsubstantiated theories. Nevertheless, what is certain from recent archaeological evidence is that Hattusha, the prestigious capital of the Hittite Kingdom, was destroyed by fire after being abandoned for some time. The entire Hittite empire, with its complicated managerial system of vassal states, disintegrated during this period into smaller principalities, e.g. Carchemish.

### *Northern Syria*

In northern Syria, Ugarit was destroyed, apparently quite violently, most probably by the Sea Peoples, during the reign of its last king, Ammurapi, most likely between 1190–1185 BC. Likewise, Emar and Alalakh were destroyed by unidentified enemy hordes at approximately the same time, 1185 BC. In spite of this, the textual evidence from the various archives at Ugarit suggest that international trade was still strong in the city up until the end.<sup>5</sup> This might be true, but

it does not mean that the state institutions were able to discharge properly their obligations, or functioned efficiently and provided security both to the city and its trading society. Already the city's army and navy were forced to join the protection of Hatti and its territory. The appearance of the enemy from the sea was not an overnight occurrence, and evidently no lasting and satisfactory solution was provided. It is even suggested by the correspondence with the Alashiyan governor that some of these sea marauders were renegades from Ugarit itself.<sup>6</sup> As suggested by many scholars,<sup>7</sup> and a view supported by the present author, the overdependence on long-distance trade was a major contributor to economic instability. The state institutions were unable to give solutions to the overheating of the economy. Thus, the trading routes were not disrupted overnight: it was a gradual and recurring process that caused volatility and uncertainty, for which the dominant institutions could not provide a satisfactory and lasting solution. Most certainly Ugarit paid a heavy price for the collapse of LBA globalisation.

### *Greece*

Similarly, on the Greek mainland there was 'an extended period of unrest which afflicted the Mycenaean world from the mid-thirteenth century onwards'.<sup>8</sup> In Mycenae, the citadel lost its political and economic significance. The major destruction of c. 1250 BC, caused probably by an earthquake, followed by a second destruction of yet unknown reasons, brought the city to its knees. As Iakovidis writes, 'The complex centralized system which it housed and represented had broken down, the authority which had created it could maintain no longer and a general decline set in, during which the site fell slowly and gradually into ruin'.<sup>9</sup> In other words, the dominant state institutions were no longer the main players. One of their most prominent developments, which served the bureaucratic mechanisms, Linear B script, became extinct.<sup>10</sup> The failing institutions could not provide stability and reduce uncertainty, and thus their usefulness ceased to exist. Pylos was also destroyed at around the same time by fire; its cause is unknown, but, like Mycenae, the city's power and glory were permanently lost.

### *Canaan and the southern Levantine coast*

During most of the First Economic Cycle the Canaanite cities of Sidon, Byblos, Tyros, Arwad, Sarepta, among

collapsed and the Turkish army was preparing to invade and occupy the northern part of the island, the economic and commercial communities were still going about their business as if everything were normal.

<sup>5</sup> RS 20.18.

<sup>6</sup> Cline 2014: 150, n. 48; Monroe 2009.

<sup>7</sup> Cline 2014: 128; n. 97; Deger and Jalkotzy 2008: 387; Rutter 1992: 70.

<sup>8</sup> Iakovidis 1986: 260; Cline 2014: 131, n. 108.

<sup>9</sup> Georgiou 2015: 129.

<sup>5</sup> This is not unusual. The same happened in modern Cyprus before the Turkish invasion in 1974. Although the state institutional systems

others, and the cities of the southern Levant were under strong Egyptian influence. The collapse of the international order during the transition period between the First and Second Economic Cycles, signalled the end of Egyptian hegemony and brought political and social changes to the region, rather than a general break. This gave a breathing space to the Canaanite city-states, which resulted in their continuity and independence, as well as a general reorganisation of the old region of Canaan, known from then on as *Phoinike* – Phoenicia. The Phoenician city-states were politically independent of each other, each pursuing its own commercial interests. The archaeological evidence, from cities such as Tyros and Sarepta, has not revealed any destruction levels, but rather a continuation during the transition period between the First and Second Economic Cycle.

The declining political domination of Egypt in Phoenicia at that time is real, and this is very clearly portrayed in Wen Ammon's account which was referred to in the previous chapter and will be looked in more detail later in this chapter. In spite of substantial piratic presence, i.e. the Tjeker pirates at Dor, all the evidence suggests that the independent city-states on the coast dominated the political scene in Phoenicia at the beginning of the Second Economic Cycle. Sidon, and especially Byblos, were the most important political and commercial centres during the 12th and 11th centuries BC. Byblos' pre-eminence among the Phoenician city-states is indicated by Wen Amon (c. 1070 BC) and the annals of the Assyrian King Tiglath-Pileser I (1114–1076 BC). This situation changed from the accession to the throne of Tyros of Hiram I (969–936 BC). From the beginning of the 1st millennium BC, Tyros occupied a leading position in Phoenician history. With Hiram I, Tyros' golden age began, and the city became for a long time one of the most important ports in the Mediterranean. A priest of Astarte, Ethbaal (or Ithobal), who ascended the throne of Tyros in 887 BC developed the city into a prime political and commercial centre. This is evident from the Assyrian annals and inscriptions, which from this time onwards praise the city's power and wealth.

Although recent studies have revealed that the influence of the Sea Peoples is exaggerated, when it comes to explaining the changes during this period it is traditionally accepted that they took possession of southern Canaan, on the southern Levantine coast. They are thus considered to have established new settlements at cities such as Ashkelon, Ashdod,<sup>11</sup> Gaza, and Ekron. The region is renamed Philistia-Palestine, after the Philistines, one of the strongest invading tribes.

## Cyprus

In Cyprus, as in Phoenicia, during the institutional failure and collapse of the international order at the transition period between the First and Second Economic Cycles, there is no evidence to date of widespread destruction and a complete institutional failure, as befell Greece, Hatti, and Ugarit. The central institution that ran the island's economy and international affairs, and controlled the long-distance bulk trade of its leading export commodity, copper, had already gradually delegated part of the exchange activities and local administration to the coastal urban centres and entrepreneurial organisations, as well as to elite trading families. This might be the reason why Cypriot entrepreneurs adapted much better, compared to other regions, to the different conditions of the Second Economic Cycle. Furthermore, copper, the island's major source of income, and which was still in high demand locally and overseas, was locally available in large quantities. From the evidence, recycling of scrap bronze was also used as an interim solution. All the Cypriots needed was to keep their production capacity going: they had to satisfy local demand and produce enough surplus to satisfy overseas demand, retain a minimum market share, and create sufficient new markets, new products, new partners and activities, and locate new sources of key raw materials to help them ride out the first decades of the crisis.

This is how the Cypriots, either on their own or by teaming up with the Phoenicians, expanded their trade in the Levant and the West during the first centuries of the Second Economic Cycle. According to the new evidence, the Cypriots had a prominent share in the Phoenician expansion to Iberia and Huelva, something that is now accepted to have occurred as early as the 11th, or even the 12th century BC.<sup>12</sup> There are scholars who now believe that the 11th-century BC foreign presence at the Ria de Huelva site looks more Cypriot than Phoenician.<sup>13</sup> All these activities, including the Cypriot presence in Sardinia in 1000 BC, which are clearly connected with copper, tin, silver, and iron metallurgy were not an ad hoc and disorganised drive, but a well-orchestrated and methodical expansion.<sup>14</sup> In Sardinia, in particular, the discovery of three whole copper talents and scattered pieces of copper talents found at 35 sites around the island, traced to Apliki in Cyprus, point to a Cypriot presence that must have influenced the development of metallurgy in Sardinia.<sup>15</sup> The close bidirectional relations between Cyprus and Phoenicia in the early centuries of the Second Economic Cycle are also attested at Palaepaphos in the mid 10th century BC, at Kition and Amathus in the 10th and 11th

<sup>11</sup> Bell 2006: 4–6; Wood *et al.* 2020: 1.

<sup>12</sup> Monroe 2018: 195–217.

<sup>13</sup> Torres Ortiz 2008: 157.

<sup>14</sup> Aubet 2008: 248, 249.

<sup>15</sup> Kassianidou 2017: 127.

centuries, as well as a considerable Cypriot presence at Dor as early as the 12th and 11th centuries BC.

### The Assyrian Empire

The Assyrian Kingdom, which does not appear to have been seriously affected by the collapse of the palatial system and the breakdown of international trade, consolidated its position in the Near Eastern region during the reign of Tukulti-ninurta I (1244–1208 BC). During his reign Assyria extended its rule into Anatolia and Syria, and put Babylon under their control. Tukulti-ninurta restored the palace in Assur and built a new capital city. After his assassination, Assyria declined and during this period the Babylonian kingdom was invaded by the Elamites in 1158 BC, who brought down the Kassite domination of southern Mesopotamia. Assyria came out of its decline with the reign of Tiglath-Pileser I (1114–1076 BC), who successfully reorganised Assyria's military power and once again began Assyrian military expansion into the surrounding regions.<sup>16</sup> His death caused considerable dynastic confusion and a period of instability and disorder. Changes in

the political geography of the region meant that the Assyrian kingdom lost many of its former holdings, but the central administration held onto its power, and its capital Assur continued to be the centre of religion and ideology.

With the ascendancy to the Assyrian throne of Assurnasirpal II (883–859 BC) and Shalmaneser III (858–824 BC), the Assyrians regained their power and prestige, recapturing their lost territories. Although Assyria's domination remained under challenge by the regional powers, i.e. Urartu in northern Syria, a new era started in the Near East with the rise of the Neo-Assyrian Empire from the 9th century BC onwards. The development of the Neo-Assyrian Empire was accomplished by a series of powerful rulers who led their armies on campaigns almost every year. Shalmaneser III (858–824 BC) extended Assyria's realm from the Euphrates in the west as far the Taurus Mountains in the north. It is generally accepted that from the reign of one of his successors, Tiglath-Pileser III (744–727 BC), the Neo-Assyrian Empire reached its most important and expansive phase, which lasted until its demise in



Figure 30: *The Neo-Assyrian Empire in 700 BC* (drawing: Philipos Vasiliades).

<sup>16</sup> The Assyrian kings who reigned during the expansive phase of the Neo-Assyrian Empire were Tiglath-Pileser III (744–727 BC), Shalmaneser V (726–722 BC), Sargon II (721–705 BC), Sennacherib (704–681 BC), Esarhaddon (680–669 BC), and Ashurbanipal (668–627 BC).

612 BC (Figure 30). During this period, the Assyrians built a unified empire based on military supremacy and a strong army led by powerful rulers who campaigned almost on an annual basis. The Neo-Assyrian Empire conquered Egypt, the Levant, and the coastal areas of Kilikia, ruling as far as the Zagros Mountains in the East and far into Anatolia; they conquered Elam and Babylonia, reaching as far as the Arabian desert and Dilmun (Bahrain) in the Gulf. After almost 200 years of absolute military and economic domination, the Neo-Assyrian Empire collapsed suddenly, due to dynastic disorder, and ceased to exist: its capital, Nineveh, was destroyed in 612 BC by the Medes and the Babylonians.

### The Neo-Assyrian Empire and Cyprus

Cyprus, for the first time in its history, was forced to deal with an utterly dominant and powerful colonial power with unparalleled military might – the Neo-Assyrian Empire. Cyprus was fortunate to be an island lying at a considerable distance from the Levantine coast, and thus protected to a degree – as long as the Assyrians did not acquire enough naval assets to threaten it and annex its city-states, as they did along the Levant. During all three economic cycles, Cyprus was, to a certain degree, at the periphery of the different dominant powers/empires of the region at any given time. The island, therefore, was subject to the process or concept today described as a ‘negotiated peripherality’,<sup>17</sup> i.e. its location granted the island the privileged position of being able to negotiate preferential conditions for its incorporation within the organisation of the region’s controlling power in any given period. For the Second Economic Cycle, we will try and track how the island managed to negotiate its association in the Assyrian Empire and its relations with the Assyrian leadership. In the process we will also try to address its political organisation through the following important Assyrian sources:

- The Assyrian Royal Annals that describe the only reported Assyrian military intervention in Cyprus which took place in 709 BC.
- The Sargon II Stele, erected at Kition in 707 BC, following the submission of seven Cypriot kings (*sarru*) to Sargon II in Babylon the year before.
- The Esarhaddon Prism, dated 673 BC, attesting the participation by ten Cypriot city-states in the construction of the arsenal building at his new royal palace in Nineveh.
- The Ashurbanipal Inscription commemorating the participation of the same ten Cypriot

city-states, with their fleets and army, in his campaign against the Egyptians in 667 BC.

#### *The Assyrian Royal Annals and the Assyrian military intervention in Cyprus c. 709 BC*

In the span of 230 years, the Assyrian kings and their armies invaded the Levant 67 times.<sup>18</sup> The first recorded campaign was undertaken by Ashurnasirpal (876–869 BC), and the last by Ashurbanipal in 645 BC. As a consequence, the geopolitical landscape of the Levant, including northern Syria, changed dramatically. Gradually, over 75 years (740–664 BC), the Assyrians removed political independence from more than 20 Syro-Palestinian states, annexing them and turning them into provinces: the rest were reduced to puppet or vassal states.

However, Cyprus did not follow the same fate – without Assyrian naval power, its conquest was impossible. The Assyrians did not occupy Cyprus militarily, nor did they annex it to their provincial network; according to the evidence they kept no permanent military presence on the island, obliging instead the Cypriot kings to pay them obligatory tribute – *mandattu*.<sup>19</sup> This information comes from an inscription in the Assyrian Royal Annals by Sargon II, found in his palace at Khorsabad.<sup>20</sup> The Assyrians, who called Cyprus ‘*the land of Ia’a, a district of the land of Iadnana*’ (also written *Yadnana* or *Adnana*),<sup>21</sup> according to the Royal Annals, intervened in Cyprus in 709 BC to claim *mandattu* from the Cypriot kings.<sup>22</sup> This is also attested in two separate Royal Annals inscriptions found in Halls II and V in Sargon’s Khorsabad palace in 1849 by P.E Botha, the French ambassador in Mosul. They seem to give in detail, and from first-hand experience, a most thorough account of the event. The Royal Annals, written most probably at the same time as the Sargon Stele, mention the seven kings in Cyprus who sent their ambassadors and submitted to Sargon in Babylon:

*Shilta [of] Tyre [t]o Assyr[ia]. [And] seven kings of the [land] of Ia’, a district [of the land of Adnana], who are situated a seven-days’ journey in the middle of the western sea, [and whose abodes are dista]nt, who since old days to his [...] together stopped the[ir presents and] withhold [their tributes. And Shilt]a brought his heavy tribute, and to suppress the ho[st of ...] he applied to me [for military aid]. I sent my officer, who is fearless in battle, with my royal guard, to avenge him, [and... they] crossed. When they saw the strong troops of Ashur, at the mention of*

<sup>18</sup> Berlejung 2012: 22.

<sup>19</sup> Olmstead 1931: 64–65.

<sup>20</sup> Winckler 1899: 64–65, n. 9, lines 383–385; for analysis and comments, see Parpas 2018: 250.

<sup>21</sup> Iacovou 2013b: 806; Muhly 2009: 23–28; Parpas 2018: 156; Radner 2010: 436.

<sup>22</sup> Iacovou 2013b: 806; Na’aman 2005: 121–123; Parpas 2018: 217–228.

<sup>17</sup> Kardulias 2007: 55–56.

*my name they became afraid and their arms collapsed. They brought to Babylon, into my presence, gold, silver, ut[ensils and ebony and boxwood the manufacture] of their land, and [to...] I entrusted [them].*<sup>23</sup>

*Mandattu*, the obligatory tribute mentioned in the text of the Annals, was usually demanded when an opponent was subjected to war or threatened by war and capitulates.<sup>24</sup> It is narrowly defined as mandatory and paid on a regular basis. The Assyrians in their intervention used the services of the Tyrian navy. The Cypriots had no choice but to surrender, ‘their arms collapsed’, and pledge allegiance to the Assyrian king and recognise and declare their subordination. They surrendered willingly to Sargon II, but there was nothing voluntary in their submission that followed the next year in Babylon. The Assyrian intervention in Cyprus had a second important aspect: it was part of their strategic plan to regulate maritime trade and pacify once and for all the entire sea triangle between the Levantine coast, Cyprus, and Kilikia.<sup>25</sup>

The Cypriots were wise, they knew they had no other choice but to join the Assyro-centric economic and trade system, otherwise their trade would be embargoed and they would be excluded from the lucrative Assyrian world trade network. The time of wheeling and dealing was over; now was the time for discipline and alignment of their maritime and mercantile activities according to Assyrian interests.

Cypriot history with the Neo Assyrians is like a contemporary ice-skating programme, in two parts, free-style and compulsory. Before the domination of the Neo-Assyrian Empire we had the free-style element. The moment Cyprus entered the Neo-Assyrian Empire the compulsory element began. What is important to understand, however, is that they did equally well in both parts, if not even better in the compulsory, when they danced with such a powerful dancing partner, the Neo-Assyrians. As they say, it takes two to tango. The Assyrians chose not impose any real change on the rules of the game dictated by the Cypriot institutions, and thus there was no need for any change of the strategy in terms of the Cypriot maritime economy, but only a temporary redirection of its tactical approach. Thus, the present author prefers not to consider the Neo-Assyrian period as a separate economic cycle, unlike the Persian domination, with its regulated tribute system and dominant military presence – something that fundamentally changed the rules of the game in the Third Economic Cycle.

<sup>23</sup> Botta 1972: IV t.91; Na’aman 2005; Olmstead 1931; Parpas 2018: 218; Winckler 1899: Pl. 12, no. 26, Saal II and V.

<sup>24</sup> Merrill and Overholt: 1997 86, n. 59; Parpas 2018: 246–249.

<sup>25</sup> Parpas 2018: 241.

*The Sargon II stele erected at Kition in 707 BC*

Because of the imposing Assyrian military presence in the area, and the regulations imposed by the Assyrians on the world economy, as well as their military intervention in 709 BC on the island, seven Cypriot city-states sent their ambassadors to Babylon, with gifts and tribute, to declare their allegiance and submission to Sargon II.<sup>26</sup> The Cypriot states retained the status of client city-states, i.e. a kind of vassal city-state status.

This was commemorated on a stele erected by Sargon II in Cyprus in 707 BC and found in Larnaca on the Bamboula Hill<sup>27</sup> within the city of ancient Kition, in 1845. The Sargon II Stele found at Kition is the only Assyrian monument found on the island; it is also known as the westernmost Assyrian inscription written in Akkadian. It is one of the thirteen known Sargon II stelae or monuments that have been found outside the Assyrian heartland. As we can see in Figure 31, these monuments were erected at the outside periphery of the Assyrian Empire. Their purpose, as can be seen from the map, was to demarcate the outside boundaries of the empire. There were two arcs on which the stelae were situated: the western, where ten, including the one in Cyprus, are located; and the eastern, where three have been found to date. As mentioned, the Cyprus stele represents westernmost, while the one found in Najafehabad is the furthest east. They are both similar in appearance with similar texts: obviously they were intended for a similar purpose (Figure 32).

All Sargon stelae had similar texts and were used to promote important Assyrian ideology, to disseminate Assyrian propaganda, and claim suzerainty over the regions on which they were erected. They were placed to record tributary relationships, and, like the Cypriot stele, to commemorate tribute received. From the writing style of the Sargon stele in Cyprus we can determine it was not intended to provoke or cause fear, most probably it was to mark a formal agreement, alliance, friendship, or even a form of ‘non-aggression’ pact reached between the Assyrian king and the kings, *sarru*, of the seven Cypriot city-states. It seems certain it was used to confirm Cyprus’ official membership within the Assyrian trading organisation and network.

This, together with the Royal Annals in Sargon’s Khorsabad palace, confirms, for the first time, the existence of the seven city-states in Cyprus recognised by a dominant world power.<sup>28</sup> Their profitable association with Assyria did not generate ‘their formative period of state formation’ as this was already a done deal, but ‘their consolidation into fewer and stronger ones’.<sup>29</sup>

<sup>26</sup> Parpas 2018: 228–245.

<sup>27</sup> Cannavo 2007: 179, n. 3; Yon 1995.

<sup>28</sup> Iacovou 2002: 83–84.

<sup>29</sup> Iacovou 2008: 259–260.

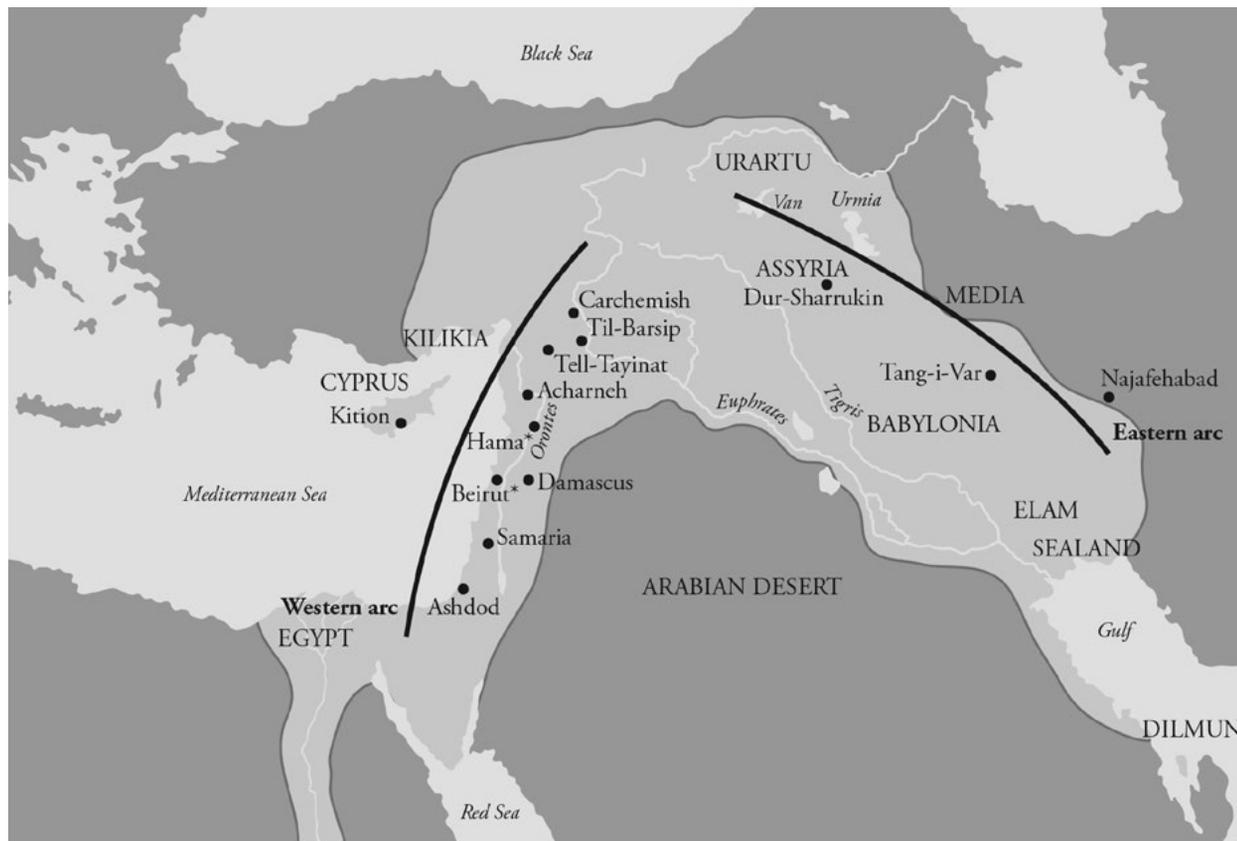


Figure 31: Map of the sites where monuments and steles of Sargon II have been found outside the Assyrian heartland. The western arc, which includes the Cyprus stele, demarcates Assyria's western boundaries; the eastern one, including the Najafehabad stele, shows Assyria's eastern periphery (drawing: Philipos Vasiliades).



Figure 32: Left: The stele of Sargon II from Kition (707 BC). The large stele (height 2.09 m) was discovered on the Bamboula Hill in Larnaca in 1844. It was purchased by the Berlin Museum in 1846 and has been part of its permanent exhibition ever since. A replica is on display in the Larnaca Museum (courtesy Department of Antiquities, Cyprus). Right: Front of Sargon's Najafehabad stele (716 BC). 1.65 m in height, it is displayed in the National Museum of Tehran, Iran (photo: the author; courtesy National Museum of Tehran).

The number seven cannot be taken strictly at face, as since number seven in Assyria and the Near East had a mystical and sacred meaning. It is significant that on the same stele King Uperi of Dilmun (Bahrain) is commemorated to have submitted to Sargon in Babylon at the same time as the seven Cypriot city-states. Cyprus is mentioned as the land 'in the midst of the Sea of the Setting Sun' and Dilmun 'in the midst of the Sea in the Rising Sun'. This was intended to mark the two most extreme outposts of the empire situated in the sea. The stele announced the start of the Assyrian sea-domination era and Assyria's claim to become a dominant sea power. Another common denominator for Cyprus and Dilmun was copper. Cyprus was still a world-class exporter of copper, while Dilmun was still the prime trading hub of the metal from Oman to Mesopotamia. We should not forget that Dilmun, for the Sumerians, was associated with the supply of copper. Copper imports from the Gulf were called Dilmun copper, a tradition that continued into Sargon's time. Thus, in Babylon in 708 BC both Cyprus and Dilmun realised how important both were to Assyria's strategic planning and trade. The types of gifts and tribute sent to Sargon in Babylon, in the form of gold, silver, ebony furniture and boxwood, as well as finished products, most probably silver bowls, are indications of the kinds of thriving trade going on already between Assyria and Cyprus.

*The 'Esarhaddon Prism', dated 673 BC*

When Esarhaddon erected the arsenal building at his new royal palace in Nineveh in 673 BC, ten Cypriot city-states with their eponymous kings are reported to have contributed building materials and labour, together with twelve other city-states on the Phoenician and Palestinian coast, as well as the Syro-Palestinian region.<sup>30</sup> The information appears on a text on a foundation inscription known as Nineveh A.<sup>31</sup> This is the first direct confirmation of the existence of ten separate city-states in Cyprus, with their names and the corresponding names of their kings. The ten city-states and their kings are treated on the same equal basis as the twelve on the Levantine coast and all are considered as part of the Assyrian dominion in the Eastern Mediterranean basin. These were the lands beyond the Euphrates under the geographical term *ebir nari* and listed in three groups: (i) Land of Hatti (Syro Palestine). (ii) On the sea (Phoenicia and the Philistine coast). (iii) The middle of the sea (Cyprus).

The ten Cypriot kings and their city-states are listed as: *Ekištura of Edi'il; Pilagura of Kitrusi; Kisu of Si(l)lua; Ituander of Pappa; Eresu of Silli; Damasu of Kuri; Admesu of Tamesi; Damusi of Qartihadasti; Unasagusu of Lidri; P/Bususu of Nuria.*

<sup>30</sup> Parpas 2018: 256–264.

<sup>31</sup> Cannavo 2007: 182–183; *Ash. NIN A v 54-vi 1.*

*The Ashurbanipal Inscription, dated 667 BC*

Four years later, in the course of his first campaign to Egypt (667–666 BC) Ashurbanipal, Esarhaddon's successor, employed the naval and military services from the same twenty-two vassal states.<sup>32</sup> This is a second confirmation of the existence of ten independent city-states in Cyprus wealthy and powerful enough to participate in the Assyrian campaign.<sup>33</sup> All twenty-two, with their kings, had the same obligation and divine destiny, deriving from Esarhaddon's Succession Treaty,<sup>34</sup> to support Assurbanipal in his military campaigns. All the city-states are described in the same fashion as Esarhaddon's Nineveh A inscription, grouped in the same geographical regions.

**The disintegration of the Assyrian Empire, the rise of the Achaemenids, and the surrender of Cyprus to the Persian Empire c. 525 BC**

Following the decline of the Neo-Assyrian Empire and the destruction of Nineveh in 612 BC, a significant power vacuum was created. This caused a chain of events that reshaped the geopolitical map of the Near East. In Mesopotamia, the Babylonians and Medes managed to gain control of most of what was left of the Assyrian empire in the East, and were preparing themselves for their drive to the West. In Asia Minor the Lydians, feeling the eventual pressure coming from the Persians and Medes, went ahead and signed a peace treaty with Miletos<sup>35</sup> that ended their twelve-year war, in or about 612/611 BC.<sup>36</sup>

After the demise of the Neo-Assyrian Empire, the Egyptians tried to wrest control from the Babylonians of the lands west of the Euphrates. Their efforts ended in defeat at the battles of Carchemish and Hama in 605 BC. With the defeat of the Egyptian army in the battle of El Arish in 601 BC, Babylonia established itself as the unrivalled heir to the Assyrian Empire in the West. The Babylonian presence in the Levant will be remembered for Nebuchadnezzar's II sacking of Jerusalem in 586 BC, the razing of the temple of Solomon to the ground, as well as the thirteen-year-long siege of Tyros. As for the economy, the Babylonians, unlike the Assyrians, had insufficient commercial reasons for maintaining the Philistine<sup>37</sup> and Levantine maritime networks. This is evident from the destruction of busy emporia, such as Ashkelon. The thriving trade between Cyprus and

<sup>32</sup> Parpas 2018: 281–286.

<sup>33</sup> See Parpas 2018: 282 for discussion and arguments on the erroneous claim that Assurbanipal's list is a mere copy of Esarhaddon's, and that the Cypriots did not really participate in the campaign.

<sup>34</sup> Parpas 2018: 276–281.

<sup>35</sup> Htd. 1.17–22.

<sup>36</sup> Fantalkin 2014: 39.

<sup>37</sup> Stager 2011: 7.

Ashkelon,<sup>38</sup> as evidenced from the presence of Cypriot pottery, mortaria, cooking pots and basket-handle amphorae, probably imported via the Phoenician emporia, was most likely seriously affected.

Shortly before Nebuchadnezzar's death in 562 BC the Babylonians lost their grip over the lands west of the Euphrates to the Egyptians, who, under the leadership of Apries (589–570 BC) and Amasis (570–526 BC), tried to reclaim their hegemonic position on the Levantine coast until Egypt fell to the Achaemenids and Cambyses II in 525 BC.

How was Cyprus affected by the new order of things? As far as the Babylonians were concerned, they were not a naval nation and as such they posed no political or maritime threat. Thus, during this time, save for the disruption along the Phoenician and Philistine coastline, it was more or less business as usual. However, this was not the case when the Egyptians took over from the Babylonians. By combining the evidence from the available sources, we can deduce that the Egyptians, towards the end of Apries' (Amasis predecessor) reign, c. 570 BC, in order to contain any potential attack from the east they put under their influence both Phoenicia and Cyprus. As a result of this arrangement, they were able to deploy a Cypriot force of ships and Greek mercenaries that Apries most probably used against Amasis' drive to overthrow him.<sup>39</sup> Herodotus implies that by 567 BC, after Amasis succeeded as pharaoh, he subdued and made Cyprus tributary to Egypt.<sup>40</sup> Diodoros<sup>41</sup> suggests that during Amasis' influence over Cyprus he 'adorned many of the Cypriot temples with dedications that are worthy of mention'. Thus, it may well be that relations between Cyprus and Egypt were not as hostile as one might deduce from Herodotus.<sup>42</sup>

According to Xenophon's *Cyropaedia*, Cyprus became part of the Persian Empire from the time of Cyrus,<sup>43</sup> and the Cypriots assisted Cyrus and the Persian army against Karia and Babylon in 545 and 539 BC respectively.<sup>44</sup> This tradition is challenged and no longer supported. The prevailing scholarly opinion disputes this, as Cyprus in 545 and 539 BC was still tributary to Amasis and still under Egyptian influence.<sup>45</sup> Furthermore, the Persians consolidated their control over Phoenicia much later, and it would have been very difficult, if not impossible, for the Persians to subdue Cyprus without the help of the Phoenician navy.<sup>46</sup> In 525 BC, the year widely

accepted in which Cypriots submitted to Persia,<sup>47</sup> the Cypriots, together with the Phoenicians, participated in Cambyses' expedition against Egypt.

We do not know under what circumstances the Cypriots submitted to the Persians, neither whether it was voluntary or due to a military and naval assault. Their submission happened immediately after the death of Amasis and the surrender of Phoenicia to Persia, and just before they joined the Persians in their campaign against Egypt in 525 BC. By that time Egypt's position had become very weak since they lost most of their allies, including Polycrates of Samos, who sent forty *triereis* and crews to support the Persian royal navy. Therefore, Cambyses, from 525 BC, was able to build up a formidable naval force that included substantial naval assets from Phoenicia, Cyprus, as well as his Aegean allies and new subjects. Cambyses is considered the creator of the Persian royal navy in the Mediterranean, comprising Phoenician and Cypriot navies, as well as fleets from their vassal city-states in Asia Minor. The year 525 BC, which marks the end of the Second Economic Cycle, was when the Persians established themselves as the masters of the seas between Egypt, the Levant, Cyprus, and Kilikia, and also put under their guardianship and protection all maritime and naval activities there.

To protect their interests and maintain maritime activities and the maritime economy, the Cypriots had no other choice but to submit to the new master in the region. Therefore, their decision to surrender to the Persians was not only political but had economic strings attached. In a nutshell, as long as their trading partners came under the control and influence of Persia, they had no other choice but to become part of the new order and their network. They followed the example of some Aegean islands, such as Chios and Mytilene,<sup>48</sup> and the Levantine city-states, and tried to establish themselves within the new order of things, obtain a commercial advantage from the situation, and benefit their maritime and naval economies.

## THE NEW ECONOMIC AND SOCIO-POLITICAL ENVIRONMENT

As already mentioned, a direct result on Cyprus of the collapse of the international system and the disappearance of the stable, highly centralised states and palatial systems, which characterised the global economy during the First Economic Cycle, was the transformation and transfer of the institutional systems that ran the political and economic life of its societies.

<sup>38</sup> Stager *et al.* 2011: 103–115; Woldbraum 2011: 127.

<sup>39</sup> Diod.1.68.1; Hdt. 2.162.2; Elephantine stele.

<sup>40</sup> Hdt. 2.182. 2.

<sup>41</sup> Diod.1.68.6.

<sup>42</sup> Hdt. 2.182.2; Reyes 1994: 78.

<sup>43</sup> Xen. 1.1.4, 8.6.21.8.8.1.

<sup>44</sup> Xen. 7.4, 1–2, 8.6.

<sup>45</sup> Briant 2002: 48; Iacovou 2002; 2014; Stylianou 1992: 413; Watkin 1987: 154–163.

<sup>46</sup> The exact date is not known, but technically it must have been after

539 BC, when Babylon was conquered, as Phoenicia was part of the Babylonian empire. The Persians would have needed some time after that in order to impose their control on Phoenicia (Kuhrt 2007: 112).

<sup>47</sup> Hdt. 3. 19.3; Reyes 1994: 85; Watkin 1987: 154–163.

<sup>48</sup> Briant 2002: 37–38.

At the end of the First Economic Cycle and beginning of the Second, when the pressure of the collapse of the international order was at its peak, the centrifugal forces of the urban administrative centres and their organisations on the island who were running the increasingly independent economic activities of their respective regions were already pushing for more delegation of the political and financial power. Their entrepreneurial nature halted the reproduction of the established institutional system and in combination with the international turmoil and volatility triggered an acceleration of their state formation process which was already in progress, and altogether became the agent of change that challenged, absorbed and replaced the existing institutional establishment and created a new socio-political equilibrium characterised by fragmentation, whereby merchants, entrepreneurs and private enterprise had an important role to play, along with the ruling families of the new states under formation.

Thus, the old dominant institutions continued and transferred to a new system with institutional features that were the result of both internal and external influence. There were elements of continuity, as the features of the transferred institutions did not vanish but continued and were gradually shared with the urban administrative centres that were already undergoing a gradual process of state formation to become city-states with political status and their own individual kings, *basileis*, who had a decisive role and involvement in the island's economy and trading activities, as well as maritime matters. The two most important pillars of the institutional system of the economy of ancient Cyprus – metallurgy and long-distance trade – continued and expanded into new products and new markets. The same applied with the Cypriot Syllabary and the weights and measures system. The process was applied island wide and state formation eventually shared by more than one of the urban administrative centres. As has been pointed out, 'on Cyprus, urban settlements, later known as the kingdom's capital cities, were either founded in the 11th century BC or continued to be occupied, as in the case of Palaepaphos and Kition, from the Late Bronze Age'.<sup>49</sup>

During the Second Economic Cycle, the geopolitical environment of the island was characterised by territorial and political fragmentation and eventual territorialisation, expressed by polycentrism and formation of independent city-states with their own economic zones. These were the seven or ten city-states reported by the Sargon Stele and the Esarhaddon Prism, as well as the Ashurbanipal Inscription respectively.

The institution of central authority headed by a king, who represented the island on international matters and handled the bulk long-distance trade of copper, was no longer required. As long as the corresponding kings of Egypt, Hatti, Ugarit, and other palatial establishments, who were the trading partners to the king of Alashiya, either disappeared or lost their power, then an important characteristic of Cyprus' central institutional system, together with all its associated support structures, became obsolete.

Abandonment, population movements, migration and resettlements changed the demographic composition of entire regions. Old and existing urban administrative centres expanded and transformed, and new urban administrative centres created; they were all in command of their own self-sufficient economic territories and ports of export.

These urban administrative centres gradually acquired state formation and became individual city-states within a new economic and socio-political landscape. LBA *Alashiya* to the Egyptians and Hittites, or *Ia-Iadnana* to the Assyrians and *Kypros* to the Greeks, was divided into a fluctuating number of multiple autonomous politico-economic territories.<sup>50</sup> A gradual but complete transformation and segmentation of the documentation and language institutions of the island took place as a result of the new demographic reality. As we have seen from Sargon's Stele of 709 BC, as well as Esarhaddon's Prism and the Ashurbanipal Inscription, at the end of the 8th to the beginning of the 7th century BC there were up to ten such city-states on the island, headed by eponymous, internationally recognised kings. The activities of these city-states overseas were no longer confined solely to maritime trade; they extended to participation in supply and provision of construction services (Esarhaddon Prism) and military and naval participation in imperial military campaigns (Ashurbanipal Inscription). This marked an important up-grade to the island's status.

The institution of bulk long-distance trade was no longer in the hands of one central authority, but was delegated to the entrepreneurial level, where wealthy private traders and individuals, as well as elite families and organisations, shared in its operations and proceeds with the individual kings of city-states who consolidated their grip on political power. Copper was no longer sole utilitarian metal, but, although still very much in use, was gradually supplemented by iron. The strategy of operating a diversified export portfolio continued, and this enabled the intensification of the island's maritime economy via unprecedented wealth accumulation during the Second Economic Cycle period and beyond.

<sup>49</sup> Fourier 2013: 105; Iacovou 1999; 2005.

<sup>50</sup> Iacovou 2013b: 797.

As described above, the slow process of fragmentation and territorialisation turned the LBA urban administrative centres into Iron Age city-states, with their own distinct geographical and self-sustained economic territories. This process, which shaped the island's institutions and continued into the Geometric period, reaching its climax in the Archaic, was not manifested at the same pace and date for all city-states; it was part of the island's outward mercantile character that was eventually aided by the pressure exerted directly or indirectly on it by the financial and commercial interests of the new and dominant regional powers, especially the Neo-Assyrian Empire, whose economic and military dominance in the Near East accelerated the territorialisation of the Cypriot city-states, which was already in progress, and influenced its mercantile activities and geopolitical position in the Eastern Mediterranean. As we will see in the sections that follow, towards the end of the Second, but especially in the Third Economic Cycle the number of city-states did not remain constant but fluctuated according to political and economic developments.

In the process we have just described, the continuation, transfer and transformation of the island's old institutions into new ones played a decisive role. The secret of the continuity of the major administrative urban centres and their successful evolution into city-states, surviving until their dissolution by the Ptolemeans in 312–310 BC, was the functioning institutions that were a response to the island's new socio-political environment and the Eastern Mediterranean's new economic and political reality. The transformation, transfer and continuity of the island's institutions, and the completion of the process by the urban administrative centres to become city-states, were the essential preconditions for economic growth on the island and the concomitant intensification of its economy and maritime activities.

The urban administrative centres, i.e. Salamis, in partnership with Enkomi, Kition, which absorbed Hala Sultan Tekke and Palaepaphos, who were able to complete their institutionalised state formation and become city-states, were able to survive the crisis. Centres like Kalavassos *Ayios Dhimitrios*, Maroni, Alassa, and the short-lived settlements at Maa and Pyla, who did not have a sustainable economic model and could not institutionalise their presence, failed.

The entrepreneurial and industrial character of the Cypriot city-states played an important role in the continuation of two of the most important institutions that represented the cornerstones of its economy – metallurgy and long-distance trade. It has been suggested by scholars, assessing data especially from Enkomi and Kition, that the 'Cypriot urban small-scale commercial traders were the primary agents of twelfth

century BC trade and that they linked up the east and central Mediterranean in an unprecedentedly direct manner'.<sup>51</sup> This is true, in particular the drive and agency by the Cypriot urban small-scale commercial traders. Their actions, a direct result of the continuation and transformation, as well as the transfer of Cyprus institutional systems, were highly significant in the initial Phoenician expansion into Iberia and Ria de Huelva, that is now accepted to have occurred as early as the 11th, even the 12th century BC. All these long-distance trade entrepreneurial activities, including the presence of Cypriot traders in Sardinia, are clearly connected with copper, tin, silver, and iron metallurgy; they originated from the urban administrative coastal centres of Cyprus, which were in the final stages of the development process, shortly after the beginning of the Second Economic Cycle, into city-states. These city-states continued and completed their state formation with new functioning institutional features that were compatible with the new international reality and the market conditions. As such, they provided new rules and incentives to their entrepreneurial societies for a well-orchestrated and methodical export expansion, and not an ad hoc, disorganised drive.

This is an opportune moment to remind the reader of the opening statements concerning the First Economic Cycle, i.e. 'This book deals with economic change over time', and 'The present and future of any society is connected to its past by its institutions and their continuity. If we can identify these institutions and track their evolution and continuity which defines their society, we can track its history'.

Thus, we are now able to understand how Cyprus became, in its own right, culturally, politically and economically part of a bigger and different world. The present author agrees with Iacovou's statement that 'there was never a time that Cyprus was without any regional managing structures'.<sup>52</sup> This is due to the continuity of its functioning institutions, and explains why the island, apart from its own expansion in the Aegean, Egypt, and the Levant, which is attributed to its understanding of how market forces worked, as well as to its innovative marketing strategies and progressive maritime infrastructure, had an active involvement in Phoenician trade expansion westwards.

At around the end of the Second Financial Period, i.e. the end of the Iron Age, Cyprus managed another ground-breaking achievement: the island was among the first to monetise its economic activities by the issue and use of coinage. All these factors contributed to the development of a diversified and sustainable economy.

<sup>51</sup> Iacovou 2018: 23; Sherratt 1998.

<sup>52</sup> Iacovou 2018: 25.



Figure 33: Map of Cyprus showing the sites mentioned in the text (drawing: Katerina Parpas).

## THE SECOND ECONOMIC CYCLE, URBAN ADMINISTRATIVE CENTRES AND CITY-STATES

The following section is an introductory review of the island's urban administrative centres and city-states during the Second Economic Cycle. It is presented in two parts: the first is dedicated to the urban administrative centres and settlements that collapsed during the first century of the Second Economic Cycle. The second part is dedicated to the Iron Age city-states of the Second Economic Cycle, which includes Kition and Palaepaphos – the two urban administrative centres of the First Economic Cycle that survived intact into the Second.

### PART 1: THE COLLAPSED URBAN ADMINISTRATIVE CENTRES AND SETTLEMENTS

This part deals with the urban administrative centres and settlements that collapsed during the first century of the First Economic Cycle, when their populations and activities were transferred and absorbed by nearby centres or other regions, or even emigrated overseas. These sites include the Hala Sultan Tekke, Alassa, Kalavastos, and Maroni urban administrative centres, as well as Morphou *Pighades* and the short-lived settlements of Maa *Palaeokastro* and Pyla *Kokkinokremos*.

#### Hala Sultan Tekke

The Late Cypriot urban administrative centre of Hala Sultan Tekke, with its busy port and extensive long-distance trade and maritime activities, prospered during the First Economic Cycle and also in the early years of

the Second. It was destroyed twice in the course of the 12th century BC (LC IIIA), with the final destruction occurring towards the end of the century.<sup>53</sup> As from the mid 12th century, Hala Sultan Tekke was gradually abandoned, following the various destruction episodes and the silting-up of its port.<sup>54</sup> Where its inhabitants moved to is unknown, but, most probably, they went to the nearby city-port of Kition, where they transferred most of their business and trading activities, as well as their livelihoods. It is also probable that some of them left Cyprus for the Levantine coast.

#### The Kalavastos and Maroni Valleys

The previous chapter examined the plausible reasons why Kalavastos *Ayios Dhimitrios* did not survive the crisis of the transition years from the First Economic Cycle to the Second. It is proposed that the urban administrative centres at *Vournes* and *Tsaroukkas* in the Maroni valley, which went into decline earlier than *Ayios Dhimitrios*, may have collapsed for the same reasons.

The evidence up to now suggests that the Kalavastos and Maroni centres based their economies mainly on agriculture. In spite of evidence of industrial activity and maritime trade, especially at *Vournes* and *Tsaroukkas* respectively, and agricultural production, mainly olive oil, at *Ayios Dhimitrios* and *Vournes*, it seems that they did not establish a diversified economy

<sup>53</sup> Fisher and Burge 2018: 606–607.

<sup>54</sup> Iacovou 2007: 12–13.

based on a broad portfolio of products, nor, and most importantly, did they develop a copper industry that could have broadened their economy. We can consider their export clientele base was most probably too narrow, as a result of the limited range of their export portfolio. In such case they did not have an economic model like Enkomi, Kition and Palaepaphos, which was capable of seeing them through the collapse of the international LBA economic order. Consequently, their institutional features failed to respond to change and could not sustain economic growth. When they were unable to trade their surpluses, either because their long-distance trade partners had vanished, or lost their purchasing power, or their trading channels and maritime networks no longer functioned as sea lanes became unsafe (the result of increased piratic activity, and the marauding and destructive actions of unconventional forces, the phenomenon described as the 'Sea Peoples', referred to above), they then lost their main sources of income.

The unstable economic situation might have led the workers and less privileged inhabitants of the KAD urban administrative centre to revolt or seek refuge and better living conditions outside the Kalavassos area. This may have resulted in a loss of productivity, eroding the accumulation of surplus and revenues. On top of this, the situation on the island was equally volatile and unstable, with political and economic uncertainty and possible interruptions to basic food supplies to the settlements. The reversion of the surrounding districts to a possible low-level, peasant-style of subsistence farming just to meet basic needs,<sup>55</sup> deprived them of valuable income. This took away from the inhabitants of *Ayios Dhimitrios* the possibility of falling back on and sustaining themselves via domestic incomes alone. Nor can the possibility be excluded that they lost their supply power as the result of crop failures, although there is no such evidence to support this. The same factors would apply to the Maroni administrative centres.

In spite of their existence for at least two hundred years by means of a productive agricultural infrastructure and the presence of institutional features, the settlements were abandoned in an orderly manner, with no sign of destruction caused by external forces. There are still many questions unanswered in terms of the total collapse of these urban centres. The reasons put forward do not give a satisfactory answer as to why this economic model, with such a low centre of gravity, did not survive, at least as an agricultural community, with a lower level of activity, producing basic subsistence needs, but instead collapsed altogether.

### **Alassa**

The urban administrative centre at Alassa, after partial and brief habitation in the early years of the Second Economic Cycle, was abandoned. Trying to explain the reasons of the collapse of the Alassa urban administrative centres at *Paliotaverna* and *Pano Mandillaris* is difficult. The Alassa centres, which controlled the rich economic zone of the Kouris river valley, were abandoned in the early years of the Second Economic Cycle, without apparent violence and for no obvious reason. The settlements enjoyed substantial levels of agricultural production and were also involved in industrial activities, such as copper processing. They also demonstrated advanced institutional features and operated on a more diversified economic model than that of *Ayios Dhimitrios*. True, they were not close to the sea, but it is reasonable to think that they had use of the anchorage facilities at Episkopi *Bamboula* for their long-distance trade.

One credible reason for their collapse might be that they did not have near access and direct links under their full control to port facilities. The turmoil and uncertainty that prevailed on the island, and the interruption to local and international trading routes, would have seriously interrupted their production capacity. Essentially, their institutional features could not respond to change, and, like the Kalavassos and Maroni valley urban administrative centres, could not sustain economic growth. All this uncertainty and volatility caused internal migration, with their populations moving to other areas – Palaepaphos, and the new centres at Kourion and Amathus – that offered better prospects.

### **Maa Palaeokastro and Pyla Kokkinokremos**

A brief introduction to the coastal settlements of Maa *Palaeokastro* and Pyla *Kokkinokremos* was given in the narrative for the First Financial Cycle above.<sup>56</sup> Both short-lived settlements were established just before the end of the First Economic Cycle, and were abandoned just after the start of the Second. Maa existed for half a century or so, while Pyla's lifespan was shorter, about a generation. Pyla is estimated at around 27 ha, not necessarily all of it of built-up area, while Maa was smaller. The settlements served as gateways to the respective inland copper producing regions; they displayed features of storing and redistribution; they incorporated metallurgy workshops and their incomes seem to have come mainly from maritime trade; they were strategically located on plateaus, providing natural defences on top of man-made fortifications, established on the coast with access to port facilities. Pyla is located c. 10 km from Kition, while Maa was

<sup>55</sup> Cadogan 2018: 116.

<sup>56</sup> Georgiou 2012; 2015.

established c. 25 km from Palaepaphos. The centres were built in one phase and both indicate an element of advanced planning; and they were both destroyed at about the same time, within the first years of the Second Economic Cycle, right at the peak of the economically volatile and violent years of the crisis. For Maa there are signs of violent destruction, while it seems that the population abandoned the settlement voluntarily, in an orderly manner, while Pyla's population abandoned the site in a hurry, leaving valuables behind, most probably under the threat of an advancing adversary.

We may suggest that both sites operated rather like 20th-century 'free zones',<sup>57</sup> independently and in isolation from the established order on the island, by local and small-scale commercial operators and newcomer settlers or international mariners, possibly in some form of association with elites and trading families at the nearby urban centres of Kition and Palaepaphos respectively. They were part of the mariner maritime trade of the First Economic Cycle. The inhabitants of the settlements can be viewed as part of a mosaic of people comprising first and foremost of local craftsmen and traders, with contacts in the inland copper-rich areas and the nearby urban centres, and then as a mobile fringe group of economic mercenaries and transporters with international trading contacts and navigational as well as maritime expertise and skills.<sup>58</sup> This mobile fringe group, a product of internationalisation, could have been people from the Aegean, Canaanites, or even Cypriots whose home was the sea. Having said that, we must clarify that the 'archaeological excavations at the two settlements did not expose any intrusive epigraphic, linguistic, mortuary, or religious evidence that would help identify foreign ethnic elements.' Consequently 'the material culture of both Pyla and Maa presents no particular differentiation from contemporary Late Cypriot settlements'.<sup>59</sup>

At Maa there is substantial evidence for the operation of a highly idiosyncratic administrative system for the management of agricultural produce which characterises other Cypriot sites, i.e. cylinder-seal impressions on storage vessels. This is in addition to the plethora of Cypro-Minoan inscriptions on *pithoi*, a practice observed at all Cypriot sites and centres. At Pyla there was an important find of Cypro-Minoan

tablets, which are so rare and strongly associated with the LBA administration on the rest of the island. These are strong indications of administration and a form of political control that is in accordance with evidence from other parts of Cyprus during the LBA horizon. Therefore, regardless of the diverse nature of the sites' inhabitants, the Cypriot elements associated with administration from both sites are overwhelming and difficult to ignore.

The settlements were a product of the anarchic volatility created at the end of the First Economic Cycle. They were created to serve a purpose, and out of the necessity to create emporia and entrepreneurial links that could operate as free zones at the periphery of collapsing economic systems.

With the international system rocked to its foundations and the economy crumbling, the operations of the settlements were no longer safe or financially sustainable and they were abandoned. Their operations were either absorbed by the nearby strong urban settlements, who were already undergoing a process of state formation with stable institutional systems intact, or transferred back to the sea by the mobile group of economic mercenaries. These international mariners went back to their old marauding and plundering practices; they might have even joined forces with other nomads of the sea, perhaps the Sea Peoples phenomenon, or they could have attacked coastal cities, even sites of their own ex-colleagues.

In searching for answers, we cannot ignore the strong signs that both settlements were not established deliberately to be short lived. If we consider Pyla's extensive and uniform planning and Maa's monumental structures (even a Cyclopean-style wall!) it becomes evident that the intention was for permanency. This is why their disappearance and sudden abandonment is such a complicated matter to interpret, with so many intricate parameters.

Their apparent opportunistic nature and short lifespan did not enable them to acquire their own institutional features that could lead to sustainable urbanisation and continuous economic growth. Due to their short period of existence, and the particular mosaic composition of their society, they were obliged to operate with 'borrowed' institutional features: they did not participate in the ongoing transformation and permanent transfer of institutional features that were in progress at other established urban centres such as Salamis, Kition and Palaepaphos. As a result they were unable to develop their own institutions to establish rules, create trust, provide security, and mitigate risk. Their society comprised of 'too many Indians from too many tribes and no chiefs'. They were two settlements with no past, limited present, and no future. As a result

<sup>57</sup> A typical 20th-century example is the Jebel Ali Free Zone in the UAE, an extended industrial zone, with a large port of its own, involved in trading, manufacturing, re-export, and logistics. It operates independently, like an island, from the rest of the UAE, and is located on the sea, c. 10 km from the administrative centre of Dubai. It employs locals, and a multinational expatriate workforce. Although it is politically attached to Dubai, its commercial and financial operations are independent; it has its own administrative and export authority and its commercial operations are predominantly export and transit trade.

<sup>58</sup> Artzy 1997.

<sup>59</sup> Georgiou 2015: 134.

of the unsustainable centre of gravity of their operation they were overthrown and disappeared under the pressure of the volatility and uncertainty created at the beginning of the Second Economic Cycle.

PART 2: THE IRON AGE CITY-STATES OF THE SECOND ECONOMIC CYCLE

**Salamis-Enkomi**

As with the First Economic Cycle, we should look first at Cyprus’ most prominent metropolis – Enkomi. The archaeological evidence suggests that during the transition from the 13th to the 12th century BC, Enkomi underwent a destruction phase as a result of attacks by external forces from the sea, possibly of same nature as the attack on Ugarit. The city was rebuilt and its buildings refurbished and extended, indicating some sort of economic recovery and continuation of trade for almost another two hundred years from the first signs of volatility. In spite of this, attacks and violent destructions continued during this period. The unsettling effect of these attacks and destruction episodes, in combination with silting of the city’s port,<sup>60</sup> forced its population and commercial community to move gradually, in an orderly way, to the newly founded

settlement of Salamis, 2 km to the northeast of Enkomi, which, as from c. 1050 BC, acquired the character and features of an urban city,<sup>61</sup> with a functioning port at the mouth of the Pedieos river (Figure 35). In this way, by the end of the 12th century BC, the former city was gradually abandoned and, by the 11th century BC, the busy *emporion* at Salamis was fully functional as a major political and commercial centre, trading copper, as well as iron and metallurgical products and artifacts, as its core business. Enkomi’s satellite, Sinda, on the supply route from the copper-rich mining villages of the Troodos foothills, was also abandoned at the end of the 12th century following a destruction and rebuilding episode. The site of Athienou *Bamboullarin tis Koukounninas*, another settlement on the Enkomi copper supply line survived through the 12th century, no longer as a major intermediary in the production and process of copper, but as a storage depot of agricultural products.

Although Enkomi’s control over the Mesaoria plain was continued by its partner/successor, Salamis, it was in effect seriously curtailed. The rulers of Salamis had to learn to accommodate other players, i.e. Idalion and Tamassos, who had their own territorial claims as a result of the fragmentation of the Cypriot Second

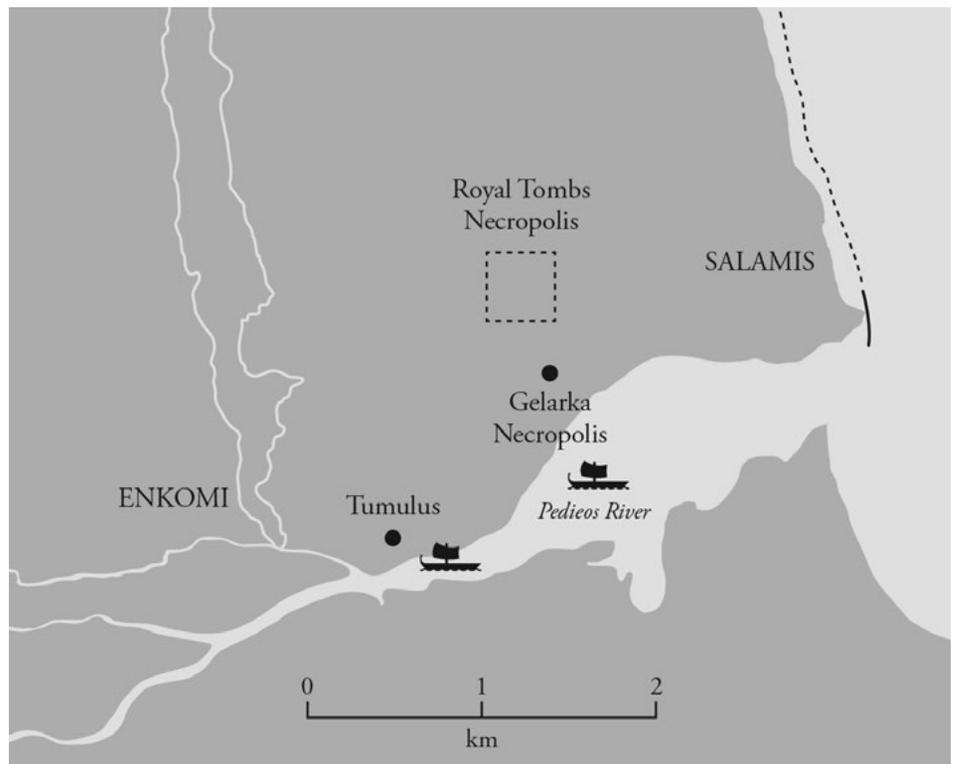


Figure 34: Tomb 79 from the Salamis necropolis (courtesy Department of Antiquities, Cyprus).

<sup>60</sup> Iacovou 2018.

<sup>61</sup> Satraki 2012: 270; Yon 1999: 18.

Figure 35: Plan of the area between Salamis and Enkomi, showing the location of the Salamis necropolis (drawing: Philipos Vasiliades).



Economic Cycle political landscape. Salamis eventually prevailed and became the major commercial centre and port of export on the eastern coast of Cyprus due to its international trading connections and maritime activities that gave it a tremendous advantage as well as commercial power and wealth during both the Cypro-Geometric and, in spite of its limited archaeological record, the Cypro-Archaic period.

The rich finds at the ‘Royal Tombs’ of the Salamis necropolis (Figure 34), dating to the 8th and 7th centuries, are evidence of the existence of a rich and prosperous city-state and an elite society. Nine built chamber tombs of fifteen burials at the Salamis necropolis are considered ‘Royal Tombs’. They were all made during the period ranging from the Cypro-Geometric III to the Cypro-Archaic I (800–600 BC) and mark an era characterised by monumental construction, mostly documented within funeral contexts, by then quite different from previous burial architecture and practices. This monumentality and the new architectural features reflect social changes and the prevailing ideology of the leading families of Salamis who sought to legitimise their hold on power and wealth creation by the glorification of their dead. The newly acquired affluence and its spread within the society, a result of intensification and of an open economy based on international trade and maritime activities, raised the LBA character profile of the society. Salamis’ king, *Kisu*,<sup>62</sup> whose name appear in

the Esarhaddon Prism of 673 BC, could well be seen as a typical representative of this new society. To date, Salamis’ epigraphic evidence is very limited, and from the city’s appearance in the Neo-Assyrian texts until the issue of its first coins, we have little evidence of its activities, which must have followed the general events on the island at the time.

A later king of Salamis, Evelthon, was the first to issue coinage in Cyprus, during the mid to late 6th century BC, signifying its independence, financial strength, intense international trading and maritime activities.

### Kition

The oldest remains of Kition, younger by 300 years as an urban administrative centre than Hala Sultan Tekke, indicate its foundation as late as LC IIC.<sup>63</sup> Based on material remains, Hala Sultan Tekke and Kition coexisted during LC IIC-LC IIIA. Kition’s transition from the First to the Second Economic Cycle is not marked by any particular destruction or visible signs of violence. As a matter of fact, after LC IIIA, it extended its mercantile and maritime activities even further and developed into a busy industrial establishment and *emporion* on the southeast coast.

The excavated area of Kition is c. 6000 m<sup>2</sup> and, as the evidence now stands, it is impossible to hazard a guess

<sup>62</sup> Both names of king and city are of Semitic origin, see Lipinsky 2004: 65–68.

<sup>63</sup> Fischer and Burge 2018: 611; Karageorghis 1985: 3–4; Karageorghis and Demas 1985.

at its overall size.<sup>64</sup> Nevertheless, the evidence points to Kition being a busy coastal port with a large sacred precinct at *Kathari* in Area II (Figure 36), with a monumental sacred temple, designated as Temple 1. The sacred precinct, initially established as early as the 13th century, with two modestly sized temples, was substantially refurbished during the 12th century BC at the beginning of the Second Economic Cycle.

The new sacred area of Kition comprised overall the monumental Temple 1, constructed of ashlar blocks, as well as four other temples, two workshop areas, one of which was dedicated to copper processing (northern sector), and the other to the production of textiles<sup>65</sup> (southern sector). There is material evidence of the cult being associated with metallurgy as its workshops are in close proximity to Temple 1.

There is also clear evidence of the association between cult and seafaring, and of the protection sought by mariners from the divinities worshiped at Kition, i.e. the ship graffiti within the temple and votive anchor findings. Kition, together with Enkomi, provide the best evidence of a significant scale of metallurgical and maritime activities in temple and elite contexts. Kition's monumental temple is testimony to the strength it acquired from its access to inland production sites and long-distance trade with international emporia in the Levant and Egypt.

Kition's thriving economy continued until 1000 BC, although its copper production seemed to have discontinued at the end of LBA IIIA.<sup>66</sup> For unknown reasons the sacred precinct and workshops at *Kathari* were abandoned by the end of the 9th century BC, coinciding with the time when the Phoenician settlers of the city erected a new monumental temple on the ruins of the old one.<sup>67</sup> It is believed that the new temple was dedicated to the Semitic goddess Astarte. At the same time the Phoenicians built a second monumental



Figure 36: Aerial view of the excavated remains at Kition (Area II), showing the fortification walls, the workshops, and the 'sacred area', 13th – 12th century BC (courtesy Department of Antiquities, Cyprus).

temple at *Bamboula*, south of *Kathari*, also believed to be dedicated to Astarte and her consort Melqart.

The temple at *Bamboula*, in association with the other buildings and workshops that were erected there, and together with the rebuilding of the temple at *Kathari* which was destroyed by fire in the mid 8th century BC, point to an operational and functioning city with a centrally administered organisation. In spite of this, unless Kition is the *Qarthihadasti* mentioned in the *Esarhaddon* Inscription, we have no tangible evidence that Kition, during the Cypro-Archaic period, was a city-state like the others on the island in this period. The evidence we have of Kition acquiring the status of a city-state, and being ruled by a king, starts in the 5th century BC with a strong and stable Semitic dynasty ruling the city.

It is probable that Kition had strong ties to *Idalion*, the newly formed inland city-state in control of a large part of the same economic zone that Kition relied on for its raw material supplies, mainly copper. The Semitic speaking economic immigrants from Phoenicia dominated the commercial and mercantile activities

<sup>64</sup> Iacovou 2007: 12–13.

<sup>65</sup> Karageorghis and Demas 1985.

<sup>66</sup> Karageorghis and Demas 1985: 278–279.

<sup>67</sup> Karageorghis 2005; Satraki 2012a; Yon 1999: 20.



Figure 37: *The remains of Sanctuary I at Palaepaphos, showing the massive monolithic blocks* (courtesy Department of Antiquities, Cyprus).

of Kition from the 9th century BC onwards, but the integration of Semitic speaking migrant populations at Kition from the Levantine coast, from as early as the 12th century BC, is also likely.

### Palaepaphos

Palaepaphos, along with Kition, was the other major late-Cypriot urban administrative centre, which not only survived with no traces of destruction, from its limited archaeological visibility, but also thrived during the crisis<sup>68</sup> and transition from the First to the Second Economic Cycle. The landmark site is the sanctuary of the Paphian Goddess, erected at the beginning of the 12th century BC (Figure 37). The construction of the monumental sacred *temenos* is proof of a central authority,<sup>69</sup> which, like at the sacred precinct at Kition, opted for a sacred expression of its domination.

The main constituents of the Palaepaphos exchange centre, cult, port and copper, provided wealth and prestige to its population, as attested by the luxury artifacts found in the LBA and EIA tombs of the area. Settlement evidence during the Early Iron Age and most of the Second Economic Cycle, for that matter, is still lacking, but impressive finds from the tombs of

Evreti and Teratsoudhia<sup>70</sup> point to busy and wealthy entrepreneurial communities, representing continuity from the First to the Second Economic Cycle. The same continuity of institutional features of long-distance trade are found in the rich burials of the Geometric period at *Skales*<sup>71</sup> and *Plakes*.<sup>72</sup> The evidence comes from the gold, silver and faience finds, as well as elaborate offerings made of bronze, together with bronze and iron weapons. This is undeniable evidence of the continuation of the institutions of metal industry and the long-distance trade that sustained a wealthy ruling elite and an entrepreneurial society that resided in and traded from a series of settlements,<sup>73</sup> located on the river valleys that connected the Troodos copper deposits to the Palaepaphos urban centre and its port on the coast.

Paphos, *Papa*, and its king Etewandros, *Ituandar*, *Ετεάνδρος*, are mentioned in the Esarhaddon Inscription of 673 BC, along with the other nine city-states and kings of Cyprus. The fact that around the 7th century BC Paphos was ruled by kings is also attested by the inscription in Cypriot syllabic script on a silver bowl, which reads: 'I am (the bowl) of Akestor the king of Paphos'. Evidently the institution of royalty continued right through to the Second Economic Cycle. A bronze

<sup>68</sup> Georgiou 2017.

<sup>69</sup> Webb 1999: 292.

<sup>70</sup> Maier and Karageorghis 1984: 67–70.

<sup>71</sup> Karageorghis 1983.

<sup>72</sup> Raptou 2002.

<sup>73</sup> Karageorghis and Raptou 2014; 2016.



Figure 38: Aerial view of the fortified palatial complex at Idalion (courtesy Maria Hadjicosti (2013: 66–67); photo: T.S. Sagory).

Syro-Assyrian-type conical helmet found at the Mavromatis tomb at Palaepaphos might belong to a Cypriot member of a royal or aristocratic family.<sup>74</sup>

### Idalion

The Idalion urban administrative centre was founded c. LC IIIA (perhaps even earlier, during LC IIC), c. 10 km from the copper-rich areas of the eastern Troodos foothills. It is located on the lower, northern slope of *Ambelleri*, a site that eventually established political and economic control of the fertile valley of the *Yialias* river. The fortified palatial complex (Figure 38), which succeeded the archaic palace of the kings of Idalion, with evidence of cultic activities, is also associated with storerooms containing *pithoi* in situ, large containers of oil, and a wine workshop with huge olive press installations, as well as a large copper workshop. The archaeological finds, together with quantities of iron and bronze slag and bronze and iron tools, indicate Idalion's eventual development into an important industrial centre and an independent and prosperous inland city-state.<sup>75</sup> It demonstrates continuity from its foundation horizon in the early Second Economic Cycle to the Third, until its annexation by Kition. Idalion was an important link between the copper-rich mining areas and the harbour cities of Salamis, especially Kition. Kition and Idalion belonged geographically to the same economic zone, suggesting that Kition might have played the role

of Idalion's main export outlet. Idalion, and its king Akestor (*Ekistura*), are the first to be mentioned in the Esarhaddon Inscription of 673 BC. The city-kingdom was ruled by a Greek dynasty, until being put under the control of Kition from mid 5th century BC onwards.

### Amathus

Amathus, situated on the south coast of Cyprus, was a newly founded urban centre, with its earliest establishment dated to the 11th century BC. It developed into a city-state presumably as a result of the political and commercial vacuum created by the abandonment of the Kalavastos and Maroni areas to its east, and Alassa and Episkopi *Bamboula* to the west. It was associated with a port, and is presumed to have been initially founded c. 1050–1000 BC.<sup>76</sup> The existence of monumental royal buildings is linked to the rise of a monarchy and of an independent city-state. According to archaeological findings this process reached its climax c. the 9th century<sup>77</sup> with the increase of commerce and corresponding population.<sup>78</sup> At the same time, there is epigraphic evidence of the wide use of the Cypriot syllabary and the Eteocypriot language, pointing to the predominantly local character of the population. The owners of Tomb NW 194 (c. 9th century BC), the oldest royal tomb found in Cyprus (followed by the tombs at Salamis) and excavated on the

<sup>74</sup> Parpas 2018: 292–293, Pl. 40.

<sup>75</sup> Hadjicosti 1997; 1999; 2013.

<sup>76</sup> Hermary 1999: 55–56; Satraki 2012a: 272.

<sup>77</sup> Petit 2001: 58–59.

<sup>78</sup> Peltenburg 1996: 37; Petit 2001: 59, n. 49.

Amathus acropolis, might have been members of the ruling family of the city. Euboean pottery,<sup>79</sup> indicating commercial contacts with the Aegean, appears before the end of the 10th century, reaching significant quantities in the succeeding two centuries, when Aegean ceramics are found at other Cypriot city-states (Kition, Palaepaphos, Kourion, etc.). Levantine imports were also recorded at Amathus. Nicolas Coldstream, who demonstrated that Euboean vessels found at Amathus can be paralleled with fragments of Euboean origin found at Tyros, thus making Amathus a vital east–west trade link from 950–900 BC,<sup>80</sup> suggested that the Amathus inhabitants were from the very beginning seafarers and active merchants, and that the mercantile and trading communities of Amathus had very close relationships with the Levantine coast. Evidence also supports Amathus' maritime contacts with the Western Mediterranean, via Sardinia. Amathus does not seem to be explicitly mentioned in the Esarhaddon Inscription, although it has been suggested that the reference to Damusi, king of Qardihadasti, might refer to Amathus and its king.

#### Kourion-Episkopi *Bamboula*

The up to now elusive Iron Age city-state of Kourion, whose foundation is presumed to be dated around the 11th century BC, was, like Salamis and Amathus, a new foundation associated with a port. It most probably succeeded Episkopi *Bamboula*, which is believed to have been the port of export of Alassa,<sup>81</sup> abandoned during the first century of the Second Economic Cycle, before the end of LBA, LC IIIA. The Kaloriziki cemetery, below the acropolis of Hellenistic and Roman Kourion, is thought to be associated with the IA city-state. At Kaloriziki, Tomb T40 contained impressive finds, including a gold and enamel sceptre surmounted by a pair of falcons perched on a sphere, which is evidence of royal authority. Kourion, like Amathus, was first and foremost a busy *emporion* and port of export handling the agricultural and industrial production of the Kourris valley region.

2 km west of the acropolis is the sanctuary of Apollo Hylates, constructed c. the 7th century BC. A dedication of one of the earliest royal inscriptions at the sanctuary of Apollon Hylates links, by the 7th century BC, the sanctuary to the royal dynasty of Kourion. According to material evidence, and as mentioned previously, kingship of the individual city-states and the close relation to religion and temples was a process that started in ancient Cyprus long before the 7th century – Kourion is no exception. Kourion, *Kuri*, and its king

Damasos, *Damasu*, *Δάμασος*, are among those mentioned in the Esarhaddon Inscription.

#### Soloi

Soloi, the Iron Age urban centre of northwest Cyprus, close to modern Morphou, is thought to have been established towards the end of the 11th century BC.<sup>82</sup> It probably replaced the activities of the LBA settlement at Myrtou *Pighades* and Morphou *Toumba to Skourou*. It was in command of a natural harbour and in a perfect position to handle long-distance trade and the exploitation of the copper-rich northwest Troodos areas. From its location and naval and political importance during the Classical period, it can probably be thought of as an organised city-state with a thriving naval economy from earlier times, especially the Cypro-Archaic period, although direct evidence for this is lacking. Soloi, *Silli*, and its king Aretos, *Eresu*, *Ἄρητος*, are among the kingdoms mentioned in the Esarhaddon and Assurbanipal Inscriptions.

#### Marion

Marion is thought to be located in the Polis tis Chrysochous area in the north-west of the island. According to settlement evidence,<sup>83</sup> dated to the 10th century BC, its foundation seems to be earlier than the traditional view that Marion was established in the 6th century BC. Marion, *Nuria*, and its king, *Basusu*,<sup>84</sup> *Βουθύτης*, are among the city-states mentioned in the Esarhaddon and Assurbanipal Inscriptions.

#### Lapethos

We have very little knowledge of the existence of the administrative centre of Lapethos during the First and Second Economic Cycle. It is the opinion of scholars who studied the area that such a centre did indeed exist on the northern coast of Cyprus, otherwise it is hard to see how the region's rich production and maritime trade opportunities and activities could have been exploited. Unfortunately, we have no hard evidence to prove it, and the fact that the area is not accessible for research and further archaeological work is a major handicap. The city is not mentioned in either the Esarhaddon or Assurbanipal Inscriptions, which makes it even more difficult to argue for its existence during this time.

#### Tamassos, Chytroi and Ledra

The three inland Iron Age city-states of Tamassos, Chytroi and Ledra that are included on the Esarhaddon and Assurbanipal Inscriptions with kings bearing Greek

<sup>79</sup> Georgiadou 2018: 155–163; Lemos and Hatcher 19: 197–208.

<sup>80</sup> Coldstream 1986; Hermary 1999: 18; Satraki 2012a: 273.

<sup>81</sup> Iacovou 2008b: 638–639; Satraki 2012a: 271–272.

<sup>82</sup> Karageorghis 1973; Satraki 2012: 273.

<sup>83</sup> Childs 2003: 97.

<sup>84</sup> This is a proposal not universally accepted.

names, are not yet substantiated in the archaeological evidence as independent administrative centres, with the exception of Tamassos, where new evidence has shown that mining and smelting activities were continuously practised throughout the Early Iron Age.<sup>85</sup> We may consider that Chytroi and Ledra, being on the supply route from the copper-rich areas of the Troodos foothills, were at some stage, after the 7th century BC, under the influence of Salamis.

### **MARITIME ECONOMY AND INFRASTRUCTURE, SHIP CONSTRUCTION, LONG-DISTANCE TRADE, PORTS AND HARBOURS**

Although the historical value of Eusebio's list of those nations<sup>86</sup> who held mastery of the sea after the Trojan war is doubtful and debatable, the inclusion of Cyprus in the list speaks volumes for its importance as a maritime and naval power during the Second Economic Cycle. From the list it can be argued that at some time by the middle of the 9th century BC Cypriot mariners and shipwrights were regarded among the best.

This next section will endeavour to review the major features of the island's maritime economy and infrastructure, its ship-building and maritime developments in the Eastern Mediterranean, as well its importance among other seafaring nations.

#### **The maritime economy, long-distance trade, and its new forms of organisation**

An attempt should be made first to reconstruct how Cyprus' state institutions adapted to change and continued to function and drive the island's maritime economy and socio-economic systems.

As mentioned previously, the old international political system dominated by an institution with central features and organisation disappeared, together with Cyprus' need for a king to manage international relations for its export operations and the handling of bulk long-distance trade. As we have seen, the resulting political and territorial fragmentation into self-sufficient economic territories, defined by strong territorialisation, was now consolidated into a number of city-states who inherited and transformed the institutional features of the old central state.

The maritime economy of the First Economic Cycle gave way to a number of more mobile and flexible individual maritime economies operating from the new city-states, most with their own port of export. The new characteristic feature of these individual

maritime economies was a stronger entrepreneurial participation, accompanied by small-scale commercial traders and transporters. These new city-states gradually developed their own individual royal houses, who also had an active participation in maritime affairs. They were supported by religious and temple organisations, as well as an elite aristocracy and rich trading families whose power and wealth were a result of mercantile and maritime expansion. The evidence also suggests that in some cases the king and high priest were represented in one individual – as at Palaepahos.

Cypriots had to readjust their commercial policies, become more flexible and adventurous, and look for new products and additional sources of raw material, especially tin, as well as new markets and customers. It was the intensification of private initiative supported by the new ruling families which provided the opportunities that contributed to the success of the maritime economy in the Second Economic Cycle. In the treaty that Esarhaddon concluded with Ba'al of Tyros, on or about 675–674 BC, it is very clear that, along with the king's ships, there were also vessels that belonged to wealthy merchants and private individuals. It is reasonable to suggest that the same arrangements, with wealthy and other private individuals owning ships, and involved in seafaring along with the state, applied to Cyprus. In addition, it was the cabotage operations by small time independent shippers, traders and seafarers, operating on their own over short distances along the Mediterranean coast, who enhanced diversification within the maritime economy.

All these forms of organisation and arrangements were the predominant agents of change. In spite of new models of commercial organisation, most of the solid mercantile traditions of the past prevailed and Cypriots were fortunate to have hundreds of years of experience behind them to fall back on and support their new mercantile entrepreneurship.

One important feature of the new long-distance trade arrangements was how to find ways to cope with the elimination and absence of the political and legal guarantees and international customary law and norms of the sea that provided safety and regulation of international trade and traffic during the stable First Economic Cycle. This important First Economic Cycle institution disappeared, together with the central palatial systems. Seafaring and naval trade and activities became a riskier business, as evidenced in Wen-Amon's tale, whereby, after his departure from Byblos, he had to face the Tjekker pirates at Dor. This confirms the existence of piratic groups controlling the sea and coastal ports. These groups constituted a constant threat to safety at sea. We have intense piratic activities even later, as indicated by the conflict

<sup>85</sup> Kassianidou 2004: 39–40.

<sup>86</sup> Diod. 7.11; Eusebios. *Chronographia* 1.225; Hill 1949: 103; Stylianou 1992: 396; Theodoulou 2006: 20.

between the Yamaneans and the Assyrians in the sea triangle between the Levantine coast, Cyprus, and Kilikia in the 8th century BC. Esarhaddon, with the treaty he signed with Baal of Tyros in the 7th century BC, bestowed on himself maritime rights that would cancel the millennia-old code of practice in the Eastern Mediterranean seas which had provided safety, mitigated risk, and gave an orderly structure to sea lanes and traffic. It is now reasonable to consider that this was provided, as far as possible, by individual royal houses – but limited within the boundaries of their own territorial waters.

Wen-Amon's story seems to open a window into the forms of organisation and circumstances that prevailed in the 11th century BC in the Eastern Mediterranean, which most probably did not differ much from those applying in Cyprus at the time. Wen-Amon's story is written on papyrus of unknown provenance discovered in 1890 at Al-Hibah in Egypt. The author was a priest of the temple of Amon in Karnak who travelled to Phoenicia c. 1070 BC to procure cedar wood directly from the royal palace of Byblos for the construction of the holy boat of Amon. The manuscript was written later, adapting an earlier original record, and is held as a primary source of information, although it is most probably not a true account of actual events but perhaps historical fiction. In spite of this it is an important source, if treated with care and filtered with caution, that provides a picture that may well reflect closely how international relations, shipping practices, and trade in the South-Eastern Mediterranean were conducted at that time.

From the story we learn that the king of Byblos, Zakarbaal, was very much in control of the fiscal and commercial affairs of his kingdom. The monarch seemed to run a royal institution capable of managing commercial transactions and activities, supplies of raw materials, and the associated trade routes; he was able to do this by means of a strong administrative organisation, as well as monopoly control over the exploitation of natural resources in his kingdom, i.e. timber, as well as the operation of a port, and the enforcement of strong legal practices.

Zakarbaal mentions that an assembly, a state council, exists in his kingdom. The members of this council may have belonged to the elite aristocracy of the city and were most probably members of the trading community: they may have acted as advisors to the king and their consent could have been necessary on important matters of state. We know that during the 8th and 7th centuries BC such councils of elders did exist in Tyros and Carthage. Similarly at Byblos, in the 11th century BC, they also formed part of the city's oligarchy and most probably possessed ships and other naval assets, involving themselves in long-

distance trade. The arrangements might not have been that much different to those that existed between the king of Ugarit and the wealthy merchant houses that worked for and around the palace, as well as for their own business and profit.

The king of Byblos was very much involved in maritime trade and mercantile business: he mentions twenty of his own ships in the city trading with Smendes, a prince from Egypt, and fifty in Sidon, in partnership, or joint venture (*hubur*) with a wealthy local entrepreneur, Urkatel. This partnership with a strong private trading family in Sidon might indicate the existence in the Levant, and most probably in Cyprus, of a working partnership and commercial relations between royal and private business interests. Wealthy members of these shipping consortia were responsible for running, in partnership with the royal elite, or on their own, the day-to-day trade and commerce in the Eastern Mediterranean. The royal contribution to this partnership was not only to participate with capital, but also to facilitate the business and provide safety within the kingdom's territorial waters.

Apart from Wen-Amon's story, we have other documents as well that reveal similar arrangements existed in other places in the Near East, e.g. the prophecies of Ezekiel,<sup>87</sup> who, referring to the naval power and trade of Tyros, speaks of the 'wise men' there as being the helmsmen of its navy. By this reference he implies that the council of elders had an active role in Tyros' maritime trade and affairs. In the same prophesy Ezekiel refers to the elders and 'wise men' of Byblos being the ship-builders and carpenters of Tyros' navies. From this it is not unreasonable to presume that the aristocratic families of Byblos, apart from maritime trade, were also involved in the yards that, among others, were building ships for Tyros' maritime ventures. On the other hand, the treaty between Esarhaddon and Baal speaks of the elders of the city being a political and commercial decision-making body that the Assyrian ambassador had under his jurisdiction. The Neo-Assyrian letters and correspondence mention the existence of an aristocratic elite being in a position to influence matters related to the state.<sup>88</sup>

As Susan Sherratt points out, in many Near Eastern kingdoms, city-states, Cyprus included, 'political power resided at least as much in mercantile activity as in agrarian control'. The former, mercantile activity, was in the hands of entrepreneurial members of the society while the latter, agrarian activity, was expressed by 'holding or control over land'<sup>89</sup> by the royal land-based

<sup>87</sup> Ezek 27.5–11.

<sup>88</sup> Dezso 2013: 358, n. 170; Pappas 2018: 76.

<sup>89</sup> Sherratt 2016: 293.

aristocracy. In Cyprus, the erection of monumental temples and sanctuaries that associated cult and religion with industrial production and maritime activities is proof of the alliance between the royal elite, private entrepreneurs, and the temple and religious establishment in the organisation of maritime trade. The unprecedented growth and urbanisation of coastal settlements resulted in their organisation in patterns of urban grid-planning and the close association of administrative buildings, urban sanctuaries, as well as temples with industrial and port facilities, as at Kition and Palaepaphos. This is mostly credited to the increase of local industry and long-distance trade, where partnership between state and private involvement made a major contribution.

There is further evidence that in Cyprus such partnerships did exist, and produced wealth and prosperity, from the rich mortuary findings and exotica discovered in a number of wealthy burials of elite members of society, for example at the Salamis necropolis, Kition, Amathus, and Palaepaphos. The tombs from Salamis, in particular, dated from the 8th century BC, testify to the existence of an aristocratic elite with access to political power and means of enormous accumulation of wealth. Evidence of the probable existence of a council of elders advising Cypriot rulers on important matters of state might also be detectable in Wen-Amon's story. When the latter arrives in Cyprus (Alashiya) he meets the princess Heteb, Hatiba, in the midst of a group we might think of as some form of council, whose function was to act as her advisors. One such, most probably a private merchant travelling to Egypt on business, spoke Egyptian and acted as translator. From the narrative it seems that the princess summoned her council, and together they granted Wen-Amon temporary residence and safe passage.<sup>90</sup>

The Tablet of Idalion (ICS 217), dated early 5th century BC, reveals the existence of some kind of city assembly advising the king. Although the date of the tablet falls within the Third Economic Cycle, where it will be discussed at length and in more detail, it is not unreasonable to consider that these arrangements existed in the Cypro-Achaic period, and that they were even a continuation from the time of Wen-Amon's visit in Cyprus in the early Iron Age. It is also reasonable to consider that similar arrangements existed in other Cypriot city-states, especially coastal ones, where maximum co-operation between the royal house and city elders, for the common benefit, was needed.

The important institution of trade in metals was uppermost in Cypriot and Phoenician commercial strategies, hence we find Cypriots, together with

Phoenicians, in their initial expansion westwards, involved in the metallurgical centres of Sardinia, Huelva, and the bay of Gadiz. At the time of the initial Cypro-Phoenician drive to the West, the metallurgical exploitation of these areas, as well as the circulation of manufactured metal objects and scrap metal, was at its peak.<sup>91</sup> As orchestrated and organised ventures required planning and capital, it is the considered opinion of the present author that westward expansion was part of a commercial strategy that was perfectly coordinated between ruling elites and the maritime and commercial communities. Its purpose was, among other things, the intensification of the island's maritime activities and the creation of new markets, as well as the means of finding new commercial partners for the benefit of the economy overall. It is not unreasonable to suggest that the same commercial strategy and alliances applied for Cypriot expansion into the Aegean and to the East.

### Ports, harbours and anchorages

Apart from economic and political institutions, another important and socially constructed phenomenon, that of technological improvement, clearly played an equally important role in Cyprus' maritime economy.

During the transitional period from the First to the Second Economic Cycle, ports, harbours and anchorages in Cyprus were mostly located at naturally protected coastal sites, river estuaries and coastal basins, or lagoons with artificial or dredged navigational channel-access to the sea, as at Enkomi and Hala Sultan Tekke. As we have seen, one of the characteristics of the late 13th to early 12th century BC was the creation of short-lived and opportunistic coastal settlements with natural anchorages, e.g. Pyla *Kokkinokremos* and Maa *Palaekastro*, whose purpose was to act as a more open and entrepreneurial link to maritime trade and thus by-pass the longer established existing ports. This, together with the large number of established harbours and anchorages, and the eventual weakening and absence of strong central control, indicates how uncontrollable sea trade might have become.

It is not known whether all these ports and harbours were protected, or if they were within city walls, if any. Their installations most probably consisted of simple wooden structures that leave no visible traces in the archaeological record. It is quite probable that, if any of them were ever found, they would be in submerged locations, silted-up lagoons, or under later built-up areas, for example the suspected anchorage of Palaepaphos at *Loures* and the internal lagoon at Amathus (in front of the agora). It is accepted that, in most cases, lighter, round ships were hauled out onto the beach and then propped up on wooden sleepers

<sup>90</sup> Aubet 2001: 361–362.

<sup>91</sup> Aubet 2008: 248.

and supports.<sup>92</sup> This method would protect them to a degree from shipworm, and away from thieves and other threats. Maintenance and access were also easier compared to mooring. Thus, it is possible that, under the right circumstances, early *pentekontoros*, particularly the open, *aphract*, model, with its specifically light design, could be readily beached and more readily hauled out. It may have been easier for a shallow *pentekontoros*, with an estimated weight of c. five tons, to beach, either by momentum or lift beaching or hauling out, under favourable and suitable natural conditions.<sup>93</sup> Mooring at anchor was more suitable and preferred for heavier ships. Most seafaring merchantmen of heavier construction were far too heavy for sailors to lift or drag, even with cargo and gear removed. The Thera West House frieze arrival scene may depict smaller, lighter boats beaching, and larger, heavier boats moored at anchor.<sup>94</sup>

More elaborate port facilities, in sheltered harbour basins with quays and ramps, as well as ship sheds with winches and pulleys, appear much later – the latter used mainly for warships, e.g. *triereis*. Raban<sup>95</sup> suggests that the bastions beyond the ‘Cyclopean walls’ at Kition *Kathari* might be artificial quays established at the edge of the marine lagoon, the inner harbour of Kition. He points to possible construction parallels at Tel Dor, with its quays featuring ashlar-built landing structures. Archaeological work at Kition<sup>96</sup> revealed the existence of a port basin that served the settlement’s commercial needs since the LBA, taking the form of a fortified harbour and suggesting that the basin continued to

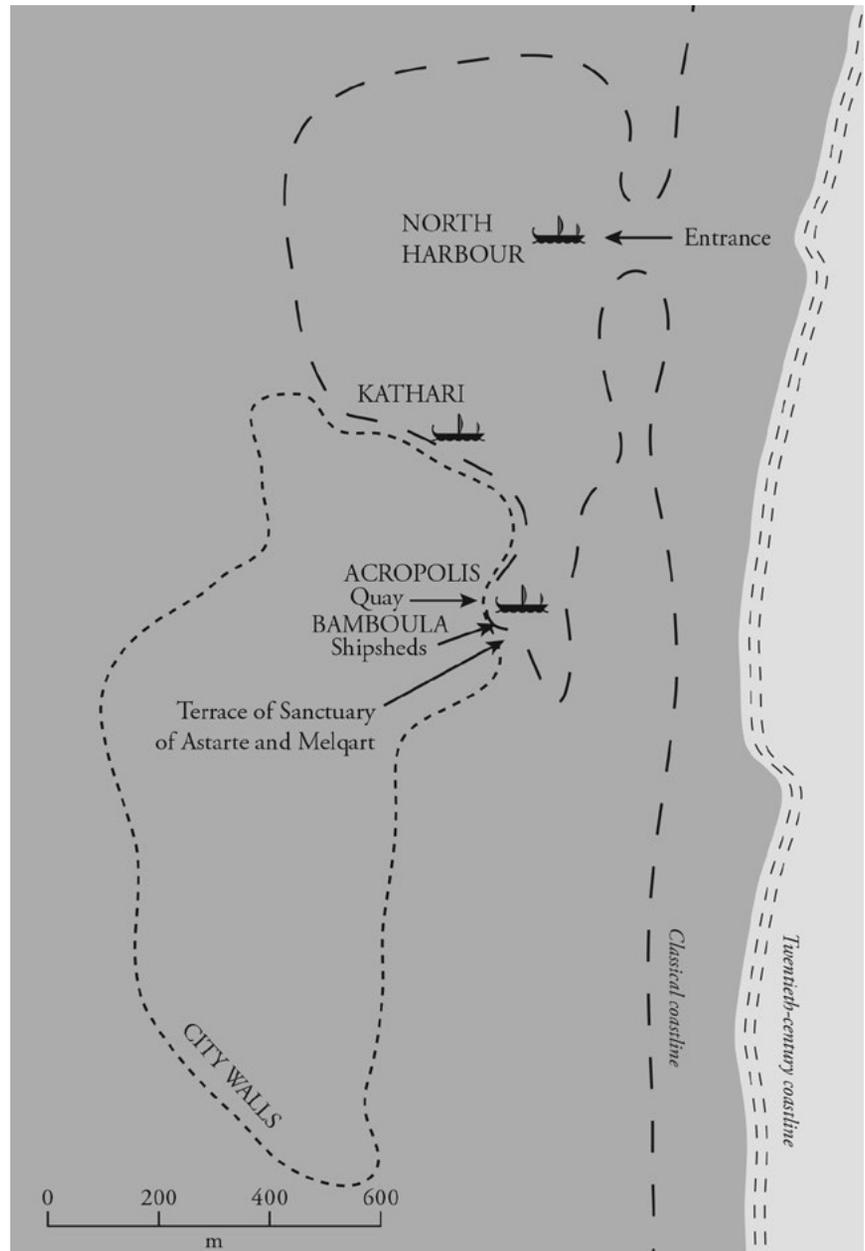


Figure 39: Reconstruction of Kition's ancient harbour during the 4th century BC, based on recent geophysical results, showing the ship sheds in Bamboula harbour. Comparable maritime landscape/facilities probably existed during the Second Economic Cycle (drawing: Philippos Vasiliades).

function as a port for military and commercial purposes right through to the late Iron Age (see Figure 39).

It is difficult to substantially determine the technological advancements and improved techniques in port and harbour construction and installations, as well as the increase in numbers and capacity, from the end of the First Economic Cycle to the end of the period under review, i.e. the last quarter of the 6th century BC. Any improvements, of course, both in harbour technology and capacity, are likely to have made a positive contribution in terms of safety and the economics of maritime trade, which, in combination

<sup>92</sup> Rankov 2013: 106, Fig. A.7.1.

<sup>93</sup> Votruba 2017: 7–28.

<sup>94</sup> Votruba 2017: 26.

<sup>95</sup> Raban 1950: 148.

<sup>96</sup> Yon 1999: 23.

with the continuous stability of Cyprus' institutions and the socio-political environment, resulted in a flourishing maritime economy that benefited from the reduction of costs of operation and maritime transport.

As from the 9th century BC, the expansion of maritime trade and naval activities in the Near East in general, coupled with Assyrian pressure for maritime and sea-born trade, necessitated even better and more elaborate harbour installations and emporia, as well as other arrangements. In Arwad, for example, at the time of Esarhaddon, the Assyrians controlled their own harbour, managed by Assyrian officials, running parallel to a second harbour operated by the local king, who had an obligation to pay taxes and transit fees on trade to the Assyrian King.<sup>97</sup> In the Levant the new style of harbour was characterised by free-standing, ashlar built, vertical moles, and island quays.<sup>98</sup> Similarities of harbour construction and methods between the Levant and Cypriot harbours have been found, e.g. Amathus and Akko.<sup>99</sup>

How these harbours might have operated and been organised is not known, nor the range of technologies employed to meet maritime demands and the complexity of an expanding seaborne economy and naval activity. A properly organised institutional hierarchy was necessary to provide harbour supervision and ensure operational efficiency. The imposition of import duties and taxes as a source of income was an important task that had to be regulated. As we have seen, during the First Economic Cycle at Ugarit's ports these duties were delegated to a harbour master or overseer, *wakil kari*, who reported directly to the palace. A similar organisation might well have existed for Cyprus' major ports which extended into the Second Economic Cycle, but proof is still elusive.

### Merchantmen

Needless to say, the growth of maritime economies in the Aegean and countries of the Near East, including Cyprus, during the Second Economic Cycle is attributed not only to the technological advancements of ports and harbours and the increase in their number and capacity, but also to the technological developments and innovations of their fleet and merchantmen.

Looking first at merchant boats, from the available evidence and close scrutiny of the information from marine archaeology relating to the LBA/EIA, there is a consensus among scholars that, in general, the average size of a merchant ship for sea transport during the transition from the LBA to the EIA, and for the duration

of the Second Economic Cycle, and even during the Classical period of the Third, when larger ships made their appearance, rarely did vessels exceed 16 m – 20 m in length, and about 20 tons, 47 *khor*, i.e. 15,000 l – 16,000 l<sup>100</sup> in cargo carrying capacity. Accordingly, this widely accepted view, supported by the available texts, iconography and archaeology, is adopted for this present work as well. To support this view, reference is made to the relevant data from the following selection of major shipwrecks:

#### *The Uluburun shipwreck*

The Uluburun wreck (1325–1300 BC), although dated in the First Economic Cycle, indicates that ships of its cargo carrying capacity and size were used also throughout the Second Economic Cycle. It was 15 m – 16 m long and had a capacity of c. 20 tons,<sup>101</sup> and is considered to be among the large category of ships of its time.

#### *The Cape Gelidonya and Point Iria shipwrecks*

The wrecks found at Cape Gelidonya in Turkey and Point Iria in Greece, both closely related to Cyprus and dated to 1200 BC, are estimated to have not exceeded 9 m – 12 m in length, with a capacity of 10 tons; they are considered medium-capacity ships. Phelbs<sup>102</sup> estimates the Point Iria shipwreck at c. 9 m, and Pulak the Cape Gelidonya remains at 11.5 m – 12.5 m.

#### *The Tanit and Elissa shipwrecks*

The Phoenician Tanit and Elissa wrecks, 8th – 6th century BC,<sup>103</sup> were reconstructed to 14 m x 6.5 m and 14.5 m x 7 m respectively. They were found off the coast of Ashkelon, characterised by its rough seas, especially in spring and autumn. They are similar and of comparable construction to the wrecks at Uluburun (15 m – 16 m x 5 m x 2 m)<sup>104</sup> and Kyrenia (14.7 m x 4.3 m x 1.4 m),<sup>105</sup> as well as Ma'agan Mikhael (c. 13 m long),<sup>106</sup> the latter two dated much later in the Third Economic Cycle, i.e. the 4th and 5th centuries BC respectively.

The capacity of both the Tanit and Elissa wrecks is estimated at c. 20 tons each. They were found next to each other, indicating that perhaps they were both sunk at the same time and were travelling together, possibly in fear of pirates, or they might have belonged to the same shipping venture.

<sup>97</sup> Pappas 2018: 75–80.

<sup>98</sup> Raban 1995: 154.

<sup>99</sup> Raban 1995: 158.

<sup>100</sup> Monroe 2009: 278.

<sup>101</sup> Monroe 2007: 2.

<sup>102</sup> Phelbs *et al.* 1999: 83, 98.

<sup>103</sup> Stager 2003: 233 puts it in the latter half of the 8th century BC.

<sup>104</sup> Monroe 2012: 15.

<sup>105</sup> Katzev 1981: 316.

<sup>106</sup> Linder and Kahanov 2003: 245–247.

*The Kekova Adasi, Kepce Burnu and Cayagiz Koyu Shipwrecks*

The three wrecks found off the Turkish coast at Kekova Adasi, Kepce Burnu, and Cayagiz Koyu,<sup>107</sup> all three dated to less than a century apart, at approximately the mid to last quarter of the 7th and beginning of the 6th century BC. Presently their exact dimensions are difficult to estimate, but from the volume of the cargo they were carrying it appears they were modest merchantmen, c. 5 tons – 10 tons. Their dimensions would be similar to the Point Iria wreck, if not slightly smaller, at c. 9 m – 10 m.

*The Mazarron and Bajo de la Campana shipwrecks*

The three Phoenician wrecks found in south-eastern Spain are the remain of two boats that sank off Playa de la Isla, Mazarron, in the second half of the 7th century BC, and one at Bajo de la Campagna, dated to approximately the same period. The Mazarron boats measured 8.15 m x 2.2 m, while the Bajo de la Campagna vessel was slightly smaller, carrying cargo of at least 4 tons.<sup>108</sup> They were most likely involved in short-distance cabotage trade. It is reasonable to expect that Cypriot boats involved in short-distance trade between Cypriot coastal cities and along the Levantine coast to be of the same size and construction.

All evidence, therefore, suggests that seagoing merchantmen in the Iron Age were not bigger than 20-ton capacity, whereas the average commercial cargo-carrying capacity was in the range of 6 ton – 10 ton. This range of cargo-carrying capacity suited Cyprus' maritime activities and capabilities for a number of reasons:

- (i) Smaller ships of up to 16m in length and maximum 20 ton , 15,000 l – 16,000 l cargo-carrying capacity were much better suited to the Cypriot maritime infrastructure as they could operate in smaller ports and anchorages and shallow waters. In this way the capital investment needed to erect wooden structures to operate a small port was optimal and thus easier to handle. In other words, the required maritime infrastructure was more in line with what the island could offer. Perhaps this is the reason why, to date, no LBA/EIA ports and anchorages have been traced on the island; presumably they were simple wooden structures that cannot appear in the archaeological record.
- (ii) A fleet of a few large ships would present not only the disadvantage of inflexibility, but it would also encourage a monopoly, or at least an oligopoly, in shipping and trade. In this way maritime activities would have been concentrated solely

in the hands of a small group of elites. This is contrary to the diffused network of small power centres and the multipolar socio-economic system that existed on the island.

- (iii) The smaller ships were cheaper to build and operate compared to larger ones. It meant less financial risk to operate below break-even capacity. One has to take into consideration that the most lucrative seafaring routes for the Cypriot maritime community were the short hauls across to Egypt, the Levant, and the Aegean. Such distances were more economically covered with ships between 10 ton – 20-ton .
- (iv) An export-oriented seafaring operation in the Eastern Mediterranean seaboard not only ran the risk of sinking in bad weather, but also of falling prey to an extensive and active pirate network. This is especially true after the disappearance of the international institution of safety and law and order of international sea trade in force during the First Economic Cycle. For the first four centuries of the Second Economic Cycle, until the rise of the Neo-Assyrian Empire and the pacification of the sea triangle between the Levant, Cyprus and Kilikia, at the end of the 8th century BC, the dangers from piracy to seafarers and transporters were considerably increased. The loss of a shipload from a small- to medium-size boat would have been easier to swallow than that of a big cargo; therefore, smaller boats substantially lowered the risk factors.

The ratio of lost cargo to the total sea trade during the Second Economic Cycle is unknown. Venetian insurance rates in the Middle Ages report a loss of c. 3% – 5%.<sup>109</sup> It is therefore not unreasonable to consider a corresponding loss of the same order of magnitude, perhaps a little higher for the Second Economic Cycle. Although the rate can be considered bearable, it was sizable enough. A loss of a 20-ton shipload, depending on the nature and destination of its cargo, would be worth anything between 50 kg – 100 kg of silver. Such a loss would be a big burden on the economy of any of the mercantile city-states, let alone a private merchant.

These factors help explain why the Cape Gelidonya and Point Iria wrecks, which most probably originated in Cyprus, were small- to medium-size merchantmen. They were not more than 9 m – 10 m in length and did not exceed a capacity of 10 ton, suitable for tinker and small, mixed-cargo operations. Ships of this capacity were most suitable for cabotage, the preferred maritime connection characterised by small-scale individual movements of independent seafarers and traders. Ships

<sup>107</sup> Greene *et al.* 2013: 22–34.

<sup>108</sup> Martinez 2014: 243–245; Polzer 2014: 210–242.

<sup>109</sup> Bresson 2016: 90.

of greater capacity were only introduced much later, during the Classical period, when the grain trade was flourishing and economies of scale were of the essence.

### Hull construction

As seen in the First Economic Cycle, ships were built shell first, i.e. the strakes were set before the frame, giving the hull its shape and integrity, with the planking joined with pegged mortises and tenons prior to internal support. From nautical archaeological evidence it can be understood that there was technological continuity and use of the same construction principles during the Second and even the Third Economic Cycle. The later merchantmen of the Second Economic Cycle, i.e. the Mazaron boats (7th century BC), the Tanit and Elissa shipwrecks (8th – 6th century BC), and even the Kyrenia and Ma'agan Mikhael vessels of the Third Economic Cycle (4th and 5th century BC) shared many similar basic construction features to the LBA boats of the First Economic Cycle, i.e. the Uluburun (14th century BC) and Cape Gelidonya (13th century BC) wrecks. Although there were several construction innovations and add-on features that improved sailing and safety, as well as different traditions, the basic design principle changed very little. Overall, the shipbuilding skills and know-how of the LBA, and later in the Iron Age, were clearly less advanced than in later eras, during Hellenistic and Roman times of skeleton-frame construction.<sup>110</sup>

Taking the Uluburun ship as an example, it was much wider than deep (5 m wide – 2 m deep), but significantly heavier compared to later designs. Although of heavier and robust shell construction, its design may well have been less rigid and strong in key respects as it lacked substantial framing. The LBA/IA, shell-first constructed ships were missing a key structural element, which Basch<sup>111</sup> calls 'active framing'. Basch interpreted the frames of a shell-constructed hull as 'passive', functioning only as reinforcement, while the later skeleton-based ships are seen as 'active', giving the hull its shape and primary strength. The Uluburun vessel was built of cedar wood and joined without nails. As stated, the technique was first to construct the shell with pegged mortise and tenon framed on the keel. The keel, a major innovation in shipbuilding, was a considerable advance in sailing, providing a means of stiffening the hull and stabilising the ship. Frames bolted to the keel, creating a rigid skeleton to back the planking, which in turn allowed more advanced hull design and much larger ships to be built, were employed in much later shipbuilding.<sup>112</sup>

The arch-shaped hull design of the first half of the 1st millennium BC, unlike the re-curved or wineglass shape of later hulls, i.e. the Kyrenia and Ma'agan Mikhael wrecks,<sup>113</sup> could not allow the construction of larger hulls, thus restricting the load capacity of the ship. Therefore 'it would appear, that through trial and error, seafarers learned that twenty tons was about the biggest hull one could sail before longitudinal stress factors and perhaps latitudinal ones also, overcame the strength of materials as assembled in the simple inverted arch design'.<sup>114</sup> In spite of constructional improvements, the basic concept and design that restricted hull capacity seems to have prevailed for the Second Economic Cycle.

Not all merchantmen design and construction features evolved uniformly everywhere and at the same pace.<sup>115</sup> The construction of the Ma'agan Mikhael ship of the Third Economic Cycle, for example, built in the Aegean, had mostly mortise and tenon joints secured with pegs. However, at its extremities, bow and stern, some of the timbers were sewn together. This technique was mostly used on ships built in the Aegean in the 6th century BC at the end of the Second Economic Cycle and was typical of a Greek maritime tradition in transition. The fastening technique with mortise and tenon was adopted during the Classical period in the Third Economic Cycle. The mixed technique of the Ma'agan Mikhael ship suggests that transition between various techniques occurred gradually.<sup>116</sup>

### *The Syro-Levantine and Aegean traditions*

There were two specific traditions of shipbuilding construction, which, thanks to cultural and trade relations with Cyprus, can be thought of as having influenced Cypriot shipbuilding construction methods and vice versa.

### *The Syro-Levantine tradition*

From the wooden hulls of the Uluburun, Cape Gelidonya, Mazarron, and other wrecks typical of LBA/IA merchantmen related to the Syro-Levantine tradition, it seems reasonable to suggest that during this period hulls were built using the shell-first concept. In the absence of framing elements, the hull was designed 'strake oriented', i.e. the planks were connected by well fitted, long, robust, pegged mortise and tenon joints that gave the hull its basic integrity (Figure 40, top). Throughout the centuries there were variations to the construction method. For example, the Uluburun ship's mortise and tenon joints were more robust and widely spaced than those seen later, especially in the Classical period. The Mazarron ships, although of local origin

<sup>110</sup> Martinez 2014: 243; Monroe 2007: 11; Pomey *et al.* 2012: 235–236.

<sup>111</sup> Basch 1972.

<sup>112</sup> For a useful discussion on ship construction improvements from the First to the Second and Third Economic Cycles, see Pomey *et al.* 2012.

<sup>113</sup> Monroe 2007: 13.

<sup>114</sup> Monroe 2007: 13.

<sup>115</sup> Pomey *et al.* 2012: 236–313.

<sup>116</sup> Demesticha 2019: 4

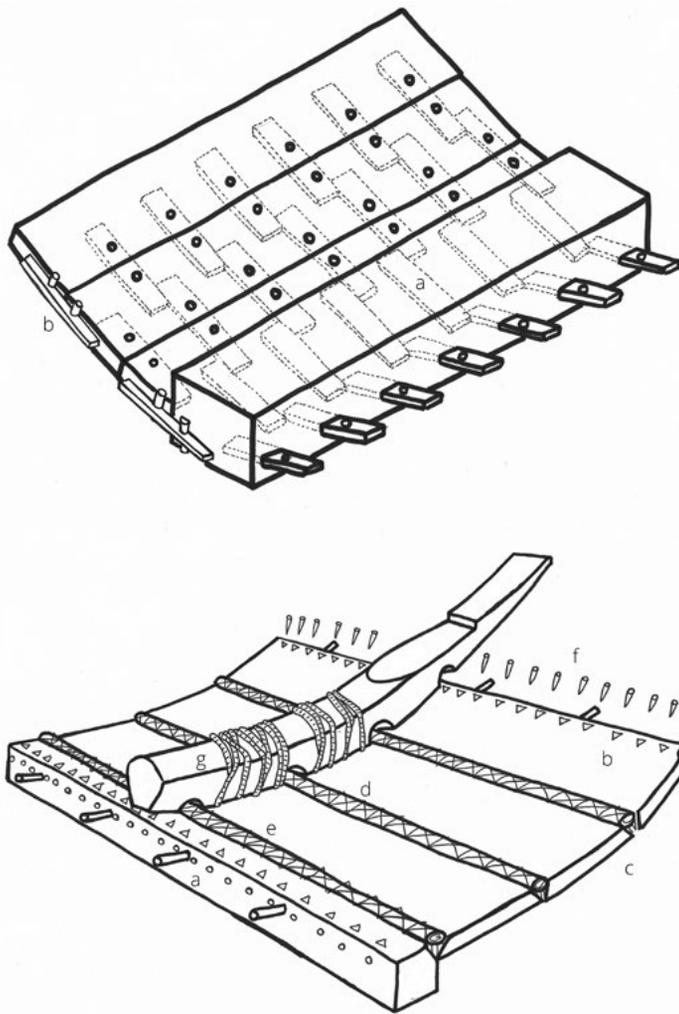


Figure 40: Typical LBA/IA hulls with keel and pegged mortise and tenon joints. Top: Isometric reconstruction of the Uluburun hull remains. The design and construction continued in the Syro-Levantine shipbuilding tradition during the Second Economic Cycle: (a) keel; (b) pegged mortise and tenon joints (drawing: Katerina Parpas, after W. van Duivenvoords). Bottom: Hull construction of a typical Archaic Greek laced vessel, according to the Aegean tradition: (a) dowel coaks, (b) tetrahedral notches, (c) ligature channels, (d) seam wading, (e) double helical lacing, (f) ligature pegs, (g) frame floor timber (drawing: Katerina Parpas, after Polzer 2011: 361, 366).

are considered of Punic/Phoenician influence, with pegged mortise and tenon planking joints associated with a new concept of frames lashed to the planking.<sup>117</sup> The basic construction design did not change however, i.e. the vessel's builders began first with a rudimentary keel, or proto keel (Figure 40, top (a)). The proto keel, of the Uluburun ship, for example, was a massive timber that acted as a spine and provided a good deal of longitudinal stiffening. Builders joined the edges of their planks, which formed the shape of the hull, with large oak tenons; they secured the seams by locking the tenons in their mortises with oak pegs driven from the

inside of the hull through the planks and tenons (Figure 40, top (b)). From the size and positioning of the joints it appears that the builders designed them specifically to act as internal framing and give strength and robustness to the hull, allowing heavy cargoes to be placed directly against it.<sup>118</sup>

The 7th-century BC Iberian Mazarron wrecks have many similarities to the Cape Gelidonya vessel of Cypriot origin and Uluburun of Syro-Canaanite origin, suggesting a continuation of their building methods. They all had a proto keel and relied on mortise and pegged tenon joinery to fasten strakes and secure seams and form the hulls shape. The Mazarron keels were of a single piece of Mediterranean cypress and the hulls had much thinner pine planking and much smaller and more widely spaced joints. In all aspects the Mazarron construction was less massive. Lacings with esparto grass were only employed as tie downs. For a shipbuilding tradition favouring shell planking, sewn and laced together, one must wait for the Aegean-built boats of the 6th century BC.

#### *The Aegean tradition*

From the beginning of the 6th century BC a different tradition of sewn ships appeared all around the Mediterranean. The sewing technique is characteristic of the Aegean-built vessels that appeared during the Archaic period in the Second Economic Cycle. As interpreted from Homer, they probably appeared even earlier in Homeric times.<sup>119</sup> From Aeschylus we know the sewing technique was still used in the Classical period.<sup>120</sup> The earliest Aegean evidence from nautical archaeology of this technique is from the Pabuc Burun wreck off the coast of Turkey, dated 570–560 BC. There is also evidence, incidentally, from wrecks of the 5th and 6th centuries, found within Greek contexts outside the Aegean.<sup>121</sup>

<sup>118</sup> Polzer 2011: 362.

<sup>119</sup> *Iliad*. 2.135; *Od.* 5.244–253.

<sup>120</sup> *Suppliants*: 134–135.

<sup>121</sup> Polzer 2011: 364–368. Giglio Italy (600–580 BC), Bon Porte France (540–510 BC), Cala Sant Vicenc Majorca (520–510 BC), Place Jules Verne wreck 9, Marseille (525–550 BC), Gela wreck 1, Sicily (500–480 BC).

<sup>117</sup> Pomey et al. 2012: 291.

Ancient Greek shipwrights used pine in their hulls and begun construction by first laying down the spine by joining keel to stem and sternpost; they used small, rectangular, almost square keels and much thinner planks than their Syro-Levantine counterparts. In this tradition, the planking was sewn with ligatures laced along planking seams (Figure 40, bottom (b–f))<sup>122</sup> and lashed around internal frames to strengthen the hull transversely. However, plank sewing was never used alone: the hull was strengthened with additional reinforcing components, such as the round dowel coaks, with projecting tenons (Figure 40, bottom (a)). Coaks served to align the planks, but most importantly to reinforce the seams and prevent longitudinal slippage between strakes. In the Pabuc Burnu wreck unpegged tenons were found, but it is not known whether this was part of the original arrangement or due to later repairs, as in the Cala Sant Vicenc wreck.<sup>123</sup> The Pabuc Burnu vessel represents to date the earliest attested use of tenons in Greek shipbuilding. The interior of the hull was coated with pine tar, a common practice in antiquity. In this way the exposed joinery elements, i.e. ligatures and pegs, were protected from seawater, condensation, and the elements, that could rot and compromise seam integrity. The flexibility of the sewn/laced vessel offered an advantage for mariners wanting to beach their hulls in small anchorages and beaches, or outside large harbours.

According to evidence from nautical archaeology, towards the end of the 6th century BC, during the transition from the Second to Third Economic Cycle, a major transition took place in Greek shipbuilding. Pegged mortise and tenon joints and metal nails replaced the sewing method of pegged ligatures in hull joinery. Planking was thus mainly assembled with pegged mortise and tenon joints, whereas sewing was only used for repairs and on keel edges and end posts. As previously mentioned, this applies to the Ma'agan Mikhael wreck dated to the end of the 5th century BC. The final transition would be completed at the end of



Figure 41: *The original wreck at Kyrenia castle. It was built in the shell-first method and for its construction some 8,000 mortises have been cut to receive 4,000 tenons, providing a very rigid construction before any internal framing* (courtesy Department of Antiquities, Cyprus).

the Third Economic Cycle, as evidenced by the Kyrenia vessel (Figure 41), end of the 4th/beginning of the 3rd century BC, where planking showed closely spaced mortise and tenon joints and repairs were made using the same construction technology. This was the end of the sewing technique and the beginning of the Greco-Roman tradition of shipbuilding based on pegged tenons, offering the possibility for larger and stronger hulls. These stronger hulls permitted the construction of merchantmen of bigger tonnage, and stronger ships of war, able to ram and at the same time absorb the impact of enemy rams.

There is no convincing explanation why this change occurred. The most likely reason involves the growing transport of greater volumes of products such as grain and bulk cargoes in amphorae. It certainly has to do with the rapid build-up of state supported naval fleets of *triereis*, *tetrereis*, and other bigger ships of war. Mortise and pegged tenons were quicker and less labour

<sup>122</sup> Refer to Polzer 2011: 366–367 for a detailed description of the construction process.

<sup>123</sup> Pomey *et al.* 2012: 292–295.

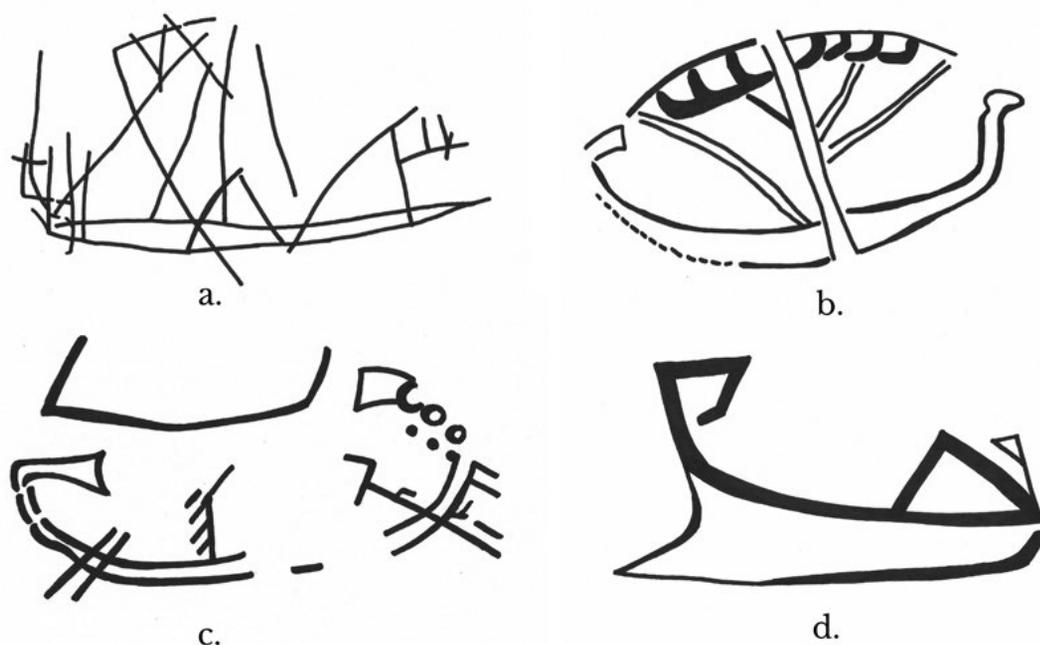


Figure 42: (a) Ship graffito on a stele at Enkomi; (b) ship graffito from Nahal Me'arot in Israel, dated 13th – 11th century BC; (c) engraving of Ship 1 on the Akko altar; (d) boat engraving from Temple 1 at Kition Kathari (Akko altar (c) after R. Pollack in Artzy 1987; drawings: Katerina Parpas).

intensive but, most importantly, were less vulnerable to wear and damage and easier to maintain than pegged lacing and thus provided for stronger and more durable hulls. The Cypriot shipwrights who had an active involvement in shipbuilding, both merchantmen and ships of war, during the Second and Third Economic cycles must surely have been aware of both traditions and their evolution.

### Rigging

In the early years of the Second Economic Cycle the shipwrights of the coastal settlements, together with the seafarers from Egypt, the Aegean, the Levant, and Cyprus seem to have played a pivotal role in further new advances in shipbuilding, including, among other elements, the development of new sail and rigging configurations. Newly built boats featured what has been termed 'Mediterranean square sailing rig' – a new type of single-masted rig that employed a loose-footed brailed sail and a top-mounted crow's nest. They are depicted on the walls of the Medinet Habu temple,<sup>124</sup> at Akko, Nahal Me'arot, as well as in Enkomi graffiti. These maritime innovations provided sailors with faster and more mobile boats, suitable for more efficient and effective operations at greater speeds and with better performance into the wind. The new sail and rigging configurations changed the organisation of sailors

and labour on a vessel. With the new development, the heavy and difficult to work with boom-footed, square-sail arrangements, a rig in which the sail was set between the yard (upper) and the boom (lower), was replaced with the lighter loose-footed sail. In this way the boom and its complicated mechanisms gave way to the brailed-rig technique with more easily raised and lowered sail. Importantly, there was now nothing to obstruct the movement of sailors or mariners on deck. An optional keel extension at the bow could serve as a beaching aid, allowing ships to sail and slip more easily up onto land and facilitating a more rapid and steady disembarkation.

Cypriot shipwrights, along with their colleagues on the Levantine coast, who seemed to be working within the same timeframe and in close proximity, played an important role in these developments and advances. Their association with these new features is witnessed in graffiti depicting ships of similar construction found at Enkomi, Nahal Me'arot, Akko, Kition, and elsewhere (see Figures 42 and 43).

To emphasise further how close Cypriot and Levantine shipwrights might have worked together and followed similar shipping traditions, there are also the similar boat-type engraved representations found at anchorages at Akko and Nahal Me'arot, near Tel Nami in Israel, and at Enkomi and Kition in Cyprus (Figure 42).<sup>125</sup> Although these representations were not intended to

<sup>124</sup> Medinet Habu is the mortuary temple of Ramses III, where his victorious expeditions against the 'Sea Peoples' are depicted. The monument is elaborately decorated with carved reliefs that present, among other scenes, sea and land battles.

<sup>125</sup> Artzy 1987: 75–84, 1988: 181–186; 2003: 232–246; 1997: 1–16; Knapp 2018: 140–142.



1953-XII-30-6(5)  
R.R. 3051

Figure 43: Terracotta model of cargo ship from Kalo Khorio-Zithkionas, evidencing substantially similar features to the Akko altar ship engravings and the engraving from Temple 1 at Kition. On display in the Cyprus Museum (courtesy Department of Antiquity, Cyprus).

portray actual nautical reality, their common features point to a common type of Cypriot/Syro-Levantine ship that might have been used for trading purposes in both the First and Second Economic Cycles in the Eastern Mediterranean sea.

The Akko engraved representation was found on an altar, most probably a portable ship's altar in secondary use on land. The boat portrays an inward-curving triangular shape fan on the prow. Its size and shape indicate its ritual importance. The same type of ship, unique to the Eastern Mediterranean area, is found at Kition *Kathari* in Cyprus, where they appear in numerous examples on the outer wall of Temple 1 and the altar of Temple IV. In both cases the engraver took great care in the representation of the inward fan, which is a clear indication of its cultic significance, especially when engraved in a temple. The same shape is found on a terracotta model of a cargo ship with a crew of three, dated to the 6th century BC, found at Kalo Khorio *Zithkionas* (Figure 43).

#### **Tanit and Elissa shipwrecks, a typical Near Eastern maritime venture**

The Tanit and Elissa wrecks (8th – 6th century BC) found in 1997 off the coast of Ashkelon provide further details of the cargoes and objectives of typical Near Eastern

maritime ventures. Both ships represent the traditional maritime practices of the mid Second and Third Economic Cycles that most probably applied to Cypriot maritime activities. As mentioned previously, the two boats were medium-sized, wide-beamed merchantmen with a capacity of c. 20 tons. They probably resembled the round hull merchantmen depicted on a stone panel relief found at the palace of Sennacherib at Nineveh, currently displayed at the British Museum, that were carrying King Lulli and his family from Tyros to Kition. Although Tanit and Elissa are Phoenician boats, manned by Phoenician seamen, that originated from one of the ports on the Levantine coast heading for Carthage or Egypt, it is, perhaps, possible to reach some useful conclusions that might help in our understanding of the corresponding Cypriot maritime trade and traditions. The cargo of the two ships, as demonstrated, was most probably wine – 385 amphorae on Tanit, 386 on Elissa. All the amphorae were lined up in the interior with resin, and each when full weighed c. 25 kg.<sup>126</sup> They were torpedo-shaped amphora, of characteristically Phoenician manufacture and made especially for maritime shipping with special handles for guide ropes to secure their stacking arrangement within the hull.

<sup>126</sup> Stager 2003: 239.

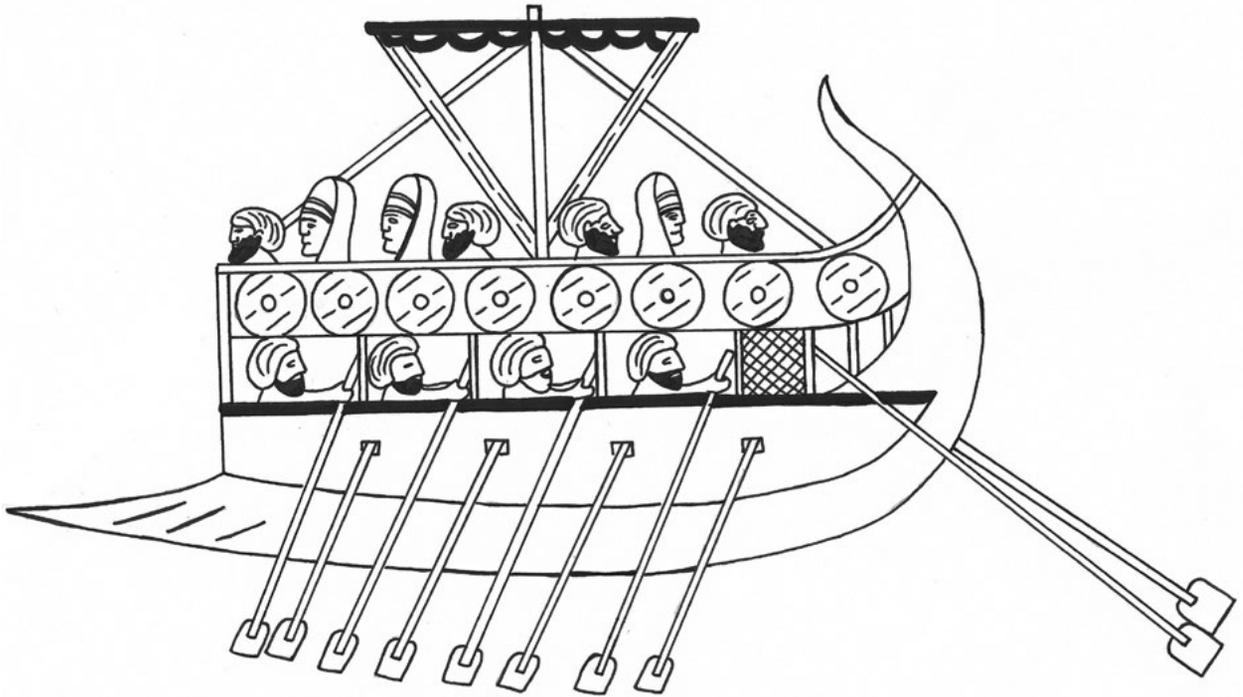


Figure 44: Drawing of a typical oared galley from the relief in the palace of Sennacherib at Nineveh, showing a double-decked ship carrying members of King Luli's family, in flight from Tyros to Kition in Cyprus (drawing: Katerina Parpas, after Basch 1987: 315).

They were remarkably similar in shape and size, each holding 17.8 l of wine.

The composition of their cargoes, mainly wine, equates well with those of the Ionian and Sidonian ships that offloaded in Egypt in 475 BC, as well as with the contents of the Mazotos and Kyrenia wrecks that carried mainly Chian and Rhodian wine respectively. In all finds, the amphorae had precise capacities, i.e. a Phoenician torpedo amphora held 17.8 l of wine, the Chian 23 l, and the Rhodian 26 l. The shape and capacity of the amphorae were particular to its place of origin. The ships were most probably owned by private independent shippers, the traditional maritime practice of the mid Second and Third Economic Cycles.

### Warships and sea warfare

There were significant advances in the development and construction of warships during the Second Economic Cycle. The oared galley, with its long and narrow design, gave more speed and better manoeuvrability. This design prompted the development and deployment of the *trieres*, a fast and highly efficient ship of war. It was introduced c. the 7th or 6th century BC, and revolutionised sea warfare in the Mediterranean in a way unimaginable for the LBA, i.e. it represented a major development in naval warfare during the period under review.

Initially, there is evidence of a series of ships being developed – the *diereis*, which included the *eikosoros*

(20 oars), c. 16 m in length, and the *triakontoros* (30 oars), c. 23 m long. The most frequently mentioned and preferred war ship, also used for troop transport, was the *pentekontoros* (50 oars), estimated to be 39 m in length and with two banks of 25 rowers on each side.<sup>127</sup> This type of ship had a dual use – commercial and military (troop transportation). At the end of the 8th, beginning of the 7th century BC, an improved double-decked version was constructed with two series of rows on each side, one above the other. This resulted in a vessel 21 m long, evidently much more compact, sturdier, and more seaworthy. This kind of ship was constructed both in Greece and Phoenicia. Evidence of a double decking is depicted on a fragment of a stone panel relief from the southwest palace of Sennacherib, currently on display at the British Museum.<sup>128</sup> This type of ship (i.e. Figure 44), was evidently constructed by Phoenician shipwrights, but it is not unreasonable to assume that Cypriot shipwrights mastered the same techniques and skills. The drawing of the relief from the palace of Sennacherib, referenced above, depicts several oared war galleys transporting Luli, king of Tyros and Sidon, and his family to Cyprus, thus representing an example of other common Cypro-Levantine seafaring with similar maritime features. It is not known whether all ships were Phoenician; it is highly likely that some may have been provided from Kition, where the ships presumably were headed for. From the number and

<sup>127</sup> Meijer 1986: 14.

<sup>128</sup> Parpas 2018: 115.

type of ships it is feasible that the harbour capacity and facilities at Kition were extensive, perhaps even comparable to those of Tyros.

The logical progression from the two-banked *pentekontoros* was the *trieres* – the new type of warship that replaced the *dieres*. The prototype was most probably invented and built for the first time in the dockyards of one of the Levantine harbours, i.e. Sidon c. 600 BC. The first *triereis* built in Greece, at approximately the same time as the Phoenician vessels, are ascribed by Thukydides to the Corinthian shipwright Ameinocles. The Phoenician *triereis* were broader and more spacious than the Greek equivalents (Figure 45). Nevertheless, according to Herodotos,<sup>129</sup> the Greek *triereis* were heavier and therefore less flexible than Phoenician ones. The *trieres* was c. 35 m long and c. 4.8 m in width. It weighed c. 20 tons empty and was thus much heavier and more expensive than the lighter *pentekontoros*. It may be that the earlier Greek designs were still constructed using sewn planking, like earlier vessels, but if this were the case they were soon superseded by vessels with sturdier hulls, and more resistant to ramming impacts, which were held together with thousands of pegged mortises and tenon joints. For better protection to its oarsmen, it was designed to disintegrate on impact rather than sink. It had a displacement of c. 60 – 70 tons, and the propulsion came from 170 oarsmen<sup>130</sup> – i.e. one man to an oar. There were three rows of oarsmen on three different levels; the total complement for a *trieres* could reach 200 men.

Most *trieres*, from the mid 6th century BC onwards, were equipped with a ram weighing 300 kg – 465 kg. The ram, very much a weapon in its own right, was designed to withstand the force it generated; this was achieved by the support timbers inside the hollow section of the weapon and the integrity of the ram's cast. The momentum of the heavily designed and built hull generated the real power which transferred its force to the ram. At the same time the attacking vessel was designed in such a way that it could deliver a damaging blow and remain undamaged in the process. This was done by dispersing the intense forces generated at the ram's head to the ship's heavy hull, which absorbed the forces generated by the impact. This was possible due to rigidly interconnected bottom planks, utilising mortise and tenon joinery, secured by thick oak pegs, through which long copper nails were driven. This construction ensured that the forces of the collision were transferred from the ram to the entire bottom of the ship's hull without harming the integrity of the vessel. In this way powerful ramming blows could be delivered allowing the ship to survive the collision unharmed.<sup>131</sup>

It is understood that the Cypriots, over certain periods, had navies made up of hundreds of warships. Due to Cyprus' dependence on maritime and naval activities, its shipwrights had acquired and mastered the necessary skills and knowledge and were able to construct by themselves the ships destined for use by their navies. There is also evidence that Cypriots were able to manufacture and fit parts as specialised as weaponised rams. Such evidence comes from the copper ram weighing 465 kg found off the coast of Athlit in modern Israel.<sup>132</sup> This ram, 2.65 m long and 0.95 m high, and dated to the end of the 3rd century BC, was made by the direct lost-wax method and cast in one unit. From the symbols that decorate it, it is believed to have been cast on Cyprus.<sup>133</sup> Such casting technology is not learned quickly, thus it is not out of the question that this was an example of Cypriot technology and tradition dating from the Second Economic Cycle. Perhaps the Cypriots, as far as shipping technology and naval innovations were concerned, although they might have been fast followers after the Greeks and the Phoenicians, may well have been leaders in certain specialist areas.

### Cost of ships

An attempt can be made to estimate ranges of costs and prices of ship construction at the beginning of the Second Economic Cycle in 1200 BC, to its end in 525 BC. According to an interpretation of the following text, much discussed, and not very specific or clear in its meaning, the cost of building an average to large merchantman at the end of the First Economic Cycle, and the early years of the Second, was c. 540 Ug.sk, or 5 kg silver: '540 is the full amount of ship-silver that went into the ship for the king of Byblos, and 50 was the silver taken by the king of Byblos to clothe his ship. 40 silver is the market price here.'<sup>134</sup>

Christopher Monroe,<sup>135</sup> in his cost estimate for an average size merchantman, using Egyptian data from the New Kingdom period, up to 1069 BC, arrived at a similar value. He estimated a 40-cubit, 20-m mast at 4 *dbn*, the corresponding keel at 6 *dbn*, the cedar strakes and planks at 14 *dbn*, and the upper and lower yards at 2 x 10 = 20 *dbn*, all in silver. The total cost comes to 44 Egyptian *dbn* in silver. At 91 g per *dbn* this translates to c. 4 kg in silver. When adding other incidental costs, i.e. through beams and supports, deck and stairs, joinery material, sails, oars and ropes, as well as labour, the total is c. 5 kg silver, which generally is considered a reasonable figure.<sup>136</sup> Since the two estimates reach approximately the same amount, it seems fair to say that the cost of an average size merchantman in the

<sup>129</sup> Hdt. 8.60.

<sup>130</sup> Parpas 2013: 190–230.

<sup>131</sup> Murray 2012: 32–34.

<sup>132</sup> Linder 1991: 3; Kassianidou 2013a: 53.

<sup>133</sup> Murray 2012: 3, n. 1.

<sup>134</sup> Monroe 2010: 24; 2009: 113–117; 2015: 18; RS 18.025, *KTU* 4.338.

<sup>135</sup> Monroe 2010: 24–25.

<sup>136</sup> Monroe 2015: 18.

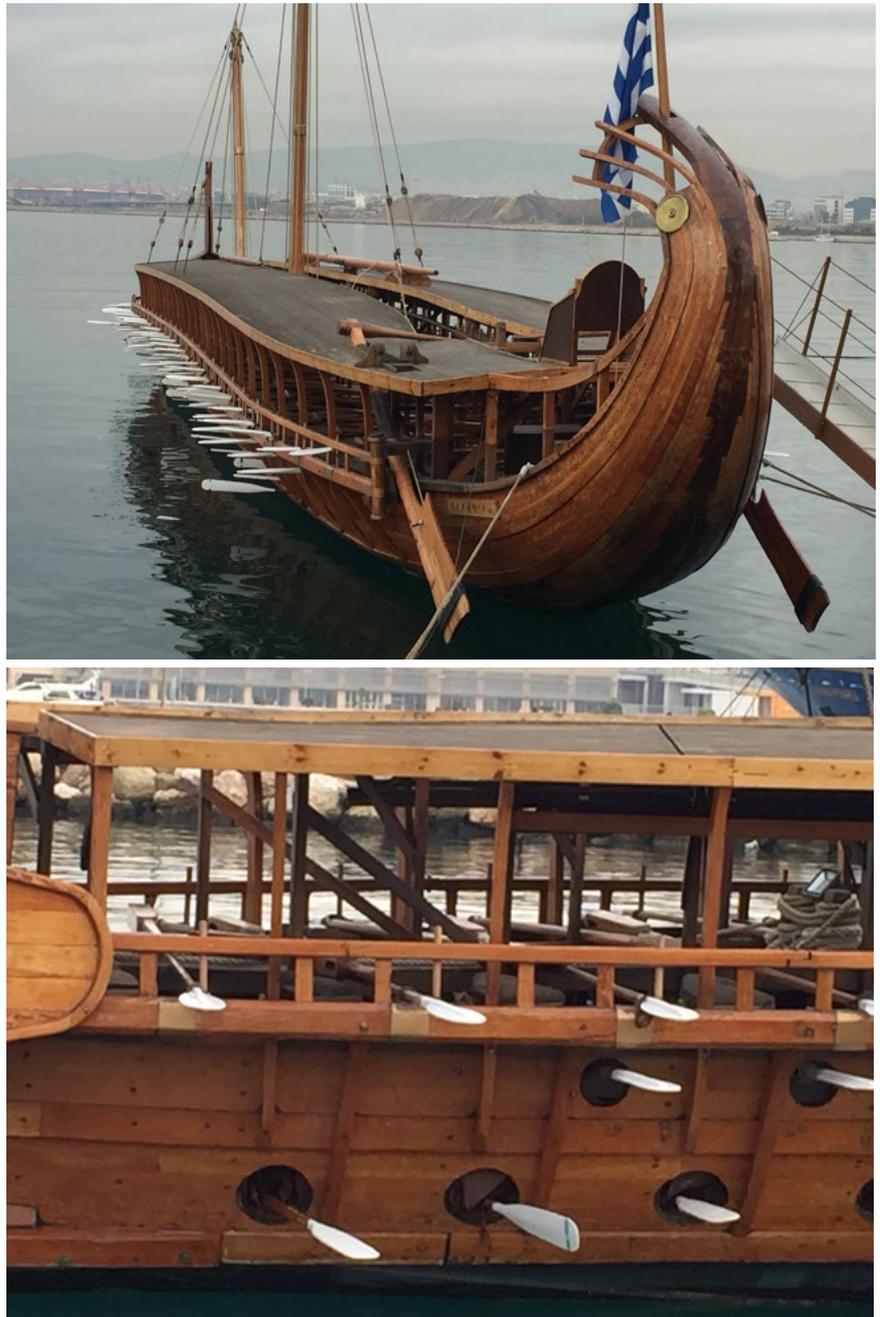


Figure 45: Top: *Olympias*, the Hellenic Navy's reconstructed ancient Athenian trieres in 1987, at Flisvos at Paleon Phaleron. During trial runs she reached a maximum speed of 9 knots or 17 kmph and could do 180° turns within a minute, in an arc not more than 2.5 ship-length (photo: the author). Bottom: Close-up of the rowing arrangements at three levels of a typical trieres gully (photo: the author).

Eastern Mediterranean in the early centuries of the Second Economic Cycle was in the order of 5 kg in silver.

Taking into consideration that the average cost of a donkey could be approximately 30 Ug. skl in silver, then for comparison purposes the cost of an average size ship in the 12th – 11th century BC was equivalent to an average cost of about 20 donkeys.

Assuming the price of 5 kg in silver per ship did not fluctuate dramatically during the period at the turn of the millennium, this means, as a tentative working hypothesis, for the Cypriot city-states and commercial maritime communities to have a moderate standing merchant fleet of, say, 20 ships then they needed to invest 100 kg in silver. This was serious money, but

judging from the wealth of the material culture of the island this was not beyond the financial capabilities of its elite authorities and mercantile societies. After all, they needed at least a moderate fleet of merchantmen to drive their maritime economy, which was the locomotive of their overall economy.

How construction costs for a merchantman evolved is not known, nor how costs increased from the beginning of the Second Economic Cycle to its end in 525 BC. What is known, however, is that sailors and rowers in the 5th century BC in classical Greece received a minimum salary of three *obols*, i.e. 0.5 drachm per day,<sup>137</sup> which may well not have differed much from what they would

<sup>137</sup> Hansen1986: 69.

have taken home at the end of the Second Economic Cycle. This translates to an average of 64.8 g in silver per month per sailor (30 days x 3 x 0.72 g). This is about four times the 15.6 g (1.66 x 9.4) in silver (see Appendix) a sailor would get as a monthly salary at the beginning of the Second Economic Cycle.

Assuming that the total cost of construction for a merchantman increased by the same order of magnitude as labour, one might estimate a sum of 20 kg in silver as the cost of a merchantman at the end of the Second Economic Cycle (Figure 46). How these costs developed, and whether there was a linear development, is not known. From the calculations presumed thus far, a fleet of 20 merchantmen costing a total of 100 kg in silver at the beginning of the Second Economic Cycle would have increased in price four times by the end of the Second, i.e. 400 kg in silver.

On the other hand, we do know that a *trieres* in the 5th century BC in the Classical period in Greece would cost c. 2 talents in silver, i.e. c. 52 kg in silver, which might be assumed to be roughly comparable to prices around the end of the Second Economic Cycle.<sup>138</sup> The comparable ratio of 1:10 between an average size merchantman at the beginning of the First Economic Cycle and a *trieres* at the end of the Second seems compatible with our overall analysis. The comparison estimates of the cost of a merchantman at the end of the Second Economic Cycle as being 20 kg in silver, and that of a *trieres* at the same time at 52 kg in silver, i.e. c. 2.5 times, seems also reasonable, taking into consideration that a *trieres* was 35 m long, compared to a maximum of 20 m for the merchantman, and of a much more complex and heavy construction, and intended for a different purpose than a merchantman. A *trieres* would weigh c. 20 tons empty,<sup>139</sup> i.e. two to three times heavier than an average size merchantman. A *trieres* took an estimated 6000 man-days to construct over a three-month period.<sup>140</sup> This works out to be a minimum of 0.5 talent ((3000 x 4.5) ÷ 27,000) in silver per *trieres*, i.e. c. 25% of its cost.

The *Olympias*, a replica of an ancient Athenian *trieres*, took 26 months to build between 1985 and 1987. It was a prototype, with most of its construction done by trial and error. It is, of course, of much different construction and principle of operation than the LBA/EIA merchantman. A basic difference in its construction is that the frame and shell were built last, unlike the LBA/EIA merchantman, whereby they were built first. As explained earlier, this indicates improved navigational and construction skills and knowledge. For its construction c. 17,000 copper nails of various sizes were used.

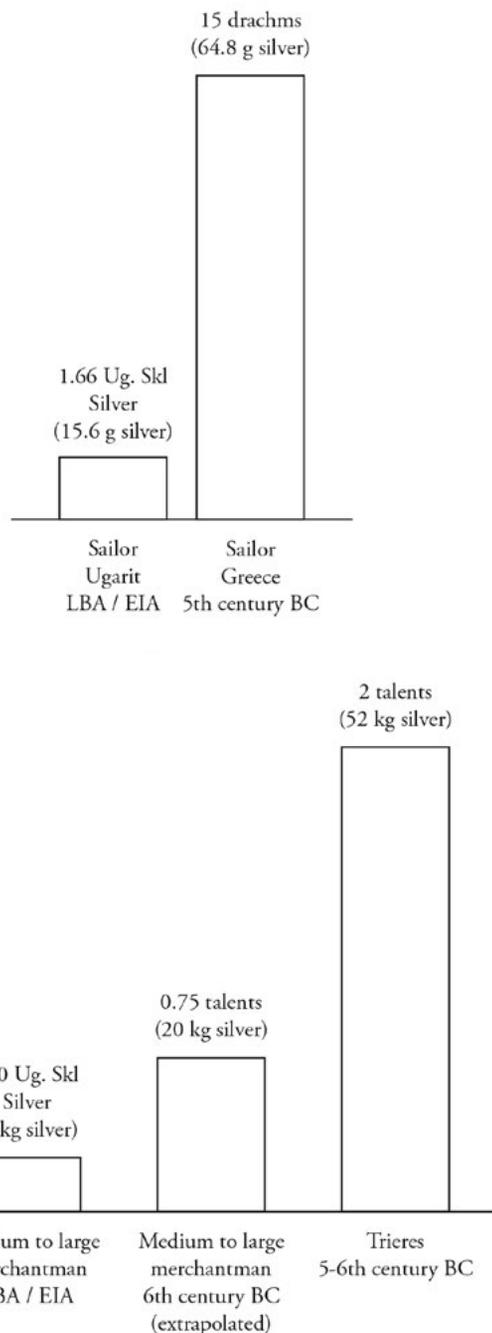


Figure 46: Top: Monthly LBA/EIA salaries in the Eastern Mediterranean. Bottom: Estimated construction costs of ships during LBA/EIA, and between the 5th – 6th centuries BC (drawing: Philipos Vasiliades).

**INTERNATIONAL DEVELOPMENTS AND RELATIONS DURING THE NEO-ASSYRIAN PERIOD**

Cyprus between the 9th and 6th centuries BC had to confront the eventual appearance of dominant regional powers – the Neo-Assyrian Empire, Egypt, and finally the Persian Empire. In particular during the 8th and 7th centuries they had to deal with a unique situation created by the powerful Assyro-centric economic system.

<sup>138</sup> Robbins 1918: 361–388.  
<sup>139</sup> Votruba 2017: 15.  
<sup>140</sup> Hanson 2005: 262.

### Cyprus in the shadow of the Neo-Assyrian Empire

Although direct contact between Cyprus and the Neo-Assyrian Empire did not extend beyond a short period of sixty to seventy years, between 709 BC to 640 BC, the overall effect that the Neo-Assyrian Empire had on the region, for almost two hundred years, had a decisive and lasting influence on Cyprus' geopolitical formation and consolidation, as well as the expansion of its maritime economy. The Neo-Assyrian world domination policies, driven by a colonialist and expansionist strategy, created a region of 'world-market' economy which promoted a mobility characterised by connectedness and fluidity, all under the watchful eye of the *Pax Assyriaca*. The Neo-Assyrian world domination and colonial expansion was the basis on which Assyrianisation can be conceptualised.<sup>141</sup> The Assyrian world domination created a political and economic environment and a world-market economy to serve Assyrian strategies and interests. Assyrianisation accelerated an orientalisising phase<sup>142</sup> already in process in the Aegean and Cyprus.

Assyrianisation and its world-market economy, with its features of mobility and connectedness, broke down national barriers and created its own winners and losers within the empire. It changed the way market forces worked and were applied. Cyprus, at the outer periphery of the empire, and having already a cosmopolitan and outward market-oriented society with an active maritime economy and naval capabilities, took advantage of the disappearance of barriers and the unleashing of powerful market forces, as well as the creation of easier and more cost-effective communications, and the island emerged as a clear winner with the minimum cost. Among the losers were the Levantine city-states. As a result of their enforced annexation to the Assyrian provincial network, they lost their independence for a short period, something that did not happen to the Cypriot city-states. The Cypriot maritime economy took advantage of this temporary setback to the Levantine coastal city-states to maximise further its wealth accumulation, thus affording the island a better infrastructure on which to base its expansion in the centuries to come.

As stated already, in the span of 230 years, the Assyrian kings invaded the Levant 67 times.<sup>143</sup> Between 734–716

<sup>141</sup> Angelika Berlejung (2012: 27) introduced the concept of the process of Assyrianisation in her paper, *The Assyrians in the West: Assyrianisation, Colonialism, Indifference or Development Policy*. She refers to colonisation as the concept that forms the background of Assyrianisation, which is a process that aims at limiting non-Assyrian political, religious and cultural standards and characteristics. In this way Assyrian standards were promoted and adopted in order to advance Assyrian policies and interests.

<sup>142</sup> Gunter 2014: 248–254. The term 'orientalisising phase' can be defined as the process by which Near Eastern cultures influenced Greece and the West.

<sup>143</sup> Berlejung 2012: 23.

BC the small Philistine coastal kingdoms were turned into vassal states, and between 738–664 BC all the Phoenician kingdoms were annexed to the Assyrian provincial network. Relations between Assyria and Tyros reached a very low level, as indicated by the humiliated figure of Ba'al seen next to a declared enemy of Assyria, the Egyptian prince depicted on Esarhaddon's victory stele erected at Zinzirli in Turkey to commemorate the Assyrian victory over Taharqa in 671 BC. The two belittled prisoner figures, believed to be the Egyptian crown prince Ushunhuru and Ba'al of Tyros (standing) seem to be begging the Assyrian king for mercy. The setback and regulation of Levantine free trade released favourable market forces for the expansion of the Cypriot maritime economy.

It can be argued that Assyrianisation was the catalyst that accelerated the territorialisation of the Cypriot city-states<sup>144</sup> already underway. In the case of Kition, it kickstarted and accelerated its territorialisation and helped it become a stronger city-state, supported by the development of a more robust and diversified industrial and naval economy. In this way it became less dependent on Tyros and the Levant, and, eventually, during the Classical period, managed to prevail over Idalion and become the dominant player in their common economic zone and one of the leading Cypriot city-states.

### The first state-controlled economy in history

Assyrianisation created the first world economy and world market, served by a well-controlled trade network. The idea of identifying Assyria as a 'network empire' was put forward by Liverani in 1988. In this part of the world, conquered by the Assyrians, the physical manifestation of the empire indeed should be seen as 'not a spread of land but a network of communications over which material goods are carried'.<sup>145</sup> While the empire was expanding geographically, a matter of key importance was the control of commercial routes and their intersections through which trade and movements of people and goods were conducted. By creating a closely supervised trade network the Assyrians could control and regulate wealth within their empire. Through the trade routes of their network, they were able to direct tribute and commerce, as shown in Figure 47. Cyprus, although on the periphery, being a contact zone and a conduit between East and West, became eventually an active member of this network. And that was the basis on which its maritime economy flourished.

As shown in Figure 48, the Assyrians established their own institutions for trade, redistribution of goods, control of smuggling, and the collection of customs and

<sup>144</sup> Iacovou 2002: 82–83

<sup>145</sup> Liverani 1988: 86; see comments and criticism by Postgate 1992 and Fantalkin and Oren Tal 2015.

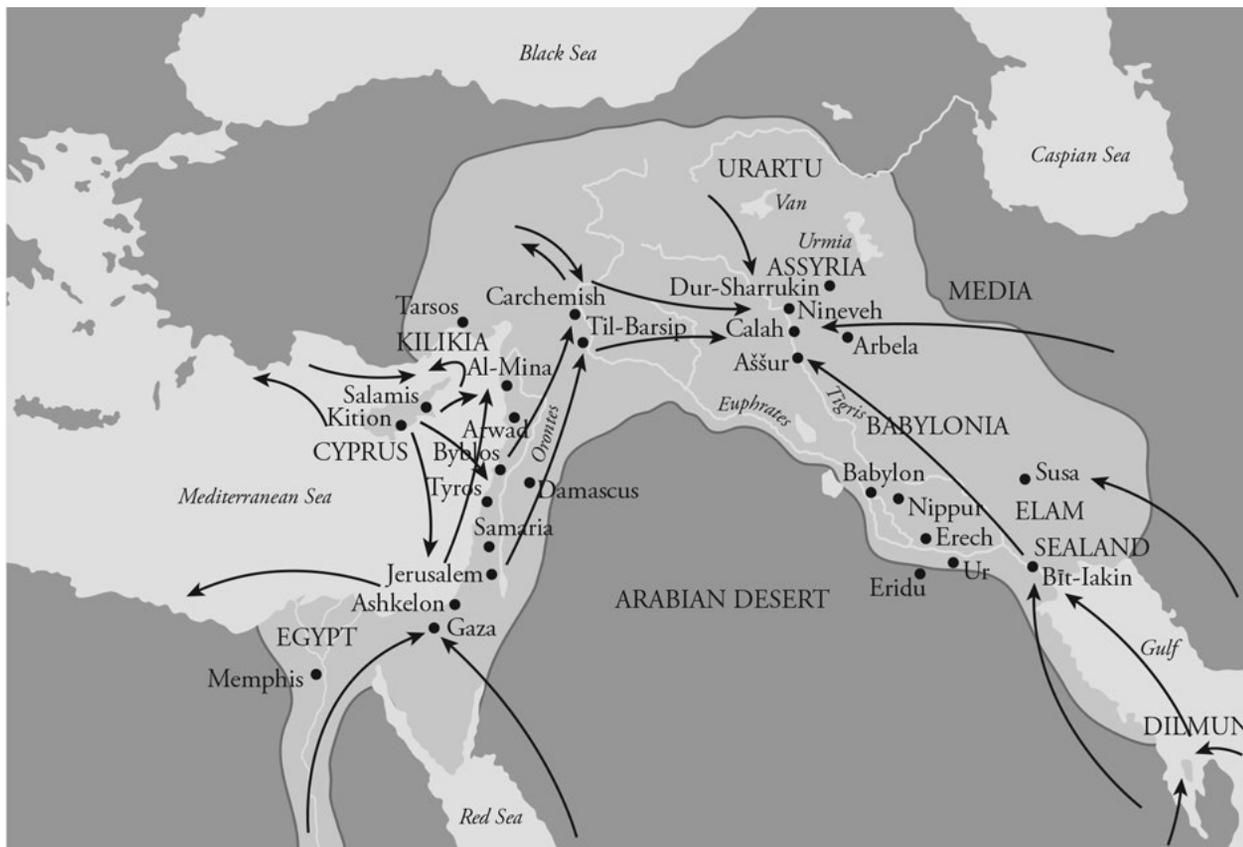


Figure 47: Trading routes during the Neo-Assyrian period (drawing: Philipos Vasiliades).

import duties. This was all done within trading ports and *emporía*, as well as at other strategic locations, e.g. river crossings, production centres, and big cities. These institutions, which were the links of the trade network, were called *karu* (i.e. quay, port of trade, trade colony, *emporion*) and *bit kari* (i.e. the house where the administration of commercial activity took place, the customs house). The locations were fortified centres, suitably equipped for the purposes for which they were built. Apart from administrative personnel there were backup police and military units. The Assyrian officer in charge of a *karu*, in addition a wide range of authority, had to restrict trade activities and impose financial sanctions and embargoes on trade. Figure 48 illustrates the extent of the Assyrian *karu* network: it is worth noting, and it was certainly not a coincidence, that the alignment of the *karu* network in the west was in parallel with the shape of the western arc of the Sargon stela (Figures 48, 31).

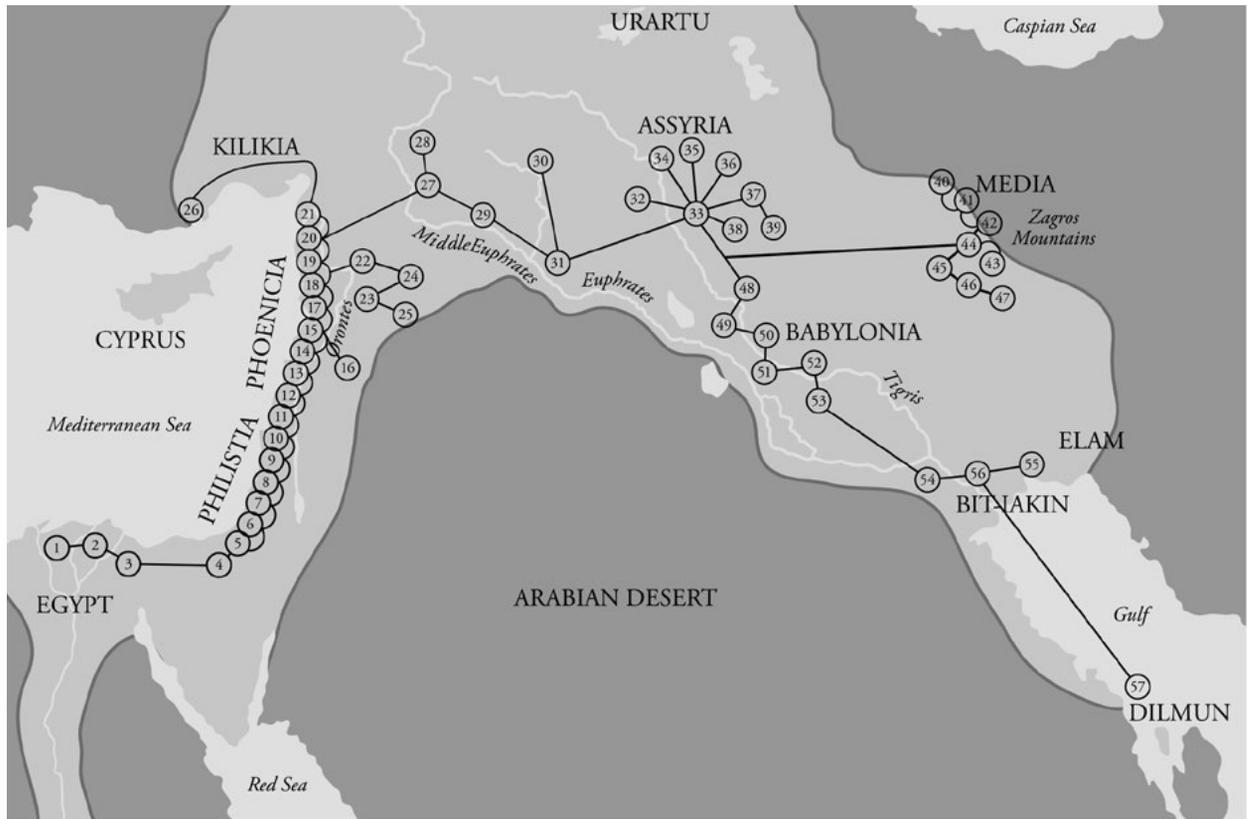
Of particular importance for the Cypriot maritime trade was how extensively the Assyrians covered the entire Levantine and Syrian coast with *karu* stations, at least twenty-six of them. Anna Cannavo<sup>146</sup> picks up that ‘The Assyrian domination of Cyprus was not only a matter of propaganda and military supremacy but also

(and above all) a matter of circulation of goods and of economic interest’. Although there is no evidence that Assyrians occupied Cyprus militarily, this *karu* network, the vehicle for the circulation of goods, in combination with a heavy Assyrian military and naval presence along the Levantine littoral, could block and control Cypriot trade. As a result, the Cypriot city-states were forced to pledge their allegiance to the Assyrian king and declare their subordination and submission, and at the same time join the Assyrian Empire as a client state under some sort of vassal status. The Cypriots, who, as from 707/708 BC, must have signed an alliance and peace treaty with the Assyrians, were expected to pay regular tribute and contribute to the war efforts of the Assyrians by supplying ship and marines.

It is also likely that the Cypriot city-states ratified Esarhaddon’s Succession treaty in a ceremony that took place in the House of Succession in Nineveh in 672 BC. In the ceremony ‘all those over whom Esarhaddon king of Assyria, acts as king and lord’<sup>147</sup> participated and took a loyalty oath to abide by the terms of the treaty. According to Ashurbanipal’s royal inscription, all the nations ‘from the Upper (Mediterranean) to the Lower Sea (Persian Gulf)’ took part in this binding

<sup>146</sup> Cannavo 2007: 179

<sup>147</sup> ANET, 534ff; Parpas 2018: 276–281; Stylianou 1992: 387, n. 92. Stylianou: 387, n. 93, accepts that Cypriots participated in Esarhaddon’s succession treaty.



**EGYPT**

- 1. Kāru of Naukratis
- 2. Kar Baniti (Pelusion)
- 3. Kar Bel matate (Nile Delta)
- 4. Brook of Egypt

**PHILISTIA**

- 5. Gaza
- 6. Ashkelon
- 7. Ashdod-Yam

**PHOENICIA**

- 8. Dor
- 9. Akko
- 10. Tyros
- 11. Kar-Esarhaddon  
(Kār Aššur ahu-iddina)
- 12. Byblos
- 13. Ellisu
- 14. Arqa
- 15. Šimorra
- 16. Kāru network on Mount Lebanon
- 17. Arwad  
(Kāru ša KUR Aššur or Kāru ša šarri)
- 18. Usnu
- 19. Siannu
- 20. Resi surri
- 21. Ahta

**NORTHERN SYRIA**

- 22. Hamath
- 23. Kar Adad
- 24. Halab
- 25. Kullani

**KILIKIA**

- 26. Tarsos

**MIDDLE EUPHRATES**

- 27. Till Barsip, Kar Shalmaness  
(Kār Šalmānu ašarēd)
- 28. Carchemish
- 29. Kār-Aššur-nāsir-apli
- 30. Kar Adad nerari
- 31. Kar Sin

**ASSYRIA**

- 32. Kar Apladda
- 33. Kar Assur
- 34. Kar balati
- 35. Kar banapa
- 36. Kar Mullissu
- 37. Kar Nuri
- 38. Kar Samas Nasir
- 39. Kar Tukulti Ninurta

**ZAGROS MOUNTAINS / MEDIA**

- 40. Kar Adad
- 41. Kar Ishtar
- 42. Kar Sin
- 43. Kar Nabu
- 44. Kar Sharrukin (Kār Šarru ukīn)
- 45. Kar Sennacherib (Kār Sīn ahhi eriba)
- 46. Kar Sipar
- 47. Kar Kassi

**BABYLONIA**

- 48. Kar Bel matate
- 49. Kar Enlil
- 50. Kar Ishtar
- 51. Kar Nanay
- 52. Kar Samas
- 53. Kar Nergal

**BIT IAKIN / THE GULF**

- 54. Kar Nābu
- 55. Kar zer iqisa
- 56. Kar Nana
- 57. Dilmun

Figure 48: The Neo-Assyrian world trade network, karu (drawing: Philipos Vasiliades, after Parpas 2018: 72–73, Fig. 8).

agreement to support his ascension to the throne of Assyria. At least seventy-one provinces and thirty-nine client kingdoms participated,<sup>148</sup> among them the Cypriot city-states. The signing of such treaties was one of the cornerstones of Assyrian strategy for assuring obedience and consolidating economic and territorial expansion: it increased the obligation of subordinate vassal states and became divine destiny. The participation of Cypriot cities in such ceremonies and treaties created responsibilities, but at the same time strengthened their position in the empire and opened up more opportunities for their commercial and maritime activities.

**The Assyrian naval presence in the Eastern Mediterranean**

The Assyrians, before their power waned, c. 620 BC, built a substantial naval infrastructure along the Levantine coast and were able to control the sea-lanes in the triangle between the Levant, Cyprus, and Kilikia (Figure 50). While in the 8th century they had to rely mostly on the navies of their allies and vassal states on the Levantine coast to ward off piratic activities and raids (Figure 49), as from the 7th century BC there is evidence that eventually they established their own navy.<sup>149</sup> At Sidon they had their naval headquarters – Kar-Esarhaddon – from where we can presume, they directed their naval activities. It is understood that Kar-Esarhaddon was used as the Assyrian central naval command centre on the Levantine coast, where

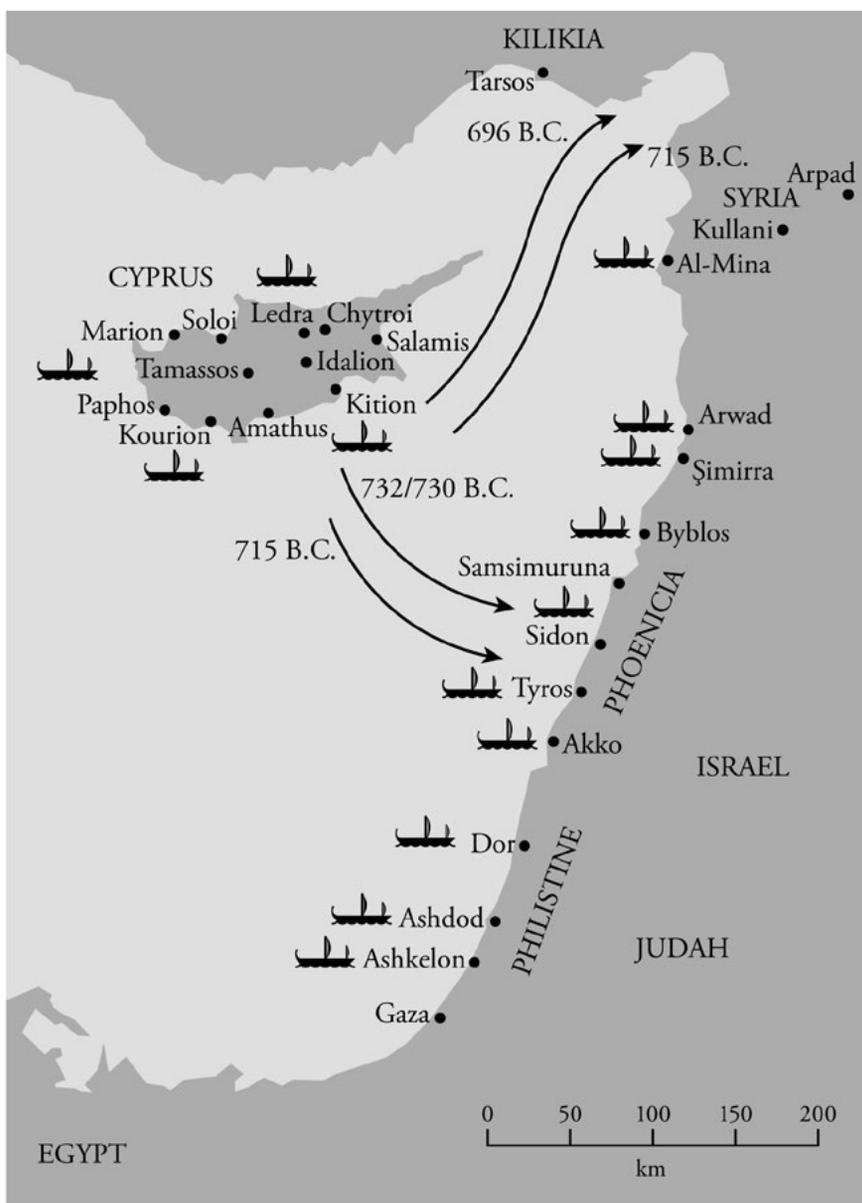


Figure 49: The Yamanean and Assyrian conflict zone, showing piratic activities and raids in the triangle between the Levantine coast, Cyprus, and Kilikia (drawing: Philipos Vasiliades, after Parpas 2018: 103, Fig. 9).

<sup>148</sup> Lauinger 2013: 290; 2013a: 104, n. 22.

<sup>149</sup> Parpas 2018: 95–126.

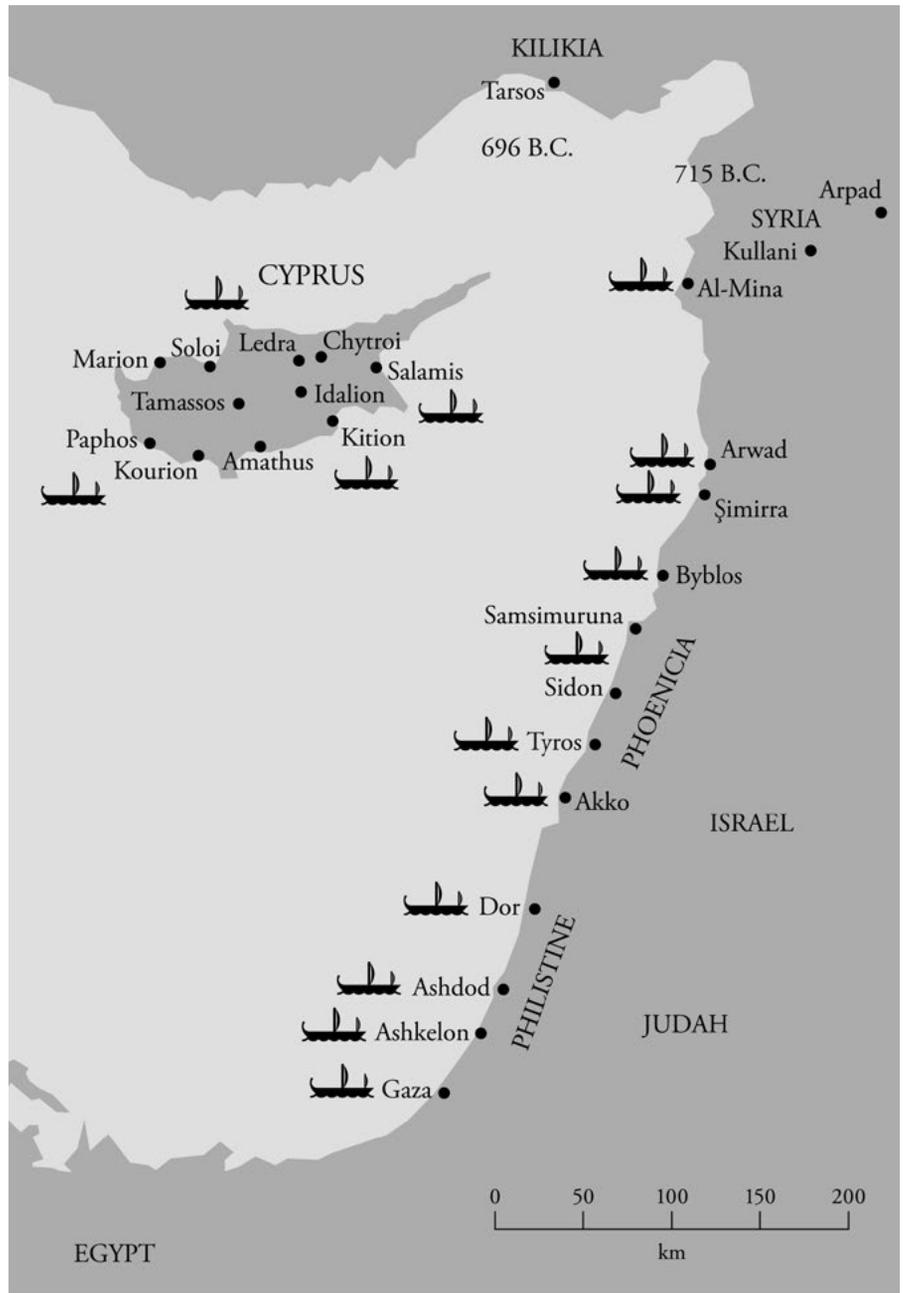


Figure 50: Assyrian naval domination along the Levantine coast (drawing: Philipos Vasiliades, after Parpas: 2018: 56, Fig. 5).

the Assyrian fleet may have been stationed. This fleet consisted of transport and warships belonging to the Assyrians, built by Phoenician shipwrights, and manned by sailors from the subjugated lands – mostly Tyrians, Sidonians, and, probably, Cypriots. There is also textual evidence that the Assyrian coastal governors and military commanders had warships under their command, as deduced from a letter sent to Ashurbanipal just after 650 BC by the governor of the Sealands in southern Mesopotamia, Bell-Ibni.<sup>150</sup>

Cypriot participation in Assyrian naval activities is attested by Sennacherib’s inscription in 694 BC, claiming that he constructed a navy in Nineveh for

his campaign in southern Mesopotamia manned by sailors from his vassal states in the Mediterranean, among them sailors from Cyprus.<sup>151</sup> The Cypriot city-states participated with their navies and armed forces in Ashurbanipal’s campaign against Egypt in 667 BC. Cypriot auxiliary troops also participated in Esarhaddon’s earlier campaigns against Egypt,<sup>152</sup> and this military and naval support was an obligation derived from treaty agreements between the Cypriot city-states and Assyria.

Ashurbanipal’s campaign against Egypt would indicate that the vassal city-states of the Levant and Cyprus had

<sup>150</sup> Kelly 1992: 18, n. 62.

<sup>151</sup> Frahm 1997: 116–118, T29; Luckenbill 1924: 73, II 57–61; Parpas 2018: 113.

<sup>152</sup> Starr 1990: 155–156.

their own navies that they were obliged to put at the service of the king in times of war. These additional naval assets from the vassal kingdoms, in the periphery of the Assyrian Empire, served as a complementary force to a nascent Assyrian navy that was already at the disposal of the Assyrian coastal commanders. Esarhaddon's treaty with Ba'al would seem to make clear that the Tyrian king had his own ships. The royal ambassador, *qēpu*, who was responsible for the implementation of the treaty must also have had ships at his disposal, or was supported by the navies of the coastal commanders from the Assyrian naval headquarters at Kar-Esarhaddon, otherwise he could not administer effectively the terms of the treaty. Without Assyrian naval assets Ba'al could not be properly supervised.

Because of overwhelming Assyrian military and naval power and presence, the Cypriots had no choice but to align themselves with the interests of the only regional superpower, Assyria, and place their maritime and naval assets at Assyria's disposal as and when needed. From Assurbanipal's listing of Cypriot warships and troops supporting his campaign against Egypt in 667 BC, it seems likely that it was the king of each individual city-state who had the obligation to provide the ships and crews, as well as logistical support. It is not known whether these kings had standing fleets for this purpose, or whether the ships were built when required; neither are the numbers of ships provided known, nor the men (sailors, oarsmen, officers, troops). Cypriot contributions to the naval war effort can well be considered as regular and mandatory tributes, *mandattu*,<sup>153</sup> although how Cypriot navies were financed is unknown. Did the Assyrians contribute? Did they meet all the costs, or was it the sole responsibility of the vassal king and his treasury? Or did the aristocratic elite families of his city provide some finance for some of the ships and crews in exchange for trade concessions and political support? We do not know whether naval assistance was also provided when Cypriot auxiliary troops participated in Esarhaddon's campaign against Egypt, nor under what financial and political terms this military participation was arranged. This lack of knowledge shows how little is understood of how Cypriot city-states had to act within the Neo-Assyrian Empire. Nevertheless, these naval and military activities reveal the wealth and financial strength, as well as the elevated political and naval status, of the Cypriot city-states at the time of the Neo-Assyrian Empire.

### Customs, practices, and regulations governing international trade

The internationalism characterising the First Economic Cycle led to an obligation by all regional states and their institutions to comply with the regional customs, laws,

and norms of the sea regulating trade and commercial transactions. However, Assyrianisation during the Neo-Assyrian period in the Second Economic Cycle imposed its own obligations, this time to abide by the rules dictated by the Assyrian king. The Cypriot institutions, trading organisations and merchants, as well as the mariners running the island's maritime economy, long-distance trade, and other maritime activities, had to be aware of the new customs, practices and regulations imposed by the Neo-Assyrians that governed international trade, otherwise they ran the risk of being excluded from the new world-economic system dominated by the Assyrians.

#### *Taxes and duties*

From the letter<sup>154</sup> written by the Assyrian governor of Simirra, Qurdi-Assur-lamur, to the Assyrian king Tiglath-Pileser III (744–727 BC), it looks clear that one of the functions of the Assyrian *karu* trade network was to collect taxes at places of production as well as taxes on trade of manufactured goods and raw materials, e.g. timber from Lebanon. To accomplish this the Assyrians appointed tax collectors at *karu* stations and ports of trade along the coast like, e.g. Sidon. It is not known whether there were such *karu* stations on Cyprus. The evidence up until now does not support such a proposition, but it may be safely assumed that any Cypriot merchantman entering a port of trade on the Levantine coast under the jurisdiction of the Assyrians was obliged to pay taxes, import duties, or transit taxes (*miksu*) to them.

#### *Embargo and trade restrictions*

Through their *karu* network the Assyrians were able to impose trade restrictions and controls on strategic commodities and products. They were also able to impose sanctions on countries and regions considered to be a threat to their security. They were therefore very sensitive over the trade of cedar wood used for shipbuilding, or other raw materials, such as copper and iron, that could be manufactured into weapons; they were also careful about the trading of camels and horses which could be used for trading and military purposes. Subsequently they were very particular in preventing smuggling and commercial activities that bypassed their system. From the same letter that Qurdi-Assur-lamur wrote to Tiglath-Pileser III we learn that an embargo was imposed on the trade of cedar wood from Mt Lebanon, suitable for shipbuilding, to the Egyptians and the Philistines. Evidently the Assyrians did not want the Egyptians and Philistines to increase their shipbuilding capacity and naval and maritime capabilities. Cyprus was also a traditional supplier of shipbuilding timber, and it would be paradoxical for the

<sup>153</sup> Parpas 2018: 251.

<sup>154</sup> Dezso 2013: 355, n. 159; Parpas 2018: 81–85.

Assyrians to have regulated so carefully and diligently the export of cedar wood from Lebanon but at the same time allow the Cypriots to operate independently and break the embargo and be out of control. It is reasonable to think that the same arrangement might have *de facto* applied on Cypriot copper and iron, the island's main income earners from long-distance trade. We must therefore presume that Cypriot city-states, merchants and traders would have been very careful how they addressed such sensitive matters.

#### *Royal and city quays at ports of trade*

From the letter written by the Assyrian governor at the port of Arwad, Itti-Samash-Balattu,<sup>155</sup> to King Esarhaddon (680–669 BC) we learn that the Assyrians were operating a dual system of trade and tax collection at major seaports. This comprised of the royal quays or harbours managed by Assyrian officials and those run by a local authority, say the local king, with an obligation to pay taxes and duties on the trade that ran through it. At Arwad, the harbour operated by the Assyrians was called the 'Assyrian Port', *Karu-sa-KUR Assur*, or 'Harbour of the King', *Karu sa sari*.<sup>156</sup> The control of Arwad's activities was important for the Assyrians, not only for its transit trade but also for its shipbuilding industry: the shipwrights from Arwad to this day are renowned for their skills. The Assyrians might have been compelled to apply this dual system to gain experience in long-distance trade at sea and in the interest of the free flow of maritime commerce. They might have applied this in locations where it was difficult for them to have absolute military control, i.e. at Arwad, an island some distance from the coast. There is no evidence that such arrangements applied in Cyprus, but Cypriots must have been aware that they existed and gauged their political and maritime behaviour accordingly. These were important external factors that influenced how the island's maritime economy was conducted. To reconstruct a reasonably accurate picture of Cyprus' maritime economy and affairs then these factors should not be overlooked.

#### *Intermediaries*

From the same letter by Itti-Samash-Balattu we learn that local vassal kings, in order to have access to the decision-making process of the palace at Assur, used the services of well-connected intermediaries or lobbyists. These intermediaries might have been traders or members of elite families who travelled often to Assur for this purpose. Such an intermediary was a person called Ilu-ma'adi, from Simirra, who clearly used his connections at Assur to advise the king of Arwad. Members of the elite families of Assur used such contacts and channels of communication for their investments and to advance

their commercial interests at the busy emporia along the Levantine coast. This reveals a sophisticated and complex entrepreneurial environment, not only at the heart of Assur but at its periphery as well. This is the environment that the Cypriot kings and the island's trading and maritime societies running its maritime economy and long-distance trade should have been aware of, and been part of as well. Intermediaries such as Ilu-ma'adi from Simirra were useful to them, as were the royal merchants, *tamkārū*, appointed by the king to collect tribute and source raw material and commodities on his behalf. The Neo-Assyrian *tamkārū* were royal merchants sanctioned by the king and equipped with quasi-diplomatic status.<sup>157</sup> They operated with great independence and most of them were wealthy individuals, sometimes lending money to the king himself. They were so powerful that only the king could overrule their actions or decisions related to their jurisdictions.<sup>158</sup> When the Commageneans, the inhabitants of a vassal state close to Assur, delivered 'red wool', purple-dyed wool, to Assur as gift or tribute, then it was the king's *tamkārū* who took delivery and selected seven talents of the wool to be delivered to the king's weavers. When a dispute arose between the *tamkārū* and the Commageneans the matter had to be referred to the king for settlement.

To participate and succeed in the Neo-Assyrian dominated world economy, the Cypriot traders and merchants must have been well aware of these elaborate networks of communication. These operated on the basis of the principal/agent relationship, one of the cornerstones of NIE analysis. From the unprecedented richness of Cyprus' material culture during this period, and in the years that followed, it is evident this is what happened. The Commageneans, in order to look after their commercial and political interests at Assur, installed their own embassy. It is not unreasonable to presume other trading partners with Assyria, possibly Cyprus as well, did the same.

#### *Esarhaddon's treaty with Ba'al of Tyros*

The sea triangle formed by the Levantine coast, Cyprus and Kilikia became a conflict zone between the Yamaneans (Ionian or Eastern Greeks?) and the Assyrians. The conflict reached its peak between 730–696 BC, during the reigns of Tiglath-Pileser III, Sargon II, and Sennacherib. The region was finally pacified with Esarhaddon and Ashurbanipal's naval domination of the maritime region, and the Assyrians were thus able to impose their own rules and regulations, which, in some cases, overturned millennia-old customary practices. These are the new arrangements that Cypriot seafarers and traders, as well as persons involved in the

<sup>155</sup> Dezso 2013: 358, n. 170; Parpas 2018: 75–81.

<sup>156</sup> Elat 1991: 27, n. 31.

<sup>157</sup> Radner 1999: 101.

<sup>158</sup> Parpola 2015: 33; ABL 196.

island's maritime economy, would have been aware of. An example can be seen in the treaty Ba'al, king of Tyros, signed with Esarhaddon in 675–674 BC. In this, among other matters, the Assyrian king and his royal deputy, *qēpu*, in charge of the administration of the treaty,<sup>159</sup> were given the right to take into custody and confiscate any Tyrian ship, royal or private, military or merchantman, which was shipwrecked, damaged or rammed along the entire Levantine coast. This right given to Assyria by this treaty ran contrary to an ancient practice in the Mediterranean seaboard and deprived the Tyrians of long-enjoyed sea-trade rights.<sup>160</sup> In this way, access to safe anchorage and shelter on the Levantine coast, for protection from storms or pirates, was provided at a price to be met by the owner of the ship or cargo. An important term in the treaty was that seamen and sailors on board were to be left unharmed. Evidently such new arrangements and restrictions on the Levantine coast could benefit Cypriot maritime economy – it made Cypriots ports and anchorages more attractive, in case of piratic attacks and storms – as it is hard to consider that similar conditions to those stipulated in the treaty Esarhaddon signed with Baal would have applied to shipwrecks around the Cypriot coasts. The fact that Cyprus is not mentioned in the treaty as one of the lands that Tyros had jurisdiction over, is proof that Cyprus, or part of it, was not subordinate to Tyros.

#### **A maritime transaction with an Assyrian royal merchant, *tamkārū* or ambassador, *qēpu***

A fragmentary inscription from the Kouyunjik Collection in the British Museum, dated in Esarhaddon's reign (680–669 BC), mentions a treaty that Esarhaddon entered into with a Cypriot king.<sup>161</sup> It also refers to an Assyrian from Cyprus called [...Ze]ru-iddina,<sup>162</sup> together with a person of western Semitic origin by the name of Risiti-Baal. In spite of its fragmentary state, it is evident that the inscription, which is in the form of a query to the sun-God Samas, is suggesting that Esarhaddon concluded a treaty with a Cypriot, presumably a king. As a result of the treaty, most probably the Cypriot king put his ships and crews at the service of the Assyrian king, or he entered into a maritime venture with him.

The Assyrian named in the inscription could either have been a royal trade agent (*tamkārū* =DAM.GAR), or a royal ambassador – *qēpu*. As mentioned previously, the Neo-Assyrian *tamkārū* were royal merchants hired to collect, allocate and transport tribute, and/or provide the Assyrian kings with the goods needed by the empire. These men were involved in international

commerce and the buying and selling of commodities on behalf of the king.<sup>163</sup> Cypriots were used to dealing with such royal merchants. During the Amarna era we have evidence (EA39) that the king of Alashiya used *tamkārū* merchants in his dealings with the pharaoh of Egypt. The fact that a person of western Semitic origin, [...R]isiti-Baal, possibly a Phoenician, is mentioned in the inscription, might suggest that the Assyrian *tamkārū* had a Phoenician associate. This is not unreasonable, given the intimate trading connections of Phoenicians with Cyprus, and their skills in commerce and trading. Therefore, from such evidence it is not unreasonable to think that, during the Neo-Assyrian period, Cyprus' maritime economy and trade were closely associated with the Assyrian state-controlled trade network.

At the same time, the inscription refers to a treaty, replicated and used elsewhere, that was mostly administered by a royal ambassador or deputy (*qēpu*). It is presumable therefore that [...Ze]ru-iddina was the royal ambassador entrusted with the duty of supervising the implementation of the treaty's terms. This royal ambassador most probably resided on an Assyrian base on the Levantine coast but travelled to Cyprus regularly to monitor Cyprus' obedience to Assyria and supervise the vassal treaty that regulated Cypro-Assyrian relations. There must have been quite a lot of transit trade going through Cypriot ports, as well as exports of local commodities, which made such supervision by a dedicated Assyrian official essential. The fact that Esarhaddon was seeking guidance from the sun-God Samas is an indication that he considered that the terms of the treaty might not have been fully respected and he was looking for a remedy. It looks highly likely, therefore, that factors relating to the Cypriot maritime economy during the peak of the Neo-Assyrian Empire were under close scrutiny and regulation.

#### **THE PRODUCTION AND TRADE OF COPPER, IRON, AND SILVER. NEW FEATURES TO AN OLD INSTITUTION**

As mentioned previously, there is a general consensus characterising Cyprus as the leading producer and exporter of copper and metallurgical products in the LBA and First Economic Cycle. The island had vast reserves of copper, and Cypriots acquired advanced skills and techniques to process metals. Furthermore, their long-distance trading activities provided them with marketing know-how and intimate knowledge of sources of raw material and trade routes, as well as loyal partners and customers.

The transition to the Early Iron Age, during the Second Economic Cycle, is marked by the introduction of a new metal, widely available in abundant quantities,

<sup>159</sup> Parpola and Watanabe 1988: iii, 15–17.

<sup>160</sup> Elat 1991: 27.

<sup>161</sup> Starr 1990: 108; K4269.

<sup>162</sup> Cannavo 2015: 5, n. 33; Tuplin 1996: 29.

<sup>163</sup> Parpas 2018: 268–276.

iron, thus making metal production relatively less dependent on long-distance trade. During this period of the commercialisation of iron, the wide use of copper was challenged, but in spite of the fact that significant quantities of iron supplemented copper for the manufacture of weapons and other domestic and agricultural implements, the iron products being sharper and less fragile than bronze, copper and its alloys remained still very much in use, and thus still very important commodities. In spite of renewed competition in the international markets from production centres, i.e. Timna, Feinan, etc., the evidence supports that Cyprus retained its position among the leading producers of metals and metallurgy products. Thus, although after 1200 BC the archaeological record reveals little in the way of typical Cypriot oxhide ingots, that represented standardisation and centralisation of its production and distribution, copper was still very much worked in Cyprus during the EIA and the 1st millennium BC.<sup>164</sup>

The evidence suggests that significant changes took place in copper production and metalworking organisation on the island. The radical architectural developments, from the end of the First Economic Cycle, to the 'Fortress' building at Enkomi points to the creation of a metalworking system based on separate and independent residential units/workshops, run by small, probably family-based, enterprises. It is not known how much these private arrangements affected the organisation and control of the First Economic Cycle (as depicted in Fig. 18). As already argued above, this reorganisation was done to 'outsource' part of the production to independent private households. It was geared towards a more optimised cost structure and a more flexible business model. Nevertheless, such arrangements at Enkomi, and perhaps elsewhere on the island, were the seeds of the change that followed in the Second Economic Cycle.

With the fragmentation of the political environment in the Second Economic Cycle and the creation of independent city-states, each in control of its own economic zone, the supply chain of copper production and marketing from one centrally controlled institution became obsolete. It was split, and essentially transferred to the individual city-states. Although it came under a more entrepreneurial and competitive environment, the need for central control from the ruling families of the individual city-states and independent economic zones did not disappear. The complex process of finance, production, quality control, export, and the marketing of copper required such coordination that state guidance and central management were still necessary. Additionally, the ruling families of the individual states were not prepared to let such important sources

of wealth and power out of their control. This time, however, there was more involvement in the process from the increasingly more commercially active private entrepreneurial communities<sup>165</sup> of the various city-states themselves. From the available evidence,<sup>166</sup> a form of island inter-regional cooperation was now established between inland production centres, i.e. Idalion and Tamasos, and the coastal centres at Kition and Salamis.

During the 12th century BC, at the beginning of the Second Economic Cycle, and following the collapse of international order, when Assyria and Mesopotamia were reaching out to establish their own sources of metal supplies, especially copper, there are traces possibly of some sort of trading relationship between them and Cyprus as a source of copper.<sup>167</sup> According to some Babylonian economic records of the 12th century BC, during the Kassite period, sometime after the reign of Adad-shuma-iddina (1222–1217 BC), there was a shift in the standard of currency from gold to copper. According to R. Zettler, 'some sort of access to the Mediterranean region remained open', since a copper oxhide ingot was found in the palace at Dur-Karigalzu, together with a copper mace and daggers, an inscribed copper adze, and a bronze dagger.<sup>168</sup> The most logical conclusion is the probability that Cypriot copper and bronze were traded at that time to Assyria and Mesopotamia, via Phoenicia, Kilikia, and Syria.<sup>169</sup>

Cypriot copper found its way to the Aegean, Sardinia, and the West as well; it was also a commodity of keen interest among the island's Phoenician trading partners. The 'Baal of Lebanon' inscriptions, found in a shop in Limassol in 1877 and dated c. 780 BC,<sup>170</sup> although problematic in their interpretation, seem to suggest a lively interest in Cypriot copper by the Sidonians, and the Phoenicians more generally. This is not surprising, considering that the major trading partners to the Phoenicians, the Assyrians, were using mainly copper for their coinage. All this provides more evidence that Cypriot copper was in demand and traded to Assyria.

Southern Levant has provided evidence of its own copper supplies and there actively mined, e.g., at Timna and Wadi Feinan. In later periods, Iberian copper producers were also actively involved in its mining and distribution, as shown from the Phoenician wreck dated to the second half of the 7th century BC, excavated at Bajo de la Campana in south-eastern Spain: finds included tin and copper from at least eight different

<sup>164</sup> Kassianidou 2012a: 232–237.

<sup>165</sup> Pickles and Peltenburg 1998; Sherratt 2016: 295.

<sup>166</sup> Papantoniou and Satraki 2019: 340–353.

<sup>167</sup> Birney 2007: 30, 31.

<sup>168</sup> Zettler 1992: 35, 36.

<sup>169</sup> Birney 1987: 36.

<sup>170</sup> Lipinsky 2004: 48.

mining sites in the region.<sup>171</sup> Evidently Cyprus was not alone in the trade of copper, but the island managed to continue as one of the leading producers and exporters, based on its huge quantities of copper on the island, its tradition, and its active and competitive maritime economy.

Nevertheless, it is thought that Cyprus was among the first to make the transition from copper to iron.<sup>172</sup> The coastal urban centres of Cyprus provide the earliest evidence for the introduction of the new iron technologies, e.g. carburisation and quenching.<sup>173</sup> Although there are no obvious iron resources on the island, it has been argued that such sources of iron could be found among the copper-smelting slags and the iron-rich ochres, umbers, and gossans available on the island.<sup>174</sup>

According to textual records from the 3rd and 2nd millennia BC, iron was originally known primarily in its unworked, meteoritic form, and was thus extremely rare and highly valued.<sup>175</sup> In the Sumerian *Lugalbanda Epic*, it is referred to as KU-BI AN-NA, 'metal of heaven';<sup>176</sup> 18th-century BC Mari texts call it *ku.an*, 'precious metal of the sky'; to the Hittites it is AN.BAR.GE, 'black iron of the sky'; and to the Egyptians, at around the time of Tutankhamun, it is also known as 'iron of heaven'.

Old Assyrian texts show that the value of meteoric iron was between 35 to 40 times more expensive than the value of silver. In the Old Hittite Kingdom texts, iron appears as an object of value for gift exchange and tribute.<sup>177</sup> By the Neo-Assyrian period, however, it appears only rarely in tribute lists, and appears more in the archaeological record recognised for its utilitarian function.<sup>178</sup> The turning point from luxury to utilitarian and functional use seems to have taken place around the 12th century BC, with Cyprus having a central role in this transition. It has been suggested that the original development of iron as an item of mass production occurred on Cyprus, and that Cypriot transporters and traders were responsible for the original distribution of iron and its products to the Levant.<sup>179</sup>

The production of this new metal required a technology capable of casting iron at a higher temperature (1540°C) than casting copper and tin (1100°C). This required the increased application of energy, which Cyprus was able to provide due to the abundant availability of wood. Indeed, a case can be made that Cypriots contributed

significantly to the development of the technique of adding carbon at high temperatures, followed by abrupt cooling (tempering), a deciding factor that made iron preferred to bronze;<sup>180</sup> and that the island's metal industry, from the 12th century onwards, was a leader in the exploitation of functional iron,<sup>181</sup> playing a key role in the industrial production of iron and the knowledge of iron metallurgy,<sup>182</sup> with its maritime economy being very much the driver of all this. From c. 1200 BC there are increasing numbers of iron objects, including knives and daggers, on Cyprus, found not just in tombs but also in urban settlements: and it was not long before such items of Cypriot manufacture appear in the Levant, the Aegean, and the Central Mediterranean.<sup>183</sup> Cypriot manufacturers and long-distance traders realised early enough that iron was not a commodity to be exported as raw material but as a finished product in the form of daggers, knives, tools and other iron artifacts. One of Cyprus' most prominent products was the iron knife, often manufactured with ivory or bone handles with bronze rivets. It was a product that bridged the gap between elite and utilitarian objects. In the Levant, knives of identical form are found in a 12th-century context at Sarepta, Hama, Tel Qasile, Tel Miqne, Beth Shean, and Tell Farah.<sup>184</sup> These knives 'go some way towards demonstrating a continuation of the commercial trading patterns which linked Cyprus and the Levant before 1200 BC'.<sup>185</sup> These trading patterns and routes were used for the continuation of Cypriot metal trade between the Levant and Cyprus in the transition period between the First and Second Economic Cycles. By the 11th century BC, both on Cyprus and the Levant, a diversification took place in which iron appears in more utilitarian and functional forms. At the same time, on the back of the metal trade routes and patterns we have evidence of the development of trade of Cypriot pottery in the Levant marked by the appearance of Cypriot Geometric IA pottery at Tyros and Sarepta.<sup>186</sup>

From the evidence, Cyprus was a pioneer in the proliferation of iron products and related technology elsewhere in the Mediterranean. It has been suggested, for example, that the iron metallurgy on Crete that began in the middle of the 11th century was a development that took place under strong Cypriot influence. Evidence that supports this proposal comes from two tombs (T.186 and T.201) excavated in the North Cemetery of Knossos that contained iron knives and other iron artifacts related to Cyprus. Similar contemporary burials are found at the *Skales* cemetery at Palaepaphos,

<sup>171</sup> Polzer 2014: 235.

<sup>172</sup> Kassianidou 2012a: 238; Sherratt 1994: 71; Snodgrass 1982: 290.

<sup>173</sup> Iacovou 2013b: 801; Wheeler and Maddin 1980.

<sup>174</sup> Muhly and Kassianidou 2012: 124.

<sup>175</sup> Birney 2007: 332.

<sup>176</sup> Hallo 1983: 176.

<sup>177</sup> Muhly 1980: 35.

<sup>178</sup> Sherratt 1994: 65, n. 4.

<sup>179</sup> Sherratt 1994: 59-106.

<sup>180</sup> Bresson 2016: 100.

<sup>181</sup> Iacovou 2008b: 642; Pickles and Peltenburg 1998: 86; Snodgrass 1982: 287.

<sup>182</sup> Kassianidou 2012a: 238; Muhly 2003: 145; Sherratt 1994: 60.

<sup>183</sup> Sherratt 2016: 296.

<sup>184</sup> Birney 2007: 333.

<sup>185</sup> Sherratt 1994: 69-70.

<sup>186</sup> Sherratt 1994: 73-74.

Salamis, Kourion *Kaloriziki*, Amathus, and Lapethos. The bronze four-sided stand found in tomb T.201 points to Cyprus as the place of manufacture. The same holds for a bronze amphoroid crater.<sup>187</sup> On the other hand, the metalwork from the Idean Cave on Crete attests to the existence of a local bronze working industry whose precursor can be sought in Cyprus, and possibly the Levant. The most likely place of import of copper was Cyprus. The abundance of iron ore in easily accessible quantities in western Crete must have attracted Cypriot and Levantine commercial entrepreneurs in this region. Most probably this is where Cretan iron was exchanged for imported Cypriot copper.<sup>188</sup> Trade of imported metals was most probably complemented by on-site production by émigré craftsmen. It has been proposed that the level of influence, both stylistic and technical, which is evident in Mediterranean orientalisng work can only be explained by a process of direct transmission from master to apprentice.<sup>189</sup> It seems the tradition of travelling craftsmen was an important aspect of the maritime economy of Cyprus in antiquity. This was a tradition that started from the First Economic Cycle and was carried through all the way to the Third and beyond.

The same clear association of bronze and iron metalwork with Cyprus during the 11th, 10th and 9th centuries BC applies to Euboea as well. For example, the clay mould fragments for casting tripod legs found in Xeropolis, the settlement site of Lefkandi in Euboea, dated around 900 BC, are thought to be associated with Cypriot craftsmen.<sup>190</sup> The impressive Cypriot amphora type bronze cauldron found inside the monumental burial at the site of Toumba at Lefkandi, falls in the same category. The burial dates to the middle of the 10th century BC. It contained the cremated remains of a male placed inside the bronze cauldron imported from Cyprus, considered to be an heirloom of the 12th century BC, next to the remains of a woman and four sacrificed horses.<sup>191</sup>

As we have seen, Cypriot traders and craftsmen, during the Second Economic Cycle, were willing to take up residence outside the island, as their ancestors did during the First Economic Cycle in Ugarit, and possibly Tiryns. The growing body of evidence for resident Cypriots and easterners in general, at Geometric and early Archaic Aegean places such as Lefkandi, Rhodes, Crete, and Corinth<sup>192</sup> suggests that these people (craftsmen in particular, but also traders) were supplying eastern-style products to Aegean customers. Cypriots in particular were not only exporting finished

bronze products of high quality, such as knives, daggers, swords and spearheads, but the technology and manufacturing knowhow that went with it, thus this would stimulate demand for the raw material.<sup>193</sup> They combined export of high-quality copper and iron finished products as a continuation of their LBA policy of conducting their long-distance trade based on a wide range of products and a diversified export portfolio with cross selling tactics and techniques.

The new institution of processing and trading copper and iron, as well as novel metal finished products of higher added value, was a reflection and response to the altered character of the Iron Age Mediterranean and the Near East economic environment. This response influenced the way the island's maritime economy adapted and changed.

According to the latest scholarship, copper and iron were not the only metals traded by Cyprus during the EIA. Jonathan Wood, Carol Bell, and Ignacio Montero-Ruiz<sup>194</sup> have suggested that Tel Dor was an important receiver of silver smelted from jarosite ores from both Cyprus and Iberia, as well as the Taurus mountains. These researchers propose that Cypriot ores were potentially mined at Kalavassos, and also suggest that the technology to mine and smelt jarosite ores in Iberia, as well as the ability to cupellate silver from argentiferous lead, which was a technology developed in Cyprus, may have arrived to Iberia from Cyprus on Phoenician maritime expeditions. The presence of Cypriot silver in the southern Levant and Phoenician pottery on Cyprus, supports that there was continuity of bidirectional trade from the end of the First to the Second Economic Cycle between Cyprus and the Levant.

The earliest identified bellow nozzles associated with cupellated silver in Iberia are similar to finds from Apliki on Cyprus.<sup>195</sup> This cannot possibly be a coincidence. Wood, Bell, and Montero-Ruiz conclude that Cyprus and Cypriots had a catalytic involvement in the transfer of Cypriot know how to exploit jarosite for silver through smelting and cupellation in Iberia. In other words, silver that travelled from Iberia to the east and Tell Dor was a product of Cypriot technology. Whether the people who conveyed the knowledge and transported this silver to Phoenicia were Phoenicians, Cypro-Phoenicians (whatever it means) or Cypriots we do not know. Very likely it is all of the above.

Another aspect of Cypriot trade that influenced its maritime economy is revealed from the Cape Gelidonya

<sup>187</sup> Muhly and Kassianidou 2012: 125.

<sup>188</sup> Markoe 2003: 210–212.

<sup>189</sup> Markoe 2003: 210.

<sup>190</sup> Catling and Catling 1980: 96; Iacovou 2013b: 802.

<sup>191</sup> Popham and Lemos 1996.

<sup>192</sup> Ilieva 2019: 91, nos. 182–185.

<sup>193</sup> Sherratt 1994: 88–91; Muhly and Kassianidou 2012: 126.

<sup>194</sup> Wood *et al.* 2020; Bell and Wood 2019, Melammu workshop at the University of Tartu (Estonia), 7–9 June 2019: 'Reflections on the westward expansion of the Phoenicians in the Early Iron Age: The search for silver and technology transfer' (unpublished).

<sup>195</sup> Hunt Ortiz 2003: 360–361, 392: Fig.146; Muhly 1991: 183.

shipwreck, dated c. 1200 BC, and can be considered a typical operation for both Economic Cycles. The Gelidonya wreck, as we have already discussed, was excavated off the coast of Turkey and most probably originated from a Cypriot port, heading westwards. It carried about one ton of pure Cypriot copper and various scrap bronze items and tools used for recycling. From the nature of its cargo and tools found for metalworking, it is believed that onboard the ship there was a travelling smith. From the available evidence it seems that part of the ship's business, apart from trade, was the recycling of scrap metal. As argued already, the Gelidonya vessel was purely a private entrepreneurial venture involved in tramping, from port to port,<sup>196</sup> exchanging items on a small scale and providing metalwork services at the same time, as a small floating metal workshop. Its primary objective was retail trade, rather than sailing on a direct commercial or diplomatic mission. This way of doing business was typical in the early centuries of the Second Economic Cycle, adding another aspect to the freewheeling and entrepreneurial spirit of the Cypriot maritime economy. It was a typical example of new market forces at work, based on the concept of supply-demand-price-profit.

The Point Iria shipwreck, dated around 1200 BC, that can also be considered an operation belonging to both Economic Cycles, carried a mixed cargo consisting of large transport vessels, mainly Cypriot *pithoi*, jars and medium-sized transport stirrup jars made on Crete, together with Cypriot jugs and amphora. Judging from the contents of its cargo and size, the ship originated from Cyprus following the trade route Cyprus–Crete–Argolid. It is another example of the freewheeling aspect of the maritime economy of Cyprus during the Second Economic Cycle. The fact that no bronze or copper was found on the Iria wreck points to the possibility that bronze and copper might have been unloaded at Crete, and then Cretan pottery was loaded for the final leg of the trip.

#### **DEMAND OF HIGH ADDED-VALUE MANUFACTURED PRODUCTS ALONG WITH PROCESSED AGRICULTURAL GOODS AND TEXTILES AND ITS EFFECT ON CYPRUS MARITIME ECONOMY**

Evidently, Cyprus during the Second Economic Cycle went through an intense period of economic activity and social and political transformation. The secret of its success was the continuity and transformation of its institutions, especially its long-distance trade and maritime economy, together with a continuation of the island's policy to operate a diversified export portfolio that included high added-value finished products.

Its maritime economy operated through an international network of interaction that spanned along and across the Mediterranean and the Near East (see Figure 53). Due to its geopolitical position, it was an important junction point for cultural exchange and trade between East and West, and its products were popular among its trading partners. In this section we will refer to some of its potentially highly priced added-value manufactured products – metalwork, orientalising luxury products, and processed agricultural goods and textiles.

#### **Metalwork and orientalising luxury products**

During the Neo-Assyrian period the Assyrians created in the core of their empire and at their provincial administrative centres, as well as the capitals of their vassals, a multicultural ruling elite defined and legitimised largely by the use and possession of luxury items produced in different styles and motifs. These luxury items included, apart from metal bowls, carved luxury furniture (Figure 51) and fittings in Phoenician, Syrian, and Egyptianised styles, garments, personal ornaments, banqueting equipment and ceremonial weapons. This created an ever-expanding market and demand for luxury products of high added value of orientalising appearance and style that had a profound effect on Cypriot manufacturing strategies and the maritime economy.

This demand created the need for knowledge and specialised workshops, as well as for skilled craftsmen and artisans to be positioned closer to the places of manufacture and distribution of these luxury items. This is partly the reason for the settlement of such craftsmen and skilled technicians in Cyprus and other specialised places of manufacture, in Syria for example. Assyrian imperium and trade networks of interaction regulated the entire supply chain of these luxury items, i.e. the availability of raw materials, the training and employment of skilled workers and artisans, and the distribution and consumption of luxury finished products. Cypriot merchants involved in exports and long-distance trade were very keen to include these high added-value items in their export portfolio and repertoire.

An example of such, high added-value products are precious metal bowls.<sup>197</sup> It is worth noting that although these metal bowls are considered Phoenician, and are sometimes called Cypro-Phoenician, none were found in Phoenicia itself. The homogeneous group of these bowls found in Cyprus points to the existence of workshops, with the probable participation of Semitic-speaking technicians along with Cypriot craftsmen, active in Cyprus from the end of the 8th to the 7th century BC.

<sup>196</sup> Cline 2014: 101.

<sup>197</sup> Feldman 2014: 162.



Figure 51: Luxury furniture with ivory decorations found in Tomb 79 at the Salamis Necropolis. On display in the Cyprus Museum (courtesy Department of Antiquities, Cyprus).

In short, it is very reasonable to consider that a number of these bowls were manufactured on the island for export. These bowls used typically Orientalised and Assyrian motifs, i.e. the four-winged deity and Phoenician symbols, such as the palmette and the sphinx, as well as Egyptian deities and Pharaonic figures. They represent, therefore, typical products of the orientalising phase, which was well under way during the Assyrianising era, and were intended, apart from the domestic and Assyrian and Near East markets in general, for the lucrative export markets in the West. The Assyrians, especially, considered these metal bowls among the most appreciated and valuable objects of art. They were traded freely but were also used for payment of tribute. In the Assyrian tribute lists they are described as *kappe mandattu/e*, i.e. tribute bowls. Therefore, since there was such a sizable clientele for them in the Assyrian market it is natural that the selection of the subjects and ornamental motifs would be those that would appeal to their potential customers and end users.

Such an example is the Cypro-Phoenician gilded silver bowl, late 8th/early 7th century BC, from the Kourion Treasure<sup>198</sup> and presently displayed at the Metropolitan Museum, New York.<sup>199</sup> The shallow bowl is decorated with repoussé engravings using Assyrianising and Egyptianising motifs. Its central theme is an Assyrianising winged-male figure attacking a rampant lion with two Egyptianising falcons above. The wider outer band of the bowl depicts, among various Egyptianising scenes, an Assyrianising figure in a long skirt slaying a griffin. The bowl bears two inscriptions in Greek written in the Cypriot Syllabary. The earlier inscription, placed above the Assyrianising male slaying the griffin in the outer band, reads 'I am

(the bowl) of *Akestor, king of Paphos*'. This was later partly erased and a second inscription added – 'I am (the bowl) of *Timokretes*'.<sup>200</sup>

Another fragmentary silver bowl from Cyprus, c. 710–675 BC, part of the Cesnola Collection in the Metropolitan Museum,<sup>201</sup> is quite similar to a 7th-century BC gilded silver bowl with typical Cypro-Egyptianised motifs found in the Bernardini Tomb in Praeneste, Etruria, presently in the Museo Nazionale Etrusco di Villa Giulia, Rome.<sup>202</sup> A further example is the 9th/8th-century BC bronze bowl with star pattern found in Nimrud's North West Palace of Ashurnasirpal II (room AB), probably of Syrian manufacture. It was found in a stack with numerous others, and some 150 of them, complete or fragmentary, were recovered and are now in the British Museum. A bowl with a similar design was also found at Olympia in the Peloponnese.<sup>203</sup>

The impressive bronze cauldrons produced in Cyprus (Figure 52), Syria, and the Levant, decorated with winged demons, griffins, and animal *protomes* of different types, were widely distributed in the Near East, the Aegean, and central Italy. Similar works of art were highly priced, sometimes even up to seven times the price of the raw material.<sup>204</sup> These Near Eastern sophisticated works of art, which, as from 700 BC, were locally produced in Italy and Greece, are evidence of the lavish use of bronze at a time when the more easily obtained iron became the metal of choice.<sup>205</sup>

<sup>198</sup> Possibly Idalion, according to Aubet 2001: 131.

<sup>199</sup> Feldman 2014: 159, Markoe 2003: 198.

<sup>200</sup> Feldman 2014: 159–162.

<sup>201</sup> Matthaüs 2016: 278, Fig. 9.

<sup>202</sup> Matthaüs 2016: 279, Fig. 10.

<sup>203</sup> Feldman 2014: 161.

<sup>204</sup> A large bronze basin weighing one talent was worth c. 1 kg silver (Monroe 2010: 22, 23; Ug. 5.38: 25–37).

<sup>205</sup> Aruz 2014: 272.



Figure 52: *The cauldron found within the Salamis 'Royal Tombs'. It is thought to have been manufactured in Cyprus under strong Near Eastern influence. On display in the Cyprus Museum (courtesy Department of Antiquities, Cyprus).*

An interdisciplinary study of bronze artifacts from the Salamis 'Royal Tombs' provided evidence of the existence of very skilled and knowledgeable Cypriot craftsmen who were able to use different kind of alloys to produce the iconic cauldrons of the kind shown in Figure 52.<sup>206</sup> It is reasonable to consider the knowledge, as well as the skills and ability, of the Salamis metalsmiths for the production of these unique objects of art was a continuation and inheritance from the Enkomi workshops of the First Economic Cycle.

Another of Cyprus' most successful inventions, developed around 1000 BC and distributed widely by its merchants and long-distance traders, was the hemispherical bronze bowl of various sizes whose handles were mostly decorated with a lotus flower. From the Cypro-Geometric I period this bowl appears at Palaepaphos, Amathus, and other Cypriot sites. These

bronze bowls of exceptional quality and appearance became a favourite export product for Cypriot merchants. They can be found all over the Near East, Asia Minor, and the Aegean; it was quite popular in Crete where it was eventually locally produced. We find lotus bronze bowls probably of Cypriot manufacture in Sardinia and even Portugal.<sup>207</sup> The universal acceptance and popularity of the Cypriot bowl is solid proof of the high reputation Cypriot products and skills enjoyed in the ancient world, but most importantly of how the Cypriot maritime economy had benefited from the distribution of Cypriot high added-value metalwork and products. Thus, the successful concept and institution of a diversified export portfolio of the First Economic Cycle found continuity in the Second by the addition of products of exceptional craftsmanship. The Cypriot merchants seem to have created a very profitable and widely accepted niche market for their products, ably assisted by robust marketing and commodity branding strategies.

#### Processed agricultural products. The Kekova Adasi, Kepce Burnu, and Cayagic Koyu shipwrecks

Cyprus's diversified export portfolio did not only comprise of copper, iron, timber, and the high added-value finished products just discussed, but it also included processed agricultural goods with wider social distribution, a tradition continued from the First to the Second Economic Cycle. The three wrecks at Kekova Adasi, Kepce Burnu, and Cayagic Koyu, off the coast of Turkey, dated in the middle to the last quarter of the 7th century to the beginning of the 6th, are examples of such commerce in a shrinking eastern Mediterranean, where the established trade networks provided faster, better, and more efficient communications, making its world smaller and more mobile.

The cargoes of the above-mentioned wrecks, made up of basket-handle amphorae, most likely of Cypriot manufacture and containing most probably olive oil, as well as a small number of ceramic mortaria for the preparation, grinding, and even measurement of processed agricultural goods,<sup>208</sup> reveals the movement of products beyond precious metals and metalwork, and possibly fine garments. This network of interaction and movement of goods suited Cyprus' strategy of diversified exports that had been established since the LBA. Cypriot entrepreneurs who traded luxury goods as sources of symbolic capital and wealth, which could be used to legitimise and reinforce status and power, supplemented their business with consumer goods and processed agricultural products such as olive oil and wine, transporting these in specially made amphorae, aimed for wider social distribution. The trade of dyed

<sup>206</sup> Kassianidou and Charalambous 2019: 240.

<sup>207</sup> Matthaus 2016: 274.

<sup>208</sup> Greene *et al.* 2013: 22–23.

textiles, bronze metalwork and ivory is included in the sphere of conspicuous displays of wealth, status and luxury, and requires manufacturing and industrial skills. However, the trade of processed agricultural produce (oil and wine) in purpose-built transport amphorae and mortaria for grinding or even measurement purposes, reveals a capacity to produce agricultural surpluses and exercise control over regional agriculture and food production. Such activities serve as markers to identify the wealth and complexity of Cyprus' trading society and the diversity of its maritime economy during the Second Economic Cycle. This is reflected in the royal and elite burials at the Salamis Necropolis, especially Royal Tomb 79, where we find alongside ivory furniture, engraved metal bowls and a bronze cauldron, quantities of basket-handle amphorae and ceramic mortaria, of the type found in the wrecks mentioned above and elsewhere in the Eastern Mediterranean. It is not unreasonable to suggest that the elite merchants and long-distance traders behind such maritime enterprises were the owners of tombs of equal wealth as those found at the Salamis and elsewhere, e.g. the Lefkaritis Tomb, dated 750–650 BC, excavated in Larnaca in 1999.<sup>209</sup>

Of the three shipwrecks, Kekova Adasi was the best preserved and its excavators were able to identify more closely the cargo's volume and nature. It comprised mainly of amphorae (c. 130) along with other remains, and the fragmentary findings revealed c. 100 basket-handle amphorae of most likely Cypriot origin. Amphorae of this type are well represented in Cyprus. The first well-dated examples come from the tombs at Salamis, where they appear to have been produced locally from the 8th century BC onwards. It is only from the latter part of the 7th century BC that these types appear outside Cyprus.<sup>210</sup> Inscriptions indicate that this type of amphora was used for oil, although it was intended (and actually used) for a wide range of products. Although no organic residue tests were carried on the Kekova Adasi wreck finds, it has been suggested that the majority of its cargo was olive oil. The volume of each amphora was estimated at 69 l. The remaining cargo comprised of 20 south-eastern Aegean amphorae, probably from Miletos and Samos, with their capacity estimated at 29 l, and seven to ten Corinthian type-A amphora with an approximate volume of 30 l. More amphorae might be beneath the sand, but based on the available evidence, these 130 finds make up the bulk of the ship's cargo, estimated at a minimum of c. 8000 l. Mortaria samples were also identified that were either part of the cargo or used onboard. The other two wrecks, although with fewer amphorae, appear to have

had similar cargoes and of probably the same Cypriot origin. All three wrecks evidence the nature of trade and its routes between the Eastern Mediterranean and the Aegean in the last decades of the 7th century BC. It has been suggested<sup>211</sup> that, due to the heterogeneous nature of the cargo, the ships were involved in local redistribution and typical cabotage operations, and that the ship that sank at Kekova reloaded its Cypriot cargo, along with a Corinthian one, from another ship that arrived from Cyprus and which unloaded its entire cargo at a Lykian port that provided redistribution services for the local markets using smaller boats, e.g. the vessel lost at Kekova. Nevertheless, the whole operation is indicative of the dynamism of Cypriot mercantile activities and practices.

For the Kekova Adasi ship, the working capital needed for a cargo of c. 8000 l of olive oil, using the average international prices of the First Economic Cycle (see Appendix) was 7.5 kg (8000 x 0.1 x 9.4) in silver, plus inflation. Taking into account how inflation might have influenced prices, we can see from the analysis that trading in olive oil, and perhaps aromatics as well as other processed agricultural products, like wine and raisins, could have been another important component of the entrepreneurial nature of Cyprus' maritime economy. It was this versatile diversity that provided stability and continuity.

We also understand that it required four ships of the capacity of the Kekova Adasi ship to carry the entire annual surplus of KAD produced during a good harvest year.

## Textiles

Cyprus had a tradition in dyed textiles and garments from LBA times, employing both murex shells (purple-dye) and herbal raw materials; there is enough archaeological evidence to support the existence of a local craft. As we have seen, during the LBA there is evidence that textiles were produced and dyeing activities performed at various coastal settlements, including Hala Sultan Tekke<sup>212</sup> and Kition,<sup>213</sup> as well as inland settlements such as Erimi *Laonin tou Porakou*.<sup>214</sup> Recently, more sites have been identified with evidence of purple-dyeing production, including Palaepaphos,<sup>215</sup> Pyrgos-Mavroraki, Kourion, and Enkomi. Although textile production is traditionally a household activity, intended to meet the needs of the family, especially in rural areas, as evidenced at Apliki *Karamallos*,<sup>216</sup> the evidence later from urban centres, e.g. Kition, suggests

<sup>209</sup> Hadjisavvas 2014: 193.

<sup>210</sup> Greene *et al.* 2013: 15, 24, n. 14; Knapp and Demesticha 2017. Two such amphorae, dated to the 4th century BC, were also found at Euesperides, Cyrenaica, located in the eastern suburbs of Benghazi on the Libyan Mediterranean coast (Goransson 2007: 170).

<sup>211</sup> Demesticha 2019: 3–4.

<sup>212</sup> Fischer and Burge 2018: 698.

<sup>213</sup> Smith *et al.* 2015: 337.

<sup>214</sup> Bombardieri and Muti 2018: 25–38.

<sup>215</sup> Iacovou and Mylona 2019: 167.

<sup>216</sup> Smith *et al.* 2015: 329.

the existence of specialised workshops and industrial activity.

Textiles especially purple garments in the international market were very highly priced. This gave the incentives for the creation of an industry whose products were intended as potential export commodities. This is why we see state institutions and organisations, such as the temples, having an active involvement in their production close to ports and maritime installations. Ezekiel's poem about Tyros' naval and trading power well demonstrates that Cyprus had a reputation as a major producer and exporter of purple textiles in the Mediterranean<sup>217</sup> during the Archaic period.

*Your deck cabin they made of ivory - inlaid cypresses  
From the coast of Kittim, [...] of blue purple and red purple  
From the coasts of Elishah was your canopy.*<sup>218</sup>

This was a continuation of an established tradition and institution of long-distance on the island since the LBA, where, among other products, we have evidence of trade of textiles in Hatti and Ugarit.<sup>219</sup>

It is reasonable to assume that the industrial production of purple dye and textiles was continued and enhanced during the Second Economic Cycle. Overall, Cyprus' institutions and traditional activities, far from disappearing, in most cases continued and expanded, even thrived. We can reasonably suggest, for example, that the textile activity evidenced at Hala Sultan Tekke during the LBA/EIA moved to nearby Kition. This is supported by evidence of textile workshops within the sacred precinct of Kition in the 12th century BC. Within Kition Area II of the sacred precinct the Western Workshop was dedicated to the production of textiles. 323 textile tools have been found at Kition, 275 dated to the LBA/EIA, and 47 to the Cypro-Geometric period.<sup>220</sup> This signifies that temples and sanctuaries in alliance with state institutions expanded the island's production and distribution as well as its maritime economy.<sup>221</sup> We also have evidence that the tradition of textile production at household level continued from the First to the Second Economic Cycle.

Evidence for the existence of purple-dye production at Palaepaphos at the end of the Second Economic Cycle, is provided by the unearthing of a specialised industrial unit on a part of the plateau of *Hadjiabdoullah*, i.e. the West Complex (Figure 68, bottom). The industrial unit was devoted to processing, production and storage, where a room (Unit 2) was found covered with a layer (20

cm thick) of about 450 kg of crushed shells of *Hexaplex trunculus*,<sup>222</sup> the mollusc having a gland that produces the colour purple. Unit 2 is part of the West Complex of the citadel, dated to the end of the Archaic period at the end of the Second Economic Cycle. The West Complex is contemporary to the 'Late Archaic Palace', now labelled as the East Complex. Both complexes are evidence of royal and religious involvement in civic and industrial administration, as at Paphos the king held the office of High Priest of the Paphian Goddess. Together they formed the economic and administrative centre of Palaepaphos in the Late Archaic and Classical periods. From ceramic material in Unit 2 we can tentatively date its contents to the end of the 4th century BC, although production of purple-blue dye in the Palaepaphos region could have been going on even earlier than the foundation of the administrative centre. A purple-dye workshop generates a most unpleasant smell and thus is usually located close to the shore, away from an urban centre. The process of purple-dye production requires space, energy, water, and proximity to a shell source. It also generates heaps of crushed shells. The absence of such evidence in Unit 2, and since the other units of the West Complex were devoted to other processing activities for olive oil and wine, it is evident that the production of purple dye took place elsewhere and not at the citadel. The most likely place would have been on the shore not far from the West Complex. It has been suggested<sup>223</sup> that the crushed purple shells found at Unit 2 were kept there for secondary use, perhaps intended for producing lime for plaster.

It seems certain, taking the evidence into account, that a purple-dye industry was associated with the political, and most probably the maritime, economy of the Paphos region, and the city-state of Palaepaphos, at the end of the Second and during the Third Economic Cycle.<sup>224</sup>

#### NETWORKS OF INTERACTION AND THE CYPRIOT MARITIME COMMERCIAL AND CULTURAL EXPANSION IN THE MEDITERRANEAN

The Cypriot presence and expansion in the Mediterranean, witnessed in Egypt, the Levant, the Syrian coast, Kilikia, the Aegean, Sardinia, Sicily, and as far west as Iberia, was driven by its maritime economy, whose main component was trade and shipping. The trading routes it followed are shown schematically in Figure 53, demonstrating that Cyprus was at the forefront of maritime trade, as well as technological advancements and their transfer.

<sup>217</sup> Diakonoff 1992: 173–176.

<sup>218</sup> Ezekiel 27: 5–7. Kittim is recognised as Kition, and Elishah as Alashiya.

<sup>219</sup> EA 34; IBoT.131; KBo 18.175; KTU 4.390=RS 18.119; RS 96.206.

<sup>220</sup> Smith *et al.* 2015: 337.

<sup>221</sup> Dross-Krupe and Nosch 2016: 300.

<sup>222</sup> Iacovou and Mylona 2019.

<sup>223</sup> Iacovou and Mylona 2019: 176.

<sup>224</sup> Iacovou and Mylona 2019: 177.

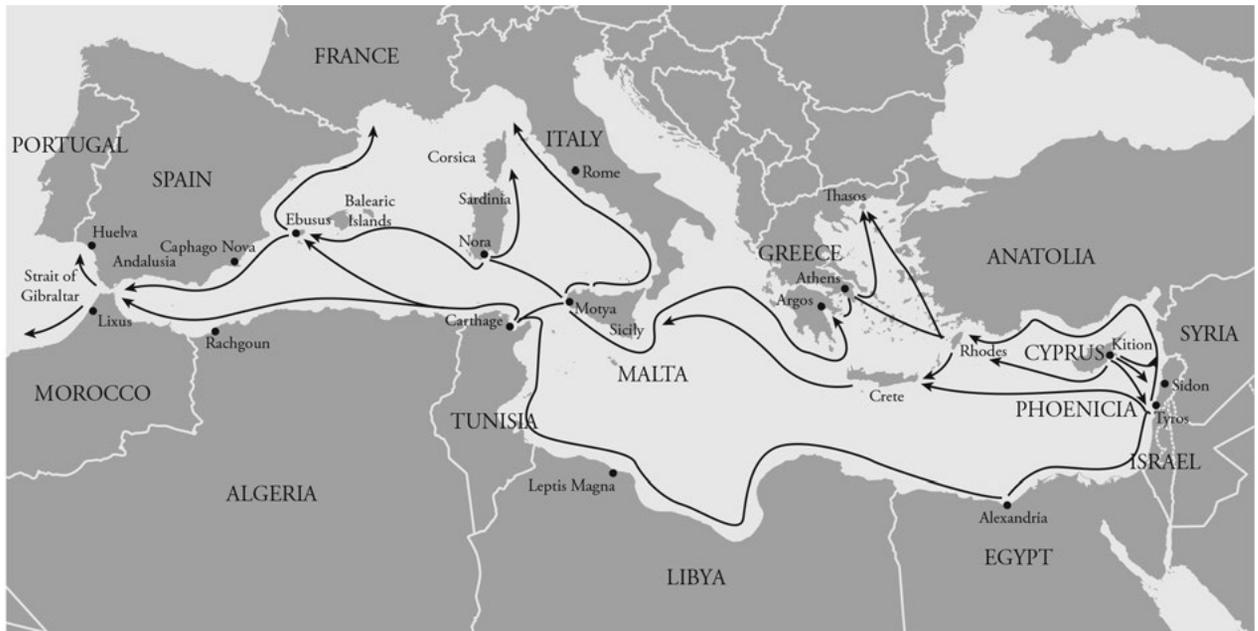


Figure 53: Map of trading routes in the Mediterranean during the Second Economic Cycle (drawing: Philipos Vasiliades).

The rigid structures of the First Economic Cycle's powerful institutions and palatial systems gave way to the flexible and mobile network of communications of the Second Economic Cycle, driven by entrepreneurship and mobility which created an interconnected and more accessible Mediterranean world. Access to the trading routes of this world by Cypriot seafarers was achieved by being part of the maritime traffic resulting from the centuries-old maritime knowledge long before the domination of the Mediterranean trade by the Phoenicians in the 9th century BC. Various important naval and maritime aspects and systems contributed, such as navigational developments and maritime infrastructure.

### Who were the Phoenicians?

Before we venture into Cypriot involvement in the Phoenician expansion in the West it will be useful to try and define and clarify the term 'Phoenician' itself.

The name Phoenician,<sup>225</sup> *Phoinikes*, is first attested in Homer. There is general agreement about the traditional definition that the Phoenicians were the Early Iron Age successors of the 2nd-millennium Canaanites. The author is of the opinion this is an inadequate summation, and increasingly modern researchers are exploring other definitions. According to Hodos,<sup>226</sup> 'Greeks used the term *Phoinikes* to generalize about all eastern maritime merchants, rather than to specify a particular city-state, much less an ethnic, linguistic or

cultural group'. Along the same lines, Sommer<sup>227</sup> writes that the '[the] *ethnikon* Phoenicians may have meant, at that stage, little more than sailor merchants, who brought exotic goods, who spoke an exotic language and who behaved in exotic ways.' Bourogiannis<sup>228</sup> also argued that the notion of these Eastern sailor merchants, as a coherent ethnic group with shared identity and culture, is very much a 'product of modern ideologies that does not reflect past realities'. The present author supports all three statements.

In modern scholarship, the Phoenicians are perceived as skilled craftsmen, expert sailors and active traders. They were clearly also sometimes involved in looting and piracy, and at times considered acquisitive and crafty (exchanging *athrymata* for valuable raw materials). They are defined as the sailing merchants *par excellence* of the Eastern Mediterranean, and in a vague manner are considered to be Semitic-speaking inhabitants of the Levantine coast, which came to be referred to as Phoenicia. What we can propose here is that, in real life, in Antiquity, especially in the first centuries of the Second Economic Cycle, there were many different groups of Phoenicians, from the Levant, Philistia, and without doubt from Cyprus.<sup>229</sup>

<sup>227</sup> Sommer 2010: 118.

<sup>228</sup> Bourogiannis 2012: 39.

<sup>229</sup> The modern Lebanese are very proud to consider themselves as descendants of the ancient Phoenicians and their present-day trading and entrepreneurial skills are reputed to be a perfect match to those of the Phoenicians in antiquity. During my numerous visits to Amman in Jordan I became friends with Abu-Ahmed, a Palestinian restaurant owner, who from his part is proud to consider the ancient Philistines as his ancestors. Abu Ahmed had his own definition of a Lebanese person: if you hire a Lebanese waiter in your restaurant, in six months he will propose to become your partner, and in one

<sup>225</sup> Markoe 2000: 173; Lipinski 2004: 160–162.

<sup>226</sup> Hodos 2006: 25.

The notion that the Phoenicians were the sole and principal sailors, carriers and traders of Eastern Mediterranean goods is an oversimplification and certainly a complication. Although their prominence in the EIA Mediterranean exchange networks is unquestionable, the latest evidence strongly suggests that the involvement of Cypriots, especially in the first centuries of the Second Economic Cycle, was catalytic and equally significant. The Phoenicians in their expansion in the Mediterranean used the same routes that Cypriots explored and travelled centuries before. They also used Cyprus as a springboard for their ventures Westwards, as well as Cypriot knowledge and products, as Boardman<sup>230</sup> supports – ‘Phoenicians followed routes west which had been travelled by Cypriots in the Late Bronze Age’. At the same time, Sherratt and Sherratt<sup>231</sup> have already argued that Cypro-Phoenician or Phoenician ships may have followed Aegean routes used earlier by Cypriots. This makes a definition of the Phoenicians and, as a consequence, the identification of their presence or involvement in the Mediterranean trade, a complicated task reflected in a number of recent scholarly debates. Therefore, when we use the term ‘Phoenician; in this volume, especially in terms of the initial drive to the West in the first centuries of the Second Economic Cycle, we mean goods and ways of doing things that may have originated in Cyprus as well, and not necessarily directly and solely from Phoenicia. We must always remember that the origin of goods in a place does not necessarily define the origin of the people who carried them there.

### The Phoenician expansion and the Cypriot connection

The period of upheaval and volatility that followed the start of the Second Economic Cycle brought about changes and readjustments to the socio-political landscape of the entire Eastern Mediterranean. Cyprus and the Levant were two regions that shared a common denominator, i.e. they were not uniformly impacted and thus managed not only to survive but also thrive during the transition from the First to the Second Economic Cycle.

Cypriots and Canaanite Phoenicians, based on the established ways and networks used by LBA seafarers to conduct their business and exchange ideas and

goods, created new networks of information and communications as well as material exchanges. Their footprint, which is everywhere in the region, is proof of the impact they had on Mediterranean complexity during the Iron Age. Although Sommer<sup>232</sup> called the Phoenicians the ‘true protagonists of Mediterraneanization’ as argued earlier the Cypriots had a leading role and important contribution as well. The Cypriot maritime economy, apart from its traditional mercantile relation with the Levantine coast, benefitted enormously from its participation in the westward Phoenician drive and its trade links with the Aegean, Egypt, and the Levant.

The tale of Wen-Amon, referred to earlier, can be read as evidence of the new order of things and the rise of Levantine cities during the Iron Age, the diminishing of Egyptian power, and the replacement of the palatial, centrally controlled, command economies with entrepreneurialism<sup>233</sup> and partnerships between state and private enterprise. In this new world Phoenicia and Cyprus played a pivotal role.

The Levantine city-states managed to survive the transitional crisis from the LBA to EIA and filled the vacuum created by the destruction of Ugarit and other north Syrian LBA cities and the disruption experienced by ports on the southern Levantine coast. They also expanded their commercial activities to the West. According to the latest archaeological evidence,<sup>234</sup> Phoenician expansion to the West, beyond the straits of Gibraltar, took place much earlier than traditionally accepted. The new evidence reveals a more prolonged movement that may have started in the 12th century, with important developments being achieved between the 11th and 9th centuries BC.<sup>235</sup> This was more of a gradual and deliberate process in search of new sources of raw material and wealth that resulted in the intense colonial activities of the 8th and 7th centuries.<sup>236</sup> For this reason, it is now universally accepted that it was not only Assyrian imperial pressure that drove the Phoenician westward expansion, but a planned and organised drive searching for new raw material sources and material wealth.

Cyprus played an important role in this drive as the island was the ideal partner and ‘platform for the western expansion for the Phoenicians’.<sup>237</sup> Commercial contacts, of bidirectional nature, between Cyprus and the Levant, particularly with the southwest of the island, may have endured across the LBA/

year he will own the place. Much as I love Abu Ahmed’s *tabouleh* and home-made *mezeh*, I tried in vain many a times to explain to him that this is an oversimplification and not strictly true. He did not want to listen until I pointed out to him that for the past ten years half of his waiters are Lebanese and still, he remains the sole owner of his restaurant! The point I am trying to make is that even today the designated ancestors to the Phoenicians, the Lebanese, have acquired such a legacy and reputation, like that of their ancestors, and which is not so straight forward to explain.

<sup>230</sup> Boardman 2006: 198.

<sup>231</sup> Sherratt and Sherratt 1993.

<sup>232</sup> Sommer 2010: 135.

<sup>233</sup> Liverani 1987: 72; Markoe 2000: 27–28; Monroe 2018: 199; Sherratt 2003: 52.

<sup>234</sup> Aubet 2008: 247–259; Monroe 2018: 197; Sagona 2008.

<sup>235</sup> Monroe 2018: 195–217.

<sup>236</sup> Monroe 2018: 198, n. 5.

<sup>237</sup> Bell 2016: 94.

EIA transition.<sup>238</sup> In the 12th century, i.e. the early years of the Second Economic Cycle, Cypriots may have resettled in Phoenicia and a 'Cypro-Phoenician economic and symbolic sphere of interaction' began.<sup>239</sup> The evidence, at Tel Dor for example, suggests some significant Cypriot population might have moved to Phoenicia in search of better fortunes and participated in the intensification of entrepreneurship that resulted in the first manifestation of commercial promotion.<sup>240</sup> On the other hand, important archaeological finds, such as meaningful quantities of Phoenician pottery at Palaepaphos *Skales*, suggest a Phoenician trading presence and influence at Palaepaphos that completes the picture of an 'intensive Cypro-Phoenician interaction sphere'<sup>241</sup> and bidirectional contacts. In other words, the evidence would infer that Cyprus had an important role to play in Phoenician maritime trade in the early Iron Age. Carol Bell<sup>242</sup> writes that 'the concentration of earlier Phoenician finds at Kouklia, Palaepaphos, and the possibility that some of the pottery at Kommos, and even as far as Huelva, comes from the Kouklia Horizon, suggests that the Phoenicians used Western Cyprus as a staging post for westward voyages.'<sup>243</sup> Additionally, Aubet suggests that Kition at some stage acted as a genuine bridgehead for Phoenician westward voyages.<sup>244</sup> Combining all the evidence and statements we may reach the conclusion that the initial Phoenician drive to the west can hardly qualify as exclusively a Phoenician phenomenon, but we may suggest it was also Cypriot driven with Cypriot-based commercial involvement and activities behind it. Taking into consideration that the 11th-century foreign presence at the Ria de Huelva site looks more Cypriot than Phoenician, then a working definition of Phoenician culture as 'Cypro-Phoenician' is unavoidable.<sup>245</sup> This might be the easy way out in terms of answering the five-decade debate between scholars on who was moving westwards and who were the carriers of the objects found at Huelva – Cypriot or Levantine. Gilboa<sup>246</sup> makes the observation that '[in] our "Cypro-Phoenician" sphere pottery testifies mainly to Cypriot initiative'. This prompted Broodbank to think it 'likely that Cypriot activities contributed a lot to the definition and spread of what are normally considered "Phoenician" ways of doing things.'<sup>247</sup>

Taking everything into account, and additionally having in mind the role Cypriots played for the expansion of the Greeks to the East, proper due recognition

should now be made of the important role Cyprus played in the expansion of trade in the first centuries of the Second Economic Cycle. Scholars should stop calling pure Cypriot ventures as 'Cypro-Phoenician'.<sup>248</sup> Ayelet Gilboa writes 'the abundant Cypriot tableware assemblage at Tyre and Dor, combined with the various manifestations of the Cypriot influence on the local pottery production, indicates to my mind a substantial Cypriot presence in Phoenicia, the scene of the formation of the Cypro-Phoenician phenomenon'.<sup>249</sup> Is it possible this phenomenon at its initial stage in Iberia was more Cypriot than Phoenician? After all it is generally accepted now that it was 'first Cypriot and then Phoenician sailings'<sup>250</sup> that drove the initial eastern expansion to Iberia. Phoenician and Cypriot imports identified in Sardinia, dating c.1000 BC, might indicate that Sardinia played the role of a stop-over station in the joint westward drive all the way to Huelva.<sup>251</sup> Clearly the term 'Cypro-Phoenician' needs a sharper redefinition.

Undoubtedly, the Cypriot maritime economy benefitted immensely from this Cypro-Phoenician connection and combined westward drive. This was an institutionally organised and programmatic push and not an ad hoc chaotic series of expeditions drawn mainly by Iberian metals<sup>252</sup> and adventurism. It is also reasonable to consider that enough old trading routes were kept alive in the aftermath of the destruction of LBA to allow for the continuation of trade in copper and tin, as well as the proliferation of iron. In both cases Cyprus was a leading player.<sup>253</sup> As long as any part of trade originated from Cyprus it can be considered part of its maritime economy, no matter whether it was Cypriots or Levantine Phoenicians who conducted it.

The ability of Cypriots to acquire rare exotica from their long-distance trading activities in Iberia is evidenced from the West Mediterranean *obelos*, or spit, of Atlantic bronze, as well as a fibula similar to those attested in the Ria de Huelva Hoard, both found in tomb 523 from the Amathus necropolis in Cyprus.<sup>254</sup> Furthermore, it is accepted that the bronze industry in Iberia is defined by the presence of Huelva-type swords and items related to them, i.e. the Berzocana bronze bowl, whose origin can be traced to Cyprus.<sup>255</sup> The first iron knives that can also be included in the importations to Iberia during the same period (the 11th and 10th centuries BC), are also considered of Cypriot origin. As argued by Torres Ortiz, 'the main trading vector to Iberia during this moment

<sup>238</sup> Bell 2016: 97.

<sup>239</sup> Gilboa *et al.* 2008: 132.

<sup>240</sup> Gilboa *et al.* 2008: 132; Monroe 2018: 205.

<sup>241</sup> Gilboa *et al.* 2008) 132; Monroe 2018: 205.

<sup>242</sup> Bell 2016: 100.

<sup>243</sup> Bell 2016: 100.

<sup>244</sup> Aubet 2001: 165.

<sup>245</sup> Monroe 2018: 295; Torres Ortiz 2008: 138.

<sup>246</sup> Gilboa *et al.* 2008: 157.

<sup>247</sup> Broodbank 2013: 488.

<sup>248</sup> Fantalkin 2006: 200.

<sup>249</sup> Gilboa 1999: 126.

<sup>250</sup> Torres Ortiz 2008: 135.

<sup>251</sup> Aubet 2008: 248.

<sup>252</sup> Aubet 2008: 248; Monroe 2018: 210.

<sup>253</sup> Bell 2016: 101; Sherratt and Sherratt 1993.

<sup>254</sup> Iacovou 2008b: 641; Karageorghis and Los Schiavo 1989.

<sup>255</sup> Mederos 1996: 104–107.

originates in Cyprus'.<sup>256</sup> We may therefore suggest the affluence and riches that resulted from such activities of long-distance trade to the West and elsewhere are reflected in the monumental sacred ashlar structures and rich burial finds at Salamis, Palaepaphos, Kition, Amathus, and elsewhere.

Very shortly after the first Cypro-Phoenician finds are placed in Huelva, i.e. the beginning of the 10th or even at the end of the 11th century BC, according to the Hebrew Bible, King Hiram I (960–930 BC) entered into a commercial and naval partnership with Israel. The partnership helped King Solomon to establish kingship in Jerusalem by the supply of cedar, carpenters, and masons from Tyros.<sup>257</sup> With respect to the naval cooperation between Tyros and Jerusalem, and on the recurring phrase 'ships of Tarshish', Monroe<sup>258</sup> and Lipinski<sup>259</sup> are in agreement that Tarshish is the area known to Herodotus as Tartessos, whose identification is narrowed to the port town of Huelva and where we witness<sup>260</sup> the first Cypro-Phoenician presence and influence. Thus, history, archaeology and legend begin to converge. At the time when archaeological evidence places Cypriot and Phoenician traders and seafarers in Kommos, and in the area of Knossos, Sardinia, and Lefkandi, the same traders and seafarers might have already extended their presence as far as ancient Gadir and Huelva. Therefore, we may suggest Cypriot commercial interests benefitted from the possible joint naval activities and expeditions of Hiram and Solomon in Tarshish-Huelva. It might be that Menandros was not entirely wrong in indicating that a certain association might have existed between Cyprus and Hiram I.<sup>261</sup> Hiram I and Solomon made considerable profits from their naval partnership; they used these profits to embellish their cities and extend their power. Solomon, for example, built the temple in Jerusalem and Hiram rebuilt the port of Tyros, extending its shipyards, and building palaces and temples, among them the Temple of Melqart, the tutelary deity of the city. It might not be by a coincidence that at about the same period Cyprus underwent an unprecedented economic renaissance, witnessed by considerable mortuary wealth and rich exotica, which is one of the best proofs of the transformation and continuation of its institutions.

We have evidence of the Cypriot maritime economy profiting from the Phoenician drive to the West from later finds as well, e.g. the Phoenician shipwreck from

Bajo de la Campana, dated to the second half of the 7th century BC. Among its four-ton cargo the vessel was carrying some fragments of copper traced to Apliki in Cyprus as well as a bronze cauldron and two bronze stands of incense burners, *thymiateria*, of Cypriot type<sup>262</sup> that possibly originated in Cyprus. Other Cypriot *thymiateria* of the same type were found in Phoenicia, North Syria, the Aegean, Etruria, Malta, Sardinia, and the Iberian-peninsula.<sup>263</sup>

### Cyprus and the Aegean

Ancient Eleutherna is located in the heart of the island of Crete, c. 25 km southeast of Rethymnon, at an altitude of 400 m above sea level. Eleutherna is a city that can tell the story of Crete at the dawn of the Early Iron Age, following the destruction of the Late Minoan palaces and regional centres,<sup>264</sup> but at the same time it can also provide a window to Cyprus' entrepreneurial activities to the West and open horizons of its maritime economy, which Susan Sherratt<sup>265</sup> calls 'an aggressively open economy'. The most frequently attested imports at Eleutherna are Cypriot *oenochoe* dated between 900–600 BC and a quite large series of the so called Cypro-Phoenician and Phoenician juglets and flasks of the type referred to by Nicolas Coldstream as 'Cretocyprica'.<sup>266</sup> Bronze bowls or cauldrons of Cypriot origin or inspiration were found among locally produced vases, especially within tombs of warriors. Some of the bowls have close parallels to Palaepaphos bowls. They were most probably manufactured on Crete, although undecorated prototypes are of Cypriot origin. A bronze ladle of Cypriot origin points to possible close interactions of Eleutherna with Palaepaphos.

Another example of Cypriot and Cretan interaction is in the range of the Cretan minor arts that created a cosmopolitan style which incorporated its Minoan heritage influenced by elements from North Syria, Cyprus, and Phoenicia. Cypriot iconography, technology and design are significant components of this cosmopolitan style.<sup>267</sup> Eventually Cyprus, with its actions and open naval economy, played an important role in the orientalisising phase and its related activities. It might even be that Cyprus<sup>268</sup> played a dual role since it is suggested, with good reason, that it was the vehicle for the infusion of Aegean elements in the Levantine art that combines ivory and metalworking techniques during the transition from the 2nd to the 1st millennium BC. This could have only been achieved due to Cyprus' maritime and commercial activities and important

<sup>256</sup> Torres Ortiz 2008: 138.

<sup>257</sup> Chron. 9:21; Chron. 14:1,2; Kings. 14:1, 1; Sam. 5:11.

<sup>258</sup> Monroe 2018: 202.

<sup>259</sup> Lipinski 2004: 261.

<sup>260</sup> See Aubet 2011: 44–45 for the traditional narrative that the joint Tyrian-Israeli fleet of ships from Tarshish opened up new markets in the Orient and not the West.

<sup>261</sup> Menandros is assumed to refer to an episode involving Hiram I, who intervened against the Kitians to force them to pay their tribute. For reference see *Ant.* 8.146 and Parpas 2018: 184 for discussion.

<sup>262</sup> Polzer 2014: 235, 238.

<sup>263</sup> Polzer 2014: 238, n. 82.

<sup>264</sup> Stambolides 2016: 283–295.

<sup>265</sup> Sherratt 1998: 301.

<sup>266</sup> Karageorghis *et al.* 2014; Stambolides 2016: 287.

<sup>267</sup> Aruz 2016: 2; Matthaus 1998: 127.

<sup>268</sup> Aruz 2018: 28.

participation in the connectivity of the Mediterranean, a process that was continued right through from the First to the Second Economic Cycle.

The same can be said of Cypriot contacts and possible presence in Euboea. The rich burials at Lefkandi and the quantity and quality of orientalia found there, much more than just pottery, suggest that enterprising easterners, mostly Phoenicians and Cypriots, might have settled there.<sup>269</sup> Most probably the site was an *emporion* of such intense trading activities that we can consider it was frequented by both Cypriot and Phoenician merchants. Nicolas Coldstream suggested that elite personal connections between Lefkandi and Tyros accounted for Euboean prosperity during the reign of Hiram in the 10th century BC.<sup>270</sup> Irene Lemos, considering the plethora of Euboean pottery of the pendent semicircle type (*skyphoi* and plates) in the East (Cyprus and north Syria mostly) and also the West,<sup>271</sup> suggests that the Euboeans were quite actively involved in the EIA trading networks of the Mediterranean.

From the preserved evidence the same can be said about Cypriot seafarers, traders and entrepreneurs. Furthermore, it has been suggested that Cypriots made a significant contribution to Euboean penetration into the Near East, a fact that must have benefitted its maritime economy and trade activities. It seems likely that Paphos, Amathus, Kition, and Salamis were the principal way stations for Euboeans travelling to Al-Mina and other eastern destinations, while the same sites were the preferred ports of call for Levantines travelling to the Aegean and other western destinations.

Apart from Euboea, there is also sufficient evidence for contacts and trade between Cyprus and eastern Greece. For example, Ionian ceramics and Chian amphora were found at Marion, Soloi, Amathus, Kition and Salamis, evidencing intense trade relations. Plutarch mentions a Samian trader, Dexikreon, who was travelling between Samos and Cyprus, presumably for trading purposes. This trade relation and connectivity continued right through to the Third Economic Cycle, as evidenced from the contents of the Mazotos (Chian amphorae carrying presumably Chian wine) and Kyrenia shipwrecks (Rhodian amphorae carrying Rhodian wine).

Rhodes is another island evidencing intense cultural and trade contacts with Cyprus, resulting from its geographical position, which offered an ideal stop over for maritime trade originating from Cyprus and the Levantine coast to the Saronic Gulf and Crete, as well as to the West. Evidence indicates that Cypriot trading networks remained active in the Aegean and Central

Mediterranean sites right throughout the passage from the LBA to the EIA, and into the 1st millennium BC. In Rhodes such evidence appears in the 9th century BC, from imported Cypriot pottery and the Rhodian adaptation of Cypriot pilgrim flasks found in cemeteries and burials. As from the 8th century various imports from Cyprus and the Levant, found at the sanctuaries of Athena on Rhodes, indicates intensification of the maritime trade network between Rhodes and Cyprus. Cypriot pottery imports and their strong impact on local Rhodian pottery production indicate who were the major carriers of trade at that time. Evidently it was the Cypriots, along with their Phoenician trade partners, who benefitted their respective maritime economies from these maritime trade networks. It has even been suggested that Eastern Mediterranean craftsmen and potters might have formed a small community of settlers, *metoikoi*.<sup>272</sup>

From the 7th to the end of the 6th century BC the most impressive corpus of imported votive offerings at Rhodes consisted of Cypriot terracotta and limestone statuettes. They are found at the Athena sanctuaries of Lindos, Camiros, and Ialysos, as well as at other sites in the Aegean. The Cypriot origin of the statuettes is not challenged, especially after the analysis of the limestone of the Lindos and Vroulia samples matched perfectly the limestone from the quarries at Idalion on Cyprus.<sup>273</sup> The complexity behind the manufacture, delivery and trade of these items is amplified by the example of the limestone statuette of a sphinx from the Vroulia sanctuary, presently in the Copenhagen National Museum, which is made of Cypriot limestone with an inscription in the Phoenician alphabet and language.<sup>274</sup> It is evidence of a Cypro-Rhodian-Levantine trade relationship, and strongly indicates the operation of a Cypriot trading network that used the remote site of Vroulia, on the south-eastern tip of the island, as a port of call related to local trade and distribution of Cypriot statuettes and other products to other Aegean destinations. This is another indicator of the diversity and openness of the Cypriot maritime economy during the Second Economic Cycle.

Dating from the same period, Cypriot terracotta figurines have been attested in many Eastern Aegean sanctuaries, e.g. Chios, Miletos, Ephesos, Rhodes, and the Triopion sanctuary at Knidos. The largest concentration of these figurines, presently displayed at the Samos Archaeological Museum at Vathy,<sup>275</sup> was found at the Heraion sanctuary at Samos. The majority of these figurines was produced in Cyprus, although

<sup>269</sup> Aruz 2016: 15; Papadopoulos 1997: 206.

<sup>270</sup> Aruz 2016: 15; Coldstream 1998; 2000, 20.

<sup>271</sup> Lemos 2001: 215–226; Lemos 2005: 53–60.

<sup>272</sup> Kourou 2003: 253.

<sup>273</sup> Fourier 1999; Kourou 2003: 253–255.

<sup>274</sup> Kourou 2003: 255–227, Fig.4.

<sup>275</sup> Viglaki-Sofianou and Marantidou 2009: 192.

there must be a possibility that some were produced locally by itinerant Cypriot craftsmen.<sup>276</sup>

These artifacts at the Heraion of Samos and other Aegean sanctuaries, which played a significant role in the international commercial exchange, are evidence of not only cultural but also trading contacts and trading activities between Cyprus and the Aegean. In particular they reflect trading activities by sea, and their large numbers indicate the depth and breadth of Cyprus maritime economy during the Geometric and Archaic periods. The archaeological findings are not the only proof of large-scale trade between Greece and the East; we have textual indications as well. From Homer's *Odyssey*<sup>277</sup> we learn of Phoenician cargo ships frequenting Greek harbours. As stated already, Homer, in this particular case, with the term 'Phoenician' meant oriental seafaring merchants emanating from around the Levantine coast, which included Cypriot sea transporters and traders. The identity of the Phoenicians 'to some extent is defined by their pursuit to acquire metals'<sup>278</sup> and trade; it is potentially a composite identity, even within the Levant itself.<sup>279</sup> It has been formalised 'through their association with other groups, in particular the Cypriots who had been mining ores on Cyprus since the fourth millennium'<sup>280</sup> and were involved in long-distance trade long before the Phoenicians.

The role of these votive offerings and gifts was to create an atmosphere of confidence and good will between the visiting merchants and their local counterparts. They were used as a kind of introductory fee or tax to the authorities and for obtaining permission for the intended business and for receiving guarantees for safe conduct. They were also used as honorary gifts for diplomatic purposes. They are all clear indicators of how cultural interaction benefitted the Cypriot maritime economy.

In the first half of the 6th century BC the numbers of Attic amphorae imported to Cyprus increased considerably. The impressive quantities of black-figure pottery found at Marion might suggest Athenian interest in the copper mines of the surrounding areas.<sup>281</sup> Solon's reported 'visit' to Soloi in 594 BC<sup>282</sup> might be evidence of close contacts between Athens and that part of Cyprus.

Petia Ilieva,<sup>283</sup> in an overview of the archaeological record from the North-Aegean island of Thasos, that

included late 12th-/early 11th-century BC bronze and bimetall knives made of local copper, but some also made of copper that can be traced to Cyprus, suggested a possible link between Cyprus and Northern Aegean. The presence of the bronze and bimetall knives on Thasos could be seen as an indication that the Northern Aegean was part of the long-distance Cypriot maritime network of that period connecting the Eastern and Central Mediterranean, as well as the Aegean and Anatolia.<sup>284</sup> The likelihood that in the late 12th and early 11th century BC Cypriot ships were acquainted with the Northern Aegean, Thasos in particular, and that their sea-routes were later followed by the Phoenicians, seems now an attractive proposition and a real possibility.

Cypriot and Phoenician contacts with North Aegean are also attested after the late 8th century BC when Homer and Herodotus refer to Phoenician ventures in the North Aegean. The textual evidence is now supported by archaeological findings in the form of ceramic artifacts of Cypriot and Phoenician origin or association that reached the North-Aegean islands and regions. Juglet fragments from Torone which can be connected to Cyprus are included in this evidence. In addition, the early Klazomenian cemetery of Abdera produced an isolated basket-handle transport amphora dated to the second half of the 7th century BC.<sup>285</sup> This type of container originates in Cyprus<sup>286</sup> and is of the same type of similar Cypriot amphorae discovered in the Aegean from sites at Kommos, Rhodes, and Miletos, as well as the finds of them in the three Archaic shipwrecks at Kekova Adasi, Kepce Burnu, and Cayagic Koyu, off the shores of south and southwestern Turkey. Further evidence is a jug belonging to a group of Phoenician red-slip, trefoil-lipped jugs from the Amathus horizon on Cyprus.

Another indication of Cypriot trade activities in the area was discovered in the Late Geometric/Early Archaic coastal cemetery of Mende on Chalkidiki. A late 8th-7th-century BC Attic SOS amphora was used as a burial container for *enchytrismos*. What connects the amphora with a Cypriot association lies in the short inscription incised on its shoulder in the Cypriot syllabary.<sup>287</sup>

All the evidence, albeit circumstantial, including the transport amphorae found in the region, indicates that processed agricultural goods (wine, olive oil, or even some specialised food) must have been delivered to the northern Aegean market at that time, perhaps as part of mixed cargoes. Whether these cargoes were onboard Phoenician, Cypriot, or Greek ships would be

<sup>276</sup> Kiligoglou *et al.* 2009, 192–200.

<sup>277</sup> *Odys.* 13, 272–285, 15415–484.

<sup>278</sup> Wood, Bell and Montero-Ruiz 2020: 9.

<sup>279</sup> Broodbank 2013: 485.

<sup>280</sup> Wood, Bell and Montero-Ruiz 2020: 9.

<sup>281</sup> Reyes 1994: 124, 140–143.

<sup>282</sup> *Hdt.* 5.113.2.

<sup>283</sup> Ilieva 2019: 65–102.

<sup>284</sup> Sherratt and Sherratt 1993: 75.

<sup>285</sup> Skarlatidou 2010: 171–175.

<sup>286</sup> Skarlatidou 2010: 174.

<sup>287</sup> Ilieva 2019: 82, n. 117, 118, 119.

rather speculative to argue. A plethora of various trade partners may have contributed to a dynamic network of exchange that is far from being ethnically clear-cut and accounts for the blend of Cypriot, Phoenician, and Phoenician-type artifacts found in the North Aegean.

### Cypriot presence at Al-Mina

The town of Al-Mina, excavated by Sir Leonard Wooley in 1936–1937, is situated at the estuary of the Orontes in northern Syria and its location provided a suitable contact point and juncture for trade between East and West. These are the features that attracted Euboean and Cypriot traders to the settlement at the beginning of the 8th century BC. The town, which must have been originally under the suzerainty of one of the Aramean kingdoms of the area, was already attracting commerce and trade from the Levantine cities nearby. It turned into a busy *emporion* when the Euboeans and the Cypriots first, and the Greeks later, established a small trading community there at the turn of the 8th century BC.

The Cypriots were trading extensively with the Levantine and Syrian coast and their arrival at Al-Mina with a resident trading community seemed to be the natural thing to do. They traded freely Cypriot goods and products transported from Cyprus but also other manufactured products, including pottery they manufactured at Al-Mina itself. John Boardman<sup>288</sup> suggests that it was the Cypriots who led the Euboeans and the Greeks to Al-Mina. Alexander Fantalkin<sup>289</sup> also expressed the opinion that the Cypriot and Euboean presence at Al-Mina is independent of any presumed Phoenician commercial activities. The Cypriot and Euboean presence at Al-Mina and the other nearby trading settlements south of Ras-Al-Basit, Ras-Ibn-Hani, and Tel-Sukas was quite substantial during the 8th century BC. After the Assyrians consolidated their domination of the sea triangle between the Levantine coast, Cyprus and Kilikia, and the northern Syrian coastline, in the late 8th to the beginning of the 7th centuries BC, and established their *karu* trading networks, the Cypriot and Euboean presence was reduced in favour of the Aegean Greeks and local traders. This is attested by the overwhelming reduction of Cypriot imports and tableware and the increase of the corresponding Aegean-Greek imports. Most probably, Cypriot traders withdrew back to their home cities on the island; this may relate to Assyrian military activities in the region and their control of the sea and overland trading lanes. We can even presume that this was due to tighter regulation and heavier taxation on trade originating from Cyprus.<sup>290</sup> It is possible that the Assyrian toll and tax system, between Cyprus and

the Phoenician and Syrian coast along the provinces of Kullani and Simirra, restricted free trade in such a way that Cypriot and Euboean trade from Al-Mina was drastically reduced.<sup>291</sup>

This coincides with extensive repairs at the houses of the Al-Mina settlement during the transition between Levels VIII and VII, c. 720 BC. The eventual abandonment of Level VII by Cypriots may also be connected to events that lead to Sennacherib's destruction of Tarsos c. 696 BC. During the 696 BC uprising against Kilikia, Cyprus might have been on the wrong side of the conflict, since it may well have been used as a springboard for attacks against Assyrian interests. The first victim of such an eventuality was surely its trading and commercial activities.

Nevertheless, the intensive trading and commercial activities of Cyprus during the 8th century BC continued in general, and this is indicative of the vibrant and geographically diversified character of its maritime economy. It was an open and outward institution that continued from the First to the Second Economic Cycle, and which guaranteed continuity of wealth and power to its overall welfare and political system.

### Cypriot ceramic trade networks in the southern Levant during the 8th and 7th centuries BC

According to recent studies based on Thin Section Petrographic Analysis (TSPA), it can be argued that Cyprus was the main production centre of the mortaria ceramic bowls imported to the southern Levant in the 8th and 7th centuries BC.<sup>292</sup> Furthermore, it was Cypriot mariners and traders who were responsible for their trading and distribution. Therefore, mortaria joined other Cypriot ceramics and pottery (Figure 54) like Black on Red, White Painted and Plain White bowls, jugs, juglets, cooking pots and trade amphorae,<sup>293</sup> as potential Cypriot imports in the southern Levant, which altogether testify to an intensive Cypriot trading activity in that region. They are a continuation of a thriving ceramic and pottery trade, and marketing with branding strategies, that went on successfully during the First Economic Cycle and carried through to the Second.

The marketing of these products strengthens the argument for Cyprus' versatile and diversified portfolio of exports. This activity, flourishing at the peak of Assyrian control in the Levant, was most probably channelled through the Assyrian *karu* trade network and was integrated within the Assyrian world economy under the watchful eye of the *Pax Assyriaca*.

<sup>288</sup> Boardman 1999: 440.

<sup>289</sup> Fantalkin 2006: 200.

<sup>290</sup> Pappas 2018: 59–60.

<sup>291</sup> Dezzo 2013: 350–351.

<sup>292</sup> Georgiadou 2016: 89–112; Zukerman and Ben-Shlomo 2011: 87.

<sup>293</sup> Zukerman and Ben-Shlomo 2011: 99.



Figure 54: Cypriot White-Painted and Bichrome ceramics as shown in the fragments exported to Dor at around the end of the second millennium BC constitute evidence of thriving trade of ceramics between Cyprus and the Levant (after Gilboa et al. 2015: 94, courtesy A. Gilboa and the Tel Dor excavations).

Archaeological evidence is found not only at the coastal sites of Ashkelon, Ekron,<sup>294</sup> Mezad Hashavyahu, Dor, Kabri, and others, but also at inland sites such as Jericho, En-Gedi, Tel Masos, and Aroer.

Mortaria bowls were most probably used for grinding and serving purposes, perhaps also for measuring. They are found in both industrial and domestic contexts and their longevity (800 to 300 BC) stems from their functionality rather than cultural or political reasons. They were widely used in daily activities in non-elite contexts and are usually found in association with Cypriot basket-handle amphorae. Their wide distribution is mainly attributed to their functionality and optimum price being cheaper to transport by sea from Cyprus than overland. They are not restricted only to the southern Levant, recent TSPA studies on a number of flat-based mortaria from Miletos and Xanthos in Asia Minor, Al-Mina in northern Syria, and Naukratis in Egypt, have established their petrographic and chemical similarity to Cypriot-style figurines, as well as to basket-handle amphorae<sup>295</sup> from Cyprus. From the evidence it is reasonable to conclude that

mortaria and basket-handle amphorae were carried and distributed by the same trade network.

There was widespread distribution of mortaria in the Eastern Mediterranean, in which Cypriot traders and mariners had a very active participation. Along the Palestinian coastline, in particular, they achieved substantial inland penetration by using middlemen, while keeping tight control of the lucrative trade in coastal markets and busy emporia. It does not seem possible that Cypriot merchants would give away such a lucrative source of income and allow foreign traders from Sidon, Tyros, Arwad, Euboea, or any other commercial centre in the Eastern Mediterranean, to enjoy the profits from goods produced on the island and with an established international 'brand' recognition.<sup>296</sup>

The most likely places of manufacture and ports of export were Salamis, Kition, Amathus, and Idalion. Cyprus' maritime economy was substantially enhanced by the inclusion in its diversified portfolio of exports of products, of the likes of ceramic mortaria that had such wide appeal in every-day use by the wider population, which achieved a wider social distribution.

<sup>294</sup> Zukerman and Ben-Schlomo 2011: 94, table 2.

<sup>295</sup> Zukerman and Ben-Schlomo 2011: 87–105.

<sup>296</sup> Zukerman and Ben-Schlomo 2011: 99.

It was this versatile diversity that provided stability and continuity to its maritime economy since the LBA. However, the evidence points to the inevitable eventual imitation and local production at the place of use.

### Cyprus and Naukratis

In spite of the political instability caused by the collapse of the Neo-Assyrian Empire and influence of competing foreign powers and the associated military and naval activity, we can consider that trade in the Eastern Mediterranean and Cyprus was not interrupted. This is evident from the rich material culture of the island in that period and the uninterrupted deposition of imported exotica in the Cypriot mortuary records. As a matter of fact, as far as trade was concerned, commercial activities between the Aegean and the east were intensified. This is evidenced from the origin and contents of the three shipwrecks at Kekova Adasi, Kepce Burnu, and Cayagic Koyu off the coast of Turkey, dated in the middle to the last quarter of the 7th to the beginning of the 6th century BC. Egypt was another traditional trading partner where commercial activities were kept active.

According to textual and archaeological evidence the Milesians and Chians, who were encouraged to establish commercial and trading activities in Egypt, founded Naukratis c. 610 BC on the Nile Delta. By c. 560 BC more Ionian cities had followed, making Naukratis the most important Egyptian trading port in that period. The regulations imposed by *Pax Assyriaca* gave way to more flexibility in how trade and business was conducted from then onwards. For the Cypriots, who had already a history of direct and indirect trade and cultural relations with Egypt, the establishment of Naukratis opened up trading and business opportunities due to their affiliation with the Ionian Greeks and the strategic position of the island between the economic zones of Egypt and the Aegean, which made Cyprus a useful stopover and resupply station. Both Cyprus and Naukratis were unique junctions between the Egyptian and Aegean economic zones.

There is evidence of the presence of Cypriots at Naukratis, where the influence of Cypriot art is strongly evident in the rendering of some of the local sculpture.<sup>297</sup> The large group of artistic works with an established Cypriot style discovered in the Eastern Aegean and Naukratis have been termed Cypro-Ionian.<sup>298</sup> These were most probably the works of sculptors, originating from Cyprus, who worked in overseas ateliers, or imports from Cyprus as a result of trade. This might be the reason for the mixed styles of eastern Greek and

Cypriot sculpture identified at Naukratis.<sup>299</sup> There are also numerous fragments of mortaria of Cypriot origin, as well as basket-handle amphorae, among the trade jars found at Naukratis.<sup>300</sup> A large number of mortaria bowls was unearthed at the sanctuary of Apollo, dated to the 6th century BC. Most of the earliest examples are considered Cypriot/Eastern Mediterranean.<sup>301</sup> Petrographic NAA analysis suggests Cypriot origin for four of the mortaria from Naukratis.<sup>302</sup> These shallow grinding bowls, made of buff clay and dedicated in considerable numbers in the archaic sanctuary of Apollo, belonged to a type of mortaria widely spread in Eastern Mediterranean households but also used in the preparation of foods in sanctuaries. Clay analysis suggests that Cyprus was the main production centre of this type, which was widely traded,<sup>303</sup> although local imitations were also produced.

Other imports from Cyprus include the gypsum alabaster, whose upper part had the shape of a female figure.<sup>304</sup> These findings might point to a probable Cypriot trade enclave complemented with an atelier of Cypriot sculptors, and suggest a two-way trade relation that explains the presence of Egyptian bronze artwork found on the island.<sup>305</sup> This two-way trade relation between Cyprus and Naukratis is also supported by the story of a certain Herostratos, presumably a merchant from Naukratis, who on one of his frequent trips back and forth to Naukratis and Cyprus bought at Palaepaphos a statuette that he dedicated to the temple of Aphrodite.<sup>306</sup> Polycharmos from Naukratis also alludes to direct contacts between Cyprus and Naukratis.<sup>307</sup> Another example, from very many, of the close contacts between Egypt and Cyprus is the statue of a young man, now in the Cesnola Collection, with strong Egyptian influence.<sup>308</sup> The continuous use of the Hathor head in Cypriot art, right until the 6th century BC, is also a strong indication of this influence being the result of close contacts between the two countries.

It is evident from the wealth found within the island's material culture of this period, expressed in monumental architecture and palaces, statuary and luxury goods, as well as royal tombs, that Cyprus was reaching new heights of prosperity. Trading between Cyprus and Naukratis, either direct or as an intermediary of Ionian-Greek trade, was one of the factors that contributed

<sup>297</sup> Reyes 1994: 70, n. 7.

<sup>298</sup> Hermary 2009: 24.

<sup>299</sup> Reyes 1994: 82, Pl. 24, n. 68.

<sup>300</sup> Villing *et al.* 2014: 15.

<sup>301</sup> Mavronanos 2015: 25.

<sup>302</sup> Villing 2006: 39.

<sup>303</sup> Villing 2006: 31.

<sup>304</sup> Villing *et al.* 2014: 18.

<sup>305</sup> Reyes 1994: 79, n. 51.

<sup>306</sup> *Athenaus* XV. 675f; Maier and Karagerghis 1984.

<sup>307</sup> Lipinski 2004: 77; Polycharmos of Naukratis in FGH III C, §640, Fig. 1.

<sup>308</sup> Karageorghis 2002: 196–197, Fig. 392.

to this prosperity and benefitted Cyprus' maritime economy.<sup>309</sup>

#### SHIPS OF WAR AND NAVAL SERVICES. NEW AND DIVERSIFIED ACTIVITIES OF THE CYPRIOT ECONOMY

For the last 150 years of the Second Economic Cycle the Cypriot city-states engaged in new naval activities that changed the island's maritime character; this is represented by the supply of ships of war and naval services, as well as armed forces and possibly mercenaries to the regional powers of the region. These new ships of war, and military as well as naval services, might have been an obligation derived by treaties or even part of tribute that Cyprus was obliged to provide. At the same time, some of it could have been of a political or commercial nature with the intention of building and supplying ships either on their own, or complete with trained and possibly armed crews ready for sea warfare to an established clientele. The ships and their crews, as well as the marines and armed forces and auxiliaries, were not provided free of charge. They were either paid for with silver or grain or were compensated with trade concessions and protection. These could include the sailors and shipwright services Cyprus provided to Sennacherib in 694 BC, the mercenaries and auxiliaries they provided to Esarhaddon against the Egyptians in 670 BC, the naval and army assets they provided to Ashurbanipal in 667 BC, as well as the fleet provided to the Egyptian pharaohs Apries and Amasis, Cambyses to invade Egypt, and possibly even to Cyrus to fight the Carians and Babylonians (Table 3).

These activities are indications that, apart from raw materials, the city kingdoms had the manpower and skilled personnel, as well as the knowledge, to build, equip and operate naval fleets during wartime and participate in naval campaigns with the necessary logistical support and naval infrastructure. We do not know how and under what fiscal and monetary systems these naval activities were financed, nor under what social and economic change this financing was provided, but we may assume, although no direct proof exists, that part of it was funded by taxation. Whatever the case, it reveals Cyprus' economic strength and the extent of its naval infrastructure and capabilities.

At this point we should also consider how the Athenian fleet was organised at around the same time, i.e. the beginning of the 6th century BC, or even earlier. The Athenians ran their fleets based on the principle of *naukrariai*,<sup>310</sup> with, essentially, 48 *naukrariai* – 12 to each

of the four tribes. Each *naukraria* comprised of wealthy citizens, presided over by a *prytanes*, performing a *liturgy* to collect funds to be used for the supply, maintenance, and command of ships of war and their crews for the Athenian fleet.<sup>311</sup> This is similar to the system of port wardens in medieval England, who were obliged to supply ships in lieu of their tax obligations. It has been suggested that *naukrariai* were political and administrative bodies, and that their officials, *naukraroi*, were tasked with the construction and running of ships of war from the *naukraric* fund. This was probably retained from Solon's laws stipulating that *naukraroi* could collect and spend from the *naukraric* fund.<sup>312</sup>

Thus, most likely, in the Archaic period Athens did not have an entirely state-owned fleet, it was mostly privately owned. This was described by Thukydides, as *palaios tropos*, 'the old way', to arrange naval development, *nautica*.<sup>313</sup> Possession of ships by aristocratic families in the Archaic period in Athens was an effective tool for military, political and social influence, as well as a practical way to promote and maintain commercial and maritime activities. This was particularly possible from the type of ships available, the *triakontoros* and *pentekontoros*, that could have a dual purpose and be easily used for both commercial and military purposes. Therefore, the fleet of the Archaic period was essentially quite different from the fleet in Classical times, comprising of ships designed and constructed exclusively for warfare – the *triereiis*.

It might be possible that some kind of similar organisation could have existed in Cyprus. In such a case, a substantial part of the Cypriot naval fleets that participated in the campaigns of the Assyrians, Egyptians and Persians in the last 150 years of the First Economic Cycle might have been provided by wealthy members of the ruling elites in the various city-states who owned commercial boats for their trading activities. These ships were of the *triakontoros* or *pentekontoros* type, which could be used for commercial activities in their traditional way, and also for naval warfare when equipped with suitable decks for carrying marines. Whatever the case, there is much still to be learned on the subject, but it does reveal Cyprus' economic strength and the extent of its naval infrastructure and capabilities.

An incident that proves Cyprus' military and naval strength, and the probable reach of its trading partnerships and relations, is the request by Queen Pheretime, mother of Arcesilas III of Cyrene, to King Evelthon of Salamis, c. 518 BC, for military aid to restore

<sup>309</sup> Villing and Schlotzhauer (2006: 7) believe that Naukratis was primarily an eastern Greek trading port and that we lack the necessary evidence to suggest the presence of a thriving trade between Cyprus and Naukratis, an opinion not shared by this present author.

<sup>310</sup> The word *naukraros* comes from the words *naus* (ship) and *kraros* (commander) (Gabrielsen 1994: 24).

<sup>311</sup> Gabrielsen 1994: 19–24.

<sup>312</sup> *Athinaion Politeia* 8.3.

<sup>313</sup> Thuk. 1.10.4.

Chronology	Event	Comments	Source
9th – 8th centuries BC	Cypriot shipwrights are in the service of Semiramis	To be viewed with caution, Reyes: 1994	Diod. 2.16
694 BC	Cypriot sailors participate in Sennacherib's naval activities in southern Mesopotamia	Parpas 2016: 113, n. 163	Luckenbill 1924: 73
670 BC	Cypriot auxiliaries in Esarhaddon's army	Insurrection query to Sun god Shamash	Starr 1990: 155–156
667 BC	Naval/military participation in Ashurbanipal's campaign	Ten Cypriot city-states with navies against Egypt	Luckenbill 1926: 27
570 BC	Cypriots supplied Apries with ships and Greek mercenaries	Probably used to contain the Amasis challenge	Elephantine stele
567 BC	Cyprus subdued to Amasis	Egyptian influence	Hdt. 2.182
545 and 539 BC	Cypriots assisted Persia against Caria and Babylon	To be viewed with caution, Briant: 2002: 48	Xen. 7.4, 1–2
525 BC	Cypriot navies in Cambyses campaign against Egypt	Most probable date of submission to Persia	Hdt. 3.19

Table: 3 Cypriot participation in the navies and armies of foreign powers (9th/8th centuries BC to 525 BC).

her son to the throne.<sup>314</sup> Evidently for the queen to make such an appeal Salamis must have been considered a sufficiently powerful naval city-state in the Eastern Mediterranean, and there must have been previous good relations between the two kingdoms, presumably from commercial dealings and transactions. Although such aid would come with some form of remuneration, Evelthon declined to send military aid. Perhaps he could not get the necessary permission from the Persian satrap, but these are matters we will discuss in detail in the Third Economic Cycle. Nevertheless, Salamis was considered powerful enough to provide such military aid, which must have required a very capable navy and strong naval economy.

The naval and maritime economies of Cyprus also benefitted from the movement of Greek mercenaries in the Near East from the second half of the 7th century BC. The role of Cyprus in the movement and mobility of associated goods and people, as evidenced by significant assemblages of Cypriot tableware at forts and military sites where these mercenaries were located, cannot be overlooked.

In spite of the political instability caused by the competition of foreign powers, and the military and naval activity associated with it, Cyprus' maritime economy and trade were not interrupted. This is evident from Cypriot presence and contacts outside Cyprus, as well as the social development and rich material culture of the island in that period.

### **Ships-of-war and the probable cost and funding of naval expeditions**

When trying to estimate the related cost to the Cypriot states for a typical naval expedition during the Neo-Assyrian period and shortly thereafter, as we lack figures for the cost of warships and crew salaries at the end of Cypro Archaic I, it is feasible to try and extrapolate some logical and reasonable figures using, as a benchmark, costs from Greece during Classical times.

We know that a *trieres* in the Classical period in Greece would cost an average of two talents in silver, i.e. c. 52 kg in silver;<sup>315</sup> at around the end of the Cypro Archaic Period I, a *trieres* might be assumed to cost about the same. For crew salaries, it is known at least, that sailors and rowers in the 5th century BC in Classical Greece received a daily salary of three to six *obols*, i.e. between half to one drachma per day.<sup>316</sup> The average salary cost at the end of the Second Economic Cycle can be considered as three *obols* per day, i.e. 64.8 g per month. Thus, for a fully equipped *trieres* the salaries of crew and officers would cost an average of 13 kg (200 x 64.8) in silver per month, or about half talent.

Extrapolating from this, for participation in a naval operation at sea with 20 *triereis*, say an average of two per city-state, the capital cost for the *triereis* would be 40 talents in silver. The corresponding cost in average crew salaries would be 260 kg (13 x 20) in silver, or c. 9.6 talents<sup>317</sup> per month, or c. 115 talents per year. That

<sup>315</sup> Gabrielsen 1994: 139; Robbins 1998: 361–364.

<sup>316</sup> Gabrielsen 1994: 110; Meijer 1986: 69.

<sup>317</sup> This calculation does not take into consideration the cost for

<sup>314</sup> Hdt. 4.162; Stylianou 1992: 416.



Figure 55: Typical iron and bronze weapons, as well as arrow heads of Cypriot manufacture, on display in the Cyprus Museum (photo: author; courtesy Department of Antiquities, Cyprus).

would be a very substantial sum of money that only wealthy city-states could afford. Where did this wealth and funding come from? In the absence of hard evidence one can only guess from commerce and trade, taxes, custom duties, piracy, slave trade, or perhaps, and most likely, paid for by the regional power requesting the naval service. One thing seems clear, from the last 150 years of the Second Economic Cycle the naval economy became as important as the maritime economy, and because of its nature we can only consider it was state owned and controlled

The question next that arises is where were the crews recruited? Were they locals or foreign mercenaries? We have very little evidence to give a satisfactory answer. A fleet of 20 *triereis* would require some 4000 sailors and officers. Surely the city-states could not afford to have a standing fleet with such manpower ready at any moment to go to war. It seems fair to assume that the sailors and crews may have been primarily employed in commercial-maritime, even agricultural, activities, and possibly drafted for naval service as and when required. If so, what would be the effect on the maritime economy and agriculture from such disruption? Unfortunately, there is so little information and evidence that the more we investigate the more questions arise which cannot for the moment be answered.

### Weapon manufacture

During the First Economic Cycle, Cypriot weapons were manufactured and exported to Ugarit. This is attested from the six shields and five javelins found on the Cypriot ship that docked at the Ugaritic port of Atalligu.<sup>318</sup> From the participation of Cypriots in naval warfare, it seems this tradition continued right

through to the Second Economic Cycle. The available evidence, therefore, indicates that a variety of weapons were produced in Cyprus during this period.<sup>319</sup> These weapons would have had a dual purpose, i.e. in hand-to-hand combat for the regular soldier and marine, and as indicators of social standing, status, and prestige for elites and aristocratic warriors.

Looking chronologically at weapon construction development during the Second Economic Cycle, one of the most prominent and widely produced weapons since LC III B, and later in the Cypro-Geometric and Cypro-Archaic periods, was the flange-hilted iron dagger. When used with an ivory or bone mounting on its hilt, it was a ceremonial object reserved for elite use rather than intended as a weapon for actual combat. The first weapon from an elite burial, attested from the LC III B period in Kourion *Kaloriziki*, Tomb 40,<sup>320</sup> was a flange-hilted iron dagger. Similar iron daggers were also found during the IA period at Amathus, Palaepahos *Skales*, the wider Aegean, and in the Near East. Bronze spearheads, widely used since LC IIIB, were found island-wide in tombs.

The flange-hilted iron dagger is also found in the CG I period, frequently encountered in rich tombs, as well as bayonet-shaped spearheads, i.e. the bronze finds at Palaepahos *Skales*, Tomb 89. This spearhead is very common and widely found in other burials throughout the CG I-III, i.e. Amathus, Kourion, Lapethos, and Palaepaphos. The evidence points to a forerunner in LC IIC Kition and Enkomi (LC II).<sup>321</sup> Similar spearheads from the Aegean and the Levant point to a predominantly Cypriot development.<sup>322</sup> Another type of weapon, the iron long-sword, made its first appearance in a

logistical and other support in cargo ships, nor their sailors who accompanied the fleet, carrying food, supplies and equipment.

<sup>318</sup> KTU 4.390; RS 18.132; UT 2056.

<sup>319</sup> Vonhoff 2013.

<sup>320</sup> McFadden 1954: 131–142; Benson 1973: 49–50.

<sup>321</sup> Catling 1964.

<sup>322</sup> Vonhoff 2019: 185.

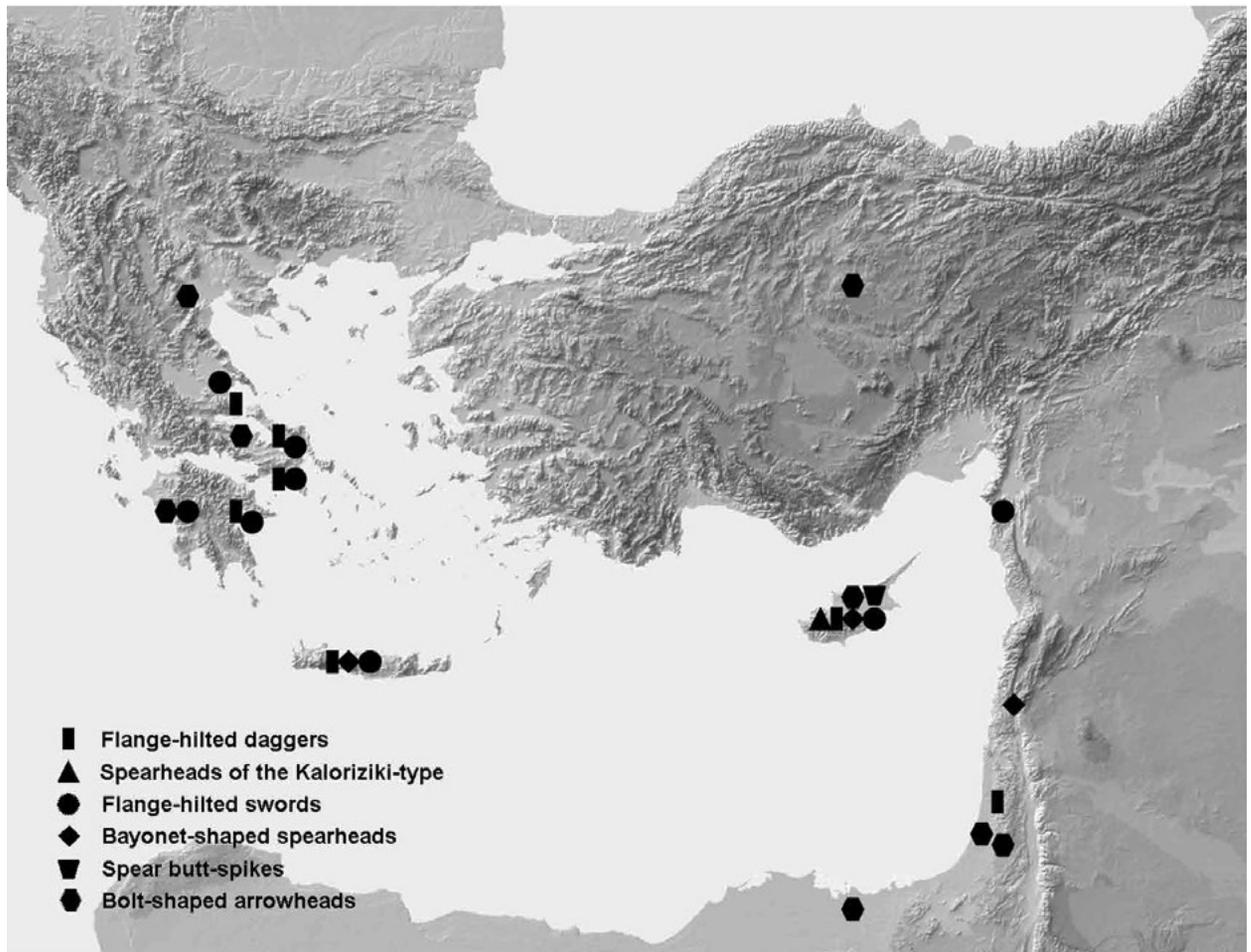


Figure 56: *Distribution of Cypriot EIA weapons* (after Vonhoff 2013: 199, Fig 5).

Palaepaphos *Skales* elite burial, Tomb 76, that also yielded a flange-hilted iron dagger and a bronze bayonet-shaped spearhead. Amathus Tomb 523 provided bronze spearheads of a similar shape. Towards the end of the CG period and right through the Cypro-Archaic, the range of weapons from Cypriot tombs becomes more heterogeneous compared to the LC III B/CG I, since other similar weapons and flange-hilted iron swords, and different types of spearheads, make their appearance.

A dominating feature in Cypriot weaponry from the 9th and 8th centuries onwards is the steady increase and widespread use of arrowheads, especially the bolt-shaped type invented during the LBA in Hattusha, but also known from the contemporary Aegean and the Levant.<sup>323</sup> The appearance of this type of arrowhead in Cyprus clearly illustrates the international character of warfare, as well as the spread of techniques in the Eastern Mediterranean.

Evidently iron and bronze weapons were widely available during the Second Economic Cycle in Cyprus. It seems reasonable to assume that these were the types

of weapons carried by Cypriot troops and auxiliaries in Esarhaddon's army in 670 BC,<sup>324</sup> as well as by the Cypriot soldiers who joined their kings in Ashurbanipal's campaign against Egypt in 667 BC<sup>325</sup> – 'These kings with their armed forces and ships'.

Since from the evidence the Cypriot kings seem to have had an obligation to provide armed contingencies to their various masters, then a certain weapon manufacturing programme would have had to exist. How it was organised we do not know. What arms did the Cypriot soldiers carry and from where they were supplied? In the absence of hard evidence any discussion can only be speculative, although it is very tempting to look for such weapons among the types we just described.

Examining the variety of Cypriot weaponry associated with IA burials of high-ranking individuals, weapons attained a special meaning for the elites in Cyprus. Splendid weapons decorated with bone or ivory served as highly appreciated status symbols or insignia among

<sup>323</sup> Vonhoff 2019: 187.

<sup>324</sup> Starr 1990: 155, 156.

<sup>325</sup> Luckenbill 1926–1927: 27.



Figure 57: *The silver-studded iron sword from the dromos of Salamis Tomb 3, dated c. 600 BC. A quiver with arrows, a bronze spear and shield were found next to the sword (courtesy Department of Antiquities, Cyprus).*

the nobility. Apparently the deceased, to whom the weapons belonged, can be identified as prominent warlords belonging to an international elite closely linked to warfare and fighting. The weapons found in aristocratic Cypriot tombs of the EIA period serve as clear indications of the extraordinary social standing of the interred individuals: they were simultaneously, prominent representatives of a common Mediterranean material culture.

The 'Royal Tombs' at Salamis are among the most famous resting places for such aristocratic individuals. The iron weaponry found dates to the transition of CAI/II and includes iron spearheads, swords, and arrowheads which provide important information to do with the social meaning of weapons and their use as elite burial gifts in the Cypro-Archaic period. A most startling find was the silver-studded, flange-hilted iron sword (Figure 57) that was part of the military gear associated with one of the two chariots deposited in the dromos of Tomb 3.<sup>326</sup> Contemporary flange-hilted swords of

this type are also found in the Royal Tombs 4 (CAI/II), 11 (CAI), and 12 at Tamassos *Chomazoudhia*,<sup>327</sup> and the Royal Tomb at Kourion (CAI).<sup>328</sup> All these finds suggest a strong bond between the profession of a warrior and the lifestyle of the aristocratic community that existed in Archaic Cyprus during the Second Economic Cycle, which, in combination with the need for weapons for the common soldiery, would clearly suggest that there were some type of weapons' industry in Cyprus during the last part of the Second Economic Cycle.

#### MONEY, CREDIT, FINANCE, AND THE WEIGHTS AND MEASURES SYSTEM

The appearance of money as we understand it today, as currency in the form of coinage, is generally accepted to have originated in Lydia and quickly spread to the Greek world between 650–625 BC. Coinage was adopted by the Persians after they conquered western Asia Minor in 546 BC, while in Cyprus it was first introduced at about the same time, c. the last quarter of the 6th century BC. This is a strong indication of the internationalisation of the island's economy and trade.

With the use of coinage, by officially stamping the metal with a recognised authority, the Lydian kings introduced a new element in money – a guarantee for its predetermined value. Before that, the monetary aspect of the economy was mostly expressed by metals of standardised weights, as a store or index of value. Other forms of money were also used, e.g. ration systems, grain, barley wool, and textiles.

By mid 1st millennium BC, gold, and preferably silver, were not only used as a reserve and a measure of value but also as an instrument of payment and took the role of money and monetary instruments. Furthermore, bronze and iron played their own role as well, as reserves and measures of value. This is evident in Cyprus, and elsewhere, by the circulation and deposition of bronze statuettes, tripods and iron spits, and *obeli*<sup>329</sup> found in tombs and sanctuaries.

By the same period the introduction of coinage revolutionised commerce in the Greek world and its colonial network in the Mediterranean and the Black Sea. The introduction of coinage in Cyprus occurred in the last quarter of the 6th century, a little later than its wide use in Athens and Sicily c. the mid 6th century BC. We may presume that, apart from being an expression of prestige and independence, the reason of its introduction in the

<sup>327</sup> Matthaus 2014.

<sup>328</sup> Christou 1997; 2003.

<sup>329</sup> The system of calculating weight and money in classical Greece has its roots in this tradition, as a 'drachm' (meaning handful) has as sub-unit the obol (*obelos* meaning spit). Thus, one drachm was equivalent to a handful of six spits. This is most probably the reason we find spits in mortuary contexts in multiples of six.

<sup>326</sup> Vonhoff 2019: 181.

economy was similar to the situation in Athens, where, according to Aristotle, coinage was used to aid trade and exchange.<sup>330</sup> We might suggest that it was no accident that it occurred during the period of the expansion of Ionian and Greek<sup>331</sup> trade through Naukratis in Egypt, where Cyprus had an active role.

Despite the fact that the first coins issued in Cyprus coincided with the time the island pledged its allegiance to the Persian Empire, their style and weight do not exactly follow that of Persian money. The first coins by Evelthon of Salamis, in the last quarter of the 6th century BC, that were followed before the end of the 6th century by those from Paphos, Kourion and Idalion, were in the Cypriot Syllabary, with the ruler's name on top of the Persian ram on the obverse and blank on the reverse; later coins by Evelthon's successors had the Egyptian symbol *Ankh* on the reverse. By putting money into legal circulation in the form of silver coins, the state provided an additional guarantee for the transaction. With the issue of coinage, the city-states were able to finance construction and development, pay for mercenaries, and most importantly conduct internal trade, as well as large-scale commerce and long-distance trade. The Cypriots went ahead and minted coins partly because of their trade associations with the Greek world, especially the Ionian cities but mainly due to their internationalism and open-type economy. The institution of coined money had a positive contribution in their maritime economy since, among other things, it legitimised its transactions. This subject is looked at in more detail in the Third Economic Cycle to follow.

It is worth noting that coinage in Phoenicia was introduced about one century later than in Cyprus. Up until then metal and other commodities in standardised weights provided a universally understood index of value, although metal itself does not appear to have been exchanged in commercial transactions as a form of payment.<sup>332</sup>

We have very little information about the important institution of credit and finance in ancient Cyprus, nor is there evidence of how credit was obtained and what were the prevailing interest rates up until the middle of the 1st millennium BC.

Trade, especially at sea, entails many risks. The merchants involved in shipping ventures had to commit capital and be prepared to take risks: the higher the risk the higher the reward. Those who did not have sufficient capital of their own had to turn to wealthy financiers and credit institutions. Such institutions were flourishing since ancient times – from Assyria

to Ugarit, Egypt, and other Levantine emporia. We may consider they also existed on Cyprus, but before Classical times we lack evidence.

It is feasible to refer to applicable practices of Cyprus' trading partners during the Second Economic Cycle to draw some tentative parallels. During the late Third Intermediate Period in Egypt a grain loan, suggesting a principal of 15 sacks, was to be repaid in one month with 50% interest, i.e. 22.5 sacks; another loan, possibly dated 686 BC in the reign of Taharqa, concerned a principal of 30 sacks of grain to be repaid in eight months against 50%, i.e. 45 sacks. A silver loan dated to the late 9th/early 8th century BC refers to a principal of five *debens* in silver to be repaid in one year with 100% interest, i.e. 10 *debens* in silver. Yet another silver loan during Taharqa's time specified an interest rate of 10% per month, i.e. 120% per year.<sup>333</sup> Thus see a rather diversified and unstable range of interest rates becomes clear, one that does not permit any defensible conclusions on rates for Cyprus.

For information purposes only, we can refer to Classical Greece, where credit was available to merchants from wealthy financiers and money lenders, even institutions such as temples and sanctuaries. The ordinary interest rate exacted by professional lenders was of the magnitude of 10% – 12%. In the case of maritime loans, where the amounts were large and risks considerable, the rates of interest were higher. Demosthenes in his speech *Against Lakritos* refers to a loan for a return trip to Bosporos to supply grain to Athens with an interest rate of 22.5%.<sup>334</sup> Although it might be plausible that such rates could have existed in Cyprus in the Archaic period, without direct evidence it would be unwise to presume that similar arrangements might have applied in Cyprus during the Second Economic Cycle. This will be looked at in more detail in the discussion on the Third Economic Cycle.

In the Persian Gulf it was common business practice for pearl fishermen to borrow in advance of up to 50% of their expected income to finance their pearling expeditions: by so doing they could cover their expenses and leave enough for their families to get by on while they were away. The loans were given by wealthy financiers and were covered by mortgaging the debtor's house and property, even sometimes by putting their families to the service of the creditor. A pearling trip would normally take six months and the families of the fishermen used to gather at the harbour in Autumn, when their loved ones were expected to return, to meet them. Many a time they would have been distraught when a boat was lost at sea and did not return, for in such cases properties changed hands and

<sup>330</sup> Arist. *Politics* 1.3.13–14; Manning 2018: 201.

<sup>331</sup> Manning 2018: 201.

<sup>332</sup> Pappa 2017: 7.

<sup>333</sup> Muchs 2016: 161–162.

<sup>334</sup> Bresson 2016: 278–285.

whole families were sold into slavery. Such background information is of interest, but without firm evidence we cannot know the applicable credit rates and interest, or the terms, conditions and traditions that prevailed in Cyprus during the Second Economic Cycle.<sup>335</sup>

There is no information currently on whether the stable international weights and measures system changed from the First to the Second Economic Cycle; however, it seems that the Near Eastern standards of the First continued right through to the Second Economic Cycle. Continuous use of the Mesopotamian standard weights is documented at Tyros for the 8th and 4th centuries BC.<sup>336</sup> Use of the Ugaritic standard weights is documented in Huelva/Tartessos associated with 9th- and early 8th-century Phoenician ventures in Iberia.<sup>337</sup> Very important finds documenting the continuation of the weights and standards systems for Cyprus and its long-distance trade are the 16 stone and balance weights and fragments recovered in 1944 from the 9th-century BC Tomb 79 in the Toumba cemetery at Lefkandi. These weights, found in the tomb of a 'Warrior Trader'<sup>338</sup> who belonged to a local Euboean elite with strong trading contacts to Cyprus and the Levant, are all virtual duplicates of the LBA balance weight systems used in Cyprus and the Levant from the First Economic Cycle. The Lefkandi weights, the only ones so far surviving in the Aegean from the Second Economic Cycle, attest to the continuation of the LBA weight systems across the First to the Second Economic Cycle divide for both the Cypriot and Levantine worlds.<sup>339</sup>

## DOCUMENTATION, WRITING, AND LANGUAGE

The migration of Mycenaean (Greek-speaking) and possibly Phoenician (Semitic-speaking) people to Cyprus, as economic migrants, shortly after the critical

years of c. 1200 BC, resulted in a unique, multilingual Cypriot society revealed in respective linguistic and epigraphic testimonies during the Second Economic Cycle. This movement did not, however, write over the existing (as of yet unknown) language of the autochthonous people. It should be stressed that the LBA Cypriot script, known as Cypro-Minoan, continued in an adjusted version, the Cypriot Syllabary, which was the more widely used scribal tool on the island during the Iron Age.

In the process, the society evolved into three distinct linguistic groups:

1. An Indo-European (Greek) group, speaking the Arcado-Cypriot dialect, closely related to the Greek language recorded in Mycenaean Linear B texts, using the Cypriot Syllabary, an Iron Age version of the Cypro-Minoan script, as a scribal tool;
2. A Semitic (Phoenician) group, speaking a Semitic language using the Phoenician alphabet; and
3. An autochthonous group referred to as Eteocypriot, speaking an undeciphered and indigenous language, using the same Iron Age Cypriot Syllabary used to write the Greek language.

There was, therefore, a complete transformation and segmentation of the documentation and language institution of the island to accommodate the new demographic reality. This is a typical example of how the institutions of the First Economic Cycle continued, was transformed, and was transferred in the course of the Second Economic Cycle. This institutional segmentation can be interpreted in conjunction with the territorial divisions and territorialisation of self-sufficient economic territories and gave substance and meaning to the politico-economic geography of the island. The continuity and endurance of the Cypriot Syllabary, on most of the island, is reflected on the corresponding continuity and endurance of its long-distance trade and maritime economy which formed the basis of its politico-economic system. The island's important institutions of long-distance trade and maritime economy benefitted from their multilingual nature, but became neither Mycenaean nor Phoenician but were retained and transformed as pure Cypriot institutions. Otherwise, its old scribal and linguistic character would have been completely eradicated and replaced by the imported Phoenician and Mycenaean linguistic systems.

The important process of writing, expressed by the new Syllabic script, like its Cypro-Minoan predecessor, continued to be the vehicle and tool for facilitating and

<sup>335</sup> There are striking similarities to Shakespeare's play *The Merchant of Venice* and the way financing was secured and arranged in Antiquity in the Near East, and thus why not Cyprus as well? [The play tells a story of love, hate, promise, performance, and justice. The prosperous merchant Antonio was asked by his friend Bassanio to lend him money to win the heart of beautiful Portia. Antonio's money was tied up in trade at sea, and thus he borrowed money from the Jewish moneylender Shylock. In exchange for the loan, Antonio promised that if he failed to repay the money in three months then he would give Shylock the right to an equal 'of a pound of flesh, and not a drop of blood, to be cut and taken in what part of Antonio's body that pleased Shylock'. Antonio gave the promise confident that one of his ships would reach Venice one month before the deadline. With the money and his charm Bassanio won the heart of Portia. Alas for Antonio, however, his ships were lost at sea and Shylock claimed his 'pound of flesh' in a court of law. Portia disguised as a young lawyer from Padova defended Antonio in court and pleaded in his favour with the famous lines: 'The quality of mercy is not stran'd it droppth at the gentle rain from heaven upon the place beneath'. Although mercy has little to do with justice, Shylock could not take his pound of flesh because he had to do it without a drop of blood which is impossible.

<sup>336</sup> Elayi and Elayi 1997: 319–321.

<sup>337</sup> Consalez de Canales *et al.* 2006: 13–28.

<sup>338</sup> Popham and Lemos 1995.

<sup>339</sup> Kroll 2008: 37–48.

communicating other institutional systems for much of the island. An example is the communication of the institution of ownership, a core aspect of NIE. Three examples, among many, highlight the point.

- (i) Initial evidence of the endurance of the Cypriot Syllabic writing, and the important institution related to it, is the earliest known Greek inscription, found in a 10th-century tomb at Palaepaphos *Skales*, with the name *Opheltas* written still in the Cypro-Minoan script.<sup>340</sup> In this case, the script was used not by a royal but by a private individual to communicate ownership. The continuity of one institution (writing) to communicate ownership (another institution) is thus highlighted.
- (ii) The late 8th-/early 7th-century BC gilded silver bowl, presently in The Metropolitan Museum of Art (Cesnola Collection), bears two inscriptions written in the Cypriot Syllabary to denote initial ownership of the bowl by *Akestor* and which was later transferred to *Timokretes*. This is a rather complex example, where we have continuation of the transformed institution of writing in the form of the Cypriot Syllabary to express another institution, that of ownership. This time there are two records: the first being that of initial ownership 'I am (the bowl) of *Akestor* king of *Paphos*'; and the second that of a contractual transaction of transfer of initial ownership to a second individual, i.e. 'I am (the bowl) of *Timokretes*'.
- (iii) The honorary inscription in Cypriot Syllabic script of the king of Paphos *Onasicharis*, dated to the late 6th century BC at the end of the Second Economic Cycle, on display in the Kouklia Museum (Figure 58), is another example of how the script was used on this occasion by a royal personage for communication purposes.

These examples illustrate continuity in institutions, utilised by both court and commoners to communicate and declare ownership. The second example is of added interest as it records transfer of ownership, thus being right at the heart of a major concept of NIE, i.e. of transactional theory. What is more intriguing is a transfer of ownership of a royal object to, presumably, a member of an elite, but not a king. The use of inscriptions on the first coins issued by Evelthon and other Cypriot kings, in the Cypriot Syllabary, falls into the same category of argumentation.

These are clear examples that highlight the point that the secret of Cyprus' success was the continuity of its

institutions, and that the present and future of any society is connected to its past by its institutions and their continuity. If we can identify these institutions and track their evolution and continuity which define their society, we can track its history.

It must be emphasised that the presence of three languages on the island did not correspond to three different ethnic identities: there is no evidence of three different cultures on ancient Cyprus.<sup>341</sup> Although there were three languages and two writing scripts on Cyprus, there was only one culture. The mortuary patterns, sacred landscape, and symbols of statehood all point to an homogenised material culture, and a common political one, that do not suggest three distinct ethnic identities.

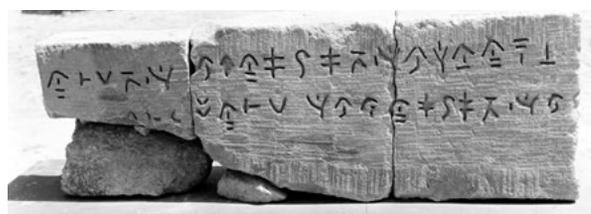


Figure 58: Greek Cypro-Syllabic inscription of King *Onasicharis* of *Paphos* on display at the Kouklia Museum (courtesy Department of Antiquities, Cyprus).

## TEMPLES AND RELIGIOUS INSTITUTIONS

Temple and religious institutions played an important role as driving forces in the mercantile enterprise of Cyprus during the Second Economic Cycle. The transition from the First to the Second Economic Cycle is characterised by the erection of open-air monumental temples and sanctuaries, i.e. at Palaepaphos and Kition, which are evidence of the rise and co-existence of religious and political institutions. This is also attested in the refurbishment of extra-urban sanctuaries, i.e. *Ayia Irini*, as well as the establishment of new ones by new Iron Age city-states – *Salamis*, *Amathus*, *Idalion*. In Palaepaphos the evidence points to one figure having a dual role, that of the King and the High Priest.<sup>342</sup> At *Amathus*, *Kition*, and elsewhere we have evidence of the co-existence and alliance between royal and religious institutions and the entrepreneurial organisations that enhanced the economy and mercantile activities, and created an affluent society. The existence of industrial metal-working and textile-producing workshops, since the LBA (LC IIIA) within the sacred precinct of *Kition* shows religious institutions becoming economic agents with their own ways and means of generating revenues. The existence of marine inscriptions and maritime engraved representations on the outer wall of Temple 1

<sup>340</sup> Iacovou 2013a: 138.

<sup>341</sup> Iacovou 2013a: 134.

<sup>342</sup> Iacovou 2013b: 810.

and the altar of Temple IV at Kition *Kathari* are clear signs of the involvement of temples in maritime activities, even in long-distance trade, providing them with wealth and power. This was a practice that was strengthened and continued during the 1st millennium BC.

Such evidence, i.e. of temples having substantial economic activities, comes from a 4th- or 6th-century BC limestone tablet<sup>343</sup> found in the harbour area at Bamboula. The inscription is in cursive Phoenician and is a record of payments to be made to various temple employees and associates of the temple of Astarte. The inscription lists payments and offerings to: the God of the new moon; the builders who built the temple of Astarte; the marchers and gate keepers; the singers from the citadel performing for the queen, the Holy Lady; the pages; those performing the sacrifices; the bakers who prepared food and baked bread for the Queen; the tonsured men who participated in religious services; the craftsmen who built the pedestal of the pillars for the temple of Mukol; the head of the scribes and the deputy of the day; the dog men and lion men; the Carthaginians; the man who took the post; the shepherds chosen by the Phoenician god, Reshef; the virgins and 22 prostitutes; those who have charge of the sea in the precinct of the gods.

This long list, consisting of not less than sixteen different professions and activities which reveal the temple's wide range of religious and commercial activities, as well as its wealth and financial means beyond its religious duties. This list points to the existence of temple religious and commercial administration, possible endowment of land, people, animals, and other sources of revenue.

Clearly payments were to be distributed among the priests themselves, since it was customary that the revenues or offerings given to the gods were usually redistributed among the priests, either as payment or as rations. Payments were also made to personnel with temple ceremonial and administrative duties, e.g. the deputy of the day, marchers and gate keepers, pages and the personnel performing the sacrifices and slaughtering of the animals, and the tonsured (head shaven) men who performed the religious services, although an alternative interpretation for the profession of the latter is that they were barbers in the service of the temple involved in sheep shearing.<sup>344</sup> Other fees were paid to tradesmen who did work for the temple, e.g. builders and craftsmen. The temple also provided salaries to the singers of the citadel

who performed for the goddess (Queen). The fact that salaries were paid to the head of scribes points to a pool of scribes, even perhaps a scribal school, indicating that the temple needed scribal staff, who were in charge of the treasury, to store revenues and keep accounts of income and production, as well as redistribution and disbursements. Salaries were paid to those shepherds chosen by the god Reshef, in charge of the temple flocks that most probably grazed on temple lands. The dogmen were probably charged with the task to look after the flock. The temple used their sheep for sacrificial ceremonies and their wool for producing textiles. In Ugarit and Hatti the High Priest was given the name 'Chief of the shepherds',<sup>345</sup> denoting the leading role of the temple in raising flocks of sheep and goat.<sup>346</sup> The same seems to have applied in Cyprus.

Evidently temple prostitution was another source of income for the religious establishments of ancient Cyprus, explaining the salaries paid to 22 prostitutes working in the temple.

As for the payment to the Carthaginians, some sort of commercial arrangement was ongoing between them and the temple, and they were at Kition to conduct business or some kind of work or service requiring reimbursement. Presumably they were guests of the temple. Payment of salaries to those who have charge of the sea in the sacred precinct is of particular interest. It reveals the temple's involvement in maritime matters and the existence of maritime officials, sailors and crews in an area of the port associated with the temple. It is reasonable to assume that if the temple had sailors and mariners in its payroll, it may well have had ships and merchantmen in its ownership.

The payment list is solid evidence that temples and religious establishments had, apart from their religious duties, a very active involvement in the economy and commercial and financial matters that provided them with wealth and power. This was true for most Near Eastern countries in the Levant and Egypt. In Egypt, for example, during the New Kingdom period and the Third Intermediary Period, temples grew to such proportions that their administration was comparable to that of the Pharaoh. This was the case of the temple of Amon-Re at Karnak. The High Priest of Amon-Re had dual authority and duties as the religious head of the temple but also as a civil administrator. Thus, the temple of Amon-Re possessed officials and a scribal staff in charge of a granary and a treasury and were tasked with financial matters. They also had officials in charge of temple fields and cattle, production centres, and craftsmen. During the 20th Dynasty (1186–1069 BC) the temple organised the collection of grain harvest

<sup>343</sup> Amadasi and Karageorghis 1977: 103–128; CIS nos. 86A and 86B; Healey 1974. For the listing of inscriptions with religious and mortuary contexts at Kition, see Yon 2004, who believes this inscription dates to the 4th century BC. Eleftheria Pappa 2017:19 reported this inscription in the Archaic period to the 6th century BC.

<sup>344</sup> Pappa 2017: 19.

<sup>345</sup> Lipinski 1988: 131–132.

<sup>346</sup> Lipinski 1988: 131–133.

taxes. They also owned a flotilla of ships which sailed down the Nile and stopping periodically to collect grain and taxes from endowed lands belonging to several temples of the domain of Amon-Re.<sup>347</sup> There are also records similar to the Kition tablet of rations and payments given to the crews of the flotilla of ships assigned to collect the grain harvest taxes. In the New Kingdom, the pharaoh could exact levies from temples as well as endow them. Some of these levies were direct taxes from property the king entrusted to the temples for exploitation. Other taxes or tribute were collected for revenues of lands that belonged to the temples. It is not known whether such arrangements existed in Cyprus, but it is reasonable to consider that similar relations between the king and the temples might have existed there, although evidence eludes us.

### Case study – A plausible economic model of the involvement of the temple in the production and distribution of textiles, dyed wool, and garments

Kerstin Dross-Kuper and Marie-Luise Nosch<sup>348</sup> in their work on textiles, trade and theories, state that ‘in ancient societies, textiles are rated as absolutely essential goods. Considering their significance in the ancient world and their value as key economic assets, textiles hold a significant potential for the understanding of the ancient economy and should thus be given more attention by scholars.’ Clearly further detailed economic analysis and discussion on textiles is essential to better understand Cyprus’ maritime economy and its potential. Morris Silver, in his treatise on ‘Economic Structures of Antiquity’, uses NIE theory to analyse the ancient economy of the classical world, recognising and including textiles as a key product in his analysis.<sup>349</sup>

In recognition of the important role textiles might have played for the Cypriot economy and long-distance trade we will discuss a plausible economic model for the production and distribution of textiles, dyed wool and garments, as well as the probable cooperation of state and temple, using elements of transaction cost theory as advocated in NIE.

Since the early years of the Second Economic Cycle, private enterprise’s active involvement in the economy resulted in new socioeconomic systems and trade networks. New navigational knowledge and improved shipping technologies connected the newly established and rich international centres, and provided more opportunities and incentives that resulted in intensified production and trade. In a similar manner, the religious

and temple establishments would appear to have taken advantage of the new order of things and expanded and consolidated further their involvement in the economy. It is more than likely this is what happened in the textile industry during the Second Economic Cycle in Cyprus, with the urban temples and sanctuaries allied with the royal establishment controlling the industrial part of the textile industry, while the household element remained a private, small family activity.

Our case study focuses on the city-state and temple and religious establishment of Kition, with its locality of *Kathari* (Area II), situated next to the port, having 12th-century BC industrial workshops adjacent to Temple 1: the northern one devoted to copper and the western to textiles. At *Chrysopolitissa* there is evidence of household textile activities within a residential complex, while the *Bamboula* had industrial workshops related to metallurgy and textiles next to a sanctuary complex by the new port of the city.

The administrative and industrial activities at the *Kathari* sacred precinct continued right through the 12th century BC to the Cypro-Geometric I period. It is considered that at the ‘Western Workshop’ large scale industrial textile activities took place,<sup>350</sup> with a special link to the cult.<sup>351</sup> These activities, together with the *Bamboula* industrial operations, were essentially a replication of the earlier *Kathari* complex activities related to sanctuary and religion; they dated from the beginning of the Second Economic Cycle and were carried on uninterruptedly until the Third, and are evidence of the temple’s continuous involvement, in alliance with the city’s institutions, in an economy that included metallurgy and textiles. The closeness of these activities to the port and its facilities, indicate active involvement in maritime trade. Similarly, the proximity of the textile workshops to the military installations at *Bamboula* might indicate the existence of a probable sail industry, supplying sails to the *trierei*s in the harbour.

There is further proof of the continuous existence of a textile industry at Kition in the form of loom weights, spindle whorls, stone tools, baths, vats, jars, and basins, revealing the different stages of textile production that took place there. As additional evidence there is a recent find at *Bamboula* of a fragmentary ceramic container with purple stains<sup>352</sup> from murex, dating to the transition period from late 12th/11th century BC, i.e. the initial stages of the Second Economic Cycle.

The available evidence up until now, and the absence of crushed murex shell debris, point to the strong probability that the extraction of purple dye was

<sup>347</sup> Muchs 2016: 124–125; Papyrus BM EA 10061+ Papyrus Amiens, Papyrus Musée de Picardie 88.3.5.

<sup>348</sup> Dross-Krupe and Nosch 2016: 293–329.

<sup>349</sup> Silver 1995: 143.

<sup>350</sup> Smith 2002: 299–304.

<sup>351</sup> Georgiou and Georgiadou 2019: 106.

<sup>352</sup> Georgiou and Georgiadou 2019: 109, inventory K18–516.

not taking place at the urban site but remotely, most probably near the coast where the shellfish were collected. It made sense for the purple-dye extraction operation to take place at a place close to the beach, away from the urban centre, because of the noxious smell and the large space requirement. Nevertheless, the identification of at least one vessel with purple dye residues at *Bamboula* is an indication that textiles and garments were being dyed purple at Kition, especially in the *Bamboula* textile workshops. These activities, or some of them, were most probably transferred from the Hala Sultan Tekke settlement, where we have already indications that such operations were taking place during the First Economic Cycle. In fact, the evidence suggests that several industrial textile workshops, especially during the early Second Economic Cycle, operated contemporaneously at Kition – at *Kathari* and *Bamboula*,<sup>353</sup> complemented by a household industry at *Chrysopolitissa*. All these production activities could only be commercially successful provided they were centrally managed by state institutions and a strong institutional organisation, such as the temple and the city's religious establishment which could co-operate with the trading community for distribution and long-distance trade. Its physical proximity to the city's religious precinct next to the port strongly suggests that this is what was happening.

As at *Idalion* and *Palaepaphos*, where there is evidence of commercial operations being recorded, we have the same indications from Kition's sacred precinct. This is supported by our earlier discussion of the Phoenician inscription, which is a record of payments made to various temple employees and associates of the temple of *Astarte*. Further to this inscription is an administrative *ostrakon* with numerical entries involving either people or products and items being counted and registered.<sup>354</sup> Evidently there was a state institution and temple cooperation for the registration, recording and accounting of industrial and maritime operations. Similar cult commercial arrangements were happening in other Mediterranean and Near Eastern localities<sup>355</sup> where, like in Cyprus, cult and state fostered commercial expansion by providing resources, investment and venture capital. State international relations, together with mediation in foreign lands, under the patronage of deities as a means of legitimising transactions, were valuable tools in the hands of private entrepreneurs and long-distance traders.

Following the above analysis, a plausible textile production and distribution model is outlined in Figure 59, taking an industrial model where sheep were pastured in royal or temple lands, leased from the

king, by shepherds under the supervision of the temple organisation. Flocks of sheep have multiple revenue streams: religious ritual activities; production of meat for human consumption; production of wool for the manufacture of textiles. Textiles would have been produced in textile workshops in the urban centres, presumably under royal and temple supervision. A parallel operation of collecting and processing murex to produce the dyeing agent for wool and woollen garments would have been in progress, away from the urban centre, near the beach.

Experimental archaeology has demonstrated that textile production was a time-consuming activity in Antiquity, requiring the involvement of a large portion of the population. The sheep had to be tended and pastured, wool had to be sorted and combed, thread spun, textiles woven, sewn and mended, the murex had to be collected and broken, and the dye processed and applied. A similar operation had to be carried out for linen. The potential result would be the production of ordinary wool and linen, as well as purple-dyed textiles, non-dyed simple garments, and purple-dyed ceremonial garments, used in religious or royal ceremonies, destined for the local market and long-distance trade. We have, thus, a model of vertical-integration production process of textiles for local consumption, and, potentially, for export purposes.

It is possible now to present some productivity numbers and try to find out how commercially viable such an enterprise could be towards the end of the Second Economic Cycle, and what were the obstacles and constraints, if any. Our study will explore what production resources were necessary to produce purple wool for export purposes which could yield the same income as for 10 tons of copper in Babylonia c. 550 BC, i.e. c. 55.5 kg silver.

A castrated sheep in the ancient wool economy could produce 750 g of wool.<sup>356</sup> Thus a flock of 20,000 sheep would produce 15,000 kg (15 tons) of raw wool. To take care of a flock of this size 140 shepherds were needed. From this production, c. 40% would be discarded and used for padding, insulation, and filling materials in mattresses and cushions, or used for felt. The remaining 60%, i.e. 9 tons or 322 talents (9000 ÷ 28) would be used for textile production.<sup>357</sup> To produce enough purple dye for 9 tons of raw wool c. 3 million murex glands would be needed.<sup>358</sup>

<sup>353</sup> Georgiou and Georgiadou 2019: 120.

<sup>354</sup> Amadasi and Karageorgis 1977: 161–162, Pl. XXIII, 6: D24.

<sup>355</sup> Pappa 2017: 19, 20.

<sup>356</sup> Nosch 2014: 373. Similar figures are given from Alalakh (AT 361); Nosch 2014: 392, n. 90.

<sup>357</sup> Nosch 2014: 394.

<sup>358</sup> One to three glands are needed to produce enough dye for 1 g of wool. Three glands could be needed per g of good-quality wool.

The price of purple wool during this period remains unknown, but at the beginning of the Second Economic Cycle the price of purple wool in Ugarit was 4 – 5 Ug.skl/talent, say 4.5 Ug.skl/talent, i.e. 42.3 g (4.5 x 9.4) in silver/talent. We also know that average salaries from the beginning to the end of the Second Economic Cycle increased by four times. The manufacturing of purple wool right from the start of the cycle of producing raw wool, extracting and applying the murex dye, to reaching the final stages of producing the end product is a labour-intensive operation. Therefore, for the purpose of this case study, it is reasonable to consider that the price of the final product increased also by four times, i.e. 169.2 g (42.3 x 4) in silver per talent. This means 15 tons of raw wool, which produced 9 tons, or 322 talents, of purple wool for making textiles, would produce an income of about 54.5 kg (169 x 322) in silver on the international market. This value is very similar to the value of 10 tons of copper in Babylonia c. 550 B.C. This comparison gives a measure of how attractive the manufacture and potential of long-distance trade of purple-dyed wool could be. This is only a working hypothesis based on extrapolated economic parameters, which, without hard evidence, is open to criticism. For example, how do we account for the price of purple wool to increase by four while the price of copper in Babylonia and Egypt, which is equally labour intensive, remained more or less stable compared to earlier periods. Many parameters could account for

this, one possibly being supply and demand. In the absence of documented hard evidence, it is better to have a reasonable estimate than have none at all, provided all parameters and considerations are backed by reasonable arguments.

In summary, a flock of 20,000 sheep, attended by 140 shepherds, together with 3 million murex shells, could produce c. 9 tons of purple wool, the value of which on the international market was similar to 10 tons of copper.

To complete this case study, one needs to evaluate the land and resources needed to maintain and attend a flock of 20,000 sheep, as well as the requirements to collect and process 3 million murex shells. Further to this, it is necessary to estimate the number of skilled workers, cost of food and salaries, and the industrial premises required. This is a project on its own and beyond the scope of this present study.

**CASE STUDY – COPPER EXPORTS FROM SALAMIS – THE CONTINUITY OF AN INSTITUTION**

The entire professional life of the present author has involved the processes of export markets, and first-hand experience has taught him that there is one major secret for success in export business – ‘optimum market knowhow’. The definition of ‘optimum market

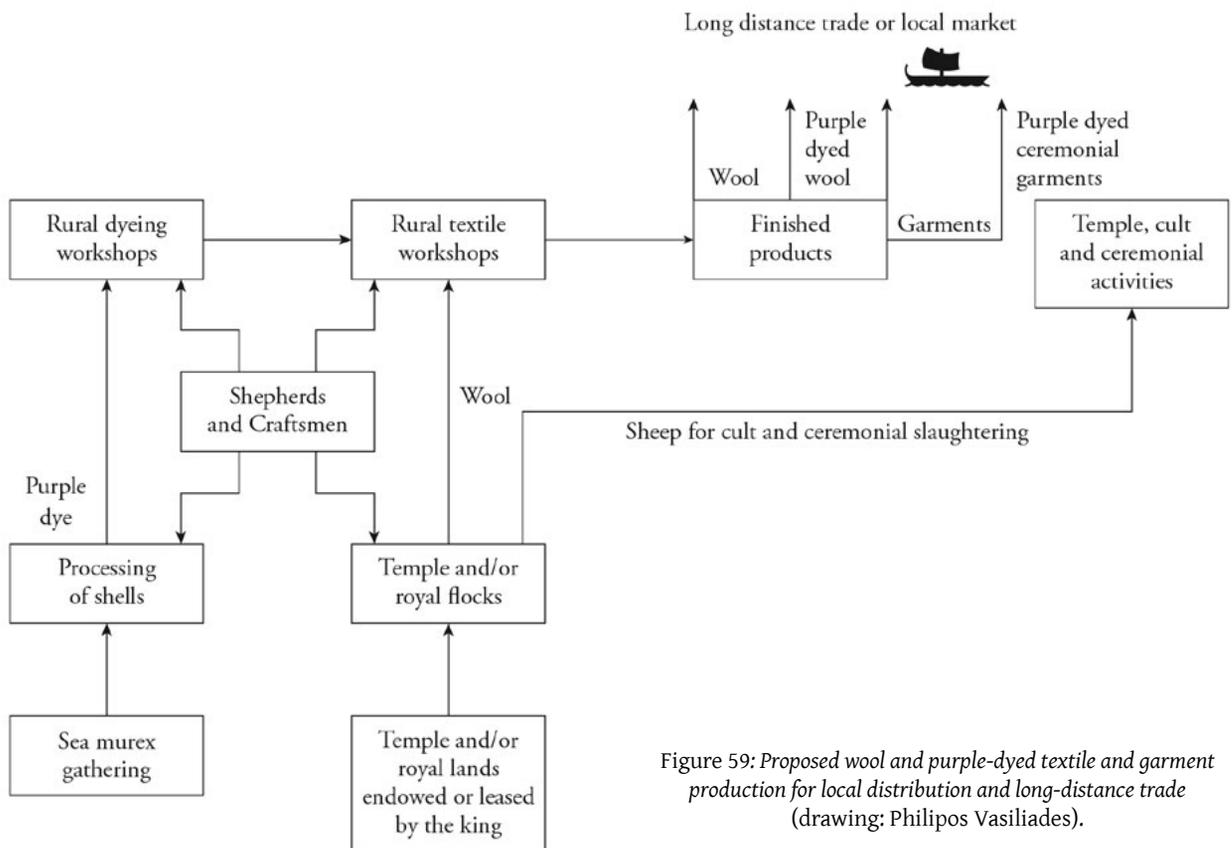


Figure 59: Proposed wool and purple-dyed textile and garment production for local distribution and long-distance trade (drawing: Philipos Vasiliades).

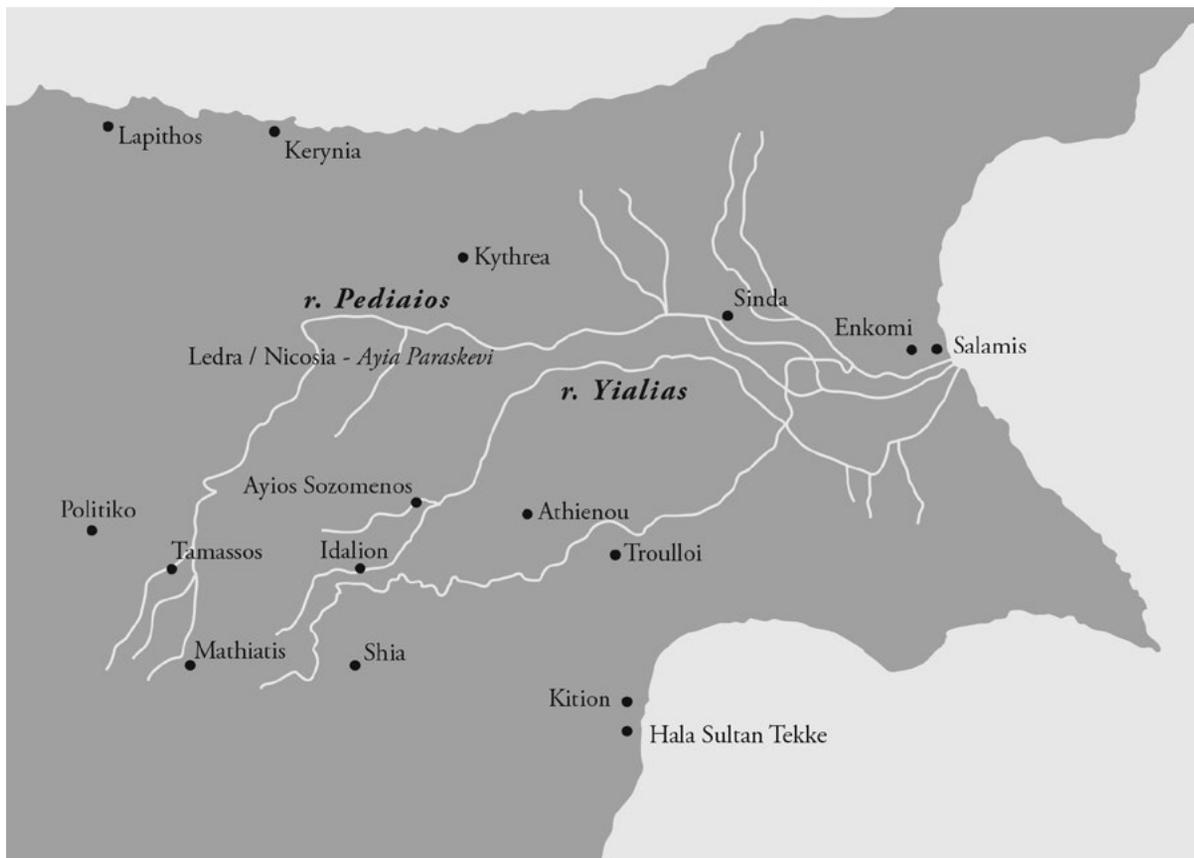


Figure 60: Eastern Cyprus, showing riverine routes from Tamassos via the Pedieos River, and Idalion via the Yialias River to Salamis (drawing: Philipos Vasiliades).

knowhow’ is to have an intimate knowledge of your client, to know what products he or she wants, how to produce them, as well as when and how he or she wants them to be delivered. It is as simple as that. In modern times it does not matter whether an export centre sits by the sea or on the top of a mountain, as long as it has control of ‘optimum market knowhow’. Of course, during ancient times communications and availability of information was a different matter: it was a much slower and more cumbersome process, thus in the long run being a port or an *emporion* on the sea was the vital link for success.

In the case study presented above for the export of copper during the Second Economic Cycle, Salamis was selected because it represents the most explicit example of continuity, and demonstrates how a coastal export centre, located a considerable distance from the source of raw materials, managed to turn geography and ‘optimum market knowhow’ to its favour and prevail over inland copper-rich regions and prove that modern theories and practices do not necessarily apply fully in Antiquity (Kition could easily be another such example).

The royal elite and entrepreneurial merchants of Salamis, being the successors and partners of Enkomi’s

entrepreneurial society, accumulated over the centuries such ‘optimum market knowhow’ for the export of copper that it made them one of the most successful exporters of copper on the island, in spite of the fact that they were 60 km – 80 km away from the nearest accessible major centres of copper production at Tamassos and Idalion. Thus, they invested to construct a secure route and flow of copper from inland production centres to their city, via the probable riverine routes from Tamassos via the Pedieos river, and Idalion via the Yialias. Examples of different communication routes serving other city kingdoms are the Kourion–Limnatis link in the Kouris Valley, Soloi–Kakopetria, or Palaepaphos to the south-western foothills of the Troodos Mountains.

In the case of the Salaminian communication routes, the city’s authorities must have reached some kind of understanding or agreement with the city-states of Ledra and Kythrea (Chityroi), who controlled part of the Tamassos–Salamis route, to cooperate – for a fee or a share of the profits. Apparently, their investment was less costly than the amounts the inland production centres had to invest to master comparable ‘optimum market knowhow’ by themselves. The inland production centres did not have access to the vital communication links with end customers and export markets, i.e.

they had limited ‘optimum market knowhow’. For this reason, although they had control over production, they had to cooperate with city-states such as Salamis to bring their production to the lucrative overseas markets. The most optimum pathway from the inland centres to Salamis was via the Pedieos River for Tamasos and the Yialias River for Idalion respectively (Figure 60). Salamis and the inland producing centres built extra-urban sanctuaries to demarcate their territorial reach and protect the copper route all the way from the production sites to the port of export.<sup>359</sup> Eventually Salamis put under its authority the inland producing areas, i.e. the ore bodies around the Tamassos area, thus creating a geographically unified territory incorporating ore bodies, land to produce foodstuffs, and a gateway on the coast with safe communications to the production centre and access to the international markets. This is the tripartite model put forward by Iacovou.<sup>360</sup>

As far as inland transportation was concerned, as already seen in the KAD case study, the traditional transport method with donkey-caravans was a costly and lengthy process requiring constant surveillance and protection of the transport route, almost throughout the year. Therefore, as long as the rivers were navigable, it is reasonable to believe that they were the preferred means of transport, using rafts and small boats. In such a case, the trip from Tamassos to Salamis via the Pedieos, and the corresponding trip from Idalion to Salamis along the Yialias, were the optimum solutions. It is not hard to visualise the Pedieos and Yialias becoming an extension of the Salamis port to the production centres. In a sense, they provided an important lifeline for the city’s economy. The urban centres along this route acquired strategic importance, thus, in the case of the Pedieos route, we should consider Ledra and Chytroi as relatively important stopover and resupply stations.

Although there is no direct evidence, it seems fair to think that the maritime community of Salamis, for its long-distance trade to the West, might have chosen a direct way to promote exports of copper. This is the case with its trade of copper to the Aegean, and further West to sites in Sicily and Sardinia. For its trade to the East, however, the most optimum way to reach clients was through its connections with intermediaries and trade agencies at Levantine emporia such as Tyros and Sidon. As we will see shortly, copper prices, apart from a short period in the first decades of the Second Economic Cycle, which reflected instability and volatility due to the crisis, remained relatively stable. In Babylonia, c. 550 BC, copper was trading at a ratio of silver to copper 1:180 (see Appendix). This was not far from the ratio of 1:200 it was trading at in Ugarit back at the end of the First Economic

Cycle. In Egypt, for the entire Third Intermediary Period (1069–664 BC) prices stabilised at a ratio of silver to copper of 1:100. This is an indication that although there was change in the ancient economies, provided there were no major wars and uncertainty, prices and exchange values varied according to the particularities of each geographic location, but remained stable and evolved at a very slow pace.

Copper, throughout the Second Economic Cycle, maintained its position as a highly priced commodity and an important component of the diversified export portfolio for Cypriot city-states involved in long-distance trade, e.g. Salamis. In spite of competition from regional copper suppliers in the Near East, such as Faynan and Timna, and demand for iron, it managed to keep its market share in the very important traditional market of the Near East.<sup>361</sup> This stability was a major contributor in the continuity of the important institution of long-distance trade for copper, which was the locomotive of the island’s maritime trade.

According to Kassianidou, ‘the evidence for copper production in Cyprus from c. 9th century BC onwards, in the form of slag heaps, wooden supports and other organic remains (ropes) from the mines is rich, for a recent compilation of this evidence, see Kassianidou 2013b. The prosperity of the Iron Age Cypriot kingdoms was obviously based on the production and trade of copper and Cyprus clearly by this time had once again gained the upper hand as a source of copper.’<sup>362</sup> The corresponding textual evidence is no longer reflected in state correspondence, such as the Amarna Letters, because a substantial part of it was conducted by merchant enterprise<sup>363</sup> with different documentation needs and methods.

Such evidence comes from two Neo-Babylonian tablets from Uruk (YOS 6 168; TCL 12 84), dated c. 550 BC.<sup>364</sup> The tablets evidence the continuity of copper trade to the traditional markets of south Mesopotamia, demonstrating the continuity from the First to the Second Economic Cycle of the important institution of long-distance trade of copper and its trading routes. According to the inventory list of the first tablet, YOS 6 168, 600 minas of copper, presumably sourced in relation to Cyprus, were imported and sold on the Babylonian market. The tablet mentions copper from *Yamana*, an area most probably located in western Asia Minor, but in relation to copper it is believed the origin of the copper refers to Cyprus.<sup>365</sup> It is interesting to note that, as in the cargo of the Uluburun wreck, the tablet’s inventory included the supply of tin to manufacture bronze.

<sup>359</sup> Papantoniou and Satraki 2019: 342–350.

<sup>360</sup> Iacovou 2013c: 31–32; 2020: 58.

<sup>361</sup> Kassianidou 2014.

<sup>362</sup> Kassianidou 2014: 267.

<sup>363</sup> Sherratt and Sherratt 1993: 361.

<sup>364</sup> Briant 2002: 386; Oppenheim 1967 236–254.

<sup>365</sup> Kassianidou 2013a: 70; Moorey 1994: 246.

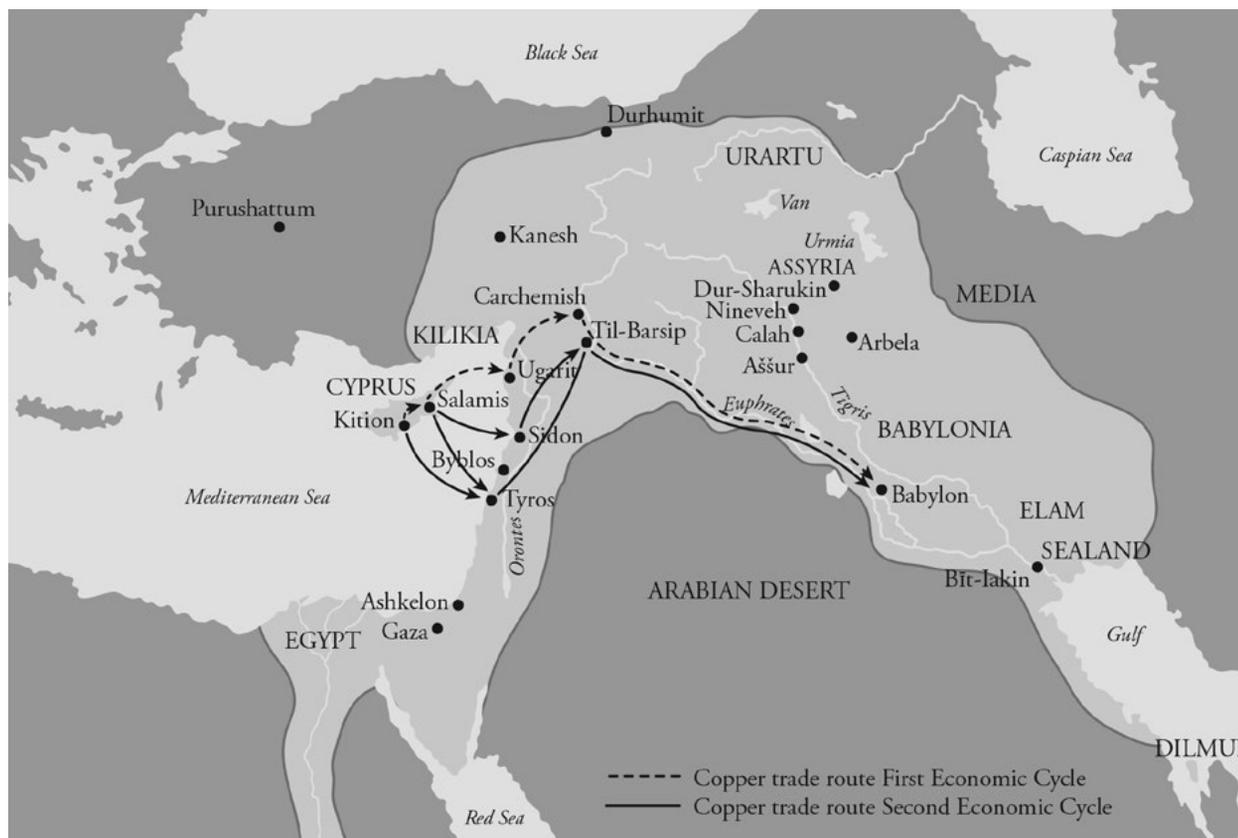


Figure 61: Copper trade routes from Cyprus to Mesopotamia during the First and Second Economic cycles, using sea, land, and river routes (drawing: Philipos Vasiliades).

Evidently copper and tin were often sold on a package basis. According to the second tablet (TCL 12 84), another 295 minas of copper and 130 minas of iron from Yamana, and 257 minas of iron from Lebanon, were delivered to the Babylonian market the following year, in 551 BC. The short time interval between the two consignments might be an indication of frequent yearly deliveries.

It is worth noting (Figure 62) the price difference between iron from western Asia Minor and iron from Lebanon. A consignment of 10 tons of iron from Lebanon would cost 27.7 kg in silver, while a corresponding delivery from western Asia Minor was 41.6 kg in silver. Presumably iron from Lebanon was cheaper on account of its quality and lower transport costs. And although by the 6th century BC, when iron was widely used, it is noteworthy that copper, although twice as expensive compared to cheap iron (the market price of a 10-ton consignment of copper was 55.5 kg in silver), was still very much in demand. Actually, the quantity of copper imported, according to the two tablets, was more than twice the quantity of iron – an indication that iron and copper were already addressing two different market sectors. On the same inventory list mentioning the aforementioned delivery of copper, tin and iron to Babylonia, we have evidence that alum from Egypt, and Egyptian blue, an imitation of lapis lazuli, as well as

other products from the Levant and Syria (blue-purple wool, juniper resin, dye, honey, spices) were imported to Babylonia within the same consignments. We can consider, therefore, that the consignments originated from one of the busy Phoenician emporia on the Levantine coast, i.e. Tyros or Sidon, where they were consolidated and dispatched to south Mesopotamia.

As far as Cypriot long-distance trade to the Near East was concerned, this was a continuation of the way it was undertaken in the First Economic Cycle. It is clear from Amarna Letter EA 35 that the king of Alashiya was also delivering copper to his counterpart in Babylon in the 14th century BC during the First Economic Cycle. In both cases the transport and method of dispatch of copper from Cyprus to Babylonia were similar.

The most probable scenario was that in the First Economic Cycle the delivery of copper to Babylonia by the king of Alashiya was executed from Enkomi. In this case copper from the mining villages of the Troodos was transported via the Pedieos River to Enkomi for final refining and export. From Enkomi the copper ingots reached Ugarit by sea and from there they were transported by land to Carchemish<sup>366</sup> on the Euphrates;

<sup>366</sup> In the hierarchy of the Hittite kingdom, Ugarit was subordinated

from Carchemish they reached Babylon in the traditional way – by boat and raft along the Euphrates (Figure 61).

The transport and delivery methods in the Second Economic Cycle followed the same routes and practice (see Figure 61). In the case of similar copper consignments to those referred to on the two tablets dated to c. 520 BC and 521 BC, it is reasonable to think that typical deliveries were done from Salamis. The copper reached Salamis most probably from Tamassos on boats, via the Pedieos River. From Salamis the copper ingots reached Tyros or Sidon by sea, and from there they were consolidated within consignments to be transported by land to the trans-shipment centres on the Euphrates, either at Carchemish or slightly further down at Til Barsip or Kar Shalmanesser (modern Tell Ammar), founded by Shalmanesser III (858–824 BC). Til Barsip, near Emar, the trading centre and embarkation point of the 2nd millennium BC, was the busy *karu* station that the Neo-Assyrians created in 854 BC at an important intersection on the Euphrates to carry goods from the West to the East, as shown in Figure 61. From Carchemish and Til Barsip the goods reached Babylonia by boat through the Euphrates. We have evidence from Neo-Assyrian cuneiform sources of extensive and frequent use of river transport through the Euphrates and the Tigris to both carry goods and ferry people<sup>367</sup> to Assur and Babylonia.

Therefore, throughout the entire First and Second Economic Cycles we have continuity of the method of transport and routes of Cypriot copper to the markets of southern Mesopotamia. In both periods, transportation was carried out using all three transport methods, land, sea and river, with the latter playing a significant part. The Cypriot long-distance exporters from Enkomi and Salamis respectively, whether kings or private entrepreneurs, or both, demonstrated ‘optimum market knowhow’. They achieved an operational connectivity between sea and river that permitted them to maximise their marketing advantage. In this process their business relations and connections with intermediary merchants and resellers and transporters, as well as institutions buying directly,<sup>368</sup> was invaluable. This was the result of an uninterrupted, hands-on operation involving long-distance trade in all its aspects throughout the centuries. One can consider that this was a practice that continued into the Third Economic Cycle, when the Persian administration put

under its control and authority the entire transport process.

It is not known who transported Cypriot copper and iron to Babylonia, or whether multiple intermediaries were involved – in the case of the Second Economic Cycle, Cypriot copper probably reached Babylonia after changing hands through intermediaries at Tyros or Sidon. This was an additional complication that required tested transactional practices and established, trusted partners. During the Amarna era, long-distance trade was carried out king-to-king, with different commercial parameters, and, as shown, was equally complex. In both cases Cypriot maritime economy demonstrated maturity, resilience and understanding of market forces at work, resulting in its longevity.

#### MARKETING SURVEY– INTERNATIONAL PRICES – COMPARISON TABLES AND CHARTS

An attempt can be made at marketing survey for Cypriot major export products in the Second Economic Cycle similar to the one estimated for the First. By so doing, the possible prices and values in the international market can be analysed and assessed in terms of how they might have determined and influenced the commercial options and mechanisms of exchange of Cypriot maritime traders during this period. The applicable market forces at work can be identified, and how supply and demand influenced prices, and vice versa. It should even be possible to define under what commercial conditions continuity was achieved for Cyprus’s important institutions of metallurgy and long-distance trade – the two most important pillars of its maritime economy.

#### Branding

Cypriot manufacturers in the Second Economic cycle continued the same strategy for ‘branding’ as their ancestors in the First. Therefore, like the oxhide ingots, the head of the Base-Ring I juglet, resembling opium-poppy seed-heads, and the Cypriot *pithoi* and bronze stands of the First Economic Cycle, the Cypriot manufacturers in the Second created and marketed corresponding products that could be characterised by commodity branding. Among these products can be mentioned the hemispherical bronze bowls of various sizes, Cypriot *oenochoe*, iron/bronze studded knives, mortaria, and cauldrons, the latter also manufactured during the First Economic Cycle.

#### *Hemispherical bronze bowls*

Around 1000 BC, Cypriot artisans created one of their most successful inventions,<sup>369</sup> i.e. the hemispherical

to the viceroy of Carchemish. Therefore, since Carchemish was on a busy junction on the Euphrates, Ugarit routed a substantial part of its trade through Carchemish.

<sup>367</sup> Parpas 2018: 108–109.

<sup>368</sup> In YOS 7 63, TCL 12 84 and YOS 6 168 we have evidence of Babylonian temples hiring their own purchasers, thus bypassing intermediaries and resellers.

<sup>369</sup> Matthaues 2016: 274.

bowls of various sizes with handles decorated with lotus flowers.<sup>370</sup> The handle attachment had a figure-of-eight shape. On Cyprus, this type of bowl is found at Palaepaphos, Amathus, and other sites, and they were very popular and widely exported to the Levant, Asia Minor, and Crete, where they were eventually imitated and replaced by local production. They can also be found as far distant as Sardinia and the Iberian Peninsula.

#### *Mortaria*

Mortaria were other Cypriot products dated to c. the middle of the 8th century BC, with wide distribution; they were also produced locally in the Levant and Eastern Aegean. A typical Iron Age product, they had a straight, everted wall, folded rim, and flat, concave base. Those with thick walls were mostly for industrial use, and the thin-walled versions mostly for domestic settings.

#### *Oenochoe*

Oenochoe, used for storing, carrying and serving wine, with their typical shape and decoration in Black-on-Red, White-Painted and Bichrome ware, were widely used locally, but were also exported to Crete and Rhodes.

#### *Iron knives*

Knives with iron blades, and ivory or bone handles attached with bronze hilt rivets, were also typically recognisable Cypriot products, with a wide distribution both locally and overseas; these, too, were eventually copied and imitated.

#### *Cauldrons*

Cauldrons, like the one found in Tomb 79 in the Salamis Necropolis, thought of Cypriot manufacture, were branded products whose shape, technology and quality conveyed a message of luxury and prestige. Such cauldrons have been found in Greece (Delphi and Olympia), Etruria, and similar ones in Anatolia.<sup>371</sup> The bronze cauldron used for the burial of the Euboean 'Warrior Trader'<sup>372</sup> is a perfect example of how a branded product was utilised according to the image it was intended to convey, i.e. wealth, prestige, and social as well as political standing. This fits nicely the suggestion that the burial might have been that of a *proxenos*, a notable responsible for assisting and representing locally the interests of Eastern merchants.

### **Trade and prices of metallurgy products, copper, iron and tin**

In the beginning of the Second Economic Cycle the important *emporion* of Ugarit, a vital commercial link

for Cypriot exports of copper, ceased to exist. The demand for copper from this important market sector must have dropped to nearly zero. At the same time the capacity of Cyprus to produce and export copper in the quantities it used to must also have dropped due to internal socio-political volatility and changes, as well as safety issues along the traditional export sea lanes and networks. This state of affairs is reflected in the variation and fluctuation of copper prices in Egypt, which increased between 1186–1069 BC but stabilised and returned to previous levels shortly before the turn of the millennium (Figure 62). In the meantime, Cyprus expanded its metallurgy programme into the manufacture and export of iron and iron products, including developments in technical skills and knowledge. Tin, another important component in the manufacture of, continued to be imported from traditional sources, but also from the West.

#### *Average prices of copper in Egypt*

At the beginning of the Second Economic Cycle, during the 20th Dynasty (1186–1069 BC), although the parity of gold to copper remained the same as in the First, i.e. 1:200, the ratio of silver to copper dropped from 1:100 to 1:60 (see Table 4 for ratio of silver to metals).<sup>373</sup> Thus, the price of copper in relation to silver, which was the preferred metal for trading copper internationally, had risen to 166 kg in silver for a 10-ton consignment (Figure 62). This might have been due to the volatility and political uncertainty prevailing at that time; most probably, Cypriot copper, as well as copper from other sources, could not be delivered in the same quantities as before, thus its price had risen. It is plausible that silver was available in larger quantities on the Egyptian market during this period, so lowering its value against copper. It has been suggested that this might have been caused by the wholesale looting of royal tombs during the 20th Dynasty which might have injected considerable quantities of silver onto the market.<sup>374</sup>

In the 21st Dynasty (1069–945 BC) the parity of silver to copper became again 1:100,<sup>375</sup> i.e. 100 kg of silver for a 10-ton consignment of copper. This is an indication that after the effects of the political and economic crisis had subsided the markets returned to their previous levels of prices and values. In general, prices in Antiquity, in the absence of major wars and volatility, remained relatively stable, and consequently silver to copper remained constant at a ratio of 1:100 for the duration of the Third Intermediate Period (1069–664 BC).<sup>376</sup>

<sup>370</sup> Often assigned to Phoenician craftsmen, designated as Cypro-Phoenician.

<sup>371</sup> Karageorghis 2014: 191.

<sup>372</sup> Popham and Lemos 1995.

<sup>373</sup> Muchs 2016: 114; Pappasavvas 2018.

<sup>374</sup> Muchs 2016: 159.

<sup>375</sup> Muchs 2016: 159.

<sup>376</sup> Muchs 2016: 159.

Ratios of silver to copper	
Egypt	LBA 1:100
Ugarit	LBA 1:200
Egypt 20th Dynasty	1186–1069 BC 1:60
Egypt 21st Dynasty	1069–945 BC 1:100
Egypt	945–664 BC 1:100
Babylon	550 BC 1:180
Athens	Classical Period 1:170
Silver to iron	
Babylon (from Lebanon)	550 BC 1:360
Babylon (from Yamana)	550 BC 1:240
Athens	Classical Period 1:480
Ratios of silver to tin	
Ugarit	LBA 1:200
Babylon	550 BC 1:40
Athens	Classical Period 1:25

Table 4: Ratios of silver to metals.

*Average prices of metals in Babylon and Uruk in Mesopotamia*

The price of copper in Babylon and Uruk in Mesopotamia c. 550 BC is reported at a ratio of silver to copper at 1:180 (1:302.4 ÷ 1.68),<sup>377</sup> i.e. 55.5 kg in silver for a 10-ton copper consignment (Figure 62). This is slightly more than half the price ratio of silver to copper in Egypt in the 7th century BC and only about 10% above the price of copper in Ugarit in c. 1200 BC. The copper imported to Babylonia from the West could originate from Cyprus, either directly or in relation to an unknown locality referred to as ‘Yamana’, probably an area somewhere in western Asia Minor colonised by Greeks.<sup>378</sup> From the evidence copper, along with other goods, arrived in Babylonia from the West on a recurrent annual basis, and, as already mentioned, the shipments were consolidated at one of the Levantine emporia and imported on consignment on behalf of a number of merchants in Babylonia, who seemed to distribute the goods, including copper, on a retail basis.

Iron is reported to have arrived in Babylonia along the same route and in the same way as copper from the West. Two places of origin, with different values, are referred to: iron from western Asia Minor (‘Yamana’) was priced at a ratio of silver to iron 1:240 (1:65,520 ÷ 273),<sup>379</sup> while iron from Lebanon was cheaper, at a ratio of silver to iron 1:360 (1:129,528 ÷ 358),<sup>380</sup> see Table 4.

<sup>377</sup> Oppenheim 1967: 237; YOS 6 168. I.e. 600 Babylonian minas of copper at three Babylonian minas, and 20 shekels in silver.

<sup>378</sup> Oppenheim 1967: 241. For an extensive discussion on the origins of Yamaneans, see Muhly 2009: 23–30.

<sup>379</sup> Oppenheim 1967: 237; YOS 6 168. I.e. 130 Babylonian minas of iron from Yamana at 32.5 Babylonian shekels (130 x 60 x 8.4 ÷ 32.5 x 8.4) in silver.

<sup>380</sup> Oppenheim 1967: 237; YOS 6 168. I.e. 257 Babylonian minas of iron from Lebanon at 42 and 2/3 Babylonian shekels (257 x 60 x 8.4 ÷ 42.66

This price difference, perhaps, had mostly to do with quality and additional freight costs for imports of iron from western Asia Minor.

Tin was also imported to Babylonia from the West, its precise origin remains unknown, in the same consignment with copper. It is assumed that it was loaded at one of the Levantine emporia, or at some point along the consignment’s way at one of the trans-shipment centres on the Euphrates. The percentage of tin compared to the imported copper was in the order of 6%, which is lower than the 10% content that gives best balance between hardness and brittleness in bronze.<sup>381</sup> Its price was determined at a ratio of silver to tin 1:40 (1:18,648 ÷ 466),<sup>382</sup> Table 4, which is rather high compared to the price of copper to silver at a ratio of 1:180. This is an indication that metallurgy, and particularly bronze manufacturing, in Babylonia was not very developed, or at that particular time the price of tin was quite high compared to prices in Ugarit during the First Economic Cycle, which were the same as copper.

*Average prices of metals in Athens*

The price of copper in Athens in the 5th, and presumably into the 6th century BC, was fixed at a silver to copper ratio of 1:170 (1:6000 ÷ 35.16),<sup>383</sup> Table 4, i.e. slightly higher than Babylon, but still much lower than Egypt. It is reasonable to expect a relatively higher price in Egypt due to price regulation by the Pharaonic central authority, although at that time Egypt’s economy was relatively entrepreneurial.

The price of tin in Athens in the same periods was fixed at a silver to tin ratio of 1:25 (1:6000 ÷ 233),<sup>384</sup> Table 4, and this was very expensive compared to prices of copper in the same period and to prices of silver to tin, both in Babylon in 550 BC (1:40) and Ugarit in 1200 BC (1:200).

*Case study: copper in Egypt*

Extrapolating from the above, therefore, it is possible to consider the prices for a shipment of 10 tons of copper, which could be typically carried on a medium-sized merchantman (Figure 62), for the periods of this present study as:

1. For the 20th-Dynasty period (1186–1069 BC), 10 tons of copper was 166.6 kg (10,000 ÷ 60) in silver.
2. For the 21st-Dynasty period (1069–945 BC), 10 tons of copper was back to 100 kg (10,000 ÷ 100) in silver.

x 8.40) in silver.

<sup>381</sup> Kassianidou and Charalambous 2019: 233.

<sup>382</sup> Oppenheim 1967: 237; YOS 6 168. I.e. 37 Babylonian minas of tin at 55.5 Babylonian shekels in silver.

<sup>383</sup> Bresson 2016: 262.

<sup>384</sup> Bresson 2016: 262.

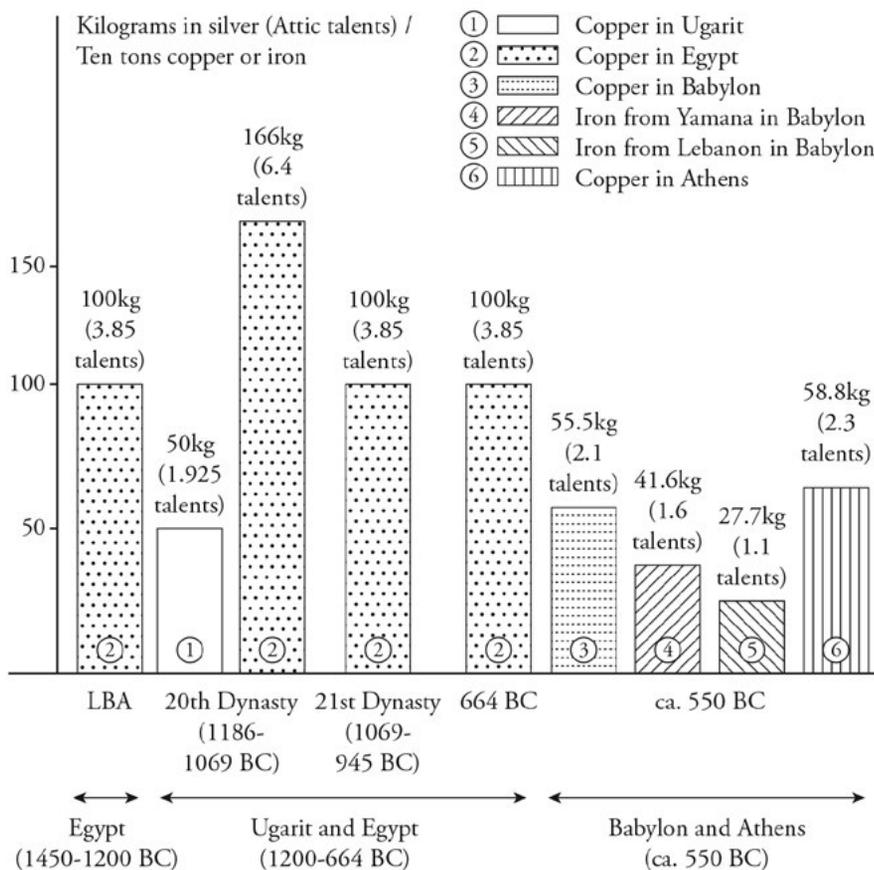


Figure 62: Prices of copper, tin, and iron in Egypt, Babylonia, and Athens during the Second Economic Cycle (drawing: Philipos Vasiliades).

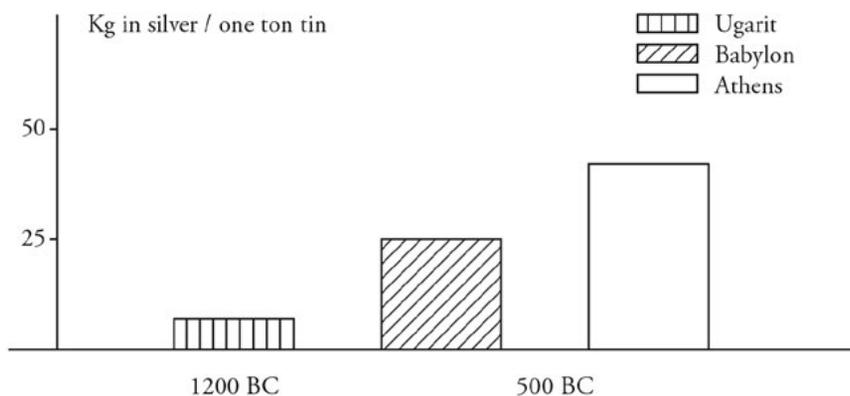


Figure 63: Prices of tin in Ugarit, Babylon, and Athens (drawing: Philipos Vasiliades).

- For the duration of the Third Intermediate Period (945–664 BC), 10 tons of copper continued to be 100 kg silver.

Case study: copper and iron in Babylonia

Again, extrapolating from the above, it is possible to consider the prices for a shipment of 10 tons of copper, which could be typically carried on a medium-

sized merchantman (Figure 62), for the periods of this present study as:

- C. 550 BC, copper from Cyprus or ‘Yamana’ was 55.5 kg (10,000 ÷ 180) in silver.
- C. 550 BC, iron from ‘Yamana’ was 41.6 kg (10,000 ÷ 240) in silver.
- C. 550 BC, iron from Lebanon was 27.7kg (10,000 ÷ 360) in silver.

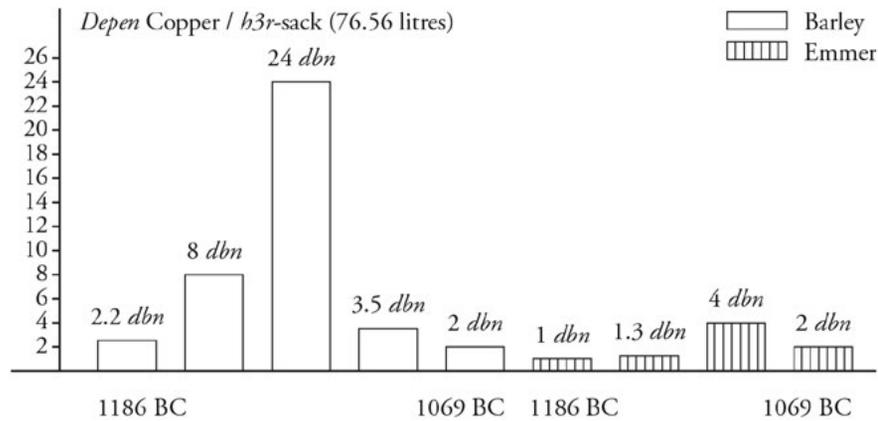


Figure 64: Prices of barley and emmer in Egypt at the beginning of the Second Economic Cycle (drawing: Philipos Vasiliades).

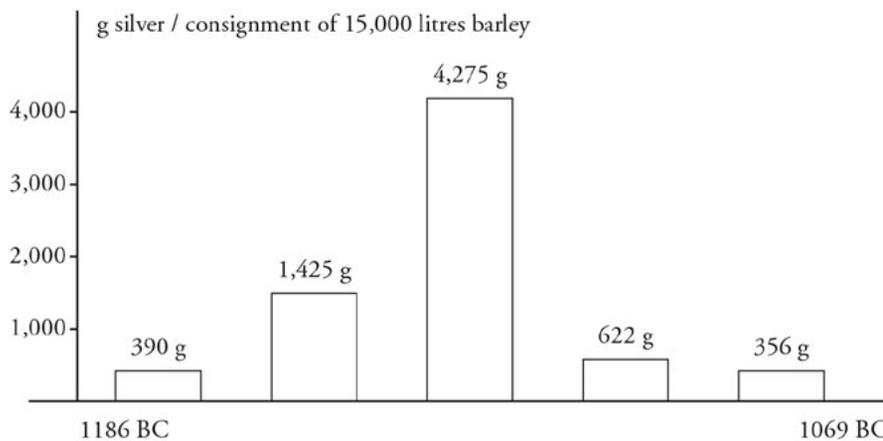


Figure 65: Price variation of barley per 15,000 l barley in Egypt at the beginning of the Second Economic Cycle (drawing: Philipos Vasiliades).

*Case study: tin in Babylonia*

1. C. 550 BC (Figure 63), 1 ton of tin was 25 kg (1000 ÷ 40) in silver.

*Case study: copper and tin in Greece*

1. C. 550–500 BC (Figure 62), a 10-ton copper consignment was 58.8 kg (10,000 ÷ 170) in silver.
2. C. 550–500 BC (Figure 63), 1 ton of tin was 40 kg (1000 ÷ 25) in silver.

**Trade and prices of wheat, barley, and emmer**

Although it is evident that the population of Cyprus during the Second Economic Cycle must have risen considerably in comparison to the First, information is still missing to make a reasonable estimate for its size, and it is impossible, therefore, to present a reasonable hypothesis as to whether sufficient grain was produced to feed its population and at the same time have enough surplus to motivate Cypriot long-distance traders to include grain in their export portfolio, or whether grain was imported to the island.

We do not even know grain prices in Cyprus during the Second Economic Cycle, and thus, like for the First, to make some sense of any possible mechanisms related to the trade of grain during the Second Economic Cycle one can only examine available prices in the neighbouring countries, in this case Egypt.

*Average prices of emmer in Egypt*

The price of emmer in Egypt, in the early 20th Dynasty (1186–1069 BC) rose by 30%, in comparison to the 19th (1295–1186 BC), from 1 to 1½ debens copper per h3r-sack. The price continued to rise to 4 debens copper in the mid 20th Dynasty, and after spiking to 8 debens it fell back to 2 debens copper per h3r-sack (Figure 64).<sup>385</sup>

*Average prices of barley in Egypt*

The volatility of prices of emmer applied to prices of barley (Figure 64) as well. From actual records<sup>386</sup> we know prices at the beginning of the 20th Dynasty were

<sup>385</sup> Cernny 1934: 173–178; Muchs 2016: 114.

<sup>386</sup> Cernny 1934: 173–178; Muchs 2016:114.

at the same level as at the end of the 19th, i.e. 2.2 *debens* copper per *h3r*-sack (or 2.6 g in silver ÷ 100 l barley). The price had risen to eight *debens* copper per *h3r*-sack (or 9.5 g in silver ÷ 100 l barley) and then peaked at 24 *debens* copper (or 28.5 g in silver ÷ 100 l barley), until it gradually dropped to 3.5 *debens* copper (or 4.15 g in silver ÷ 100 l barley) and two *debens* copper (or 2.375 g in silver ÷ 100 l barley) at the end of the 20th Dynasty.

The variation of prices during this period could be due to bad harvests, but also to uncertainty and volatility in the Eastern Mediterranean. It might not be unreasonable to consider that similar price variations might have applied to grain crops in Cyprus, as the island was subjected to similar volatile circumstances. Furthermore, there is no way of knowing when prices returned to more stable and predictable levels.

*Case study: barley in Egypt in the 20th Dynasty (1086–1069 BC)*

There exist the following values for a consignment of 15,000 l barley, based on prices from the Egyptian market (Figure 65):

1. Beginning of 20th Dynasty: 390 g (15,000 l x 2.6 g in silver ÷ 100 l) in silver.
2. Mid 20th Dynasty : 1,425 g (15,000 l x 9.5 g in silver ÷ 100 l) in silver.
3. Mid 20th Dynasty (peak): 4,275 g (15,000 l x 28.5 g in silver ÷ 100 l) in silver.
4. Last Quarter 20th Dynasty: 622 g (15,000 l x 4.15 g in silver ÷ 100 l) in silver.
5. End of 20th Dynasty: 356 g (15,000 l x 2.375 g in silver ÷ 100 l) in silver.

### Trade and prices of textiles

As seen previously in Ezekiel's poem, dated 580–570 BC, concerning the naval power and trade of Tyros, Cyprus was considered as a supplier of 'blue' and 'red' textiles<sup>387</sup> for the economy of Tyros, portrayed as its navy. Among the various strands of evidence concerning the involvement of Cyprus in the manufacture and trade of textiles in the First Economic Cycle we have references to red linen shirts being exported to Hattusha.<sup>388</sup> As discussed previously, these activities continued in the Second Economic Cycle, both at the household and industrial level.

Although direct evidence that Cypriot traders and entrepreneurs, during the Second Economic Cycle, were involved in long-distance trade of textiles and garments is still absent, it is still possible to examine the available

prices and practices relating to the international trade of these products and try to reconstruct market forces at work and the commercial options and trade mechanisms available.

During the Second Economic Cycle there was a growing need for woollen and linen apparel for royalty, priests, important officials, and elite members of the community. In Babylonia and Assyria fine, foreign, linen garments appeared to be preferred,<sup>389</sup> although from the commercial letter found in the Assyrian archives that mentions the importation of large amounts of 4800 'pounds' of red-purple wool and 420 of dark purple wool a different impression results.<sup>390</sup> The Assyrians when demanding tribute were clearly interested in fine textiles and garments made of linen with multicoloured decoration.<sup>391</sup> All the conquered and vassal kingdoms, from Carchemish to the Mediterranean coast, and perhaps including Cyprus, had to deliver large quantities of these, obviously very fashionable, Western-style garments to the Assyrian kings, who distributed them among their officials. This tradition was a continuation of similar practices by the Hittite kings,<sup>392</sup> as illustrated in a letter by Sennacherib to his father.<sup>393</sup>

These multicoloured, Western-style garments seem to have combined linen fabric with multicoloured wool, embroidered or woven in decoration. This is very much evidenced in cuneiform texts of the Second Economic Cycle.<sup>394</sup> This technique seems to have applied whenever linen thread and purple wool were simultaneously used by weavers to make multicolour apparels and garments. It is not known whether flax was produced in Cyprus in sufficient quantities and quality to manufacture such linen fabrics, although we do know that Cypriot linen shirts, in simple style, but also red in colour, were exported to Hattusha during the First Economic Cycle. It has been proposed that linen fabrics might have been imported from Egypt, then processed and woven into multicolour garments and exported via long-distance trade to Syria and Hatti.<sup>395</sup> It has even been suggested that the way some Hittite inventory texts are documented on the matter, i.e. when they refer to Alashiyan linen, they in a sense refer to linen crafted by Cypriot weavers in the 'Alashiyan way'.<sup>396</sup>

In Amarna Letter EA34, where the king of Alashiya asks the pharaoh of Egypt to send him, in exchange for copper, inter alia, linen apparel and 'GADA.LUGAL',

<sup>389</sup> Oppenheim 1967: 245, ns. 43, 44.

<sup>390</sup> ABL 347; see Oppenheim 1967: 246, 248, n. 64 for discussion.

<sup>391</sup> Oppenheim 1967: 246, n. 22.

<sup>392</sup> RS 12.227; Oppenheim 1967: 246; Suppiluliuma-Niqmadu treaty MRS 9, P.40.

<sup>393</sup> ABL 568; Parpas 2018: 248–249; Parpola 2015: 35–36, K956/ABL 568.

<sup>394</sup> Oppenheim 1967.

<sup>395</sup> Vigo 2010: 292–293.

<sup>396</sup> Carruba 1968: 20; Vigo 2010: 293, ns. 32, 33.

<sup>387</sup> Diakonoff 1992: 173–176.

<sup>388</sup> IBoT.131 and KBo 18.175. Mantzourani *et al.* 2019; Vigo 2010: 291–294.

translating to 'king's linen' (EA 34, line 25). This is linen made from high-quality flax which could have been used for the manufacture of multicolour garments crafted in the 'Alashiyan way' for local use, but also destined for overseas via long-distance trade, where it acquired a reputation for style and quality.

Presuming this to be the case, it can be considered that this tradition continued during the Second Economic Cycle, when these garments were in high demand, since, apart from being used by priests and elite officials, they were used for other ritual and religious purposes, i.e. they formed part of the divine wardrobe of the god, being placed on the image of the deity at certain ritual occasions and cultic ceremonies. In the Old Testament, such multicoloured garments of linen and wool were used by the High Priests in Jerusalem.<sup>397</sup>

The Appendix lists evidence of prices and values of purple-wool and linen items and ritual garments from the First Economic Cycle. Taking into consideration the market price of 4 or 5 Ug.skl in silver per talent of purple wool, the price for 1 talent of purple wool was 37.6 g (4 x 9.6) in silver to 48 g (5 x 9.6) in silver. The average price of ritual garments in Ugarit and Hatti was between 20–30 Ug.skl per item, i.e. 188–282 g in silver each.

During the Second Economic Cycle there is evidence of a delivery of a small quantity of blue-purple wool to Babylonia, in 550 BC, from an *emporion* on the Levantine coast, at the price of 600 Babylonian shekel to 1 talent of purple-blue wool!<sup>398</sup> Exorbitantly priced, it is by far the most expensive item on the delivery manifest of 17 products, which includes, inter alia, copper, iron, honey, resins, wine, alum, and various dyes. It could well be an erroneous entry, or possibly there was something extremely special about this particular product at this particular time. It could even reflect the open-market retail price of the product, as the quantity involved is only about a quarter of a talent. Whatever the case, it is an indication of the high prices of purple-dyed wool and garments in the Second Economic Cycle. According to our case study, under certain financial conditions, a consignment of 9 tons of purple wool could produce an income of 54.5 kg in silver, comparable to the income of 10 tons of copper in Babylon, i.e. 55.5 kg in silver,

or 58.8 kg in silver in Athens, at the end of the Second Economic Cycle.

### Marketing survey summary

The analysis in the previous sections and the results of the marketing survey can help the understanding of the new challenges and exchange mechanisms of the Cypriot maritime and long-distance trade activities of the Second Economic Cycle, as well as the motivations and strategic policies of the Cypriot export institutions. Such analysis can also assist in possible reconstructions of the commercial options and trade mechanisms available to them, as well as indicate international market forces that might have influenced their actions.

The Cypriot export institutions continued their long-distance trade activities in the Second Economic Cycle, based on an expanded and diversified portfolio of products. There was continuity in the maritime economy that broadened its horizons and expanded further to the East, as well as to the West, in an organised, methodical, and well-orchestrated manner, based on solid knowledge of trading routes and markets, as well as the market forces at work. The export of natural resources, mainly copper, was no longer in the hands of one central authority, but under the control of various city-states that developed from the urban administrative centres of the First Economic Cycle, each with its own economic zone. In addition, the Cypriots made a significant contribution to the initial Phoenician expansion to the West, which further benefitted their economy.

Due to the volatility of the crisis years in the beginning of the Second Economic Cycle, and probable shortages of supply, the price of copper in Egypt during the 20th Dynasty (1186–1069 BC) had risen (ratio of silver to copper = 1:60). From the Third Intermediate Period (1069–664 BC), when the international supply and demand for copper had stabilised, prices of copper in Egypt returned to their previous levels (ratio of silver to copper = 1:100). Prices of copper, as evidenced from data from Babylon c. 550 BC, seemed to have levelled off at the ratio of silver to copper at 1:180, which is close to the ratio of 1:200 applying in Ugarit before its destruction. Copper prices in Athens at around the same period are also reported stable, at approximately the same ratio of silver to copper, i.e. 1:170. These price ratios and variations, as shown in Table 4, prevailed in the Near East and in the Aegean over different periods of time: they were the exchange values Cypriot merchants and exporters of metals should/would have been aware of to gauge their marketing strategies accordingly.

Cypriot knowledge of copper processing helped the island to expand its product portfolio in the manufacture of iron and associated products, e.g. knives and other iron

<sup>397</sup> Oppenheim 1967: 247, n. 59.

<sup>398</sup> YOS 6 168: 16 minas and 15 shekels of blue-purple wool = 2 minas and 40 shekels silver (960 skl. blue-purple wool = 160 skl in silver), which translates to silver to purple-dyed wool at 1:6, or 1 talent wool = 600 skl in silver = 600 x 8.4 g in silver = 5040 g in silver. This high price is difficult to believe. In another case, in the Neo-Assyrian Letter ABL 347, c. 158 talents of dyed textiles and related products were priced at the meager amount of 1 mina silver, so low that the supplier wrote a formal complaint to the king. All these wide variations in price evidence the unpredictability of trade in Antiquity, and how little is known about the prevailing mechanisms that influenced exchange.

implements. Iron from western Asia Minor was reported in Babylon, c. 550 BC, at the price ratio of silver to iron, i.e. 1:240 while iron from Lebanon was much cheaper – at the ratio of silver to iron, 1:360. In spite of the considerably lower prices of iron to copper the demand for copper was still relatively high, pointing to its usefulness and the fact that the two metals were addressing, to a considerable degree, different market sectors. The Cypriot diversified metallurgy product portfolio expanded to specialised manufacture of Orientalised added-value, luxury bronze products and iron knives. There is also growing evidence of Cypriot technology being involved in the exploitation of jarosite ore for silver.

There is insufficient evidence of the prices of agricultural products during this period to draw any useful conclusions. In Egypt the prices of grain, including emmer and barley, fluctuated widely during the crisis years at the beginning of the Second Economic Cycle, possibly due to the volatility that resulted in supply shortage, or even climatic conditions. It is not known how this might have affected the Cypriot maritime economy, or whether similar conditions applied to Cyprus. From the remains of the Kekova Adasi wreck, dated to the end of the 7th/beginning of the 6th century BC, found off the coast of Turkey in the Aegean Sea, there is evidence of c. 100 Cypriot basket-handle amphorae used for the transport of olive oil. This may indicate the Cypriot capacity to produce surplus agricultural products for export.

During the Second Economic Cycle multicolour wool garments became popular for ritual apparel and garments used for priests, elite officials, and members of royal families in the Near East. Based on the history and reputation of such garments crafted in the 'Alashiyan way' for export to Hattusha, during the First Economic Cycle, it is reasonable to consider that Cypriot textile manufacturers might have taken advantage of the rewarding prices for these products and continued the tradition of their long-distance trade.

## CONCLUSION

The fact that is not disputed that, following the initial volatile period during the transition from the First Economic Cycle to the Second, Cyprus recovered politically, socially and financially, and its maritime economy prospered. There is compelling evidence from archaeological findings and from the material culture, such as the rich contents in royal and other elite burials on the island, to support this. There is evidence, both on the island and all over the Mediterranean, from the Levant and Egypt to the Aegean, Sardinia, and as far as Iberia, for a thriving Cypriot long-distance trade and the marketing of new, higher added-value products, as well as products directed to a wide spread of social classes in overseas societies. Maritime activities had

also been extended to naval services, adding another dimension to the Cypriot presence and importance in the Mediterranean.

As we have seen, this is down to the fact that the island's institutions did not collapse, but were transformed and continued to function, being transferred to the island's urban administrative centres that were in the process of completing their own state formation. As evidenced from Esarhaddon's Prism, see above, by the mid 7th century BC there were ten distinct city-states on the island, whose state formation was a work in progress from the end of the First Economic Cycle and the beginning of the Second, and was substantially completed long before the Cypriots met with the Assyrians. The driving force behind the island's successful fragmentation and territorialisation, as well as its thriving economy in the Second Economic Cycle, was the continuity and transformation of its institutions and the successful partnership between state and private enterprise. The success of its maritime economy relied on maritime advancements and infrastructure.

In the course of the narrative above, one was able to track the continuity and evolution of Cypriot institutions during the Second Economic Cycle, via key elements such as kingship, industrial production, international relations, long-distance trade, the concept of ownership, 'branding' and marketing, writing script, and weights and measures. In the process it was possible to reconstruct the progress of its maritime economy.

During the First Economic Cycle, the king of Alashiya was in charge of conducting the island's international relations, together with the bulk long-distance trade of its main export commodity – copper. This state of affairs changed completely in the course of the Second Economic Cycle. The island's international affairs and long-distance trade were handled now by ten different city-states, with their respective kings controlling each. At times of crisis, e.g. confronting the Neo-Assyrian Empire, these city-states and their kings had shown maturity and solidarity, pulling together to represent their interests as a united front. As far as the island's maritime activities were concerned, the existence of different power centres, with the associated population increase, opened up its horizons and encouraged unprecedented and successful entrepreneurial maritime activities all over the Near East and the Mediterranean. The island's successful maritime trade was a result of this functioning socio-economic/political model, leading to innovation and technological advancements in shipbuilding, maritime and naval services, improvements in quality, and added value in terms of its export-oriented products (e.g. decorated bronze artifacts) and the manufacture of new metals (including iron), and finished metal items (knives and swords), as well as advancement in technologies

to produce silver. According to the evidence from Iberia, Sardinia and the Aegean, the Cypriots were also willing to spread the knowledge of their technological advancements. This broadened their horizons and expanded their portfolio of products and services, which could only have had a positive effect on their maritime and commercial activities.

The Second Economic Cycle continued in many ways the successes of the First, however there is a lack of reliable information on which to base a credible estimate of the size of Cyprus' maritime economy, or its economy overall. Information from the economies of neighbouring countries do not assist in terms of offering a rough comparison. Nevertheless, based on inferences from the First Economic Cycle, and for information purposes only, reference can be made to the tribute that Tyros was compelled to pay to the Assyrian king Tiglath-Pileser III (744–727 BC). According to the Assyrian annals, the Tyrians paid the Assyrian king a

colossal tribute of 150 gold talents, almost 4300 kg in gold! It is not known whether this was a one-off tribute, or whether it represented regular tribute over a period of time. The amount is so huge that it is reasonable to suspect it represents Assyrian royal propaganda and pomp. For purposes of comparison, the tribute Ugarit paid to the king of Hatti, Tudhaliya IV, some 500 years earlier, as annual tribute, was 50 mina gold,<sup>399</sup> barely 1 talent gold. These figures are only for rough comparison purposes, but they indicate perhaps that the economy of Phoenicia must have grown multiple times during the Second Economic Cycle compared to the LBA period. Since from the available evidence the Cypriot economy seems to have followed the same path of growth and prosperity, then Cyprus during this period, as evidenced from the wealth in its mortuary and material culture, must have had a similar growth trajectory based on robust and sustainable economic and socio-political models.

<sup>399</sup> Beckman 1996: no. 37; Monroe 2010: 27; PRU 4: 150–151; RS 17.059.

## Chapter 4

# Part III: The Third Economic Cycle The Maritime Economy of Ancient Cyprus in the Persian Empire Until its Annexation in the Ptolemaic Kingdom (525–295 BC)

### INTRODUCTION

The Third Economic Cycle begins in 525 BC when Cyprus pledged allegiance and surrendered to the Achaemenids and came under the political and military control and influence of the Persian Empire. It ends in 295 BC when the whole of Cyprus finally became a province in the Ptolemaic kingdom of Egypt.

During the Third Economic Cycle, Cyprus, for the first time in its history, came under continuous political and military control by a dominant imperial power that imposed its own fiscal administration and regular compulsory tributary system. For as long as Asia Minor, the Levantine coast and Egypt were firmly under the Persians, Cyprus cannot be considered as a region situated at the outer periphery of the Persian Empire as was the case for the Neo-Assyrian Empire during the Second Economic Cycle. Its obedience to and alignment with Persian interests were vital to the Persian domination of the Eastern Mediterranean trade as well as to Persian naval power and the control of Egypt and Phoenicia.

Its geopolitical position and natural resources, mainly in copper and timber, with its shipbuilding skills and knowledge, made the island an important player as far as regional Persian interests were concerned. In spite of this, Cyprus was still able to enjoy limited privileges due to the process of 'negotiated peripherality' mentioned in the previous chapter. Although its city-states became vassal states in the Persian Empire, and Cyprus was part of the 5th Satrapy, there was no resident satrap with extensive permanent military garrisons stationed on the island. Their kings retained the right to rule their corresponding dominions undisturbed; they were allowed to manage their own internal affairs and their own economy, including their maritime activities, as long as they paid their tribute and supplied the Persian navy with line-of-battle *triereis* with trained crews, and aligned their actions and policies to Persian interests and directives. The relation between the Cypriot kings and the Great King was that of a vassal king and a hegemon respectively. This was a doctrine that established the relationship of suzerainty since Assyrian times. The vassal king could keep his title and

rule his kingdom but under the orders and directions of the Great King, who was his superior monarch. It is, for example, under these conditions that Artaxerxes III agreed that Evagoras I could keep his position as 'king to King'.

The following text from an anonymous 5th-century BC Greek writer, commonly referred to as the 'Old Oligarch', highlights the importance in international trade of two Cypriot commodity products, copper and timber, and the strategic importance of controlling the shipping lanes through which these products were transported and traded.

'If some city is rich in timber for shipbuilding, where will it dispose of it, if it does not have the consent of the ruler of the sea? What if a city is rich in iron or copper or flax? Where will it dispose of it, if it does not have the consent of the ruler of the sea? And yet, it is from these very materials that I get my ships, taking timber from one place, iron from another, copper from another, flax from another, and wax from another.'<sup>1</sup>

It is therefore not surprising that the 5th century BC was characterised by the power struggle between the Greeks, mainly the Athenians, and the Persians and how they would share control of the sea lanes along which maritime trade in the Eastern Mediterranean was conducted.

Thukydides famously claimed that there was no warfare on land that resulted in the acquisition of an empire,<sup>2</sup> i.e. only naval and sea power can bring about the creation of empires. This doctrine applied all throughout the centuries, a major example being the British Empire's extensive domination through its unrivalled sea power. Thus, sea power for the Athenians and the Persians was a prerequisite for building their respective empires and for military, political and commercial influence in the Eastern Mediterranean. Cyprus, together with the Phoenicians, the islands in the Aegean, and the Ionians had their own important role to play towards this. The Persians did not tolerate,

<sup>1</sup> Marr and Rhodes 2008: 47; Carlson 2013: 1.

<sup>2</sup> Thuk. *Archaeology* 1.15.2.

and robustly resisted, any external interference in the political affairs of Cyprus, mainly from Greece and especially Athens. They discouraged any unity among the island's city-states that would put the island outside their sphere of influence; they were masters in playing one ruler against the other in the 'divide and rule' game. They had no ethnic or religious agenda and did not favour any kingdom over the other unless it served their political and financial interests.<sup>3</sup>

The Cypriot kings and the Great King had fundamentally a common understanding on how Cyprus should be ruled, i.e. by individual institutional monarchies. The Persians did not provoke, nor were they interested in bringing any changes to the long-standing Cypriot institutions that were the foundation of the island's society. This is amply demonstrated in the 4th century BC, when, as long as their vital interests were not compromised, they neither interfered in Cypriot trade with Greece nor the Hellenisation process of the Cypriot culture. Their minimum demand was Cypriot political obedience and alignment with two important Persian institutions, (a) the imperial economic and fiscal administration and tribute system, and (b) the Persian navy in the Eastern Mediterranean and its mission for maritime and naval supremacy. For this reason, political stability and continuity suited them very well. They were not seeking regime or political system changes, unless a change, such as Idalion and Tamassos becoming subordinates to Kition, served better their strategic and tactical economic interests and was in alignment with their institutional demands. The preservation of the status quo worked well, both for the Persians and the Cypriot city-state. In spite of this the history of Cyprus in the 5th and 4th centuries BC is a story of competing territorial ambitions of peer polity conflicts under foreign influence and arbitration, mainly from Persia and Greece, and to a lesser degree from Egypt. Apart from the annexation of Idalion and Tamassos by Kition (with Persian assistance), Chytroi and Ledra were, at earlier times, most probably absorbed by Salamis with the blessings of the Achaemenids, although the Iron Age past for both cities is too poorly understood to determine with certainty which city-state absorbed them in the end, and under what circumstances and conditions. The annexation of Idalion, with its privileged access to copper mines, to Kition created a power vacuum in central Mesaoria. This is probably the major reason for the continuous conflicts between Salamis and Kition, the two city-states laying claim to Mesaorian territories. Golgoi, once a secondary site to the kingdom of Idalion, was presumably integrated into the city-state of Salamis, and this was probably offset by the purchase of Tamassos by Kition.

<sup>3</sup> For the case of the Persians assisting Kition's takeover of Idalion, see the section on the 'Idalion tablet' later in this chapter

Trouble had arisen on the island not only for internal and economic reasons but also when there was external interference – especially when the Athenians tried to put Cyprus under their control. The three major conflicts the Cypriots had with the Persians were all related in one way or another with the island's geostrategic position and its maritime economy. The first was the joining of the Ionian revolt in 498 BC that had to do with the restrictions of maritime trade in the Eastern Mediterranean and the imposition of regular heavy tribute. The second was the Cypriot war that eventually led to the conflict between Evagoras I and Artaxerxes III, beginning with Evagoras' drive to put under his control the economic regions of the other city-states, including the production of copper and other raw materials; this in turn led to conflicts of interest with Soloi, Amathus, and Kition, who asked for the arbitration of the Great King.<sup>4</sup> The king of Paphos does not seem to have joined them, presumably because his financial interests and territory were not directly threatened. The third reason was joining the Phoenician and Egyptian revolt in 351 BC, which was mostly in response to the political and trade restrictions imposed by the Persian policies in Syro-Palestine and Egypt. A further reason for the conflict was the burden of heavy tribute.

It is very difficult to maintain any longer the traditional historical analysis of a bipolar conflict over ethnic and ideological grounds between the so-called 'Hellenophiles' versus the Phoenician-Medophile Cypriots. Every generation writes its own history, and scholars' views are influenced by education, experience, and environment. These traditional views are inventions by modern historians influenced by political agendas and events, as well as the unfulfilled ethnic aspirations of Greek-speaking Cypriots of the 20th century AD.<sup>5</sup> Such analysis is based on the creation of opposite pairs, of East versus West, and falls into the same trap as the fruitless debate between the substantivists and formalists in their conflict over ancient economics. Even Isokrates, with his rhetorical exaggerations and political agenda behind his speeches, does not make mention of widespread, systematic and on-going Greek-Phoenician ethnological antagonism on the island originating from ethnic and cultural differences.<sup>6</sup> His encomiastic letters in favour of Evagoras have mostly to do with his idea of the ideal leader and his desperate search for such a man to lead the Greeks in their confrontation with the Persians.

<sup>4</sup> Diod. 14.98.2.

<sup>5</sup> Statements like 'The Phoenician city (Kition) was to continue serving Persia as a springboard for attacks against the Greeks of the island and as bastion against Athens', and claims that the Greek cities of Cyprus were founding members of the Delian League are unfounded (Stylianou 1992: 441, 442) in an otherwise seminal work on Cypriot history to which anybody writing on the island will refer.

<sup>6</sup> Isokrates' mention of the Phoenician usurper of the Salaminian throne does not suggest any ethnic motives. This was a straightforward attempt at a power grab for personal gains.

The first half of the 5th century BC is dominated by the Greek and Persian wars, as well as Athens' continuous efforts to put Cyprus under its influence. The Athenians had no real interest to free Cyprus from Persian occupation; they were mostly interested in attempts to expand their naval power and block Persian naval and maritime incursions into the Aegean, and for that purpose Cyprus was the perfect outpost. Their concern was trade and how to safeguard their supply of copper, timber, and grain from Cyprus – and mainly from Egypt, where Cyprus was an essential stopover and systemic trans-shipment station. Therefore, the control of the island was of vital importance to them for geopolitical and economic reasons and was not driven by ethnic aspirations. If they were successful, they would have no hesitation to impose taxes on the Cypriot city-states in the same way they did to their allies<sup>7</sup> and the islands in the Aegean under their control, or in the same way that the Persians assessed Cyprus for tribute. We will not enter here the continuing debate among scholars about the scope and popularity of the Athenian Empire, and to argue our case reference can be made as to how the Athenians exploited and took advantage of their allies by the imposition of the Tribute Quota List, how they controlled the supply of grain at its source through the Methone Decree, ensuring its delivery to Athens,<sup>8</sup> and how they prevented their adversaries from importing foreign grain,<sup>9</sup> excluding them from the ports they controlled.<sup>10</sup> The Athenians replaced a tribute of 1000 talents per annum with a 5% tax on all merchandise entering or leaving the ports of their allies. Michell estimates their income from this tribute to have reached 20,000 talents.<sup>11</sup> It is instructive to refer to the Erythrean Decree imposed on the Ionian city of Erythraea, dated to 453/452 BC, whose surviving text was copied from an inscribed block found on the Acropolis of Athens near the *Erechtheion*, and which encapsulates the political, military and religious demands, on behalf of the Athenians, and details tribute payments, offerings at the Greater Panathenaia, the establishment of democratic rule, the installation of armed garrisons, punishment for treason, and provision and consequences for exile.<sup>12</sup>

In the same way, Athens could impose a similar decree on the Cypriot cities and they would have no hesitation either in raiding and looting them. This is evidenced by Simonides' narrative with respect to Kimon's campaign in Cyprus, whereby the Athenian general returned to Athens from Cyprus with considerable booty and which

he deposited within the temples of the Athenian gods after 10% (*dekati*) was paid to the city of Athens.<sup>13</sup>

The Cypriot kings understood very well Athens' real intentions and motives, which is why, in most cases, they resisted the Athenian drive to 'free' them from Persian domination and put them under Athenian control. They were also not very excited about the prospect of complete institutional change from a monarchical to democratic system of rule that would deprive them of their grip on power: basically, they were better off staying with the Persians. Additionally, they were only interested in the preservation of their autonomous rule and maintenance of their Mediterranean-wide trading base, under the aegis of whichever empire ran the economic system<sup>14</sup> in their neighbourhood, and at that time it was the Persian Empire. In the end, all their reservations proved right, since after all it was not the Persians who ended the Cypriot city-states and ruthlessly exterminated its kings, but the Makedonians, who overturned the existing institutional order and annexed the whole of Cyprus as a province to their Ptolemaic kingdom of Egypt in 295 BC.

Therefore, the Cypriot kings had no hesitation in bringing a fleet of 150 fully manned line-of-battle *triereis* to join the Persian navy, totalling 400 warships, in the Aegean against Alexander in 333 BC. They had no illusion about the advertised Makedonian declaration that their campaign was to liberate the Greeks of Asia from Persian domination. They had heard of Parmenion's exploits in Asia Minor, which differed little from Agesilaos' actions in the beginning of the 4th century when he campaigned in Asia Minor under the same banner. In his push in 336 BC into Asia Minor, Parmenion and his 'mission of liberation' stormed the Greek city of Grynion and sold its citizens into slavery. He was on the point of doing the same to Pitane when Memnon stopped him and forced him back to Abydos,<sup>15</sup> where he looked for a face-saving retreat back to Makedonia. There was nothing that would guarantee the Cypriots that Alexander might be different or more successful. Their motives were also driven by economic criteria, as their royal coffers would be filled with Persian gold for building and manning *triereis* for the Persians. What is more, their grain merchants and maritime economy would benefit by providing food and other provisions for the Persian navy during the war.

For the last thirty years of the Third Economic Cycle, Cyprus became a place of war and a conflict zone between Alexander's successors. Its city-states were split and various alternating alliances were formed that supported one or the other of the successors who tried

<sup>7</sup> Thuk. 7.28.4.

<sup>8</sup> *Ath. Pol.* 51; Thuk. 8.4.

<sup>9</sup> Thuk. 3.86.

<sup>10</sup> Thuk. 1.67.

<sup>11</sup> Michell 1940: 255.

<sup>12</sup> Carlson 2013: 17.

<sup>13</sup> Diod. 11.62.1–3.

<sup>14</sup> Iacovou 2020: 261.

<sup>15</sup> Badian 1966: 37–61.

to put the island and its resources under their control. Ultimately it came down to a merciless struggle between Ptolemaios I, Soter, and Antigonos Monophthalmos, with his son Demetrios. The Ptolemeans, having initially the better of Antigonos' armies and navies, put the island under their control, and in 312/310 BC they abolished the centuries-old Cypriot city-states and put their kings to death. Thus, the oldest of the island's institutions, kingship, that had existed since the First Economic Cycle was ruthlessly terminated at the end of the Third Economic Cycle. In the sea battle of Salamis in 306 BC the Ptolemeans temporarily conceded control of Cyprus to Demetrios until 295 BC, when they regained the initiative and conquered the whole island once and for all and annexed it as a unified, uncontested province within their Ptolemaic kingdom of Egypt. The Ptolemeans had the same interests in Cyprus as the Persians – the island's naval resources, its raw materials, especially copper and shipbuilding timber, its skilled manpower and shipbuilding technology, and its unique position as a systemic link within the Eastern Mediterranean trade routes and maritime network. Moreover, Cyprus was strategically important for the defence of Egypt, as well as playing a vital role in Ptolemaean defensive imperialism overall, in the same way that it had done for Achaemenid offensive imperialism.

These were difficult and turbulent years for the history of Cyprus, and marked the beginning of a completely new era. Its millennia-old institutional system was overturned and discontinued. The important institutions of kingship and independent city-states, with their own individual economic zones, were abolished. The local kings were ruthlessly deposed and replaced by a colonial officer, the governor general, *strategos*. The important institutions of copper production and its long-distance trade became a monopoly of the Ptolemaic kingdom, supervised by an appointed colonial official, the officer in charge of metals.<sup>16</sup>

Ever afterwards, Cyprus has either been conquered, annexed, or become a province or protectorate of a number of imperial powers and empires – starting with the Romans in 58 BC and ending with the British in 1960. Since its uncontested annexation to the Ptolemaic kingdom of Egypt in 295 BC, it took Cyprus more than 2250 years to become a unified, independent and internationally recognised state. Alas that was for a short period, and then again it was split into separate territorial entities, inter alia the internationally recognised Republic of Cyprus with *de jure* 'jurisdiction' over the entire island, the so-called 'Republic of Northern Cyprus' occupied and controlled by Turkey, and British sovereign military bases. Its territorial

integrity is presently surrendered to the Turks, its fiscal economy to the Europeans, its administration to incompetent officials, and with its defence best described as farcical.

Cyprus' maritime economy in the Third Economic Cycle can be analysed by tracing its institutions, their continuity, and how they transformed and adapted to the new 'realpolitik'. Reference will be made to Pseudo-Aristotle's *Oikonomika* and an attempt made at linking its Achaemenid features to the Cypriot political and economic system. Persian institutions will be highlighted in terms of how they might have influenced the Cypriot socio-political environment and economy during this period. Such institutions will include the Persian fiscal administration and tribute system, as well as the Persian royal navy in the Mediterranean. Relations between Cyprus, Greece and Persia will also be examined, including how they affected the Cypriot socio-political environment and maritime economy, looking objectively at Greek sources as well as Eastern ones. One important characteristic of the Cypriot maritime economy during the Third Economic Cycle was the active involvement of the independent shippers and entrepreneurial merchants and financiers, operating in a truly international fashion. The activities and involvement of these seasoned and experienced operators, constituting a unique advantage in favour of the Cypriot maritime economy, was the result of the continuity of its international long-distance trade dating from the First Economic Cycle.

#### THE INTERNATIONAL HISTORICAL BACKGROUND

The historical background of the Third Economic Cycle is dominated by the rise and fall of the Persian Empire and the Greek and Persian wars, as well as Cyprus' balancing strategy right through this conflict and the island's efforts to fit in and survive within the Persian Empire. At the end of the Third Economic Cycle the wars of Alexander's successors and the island's involvement played a catalytic role in Cyprus' fate and history.

The Persian Empire was created by Cyrus the Great (559–530 BC) and was continued and expanded by his son Cambyses (530–522 BC), who is also credited with the creation and development of Persian naval power. For this we have Herodotos' statement that Cambyses 'gained Egypt and the sea'.<sup>17</sup> The empire was further expanded and reorganised by Darius I (522–486 BC), who is credited with the reforms of tribute and administrative systems. The empire's vast area was extended from the Indus Valley to Anatolia and the Aegean, to Syro-Palestine and Egypt (Figure 66). The vast boundaries and diverse peoples who made up the

<sup>16</sup> Mitford 1961: 39, no. 107; Nicolaou 1971; Iacovou 2020: 263.

<sup>17</sup> Hdt. 3.34.4.

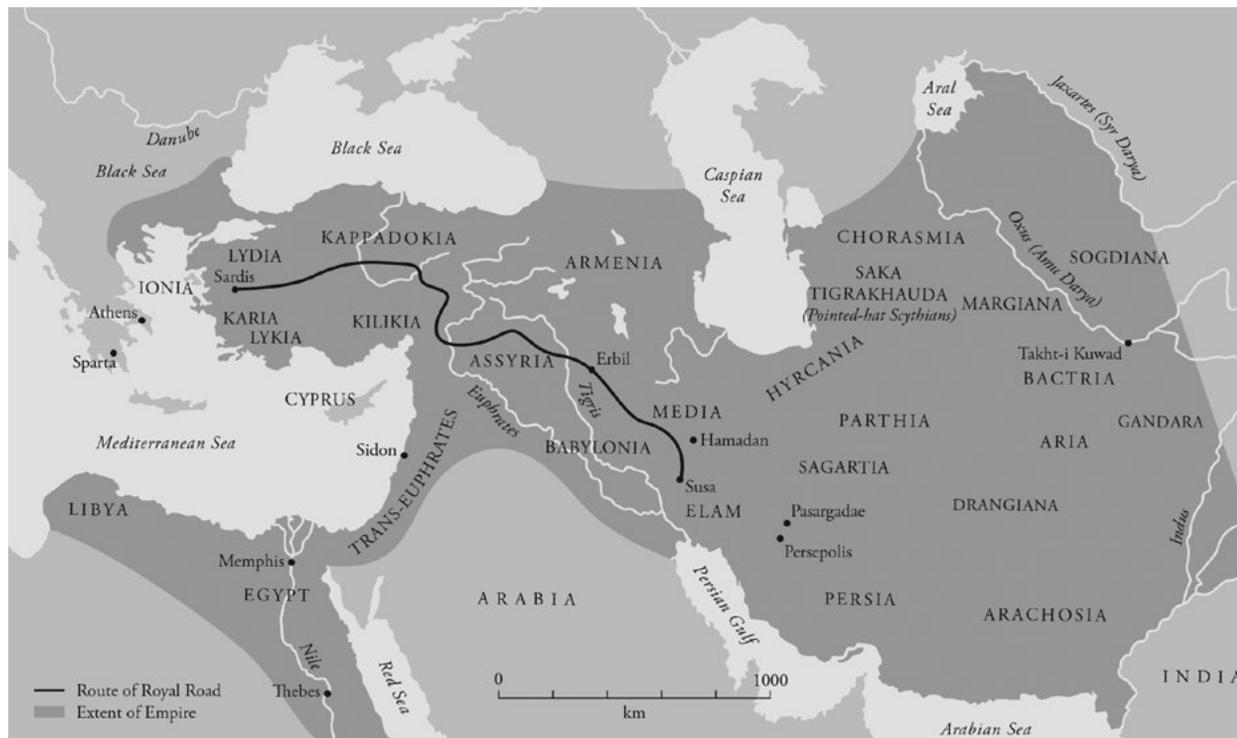


Figure 66: *The Persian Empire* (drawing: Philipos Vasiliades).

empire were described by Xerxes I (486–465 BC) in the following inscription:

‘Proclaimed Xerxes, the king: By the favour of Ahura Mazda, these are the peoples/countries of which I was king [...]. [The people from] Persia [...], Media, Elam, Arachosia, Armenia, Drangiana, Parthia, Aria, Bactria, Sogdia, Choresmia, Babylonia, Assyria, Sattagydia, Lydia, Egypt, the Ionians by the sea, [the people from] Maka, Arabia, Gandhara, Sind, Cappadocia, the Dahans, the Saka haumavarga, the Saka tigrakhauda, the Thracians, Akaufaka, [the people from] Libya, Caria and Kush.’<sup>18</sup>

The Persian Empire remained under the rule of the Achaemenid kings until its formal dissolution in 331 BC by Alexander the Great at Arbela, after the battle of Gaugamela.<sup>19</sup>

The Greeks of Asia, ‘the Ionians by the sea and the Ionians beyond the sea’, who were the first to be conquered by the Persians in the West, were also the first to rise against the Persians during the Ionian revolt which lasted from 499–494 BC. The unsuccessful Persian invasion of Greece that followed in 480 BC caused the Greeks to unite. The antagonism between the Persian Empire and the Greeks continued under the leadership of Athens, who dominated affairs in Greece and the Aegean under the banner of the Delian League.

During this period Athens tried unsuccessfully to bring Cyprus under its influence. With the Peace of Kallias in 449 BC, although the Persian King accepted that the Greek cities of Asia Minor would remain autonomous, he was to retain his military advantage, and at the same time he established undisputed control of Egypt and unchallenged rule over Cyprus. The Peloponnesian wars that lasted between 431 and 404 BC weakened the Greek world, which was manipulated by Persian gold and bribery. The King’s Peace of 387/6 BC, also known as ‘Antalkida’s Peace’, settled the matter of the Greek cities in Asia Minor and Cyprus, which were from then on recognised as belonging without qualification to the Persian Empire.

Evagoras I of Salamis in c. 390 BC tried unsuccessfully to escape the Persian yoke and become Cyprus’s hegemon, thus putting the other city-states of the island under his control. He failed and by 381 BC had to surrender and continue as an Achaemenid vassal, accepting Persian suzerainty. Philipos, the king of Makedonia, by uniting the Greeks and reforming the Makedonian army into an unbeatable war machine, paved the way for his son Alexander to invade Asia in an unprecedented campaign to conquer and destroy the Persian Empire. As from 332 BC, when the Cypriot navies abandoned the Persians in the Aegean and joined Alexander for the siege of Tyros, Cyprus entered a new phase of its history. After a brief period within Alexander’s empire, Cyprus was caught between the destructive wars of the successors, *diadochoi*, until it was placed under the control of the Ptolemeans. In c. 312–310 BC, during the

<sup>18</sup> Wiesehofer 2014: 60.

<sup>19</sup> Plut. *Alex.* 34.1; Parpas 2014.

reign of Ptolemaios I, Soter, the Cypriot city-states were abolished, their kings killed, and as from 295 BC Cyprus, for the first time in its long history, became a unified province of a foreign power – the Ptolemaic kingdom of Egypt.

The history of Cyprus during the Third Economic Cycle is characterised by a lack of information from Eastern historical sources. The Behistun inscription, providing an account of the start of the reign of Darius I, is among the very few documents, along with the Persepolis Fortification and Treasury tablets, that provide us with an opportunity of glimpsing matters from an Eastern perspective. In any attempt to reconstruct the history of this period one much rely on archaeology, and almost exclusively on ancient Greek sources and texts, as well as Greek historians and orators such as Herodotos, Thukydides, Xenophon, Ktesias, Diodoros, Plutarchos, Isokrates, Demosthenes, and many others. Without their contributions there would be darkness. Studying their works and trying to reconstruct the historical truth requires extreme diligence and caution. Most demonstrate a lack of understanding of how the Persian world operated, and tend to present things only from a Greek point of view, which is understandable. Some are driven by political motives and agendas. We are thus trapped in an Hellenocentric environment that tends to look at only one side of the story. As far as Cyprus' history is concerned, to make things worse, one has to deal also, as mentioned previously, with 20th-century historians, some of whom fall back on their own colonial histories, and others lost in an anachronistic Panhellenic dream and political motivations. As far as the ancient Eastern sources are concerned, there have, fortunately, been advances in Near Eastern studies with more and more information now available that should afford opportunities to filter and balance the existing, and overwhelming, classical scholarship. It is the opinion of the present author that by looking only at the history of ancient Cyprus through the narratives and eyes of ancient Greek sources there is little chance of reconstructing the island's true history. Thus, it is the intention of this book to scrutinise existing scholarship and try and look at Cyprus's maritime history from the East as well as the West.

The economy of Cyprus during the Third Economic Cycle, in spite of wars and intense naval activity, had flourished. Its maritime and naval economy took advantage of the need of the Persian navy for the supply of fully manned line-of-battle *triereis* and provisions for its crews and army, and together with the Phoenicians had grown into a regular provider of these naval services to the Achaemenids. Here, for example, is the account of Pharnabazos placing an order to the Cypriot kings for the supply of one hundred *triereis*: 'After the King had been persuaded, Pharnabazos took five hundred talents of silver and prepared to fit out a naval force.

Sailing across to Cyprus, he ordered the kings there to make ready a hundred *triereis*'.<sup>20</sup>

The Cypriots strengthened their economy and international maritime trade during the prolonged periods of peace after the Peace of Kallias in 449 BC and the King's Peace in 387 BC, as confirmed by Diodoros in his statement concerning Cyprus wealth after the King's Peace: 'Since all the island had enjoyed peace for a long time and their territory was wealthy, the soldiers, who had possession of the open country, gathered much booty'.<sup>21</sup>

The independent Cypriot shippers became key players in the thriving international grain trade. The Cypriot kings, as a result of their wealth, were well known for their luxurious lifestyles.<sup>22</sup> Alternatively, the prosperity of city-states such as Kition can also be attributed to the internal political and dynastic stability of the city, as evidenced by the continuity of long-reigning kings, e.g. the Kitian kings Milkyathon (c. 392–362 BC) and Pumayathon (c. 362–312 BC).

#### *Periods of War and Peace*

The history of Cyprus in the almost 250-year period of the Third Economic Cycle is characterised by intense military and naval activities that can be divided into four periods: (1) volatility and military conflict (525–449/48 BC); (2) economic development and The Peace of Kallias (449/448–411 BC); (3) Evagoras' drive to become hegemon of Cyprus (411–387/386 BC); (4) the King's Peace to Alexander the Great, and Cyprus becoming a unified province in the Ptolemaic kingdom (387/386–295BC).

#### **A period of volatility and military conflict (525–449/48 BC)**

The period that starts from the time Cyprus surrendered to the Persian Empire in 525 BC<sup>23</sup> until the Peace of Kallias in 449/48 BC is characterised by intense naval and military hostilities between Greece and Persia, with Cypriots having an active participation in one way or another, mostly on the side of the Persians. This had a profound effect on the island's socio-political environment and economy in general, as well as its maritime economy in particular.

Table 5 gives in summary the major political, military and naval events that took place between 525–449/48 BC that had a direct or indirect impact on the island.

<sup>20</sup> Diod. 14.39.1–2.

<sup>21</sup> Diod. 16.42.8–9.

<sup>22</sup> *Athen.* 6.257,8, 349–352.

<sup>23</sup> Watkin 1987: 154–163 for discussion and arguments for the surrender c. 525 BC rather than the previously held dates c. 545 and 539 BC.

Date	Event	Source
525 BC	Cypriots surrendered to Persia and participated with their navies in Cambyses' invasion of Egypt.	Hdt. 3.19.3
499 BC	The Persian navy consisting mainly of Cypriot warships is defeated by the Eretrian navy in the Pamphylian Sea.	Lysanias Maliotis
498 BC	The Cypriots join the Ionian revolt.	Hdt. 5.108
494 BC	The Persian navy in the Aegean consisting of 300 <sup>1</sup> ships supplied from Cyprus, Kilikia and Phoenicia defeated the Greek navy consisting of 353 warships, at Lade.	Hdt. 6.6,8,9
492/490 BC	The Persian fleet sunk near Athos. Campaign of Datis and Artabernis ends in defeat.	Hdt. 6.43 Hdt. 6.94
484 BC	Re-conquest of Egypt by Xerxes; possible Cypriot naval participation.	Hdt. 7.7
480 BC	Defeat of Persian navy at Salamis and Mycale. Cypriots participated with a naval force of 150 <i>triereis</i> .	Hdt. 7.90
479/478 BC	Pausanias with 50 <i>triereis</i> from Peloponnesos and 30 Athenian <i>triereis</i> under Aristeides, 'frees' Cyprus temporarily from Persian garrisons and sails to Hellespont	Diod. 11.44.2 Thuk. 1.94
478/477 BC	Establishment of Delian League	Thuk. 1.96.1
469 BC	Presence of large Persian army and navy in Pamphylia at Aspendos.	Thuk. 1.100.1
468 BC	Kimon triumphs at sea and land against the Persians at Eurymedon. Cypriots participated in the Persian navy of 340 <i>triereis</i> . Another 50–80 Cypriot <i>triereis</i> expected to join the Persians. The Greek victory was not followed up due to revolt in Northern Aegean.	Diod. 11.60.5–7 Plut. <i>Cim.</i> 12.4–6 Thuk. 1.1.100
461 BC	Cypriots participate in the Persian navy of 300 <i>triereis</i> against Inaros in Egypt.	Diod. 11. 3.7–8
459 BC	Charitimides' campaign to Cyprus and Egypt with 200 <i>triereis</i> ends in disaster (elimination of the Erechtheid tribe).	Diod. 11.74.3
456–454 BC	Cypriots, Phoenicians and Kilikians participate in a Persian fleet of 300 <i>triereis</i> to retake Egypt.	Isok. <i>Eip.</i> 86
450–449 BC	Kimon's campaign to Cyprus and Egypt, with 200 <i>triereis</i> , fails to conquer Cyprus. He captured Marion temporarily and besieged unsuccessfully Salamis and Kition. His death puts an end to the campaign.	Plut. <i>Cim.</i> 13.1–4 Diod. 12.2–4 Diod. 12.3.3
449 BC	Peace of Kallias	Diod. 12.4.5

<sup>1</sup>Herodotus mentions 600 ships for the total Persian navy in the Mediterranean.

Table 5: 525–449/48 BC.

After the Greek victory at Salamis and Mycale in 480 BC the initiative belonged to the Greeks, mainly the Athenians, who energetically, but unsuccessfully, tried to dominate Cyprus and at the same time come to the aid of the Egyptians. Cyprus, as a Greek base against the Persians in the Levant, proved wholly unreliable.<sup>24</sup> The Greeks fought hard over Cyprus but the Cypriots were under no illusion – they knew the conflict was not to liberate but to control them.<sup>25</sup> In their majority they thought it was best to stay with the devil they knew, and for the decades before the Peace of Kallias, apart from Onesilos' uprising, to be examined in detail in the following sections, they were staunchly allied to the Persians in their efforts to contain the failed Athenian attempts to put them under their influence. Therefore,

as Isokrates pointed out, the Cypriots 'thought those rulers best who happened to be the most savagely disposed towards the Greeks.'<sup>26</sup> Briefly, it made no sense for the Cypriot kings, who ruled their city-states under monarchical systems, to support change that would bring a democratic system supported by the Athenians and remove from them the power to rule in the way they had for centuries.

It is no wonder, Cyprus at the time of Kimon was unavailable as a base for attacks on Persia<sup>27</sup> and his second campaign in the area failed to bring the island under Athenian control, ending with his death. Quite instructive on the matter is the resistance put up by Marion, Kition and Salamis, and the staunch pro-Persian stand of Salamis' king, Evanthis.<sup>28</sup> In general,

<sup>24</sup> Cawkwell 2005: 130.

<sup>25</sup> Thukidides is very clear that Pausanias' campaign was to conquer the island, avoiding any suggestion of liberation. Thuk. 1.94.2; Cawkwell 2005: 131.

<sup>26</sup> Isok. 9.49.

<sup>27</sup> Cawkwell 2005: 131, n. 6.

<sup>28</sup> Diod. 12.4; Thuk. 1.112.4; Plut. *Cim.*19.

Persian land forces, in combination with their navy, both in Cyprus and over the entire conflict zone in Asia Minor, proved a formidable foe against Athenian aspirations. Both Athens and Persia realised that there was no point in keeping fighting each other and were ready to settle peacefully their differences on all fronts. The peace agreement that was reached in 449 BC that ended hostilities and provided the platform for economic growth is known as the ‘Peace of Kallias’, after the Athenian general who headed the Athenian embassy that negotiated the agreement.<sup>29</sup>

#### **A period of economic development, the Peace of Kallias (449/448–411 BC)**

With the Peace of Kallias the Persian King conceded autonomy to the Greek cities of Asia Minor but retained the military advantage and at the same time established undisputed control of Egypt and unchallenged rule over Cyprus.<sup>30</sup> The peace was broken at the choice of Athens when they supported the rebel Amorges in 411–412 BC. Cyprus remained firm within Persian control. It is universally believed that with the peace of Kallias Athens and its allies abandoned any further plans to put Cyprus within their orbit.<sup>31</sup> During this period there were no serious outbreaks of hostilities involving Cyprus. On the contrary, it was a period of peace and

economic development. There is evidence that the Cypriot maritime economy picked up again and its socio-economic situation improved significantly.<sup>32</sup> Political matters in Greece during this period were dominated by the war between Athens and Sparta that broke out in 431 BC and ended in 404 BC.

#### **Evagoras’ drive to become hegemon of Cyprus, the King’s Peace (411–387/386 BC)**

The period of twenty-five years that followed the collapse of the Peace of Kallias is characterised by volatility and political uncertainty. Persian gold, bribery tactics, as well as political influence favouring Sparta, contributed to the collapse of the Athenian Empire. This came with a price, that of the king’s right to Asia. For the purpose of our work this period can be viewed from two angles. The first, from the Greek point of view, concerns the conflict over the control of Asia Minor that ended with the Greeks signing the King’s Peace.<sup>33</sup> The King’s Peace reversed all Greek gains from the Peace of Kallias and established Persian overall control of the Greek cities of Asia Minor. The second angle is from the Cypriot point of view. Following the King’s Peace, Cyprus was now an undisputed Persian territory. In spite of Evagoras’s I initial loyalty to the Persians, his drive for hegemony over the rest of the

Date	Event	Source
411 BC	On or about 411 BC Evagoras took over the throne of Salamis as a loyal vassal subject to the Great King.	Diod. 13.106.6
405 BC	Konon arrives at Cyprus after the victory of Lysandros over the Athenians at Aigospotamoi with the help of Persian finance. An alliance is formed between Athens and the Persians with Evagoras’ active involvement.	Xen. <i>Hell.</i> 2.1.29
404 BC	End of the Peloponnesian war.	Thukydides
401 BC	Cyrus the Younger’s march of the 10,000.	Xenophon
396 BC	Agessilaos lands in Asia Minor with an army of 8000 that alarms the Persians. They appoint Konon admiral of the Persian fleet and form an alliance with the Athenians against the Spartans.	Diod. 14.83. 4–7 Xen. <i>Hell.</i> 3.4.4
394 BC	Konon, in charge of an allied fleet, defeated the Spartan fleet at Knidos. Salamis’ contribution was 40 <i>triereis</i> in a Persian fleet of at least 130 warships. The Persian king contributed 500 talents to build 100 <i>triereis</i> in Cyprus.	Diod. 14.39.4
391 BC	Cypriot war 391–380 BC. Evagoras tried to put under his control the other Cypriot states who resisted with the help of Persian satraps. Naval defeat of Salamis and its allies commemorated at Kition in 392–391BC. Athens in 387 BC sent Chavrias with ten <i>triereis</i> and army for support.	Diod. 14.98.1–4 Diod. 14.98.4–6
386 BC	Evagoras extended his activities to Tyros with the help of the Egyptians and a fleet of 90 warships.	
387/386 BC	Signing of the King’s Peace.	Xen. <i>Hell.</i> 5.1.31 Diod. 14.110.3

Table 6: 411–387/386 BC.

<sup>29</sup> Diod.12.3–4.

<sup>30</sup> Athens abandoned all territories east of Phaselis, including Cyprus, as a negotiation tactic to get a better deal within the Aegean.

<sup>31</sup> Stylianou 1992: 443.

<sup>32</sup> Stylianou 1992: 430–431; Kyrris 1996: 114–115.

<sup>33</sup> Xen. *Hell.* 5.1.31.

Date	Event	Source
385 BC	The Persians eventually decided to put an end to Evagoras’ aggressive and hostile actions. For this purpose they sent a large army and fleet from Phokea and Kyme prepared by Orontes, Tiribazos and Glos.	Diod. 15.2.1
381 BC	Evagoras put together a fleet of 200 warships to face the Persian invasion under Glos, on land and sea with a Persian fleet of 300 <i>triereis</i> . His fleet suffered a crushing defeat near Kition and his city besieged.	Diod. 15.2.1 Diod. 15.3.4 Diod. 15.4.1
381 BC	In spite of his trip to get support from Egypt, Evagoras had to sign a peace treaty accepting vassal status as well as payment of tribute and Persian suzerainty.	Diod. 15.4,15.8.1 Diod. 15.9.1–2
374 BC	Evagora’s powerful Salamis was reduced to a bankrupt city and he was ultimately assassinated by the eunuch Thrasydeos. <sup>1</sup>	Arist. <i>Polit.</i> 5.1311b
351 BC	The Cypriot city-states joined the Phoenician and Egyptian revolt. Artaxerxes III Ochus in 344–345 BC ordered Idrieas from Karia with 8000 army and 40 <i>triereis</i> to suppress the revolt. Cyprus being a wealthy island that enjoyed a long period of peace was looted by the Persian army. This was a period of intense naval activities in the area.	Diod. 16. 42.7–8
336 BC	The Cypriots participate in the Persian naval campaign of 300 <i>triereis</i> against Egypt.	Diod. 16.40.6
334 BC	Alexander invades Asia and embarks on his campaign against the Persian Empire.	Arrian
333/32 BC	The Cypriots join the Persian navy of up to 300–400 <i>triereis</i> against Alexander in the Aegean.	Arr. 1.18.5
332 BC	A force of 4000–8000 mercenaries comes to Cyprus after the battle at Issos on their way to Egypt.	Arr. 2.13.2 Curt. 4.1.27–33 Diod.17.48.2–6
332 BC	The Cypriot city-states join Alexander with 120 <i>triereis</i> in the siege of Tyros.	Arr. 2.20.3
331 BC	100 Cypriot and Phoenician ships ordered by Alexander to sail to Peloponnese to assist Antipatros against Agis III.	Arr. 3.3.6
324 BC	The Phoenicians and Cypriots supply ships and fittings, i.e. bronze and sails, for Alexander’s fleet against the Arabs.	Curt. 10.1.19 Str. 16.1.11
315 BC	Ptolemeos’ brother Menelaos appointed <i>strategos</i> of Cyprus.	Diod. 19.62.4
312–310 BC	Abolition of Cypriot city-states by Ptolemeos and assassination of their kings. <sup>2</sup>	Diod. 19.79.4–5. Diod.20.21.1–3 <i>Marmor Parium</i> 20–23 B17
306 BC	The naval battle of Salamis. Demetrios’ triumph	Diod. 20.50–52 Plut. <i>Dem.</i> 16. 1–4
295 BC	Re-conquest of Cyprus by Ptolemaios and final annexation as a province in the Ptolemaic kingdom until 58 BC, when the Romans conquered the island.	Plut. <i>Dem.</i> 35

<sup>1</sup>Stylianou 1992: 480.

<sup>2</sup>Stylianou 1992: 487–490.

Table 7: 387/386–295 BC.

Cypriot states and his ill-conceived struggle to free himself from Persian domination was doomed to fail.

**From the King’s Peace to Alexander the Great and the annexation of Cyprus in the Ptolemaic Kingdom (387/386–295 BC)**

The King’s Peace, negotiated by Antalkidas in 387–386 BC, kept the Greeks out of Asia until the time of Alexander the Great and his father Philipos. Cyprus was conceded to Persia and Evagoras I was abandoned to his fate. After the King’s Peace, Cyprus went through a long period of prosperity (*εὐπορίας*) as witnessed by Diodoros.<sup>34</sup> This is not only attested in the textual

sources but also confirmed by archaeology in the form of new fortifications, temples, works of art, intensified trade, and monumental buildings, even a whole new administrative centre and port at New Paphos.<sup>35</sup>

The Cypriot city-states, with only a brief interval when they joined the uprising of the Phoenicians and the Egyptians between 351–345 BC, remained loyal to the Persians until the latter’s decisive defeat at Issos in 333 BC at the hands of Alexander the Great; after the battle they abandoned the Persians and joined Alexander for the siege of Tyros in 332 BC. These Cypriot cities became part of Alexander’s empire until his death, being thence drawn into the destructive wars of the successors by

<sup>34</sup> Diod.16.42.8.

<sup>35</sup> Stylianou 1992: 487; Maier and Karageorghis 1984: 203–44.

dividing their loyalties between the contenders. Finally, Ptolemaios I, Soter, put an end to the centuries-old institution of Cypriot city-states by annexing the whole island as a province to the Ptolemaic Kingdom of Egypt after he had the island's kings either killed or forced to commit suicide.

It is unknown whether Ptolemaios' policies for Cyprus were part of defensive imperialism, and his intention was thus to use the island as a buffer to protect Egypt and as a naval base to help him control the Levantine coast and *Koile* Syria. Neither do we know whether it was part of a more ambitious plan driven by the notion that he was the one and only successor to Alexander. Whichever the case, the motivations behind his policies and strategic plans for Cyprus were driven by the same reasons, i.e. Cyprus' maritime and naval importance, its raw materials, especially copper and timber for ships, its skilled manpower and shipbuilding technology, and providing a systemic link in the Eastern Mediterranean trade routes and maritime networks.

#### THE IONIAN REVOLT (499–494 BC) AND THE CYPRIOT UPRISING IN 498 BC

The Cypriot uprising during the Ionian revolt played an important role in Persia's harsh treatment of the Cypriot city-states and eventual suppression of its economic activities in the first half of the 5th century BC. Due to its importance in the history of Cyprus during the Third Economic Cycle the events will be analysed in more detail in an attempt to understand the reasons for the revolt and the Cypriot uprising, as well as their repercussions for the Cypriot maritime economy.

##### *Events leading to the Ionian revolt and the Cypriot uprising*

From Darius' very first years as king he implemented a strategic plan to control the maritime trade and naval activities in the Eastern Mediterranean. The Persian policies and naval activities that regulated trade in the south-eastern Mediterranean were restricting Cypriot maritime independence in the same way that Ionian maritime independence was restricted in the Aegean. Therefore, the Cypriots watched very closely the events that brought about the Ionian revolt, as the activities of the Persians in the Aegean and the conflict of interest between them and the Ionians, had an influence on Cypriot maritime trade in the Aegean, particularly with the Ionians.

Part of Darius' strategic plans in the Aegean was to control the islands and their maritime trade, as well as the silver mines and rich forests of Thrace. Since he already had the Ionian and Greek cities in Asia Minor under his control, his next move was to eliminate Samos' naval threat and integrate the island within his empire. This was accomplished c. 518 BC, and c.

513 BC he campaigned against the Scythians with the support of the Ionians, Aiolians, and Hellespontians, who provided him with a navy of 600 warships.<sup>36</sup> The campaign was very much in line with the interests of the Eastern Greek cities, as its success would intensify their economy and improve their finances. Although Darius eventually had to withdraw from Scythia, he did succeed in putting Thrace, with its rich forests of timber for shipbuilding, as well as the Pangaion silver mines, under his authority. Indeed, as from 512/511 BC the Persians even had Makedonia under their influence.<sup>37</sup> In the process, Darius established Persian naval domination and his intention was to put under his control the maritime and naval activities of the entire region. This was partly achieved at the expense of the maritime independence and freedom of the Ionian cities, and their citizens, who were heavily conscripted into the Persian navy; additionally, their economy was taxed greatly to provide tribute to finance the Persian navy, thus the net effect for the Ionian cities was harmful both financially and socially.

The Persians consolidated their presence in the Aegean and Thrace in such a way that relegated the importance of Miletos and the other Ionian cities and threatened their thriving maritime trade. Turning Thrace into a Persian satrapy ran contrary to the commercial interests of the Ionian cities. The presence of a Persian general in Thrace, Megabazos,<sup>38</sup> the subordination of their cities in Asia Minor to the Persians, in combination with an imposing Persian naval presence across the Hellespontine region to the Aegean, would have been detrimental to their maritime economy. Their thriving trade to the East, including Cyprus, with its maritime alliance to them and its important intermediary role, was restricted and regulated by the Persians.

The ability of Miletos, and its tyrant Aristagoras, to contain the Persian naval and military domination was significantly diminished. It is in the light of the events just described in brief that the Ionian uprising took place. The imposing Persian presence threatened Hellespontine plans to expand their Black Sea maritime trade and so they were among the first to join the revolt. The Cypriot economy and its maritime trade were threatened in the same way; their commercial and maritime alliances and joint ventures with the Ionians were severely restricted and regulated; their forests and copper resources also coming under the regulation of the Persian administrative and tributary system in

<sup>36</sup> Hdt. 4. 87.

<sup>37</sup> Makedonia was under Persian influence up until Xerxes defeat in 480/79 BC. Justin's statement about Alexander I extension of his kingdom (7.4.2) is quite clear: 'through his own valor as through Persian generosity'. Borza's statement (1990: 115) that Makedonia was a useful and willing ally to the Persians is along the same lines.

<sup>38</sup> Hdt. 5.10.12.

the same way that natural resources were affected in Makedonia, Asia Minor, and the Levant.

#### *The Ionian revolt and its outcome*

The Ionian revolt started in 499 BC, with a navy comprising 200 *triereis*,<sup>39</sup> after the unsuccessful campaign of the Persians, in alliance with the Ionian cities headed by Miletos, against Naxos. It lasted until 493 BC. Apart from the Ionian leader's private interests, e.g. Aristagoras' personal agenda to hold on to Miletos' rule, and the desire of Histiaios to return to Miletos from Susa, there were three major reasons for the revolt:

- (i) General dissatisfaction and resentment due to heavy handed treatment by the new rulers – the Persians. This resentment was directed not only against the Persians themselves but also against the tyrants, who were regarded as the instrument of Persian power and repression. Heavy taxation and granting of lands to Persian settlers and other favoured individuals that started before the revolt and intensified afterwards, created bitter resentment<sup>40</sup> and caused further agitation among the population.
- (ii) Suffering to the economy and maritime trade. Although Ionians were free to continue their long- distance trade, they had to do it under the supervision and watchful eye of their Persian overlords. They had to operate on a much narrower path, and although they were used to being subordinated and to paying tribute to the Lydians, the Persian demands, after Darius reforms, were much higher and more strictly regulated,<sup>41</sup> resulting in reduced net income and social dissatisfaction.
- (iii) Conscription and military duty and prolonged naval activities became very unpopular. Therefore, it was easier for the crews of the 200 *triereis*, who accompanied the Persian naval expeditionary force in the unsuccessful siege of Naxos, to join the revolt against their commanders and the Persians.

It took five years for the Persians to suppress the revolt completely. There are reasons for this. Darius did not feel he had to allocate additional military assets and resources, apart from what was available to his satraps west of Halys. The Persians, after the initial eruption of hostilities, managed to regain the initiative and bring gradually under their control much of the lost territories of Byzantion, Propontis, and most of the Hellespontine cities, as well as Ephesos, Kyme, Klazomenai, and Karia.<sup>42</sup> To subdue Miletos, the Persians needed a

battleworthy navy. This was delayed by the revolt of the Cypriots that had to be dealt with before a new Persian naval campaign could be undertaken. The Persian navy eventually assembled comprised 300 *triereis*, defeating the Greek navy of 353<sup>43</sup> *triereis* at Lade in 494 BC.<sup>44</sup> This was effectively the end of the revolt and led to Miletos being taken by assault<sup>45</sup> and its inhabitants sold into slavery.

#### *The Cypriot uprising and its outcome*

What transpires from Herodotos' narrative is that the Ionian revolt was doomed to fail and was a hopeless act right from the start, especially with insecure finances and very little support from mainland Greece. This is a matter hotly debated among scholars and is beyond the scope of this work. The present author, however, views the Cypriot uprising of 498 BC, following the corresponding one in Ionia, as never having the slightest chance in succeeding and was a pointless and senseless exercise. The Persians were simply too strong at that time<sup>46</sup> and Cyprus was surrounded by powerful Persian forces at Kilikia, Syro-Palestine and the Levant, as well as Egypt, not to mention the absolute Persian domination of the seas around Cyprus.

We rely entirely on Herodotos for details of the period before and during the Cypriot uprising against the Persians that took place in 498 BC, except for a story from Plutarchos, drawing on Lysanias Maliotis, informing that the Persian navy, comprising Cypriot *triereis*, was defeated by Eretrian naval forces on the Pamphylian Sea shortly after the start of the Ionian revolt,<sup>47</sup> just before the Cypriot uprising. This might be one of the reasons why no Cypriot navy is mentioned as having participated in the uprising.

Gorgos, king of Salamis, who was against the revolt, was brushed aside by his brother Onesilos who organised the uprising. According to Herodotos,<sup>48</sup> he led the city-states of Salamis, Paphos, Soloi, and Kourion against the Persian army in a failed attempt to free the island from Persian domination. The Cypriot insurgents were defeated by the Persian army, which arrived from Kilikia, led by Artybios. The city-state of Kourion and its king Stasanor, who initially joined the insurgents at the start of the uprising, deserted, together with the Salaminian chariotry in the midst of the decisive battle near Salamis, leading to the defeat of the Cypriot forces on land. Onesilos and Aristokypros, king of Soloi, were killed during the battle. As far as the other Cypriot

<sup>39</sup> Hdt. 5.31.

<sup>40</sup> Cawkwell 2005: 74.

<sup>41</sup> Cawkwell 2005: 73.

<sup>42</sup> Hdt. 5.117, 121–123.

<sup>43</sup> Hdt. 6.8.

<sup>44</sup> Hdt. 5.108.

<sup>45</sup> Hdt. 6.18.

<sup>46</sup> Stylianou 1992: 428.

<sup>47</sup> Stylianou 1992: 419–421; Tozzi 1978: 167–168 believes this is pure invention and did not really take place.

<sup>48</sup> Hdt. 5.104–116.



Figure 67: The Northern Gate at Palaepaphos, seen from inside the city, from where the Paphians dug their underground tunnels to mine the Persians' siege ramp made of earth, tree trunks and building debris. The Northern Gate occupied a commanding position above the living quarters of the ancient city and formed a key sector of the ancient fortifications on Marchellos hill, site KA (photo: author).

cities are concerned, apart from Amathus, who actively opposed the uprising and was besieged by Onesilos, we have no definite information of their involvement, if any. An Ionian naval force that arrived to support the Cypriot uprising had a successful encounter with the Persian navy,<sup>49</sup> but had to leave for Ionia following the decisive defeat of the Cypriots on land.

The city-states of Kourion and Amathus, who sided with the Persians, were apparently spared, as well as Salamis, whose king, Gorgos, was against Onesilos' actions. The other Cypriot cities that revolted were severely punished: the city of Soloi was besieged and captured after four months of fighting;<sup>50</sup> at Tamassos the temple of Aphrodite was destroyed by fire during this time, most probably as a Persian reprisal; Palaepaphos was also besieged and taken, with the help of a specially constructed earthen mound,<sup>51</sup> in spite of efforts by

the besieged to collapse it by tunnelling underneath (Figure 67).<sup>52</sup>

According to Diodoros, the Persians, after putting down the uprising, installed military garrisons: 'Pausanias [...] taking fifty trieremes from the Peloponnesus and summoning from the Athenians thirty commanded by Aristides, he first of all sailed to Cyprus and liberated those cities which still had Persian garrisons...'<sup>53</sup> Although there is no hard archaeological evidence of Persian garrison presence, it is not unreasonable to presume that Diodoros' source is accurate.

Thus the Persians made sure all city-states were ruled by obedient kings who aligned their actions with Persian interests and directions. According to the Persepolis 'Fortification Tablets'<sup>54</sup> and other Neo-Elamite documents, workmen from Kupru (Cyprus) were deported and sent to work in Elam. As suggested by Heltzer, this might be the result of punitive action by

<sup>49</sup> It is believed the encounter was against the ships transporting the Persian army from Kilikia and no real battle took place. Cawkwell: 2005: 63, n. 11.

<sup>50</sup> Hdt. 5.105.

<sup>51</sup> Hdt. 1.162, 168.

<sup>52</sup> Stylianou 1992: 427–428, ns. 278, 279, 280.

<sup>53</sup> Diod. 11.44.

<sup>54</sup> Lipinsky 2004: 79, n. 247.

the Persians following the failed uprising: deportation was a common action against rebellious regions, bringing economic hardship as well as demographic changes.

The reprisals and actions taken against the Cypriot city-states that revolted could not have differed much from the actions the Persians took in western Asia Minor after the Ionian revolt. As in Cyprus, the reconquest of the Ionian cities was harsh and merciless. According to Herodotos those who resisted would suffer exemplary punishments, slavery and deportation, land confiscation and demolition of private houses and sanctuaries.<sup>55</sup> Herodotos provides evidence from Miletos: 'Most of the men were killed [...] the women and children were made slaves, and the temples at Didyma, both shrine and oracle, were plundered and burned [...]. The Persians themselves occupied the land in the immediate neighbourhood of the town, [...] In this way Miletus was emptied of its inhabitants.'<sup>56</sup>

The islands of Chios, Lesbos and Tenedos, the mainland towns and those on the Hellespont, were systematically burned and laid to waste.<sup>57</sup> Samos, however, which sided with the Persians 'was not burnt by the Persians neither their town nor their temples'.<sup>58</sup> The Persians reassessed the tribute due by having the 'territories surveyed, and measured in parasangs [the Persian equivalent to 30 furlongs] and settled the tax each state was to pay at a figure which has remained unaltered to within living memory. The amount, moreover, much the same as previously.'<sup>59</sup> It can be reasonably assumed that the Persians applied the same measures to the Cypriot city-states.

At this point, some aspects of the socio-political and economic environment in Cyprus at the beginning of the Third Economic Cycle can be analysed by looking at certain characteristics of the Cypriot uprising:

- (i) As shown, the Cypriot and Ionian maritime economies had important and vital common interests managed by commercial alliances between their respective cities. It can be argued that they belonged to a common economic zone, as, in the same way that Cyprus was an important link for Ionian trade in Egypt and the East, the Ionians were an important link for Cypriot trade in the Aegean and Black Sea. Cypriot maritime trade and maritime economy was impacted by the Persian occupation of the island and the Persian naval domination in the Eastern Mediterranean in the same way as the

Ionians were impacted in the Aegean. Therefore, mutual commercial and maritime interests motivated their respective response against the Persians. Success for the Ionian revolt meant success for the Cypriot uprising and vice versa.

- (ii) Although the Ionians were used to paying tribute to the Lydians, albeit not so demanding and regulated as the reformed tribute system of Darius I, for the Cypriots it was the first time their economy was so directly impacted by monetised regular tribute and the direct taxation of its natural resources and trade activities. In addition, their economy was burdened by requisitions of naval services and equipment; conscription of skilled sailors and oarsmen for the Persian navy, both in times of peace as well as during hostilities, was a constant drain on the Cypriot maritime economy. It is not known whether any financial benefits accrued to the Cypriot kings, but this certainly put a tremendous strain on the economy. This had an impact on income, not to mention the social dissatisfaction among the population.

- (iii) The Persians were not interested in governing the Cypriot city-states by direct rule. They opted for the most manageable and less expensive solution of indirect control, and thus they did not install a Persian satrap with large and heavily armed permanent garrisons on the island. The Persians relied on local rulers or kings to do their bidding, and as long as they did this satisfactorily, they were left alone. In any event, the Persians had enough military and naval assets nearby to intervene as and when needed. This is exactly what happened when Artybios sailed to Cyprus from Kilikia to suppress the uprising. Not all Cypriot kings were impacted in the same way, nor were all of them equally dissatisfied, and thus not all had the same agenda. This explains why there was a split amongst them and why there was no united front against the Persians. Just after the revolt the Persians must have appointed temporary garrisons to make sure of the obedience of the local communities and their rulers.

The Cypriot population was used to the style of governance by monarchies and dynastic tyrannies, and thus they do not seem to have been affected to the same degree as the populations of the Ionian cities. Hence there seems to have been no unified desire to follow the uprising. The populations of Soloi and Palaepaphos, who resisted after the failure of the uprising, had no choice, as they were doomed in any case. The Persians, after the uprising, saw no practical advantage in installing democratic

<sup>55</sup> Hdt. 7.9; Briant 2002: 493–494.

<sup>56</sup> Hdt. 6.19–20, 22.

<sup>57</sup> Hdt. 6.32.

<sup>58</sup> Hdt. 6.25.

<sup>59</sup> Hdt. 6.42–43.

rule in Cyprus, as they had in Ionia, simply because the ruling elites and populations were unaccustomed to such novelties. The new rulers simply took all necessary measures to make sure they were obeyed.

The 'Late Archaic' palatial building unearthed in 1952/53 at Palaepaphos' *Hadjiabdullah* site (Site KB), now labelled as the 'East Complex' (Figure 68, bottom to the right), represents one of the few royal residences known so far in Cyprus. It was constructed by a Paphian king belonging to



Figure 68: (Top) The Vouni Palace (courtesy Department of Antiquity, Cyprus). (Bottom) The East (Palace) and West (Workshop) Complex at Palaepaphos Hadjiabdoullah (UAV orthophoto: K. Themistocleous and A. Agapiou; courtesy PULP Director © PULP).

the dynasty in control of the city-state c. 500 BC, who, as a Persian vassal, modelled his residence on the architecture of his overlord – the building seems to be based on Persepolitan architecture of the late 6th/early 5th century BC.<sup>60</sup> Since, as already stated, the Persians immediately after the uprising intensified their military presence on the island by installing military garrisons,<sup>61</sup> the building can be interpreted as possibly having served for a period as the residence of the Persian commander in charge of the garrison and guard the Palaepaphos region after the uprising.<sup>62</sup>

- (iv) Onesilos, and his allies, miscalculated Persian strength and resolve, as well as the Ionian capacity to provide effective support. Most importantly, a large majority of leaders and elite warriors was unconvinced about the wisdom behind the uprising. The actions of Gorgos, and some of the Salaminian aristocracy, the desertion of Stasanor of Kourion, as well as the opposition by Amathus to the plans of Onesilos, demonstrated that there were good working relations and open channels of communication in operation at the highest levels between cadres of the Cypriot and Persian leadership.

#### *Economic and maritime revival*

Following the Ionian revolt and Cypriot uprising, and the defeat of the Persians at Salamis in 480 BC, Athens became the arbitrator of the Aegean maritime trade. Ionian and Cypriot maritime economies were sandwiched between Athenian expansionism and Persian imperialism. Although one would expect that both Ionia and Cyprus would have had difficulties in recovering, archaeological and literary records show that they both began in earnest to reassemble their cities and revive their commercial contacts and alliances which had proved lucrative in the past. Gorman<sup>63</sup> characterises the second quarter of the 5th century BC as a time of heavy construction at Miletos. We have the same evidence for Cyprus: at Palaepaphos, after the capture of the city on *Marchellos* hill, the palatial complex erected at the Hadjiabdullah site was expanded with industrial workshops (Figure 68, bottom). The Vouni palace at Soloi (Figure 68, top) was possibly erected at the same time.

The Ahiqar scroll, discovered at Elephantine (Egypt), an inventory of ships arriving at an unknown Egyptian port from Ionia and Phoenicia, reveals that over a period of a sailing season of ten months, 36 Ionian ships delivered their cargoes of wine, olive oil and other goods to Egypt.

This happened some twenty years after the end of the Ionian revolt, during the reign of Xerxes, on or about 475 BC, indicating the quick recovery of the Ionian maritime economy. Out of the 36 Ionian ships, 19 were classified as large, *spynh rbh*, and the rest apparently smaller ships. They paid duty on their cargoes in gold and silver. On their departure they carried Egyptian natron soda (*ntr*) and were charged an export duty accordingly. The Ahiqar inventory points to a brisk and organised trade between Ionia and Egypt, conducted during the time of the Delian League and Athenian supremacy in the Aegean on one hand, and the Persian control of Egypt and the sea lanes in the south-eastern Mediterranean on the other. The homogeneous nature of the cargoes of the Ionian ships, coupled with the seemingly cautious yet steady number of shipments through the sailing season (in early spring they sent 12 ships, in the summer 13, and in early winter 11) suggests a well-organised trade network between Ionia and Egypt and the involvement of experienced and well-connected traders and shippers. These were *caboteurs* and independent operators who dominated maritime trade in the Second and Third Economic Cycles. A similar operation is evidenced in the Aegean itself by the Tektas Burun shipwreck dated to 440–425 BC, i.e. after the Peace of Kallias, a process that gave the Ionian maritime trade in the Aegean a chance to thrive, in spite of Athenian supremacy. The Tektas Burun wreck, a local enterprise trading between Ephesos, Samos, Miletos, Erythrai, and Chios, was an average to large vessel of about 14 m in length carrying a modest cargo of wine of about 200 amphorae of southern Aegean and northern Greek origin. Although neither the Ionian ships of the Ahiqar scroll nor the Tektas Burun wreck are connected to Cyprus, it is not unreasonable to think that Cypriot ships and traders were involved in similar maritime ventures, as is evidenced by the comparable wealth and prosperity in the Cypriot city-states of the time. If this were the case, then Cypriot maritime trade might well have recovered after the Ionian revolt, in the same way that the Ionians managed to recover their maritime trade activities.

#### THE ECONOMIC AND SOCIO-POLITICAL LANDSCAPE OF CYPRUS AND ITS INSTITUTIONS

The institutional features of the city-states of the Second Economic Cycle, as well as geographic consolidation and territorialisation, with each having its own independent economic zone, persisted right through the Third Economic Cycle. The institution of kingship was firmly embedded and integrated as the backbone of monarchic governance. The state became visibly the household (*οἶκος*) of the king. Royal patronage and private initiative coexisted hand in hand as well as state and private initiatives. In short, the favourable environment outlined in our narrative of the First Economic Cycle continued until the Third. The independent traders and shippers emerged as the

<sup>60</sup> Maier and Karageorghis 1984: 207–208.

<sup>61</sup> Diod. 11.44.2.

<sup>62</sup> This is a view not shared by all historians and archaeologists specialising on the subject.

<sup>63</sup> Gorman 2001: 147.

predominant feature of the maritime economy, with far-reaching international activities. The intensification of the economy was achieved by increased urbanisation and long-distance trade and internationalisation, as well as monetisation and increased agrarian production.

Important basic institutions, such as kingship, script and language, long-distance trade, copper outputs, and shipbuilding continued to constitute the basis of the island's economy. According to the Idalion tablet the institutional features of property rights, inheritance, contracting, taxation, and registry became part of everyday governance. The same tablet reveals that the institution of land-ownership had split into royal, city, and private. Donations or leasing of royal land to the city authorities and private landowners created a loyal tax-paying, landowning class. The temples, through the endowment of land, livestock and people, were able to have their own funds for their operations and place in society. Apart from their regular religious functions they were instrumental in the centralisation of documentation, as well as specialised industrial production and trade.

Cyprus during the Third Economic Cycle had to deal with more intrusive external involvement and interference in its internal affairs than in the previous cycles. This marked the political developments on the island during this period. From 525–332 BC the Cypriot city-states were part of the Persian Empire as tributary vassal regions. They had to learn how to survive within this new environment of institutional rules and imperial fiscal administration and tributary system. They had to learn how to navigate between the Greek, mainly Athenian, efforts to bring them under their influence and the Persian resolute determination to keep them within their empire. The Peace of Kallias and the Peace of Antalkidas provided long periods of stability that allowed their economies to flourish and especially their maritime activities to intensify.

Internal fragmentation and territorialisation created territorial conflicts and disputes between city-states in search of more political power and control of natural resources. This created territorial fluidity and fluctuation in a number of city-states. As a result, the inland ones of Chytroi and Ledra lost their autonomy to stronger ones, possibly Salamis for example. The Mesaoria central plane became a region of contention between Kition and Salamis. Idalion and Tamassos were annexed by Kition. Kourion seems to have lost its status as an independent city-state in the 4th century BC. Thus, when the Cypriot city-states were terminated by the Ptolemaians in c. 312–310 BC their number came down from nine in the beginning of the Third Economic Cycle to seven: Salamis, Kition, Amathus, Paphos, Marion, Soloi, and Lapethos.<sup>64</sup>

Between 332–295 BC, when Cyprus was finally annexed as a province in the Ptolemaic kingdom of Egypt, the Cypriots were caught right in the middle of the catastrophic wars between the successors for control of Alexander's empire. The conflict of the successors over Cyprus was part of the overall war for the control of the Eastern Mediterranean, for its natural resources, for naval superiority and sea power, as well as domination of the sea network and harbours that facilitated commerce and trade. These were the same reasons for the Cypriot uprising during the Ionian revolt, the same reasons for the Athenians trying to 'free' Cyprus from the Persians, the same reasons so many battles were fought over Cyprus ever since by regional powers and world empires, and the same reasons for the 21st-century AD Turkish interest on the island. In the same way that Cyprus was important then for its natural resources, trade routes, harbours, and transit income, it is important in the 21st century AD for its geostrategic position, gas, pipeline routes, and transit facilities.

During the conflicts of the Third Economic Cycle, we find the Cypriot states forging opposing alliances and joining different masters. In the uprising during the Ionian revolt, Amathus, Salamis Gorgos and part of the city's aristocratic elite, and eventually Kourion, sided with the Persians, while Onesilos, Soloi and Paphos fought against them. During the Cypriot war the city-states of Amathus, Soloi and Kition formed an alliance and requested the help of Artaxerxes II against Evagoras I of Salamis. During the war of the successors Salamis, Paphos, Soloi, and Amathus allied with Ptolemaios, while Kition, Lapethos and Marion sided with his adversary, Antigonos. These opposing alliances are a clear indication of disunity and political fragmentation that was a result of territorial differences and conflicts of political and financial interests.

Salamis and Kition seemed to have been permanently at odds with each other, being the protagonists in the competition for leadership on the island. Salamis appeared to have forged a lengthy alliance and understanding with Paphos, perhaps because they had minimum conflict of interest between them. The same could have been happening between Kition and Lapethos, probably on the grounds of common Semitic roots. The other city-states hold their own ground with strong mercantile and maritime economies and stable dynastic rule. Soloi, especially during Alexander's campaigns, appeared to be a strong social, military, and financial power.

#### THE CITY-STATES DURING THE THIRD ECONOMIC CYCLE

According to textual,<sup>65</sup> archaeological, and numismatic<sup>66</sup> evidence in the beginning of the Third Economic Cycle

<sup>64</sup> Iacovou 2002: 78.

<sup>65</sup> Diod. 16.42.3; Plin. 5.129.1–5, 130.1.

<sup>66</sup> Markou 2015: 29–48, 50, 86–89, 111–127, 129.

there were nine city-states on the island – Salamis, Kition, Amathus, Kourion, Paphos, Marion, Soloi, Lapethos, and Idalion. During this period Idalion was absorbed by Kition and Tamassos, which did not demonstrate city-state status, was handed over to Salamis, by Alexander the Great, after a brief period under the control of Kition. From the available evidence, Chytroi and Ledra, which appear on the Esarhaddon Prism and Assurbanipal List were already absorbed by a coastal city kingdom, most probably Salamis.<sup>67</sup>

## Population

Before looking into the city-states in more detail, the population of the island should be considered. Any estimate of ancient populations is a difficult exercise, and this is particularly so for Cyprus in Antiquity, where we have very little historical and archaeological evidence to support a scientific estimate: there are no population censuses or any direct reference in the literary corpus. Any attempt is open to disagreement and criticism however it is impossible to assess an economy without a population estimate. In such a case even an approximate figure, with reservations, is better than nothing. No attempts were made to estimate populations for the First and Second Economic Cycles because there is so little direct, or indirect, information that could help make estimates which could confidently be defended.<sup>68</sup> In the case of the Third Economic Cycle, also, the picture is not dissimilar. The only difference is that during this period there are indirect ways that, no matter how open they are to criticism, can help us make a decent approach: (i) the Achaemenid assessment for tribute; (ii) population estimates from neighbouring countries with similar geography and historical background; (iii) comparative theoretical models. These methods permit a multiple approach from alternative paths that are independent of each other: if they produce similar results then we might have more confidence in our findings.

### (i) The Achaemenid assessment for tribute

According to Herodotos, Cyprus was included in the 5th Satrapy, known as *Abarnahara* (the Assyrian *ebir-nari*), along with the regions of Syro-Palestine and Phoenicia. Cyprus was responsible for a portion of the total tribute (*phoros*) assessed for the entire satrapy that amounted to a total of 350 talents silver annually.<sup>69</sup> It has been suggested, in several sources, that this tribute was set according to the subject nation's power and ability to pay (*kata to megethos/kata dinamin*) and in proportion to their resources.<sup>70</sup>

Attempts to correlate the amount of 350 talents in silver can be made by considering a text from the early Hellenistic period, the Mnesimachos' inscription,<sup>71</sup> which suggests that tribute was assessed at 1/12 mina in gold for every 1.5 km<sup>2</sup> of land. Mnesimachos' inscription is dated in the early Hellenistic period, at the closing stages of the Third Economic Cycle. It is reasonable to consider that the values and tax levies were inherited from the time of the Persian Empire and thus can apply for our calculations. By considering the equivalent of gold to silver as 1:10,<sup>72</sup> this translates to 1 talent silver for every 108 km<sup>2</sup> ((12 x 60 x 1.5) ÷ 10) land. By considering that Cyprus is c. 9300 km<sup>2</sup>, then the calculated tax that could be assessed for the island with these parameters is c. 86 talents (9300 ÷ 108) silver. This is calculated to be c. 25% of the total tribute assessed for the 5th Satrapy.

On the other hand, if we reverse our approach and start our argument by considering that Cyprus' area is in fact c. 20% – 25% of the total 5th Satrapy area, and its wealth and power contribution is of about the same proportion, then the tribute that could be attributed to Cyprus according to Darius' assessment would be (*kata to megethos/kata dinamin*) between 70 and 87.5 talents (350 ÷ 5 and 350 ÷ 4) silver. The two sets of figures reached from two different methods of calculation are very close to each other. It can therefore be considered that the Cypriot tribute was between 70 and 87.5 silver talents, and thus Cyprus was between 20% and 25% of the entire *Abarnahara* Satrapy in population.

An attempt can now be made to estimate the total population of the 5th Satrapy and apportion to Cyprus its share from the percentages referred to above. The *Abarnahara* Satrapy can, very broadly, be divided into four geographical regions: (a) The Phoenician and coastal Palestinian area; (b) Inland Palestine; (c) The valley between Lebanon and Anti Lebanon, the Damascus area and the Hauran as well as the Jordanian districts; (d) Cyprus.

### (a) The Phoenician and Palestinian area

This area covers the major Phoenician cities of Arwad, Byblos, Sidon, and Tyros. It extends further south to Akko, Dor, Carmel, Joppa, Ashkelon, and Gaza. Some time, c. 332 BC, when Alexander conquered Tyros, the population of the city was reported to be c. 38,000.<sup>73</sup> Sidon, on the other hand, was restored to its previous glory and was already a rich and populous city again. The other cities were also wealthy *emporion*. Joppa for example, according to Strabo's exaggerated estimate,

<sup>67</sup> Iacovou 2002; 2004; Satraki 2013.

<sup>68</sup> See Iacovou 2007 for comments and objections.

<sup>69</sup> Hdt. 3.91.

<sup>70</sup> Plut. *Arist.* 24.1. The same principle was applied by Aristides in the case of the Delian League.

<sup>71</sup> Briant 2002: 394.

<sup>72</sup> Bresson 2016: 262 points to a ratio 1:10 in c. 350 BC, while a ratio of 1:13 is proposed for the Hellenistic period. Aperghis 2004: 142; Markou 2009: 282.

<sup>73</sup> Arr. 2. 24.4–5.

could muster a population of 40,000.<sup>74</sup> All told, for these ten major city ports and their surrounding countryside an average population of 25,000 each during the Third Economic Cycle can be a valid consideration. Thus, for the Phoenician and Palestinian area, an approximate total population estimate that approaches 250,000 during the Third Economic Cycle is not unreasonable.

#### (b) Inland Palestine

The total population of Judaea during the Maccabean revolt (152–143 BC) is estimated at a maximum of 200,000.<sup>75</sup> This is deduced from the Seleukid general Nikanor, who, in order to raise the ransom of 2000 talents due to the Romans after the defeat at Magnesia, estimated he could raise the money by selling them at 90 persons to a talent. He was thus estimating a population of at least 180,000.<sup>76</sup> The total area of Judaea is 2400 km<sup>2</sup> and its population during the Third Economic Cycle was not so highly developed as during the Seleukid era. Inland Galilee may have belonged to the Great King as royal land, thus it cannot be considered as a heavily populated area. Since during the Hellenistic Period there was a population boom in inland Palestine and Jordan it may be thought of as an average, during the Persian occupation, a maximum population of 150,000.

(c) The valley between Lebanon and Anti Lebanon, the Damascus area and the Hauran, as well as the Jordanian districts.

This area was described as fertile and productive.<sup>77</sup> To the east lay the prosperous district of Hauran. Damascus served as the Achaemenid satrapal centre and was ‘accorded exceptional praise’.<sup>78</sup> After the battle at Issos in 333 BC, Alexander took 3000 talents from the royal treasury kept at the city. This is evidence of the wealth and importance of the city that was able to support a large population. Judging from the large size of the whole region an approximate population of 200,000 does not seem an exaggeration.

#### (d) Cyprus

Thus, during the Third Economic Cycle the three areas that belong together with Cyprus in the 5th Satrapy, and constituted 75% – 80% of its total, had a total population of c. 600,000 (250+150+200). This means the total population of the 5th Satrapy was in the order of 750,000 – 800,000 (600 ÷ 0.8 or 600 ÷ 0.75). Considering a total population of 800,000, then the totals for Cyprus could be in the region of c. 160,000 to 200,000 (800 x 20% – 800 x 25%).

#### (ii) Population estimates from neighbouring countries with similar geography and historical background

The Phoenician and Palestinian region in (i) above is a region of similar geography and historical background as Cyprus. During the war in the Aegean against Alexander the Phoenicians constituted, together with the Cypriots, the main force of the Persian navy. The Phoenicians provided about 200 *triereis* and the Cypriots 150.<sup>79</sup> All through the Third Economic Cycle this ratio of 4:3 represents a fair comparison between the two in terms of naval power and participation in Persian naval activities. The argument can be reasonably extended and this ratio applied to the population of the two regions, i.e. a population of 250,000 inhabitants on the Levantine littoral corresponds to 187,500 (250,000 x 75%) in Cyprus.

#### (iii) Comparative theoretical models

The Cypriots in the war in the Aegean participated with 150 *triereis*, and 120 for the siege of Tyros. There is textual evidence that the Cypriot city-states, with their kings, who participated in the siege of Tyros were those of Salamis (King Pnytagoras), Soloi (King Stasikrates), Amathus (King Androcles), and Kourion (King Pasikrates). There is no mention of Kition and Lapethos in the siege of Tyros, but this is to be expected as they would be reluctant to fight against Tyros, a city with so many cultural and commercial ties to them. Paphos and Marion are not mentioned either, but this does not prevent us from considering that the number of 150 *triereis* that participated in the war in the Aegean is representative for the whole naval power of the island. The 150 *triereis* translate to 30,000 oarsmen, *hyperesiai* and *epibatai*. The Persians provided marines for the war in the Aegean, whereas for the siege of Tyros Alexander gave the marines from his Makedonian army. The Cypriots, therefore, provided none.

The same guidelines and theoretical models used by Gennadiou in his article ‘Geography and Demography of Salamis’ can also be used for our calculations.<sup>80</sup> According to these models the 30,000 complements are considered to represent about 80% of an adult population between two and 49 years old. This means the total adult population was c. 37,500 people (30,000 ÷ 0.8). According to the same guidelines the adult

<sup>74</sup> Str. 16.2.28.

<sup>75</sup> I Macc. 10.36, 12.41; Bar-Kochva 1977: 167–170.

<sup>76</sup> II Macc. 8.10–11; for discussion, see Aperghis 2004: 50.

<sup>77</sup> Str. 16.2.16.

<sup>78</sup> Str. 16.2.20.

<sup>79</sup> Arr. 2.20.3. ‘Not long after, too, the Cypriots put into Sidon with about one hundred and twenty ships. Accompanied by the Sidonian trieremes, so that about eighty Phoenician ships joined him’; Arr. 2.20.1. ‘[The Tyrians] made ready for a naval engagement with their eighty trieremes’; Diod. 17.41.2. ‘Although a squadron from Tyre was away with the Persian fleet in the Aegean, the Tyrians still had 80 trieremes’; Hammond 1980 113 ‘The four Phoenician cities of the mainland had thus contributed 200 ships to the Persian fleet’. For discussion, see Grainger 1991: 32; Parpas 2013: 73–88.

<sup>80</sup> Coale and Demeny: 1966; Gennadiou 2019: 361–374; Hansen 1986: 2011.

population represents c. 21% of the total population, making the total c. 178,600 ( $37,500 \div 0.21$ ).

Therefore, by using three independent approaches the following population estimates for the Third Economic Cycle are reached:

- (i) The Achaemenid assessment for tribute: 160,000 – 200,000 inhabitants.
- (ii) Population estimates for neighbouring countries with similar geography and historical background: 187,500.
- (iii) Comparative theoretical models: 178,600.

The figures are not far from each other, a fact that gives the findings some support. Therefore, the proposed average population during the Third Economic Cycle can be in the order of 160,000 – 200,000. Considering that during this period there were long spans of peace and prosperity, and that the Cypriot society and economy after the Peace of Kallias and the King's Peace went through long periods of intense social and economic development, the proposed figure may not be far from reality. Throughout the study the figure will be used only in the background for guidance and rough reference.

The city-states can now be looked at in more detail.

### Salamis

During the Third Economic Cycle, the city-state of Salamis became one of the major military as well as political and economic players on the island. Starting from the last quarter of the 6th century BC we know of Salamis' King Evelthon,<sup>81</sup> who was the first to issue coins on the island. Evelthon's successors ruled Salamis for over 100 years, among them Gorgos, Nikodamos and Evanthis, who continued to issue coins as a sign of independence and economic prosperity. Around 410 BC, after a brief intervention on the royal throne by a Phoenician usurper, and a certain Abdemon of Semitic origin, Evagoras I took over as king of Salamis. During his reign he was to become a leading figure of the Third Economic Cycle in Cyprus and the Eastern Mediterranean, trying, unsuccessfully, to put the whole of Cyprus under his control and independent of Persian domination. Salamis during his reign, 410–374 BC, was involved in intense military, political, and economic activity. His successors, Nicokles, Evagoras II, Pnytagoras, and Nikokreon (the latter put to death by Ptolemaios I Soter), who ruled overall from 374–312 BC, were the last four kings of Salamis before it was abolished, together with the rest of the Cypriot city-states by Ptolemaios I Soter.<sup>82</sup>

Salamis, although friendly with the Paphos royal house, does not seem to have been on the same good terms with the neighbouring city-state of Kition, with whom they had substantial conflicts of interest both on political and economic matters. On the political side they were competing for the same favouritism from the Persian administration, whereas on the economic side they were in competition for control of central Mesaoria and the associated inland copper resources. Their political and economic antagonism must have reached its climax when, c. 355–341 BC, Kition annexed the copper-rich area of Tamassos, King Pasikypros having sold it to Pumiathon of Kition for 50 talents.

Salamis, together with the rest of the Cypriot city-states, found itself caught between the merciless and catastrophic wars of Alexander's successors for the control of the Eastern Mediterranean. Ptolemaios I Soter, in 315 BC, after the defeat of Antigonos' allies on the island (Marion, Kition, Lapethos-Kyrenia)<sup>83</sup> appointed his brother Menelaos as *strategos* in Cyprus. Menelaos, in 312 BC, after Salamis' King Nikokreon had been put to death, and the death of the other Cypriot kings and the abolition of the Cypriot city-states, was in full command of the entire island, with an army of 12,000 infantry, 800 cavalry and 60 warships – with Salamis as his command centre. The Ptolemaic control of Cyprus was challenged by Antigonos Monophthalmos and his flamboyant son Demetrios Poliorketes, the besieger, who had with him a much superior force of 15,000 infantry, 500 cavalry, and, most importantly, 163–180 warships.<sup>84</sup> Demetrios besieged Menelaos, who defended Salamis. Ptolemaios arrived off the coast of Salamis from Kition with a support force of 140 warships, and 200 transport ships carrying 10,000 soldiers, to relieve his brother Menelaos. What followed is known as the 'Sea Battle of Salamis', that took place in 306 BC and is rated as one of the great naval battles of ancient history from the tactics employed, the number and types of warships involved, and the importance of its outcome to the history of the wars of the successors. The result of the battle was a decisive victory in favour of Demetrios. Ptolemaios retreated to Egypt with only 60 of his 140 ships; not only had he lost 80 warships but also 100 transports, and 8000 men were captured. Menelaos had to surrender, handing over the entire island to Demetrios and his father Antigonos. In the aftermath of the battle Antigonos assumed his kingship among Alexander's successors and his son was granted the title of king. The victory of Demetrios at the sea battle of Salamis was not the end of story. Antigonos and his son Demetrios were later soundly defeated at Ipsos in 301 BC: Antigonos was killed during the battle and Demetrios was left as a king with sea power only,

<sup>81</sup> Hdt. 4.162.2–5.

<sup>82</sup> Diod. 19.62.2–6, 19.79.4–5, *Marmor Parium* B.17.

<sup>83</sup> Diod. 19.657.4, 19.59.1.

<sup>84</sup> Billows 1990: 151–55, 2019: 457–68; Diod. 20.47.1–52.6, 20.53.2–5; Plut. *Dem.* 16–18.

and no solid territorial base. Thus, it was easy for Ptolemaios, after he had rebuilt his navy, to besiege and capture Salamis in 295 BC, and with it the whole island.<sup>85</sup> In 295 BC a bitter, bloody and merciless 25-year contest (320–295 BC) for control of Cyprus ended with a victory in favour of the Ptolemaians. The year 295 BC can be regarded as the date Cyprus became finally an undisputed province of the Ptolemaic kingdom, remaining so until 58 BC, when it became a province of a much greater player – the Roman Empire.

The Battle of Salamis fought by Ptolemaios and Antigonos' navies and won by the latter, after he got the better of his old colleague and new adversary, was fought for the domination of metal and naval resources and infrastructure, as well as the sea lanes between Egypt, Phoenicia, Cyprus, and all the way to the Aegean. As already mentioned, it was fought for naval superiority and sea power, as well as for the sea network and harbours that facilitated commerce and trade.

The sea warfare over Cyprus between the successors, but especially the Battle of Salamis, is also significant for the history of ancient warfare. Of particular interest is the deployment of the larger warships – the *tetrereis*, *pentereis*, *exeireis* and *heptereis* – that tipped the balance of power in Demetrios' favour. Clearly the Cypriot shipwrights and shipyards contributed as much, in terms of design and manufacture, as their Phoenician counterparts. Suffice it to say, the Cypriot kings were already fighting with *pentereis* in the war in the Aegean and at the siege of Tyros.

### Kition

Kition in Third Economic Cycle experienced a period of economic development and consolidation, political expansion, as well as stability, all characterised by a strong Semitic dynastic rule. According to epigraphic and numismatic evidence the Semitic kings (*mlk*) of this dynasty were Baalmalek (479–449 BC), Azbaal (449–425 BC), Baalmalek II (425–400 BC), Baalaraam (400–392 BC), Melikiathon (392–361 BC), and Pumiathon (361–312 BC).

Although there is no evidence of royal presence at Kition prior to Baalmalek's rule, there is ample archaeological and textual material to support that there was substantial and continuous social and economic development managed by an operational and functional central administration. This substantial and continuous social and economic growth was a result of Kition being a thriving *emporion* with strong commercial connections to the East (Tyros, Sidon, and the other Levantine port cities) and the West (Aegean, Athens, Carthage). The sacred precinct of the Second

Economic Cycle was enlarged and reorganised, the port facilities expanded, and the sewerage works improved the city's living conditions. In spite of this its territorial extent was limited to the immediate vicinity of the city itself and the fortified harbour. This is evidenced by the limited number of extra urban sanctuaries that marked the limits of Kition's reach and legitimisation.<sup>86</sup>

This changed during the period of Persian domination, especially after the annexation of Idalion, a crucial juncture in terms of Kition's territorialisation and eventual elevation to a territorial city-state. The Kition royal administration played a clever game of not going against the interests of their Persian masters, the majority of their actions always aligned to Persian interests and directives. This did not prevent them from developing substantial commercial and trading relations with Greece, especially Athens. Their policy of alignment with Persian political interests signalled them as loyal and trusted vassals and gave them the opportunity, most probably during the early years of Azbaal's rule, c. 450 BC, to conquer and annex Idalion. The annexation of Idalion by Kition, effected with the help of the Persians, elevated the city to a major political and economic player on the island and gave it the chance to expand and consolidate its geographic reach and elevate its status to that of a formidable city-state. The city became even stronger with the annexation of the copper rich-area of Tamassos, when, as referred to above, its king sold the city to Poumatiathon between 355–341 BC.<sup>87</sup>

Alexander took Tamassos from Kition and handed it to Salamis as a reward for the latter's assistance during the siege of Tyros and presumably as punishment for Kition's non-participation in it. The issue of coinage in the name of the city and its kings, evidencing internal independence and prosperity, continued uninterrupted until it was halted in 333 BC, when all of Cyprus came under the control of Alexander. The issue of coinage in the name of King Pumiathon resumed in 323 BC, just after Alexander's death, and lasted until 312 BC, when the Cypriot city-states were caught up in the battles between Alexander's successors. Pumiathon, who allied himself with Antigonos Monophthalmos, was killed by his adversary Ptolemaios I, and the city-state of Kition ceased to exist as an independent state.

Epigraphic evidence points to a functioning bureaucracy at Kition. We are informed of the title of *spt*, possibly indicating an official with legal powers, *rb sprm*, chief of scribes, and *rb srsrm*, chief of commercial representatives,<sup>88</sup> similar to the overseer of merchants (*rab tamkaru*) discussed previously in the narrative on

<sup>85</sup> Plut. *Dem.* 35.

<sup>86</sup> Fourier 2013: 108, Fig. 4, 114; Parpas 2018: 172–176.

<sup>87</sup> Ath. 4.167c–d.

<sup>88</sup> Amadasi and Karageorghis 1977; Satraki 2012a: 303.

harbour organisation in Ugarit. These officials were presumably members of the royal family, performing similar duties to those of the *anaktes* of the royal families at Paphos and Salamis. Similar epigraphic evidence indicates various professions and craftsmen, e.g. sculptors, silversmiths, and carriage constructors.<sup>89</sup>

The existence of another rather important profession, evidenced from 4th-century textual inscriptions, is that of an official in charge of the Salt Lake.<sup>90</sup> This is evidence of the production and distribution, even perhaps long-distance trade of salt. This activity, surely a continuation from the previous economic cycles, gave employment to seasonal workers and contributed to the city's economy, even perhaps to its maritime economy. The activity was extended into Roman times, as evidenced by a Roman temple of Artemis on the Salt Lake.

### Idalion

The city-state of Idalion from the 8th century BC, and since its appearance in the inscriptions of Esarhaddon and Assurbanipal, was the dominant administrative centre of the fertile valley of the Yialias River and its surrounding copper-rich areas. During this period, c. 800 BC, the temple of Athena was constructed on the hill of Ambelleri and was the city's religious centre until its destruction c. 450 BC. The acropolis was constructed c. CG III and its fortifications strengthened.

Idalion was the administrative centre of a rich agricultural region as well as local copper producing areas. On the acropolis and in various tombs in the area several dedicatory and other cultic artifacts made of copper and bronze point to the importance that metallurgy and copper production played in the economic life of the city. The Idalion tablet was found in the Temple of Athena, indicating the importance of the site in terms of the city's administration.

The city issued its first coins very soon after Salamis and Paphos had issued the first Cypriot coins at the end of the Second Economic Cycle. Their wide circulation beyond Cyprus, as evidenced from the hoards at Demanhur, Fayum and Delta, attests to the city's industrial and commercial importance and its international connections.

Idalion was annexed by Kition c. 450 BC and, as evidenced by the archive in the Phoenician language found inside the fortified palace, it was the industrial centre for the production, storing and distribution of agricultural products, mainly olive oil and wine, as well as copper for the city-state of Kition and Idalion, while Kition was the commercial and maritime centre. The archive

was excavated under the direction of Maria Hadjicosti at the site of the fortified administrative centre on the acropolis of the city, at Ambelleri hill, between 1992 and 2012.<sup>91</sup> The archive, comprising 733 inscriptions, 702 in Phoenician and 31 in the Cypriot syllabary, is dated to the 4th century BC and possibly covering the whole century. The inscriptions, found within contexts relating to copper and olive oil production/storing, are administrative records, listing mostly agricultural products, particularly receipts and deliveries of olive oil to individuals or groups of people. This fits quite well with the copper workshops<sup>92</sup> and olive presses<sup>93</sup> found at the fortified administrative centre where the archive was discovered. Most of the names of the persons mentioned on the inscriptions are Phoenician. According to the interpretation and transliteration of a number of inscribed ostraca these individuals or groups of people received specific quantities of olive oil in containers.<sup>94</sup> Some ostraca mention deliveries to Kition and to King Milkyathon, or members of his administration.<sup>95</sup>

### Amathus

Amathus was a city-state with a well-organised and centrally controlled stratified society based on agriculture and metallurgy, as well as commerce and long-distance trade; its king was the head of a royal institution. The continuity of this royal institution is best evidenced by the expansion and development of a royal palace right through its first phase of construction in the 9th century until its last and most monumental expansion around 500 BC. From the evidence on royal dedicatory inscriptions to a female local deity, the Cypriot Aphrodite, 'Κυπρία Αφροδίτη', it can be deduced that the royal family had close associations with religion and the temple of the goddess, Aphrodite, on the acropolis. The palace, apart from being a royal residence where cultic activities were carried out, incorporated storage facilities and workshops. From statues and other findings, it seems that eastern, and especially Egyptian symbols and ideology had a great influence on the Amathusian society and its arts. The Amathus sarcophagus, dated c. 480 BC, that depicts a procession of dignitaries, among them perhaps the king of Amathus, and other cultic figures and military officials and their carriages, is testimony of a vibrant and wealthy society associated with religion and military power.

Amathus, was among the Cypriot city-states that opposed Onesilos' uprising against the Persians during

<sup>89</sup> Yon 2004: 184–185.

<sup>90</sup> Yon 1992: 303, 305.

<sup>91</sup> Hadjicosti 2017: 257–273; Amadasi Guzzo 2017: 275–284.

<sup>92</sup> Hadjicosti 2017: 270.

<sup>93</sup> Amadasi Guzzo 2017: 275.

<sup>94</sup> Amadasi Guzzo 2017: 278–280; ID A 446 (1993); ID A 443 (1996); ID A 2920 (2012); ID A 1611 (2006).

<sup>95</sup> Amadasi Guzzo 2017: 282; ID A 1202 (2003).

the Ionian revolt. The names of Amathusian kings – but no complete list exists, nor dates of reigns – are known from the city’s coinage and inscriptions, e.g. Wroikos (Ρόϊκος I), *Pu-ru-wo-so* (Πύρρος), Zoutimo (Ζώτιμος), Λυσσάδωρω (Λύσανδρος), Roikos (Ρόϊκος II), and *Εύτιμος*. The last king of Amathus, during the times of Alexander and the successors, was Androkles – who also participated in the siege of Tyros with Pnytagoras from Salamis and Pasikrates from Kourion. During the wars of the successors Androkles and Amathus joined, in 321 BC, the alliance of the Cypriot states, i.e. Salamis, Soloi and Paphos, who supported Ptolemaios. They followed the same fate of the other Cypriot city-states, although there are no details of when and how this happened. The dissolution of the city-state of Amathus is attested by the abandonment of the palace at the end of the 4th century BC.

### Kourion

The limited epigraphic and archaeological evidence linked to the city-state of Kourion continues from the Second to the Third Economic Cycle. We are informed from Herodotos that Kourion and its king, Stasanor (Στησήνωρ), were among those who did not support the Cypriot uprising against the Persians during the Ionian revolt. Kourion, with its king, Pasikrates, joined the other Cypriot city-states in the siege of Tyros.<sup>96</sup> The city does not appear from Diodoros’ narrative to have actively participated in the struggles of the successors over Cyprus. During Alexander’s control of the island, Kourion seem to have issued only copper coins and its low profile continued during the wars of the successors. There is no evidence that the city resumed the issue of their coinage for the period after Alexander’s death up to the abolition of the Cypriot states by Ptolemaios I Soter in 312 BC. This might mean that the dissolution of Kourion could have happened before 312 BC, but there is no tangible proof to support this suggestion.

### Palaepaphos-New Paphos

During the Third Economic Cycle there is evidence from 4th-century inscriptions that the Paphian kings maintained the dual role of royalty and office of High Priest of ‘*Wanassa*’, the Paphian Goddess.<sup>97</sup> This dual function is attested only for Paphian kings, although we know from Amathus and Vouni that royal authority was under the protection of divinities whose sanctuaries were housed within the palace itself.<sup>98</sup> Palaepaphos was besieged and punished by the Persians for its participation in the Cypriot uprising in the Ionian revolt in 498 BC.

The economic power of the city-state of Palaepaphos is confirmed by the 297 (from a total of 700) Cypriot coins in the Larnaca Hoard (IGCH 1272), dated c. 480–470 BC. Other markers of the city-state’s wealth and prosperity, as well as stable organisational structure, are the monumental burials and rich corpus of royal inscriptions evidencing a functioning and operational administration. From the evidence it seems clear that the kings of Palaepaphos were on good terms with the kingdom of Salamis.

The last two kings of Palaepaphos were Nikokles and his father Timarchos. Palaepaphos and its king Nicocles are not mentioned as having participated in the siege of Tyros. After 333 BC the Paphian kings stopped issuing coins in the name of their city and started issuing Alexander’s coins. Nicocles transferred his administrative centre from the Palaepaphos site at Kouklia to a new location c. 16 km to the northwest, modern Paphos, which was more suitable for a large port of commercial and military use. This city was named New Paphos. Before becoming the new administrative centre of the area this site was most probably a secondary, peripheral centre to Palaepaphos. After Cyprus was annexed as a province to the Ptolemaic kingdom, New Paphos became the capital of a unified island under the Ptolemaians. Its last king Nicocles, following his secret dealings with Antigonos Monophthalmos, was forced by Ptolemaios I Soter to commit suicide.

### Marion

The existence of the independent city-state of Marion, located near modern Polis tis Chrysochous during the Third Economic Cycle, is attested by archaeological, numismatic, epigraphic and textual evidence. Its wealth and prosperity came from its proximity to rich copper deposits and its maritime and trading activities. There is evidence of trade<sup>99</sup> and the existence of a temple as early as the 7th century BC, but Marion’s prominence, attributed to its long-distance maritime trade and the copper-rich neighbouring areas, is attested from the 5th century BC onwards by its active involvement in the turbulent years of the first half of the century,<sup>100</sup> e.g. its resistance and conquest by Kimon in 449 BC. Numismatic and epigraphic evidence exists of Sasmias and Doxandros, kings of Marion who ruled between 490–449 BC, as well as kings of the 4th century BC by the names of Stasioikos and Timocharis. The city, because of its support of Antigonos, was destroyed by Ptolemaios and its population moved to Paphos.<sup>101</sup> Thus, during the war of the successors, Marion followed the same fate

<sup>96</sup> Arrian 2.22.2; see the Nemea *Theorodokoi* list that confirms Pasikrates as king of Kourion.

<sup>97</sup> Maier and Karageorghis 1984: 205; Satraki 2012a: 221.

<sup>98</sup> Satraki 2012a: 231.

<sup>99</sup> Childs: 1994: 107; 1997: 40; Nicolaou 1986: 426; Reyes 1994: 142.

<sup>100</sup> Diod. 12.3.3.

<sup>101</sup> Diod. 19.79.4–5.

as the other Cypriot cities and ceased to exist as an independent state c. 312–310 BC.

### Soloi

The remains of a palatial building, located to the east of *potamos tou Kambou* and south towards the coast, near the acropolis and dated to the 5th century BC, reveal the existence of the administrative centre of the city-state of Soloi during the Third Economic Cycle. It is located 6 km to the east of the Vouni palace that was built high on a hill c. 500 BC. Both palaces are thought to comprise the administrative centre of Soloi, although it is not known which of the two played the role of primary centre and for which period.<sup>102</sup> Next to the Vouni palace there is the sanctuary of the goddess Athena, the protecting deity of the city of Soloi. At the palatial building to the north of the Soloi acropolis, archaeologists identified signs of destruction that can be attributed to the five-month siege laid on the city by the Persians during the Cypriot uprising in 489 BC.<sup>103</sup>

Apart from King Aretos (*Eresu*), mentioned in the Esarhaddon and Ashurbanipal inscriptions, dated 673 and 667 BC respectively, there is mention of King Philokypros, a contemporary of Evelthon of Salamis, who, according to Plutarch,<sup>104</sup> was visited by the Athenian lawmaker Solon. His son Aristokypros fought and died with Onesilos in the uprising against the Persians at the time of the Ionian revolt. During the 4th century BC something is known of Kings Stasias and Stasikrates (the former's son). The latter joined the kings of Salamis, Kourion, and Amathus in the siege against Tyros.

During the Third Economic Cycle Soloi exhibited the features of a powerful city-state, with a strong economy and naval capabilities, based on a versatile and vibrant population. This must have been the result of the city's income from the long-distance trade of copper from the neighbouring rich mines of Skouriotissa, Phoukasa, and perhaps the Tamassos area, as well as access to shipbuilding timber from the nearby Troodos forests. Soloi's power is evidenced from their participation, on an equal basis with Salamis and other Cypriot city-states, in the naval wars of the Eastern Mediterranean in 334–331 BC. Its king, Stasikrates, was one of the sponsors (*χορηγός*) at the festivities held by Alexander to celebrate his victories on the Levantine coast. During Alexander's anabasis two prominent members of aristocratic families from Soloi, Stasanor and Stasandros, undertook important satrapal positions as governors in Bactria-Sogdiana and Ariana-Drangiana.<sup>105</sup> As part

of Alexander's preparations to invade Arabia, Hieron from Soloi was entrusted with the important mission of sailing the Persian Gulf all the way to the Straits of Hormuz and reporting back with his findings.<sup>106</sup> The inscription at Ai Khanum reveals that the philosopher Clearchos from Soloi visited the area. At the Indus, Alexander, among other *trierarchs*, assigned the task of trierarchy to Nicocles, son of Pasikrates from Soloi, and Nithaphon, son of Pnytagoras from Salamis. The role of *trierarchy*, an Athenian institution, was traditionally assigned to rich and prominent individuals, Nicocles and Nithaphon being both from their respective royal families. During the war of the successors Soloi was in active alliance with Salamis, Paphos, and Amathus in support of the Ptolemaians.

Like the other Cypriot states, Soloi stopped issuing coins during Alexander's reign and issued the latter's coins instead – in copper, silver, and gold. The last coins they issued before their abolition by the Ptolemaians in 310 BC are of King Eunostos, who was married to the daughter of Ptolemaios I Soter and who probably stayed on the throne of Soloi until the end of the century.

### Lapethos

Lapethos, although its definitive location has not yet been identified, was the administrative centre of a city-state on the north coast of Cyprus during the Third Economic Cycle. The city and its kings are known from their coins, issued as early as the last decades of the 6th century BC. These kings had Phoenician names, e.g. Sidqmelek and Ba'alzakor, but also Greek ones, e.g. Androlkles, all in the Phoenician alphabet. There are also coins in the name of King Dimonikos, also issued in the Phoenician alphabet, as well as a silver didrachm in the Greek alphabet. Another king, Barik Shamash, in the last part of the 4th century BC, also issued coins in his name in the Phoenician alphabet. Thus, Lapethos was evidently a city with strong Phoenician influence, and a sign of its strength and international reach is the city's double silver *siglos* found at Persepolis, along with a coin from Paphos and a third from an unknown Cypriot mint. Also from Diodoros<sup>107</sup> we know that Praxippos, Lapethos' last king, when arrested by Ptolemaios I Soter c. 312 BC, was both king of Lapethos and in control (*δυνάστης*) of the city of Kyrenia. Kyrenia could be among the cities mentioned in the inscription of Ramses III at Medinet Habu, and thus an indicator of its probable existence much earlier, and of the interchangeability of the functions for the two sites. None of this is definitive, however, and clarification is required of this complicated subject, i.e. the political organisation of northern Cyprus during the last part of the Second Economic Cycle and the duration of the

<sup>102</sup> Satraki 2012a: 311–323 for a summary discussion on various proposals for the construction and operation of the palace.

<sup>103</sup> Hdt. 5.116.

<sup>104</sup> Plut. *Sol.* 26.2–3.

<sup>105</sup> Str. 14.6.3; Diod. 18.3.3, 18.39.6.

<sup>106</sup> Arr. 7.20.7.

<sup>107</sup> Diod. 19.79.4–6.

Third (the Archaic and Classical periods respectively). Lapethos was abolished, together with the other Cypriot city-states, by Ptolemaios Soter c. 312–310 BC.

### Tamassos

Firm evidence, numismatic or otherwise, is lacking to support that Tamassos was an independent city-state during the Third Economic Cycle. As mentioned previously, its king, Pasikypros, sold the city to Kition for 50 talents c. 355 BC, thus depriving Salamis access to its copper-rich areas. Alexander, after 331 BC, restored the rights of Salamis to the region by removing Tamassos from Kition and placing it under Salamis' jurisdiction.

## THE MARITIME ECONOMY AND NAVAL INFRASTRUCTURE

It has already been shown how, during the Second Economic Cycle, the resulting political and territorial fragmentation into self-sufficient economic territories, aided by strong territorialisation, created the consolidation of a number of fully functioning city-states, independent of each other, with distinct economic and maritime activities and international recognition. This state of affairs was carried forward and continued during the Third Economic Cycle.

### The maritime and naval economies

The overall maritime economy of the Second Economic Cycle, comprising of mobile and flexible individual maritime economies, operating from the new city-states, most of them with their own export ports, continued right through to the Third Economic Cycle. The characteristic feature of these individual maritime economies was a strong entrepreneurial organisation, supplemented by small-scale commercial and independent shippers and traders who were truly international in the way they operated. The royal houses of the individual city-states, which provided the institutional foundations and infrastructure, at the same time actively participated in their own right in maritime trade and affairs, as evidenced by the trading by Evagoras I of grain to Athens. They were supported and surrounded by religious and temple organisations, as well as aristocratic elites and rich trading families, whose power and wealth resulted from mercantile and maritime expansion in a truly international fashion. The evidence also suggests that in some cases the king and high priest were one and the same individual, as at Palaepaphos.

Cypriots had to readjust their commercial policies, become more flexible and adventurous, and look for new bases of operation and new trading routes and products, as well as additional sources of raw material and new markets and customers. An example of this

was the Cypriot trading and shipping community residing in Athens and participating in the finance and shipping of grain to the city from sources as far away as Pontos and Egypt. This was an institution that continued right through from the First Economic Cycle, with Cypriots residing in Ugarit and probably the Argolid, to the Second – at Al Mina, probably Naukratis, and the Aegean.

It was the continuation and intensification of Cypriot private initiative and open-market policies, in synergy with a friendly commercial environment with the necessary infrastructure, that provided opportunities to local as well as foreign entrepreneurs, e.g. the Athenian Andokides, who contributed to the success of the maritime economy in the Third Economic Cycle. In addition, the small, independent traders and seafarers who operated on their own over short distances along the Mediterranean coast, did much to enhance the diversification of the maritime economy.

The Cypriots were fortunate in having hundreds of years of experience in financing, as well as expertise in long-distance trade and shipping behind them to fall back on and support their mercantile entrepreneurship. In parallel to the maritime economy, a thriving naval economy was de facto created as a result of Cypriot participation in the naval battles of the Persians, Alexander the Great, and his successors. Additionally, Cypriots took full advantage of their abundant stocks of good shipbuilding timber and centuries-old skills as shipwrights, becoming, with the Phoenicians, major suppliers of *triereis*, naval equipment, and marine services. As Alain Bresson has written, 'starting from the sixth century, naval warfare introduced new constraints. It established a hierarchy between cities that had the means to maintain navies and those that did not.'<sup>108</sup> Thus coastal cities, such as Salamis, Kition, Soloi, and others, who had the necessary shipyards and means to construct warships grew in status and importance, more so than those, especially those inland cities, who could not participate in naval warfare – either as suppliers or combatants.

### Harbours, ports, and anchorages

During the Third Economic Cycle, a period of intense naval and maritime activity, the island developed a strong and powerful maritime and naval infrastructure, comprising of an extensive network of port facilities and harbours, as well as anchorages; this is evidenced by textual and epigraphic references but, most importantly, the archaeological findings.

Such ports and harbours, as elsewhere around the coastlines of the Eastern Mediterranean, were, in

<sup>108</sup> Bresson 2016: 109.

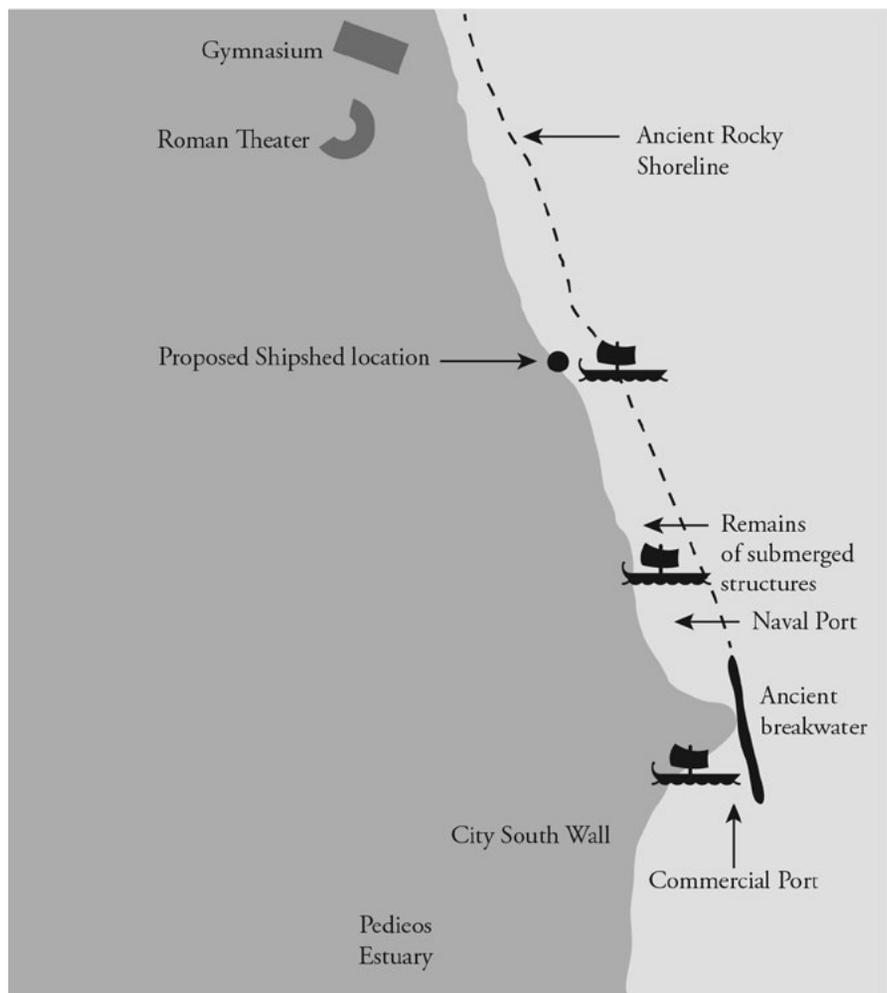


Figure 69: Salamis' harbours and probable location of shipsheds (drawing: Philipos Vasiliades, after Davies 2012: 236, fig. 1).

with typical exaggeration,<sup>113</sup> credits Evagoras I with the port's construction.

In a series of investigations, Linder and Raban (1970), followed by Fleming and his team (1974), traced the probable location of Salamis' commercial port<sup>114</sup> (Figure 69). They also identified the submerged structures in a naturally protected internal lagoon, to the north of the commercial port, as sites for ship repairs, storage facilities, and a probable naval base. Malcolm Davies<sup>115</sup> proposed another probable location for the military harbour of Evagoras I c. 700 m to the north of the commercial port, with the probable remains of naval shipsheds with a capacity of up to 38 *triereis*.<sup>116</sup>

*Kition*

The port of the city-state of Kition during the Third Economic Cycles, in association with the administrative and religious centre, is located in the area

of *Bamboula*<sup>117</sup> (see Figure 39). The port at Bamboula is located south of the old harbour at *Kathari*, in use as an open harbour since the first part of the Second Economic Cycle. Geophysical investigations at *Bamboula* point to the existence of a lagoon connected to the sea via a channel.<sup>118</sup> Archaeological remains indicate the eventual development of a closed fortified port, *Λιμὴν κλειστός*, as referred to by Strabo.<sup>119</sup> Recent excavations (c. 1500 m<sup>2</sup>) have revealed the existence of six shipsheds used for the protection of *triereis* which we will look in more detail later in this chapter.

*Salamis*

Salamis during the Third Economic Cycle developed into one of the most powerful political and economically important city-states of the island with important maritime and naval infrastructures. We know from Pseudo Scylax,<sup>110</sup> Diodoros<sup>111</sup> and Plutarchos<sup>112</sup> that the city had a harbour, presumably for commercial and military operations. Pseudo Scylax describes the harbour being of closed construction and well able to accommodate ships during the winter. Isokrates,

addition to their commercial and military roles, points of cultural exchange and geostrategic information. This is amply demonstrated by the Syracusan traveller who, in 397/396 BC, observed in Phoenicia a fleet of 300 warships being assembled for the Persian navy. He conveyed this information to Sparta to trigger<sup>109</sup> Agesilaos' campaign to Asia Minor.

*Amathus*

Amathus, since its foundation, was a busy *emporion* with long-distance trade – both to the West and East. There is very little evidence of the actual port site

<sup>109</sup> Xen. *Hell.* 3.4.1–4.  
<sup>110</sup> Pseudo-Scylax. *Peripl.* 103.  
<sup>111</sup> Diod. 20.50.1.  
<sup>112</sup> Plut. *Dem.* 16.1.

<sup>113</sup> Isok. *Evag.* 47.  
<sup>114</sup> Raban 1995: 163–164; Fleming 1974: 169–170.  
<sup>115</sup> Davies 2012; 2016.  
<sup>116</sup> Davies 2016: 3; Munro-Tubs 1891: 94, pl. V; Socratous 2018: 30–33.  
<sup>117</sup> McKenzie 2013: 349; Yon 1994: 8–10.  
<sup>118</sup> Morhange *et al.* 2000; Theodoulou 2006: 159.  
<sup>119</sup> Str. 14.6.3.

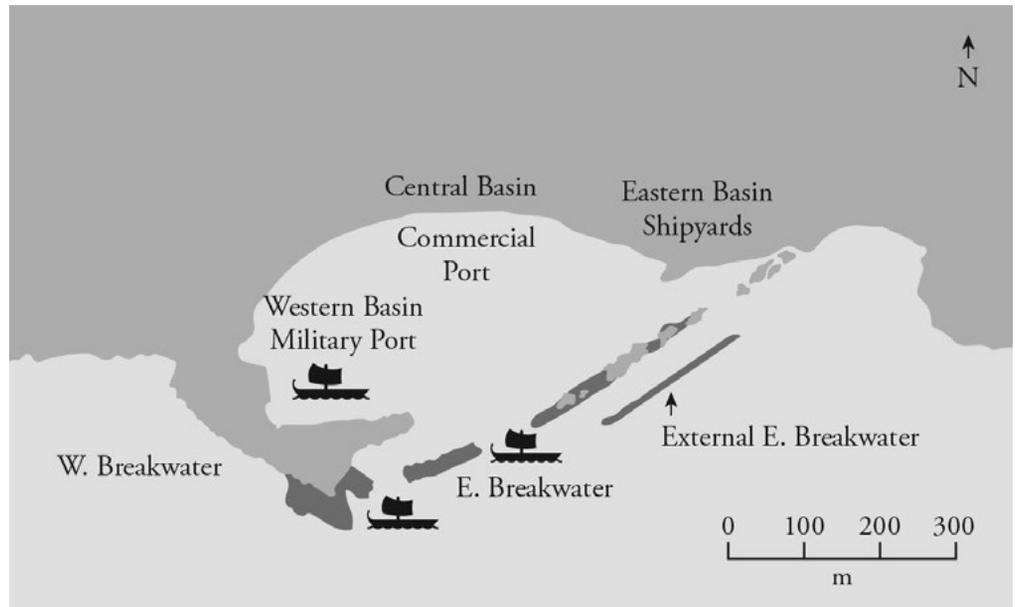


Figure 70: The 'closed port' at New Paphos (drawing: Philipos Vasiliades, after Leonard 1998: 151, fig. 4).

from where this trade was carried out except for indications of a lagoon that served as an anchorage, southwest of the city's acropolis, near the agora.<sup>120</sup> A harbour is also mentioned by Pseudo-Scylax. Geophysical investigations suggest the harbour matched the Phoenician prototype known as *cothon*, not an unreasonable hypothesis taking into account the close contacts between Amathus and the nearby Levantine ports. In late 4th century BC, the lagoon became unusable due to heavy silting, and a new and much larger harbour was begun to the south of the old port.<sup>121</sup> The remains of the new port, also characterised as closed port and built mainly to accommodate a naval fleet, are presently visible under the sea, off the coast of Amathus. The harbour, whose construction was not finished, is attributed to Demetrios Poliorketes<sup>122</sup> after his victory at Salamis in 306 BC. Most probably it was Ptolemaios I Soter who stopped after finally annexing all of Cyprus to his kingdom in 295 BC.

#### Kourion

The exact locations of Kourion's port, or ports, are still unknown.<sup>123</sup> Probable locations might include Ayios Ermogenis, where structures resembling a breakwater have been identified, or the mouth and estuaries of the Kourris River. Another possibility, for the existence of an anchorage in the area, as investigated and discussed by Socratous,<sup>124</sup> is the bay of Tripiti (Τρυπητή),<sup>125</sup> a potential anchorage site in connection with the sanctuary of the

nearby temple of Apollo Hylates, via a tunnel passage high up the cliff overlooking the bay.<sup>126</sup>

#### Palaepaphos-New Paphos

There is to date no archaeological or other direct evidence for the existence of an anchorage or port at Palaepaphos. Iacovou believes the port was most probably at *Loures*, a lagoon with access to the sea which was silted and abandoned c. the end of the 4th century BC.<sup>127</sup> There are also signs of a probable anchorage and marine activities at *Achni* off the coast.<sup>128</sup> Herodotus notes that Paphos participated in Xerxes' campaign against Greece, contributing twelve warships under Penthylos,<sup>129</sup> most probably a prominent member of the royal family, an indication of the city's naval and maritime capabilities. There is no mention by Alexander's historians of Paphos participating in the siege of Tyros in 331 BC that had included the navies of Salamis, Soloi, Amathus, and Kourion. This seems to suggest that most probably at that time the city's naval capabilities were very much reduced due to the silting of its port. This is a hypothetical deduction and there is no evidence of how the silting affected Paphos' maritime and long-distance trade activities.

Towards the end of the 4th century BC, or even c. 295 BC when Cyprus was finally integrated within the Ptolemaic kingdom, a new port was established at the newly founded administrative centre at New Paphos. Strabo<sup>130</sup> confirms its existence along with sacred temples. The port at New Paphos became the major, if not the only, naval base in Cyprus for the Ptolemaians

<sup>120</sup> Aupert 1979: 727–728; 1980: 217–231.

<sup>121</sup> For Amathus' internal anchorage and external port, see Aupert 2000: 12–13.

<sup>122</sup> Empereur *et al.* 2017: 114–116.

<sup>123</sup> Christou 1997: 371; Socratous 2018: 49–60; Theodoulou 2006: 142.

<sup>124</sup> Socratous 2018: 51–60.

<sup>125</sup> For Kourion and Episkopi Bay, see Socratous 2018: 102, Fig. 53.

<sup>126</sup> Leonard 2005: 568; Leidwanger 2004.

<sup>127</sup> Iacovou 2012: 64; 2017: 200.

<sup>128</sup> Howitt-Marshall 2012.

<sup>129</sup> Hdt. 7.98.1.

<sup>130</sup> Str. 14.6.3.

during the Hellenistic period.<sup>131</sup> From various archaeological expeditions and exploration works<sup>132</sup> it is reckoned that the port was a closed harbour with three inner basin sections for distinct activities. The proposed organisation of the port is that the western section was used for the military fleet, the central one for commercial activities, and the eastern for fishing boats, shipbuilding, and repairs (Figure 70). According to Vitas<sup>133</sup> study, the naval installations at Paphos, compared to similar facilities in the Mediterranean, were medium to large and could most probably accommodate up to 100 shipsheds of the type excavated at Kition.

#### Marion

The harbour of the city-state of Marion is located next to Polis tis Chrysochous at the estuary of the Chrysochous River, on Cyprus' northeast coast, at the fishing harbour of Latsi. Pseudo-Scylax refers to Marion as having, like Lapethos, Amathus and Kyrenia, a 'deserted' port (*ἔρημο λιμάνι*).<sup>134</sup>

During preliminary investigations in the proposed area of the ancient harbour the remains of a jetty and ancient mole have been located, as well as a north-western breakwater arm made of ashlar blocks.<sup>135</sup> Theodoulou<sup>136</sup> has proposed a possible sequence for Marion's harbour facilities, i.e. that in the Archaic period the city's maritime needs were serviced by an anchorage where the ships were run up or hauled onto the beach; later, during the first part of the Third Economic Cycle, a lagoon might have existed at the estuary of the Chrysochous River that could have operated as a *cothon*-type harbour; in the last part of the 4th century BC a closed-type harbour was constructed near Latsi and this, most probably, had not reached its final construction phase when the city-state was abolished by the Ptolemeans.

#### Soloi

The harbour of the city-state of Soloi is located to the east of *potamos tou Kambou*, next to the jetty of the 'Cyprus Mines Corporation' (*Karavostasi*), from where the copper from the Skouriotissa and Phoukasa mines was exported in the 20th century AD in the same way as it had been in Archaic and Classical times from the nearby ancient harbour. The ancient harbour was protected by the city walls that extended up to the two

breakwater banks, forming a closed harbour,<sup>137</sup> similar to the layouts of the closed harbours of New Paphos, Amathus, and, presumably, Salamis.

Pseudo-Scylax describes the harbour at Soloi<sup>138</sup> in the same way he does Salamis, i.e. *χειμερινόν λιμένα*, which means a closed port suitable to accommodate ships during winter; Strabon also mentions that this city-state had a port.<sup>139</sup> Theodoulou, during a brief underwater investigation, confirmed the existence of two breakwaters of ashlar blocks, an eastern one c. 110 m long, and one running west, c. 80 m in length.<sup>140</sup>

#### Lapethos

Strabon and Pseudo-Scylax<sup>141</sup> refer to Lapethos as having a harbour with probable shipbuilding and maintenance facilities (*ὑφορμον και νεώρια*). The harbour, opposite the city's acropolis, was of open construction,<sup>142</sup> with two protective breakwater banks extending into the sea.<sup>143</sup> Some remains of these were still visible during Nikolaou's archaeological investigations of 1957–1959.<sup>144</sup>

#### Shipsheds – Kition

Warships had to be kept in safe and protected places where they could be properly maintained during peacetime, and thus kept seaworthy and ready for launching. Special shipshed<sup>145</sup> stations (*neosoikoi*) were built for this purpose and were to be found in the military harbours (*naustatmoi*) of large and wealthy maritime and naval powers, e.g. Athens had c. 400, Carthage 220, and Syracuse over 300, although minor navies also built them, e.g., inter alia, Chios, Korinth, and Knidos.<sup>146</sup> Cyprus has provided textual evidence for local kings providing large fleets in naval actions, occasionally supplying hundreds of warships to the Persian fleets. As we have already seen, however, apart from six *neosoikoi* found at Kition,<sup>147</sup> and perhaps at Salamis,<sup>148</sup> there is insufficient archaeological proof for the existence of corresponding dockyards and fortified installations (*neoria*), with the appropriate shipsheds, where such Cypriot warships were kept in times of peace. Kition's shipsheds are to be found on the south side of Bamboula harbour (Figure 72); although only

<sup>131</sup> Socratous 2018: 21.

<sup>132</sup> Daszewski 1981: 236–237; Hochfelder 1995; Leonard and Hochfelder 1993; Leonard *et al.* 1998: 141–175; Mlynarczyk 1990: 94–105, 177–184; Socratous 2018: 23–26; Theodoulou 2006: 133–137.

<sup>133</sup> Vitas 2013: 134.

<sup>134</sup> Pseudo-Scylax. *Per.* 103.

<sup>135</sup> Theodoulou 2006: 105–123.

<sup>136</sup> Theodoulou 2006: 122.

<sup>137</sup> Gjerstad *et al.* 1937: 402; Westholm 1936:12.

<sup>138</sup> Pseudo-Scylax. *Per.* 77.103.

<sup>139</sup> *Str.* 14.6.3.

<sup>140</sup> Theodoulou 2006: 221, n. 122.

<sup>141</sup> Pseudo-Scylax. *Per.* 103; *Str.* 14.6.3.

<sup>142</sup> Theodoulou 2006: 201–202.

<sup>143</sup> Nicolaou 1976: 134–135.

<sup>144</sup> Nicolaou 1976: 134, fig.1; Leonard 1997: 181, fig. 12.

<sup>145</sup> Shipshed is the standard term used for the Greek word *neosoikos* to describe covered slipways in ancient times. *Neorion* is used to describe dockyard complexes.

<sup>146</sup> Baika 2013: 235.

<sup>147</sup> Theodoulou 2006: 173–176; Socratous 2018: 36–42.

<sup>148</sup> Davies 2016: 3; Munro-Tubs 1891: 94, pl. V; Socratous 2018: 30–33.

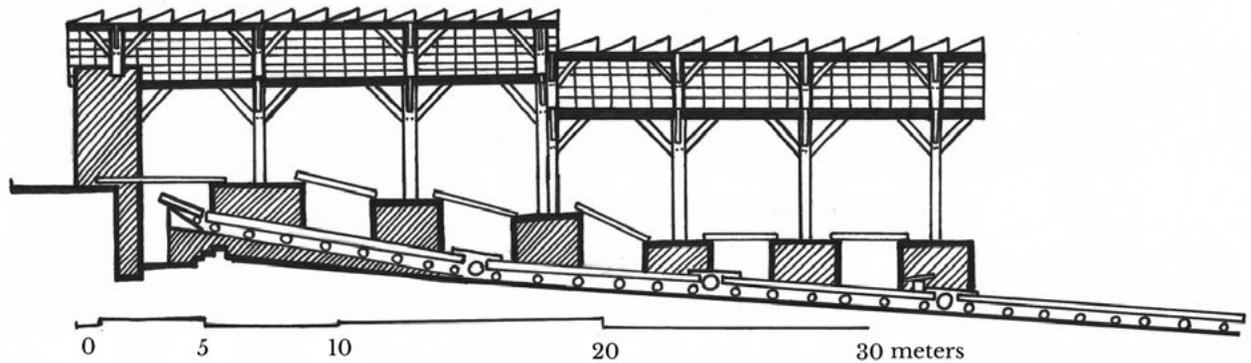


Figure 71: *Reconstructed section of the Kition shipshed, phase 1*  
(drawing: Katerina Parpas, after Blackman 2013: 127, fig. A8.3; Callot in Yon 2000: 110, fig. 11b).

six are presently visible they were most probably part of a station of ten to twelve *neosoikoi* on that side of the harbour. Excluding the period of the Cypriot War, and especially the events of King Evagoras, there is no evidence, textual or otherwise, that the Cypriot kings had extensive fleets with fighting *triereis* of their own, rather they built *triereis* and supplied complements and oarsmen mainly for the Persian navy, against specific orders, for particular campaigns, e.g., inter alia, the naval campaigns against Greece, the Battle of Lade, and for campaigns on the Eurymethon River, at Knidos, and against the Egyptians. With the evidence to date one might suggest that their Persian overlords found it more suitable and tactically better and safer to use Cyprus to build and supply warships and crews, instead of using it as a naval base where they could station large fleets of *triereis*. It is also not out of the question to think that they used coastal city-states as naval bases in Phoenicia, Kilikia, and along the coast of Asia Minor, where they could have easier control with their land forces. Herodotos, for example, remarks that a Persian *hyparchos* resided in Kyme in 480 BC, and from where he commanded a squadron of fifteen ships.<sup>149</sup> Strabon also mentions the presence of ancient (Persian) installations (*παλαιά νεώρεια*) in Kilikia.<sup>150</sup> The alternatives would have been too expensive, requiring a large military presence and complex logistical support to maintain a large operational naval base on Cyprus. This may explain why Cypriot harbours are modest in size and why large permanent facilities and *neoria* with shipsheds are not found.

Another reason for not finding extensive shipshed installations on Cyprus might be that hauling a *trieres*, weighing c. 20 tons empty, even up well-designed shipsheds with a stable foothold, on oiled timbers, would still require substantial human effort,<sup>151</sup> as well as mechanical means by ropes, pulleys, and winches.

Hence mooring at anchor offshore for *triereis* was also common practice. There are several instances in Herodotos and Thukydides where it is clear that naval fleets were mostly moored in this way,<sup>152</sup> and Aeschylus states specifically that fighting ships sought secure moorings with anchors and onshore cables.<sup>153</sup>

The Kition shipsheds were erected in three phases: phase 1 at the end of the 5th century BC; phase 2 was a rebuild after a destruction event (375 BC), and involved raising the height of the ramps; phase 3 took place at the end of the 4th century BC, even perhaps after the Ptolemaic conquest of Cyprus.<sup>154</sup> Kition's shipsheds measure c. 5.2 m x 35–40 m, i.e. similar to the Zea shipsheds at Pireaus (see Figure 71), possibly indicating that the *triereis* stored there were built to Athenian standards.

It is estimated that, c. 350–330 BC, around 4700 man-days would have been required to build a shipshed at Zea, and that the cost was between 1 and 1.5 silver talents each.<sup>155</sup> Considering a labour cost of between 3–6 *obols* per man per day, the total labour cost of building a shipshed was between 14,000 – 28,000 *obols* each. Similar cost estimates could reasonably apply to Cyprus, and would have been affordable for a shipbuilding industry of the scale suggested by the written evidence referring to the island. More such shipsheds may well exist around the island, awaiting the researches of archaeologists.

### New advances in warships

As mentioned previously, Cyprus was considered among the leaders in maritime and naval affairs in the Eastern Mediterranean, and this was a tradition that continued right through all three Economic Cycles under consideration. A major Cypriot contribution in

<sup>149</sup> Hdt. 7.194.1.

<sup>150</sup> Str. 14.5.10.

<sup>151</sup> Votruba 2017: 15.

<sup>152</sup> Harrison 1999: 171.

<sup>153</sup> Asch. *Suppliants*: 764–766; Votruba 2017: 17.

<sup>154</sup> McKenzie 2013: 356–357.

<sup>155</sup> IG 2(2) 505, 12–17; Pakkanen 2013: 73.

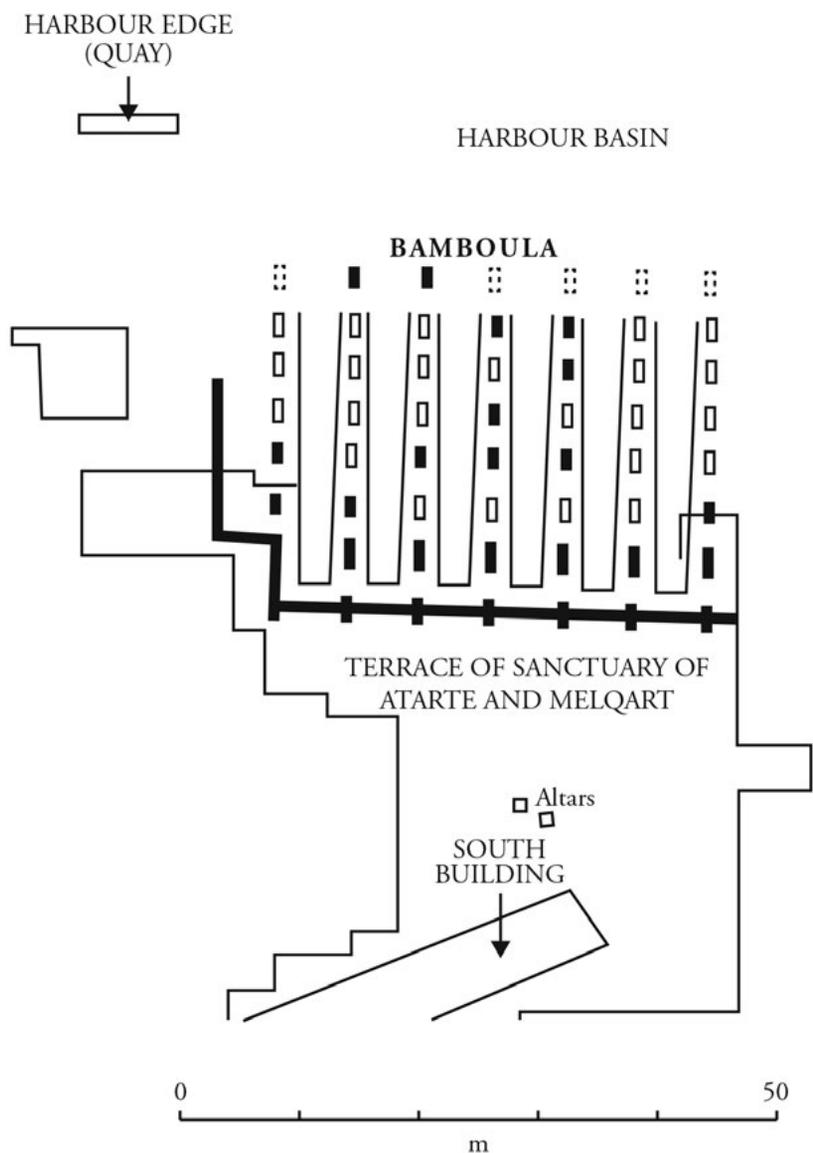


Figure 72: Top : Location of Kition's shipsheds (drawing: Philipos Vasiliades, after McKenzie 2013: 351, fig. B 9.1b; Callot in Yon 2000: 96, fig.1).

Figure 72: Bottom : Ramps and slipway structures of Kition's shipsheds.

the 4th century BC was their involvement in designing and building a new series of larger warships – the *polyereis*.

Since the end of the Second Economic Cycle, i.e. mid 600 BC, for about three hundred years until the last half of the 4th century BC, naval warfare was dominated by the *trieres*. The *trieres* was an oared galley of complex and expensive design that depended on speed and tactics, and functioned by ramming at speed, then releasing the marines on the top deck to storm the enemy ship and overpower their opponents.

From the middle of the 4th century BC new line-of-battle ships were developed in Phoenicia, Cyprus,<sup>156</sup> Athens, Carthage, and Syracuse that were larger and more stable – the *tetreireis* and *penteireis*.<sup>157</sup> As the name implies, instead of the traditional three rows per side, they were powered by four and five rows of oarsmen on each side respectively. According to Polybios, a *penteires* had c. 150 oarsmen per side, i.e. 300 per ship. It is estimated that the ship could carry up to 120 marines, plus officers and non-military personnel. These vessels were more stable, robust, and powerful than a *trieres*: they were also more manoeuvrable and could operate as floating, multitask platforms. A combined fleet of *triereis* and the larger *tetreireis* and *penteireis* was an unbeatable formation. At the siege of Tyros, Alexander chose a Cypriot royal *penteires* for his flagship,<sup>158</sup> in his naval wars in the Eastern Mediterranean, between 334–331 BC, the Salaminian king Phnytagoras opted for a *penteires*;<sup>159</sup> and during the Battle of Salamis (306 BC) the Ptolemaic navy was comprised exclusively of *tetreireis* and *penteireis*.<sup>160</sup> During the same period, massive galleys, the *polyereis*, even wider and longer in design, e.g. the *hexeires* (two rows of six per side) and *hepteires* (two rows of seven per side) were deployed. Each increase in class resulted in heavier, broader-beamed warships with corresponding increases in ramming power (although this meant a decrease in speed and manoeuvrability). Demetrios was able to defeat Ptolemaios' navy at the Battle of Salamis because, in addition to his *triereis* and *tetreireis*, he had twenty *penteireis*, ten *hexeireis*, and seven *hepteireis*.<sup>161</sup>

These massive vessels were effectively used for the first time as fighting platforms for marines and shipborne artillery and catapults. Meijer opines that such ships 'were designed on the wharves of Phoenicia and Cyprus', a view which is corroborated by the fact that later developments of these galleys occurred mainly

in Phoenicia and Cyprus.<sup>162</sup> Pliny<sup>163</sup> writes that the 'Salaminians' are credited by Mnesigiton as having advanced the invention of the *penteires*. According to the same source, drawing on Aristotle, the invention of the *tetreires* is credited to the Carthaginians. The new catapult artillery used on the *penteires* and *hexeires* was most likely invented in Syracuse at the beginning of the 4th century BC.<sup>164</sup> Typically, Demetrios had a large *ενδεκίηρης*<sup>165</sup> (eleven rows) constructed on Cyprus, and, according to an inscription found in the Palaepaphos temple of Aphrodite, Ptolemaios II Philadelphos honoured the Paphian shipwright, Pyrgoteles (Figure 73 Top), for constructing<sup>166</sup> a *τριακοντήρη* (thirty rows) and *είκοσήρη* (twenty rows) – double-hull warships<sup>167</sup> with two prows and two sterns each. These great ships, built around the end of the Third Economic Cycle, clearly delighted Ptolemaios and he ordered a second *τριακοντήρη*, thirty rows, presumably again designed and built by Pyrgoteles. An imposing account has survived: '[Ptolemy II] Philadelphus stood apart from all other kings in wealth and strove so zealously in regard to all his constructions that he surpassed everyone even in the number of his ships. Indeed, the largest of the ships included two "thirties", one "twenty", four "thirteens", two "twelves", 14 "elevens", 30 "nines", 37 "sevens", five "sixes", and 17 "fives". He had twice as many ships as these from "fours" to triemioliai; and the ships sent to the islands and the other cities he ruled and to Libya numbered more than 4000.'<sup>168</sup>

These ships were used presumably for display, although Demetrios in the 290s BC did use 'sixteens' in active warfare. Their design and construction by Cypriot shipwrights evidence the long-standing Cypriot tradition expertise in shipbuilding. This tradition and such technological advances are also confirmed by the discovery off the coast of Athlit (Israel) in 1980 of a large, 465 kg, bronze ram from a warship. The symbols on the ram suggest that it was cast on Cyprus for the Ptolemaic fleet c. the end of the 3rd century BC. As previously mentioned, such casting traditions must have existed on the island for centuries, presumably initially used for commercial purposes and later for military ones, e.g. rams. Although the ram found was first thought to be from a large, heavy galley, its size and weight now suggest that it came from a smaller ship,<sup>169</sup> probably a *tetreires* or *penteires*. The ram was apparently cast in a single 'pour' of bronze – a considerable technological achievement (Figure 73, Bottom), even for today's

<sup>156</sup> Meijer 1986: 119.

<sup>157</sup> Parpas 2013: 199–203.

<sup>158</sup> Curt. 4.3.11.

<sup>159</sup> Arr. 2.22.2.

<sup>160</sup> Diod. 20.49.2.

<sup>161</sup> Diod. 20.50.2–3.

<sup>162</sup> Meijer 1986: 119.

<sup>163</sup> Plin. 7.208. It is generally accepted that Pliny is referring here to Cyprus, rather than the island of Salamis off the coast of Attica.

<sup>164</sup> Diod. 14.42.1

<sup>165</sup> Plin 16.203.

<sup>166</sup> Athen. *Dipn.* 5.36.

<sup>167</sup> Murray 2012: 184.

<sup>168</sup> Athen. *Deip.* 5.203d (TLG, 5.36 11–21).

<sup>169</sup> See Murray 2012: 32.



Figure 73: Top : Inscription on the base of a statue at the temple of Palaepaphos dated c. 282-246 BC, reading: ΠΤΟΛΕΜΑΙΟΣ ΠΥΡΓΟΤΕΛΗΝ ΖΩΗΤΟΣ ΑΡΧΙΤΕΚΤΟΝΗΣΑΝΤΑ ΤΗΝ ΤΡΙΑΚΟΝΤΗΡΗ ΚΑΙ ΕΙΚΟΣΗΡΗ (after Nikolaou 1971: 20, plate XX; courtesy Department of Antiquity, Cyprus). Bottom : Bronze ram fitted on 'Olympias'. The ram, a significant feature in the construction of trieres, was a technological advancement well known to Cypriot shipwrights (photo: the author).

foundries.<sup>170</sup> The ‘lost-wax’ process was used, common for producing hollow bronzes during the Classical and Hellenistic periods.<sup>171</sup> The ram had to be custom made to match the asymmetry of the ship’s bow. This required the makers to build up a wax model of the final ram directly on the actual bow of the warship for which it was intended.<sup>172</sup> This meant both ram and warship were built at the same shipyard in Cyprus, giving the Cypriot shipbuilding industry a comparative advantage.

Cypriot shipwrights are also credited with the invention and construction of commercial cargo ships, among them the *κέρκουρος* (*kerkouros*),<sup>173</sup> widely used as a support vessel carrying personnel, cargo, and equipment; Alexander, for example, used *kerkouroi* for troop transport during his campaign in India.<sup>174</sup> It is thought these boats were similar to the *hemioliai* (‘one and a half’) type of cargo and transport ships that were presumably rowed with one and a half files of oars per level.<sup>175</sup> Cypriots, c. 325 BC, supplied pre-constructed ships, together with the necessary gear (bronze and furniture, hemp and sails) to Alexander’s navy, intended for his campaign against Arabia.<sup>176</sup> One can therefore identify an important continuation of the multi-dimensional Cypriot institutional tradition and involvement in the naval affairs of the Eastern Mediterranean. Cyprus was in the unique position of being able to supply good shipbuilding timber, as well as making available state-of-the-art shipyards and skilful, innovative shipwrights who made a major contribution to the design and development of warships, specialised weapons and equipment, as well as ships for commercial and transport purposes.

### The sail-making industry

It follows logically that on the back of the shipbuilding industry other related industries and skills would also develop. One such, which played an important role in the development of textile production, was sail-making. Given the large numbers of *triereis*, *tetrereis*, and other warships, as well as support vessels, merchantmen, and other commercial ships (*ὀλκάδες*), the demand for sails must have been enormous. A prerequisite of a good sailing ship was sails of the necessary strength and quality that would match the renowned Cypriot shipbuilding timber. Good sets of sails could provide improved windward performance and speed, and thus increase maritime and naval economic productivity. Technological advances in sail-making over the three

Economic Cycles under consideration were relatively slow, and for the entire period vessels were rigged with only one type – the square sail. Nevertheless, the required sizes and numbers of sailing vessels point to the need for an industrial production that would run in parallel with the shipbuilding industry, rather than relying on individual production ad hoc.

Although direct proof is lacking, the importance of shipbuilding for the Cypriot maritime and naval economy would make it reasonable to infer that a sail-making industry would have existed on the island. In Athens there is such evidence in the use of the term *hístiorraphos*, referring to a specialised craftsman assembling different pieces of cloth to make sails.<sup>177</sup> Other ancient sources indicate that Egyptian sails were imported to Greece,<sup>178</sup> but there is no such evidence for Cyprus.

Flax is the most suitable raw material for making strong, durable sails, as when its fibres get wet they increase in strength, thus providing a suitable fabric for marine applications. Pseudo-Xenophon informs that flax was one of the most important materials for navies,<sup>179</sup> but it is unknown whether sufficient flax of suitable quality was produced on Cyprus for this purpose. From the obvious need for substantial quantities of raw flax and linen fabrics, it is reasonable to presume it was provided both by local production and imports. Egypt was the nearest and most probable source of imported flax, and evidence of good flax quality linen being imported to Cyprus from Egypt appears in the Amarna Letter EA 34.<sup>180</sup> We may therefore presume that Egypt could have supplemented local production and supplied raw flax, and even finished fabrics, for the preparation of sails. Thus, in the bilateral trade between Cyprus and Egypt shipbuilding timber from Cyprus might have been exchanged for Egyptian flax and fabrics to manufacture sails for ships.

### Evidence from maritime archaeology

As demonstrated in several places above, shipwrecks continue to provide essential new data for maritime trade in the past. Fortunately, many such wrecks dated to the Third Economic Cycle have been excavated all over the Mediterranean, revealing a wealth of information in relation to shipping routes, trade practices and traditions, ship construction, and many other details relevant and useful for the study of ancient maritime trade.

<sup>170</sup> Eisenberg 1991: 40; Murray 2012: 35.

<sup>171</sup> Oron 2006.

<sup>172</sup> Oron 2006; for discussion, see Murray 2012: 35–37.

<sup>173</sup> Plin. 7.208.

<sup>174</sup> Arr. 7.20.3–5.

<sup>175</sup> For discussion, see Meijer 1986: 142.

<sup>176</sup> Str. 16.1.11 and Curt. 10.1.19; for discussion, see Parpas 2016: 86–87.

<sup>177</sup> Ar. *Thesm.* 935, 129.

<sup>178</sup> Nosch 2014; Spandidaki 2016: 22.

<sup>179</sup> Xen. *Ath. Pol.* 2.11, 129.

<sup>180</sup> EA 34, iii; Spandidaki 2016: 11. There is evidence, from a syllabic inscription found at Kafizi near Idalion, dated by Mitford to between 225–218 BC, that flax was possibly cultivated at various locations on the island (Mitford 1980). It is not unreasonable to consider that the cultivation of flax was known on the island from earlier dates.

### The Alonessos shipwreck

Although not directly related to Cypriot maritime activities, a wreck dated to the Third Economic Cycle (last quarter of the 5th century BC), was found off the island of Alonessos and has provided important information on the development of large merchantmen in this period. The vessel was carrying an estimated total of 4000 – 4200 *amphorae*, the remains of which extended over an area of c. 25 m x 14 m on the seabed. The amphorae contained wine from Mende on the Chalkidiki Peninsula, as well wine from the island of Skopelos, and were stacked in three to four levels. Below the lower level was a consignment of pottery of Athenian origin and banqueting equipment.<sup>181</sup> The Mende amphorae were stacked on top of the ones from Skopelos, suggesting the final destination of the ship was Athens, although a probable connection with the grain trade at Pontos should not be excluded. Although wine from Mende was highly rated, wine from Skopelos was considered second rate, an indication that trade of wine was not restricted just to quality wines. This could have been significant for Cypriot shippers, who may thus have been able also to trade lower-quality wines if superior vintages were unavailable.

The hull of the Alonessos wreck was at least 25 m long, with an amphora cargo estimated at 126 tons, suggesting a ship with 150 tons burden. It is in fact the largest wreck known of its time and is only exceeded in capacity by later Hellenistic and Roman ships. This indicates therefore that larger merchantmen were available during the Third Economic Cycle compared to the previous periods, which has a relevance for the international trade of grain, a relatively bulky, low-density commodity needing economy of scale for its transportation, best provided by large ships with wide-beamed hulls.

It might not be unreasonable to consider that, in the case of *Lakritos*, which will be discussed in following sections, the merchantman that transported the 3000 amphorae of wine from Chalkidiki to the Baltic Sea, and then transported grain back to Athens, might be of similar construction and approximate capacity to the Alonessos wreck. It would also make sense for the Cypriot merchant, Herakleides, when delivering 3000 *medimnoi* (157,950 l) of grain from Pontos to Athens, during the time of the famine, to have used a vessel of similar capacity to the Alonessos wreck. The same might have applied, in terms of the transport method used, for Evagoras I when supplying grain to Athens. These ships might not have differed much in construction from the *kerkouros* type of commercial cargo vessel<sup>182</sup> pioneered in Cyprus.

<sup>181</sup> Gibbins 2001: 273–312; Carlson 2013: 1–3.

<sup>182</sup> Gibbins 2001: 286, n. 42.

### The Mazotos, Ma'agan Mikhael, and Kyrenia shipwrecks

Cyprus' involvement in intensive maritime activities and seaborne trade, involving its trading community and commercial fleet, is indicated by the 'ceramic fleet' of 53 Archaic clay models of merchantmen and oared ships found in the tombs of Amathus.<sup>183</sup> An attempt can be made to reconstruct these activities and trade networks, as well as practices in relation to the Third Economic Cycle, by looking at two shipwrecks dated c. 4th century BC found in Cypriot waters, and a 5th-century BC vessel lost off the Levantine coast carrying Cypriot goods, i.e. the Mazotos and Kyrenia wrecks, and the ship that sank off Ma'agan Mikhael respectively. None of these three ships come close in size to the 5th-century BC Alonessos shipwreck, indicating that these smaller craft were still in use, especially by independent shippers. In fact, it is more likely that they formed the bulk of merchantmen ships carrying out regular day-to-day trade in this period, as they were more economical to build, maintain and operate, and thus more useful for the type of trade they undertook. Presumably this was also favoured by money lenders, who could minimise their risk by having a more distributed and diversified investment portfolio. Let us look at each one of them individually.

#### The Mazotos shipwreck

A Greek merchant ship carrying wine from Chios was sunk off the south coast of Cyprus near the modern village of Mazotos. The wreck, discovered in 2006, is dated to the middle of the 4th century BC, c. 380–350 BC, and was carrying c. 800 amphorae, in its majority Chian, and weighing c. 28 tons.<sup>184</sup> Most of the Chian amphora hold c. 22 l, although a number of them are smaller (11 l). In addition to the Chian amphorae there is a smaller number of six different forms, possibly from Kos, Samos, and Mende, that constituted perhaps a secondary cargo of other products, among them olives. The amphorae were stowed in four layers.

The Mazotos wreck was a medium-sized vessel, estimated at 17.5 m x 8 m, with 1 m maximum vertical relief.<sup>185</sup> The ship seemed to have taken a regular trade route from the North Aegean towards Cyprus or the Levant. On reaching Cape Akamas it must have taken the usual route, in a southerly direction towards Amathus and Kition; its final destination could have been Kition, Salamis, or perhaps any of the Phoenician *emporía*.

<sup>183</sup> Demesticha 2019; Westerberg 1983.

<sup>184</sup> Demesticha 2017: 289; 2019. The estimation is based on an average gross weight of 35 kg per amphora.

<sup>185</sup> Demesticha 2011: 40; 2017: 287.

Wines from Chios had a very high reputation and must have been rated amongst the most expensive available, and the Mazotos ship's contents must have been destined for aristocratic clientele in Cyprus or the Levant, or both. The vessel could have been on a return trip from the Aegean, where it probably delivered its cargo of Cypriot products (copper or grain) or Levantine goods from the Phoenician coast. The period of the wreckage is just after the King's Peace and is indicative of favourable conditions for trade, with sea warfare and volatility between the Greeks and the Persians in the Eastern Mediterranean at their lowest levels. Chios during this period was going through a period of autonomy and independence from Athenian influence, and its trade activities mainly with the Black Sea, and to a lesser degree with Near Eastern *emporía*, are well attested to have flourished.<sup>186</sup> From the evidence of the Mazotos wreck it is evident that luxury Aegean wines must have extended their reach to the East, where Cyprus, as usual, was either a favourite destination or a convenient stopover station on the way to the Levant.

The market value of the wine cargo on the Mazotos wreck can be estimated at c. 18 drachmas per 22–23 l amphora.<sup>187</sup> Taking, for example, a hypothetical order for 700 amphorae at 22 l average each, then a total estimate for the Chian wine on the Mazotos ship might have been c. 12,600 drachms (700 x 18), translating to a total of 2.1 talents (12,600 ÷ 6000) in silver, i.e. a comparatively expensive cargo.

It should be remembered that Aegean amphorae account for only 9% of those found in Cyprus, compared to 22% of Eastern origin.<sup>188</sup> This can be taken as an indication of the volume of trade between Cyprus and the Aegean in relation to corresponding business from Eastern trading centres.

### The Ma'agan Mikhael shipwreck

The Ma'agan Mikhael wreck was discovered in 1985, c. 50 km south of Haifa and very close to the shore, and is of particular interest to this present study because of its close relation to Cyprus. The Ma'agan Mikhael vessel originated most probably from the Aegean and made a stopover on Cyprus before sinking off the Levantine coast (with its final destination a port nearby). It was a small merchantman, c. 14 m long, and, judging from its condition, was most probably lost on its maiden voyage at the end of the 5th century BC, c. 400 BC.

Of the pottery recovered, c. 60% was Cypriot basket-handle amphorae, although its cargo also included Cypriot tableware, a pithos, and lamps, the provenance

of which is identified somewhere between Amathus and Kition. Ballast weights were also on board, mostly from the Kouris River on Cyprus, but also a fair number from Euboea (Greece). From the remaining pottery, c. 20% of the assemblage recovered comes from the Aegean, and c. 10% from the Levant. An interesting find among the ship's cargo was a heart-shaped box made of olive wood, used for cosmetic purposes; it was most probably made on board by the ship's carpenter.<sup>189</sup>

From the composition of its cargo, it is reasonable to think that the ship unloaded most of its Aegean cargo at one of the southern ports of Cyprus, where it reloaded with Cypriot cargo intended for the Levant – a routine itinerary, no doubt, from the Aegean to Cyprus and the Levant, with Amathus and Kition being among the probable ports of call. This maritime trade, a continuation from the Second Economic Cycle and dominated by private shippers and entrepreneurs, was the staple of the Cypriot maritime economy, and this providing mobility, strength, and independence from the interests of the big powers of the region, as it could operate swiftly and, if lucky, undetected.

### The Kyrenia shipwreck

The Kyrenia shipwreck was discovered in 1965, very close to Kyrenia's harbour. The small- to medium-size vessel, c.14.7 m x 4.3 x 1.4 m, with slightly less than 30 tons burden, was built around the last half of the 4th century BC and was most probably sunk at the turn of the century (Figure 74 ). Therefore, when the ship was lost it was already in use for a minimum of 25–50 years, and, judging from the contents of its cargo, was most probably used for the popular voyage from the North Aegean and Samos, to Kos, Rhodes, and Cyprus. The owner and captain of the ship, assisted by a maximum crew of three to four sailors, repaired the ship several times to prolong its use. The good preservation of the ship's hull allows for a fairly accurate account of its construction. It was built by using the shell-first method, contrary to the later method, where a complete skeleton of frames for the entire vessel was constructed first. In the Kyrenia ship the planking from the keel upwards was joined together using a mortise and tenon construction. The frames were laid in and secured with an assembly of hollow, cylindrical softwood inserts and with internal copper nails passing through both frames and planks.

The ship most probably fell prey to pirates, rather than bad weather, illustrating well the risks faced, in spite of the fact that the Makedonians were in total control of the sea when it went down and should have offered security and safety for maritime travel. Apart from a number of Samian and other maritime containers,

<sup>186</sup> Monankhov and Kuznetsova 2017: 90–97.

<sup>187</sup> Bresson 2016: 171–172.

<sup>188</sup> Demesticha 2017: 291–292.

<sup>189</sup> Sitry 2004: 182–190.

the main cargo among the 404 amphorae recovered comprised 343 Rhodian amphorae carrying wine (Figure 75). Although there is still no reliable data in terms of the capacity of the amphorae on the Kyrenia wreck, Monakhov<sup>190</sup> suggests 26 l each. Based on this suggestion, the Kyrenia ship could carry a minimum of 10,400 (400 x 26) l of Rhodian wine in 400 amphorae. Whitbread<sup>191</sup> gives a Rhodian jar full of wine as weighing at least 35 kg, and this would make the total weight on the Kyrenia wreck some 14,000 kg (400 x 35), about half of the Mazotos' capacity. The cargo also included c. 9000 almonds in jars, and 29 millstones, probably from Kos and with carved signs of identification on their sides, most likely ordered for a specific purpose.

Although Rhodian wines enjoyed a very high reputation for quality, and were most probably destined for elite consumption, their prices were not as high as wines from Chios. An average market price is estimated at around 6–10 drachms per amphora,<sup>192</sup> therefore, the total market price of the wine on board might have

been c. 2400–4000 drachms (400 x 6, or 400 x 10). At the time the ship was travelling, at the end of the 4th/ beginning of the 3rd century BC, there must have been an increase in demand of good Greek wines due the increased number of Makedonians and Greeks in the region. Thus, although the Kyrenia ship's cargo value was not as great as that onboard the Mazotos vessel, nevertheless, if it were not for the pirates who hit the ship, the owners would have been anticipating a reasonable profit from the trip.

The construction of the Kyrenia vessel marked the beginning of the new Graeco-Roman shipbuilding technology, which introduced the 'transition in construction' theory in shipbuilding in Late Antiquity.<sup>193</sup> The transition of ship construction in the Mediterranean from the shell concept and strake-oriented construction method to the skeleton concept and frame-based construction process was a long and complex evolutionary phenomenon that lasted several centuries.



Figure 74: *Replica of the Kyrenia shipwreck, Kyrenia II, on display at the THALASSA Agia Napa Municipal Museum (courtesy THALASSA, Agia Napa Municipal Museum, Cyprus).*

<sup>190</sup> Monakhov 2005: 88, table 1.

<sup>191</sup> Monroe 2007: 10, n. 18; Whitbread 1995: 34.

<sup>192</sup> The price is estimated by comparing Chian prices with those of Kos and Knidos.

<sup>193</sup> Pomey *et al.* 2012: 295.

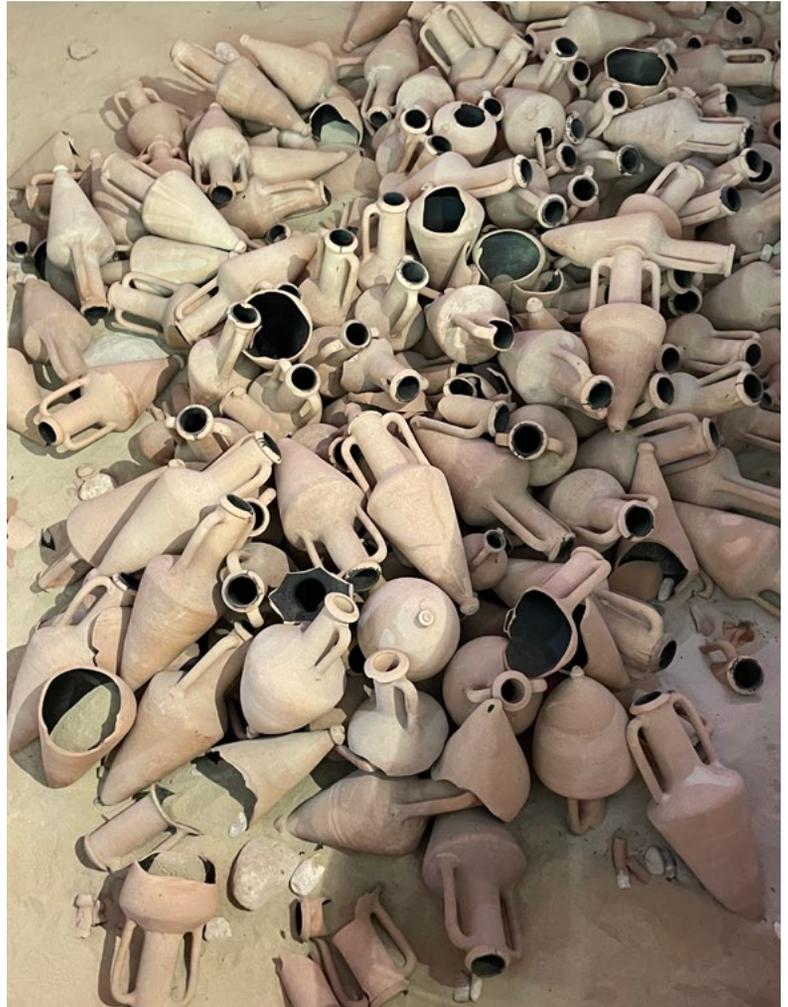


Figure 75: Reconstruction of the amphorae found at the site of the Kyrenia shipwreck on display at the THALASSA Agia Napa Municipal Museum (photos: the author; courtesy THALASSA, Agia Napa Municipal Museum, Cyprus).

### Size of ships and nature of cargo

As evidenced by the Peace of Nikias in 421 BC, the average short-trip coastline boats were not carrying more than 500 talents deadweight or c. 13 tons.<sup>194</sup> According to maritime archaeology, as seen in the previous section, for longer trips across the Mediterranean the average merchantman size for the Second Economic Cycle, i.e. c. 10 m – 15 m in length and up to 20–25 tons maximum capacity, was still very much in use during the Third. During this period larger and wider ships, like the Alonessos wreck of up to 25 m – 30 m in length and 126 tons in capacity, were introduced for the bulk grain trade, but also for wine and mixed cargo. Thukydides relates that at the siege of Syracuse in 415 BC, the Athenians used a vessel of 10,000 talents or 262 tons.<sup>195</sup> The ship or ships that carried 3000 wine amphorae to Pontos in Demosthenes' *Against Lakritos* case were c. 75 tons total deadweight.<sup>196</sup>

Apart from the Alonessos wreck, and examples mentioned above of trade being carried out on large

ships, there is evidence of Phoenician merchantmen offloading c. 44 tons of cargo in Egypt. The evidence comes from the text on the Ahiqar scroll from Elephantine concerning Phoenician and Ionian ships delivering goods, over one sailing season, to an unknown port in Egypt during Xerxes' reign in 475 BC. Out of 42 ships that offloaded over the entire sailing season, 36 were from Ionia and six from Sidon; three of the Sidon vessels were large and the rest smaller.<sup>197</sup> Table 8 shows that one of the large ships had a cargo load of c. 44 tons, and it is possible, therefore, that throughout the Third Economic Cycle merchantmen had capacities ranging from 8–10 tons, up to 126 tons burden. The introduction of larger ships improved the versatility and profitability of maritime trade, even allowing independent shippers to continue the practice of operating a very wide and diversified portfolio of mixed products. Table 8 also shows that the goods carried on the Sidonian ships included Sidonian and Ionian wine, copper, tin, iron, wool, clay, wood, and empty amphorae. It is interesting to note that over an entire season, where a total of 36 Ionian and six Sidonian ships offloaded at the Egyptian port, no ship from Cyprus called there. Over

<sup>194</sup> Michell 1940: 243.

<sup>195</sup> Thuk. 7.25; Michell 1940: 243.

<sup>196</sup> Michell 1940: 243.

<sup>197</sup> Yardeni 1994: Table 3.

	September–October	October–November	November–December
Number of ships	1 large	1 large, 2 small	1 large, 2 small
<b>Type of cargo</b>			
Sidonian wine	1250 amphorae, 34.4 tons	2770 amphorae, 76 tons	1080 amphorae, 30 tons
Ionian wine	210 amphorae, 5.8 tons	430 amphorae, 11.8 tons	430 amphorae, 11.5 tons
Total wine	1400 amphorae, 40 tons	3200 amphorae, 88 tons	1510 amphorae, 41.5 tons
Copper	0.9 tons	1 ton	---
Tin	---	0.2 tons	---
Iron	---	2 tons	2.8 tons
Wool	---	1.5 tons	2 tons
Clay	---	0.56 tons	---
Wood	0.1 tons	2.425 tons	2.575 tons
<b>Empty amphorae</b>			
Lined	300	600	600
Unlined	100 = 2.9 tons	200 = 5.9 tons	200 = 5.9 tons
<b>Total Tonnage</b>	c. 44 tons	c. 101.4 tons	c. 54.7 tons

Table 8: *Tonnage of mixed cargo from Sidonian ships to Egypt in 475 BC (After Stager 2003: 242, Table 3.)*

a period of two months 1 ton of copper was delivered, compared to 4.8 tons of iron. The ratio might indicate the market size of copper to iron being in the ratio of 1 to 5. Cyprus was the most probable place of origin for the copper. As was the case for trade in Uruk in Babylonia from Phoenician emporia in 550 BC, during the Second Economic Cycle, the port of Sidon was used as a transshipment hub for dispatching cargoes of mixed products to Egypt during the Third, in 475 BC. Thus, according to the evidence, although the bulk of trade was still carried out by average-sized ships of 10–25 tons capacity, during the Third Economic Cycle ships of greater capacity were introduced for trips requiring larger volumes.

**THE PERSIAN FISCAL ADMINISTRATION AND TRIBUTE SYSTEM**

To understand and evaluate objectively Cyprus’ relation with its imperial master, Persia, during the Third Economic Cycle, and how it affected its maritime and naval economy, we need to understand first how the Persian Empire was organised and functioned. It is important to understand how the Persian fiscal administration and system worked and how it could have affected its relations with its subject nations, among them Cyprus.

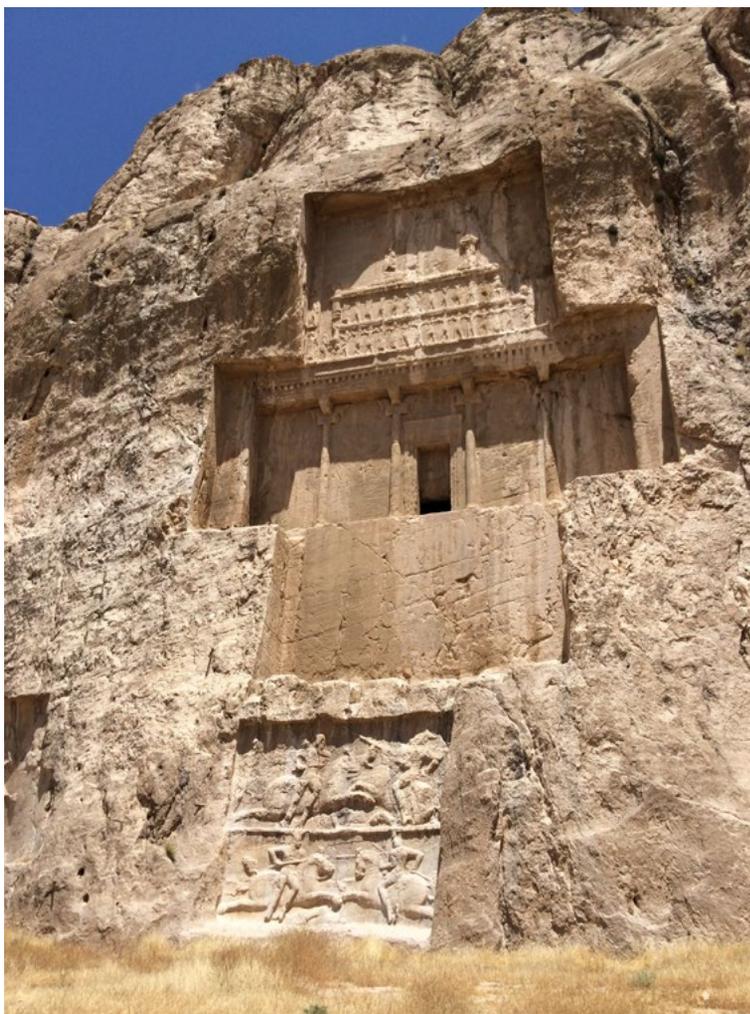


Figure 76: *Darius’ (Darayavaush) tomb at Persepolis (photo: the author).*



Figure 77: Cyrus' (Kurush) tomb at Pasargadae (photo: the author).

In the Persian Empire, authority was central and concentrated absolutely on one person – the Great King, the King of Kings. This is clearly stated in Darius' Bisutun inscription: 'I am Darius, the Great King, King of Kings, King in Persia, King of the countries, son of Hystaspes, grandson of Arsames, an Achaemenid'.

The king delegated authority to his satraps, tasked to govern the provinces or satrapies. It was up to the king to arrange, among other affairs of state, fiscal matters and the finances of the empire. Cyrus, and Cambyses, the first two Persian kings, neither organised nor operated a regular tributary system, instead they relied mostly on receipts of gifts and requisitions of goods produced by their subjected nations.

It was Darius I (522–486 BC) who, as from 518/517 BC, reformed and established a functioning fiscal administration and the monetised accounting of

its tribute system, based on a combination of tribute in kind and weighted silver for all the empire. This is clear from both Herodotos<sup>198</sup> and Strabo,<sup>199</sup> the latter, for example, referring to the Kappadokians paying every year in addition to tax in weighted silver (*argyrikon telos*), fifteen hundred horses, two thousand mules, and fifty thousand sheep. There is also every reason to believe that Darius' institutional tribute (*phoros*) system underwent no revolutionary modification ever since it was established in 518/517 BC,<sup>200</sup> and was thus followed up by his successors more or less in its initial form.

In understanding Persian fiscal administration and the tribute system, the *Histories* of Herodotos are indispensable, but at the same time quite frustrating, with their vagueness and lack of detail. Other useful sources include the late 4th-century Pseudo-Aristotle's *Oiconomika*, which incorporates in its clauses many features from the Achaemenid fiscal administration. The writings of Xenophon and the Persepolitan Treasury and Fortification tablets, as well as Babylonian documentation, contain much useful information. Historians dealing with Alexander and his successors are also

indispensable sources, as they tend to describe in detail the Achaemenid institutions that were taken over and integrated within the Hellenistic kingdoms.

According to Herodotos,<sup>201</sup> Darius I assigned all his subject peoples or nations (*ethne*) to twenty provincial governorships or satrapies (*nomoi*), assessing each satrapy for taxes.<sup>202</sup> All tributary regions, as well as regularly assessed compulsory tribute (*phoros*) in silver, were obliged to send separately regular gifts to the central court, regarded as special contributions.

As mentioned previously, Cyprus was included in the 5th Satrapy, along with Syro-Palestine and Phoenicia, whereby the island was responsible for its portion of the

<sup>198</sup> Hdt. 3.96.

<sup>199</sup> Str. 11.13.8.

<sup>200</sup> Briant 2002: 389.

<sup>201</sup> Hdt. 3.90–94.

<sup>202</sup> Hdt. 3.89.

total tribute assessed for the entire satrapy, amounting to 350 talents of silver annually.<sup>203</sup> The satrapy, called by the Persians *Abarnahara*, was retained from the Assyrian geographical term *ebir-nari* ('Beyond the River'), as the Assyrians described those lands west of the Euphrates. During Ashurbanipal's campaign against Egypt, the twenty-two provinces of *ebir-nari* and the vassal kingdoms included the ten Cypriot city-states of that time. Most likely the residence of the *Abarnahara* satrap was at Damascus.<sup>204</sup> As mentioned previously, Cyprus' participation in the tribute of 350 talents assessed for the entire 5th Satrapy was in the region of 70–87.5 silver talents. This must have been apportioned according to the capacity of each city-state in size and power, on the basis of what they could afford – *kata megethos/kata dinamini*. After his failed uprising against the Persians in 381 BC, Evagoras continued paying regular annual tribute to the Persians,<sup>205</sup> presumably this was Salamis' portion from the total tribute assessed for the whole island.

The responsibility for collecting, or delegating the collection, of the royal tribute imposed on the *ethne* was under the authority of individual satraps, who had the right to collect additional taxes to run their satrapies, the satrapal economy taxes, over and above the royal taxes. We know from Ezra, in the satrapy of *Abarnahara*, to which Cyprus belonged, that the satrap was assisted by officials – 'treasurers' and 'inspectors'.<sup>206</sup> It is not known whether such officials were assigned to monitor Cyprus' fiscal matters and tribute payment obligations and performance, although this is very likely. If these officials were not actually residing on the island, they most probably discharged their duties by frequent regular visits.

As referred to earlier, it has been suggested in several texts that the tribute was set according to the subject's ability to pay and in proportion to their resources.<sup>207</sup> One important aspect of Darius' reforms is that he did not monetise tribute itself, but its accounting. Tribute, in general, was expected to be paid in kind or weighted silver, but not necessarily in coinage. The city-states on the coast that had more intensified maritime economies, being involved in exchange and long-distance trade, could manage better the monetisation of tribute in silver. As Polykleitos of Larissa writes, the Persian kings 'exacted silver from the people on the sea board and from the people in the interior such things as each country produced so that they also received dyes, drugs, hair or wool, or something else of the kind

except cattle'.<sup>208</sup> Darius' monetised tribute system made it possible for inland regions to continue paying in kind against a generally accepted exchange value. As a principle, all tributary peoples had also to send regular gifts to the central court which were assimilated as tribute.<sup>209</sup> Gifts had an ideological value, while tribute's value was a matter of accounting. If tributes were not destined for massive monetisation by coinage what was the reason for minting royal coins in the form of silver sigloi and golden darics? The answer lies in its political functionality, especially for expenditure, prestige, and ideology. By this innovation, Darius crowned his achievements as a new founder of the empire. As Herodotos states,<sup>210</sup> he created his 'legacy' (*mnemosynon*) by achieving more than his predecessors.

For a comprehensive understanding of the overall fiscal picture the empire's finances need to be analysed in more detail, understanding that the king, apart from tribute, enjoyed a great deal more income from special contributions. One type of revenue assigned to the royal economy was the proceeds from mining, i.e. gold, silver, copper, iron, stone, etc.<sup>211</sup> Although there is little information as to how this was managed, it is known, for example, that the Egyptian stone quarries in the Wadi Hammamat during Darius' I reign were requisitioned (*epitaxi*) by the king<sup>212</sup> and operated under the direction of Persian administrators. When the Persians conquered Lydia they confiscated Croesus' properties. The measure could have included the administration of the gold mines<sup>213</sup> by Persian officials. The status quo of the gold mines operated by private individuals did not change as long as they passed on part of their production to the royal treasury.<sup>214</sup> There is no information on how copper mines in Cyprus were treated by the Persian king, but it is probable that certain arrangements of an administrative nature or profit sharing would have been put in place. There were cases where regular tribute (*phoros*) might be temporarily waved, at the discretion of the king, in favour of special contributions to war efforts, as was the case of Aspendos.<sup>215</sup> This did not prevent the city, however, from having to give horses to Darius III as a special tax – *dasmos*. The payment of *dasmos*, which the satrap also had to collect, was in addition to the regular tribute (*phoros*) obligation.

<sup>203</sup> Hdt. 3.91.

<sup>204</sup> Briant 2002: 487; Sidon has also been proposed as a probable residence of the satrap in charge of Cyprus.

<sup>205</sup> Diod. 15.8.2, 15.9.2.

<sup>206</sup> Ezra. 5.6, 6.6, 7.21.

<sup>207</sup> Plutarch. *Arist.* 24.1; the same principle was applied by Aristides in the case of the Delian League.

<sup>208</sup> FGH 128F3a = Str. 15.3, 21 C735; for comments, see Walinga 1984: 412.

<sup>209</sup> Briant 2002: 396.

<sup>210</sup> Briant 2002: 406–409; Hdt. 4.166.

<sup>211</sup> Pseudo-Aristotle *Oikon.* II. 1.4.

<sup>212</sup> Briant 2002: 400.

<sup>213</sup> Briant 2002: 400–401; Diod. 9. 33.4.

<sup>214</sup> Hdt. 7, 27–29. Pythias retained control of considerable Lydian mineral resources even after the Persian conquest. At the time of the campaign against Greece he put at the disposal of Xerxes his entire fortune.

<sup>215</sup> Arr. I. 26.3, 27.4.

The workforce of subject nations was frequently placed in *corvée*, i.e. forced or statutory labour. (The canal on the Athos peninsula, for example, was excavated by *corvée* labour.) The costs of recruiting and the maintenance of reserved armed forces did not fall on the Persian king, but the tributary region. In Babylonia, for example, the levying system obligated the tenant farmers to pay for their weapons and upkeep, i.e. when they were summoned for military service they had to provide their own weapons, money, and supplies. The development of the royal navy was based on the principle that the royal administration would requisition shipbuilding timber from the subject nations and build in shipyards of coastal cities, using shipwrights requisitioned (*epitaxi*) for this purpose. It should be assumed, however, that the royal treasury provided funding where applicable.

Coastal cities were under an obligation to provide trained conscripted sailors and oarsmen,<sup>216</sup> requiring a considerable commitment of resources and manpower. The similar principle applied to Persian expatriate landowners of large estates, donated by the king, who, when requisitioned by the local satrap, were under obligation to provide him with trained horsemen and troops at their expense. There are such cases in Asia Minor and in Egypt where mandatory tribute was paid by Persian expatriate landowners.<sup>217</sup> This arrangement varied from case to case – there are known instances where the royal treasury paid significant amounts to ensure provisions of foodstuffs to salaried garrisons.<sup>218</sup>

All conquered lands, without exception, came under royal authority and with direct or indirect control over their production. The king's authority was exercised over every land from which he exacted tribute, which in itself was the very symbol and tool of subjection and subordination. Although the satraps were responsible for the tribute and its dispatch to the king, the actual internal apportionment of the assessment among the members of the community and collection of the tribute itself was delegated to the local kings, or political leaders and their organisations. This meant that the Persians maintained and recognised the authority of local leaders and kings, who were responsible for the total tribute, as assessed for their *ethnos*. This assessment included both the monetised part of tribute and the part in kind, as well as special assignments and contributions. This was the basis on which relations between the Persian Great King and the kings of the city-states of Cyprus was regulated.

The conquest did not result in a sudden and general confiscation of all land. People continued to be the

owners of their traditional lands according to the prevailing local regulations. The boundaries of the *ethne*, kingdoms, cities, temples, and villages were still recognised, and formed the basis for tribute allocation. The king owned his own land, called *khora vasilike*, which one assumes he took as he wanted. Following a revolt by a subject nation or city, the king and his representative had the right to confiscate lands and allocate or redistribute them according to their liking. This is what happened in Asia Minor after the Ionian revolt, and, presumably, the same might have happened in Cyprus after the uprising on the island. The king also gave concessionary plots, *dorea*, either taken from his own lands or those he had acquired, as a reward for services rendered to his officials, relatives, or to colonists in various regions of his dominion: Onasilos' reward, according to the Idalion tablet, might very well fall into this category.

There were cases where land was held by concession by the king himself and his royal treasury. This resulted in the receipt and disbursement of products managed directly by the royal administration, received by the satraps on behalf of the king as *tage*.<sup>219</sup> Examples include the income accrued, at the time of Darius I, from the fish taken from the lake of the Egyptian city of Anthylla, which was paid directly to the royal treasury (*to vasilikon*);<sup>220</sup> the herds of fifty thousand mares reared in the Median pastures belonged to the king (*agelai basilikai*);<sup>221</sup> and during the reign of Artaxerxes I, the forests of Mt Lebanon were managed by a 'keeper of the king's park', named Asaph,<sup>222</sup> as attested by a letter from the king to Nehemiah, ordering Asaph to allow the Sidonians and Tyrians to bring by sea, as far as Joppa, cedar to rebuild the temple of Jerusalem. This arrangement was a continuation of the control the Neo-Assyrian imperial administration had over the same forests in the 8th and 7th centuries BC. These are the same royal forests from where Antigonos the One-Eyed cut one thousand trees to build the fleet he intended to use to conquer Egypt. One might, therefore, consider that the Persian kings, and later Alexander's successors, requisitioned timber from the Troodos forests for the same purpose – to build their own navy.

Part of the tribute collected by the satrapal authorities was used on location for royal expenses, mainly for the garrisoned troops, the rest being sent to the royal treasury. The same principle applied for surplus agricultural products, such as grain, which were strategically stored in royal or satrapal granaries.

<sup>216</sup> Wallinga 1984; Briant 2002: 405.

<sup>217</sup> Briant 2002: 405.

<sup>218</sup> Xen. *Oik.* 4.6.

<sup>219</sup> Pseudo-Aristotle *Oikon.* II.1.3.

<sup>220</sup> Hdt. 2.149, 3.91.

<sup>221</sup> Str. 11.13.7.

<sup>222</sup> Neh. 2.8.

To control the politics and finances of his vast empire, the Persian king set up an organisation of royal informants, sometimes operating under cover (καί ἐνίστε οὐκ εκφαινόμενοι), with a direct reporting line to him. One of the duties of these officials, also referred to as the king's 'son' or 'brother'. or the 'king's eye' (βασιλέως ὄφθαλμός), was to tour the provinces and vassal kingdoms and conduct independent investigations on the monarch's behalf on matters relating to governance of the satrapies and collection of tribute.<sup>223</sup> Similar institutions functioned in the Cypriot city-states, with individuals spying on the population and each other (κόλακες), then reporting their findings to the king's inner circle (ἄνακτες). This kind of 'secret service' or police was closely modelled to enhance Persian security and the information network – the appropriately named 'eyes and ears of the king'.<sup>224</sup>

### THE PERSIAN ROYAL NAVY IN THE MEDITERRANEAN AND THE TRIBUTE SYSTEM

Another integral institution was the Persian royal navy in the Mediterranean, directly affecting the Cypriot maritime and naval economy. In the same way that the Persian army comprised regiments provided by the various nations (*ethne*) of the empire under central Persian command,<sup>225</sup> the royal navy comprised of squadrons of warships, mainly *triereis*, prepared by the coastal city-states subjected to the Persians and paid for by funds from the royal treasury. These squadrons were also under central Persian naval command. Warships that were actually owned by the Persian navy were operated by crews provided or conscripted from the coastal city-states, whose expenses were covered mainly by the royal treasury or from tribute,<sup>226</sup> or a combination of the two. This was the case for the Persian navy in the Mediterranean, comprising mainly of Egyptian, Phoenician, Cypriot, and Kilikian squadrons, as well as ships from other coastal cities in the Aegean. In the naval battle of Salamis, out of about 1200 warships that made up the Persian navy, 300 came from Phoenicia and Syria, 200 from Egypt, 150 from Cyprus, 100 from Kilikia, and the rest from the remaining regions and islands in the Mediterranean that were within the Persian Empire at the time.

It is possible at beginning of their empire, i.e. the last quarter of the 6th century, the Persians depended on an auxiliary system,<sup>227</sup> whereby they made use of the

navies of their newly enlisted subjects from the coastal cities of the Mediterranean, but they soon realised that to become true masters of the Mediterranean, in terms of naval and maritime affairs, their own navy would be essential to give themselves absolute control.<sup>228</sup> The Romans realised this too, in 260 BC, when they had to face a superior Carthaginian navy made up of state-of-the-art *pentereis*. They knew they could not control and face the Carthaginians adequately with only an auxiliary navy provided by their allies, they would have to build their own.

It would have been entirely uneconomic for the coastal city-states to have a military fleet standing by for the Persians to use. Most probably the majority of their small warship fleets were merchantmen converted for military duty, an arrangement that did not at all meet the Persian need for absolute naval domination. Thus, effectively as from the beginning of the Third Economic Cycle onwards, the Persians made arrangements for their own navy, with *triereis* and other warships requisitioned from their subject peoples of the coastal cities. While the evidence points to Kilikia, Kyme and Phoenicia being the main naval bases of their navy, Persian *thalassocracy* in the Eastern Mediterranean radically transformed the maritime economies of all Mediterranean coastal cities.

The city-states of the subject nations were requisitioned to provide timber for shipbuilding, sails and other materials, as well as shipyards, shipwrights and the technology to build *triereis* for the Persian navy. What compensation they received for these requisitions is not known, nor, in the case of Cyprus, or Phoenicia for that matter, have the fiscal arrangements relating to Persian demands for shipbuilding timber from the Troodos forests, or Mount Lebanon respectively, been recorded. It might very well have been considered as the property of the Great King, and a special contribution to the war effort, or, alternatively, the states concerned could have set the costs off against regular compulsory tribute payments, although there is no evidence to support this, and it seems most unlikely, bearing in mind the enormous financial burden.

There are no records, however, of the requisition and financial arrangements for other related materials and products, e.g. the sails, ropes, copper nails, and the labour costs of the shipwrights. The costs for such things were obviously enormous and the Persians could hardly expect they would be met by their subject

<sup>223</sup> *Cyropaedia* 8.6.16.

<sup>224</sup> Maier and Karageorghis 1984: 205.

<sup>225</sup> Parpas 2014: 119–140, for the composition and tactics of the Persian army at the Battle of Gaugamela.

<sup>226</sup> Briant 2002: 405. There is no evidence that Cyprus was considered as part of the tribute.

<sup>227</sup> In *Cyropaedia*, Xenophon says that as a reward for Cypriot participation, presumably with their navies, against Karia and Babylon in 538 and 539 BC respectively, the Cypriot city-states were not placed under satrapal command, but were allowed to be ruled by

their local kings, who were obliged to pay tribute (Xen. *Cyrop.* 7.4.1 and 8.6.8). Most probably their participation with their navies was set off against the payment of tribute assessed for them. See Watkin 1987: 154–163 and Briant 2002: 48, who express doubts that the Cypriots participated in the said campaigns, since at that period they were still controlled by the Egyptians. See Stylianou 1992: 413 for discussion.

<sup>228</sup> Wallinga 1984, for discussion.

cities.<sup>229</sup> Such evidence that the Persians financed the construction of warships from the royal treasury is provided by Diodoros,<sup>230</sup> i.e. when they were preparing a navy to help Konon against the Spartans at Knidos, Pharnabazos received 500 talents for the construction of a fleet. He used part of this money to order 100 *triereis* from the Cypriot kings. As the average cost of a *trieres* was c. 2 talents, it may be assumed that 200 talents, from the total of 500 he received from the treasury at Sousa, went to Cypriot shipyards to prepare these ships; the balance going on overheads and crew salaries.

The coastal city-states were expected to provide conscripted sailors and trained crews for the ships they built for the Persians. Although part of their expenses might be expected to be covered by tribute, there is no evidence for this. In fact, the available records indicate that the Persians provided for the salaries of the sailors and oarsmen, as in the case of the Cypriot sailors in the Kaunos mutiny.<sup>231</sup> These were arrangements that imposed a tremendous burden on the economies of the coastal city-states and contributed to the creation of very complex relationship between them and the Persians. Apart from the substantial requirements in wartimes, it must be borne in mind that the Persians had to have a standing fleet during peacetime to patrol the sea lanes and provide safety for maritime trade. This was a constant drain on skilled manpower needed for agriculture, as well as on the trained sailors and oarsmen of the cities' merchantmen fleet, and thus impacting their maritime economies.

But there could also be financial advantages and opportunities for shipyards and shipwrights in the coastal cities in terms of regular income for repairing and maintaining war fleets. An Egyptian document,<sup>232</sup> dated 411 BC, helps indicate the values involved and how the repair and maintenance costs of satrapal ships were handled, and the conclusions can also reasonably be extended to apply to military naval repairs. The document concerns the cumbersome procedure required by two Egyptian sailors, 'boatmen of the fortifications', in charge of vessel belonging to the satrapal civic administration. Their task was to transport foodstuff along the Nile, a job they were paid for. The repair work involved complete replacement of the deck work, and this work might equally well correspond to the naval duties of conscripted sailors and their officers in charge of a *trieres* in the Persian royal navy, in times of peace or hostilities. The two Egyptian sailors

had to go through the lengthy procedure of damage inspection and obtain a series of approvals from the 'head sailor', estimators and treasury accountants, as well as the head carpenter. The total cost of the repair to the satrapal treasury was in the order of 1 talent and 10 minas silver. It is not unreasonable to think that for naval operations the Persian royal navy had the same obligations for repairs and maintenance of the *triereis*, in the course of normal wear and tear, or damage in battle. This is only to be expected as the ships were owned by them.

The way the system was set up, the various territories charged with marine and naval duties had a very clear understanding of the ships they had to supply and the crews that went with them. Diodoros describes it in terms of Xerxes' Persian navy in 480 BC: '[...] while the sum total of the ships of war exceeded twelve hundred, of which three hundred and twenty were Greek, the Greeks providing the complement of men (crews) and the king supplying the vessels...' <sup>233</sup> And this extract makes clear that the ships, which were constructed by the subject nations, were in the ownership of the Persian king, while the crews were provided by the subject nations.

When Plutarchos describes the Persian fleet as comprising of 'royal ships' (των βασιλικών νεών),<sup>234</sup> or as 'the royal armament of Phoenician and Cilician ships', he means that the Persian navy was made up of the king's ships, built and supplied by the Phoenicians and Kilikians on his behalf with crews from these two regions.<sup>235</sup> When writing on the Persian navy, Arrian records that on reaching Miletos and Lade in the Latmic Gulf in 334 BC, the force comprised primarily of Cypriot and Phoenician squadrons, and he refers to this as the 'Persian fleet' and their 'admirals' (ναύαρχοι)<sup>236</sup> as being under the command of 'Memnon whom Darius had appointed commander of the whole fleet' (ναυτικός παντός ἡγεμώντι).<sup>237</sup> By this it is understood that the individual squadrons, commanded by their respective kings, called 'admirals', were collectively under the command of Memnon, appointed by Darius III himself. In 480 BC the Persian navy was under the collective command of four Persian commanders, appointed directly by Xerxes, who were called 'commanders of the fleet'<sup>238</sup> (στρατηγοί του ναυτικού στρατού). The command structure of the Persian royal navy, therefore, was based on regional kings in charge of their respective squadrons and reporting to a central command that was entrusted by the king to loyal aristocrats, preferably Persians.

<sup>229</sup> A heavy defeat at sea could bring down any wealthy city in a matter of a few days, as illustrated by the Athenian disaster at Aegospotamoi in 405 BC, not only ending the war but the Athenian empire as well. The loss of its last reserves of 180 ships, and the death or capture of 36,000 men, was a financial and political disaster that brought the city to its knees.

<sup>230</sup> Diod. 14.39.1-2.

<sup>231</sup> Hell. Oxy. 15.1-6; Hadjioannou 1971: 144-146.

<sup>232</sup> DAE 61 (AP26); for discussion, see Briant 2002: 449-450.

<sup>233</sup> Diod. 11.3.

<sup>234</sup> Plut. Cim. 12.5.

<sup>235</sup> Plut. Cim. 18.5.

<sup>236</sup> Arr. 1.18.5.

<sup>237</sup> Arr. 1.20.3.

<sup>238</sup> Hdt. 7.97, 121.

As mentioned earlier, the Athenians in the 6th century BC, perhaps even earlier, organised their fleet on the principle of *naukrariai*. Possession of ships by aristocratic families in the Archaic period in Athens, and perhaps elsewhere in Eastern Mediterranean, was an effective tool for military, political and social influence, as well as a practical way to promote and maintain commercial and maritime activities. This was possible particularly because of the type of ships available, the *triakontoros* and *pentekontoros*, which could be used for both commercial and military purposes. The introduction of the *trieres* during the Classical period completely changed the way naval warfare was conducted.

Accordingly, in 483/82 BC, Themistokles, then responsible for building up Athens' naval supremacy, introduced a new institution, referred to as the 'trierarchy'. This new institution had two prerequisites, the existence of a large *trierei*s fleet whose financing was to be sourced from sources outside the navy itself. He thus expected the Athenians to construct the ships with which they were actually to fight,<sup>239</sup> and launched an ambitious shipbuilding program funded from the silver mining revenues of Laureion and Maroneia. From *Athenaion Politeia* it is clear that mining revenues of 100 talents were distributed as a loan among a hundred wealthy Athenians, the 'Trierarchs', who built 100 *trierei*s for the Athenian navy. Thus, a state-owned navy was constructed with public funds, a stipulation being that if any of these Athenians did not build a ship that met the approval of the state then he must make another at his own expense. The Athenians built 200 ships to face Xerxes' armada at Salamis, and an institution was put in place that established Athens as one of the largest naval powers in the Mediterranean.

Eventually a system was established whereby rich Athenians undertook the 'Trierarchy', i.e. to build ships, provide crews, maintain them for the navy, and to replace them if damaged or lost at their cost. The system was primarily fiscal in nature, derived from the principle obliging rich Athenians with wealth in excess of four talents to perform public service.<sup>240</sup> The evidence indicates lists of 'trierarchs' were kept and regularly updated by the generals.

It is not known how the Cypriots might have organised their fleets, but it is not unreasonable to think that the elite aristocratic families might have participated in some way, together with the respective royal houses of their city-states. Evidence exists from Alexander's campaign in India that two Cypriot nobles, from Soloi and Salamis, participated as 'trierarchs' in the

organisation of his navy, indicating that this Athenian tradition was not unknown on Cyprus.

#### THE CYPRIOT FISCAL ADMINISTRATION, AND PSEUDO-ARISTOTLE'S *OIKONOMIKA*, BOOK 2

Pseudo-Aristotle's *Oikonomika* dates from c. the last quarter of the 4th century BC, at the end of the Third Economic Cycle.<sup>241</sup> It was written by an Aristotelian scholar in three volumes, and was intended as a financial administration manual in the early Hellenistic period. It is heavily influenced by the royal Achaemenid fiscal organisation, exhibiting all the facets of the Persian Empire, i.e. a fully developed royal economy and satrapal organisation, the use of coinage, and a comprehensive system of collective revenues based on one central figure, the Great King. The Cypriot city-states were ruled by their own individual kings who were, in turn, vassals to this Great King. They belonged to the satrapal organisation of the Persian Empire and were assessed for tax and tribute under the royal Achaemenid system. It is reasonable to think, therefore, that they had every reason to adapt the applicable operational features of their own fiscal administration, organisation and rules to this system. Attempts can be made to find links between aspects of the *Oikonomika* and Cyprus, and to try and reconstruct features relating to the Cypriot economy during the Third Economic Cycle by referring to certain sections within Pseudo-Aristotle's work.<sup>242</sup> As for Aristotle himself, it is known that he wrote a treatise on the Cypriot political system, *On the Constitution of the Cypriotes*, but this is unfortunately lost. One might hypothesise that this vanished work was most probably devoted to the institution of Cypriot kingship, *basileia*, with similarities to Pseudo-Aristotle's *Oikonomika*, having to do with the norms of a royal economy.

Broadly, the Book 1 of *Oikonomika* is an introduction that deals with the basic formations of an economy. Book 2 is intended as a manual for financial administrators, providing instructions on the efficient management of financial matters, while Book 3 looks at the relations between husband and wife.

Volume two, which, it seems, uses models found in the organisation of the Persian Empire,<sup>243</sup> as well as Alexander's, and in the kingdoms of his early successors influenced by the Achaemenids, is of particular interest to this present research. It opens a window on how the fiscal administration of the Persian Empire was organised and how it might have influenced operational features of the Cypriot fiscal administration system and its maritime economy, in order that it might best

<sup>239</sup> I. 14.1-2; GOS 159-160.

<sup>240</sup> Arist. Pol. 129a. 33-34, 'The section of citizens who perform liturgies from their properties we call the rich'. Gabrielson 1994: 43-44.

<sup>241</sup> Aperghis 2004: 129-135; van Groningen 1933.

<sup>242</sup> Aperghis 2004: 117-246, follows the same principle of analysing the Seleukid royal economy.

<sup>243</sup> Aperghis 2004: 119; van Groningen's 1933 model of Pseudo-Aristotle's *Oikonomika* is based on the Achaemenid administration.

adapt and align itself to Achaemenid fiscal institutional practices. For this study, the first section of Book 1 is particularly relevant, dealing with the four main types of economy: royal, satrapal, city, and household.

### *Oikonomika* Book 2, Section 1

The introductory paragraph sets the scene for more detailed analysis:

[...] There are four economies, as they are divided by type – for we will find the other are included in these – royal (*βασιλική*), satrapal (*σατραπική*), city (*πολιτική*), and household (*ιδιωτική*).

Thus an economy is to be understood within the context of the financial administration of a kingdom or city-state (*βασιλική*), province (*σατραπική*), city and its surroundings (*πολιτική*), as well as individual households (*ιδιωτική*).

(1) The first economy is the royal economy (*βασιλική*):

‘First, we will look at the royal economy. This exercises power over the whole and has four aspects: relating to coinage, to goods that can be sent out (*exagogima*), to goods that can be brought in (*eisagogima*) and to expenditure.’

Thus, the royal economy has overall control and its administration is split into four disciplines that require direct decisions by the king.

(1.1). The first discipline is the issue of coinage:

‘Let us take each of these separately. With regard to currency, I mean what to mint *timion* or *euonon*, of large and small denomination.’

One of the king’s primary tasks is thus to ensure an adequate supply of coined money in various denominations to meet demands for military and administrative matters as well as trade.

(1.2) and (1.3). The second and third disciplines concern the treatment of surpluses:

‘Regarding goods that can be sent out (*exagogima*) or brought in (*eisagogima*), which of them, having been received from the satraps in the *tage*, were to be profitably disposed of on his behalf.’

Thus the king and the satrapal organisation had the duty to store surplus production and tribute from the provinces and distribute it as and when needed, or when it was appropriate, at a profit. This is evidenced from the *Persepolis Fortification* texts and related satrapal activities, e.g. Orontes’ sale of surplus grain to Athenian

soldiers in Asia Minor. The Idalion archives suggest the same practice was followed at Kition and Idalion, and most probably by other Cypriot city-states.

(1.4). The fourth discipline is how expenses are handled:

‘With regard to expenditure, what is to be cut and when, and whether to meet expenses with coin or with goods in place of coin.’

(2). The second economy is the satrapal economy (*σατραπική*):

‘Secondly the satrapal economy. This has six types of revenue: from land, from the private production in the country, from market centres, from dues, from herds and flocks and from the other sources.’

Pseudo-Aristotle splits satrapal revenues into six types in three categories: (1) land and product; (2) goods and their transportation and sales; (3) people and animals.<sup>244</sup>

(2.1). The first type concerns revenues collected in general on lands belonging to the king, the cities, the temples, and the subject dynasts or tyrants:

‘Of these the first and most important revenue is that from the land, which is what some call *ekphorion* and others *dekate*.’

These are either fixed assessment land taxes (*ekphorion*) or proportional (*dekate*), literally one tenth, or tithe, as a proportion of the agricultural harvest of the land.

(2.2). The second type concerns private property, including the king’s private property:

‘The second revenue is that produced from private property, in some place gold, in another silver, in another copper, in another whatever is available.’

This is a difficult paragraph to interpret and it can be taken to mean revenue from natural resources, i.e. forests and mines.<sup>245</sup> This is of particular interest to the Cypriot economy since it might include the production and revenues from its copper mines and forests.

(2.3). The third type is revenue from large-scale trading activities in cities as a result of transport of goods by water and sea, e.g. harbours, ports, and market centres on river networks:

‘The third revenue is that from market centres.’

<sup>244</sup> Rostovtzeff 1910: 241; Aperghis 2004: 127.

<sup>245</sup> Aperghis 2004: 123–125.

(2.4). The fourth type concerns revenues from products transported by land and subjected to tolls en route, plus taxes from the actual sale in a market:

‘The fourth revenue is that produced from tolls by land and sales taxes.’

(2.5). The fifth type concerns tax on animal husbandry, which can be a fixed amount (*epikarpia*) or a proportional amount (*dekate*) of the herd or flock:

‘The fifth is that from herds and flocks, called *epikarpia* and *dekate*.’

(2.6). The sixth concerns revenues from tax on people’s income, fixed or proportional to earnings:

‘The sixth revenue is that from people, called head tax and artisan tax.’

(3) and (4). These concern the city and household economies.

Analysis and efforts to understand how the Cypriot economy might have adapted to the Achaemenid system of fiscal administration, by referring to relevant concepts within Pseudo-Aristotle’s *Oikonomika*, must bear in mind that the Cypriot kings, because of the small size of their city-states, were at the same time performing the duties that a satrap would have to undertake in the Achaemenid Empire.

As described previously in the section on the Persian fiscal and tribute system, Cyprus belonged to the 5th Satrapy and assessed for a total fixed tribute of 350 talents in silver per year. In the same section, two different methods were used in estimating that the Cypriot share in this tribute amount was in the region of 70–87.5 talents silver. Assuming that Cyprus at the time comprised of nine city-states, this would mean that on average each city kingdom was liable for c. 8–10 talents in silver per year, although the exact amount could vary according to the economic power of each individual city. On top of this, the Cypriot states were responsible for providing customary gifts and special contributions in times of war, and especially when the Persian Empire was involved in naval activities. The Great King had the authority to assess the tribute and various taxes, as well as special contributions, and it fell on the shoulders of satraps to collect them. This was delegated to the respective kings of the city-states who were obliged to find the requisite funds and see these were paid on time. The kings had to assess their citizens for tribute and taxes to satisfy the demands of the satraps and the Great King. It seems reasonable to assume that these local rulers followed the royal and satrapal directions and practices of the Achaemenid Empire as outlined in Pseudo-Aristotle’s *Oikonomika*. It

is therefore possible to see the Cypriot kings, relatively early, having monetised their economies by the issue of coinage and, presumably, controlling their expenditures and revenues from *eisagogima* and *exagogima*. There was no other way to collect the necessary revenues but to levy land taxes (*ekphorion* and *dekate*), to tax *exagogima* from royal land, mines and forests, to levy taxes and land tolls on movements of goods, to establish export and import duties at the ports, to tax sales of goods at trade centres, and acquire revenues from herds and flocks and the income of people and artisans. Although there is very little direct proof for all this, the affluent style and wealth of the Cypriot city-states and their kings point to the existence of a tax-paying society and a tax collection administration. The little evidence that survives can be presented briefly.

### **The handling of surpluses, the ‘Persepolis Fortification Texts’; and the ‘Idalion Archive’**

Paragraphs (1.2) and (1.3) of *Oikonomika* concern the management of surpluses collected on behalf of the king from tribute and taxation, as well as from the natural resources under his control, and how and when surpluses could be disposed of at a profit. This is reflected in the Persepolis Fortification Texts and other Achaemenid documents, and although what is referred to as the Idalion Archive has not yet been fully studied and analysed, it might be that from the available information up until now, similarities can be found in how surpluses were handled in Cyprus.

#### **The ‘Persepolis Fortification Texts’**

Satrapal storehouses were used to stock grain, wine, fruit, and other products that had apparently been collected from taxation of production from the surrounding district. This stock was used to cover satrapal disbursements and expenses. The surplus belonged to the king, and as such it was withdrawn from the stores; parts of this surplus could have been sold for profit and the proceeds dispatched to the king, with the remaining surplus being sent to the royal storehouse. All transactions were properly recorded and accounted for.<sup>246</sup>

#### **The ‘Idalion Archive’**

It can be argued that the archaeological findings and the archive documents of economic and administrative character excavated under Maria Hadjicosti’s direction at the fortified administrative centre on the Ambeleri hill at Idalion reveal a similar operation.<sup>247</sup> The extensive storage areas excavated at the fortified palace were used to hold the production from olives and grapes

<sup>246</sup> Aperghis 2004: 181–184.

<sup>247</sup> Hadjicosti 2017: 257–275; Amadasi Guzzo 2017: 275–284.

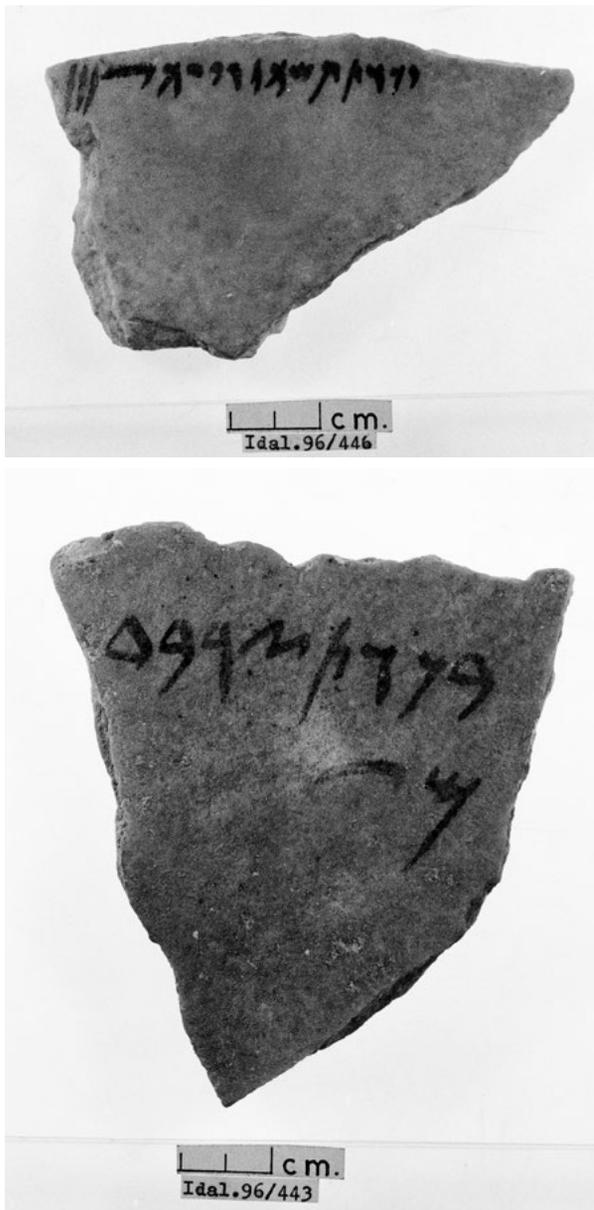


Figure 78: Top: Ostrakon ID A 446 (1993) from Idalion, referring to 'x KWT of oil' and 'quarters' (courtesy Department of Antiquities, Cyprus). Bottom: Ostrakon ID A 443 (1996) from Idalion, referring to '20 KW' and ten 'quarters' (courtesy Department of Antiquities, Cyprus).

collected from taxation of the surrounding areas. The olive oil and wine produced at the oil and wine presses respectively were stored in the *pithoi* found in the storerooms of Court A.

In a similar manner, copper was produced at the copper workshops in the southern quarters of the administrative and production centre and the end product stored for eventual distribution. Similar storing facilities were found at palaces elsewhere on the island, e.g. Palaepaphos, Vouni, and Amathus.

From the inscribed ostraca found in the storerooms of Court A and the copper workshops, it is evident that finished products were delivered to individuals, or groups of individuals, as well as to King Milkyathon or members of his court at Kition (Figure 78). It can be reasonably argued that these deliveries were made in a similar fashion as the deliveries indicated in the Persepolis Fortification texts, i.e. certain deliveries were intended for workers at the Idalion palace to cover their salaries and services, while other deliveries were made to individuals or groups of individuals or families for silver or equivalent commodity. The proceeds, being the outcome of surplus disbursements belonged to the king. Finally, the remaining surplus products were delivered to the king, destined for the royal storehouses at Kition, to be used and disposed of according to his needs.

These are only tentative suggestions that fit nicely Pseudo-Aristotle's *Oikonomika*, and are reached by reasonable deduction from a preliminary study of some of the Idalion Archive's inscriptions. Nevertheless, they are a long way from being definite proposals and should only be treated overall as a working hypothesis until the Idalion Archive is fully analysed and investigated.

#### The administrative ostrakon from the West Complex at Palaepaphos, Hadjiabdullah plateau

A similar document of administrative and accounting character, dated to the last quarter of the 4th century BC at the end of the Third Economic Cycle, has been unearthed at the Palaepaphos citadel at the Hadjiabdullah plateau by Maria Iacovou and her team in 2019. The document is an inscribed sherd designated as an *ostrakon*. It was found at the West Complex, whose purpose was the processing and storage of products such as olive oil, wine, and purple-dye shells. The inscribed *ostrakon* preserves three lines of writing in the Cypriot Syllabary<sup>248</sup> that appear to contain an accounting entry (see Figure 79). The entry seems to be a record of a person either bringing into, or receiving and removing from the administrative premises of a counted product. Although the finding of a solitary accounting ostrakon is far from being analogous to the Idalion Archive finds it is nevertheless evidence of registration activity of the incoming and outgoing of products of the same nature as described in the previous section and as prescribed by Pseudo-Aristotle's *Oikonomika*.

#### The Idalion Tablet. Revenues from land production and harvest, land ownership, hereditary transfer and sale of land

The Idalion Tablet<sup>249</sup> was discovered in 1850 at present day Dali; it was placed within the sanctuary of Athena on

<sup>248</sup> Iacovou and Karnava 2019: 37–52.

<sup>249</sup> ICS 217.

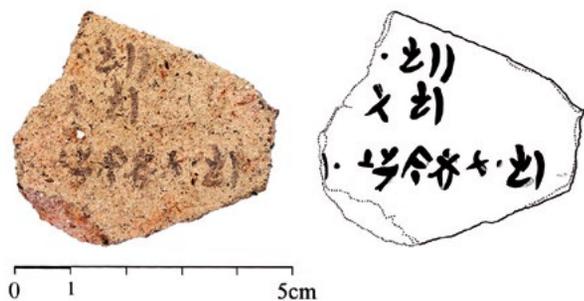


Figure 79: Administrative ostracon with Cypro-Syllabic inscription from the West Complex (workshop) at Palaepaphos Hadjiabdullah (photo and drawing: Artemis Karnava, in Iacovou and Karnava 2019: 43; © PULP).

the west acropolis of the ancient city of Idalion. Its exact date is not known but it is thought to have been written in the first half of the 5th century BC, most probably, but not necessarily, following the Cypriot uprising during the Ionian revolt, or a little later. According to the tablet, the Medes, assisted by the Kitians, attacked the city-state of Idalion. The city managed, temporarily, to survive but at a great loss of life to its citizens and soldiers. The purpose of the tablet was to reward with land and honour, with *asylia*, the chief physician of the city, Onasilos, and his brothers who, as a medical team under Onasilos' leadership, provided medical support to the king's soldiers and to the citizens of Idalion who were wounded during the fighting. At the same time, they attended to collateral civilian casualties to those citizens who did not participate in the fighting. The king and the assembly or body of citizens, referred to as 'the city', agreed that Onasilos and his brothers, in return for their medical services overall, were entitled to payment and additional gratuities equal to the amount of 1 silver talent. Instead of being paid from the treasury of the king, the talent was settled in kind by the king himself from his own land worth the equivalent of one silver talent, a usual practice of the royal administration in the Persian Empire. Furthermore, Onasilos himself was entitled to an additional payment and gratuity equal to the amount of four silver pelekys and two double-minas of Idalion. Again, this sum, instead of being paid from the treasury of the king, was settled in kind by the king himself from his own land, again worth the amount of four silver pelekys and two double-minas of Idalion.

Although one of the keys to the interpretation of the tablet is to define the role of the king and the city, the tablet at the same time gives invaluable information relating to the political and fiscal organisation and administration of the Cypriot city-states in the beginning of the 5th century BC. A careful reading of the relation between the king and the city, which at first glance appear to take decisions made together with the king, can lead to conclusions that differ from the traditional interpretation. There is no evidence that King Stasikypros presided over a city

with a democratic political organisation and features of a republic, probably inspired by democratic Athens. There is no evidence of the existence of an assembly, or *boule*, to indicate a form of democracy; nowhere in the inscription is there an indication of joint sovereignty between the king and the people, nor that the king's right to donate or dispose of royal land is subject to public agreement and consent. After all, it was a part of the king's land, not public land, that was donated to Onasilos and his brothers in settlement for the additional medical services they provided to the citizens of Idalion. In general, the 'Cypriot basileus had undivided authority over the secular and sacred landscape of his territorial state',<sup>250</sup> and Stasikypros was no exception.

The relationship between the king and the city must be seen in context with how a vassal state in the Persian Empire had to operate in order to comply with its obligations derived from tribute and other contributions and obligations to the Persian king. In this type of administration there was no room for any splitting of authority. Nevertheless, in this instance, it seems very clear that the institution of kingship at Idalion had elements of collaboration between the king and his citizens. It is evident that royal governance was exercised by allowing the citizens to have a platform, but let one have no illusions, the king was in absolute control.<sup>251</sup>

From this tablet we learn that the land, or most of it, belonged to the king. Throughout the centuries there was already a well-developed institution of land ownership and hereditary transfer. Land was donated, leased or sold to individuals for cultivation, and from which taxes on production were levied; in this way a loyal, tax-paying, landowning sector of society was created. The *Oikonomika* makes it clear that taxes (*phoros*) were paid either as fixed amounts (*ekphorion*) or as a proportion of the harvest (*dekate*), or as revenues from goods sent out (*exagogima*) from king's land leased for production, e.g. forests and copper mines. That such taxes were paid at Idalion is evident from the *asylia* granted to the land and its products that was given to Onasilos and his brothers. In short, Onasilos, his brothers, and their descendants had the right to own, cultivate and resell the land without paying and of the normal taxes that everyone else was obliged to pay. Therefore, other lands not enjoying the privilege of *asylia* were liable to taxes, and this is why these lands were donated or leased to individuals or organisations such as temples and other bodies, and this was the

<sup>250</sup> Iacovou 2020: 258.

<sup>251</sup> We have a similar situation today with the oil-rich emirates in the Arabian/Persian Gulf. Some, under pressure by the international community, operate a style of parliament that can form an assembly when a minimum number of government-designated delegates are present. Needless to say, very rarely is this minimum number of delegates present, as a result of which this 'body of citizens' rarely meets and exists only to serve the Emir's interests, as and when needed.

way the king would collect his revenues. Thus in the organisation of Idalion, and most probably in the other Cypriot city-states, one can in this way trace elements of Persian fiscal administration, as reflected in Pseudo-Aristotle's *Oikonomika*.

The lands donated to Onasilos and his brothers were described in detail and a definite price on their value was fixed for the purpose of possible resale. This means that state land, including that of the king, was catalogued and registered, and thus there must have been some form of land registry. This was necessary so that all the land and its individual owners could be assessed for tax, otherwise there was no suitable way to collect the tribute payable to the Persian satrap and the Great King. It seems reasonable to think that this register might have been made in collaboration with Persian surveyors,<sup>252</sup> as was the case in Ionian territories, where, after the Ionian revolt, these functionaries measured the area for tribute reassessment.<sup>253</sup>

Finally, the tablet served as an honorary certificate of ownership, with clear stipulations for the terms and conditions and the reasons of the donation; it might also have been so that the transaction to be properly entered into the royal or city land registry.

There is no direct information it seems for why the Persians and the Kitians jointly attacked Idalion, with the latter ending up annexing Idalion and creating a new expanded and combined city-state, that of Kition and Idalion. In the opinion of this present author, the reasons why Idalion was attacked by the Persians had nothing to do with ethnicity, ideology, or any other reason apart from straight forward economics and the need to divide and rule. A reasonable deduction is that the Persians were interested in containing the rise in financial and political power of Salamis and its developing alliance with Paphos. By annexing Idalion to Kition, with Kition as the administrative centre and Idalion as the production centre, they created a wedge (Kition–Idalion–Lapethos) between the territories controlled by Salamis in the east and Paphos in the west of the island, thus eliminating any potential risks arising from alliances among powerful local and ambitious rulers. Another possibility might have been that the economic and political differences between Idalion and Kition could have interrupted the supply chain of natural resources from inland production areas to the coast. Over the years, the Kitians had demonstrated loyalty as well as financial and political stability, and it might have been that the Persians trusted the Kitians to better manage the copper-rich territories controlled by Idalion.

### The Kourion Inscription. Land registry as proof of ownership and allocation of taxes

The Kourion inscription,<sup>254</sup> discovered in 1962 on the acropolis of Kourion and dated to the beginning of the 5th century BC, commemorates the grant of royal land to the people (*damoteroi*) of Kourion. From the evidence, the king of Kourion was the sole owner of the land that belonged to the state. Granting of land to its citizens was done for creating tax-paying landowners as a source of revenue, along the lines of the Achaemenid fiscal system as outlined in the *Oikonomika*. The Persians assessed Kourion's land for tribute and there was no other way to pay the tribute than to make this land generate revenue. It is not a coincidence that regular granting of land appears just after the Cypriot kingdoms entered Darius' regulated tribute system. Tribute payment and land transactions, as at Idalion, Kourion, and elsewhere in the Persian Empire, would need to have been properly recorded and registered. No evidence exists for such a land registry on Cyprus, one can look elsewhere in the Empire to see how things were managed. From the evidence to follow, and in the light of the land transactions that took place at Idalion and Kourion, it is clear that the Cypriot city-states could not exist in a vacuum but had to have, or develop, traditions and practices similar and compatible to the institutions of their master.

#### Asia Minor

Determining tribute necessitated the establishment of a cadastre, i.e. a registry of property to serve as guidance for taxation. This necessitated the establishment of territorial boundaries between private property, and land between states, as Artaphernes did in Asia Minor immediately after the Ionian revolt of 493–492 BC.<sup>255</sup> This is, for example, implied by the confiscation of land in Miletos in 493 BC.<sup>256</sup> Cadastres existed in Sardis, and the practice was continued in Hellenistic times, known as *basilikai graphai* and handled by the *bibliophylax*, who was in charge of recording all land transfers, especially those resulting from concessions of royal land, e.g. at Idalion and Kourion.

#### Babylonia

The fact that an official cadastre also existed in Babylonia is proved by texts from private and state tablets, dated to the time of Darius, documenting land sales and transfers. Although Babylonia had a long tradition of accountancy, it was during Persian administration that this fiscal innovation was institutionalised, as evidenced by terminology known from Persepolis.<sup>257</sup>

<sup>252</sup> Lord Kitchener might not have been the first to compile a Cypriot land registry.

<sup>253</sup> Hdt. 6. 42–43.

<sup>254</sup> Mitford 1971; IK no.218 = ICS no. 180b.

<sup>255</sup> Briant 2002: 412.

<sup>256</sup> Hdt. 5.20.

<sup>257</sup> Briant 2002: 413.

### Egypt

The existence of land registry for the purpose of guaranteeing ownership and allocating tax revenues is evidenced during Achaemenid Egypt.<sup>258</sup> Such evidence exists in a document that proves the hereditary right of a person to property.<sup>259</sup> Such proof is only possible if an archive and registry existed, 'the archives of the royal scribes of enumeration', where different kinds of lands and transaction were registered to facilitate taxation.<sup>260</sup> Several demotic Egyptian documents, some of them dating since the days of Darius I, mention an official (*senti*) who controlled the apportionment of revenues and regulated the allocation of taxes for the king. This office was carried into the Hellenistic period under the name *dioiketes*, the same title given to the minister of finance in Ptolemaic Egypt.

Thus, the Achaemenid administration required land transfers throughout the empire to be properly registered for tax purposes. This enhanced the institution of property ownership, an essential element in the intensification of the economy.

### Revenues from the operation of ports and trade in market places

In the Third Economic Cycle Cyprus had at least eight major commercial ports, operating as *emporía* and for the shipment and trans-shipment of goods, these being Salamis, Kition, Amathus, Kourion, Palaepaphos/Paphos, Marion, Soloi, and Lapethos. The revenues from these ports and *emporía* in Pseudo-Aristotle's *Oikonomika* fall under the third revenue group, i.e. market centres. These ports being the market locations and entrepôts for trade, together with their fleets of merchantmen, were the engine of the island's maritime economy. The ports, apart from sustaining a thriving private maritime economy, were potentially the sources of multiple income in fees and duties to the city-states in the form of duties, fees, and taxes. There is no evidence of what the individual or combined incomes of these eight ports might have been, nor to what extent this income affected the island's maritime trade. To try and reach some useful conclusions, therefore, one must look at Cyprus' trading partners.

### Athens

Athens and its port, Piraeus, were among the most important entrepôts for trade in the Mediterranean, remaining so until Alexandria changed the whole picture of Mediterranean maritime trade. Sources reveal that in 400 BC Athens' income from import and export duties reached 30 talents, increasing the

year after to 36.<sup>261</sup> Assuming a levy (*ellimention*) of 2% (*pentikosti*), this translates, in 399 BC, to a total inward and outward trade traffic worth 1800 talents. It has been argued that it is possible that Piraeus over certain periods may have been the largest single exporting port in the Aegean, an activity that would have brought considerable profits to Athens from the 2% harbour tax on grain and the whole business of unloading, handling and reloading surplus grain.<sup>262</sup> The Athenians, in addition, levied a tax of 5% (*eikosti*) on all imports and exports at the ports of their allies, contributing a total income of 20,000 talents.<sup>263</sup> They also taxed, for as long as it was under their control, the grain trade through Bosporos at 10% (*dekati*).<sup>264</sup> Xenophon, realising how important the port and its facilities were to the city, proposed to provide improved port services to attract foreign merchants.<sup>265</sup> Athens also provided excellent maritime laws and commercial regulations, as well as banking facilities and competitive maritime loans.

### The Ahiqar scroll from Elephantine, 475 BC

An Aramaic erased text written beneath the text of the Ahiqar scroll, recovered in Egypt in Elephantine in 1911 and deciphered in the early 1990s, lists very important and useful information on the duty collected from Ionian and presumably Phoenician ships carrying goods to and from Egypt during ten months of one sailing season (475 BC) in the reign of Xerxes. The customs were collected in an unknown port on the Nile, and it is assumed that a daily recording was made at the dockyard and sent to the accountant at the king's treasury, where it was copied to the scroll. Thirty-six of these ships are clearly identified as Ionian (*ywny*), while the remaining six are taken as being Phoenician, their cargoes being mainly Sidonian wine and cedar wood, two popular Phoenician products.

The duty was collected daily and handed over to the royal treasury, the king's house. The duty was paid either in silver or gold and was recoded in staters in their equivalent Persian-Egyptian weight units. The Ionian ships, carrying wine, oil and wood, paid a duty of one fifth, 20%, of the value of the imported goods. The Phoenician ships paid a tithe, i.e. 10% (*dekati*), on their Sidonian wine, cedar wood, copper and wool. Most probably the copper they carried was imported from Cyprus and they were just acting as mediators and transporters.

Two additional taxes were paid. One was called 'silver of the men' and was apparently a kind of harbour tax. The other was called 'portion of the oil', amounting to about

<sup>258</sup> Briant 2002: 413; DAE 2, 18 (AP1 16).

<sup>259</sup> DAE 69 (AD 8).

<sup>260</sup> Briant 2002: 414.

<sup>261</sup> Andocides. *de Myst.* 134.

<sup>262</sup> Whitbey 1998: 126.

<sup>263</sup> Michell 1940: 255; Thuk. 7.28.4.

<sup>264</sup> Andreades 1933: 298; Diod. 13.64; Mavrogiannis 2011: 137-138; Polyb. 4.44.

<sup>265</sup> Xen. *Revenues* 3.12.

one fifth of the value of the olive oil carried by each ship. It is estimated that the 42 ships, over a year, paid a total duty of almost a ton of silver,<sup>266</sup> demonstrating that import taxes and duties were a considerable source of income for maritime economies.

Only one product was exported by Ionian ships, natron (soda), used for dyeing and food preservation.<sup>267</sup> A tax proportionate to its value was paid. No export goods were recorded for the Phoenician ships. Most probably the assessment of the value of the cargo was made at the Canopic mouth of the Nile Delta. It is worth noting that the process and listing method of the ships, goods and taxes on the scroll is a continuation of the methods used by the Saite Dynasty before the Achaemenids, the latter seemingly not wanting to change old customs and traditions that were working well.

It is interesting that no Cypriot ships docked at the harbour for the ten-month period, whereas the list documents 36 Ionian vessels arriving in the same port over the same sailing season. This period was shortly after the Ionian revolt and during the Athenian domination of the Delian League in the Aegean. This brisk trade between Ionia and Egypt in this particular period testifies to the fact that Ionian maritime trade managed to recover from the repercussions and probable restrictions after the revolt failed. This might be the result of Persian policy being primarily interested in receiving their tribute and revenues from the continuation of the Ionian trade rather than restricting it. Does the absence of Cypriot ships at the same port suggest that a different policy was pursued against the Cypriots? The intensified continuation of Ionian trade to Egypt is also an indication of Ionian independence from Athens, at that time master of sea-borne trade in the Aegean.

For both Athens and the Persian authorities in Egypt, the duties and customs received at their ports represented huge and important sums of money. With no evidence from Cyprus of exactly what import and export duties were levied at its ports, only reasonable deductions and speculations can be made, taking into consideration the corresponding taxes paid in Athens and Egypt. Whatever the case, the proceeds must have made a very valuable contribution to the Cypriot maritime economy.

#### *Egypt at the end of the Third Economic Cycle*

The imposition of import and export duties and taxes in the hands of ruthless officials could prove a powerful

<sup>266</sup> Goransson 2007: 207.

<sup>267</sup> Alum and natron, both essential ingredients in textile processing were available in Egypt in large quantities, and were regarded as a useful means of exchange. As a measure of alum's importance as a mineral resource is the fact that when the people of Delphi requested help to rebuild the temple of Apollo after a fire, the Saite pharaoh Amasis contributed 1000 talents (c. 26–28 tons) of alum. Horden and Purcell 2000: 49.

tool, distorting prices both in the local and international markets. Such is the case of Kleomenes from Naukratis, as described in Pseudo-Aristotle's *Oikonomika*.<sup>268</sup> Kleomenes was appointed by Alexander the Great as toll collector and governor of Egypt and Libya. He thus became a very powerful figure and was known for his harsh methods.<sup>269</sup> During the international crisis in the 320s BC he stopped exports of grain from Egypt and bought up all the harvests intended for overseas markets. He subsequently increased export tariffs and resumed exports, leading to great increases in the international price of grain, especially in Athens, adding to the hardships already suffered by the population of the city (see Figure 86).

Another instance of import duties being used to increase commodity prices is that of oil in Ptolemaic Egypt, which was a state monopoly and, as such, private individuals were forbidden to import foreign oil for local use unless they paid a 25% import duty.<sup>270</sup> This had the effect of increasing the price of oil in Egypt to unprecedented levels (see Figure 88).

#### **Revenues from copper mines and shipbuilding timber**

It is not known under what fiscal arrangements the copper mines and forests producing shipbuilding timber operated. Due to the important revenues from these two vital natural resources, it is reasonable to assume that the copper mines and forests were under the jurisdiction of the respective kings of the city-states. In Pseudo-Aristotle their income was the 'second revenue [...] that produced from private property, in some place gold, in another silver, in another copper, in another whatever is available'.

From the evidence from other regions, although the copper mines were presumably operated under the jurisdiction of the kings of the city-states, who might in turn assign their exploitation to rich private individuals, ultimate ownership was in the hands of the Great King, who had the right of proportional tribute and part of the production. There is no proof of this, but looking at how the Persians dealt with similar cases elsewhere in their empire, surely this is a reasonable assumption to make, with some justification being offered in the following sections.

#### *Gold mines in Lydia*

Diodoros informs that Cyrus put under royal authority the property of Croesos, presumably including some of his gold mines (κρήσεις).<sup>271</sup> It cannot be claimed that

<sup>268</sup> Arist. *Oik.* 1352a, 16–19.

<sup>269</sup> Dem. 56.

<sup>270</sup> Goransson 2007: 208.

<sup>271</sup> Briant 2002: 40; Diod. 9.33.4.

all these mines were put under Persian control, since, when marching in 480 BC against Greece and passing through Lydia, Xerxes was met by a wealthy Lydian called Pythios, who had financed Xerxes' father and offered him the fabulous amount of 2000 silver talents, plus 4,000,000 golden daric staters as a financial contribution for his campaign.<sup>272</sup> Pythios, who owned several gold mines in the Lydian countryside, might have been a descendent of the royal family. Evidently a large number of Lydian mines was under the ownership of wealthy individuals who had the right to exploit them for their own benefit as long as they gave part of their output to the satrap at Sardis, who passed on the proceeds to the royal treasury. The amounts were so enormous that it is fair to assume that the owners/concessionaires would have been required to provide precise annual accounting records of their production, duly verified by the satrapal administration, so that agreed tribute and production sharing could be determined.<sup>273</sup>

#### *Egyptian stone quarries*

The stone quarries in the Wadi Hamammat were operated under the direction of Persian administrators and officials during the reign of Darius I. No doubt a sizable portion of the proceeds was destined for the royal treasury, as well as part of the production being taken for the construction of Achaemenid buildings.<sup>274</sup>

#### *The forests of Mount Lebanon*

As mentioned previously, in the reign of Artaxerxes I the forests of Mount Lebanon were managed by a Persian 'keeper of the king's park'<sup>275</sup> appointed by the royal administration. These are the same royal forests from where Antigonos the One-Eyed cut one thousand trees to build the fleet he intended to use to conquer Egypt. It is fair to assume that the forests of Mount Lebanon were exploited under the same arrangements as the Lydian gold mines and Egyptian stone quarries.

#### *Cyprus' copper mines and forests*

As with the Lebanese timber, one may presume that Cyprus' forests and copper mines were operated in the same way. Although a sizable portion of the production and proceeds were destined for the royal treasury at Susa, there was nevertheless enough surplus for the Cypriot city-states and their shipwrights, artisans, entrepreneurs, and merchants. Consequently, Cypriot copper, among the five richest concentrations of copper deposits per unit of surface area worldwide,<sup>276</sup> continued to be mined during the Third Economic Cycle

and its surplus constituted a very large percentage of the island's maritime economy. The copper exports recorded by Andokides from Salamis to the Athenians in Samos,<sup>277</sup> the copper from Marion at Eleusis<sup>278</sup> to be used for making metal clamps (πόλους και ἐμπόλια), and Nikokreon's dispatch of raw copper to be cast into prizes for the young athletes in the games of Hera at Argos,<sup>279</sup> are all evidence of the importance of copper to the Cypriot maritime economy. The copper in the cargo of the Phoenician ships mentioned in the Ahiqar scroll, most probably originating from Cyprus, can be seen as a representation of what was a 'global' and thriving industry. The Athenians, especially after the disaster in 413 BC, were frequent recipients of Cypriot copper and shipbuilding timber.<sup>280</sup>

Timber from the rich Cypriot forests was used for domestic purposes, industry and building, as well as for heating and cooking. It was also exported to places where there was insufficient good timber available and where Cypriot timber enjoyed a good reputation, such as Egypt. Cyprus was known not only for its good shipbuilding timber but also for its shipyards and shipbuilding expertise. It is clear that building merchantmen and warships, and running and maintaining them for the Persian navy generated significant income for the island's coastal city-states.

### THE INTERNATIONAL GRAIN TRADE

The international grain trade during the Third Economic Cycle was a commercial activity of paramount importance that contributed substantial profits alike for producers, shippers, and traders. It was particularly essential for the survival of most of the Greek cities, both on the mainland and in the Aegean, that were not self-sufficient in grain production. The city of Athens had the biggest problem being unable to produce more than 20% of its needs in grain to feed its population. Other areas like the Peloponnese, northwest Greece, Crete, and Rhodes had occasionally similar problems although not as acute as that of Athens. Therefore, the supply of grain to Athens from places like Pontos, Cyrene, Egypt, Cyprus, and the West developed into an activity of the utmost complexity and a source of endless fighting and political manoeuvring. Cyprus with its centuries-old maritime tradition and expertise in long-distance trade played its own important role in the complex international grain trade activities that took place during the Third Economic Cycle.

<sup>272</sup> Hdt. 7. 27–29.

<sup>273</sup> Briant 2002: 401.

<sup>274</sup> Briant 2002: 400.

<sup>275</sup> Neh. 2.8.

<sup>276</sup> Constantinou 2010: 23.

<sup>277</sup> Andoc. 20–21.20.

<sup>278</sup> IG 112 1675, inscription found in the porch of Philon.

<sup>279</sup> Dedicatory inscription from Argos IG IV 583; Chavane and Yon: 1978; Christodoulou 2009; Kassianidou and Charalambous 2019: 240.

<sup>280</sup> Andoc. 2.11.20; Meiggs and Lewis 91; Thuk. 8.35.2.

**Production of grain in Cyprus**

One needs to look first to ascertain whether Cyprus, in spite of its semi-arid climate,<sup>281</sup> was capable of producing enough grain to feed its population and whether it had the capacity to produce surplus grain for export and exchange. To calculate how much arable land had to be cultivated to produce sufficient grain to feed its population reference can be made to an official report of geologist and French consul in Cyprus, Albert Gaudry. In the mid 19th century Gaudry calculated the average annual production of wheat and barley over a twelve-year period to be 150,000 hl of wheat and 350,000 hl of barley, thus 500,000 hl of grain in total.<sup>282</sup> This amount of grain was produced by cultivating 37,500 ha of arable land planted for cereal, representing 61.2% (36.7% and 24.5%) of the total area of 61,300 ha under the plough (see Figure 80 and Table 9).<sup>283</sup> By using the conversion rate of 1 l barley as 0.6 kg,<sup>284</sup> then an annual production of 30,000 tons of grain is reached. It seems reasonable to assume that approximately the same figures could have applied in Cyprus during the Third Economic Cycle, i.e. grain production over area of 37,500 ha, feeding a civilian population of c. 126,500 (30,000 ton ÷ 237 kg). Therefore, for a total population of c. 190,000 (126,500 x 1.5) the arable land planted for grain would have to amount to c. 56,250 ha (1.5 x 37,500). This represents 6% of the total area of Cyprus.

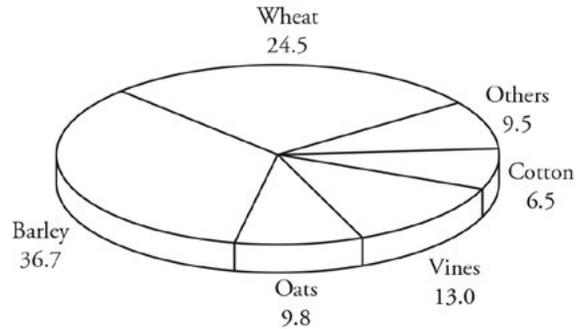


Figure 80: Grain cultivation dominated Cyprus’ agriculture in 1844. Of the 61,300 ha (Table 9) under crops, about 61.2% was planted for barley and wheat, i.e. 37,500 ha of the arable land was planted for cereal (drawing: Philipos Vasiliades, after Jenness 1962: 65).

During the mid-19th century, when a total grain production of 37,500 tons was been achieved the population of Cyprus was at a relatively low level, c. 150,000 inhabitants (see Figure 81). During Venetian occupation, in the mid 16th century, when its population reached c. 200,000, the island’s grain production was at its peak, i.e. c. 2.5 – 3 times that of the mid 19th century. When the population increased in the last years of the Ottoman period, and during British times, grain production increased accordingly. Evidently Cyprus, given the right climatic conditions and circumstances, was capable of producing surplus grain for export. It is reported that during the Venetian period, Venice herself was taking all the surplus crop.<sup>285</sup> At the beginning of the 19th century, during good harvest years, Cyprus could load 60–70 vessels with surplus grain destined for Europe and Turkey, with as much as 300,000–350,000 bushels, i.e. about 10.9m–12.22m l.<sup>286</sup> In the last years of Turkish rule, 1874–1875, Cyprus is recorded to have exported 690,400 bushels of barley (25m l) to England, 160,000 bushels (5.5m l) to Belgium, and 128,000 bushels (4.65m l) to France.<sup>287</sup> In other words, Cyprus in antiquity could produce enough grain for its population and at the same time export surplus grain, depending, of course, on climatic conditions and the availability of a suitable workforce. This is an important conclusion in terms of the arguments, raised later in this study, for the island’s involvement in the grain trade of the Third Economic Cycle.

	1844 <sup>1</sup>	1863 <sup>2</sup>	1946 <sup>3</sup>
Total farmland	180,000 ha	200,000 ha	550,000 ha
Area under crops	61,300 <sup>4</sup> ha	65,000 ha	225,000 ha
Area reserved for cereal	87,000 ha		
Area planted for grain	37,500 ha		
Wheat (24.5% of area under crops)	15,000 tons		
Barley (36.7% of area under crops)	22,500 tons		
Total grain (wheat and barley)	37,500 tons		

<sup>1</sup> Gaudry 1855: 90.  
<sup>2</sup> Gaudry 1855: 150; Jenness 1962: 65.  
<sup>3</sup> *Census of Population and Agriculture* 1946: 66.  
<sup>4</sup> Available arable land in 1950 was 57% of total; Christodoulou 1959: 104–108.

Table 9: Total farmland and areas under crops in the 19th and 20th centuries (Jenness 1962: 66–71).

**Athens’ grain shortage**

Athens entered a cycle of external grain dependency as early as the 6th century BC. Solon’s measures are an indication of the difficulties the city faced in feeding its population. Plutarchos records, for example, that

<sup>281</sup> Iacovou 2020: 248.  
<sup>282</sup> Gaudry 1855: 9; Gennadiou 2019: 372–373; Jenness 1962: 6.  
<sup>283</sup> Productivity works out at 1330 l per acre, or 600 kg per acre of grain.  
<sup>284</sup> US grade 1 and 2, US Grain Standard (1st June, 1997).

<sup>285</sup> Jenness 1962: 69.  
<sup>286</sup> Jenness 1962: 69.  
<sup>287</sup> AP 1876, XXXIV, C.1486, PP.1032–1038; Jenness 1962: 69.

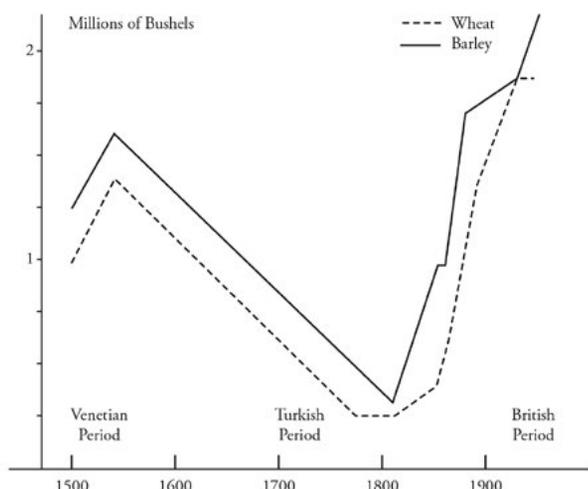
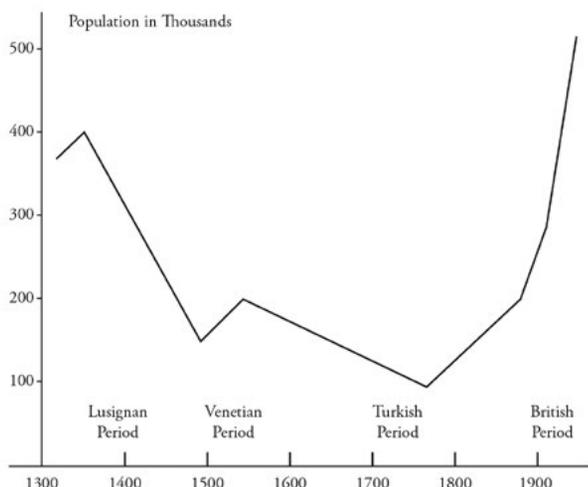


Figure 81: Top: During the Lusignan period there was a steady decline in population. This was reversed during Venetian times when the population numbers recovered to c. 200,000 inhabitants. During the Ottoman period the population declined again, until it started recovering in the 19th century AD. Bottom: The fluctuation in grain production from the Venetian period onwards followed closely the population changes. Cyprus under the right climatic conditions and circumstances was able to produce enough grain for its population plus surpluses for export (drawings: Philipos Vasiliades, after Jenness 1962: 64).

Solon forbade exports of grain altogether.<sup>288</sup> The need for grain drove Athens towards expansionist military and foreign policies, highlighted by such successes as the conquest of Imbros and Lemnos. These two islands served not only as useful watch stations for the grain trade through the wider area, as well as producing in their own right a surplus which, in the mid 4th century BC, accounted for more than 10% of Athens' grain needs (see Table 10).<sup>289</sup>

The surplus supplied to the Athenian market by private merchants was most probably produced by Athenian

Source of grain	Quantity in <i>medimnoi</i>
Attica	340,000
Lemnos and Imbros	150,000
Pontus	400,000
Cyrene	90,000
East (Egypt and Cyprus)	90,000 <sup>1</sup>
West	90,000
Other	90,000
<b>Total</b>	<b>1,250,000</b>

According to the analysis in section 35.1, for Cyprus to produce 90,000 *medimnoi* of grain with the productivity of 1844 it needed to plant 3,554 ha ( $90,000 \times 52.53 \div 1330$ ). This means Cyprus needed only to plant for grain an additional 6% ( $3,554 \div 56,250$ ) to the land already planted for grain to feed its population, so it could produce the same surplus of 90,000 *medimnoi* that Egypt is reported to have been exporting to Athens.

Table 10: Estimated sources of grain in Athens in the mid 4th century BC.

colonists (*clerouchoi*) settled on the islands for this purpose. In addition, the Athenian state passed a grain law in 374/73 BC levying a tax in kind of one twelfth on the islands' products.<sup>290</sup> To patrol the convoys of merchantmen carrying grain from Pontos to Athens, the main source of imported grain to the city, the Athenians put Skyros under their control and maintained a large garrison on Andros.<sup>291</sup> As referenced previously, in spite of their earlier efforts they were unable to repeat the same success for Cyprus, who could have played the same role, in terms of the eastern supplies of grain as Lemnos and Imbros played for supplies from the north.

According to Strabo 'In fertility, Cyprus is not inferior to any one of the islands, for it produces both good wine and good oil, and also a sufficient supply of grain for its own use.'<sup>292</sup> Although Strabo does not specifically say that Cyprus was a producer of surplus grain, there is sufficient textual and inscriptional evidence to claim that during the Third Economic Cycle the island was a grain exporter. From the analysis, it is understood that it had the required arable land for cultivation and cereal production, which, during a series of good harvest years, with good climatic conditions and available farming personnel, could yield sufficient quantities of surplus grain. On the other hand, it was possible that during times of war and prolonged naval activities farming personnel were diverted to the war effort and there were insufficient workers for planting and harvesting. It should be recalled that, in 381 BC, the Persian general Glos relied on grain supplies from Kilikia to feed his large

<sup>288</sup> Plut. Solon.  
<sup>289</sup> After Bresson 2016: 411.

<sup>290</sup> Bresson 2016: 410.  
<sup>291</sup> Convoys (*sitopompia*) of the grain fleet were also provided by warships. For a discussion on protection measures, see Michell 1940: 268.  
<sup>292</sup> Str. 14.6.5.

army on the island, and Evagoras relied on grain supplies from Egypt to meet the needs of his army.<sup>293</sup> The frequent participation of Cypriots in naval activities might have deprived its agriculture of skilled farmers and personnel. This did not stop, however, the island from playing an important role in the international grain trade, due to its strategic position and proximity to the large grain markets of Egypt and access and connections to the royal granaries of the Persian Empire, with their surplus quantities of grain. Athens repeated and energetic military and naval efforts, before the Peace of Kallias in 449 BC, to bring Cyprus within its orbit has more to do with the island's strategic position and Athens' need to secure the supply and trade routes of grain and other products from Cyprus, Egypt,<sup>294</sup> and the Near East, than to 'free' the island from Persian occupation. The same holds true for the years before the King's Peace in 387/6 BC. During this period the grain supply to Athens, in general, was greatly disrupted, causing price increases and much distress<sup>295</sup> to its population. The wheat dealers, by holding back the supply of grain, drove its price above the legal maximum of 1 *obol* above the cost price per *medimnos* to 1 drachm, i.e. six times as much. This prompted Lysias<sup>296</sup> to prosecute those wheat dealers (*sitopolai*) responsible for Athens' high grain prices.

The scarcity of grain in Greece, and its dependency on imported cereals, explains the military strategies adapted during the various military operations, especially during the Peloponnesian War, whether that was Athenian efforts to cut off the grain supply from Sicily to the Peloponnesians, or Spartan efforts to block the grain supply to Athens from the Black Sea through the straits. The decisive defeat of the Athenian fleet at Aigospotamoi brought about the collapse of grain supplies to Athens from Pontos, and the eventual downfall of Athens itself. During the Peace of Kallias after 449 BC, and after the King's Peace of 387/6 BC, Cypriot grain supplies and exports with mainland Greece, and mainly Athens, flourished, either in state hands (e.g. Evagoras of Salamis, Roikos of Amathus), or through private players (e.g. Andokides, Herakleides).

Athens realised that the policy of acquisition of foreign territories was not a good solution. It was not only costly, but in the long run it was an unsustainable practice, and therefore, they went for peaceful options by way of alliances and trade agreements. Athens followed a trade policy whereby traders were free to act according to the requirements of the market, encouraging private merchants to carry out the great majority of international trade and act freely on their own initiative.

<sup>293</sup> Diod. 15.3.

<sup>294</sup> Michell 1940: 262.

<sup>295</sup> Michell 1940: 262, 272.

<sup>296</sup> Lysias 12. 14–16.

To ensure that there was always enough grain for the city in the case of emergencies, and when the availability of grain became critical, Athens, like other Greek cities, apart from its reliance on private merchants, designated grain buyers (*sitonai*), appointed by the city,<sup>297</sup> to buy, either locally or in the international market, any surplus grain to satisfy the needs of the population. These buyers were charged to travel to either grain-producing countries, or places of re-exportation, e.g. Delos, Rhodes, Cyprus, secure it, and then arrange its transport back to their cities.<sup>298</sup>

The city of Athens applied Aristotle's institutional logic 'surplus for surplus', which was eventually practised widely internationally. For the latter, the 'import of commodities that they happen not to have in their city, and the export of their surplus productions, are necessary requirements'.<sup>299</sup> To put it simply, any city with a surplus, e.g. grain, might contract with a city that had a surplus of another product, say, wine, and in exchanging surpluses both benefitted. This was the optimum way, in a peaceful way, for Athens to feed Attika's population of 330,000 in the 5th century BC, or 250,000 in the 4th.

These foreign trade strategies were formed whereby the city, instead of arbiter, became a partner. The tactical tool for such a strategy to work was private merchants and traders. Strict rules were put in place, e.g. no foodstuffs, including grain, oil and wine, were permitted for export or re-export from Athens.<sup>300</sup> For each delivery of grain the seller must enter into a prior contract to deliver the grain load to Athens. Financing and shipping loans ('bottomry' loans) were sanctioned only for deliveries to Athens and nowhere else. In this way merchants contracted to deliver grain for Athens could not unload it halfway if they found a better price. Anyone not abiding by these rules was liable under the law and could be prosecuted.<sup>301</sup>

### Royal grain surplus

A closer look shows how these arrangements worked, and especially how the surplus grain from Persian satrapies could end up helping to feed the Greeks. Various historical sources, e.g. the Persepolis 'Treasury' and 'Fortification' tablets, point to similarities between Pseudo-Aristotle's economic theories and the practice of the Achaemenid empire as far as the handling of the royal economy and surpluses were concerned.

<sup>297</sup> Bresson 2016: 385.

<sup>298</sup> Such cases are highlighted in the supply of grain to Thebes in 377 BC (Xenophon. *Hellinica*. 4.56); Histiaia IG XL.4 1055+1025; Syll. (3), 493; for commentary, see Bresson 2016: 383–384.

<sup>299</sup> Arist. *Politics* 7.5.4; Isokrates *Panygirikos* 4.42; Polyb. 4.38.8–9.

<sup>300</sup> There were cases in which a third of the imported grain was allowed to be re-exported (Arist. *Ath. Pol.* ii.4).

<sup>301</sup> IG II (3) 1315; Xen. *Economica* 20.27–28; for commentary, see Bresson 2016: 383.

As previously mentioned, the royal economy in Pseudo-Aristotle's *Oikonomika* is divided into key sectors: coinage, exports (*exagogima*), imports (*eisagogima*), and expenditure. The Persian Empire's royal economy was organised along similar lines,<sup>302</sup> i.e. the management of surpluses produced by the assessments imposed by the administration, the warehousing and archiving linked to *eisagogima* (goods in) and *exagogima* (goods out), and the distribution relating to income and expenditure.

The Persian king and his administration, after receiving the tribute assessments from the satraps, were responsible for recording, storing, and preserving them. The author of the *Oikonomika* details the storing of goods in royal storing places (*paratheseis*) and warehouses (*thesouroi*) along the royal road, or stored by satraps in the home territories (*tage*).<sup>303</sup> In all cases the paramount royal or state duty was the distribution and selling of the surpluses of the assessed goods and the produce in storage, at the best possible opportunity and method, so as to return optimum profits for the royal treasury. Thus, the administration could profit from circumstances that favoured the release of surplus inventories to the market.

Such a case is that of the Persian satrap Orontes, from Mysia in Asia Minor, who, around the middle of the 4th century, sold wheat to the Athenian army at the straits at Hellespont. The Athenian soldiers were entitled to receive part of their salary (*misthos*) in wheat for their subsistence. But wheat was not freely and easily available. As it turned out, wheat was finally supplied to the Athenian army from the satrapal warehouses after Athenian ambassadors (*sitonai*), acting on the instructions of their *stratego*i, made a request to the satrap. The satrap, acting on behalf of his king, did not donate the wheat for free but sold it at a profit.<sup>304</sup> The Persian satrap was awarded by decree honorary Athenian citizenship for providing a valuable service to the city of Athens.

Surpluses from the royal and satrapal granaries were particularly useful and were made widely available as disbursements (*exagogima*) to feed the Persian army, or individuals requisitioned to work for the army. This often involved food supplies, e.g. those delivered by merchantmen to the Persian army during the campaigns of Darius and Xerxes against Greece,<sup>305</sup> including for the digging of the Athos canal. Food supplies, obtained from royal granaries against payment, were generally delivered to the Persian army by both land<sup>306</sup> and sea.<sup>307</sup>

Evagoras I, in c. 381 BC, was able to divert the supplies to the Persian army, at the time of the Persian presence on the island under Glos, by sinking or capturing the private merchantmen transporting food and wheat to the Persians on the island. This forced the Persian fleet to intervene and undertake by themselves the safe transport of large quantities of grain and other provisions, from surplus stocks in the royal granaries in Kilikia for Glos' army in Cyprus.<sup>308</sup>

The practice of storing wheat in royal granaries and then selling it on the market was adopted by the Hellenistic kings, as evidenced by the instructions of Antigonos One-Eyed to the ambassadors of Lebedos, c. the last quarter of the 4th century. Antigonos claimed there was no reason to build their own granaries but rely on their supplies of wheat from the surpluses in the royal granaries of the tribute lands (*chora phorologomene*), presumably against payment.<sup>309</sup>

### Cypriot grain trade

The long periods of peace and security that followed the Peace of Kallias and the King's Peace gave Cyprus the opportunity to participate in the Aristotelian 'surplus for surplus' international trade, benefitting its economy in general and its maritime economy in particular. Cypriot merchants and traders had the advantage of centuries-old institutional experience and contacts in long-distance trade since the First and Second Economic Cycles, thus it was only natural for them to adapt to the needs, practices and realities of the Third. It is relatively easy, therefore, to visualise international players such as Evagoras, Herakleides, Andokides, and Zenon participating accordingly in international grain trade networks and financing systems. Two such typical options stand out:

(1) Cypriot-state international traders, e.g. Evagoras, export Cypriot copper and shipbuilding timber to Egypt. In exchange they take Egyptian surplus grain, either from the local markets or royal granaries, which they complement with surplus grain produced on the island, and deliver it to Athens. The Athenian state rewards them with an honorary decree for their services. They return to Cyprus with cargoes of Athenian fine pottery and handicrafts which they unload onto the Cypriot market for a handsome profit in silver.

(2) Cypriot private merchants, e.g. Herakleides, borrow in Athens from financiers, e.g. Zenon, to buy surplus wine from Chalkidiki and exports it to the Black Sea. In exchange he takes grain and slaves and delivers them to Athens against a contractual price that gives him

<sup>302</sup> Aperghis 2004: 117–135; Briant 2002: 452.

<sup>303</sup> Briant 2002: 452–453; Xenophon *Anab.* III. 4.31.

<sup>304</sup> Bresson 2016: 400; Briant 2002: 453–454; *IG* II2 207a; *IG* 3 295.

<sup>305</sup> *Hdt.* 7.1, 25.

<sup>306</sup> *Xen. Anab.* 1.5.6.

<sup>307</sup> *Diod. XV.* 3.1–3.

<sup>308</sup> *Diod. XV.* 3.1–3.

<sup>309</sup> Briant 2002: 453; *RC* 3: 80–85.

enough profit to allow him to settle his loan and end up with a handsome net income.

Therefore, Cypriot kings and merchants, as well as private shippers, took advantage of the Athenian need for grain and intensified their maritime activities by trading, separately from Cypriot grain or other Cypriot products like shipbuilding timber and copper, surplus grain from Pontos or from the Persian king's granaries. King Evagoras' policies towards Egypt and close contacts in that country, had to do, among other reasons, with access to grain supplies, most probably from royal granaries. The fact that Evagoras supplied Athens with grain is confirmed by the honorary decree the city granted in his favour that mentions legal contracts between him and the city.<sup>310</sup> Some of the reasons for the honorary decrees he received from the city of Athens for his services in supplying the city with grain are similar to those cited in favour of the Persian satrap Orontes on his decree. Apart from his propagandistic and politically motivated reasons, Isokrates must have had real and tangible reasons for crediting Evagoras for many important beneficial services – ‘διά πολλὰς και μεγάλας εὐεργεσίας’.<sup>311</sup> It is not unreasonable to consider that Evagoras complemented Cypriot grain surpluses, along with surplus grain obtained from the royal granaries in Egypt, in exchange of Cypriot copper and shipbuilding timber. Roikos, king of Amathus, is also reported to have sent grain to Athens to show his gratitude for Athenian support,<sup>312</sup> possibly after the siege of his city by Evagoras.

Another player, it seems, was the Athenian orator and merchant Andokides, who arrived initially at Kition c. 415/414 BC, but moved later to Salamis. In c. 411 BC he supplied the Athenians at Samos with Cypriot grain, shipbuilding timber, and copper.<sup>313</sup> Most probably, as well as Cypriot grain, he was also trading with grain surpluses partly supplied from royal granaries. A few years later, c. 407 BC, he supplied Athens with a large shipment of grain, in a delivery of fourteen ships, to the port of Piraeus.<sup>314</sup> If we consider that a ship of small to average size carried c. 15,000 l, this shipment would amount to c. 4000 *medimnoi* ((15,000 x 14) ÷ 52.530) grain. Its market value at an average price of 6 *obols* per *medimnos* was worth 24,000 drachms, a small fortune.

The Kitian entrepreneur Antipatros is quoted by Demosthenes as having invested in Athens, c. 350 BC, in a venture involving shipments of wool, goat skins, and

amphorae of wine to Pontos, presumably for a return cargo of grain to Athens.<sup>315</sup>

Other systematic grain exports, dated to the second half of the 4th century BC, are also documented.<sup>316</sup> During the great famine in Athens between 330–326 BC a number of Cypriot grain merchants did what they could to supply the Athenian population. The Cypriot merchant named Herakleides<sup>317</sup> from Salamis was awarded an honorary decree and a wreath of honour, for being the first merchant to reach Athens with 3000 *medimnoi* of grain. This translates to a shipment of 157,590 l (3000 x 52.53), by no means a small one, that would have taken perhaps six or seven vessels of the capacity of the Kyrenia shipwrecks or a large merchantman to transport it. This confirms that he was a wealthy owner and captain of ships (*naukleros*). Although the price on the open market was up to 16 drachms per *medimnos*, he delivered it to Athens for only 5 drachms per *medimnos*. From his total receipts of 15,000 drachms, he made a donation to the city of 3000 drachm. It seems that this was not the first, not last, sale of grain that this very astute Cypriot merchant undertook with the city of Athens. Judging by this sizable transaction, which gave to Herakleides a profit of 15,000 drachms, Zenon's capital (in this instance 1000 talents) must have been extremely substantial.

In a similar case, a merchant from Salamis involved in the trade of grain from Pontos, received from the city of Athens, c. 330/329 BC, an honorary decree for his services.<sup>318</sup> On one occasion he was captured by Dionysios of Heracleia, a city on the Black Sea, and his sails were confiscated. He was bailed out by Athens, who sent an embassy demanding the return of the sails and non-interference with Cypriot ships bound with grain for their city.

The philosopher Zenon from Kition, who lived in Athens around the end of the Third Economic Cycle, had an active involvement as a financier. He was from a wealthy trading family that, among other activities, dealt in purple dye from Phoenicia, and had a fund of 1000 talents in silver that he used as capital to finance and loan to maritime traders.<sup>319</sup> It is reasonable to consider that among his clients were transporters who traded grain from the Black Sea, Cyprus, and Egypt.

<sup>310</sup> IG I (2): *De Evagora Cypriot c.a. 410 EM 6844*; Mavrogiannis 2011: 160–161.

<sup>311</sup> Isok. *Evagoras* 45.

<sup>312</sup> Theodoulou 2006: 40; *Suda: Ποίκων κριθοπομπία*.

<sup>313</sup> Andokides *De Reditu Suo*: 20, 21; *Lys. And.* 26–28; Mavrogiannis 2011: 145; Michell 1940: 262; Theodoulou 2006: 38–39.

<sup>314</sup> Andokides *De Reditu Suo*: 20, 21; Hadjoannou 1971: 139.

<sup>315</sup> *Dem. Against Lacr.* 33. The Phoenician name *sem*, meaning ‘first-born’ and taken as the counterpart of ‘father’, corresponds to the Greek name Antipatros. Lipinsky 2004: 100.

<sup>316</sup> IG II(2) 407; IG II(2) 283.

<sup>317</sup> Michell 1940: 263; *Syll.* 3. 304 = IG.II(2), 360.

<sup>318</sup> He might be the same man who delivered 3000 *medimnoi* to Athens from Pontos; IG II (2) 360, *Syll.* 304; Michell 1940: 263 believes they are two different men; see also Theodoulou 2006: 43.

<sup>319</sup> The amount of 1000 talents must be treated with caution – it is an enormous amount by any standards. Pasion, the most famous and wealthiest banker in Greece when he died, was worth 70 talents, 50 of which were in banking (*Steph.*i.64).

Demosthenes records that Antipatros from Kition lent money to a certain Ivlision for a maritime venture to import grain from Pontos.<sup>320</sup> Such trading activities created a Cypriot community of merchants who became closely involved with Athenian society. This is attested by a decree dated 333 BC granting the right to merchants from Kition to acquire land to erect a sanctuary for Aphrodite. The temple was to be sited near the sanctuary built by the Egyptians for their goddess Isis.<sup>321</sup>

Many other traders from various regions undertook activities similar to those of the Cypriot shippers. At about the same period an honorary decree was awarded to a Tyrian merchant for importing grain to Athens in 332–331 BC, just at the time that naval hostilities between the Persians and Makedonians were under way in the Aegean and the siege of Tyros was at its peak. There is also a record of an honorary decree awarded by the city of Athens to two merchants from Heraclea, who, in 335–334 BC, brought wheat and barley from Sicily to sell in Athens at 5 drachms, instead of the prevailing market price of 9 drachms per *medimnos*.

The famine in Greece at the close of the Third Economic Cycle coincided with Alexander's campaign against the Persian Empire, and Egypt coming under his control. It can be attributed to two main reasons. The first is directly related to the large amounts of grain and supplies, including those from Pontos, being diverted to supply Alexander's army, and the second is the disastrous policy of Kleomenes of Naukratis, who was appointed financial controller of Egypt by Alexander. Kleomenes, in control of all the grain in Egypt, fixed its price, and by regulating<sup>322</sup> and directing supplies to the highest bidder<sup>323</sup> caused a famine that affected nearly all Greece – after Alexander's death he was executed by Ptolemaios Soter. As far as the first reason for the famine is concerned, one can consider that the Cypriot maritime and naval presence, one of the strongest in the Mediterranean at the time (i.e. there were at least 120 Cypriot *trierei*s with Alexander at the siege of Tyros), actively participated in the transport of grain to Alexander's army.

As will be detailed in the case-study that follows, the Cypriots must have played a major part in supplying provisions, including grain, to the Cypriot fleet in the Persian navy in the Aegean between 334–332 BC, as well as to the same fleet the following year when the Cypriots joined Alexander in the siege of Tyros.

Alexander's army during its march from Tyros to Egypt, including the siege at Gaza, was supplied from the sea by the fleet that is assumed to have included Cypriot ships. In addition, Alexander after the conquest of the Levantine coast, ordered 100 Cypriot and Phoenician ships to support Amphoteris and Antipatros against Agis III in the Peloponnese.<sup>324</sup> It is reasonable to infer that the support they gave to the Makedonians included the supply of surplus grain from Cyprus and the granaries of Egypt. The Cypriots, therefore, can be viewed as having a considerable role in the international supply of grain during wartime as well. This had an enormous benefit to the Cypriot maritime economy.

## COINAGE, CREDIT, AND FINANCE

As discussed previously, towards the end of the Second Economic Cycle King Evelthon of Salamis was the first Cypriot king to issue silver coins, followed by the kings of Paphos, Kourion, and Idalion. The rest of the city-states followed soon enough. Each king in each city-state issued his own coins in different types and with legends attesting to the royal title and his name. Although the study of Cypriot coins contributed greatly in terms of understanding the political and economic history of Cyprus, there is still much to learn. This is amply demonstrated by the discovery of the Nicosia hoard, dated c. 500–498 BC, including 36 early silver *sigloi*, none of which can be attributed with certainty to any of the known city-states of Cyprus.<sup>325</sup> The monetisation of Cyprus' economy can be assessed in part through the issue of its minted coins, and from three aspects: its weight standards, symbols and iconography, and its impact on the political economy.

### Coinage weights and standards

#### *The 6th and 5th centuries BC*

The Cypriot coins of the 6th and 5th centuries BC, called *siglos*, were made exclusively of silver and seem to have a common weight standard of 10.55 g – 11 g per *siglos*, which can be taken as a continuation of one of the weight standards used on the island throughout the First and Second Economic Cycles – the 10.5 g Palestinian or Syrian *necef* standard.<sup>326</sup> *Siglos* is the transcription of the Semitic word shekel into Greek, and is confirmed in the Lefkoniko tablet, which mentions a payment in a unit in the Cypriot Syllabic script *si-ko-lo-ne*, read as *sigloi*.<sup>327</sup> The weight 10.55 g – 11 g is confirmed on various inscribed weights, and although it is considered as a continuation of an existing Cypriot standard it might be taken to follow Persian traditions and practices, since it equates to the 2 Persian silver

<sup>320</sup> Dem. *Lakr.* 33, *Phor.* 6; Michel 1940: 336; Theodoulou 2006: 41.

<sup>321</sup> *IG* 2, 168; Theodoulou 2006: 42.

<sup>322</sup> According to Arist. *Oikonomika* II, 2.

<sup>323</sup> Dem. *In Dionys.* 7.

<sup>324</sup> Arr. 3.6.3.

<sup>325</sup> Pilides and Destrooper Georgiades 2008: 307–335.

<sup>326</sup> Kroll 2008: 41.

<sup>327</sup> Markou 2009: 281; Masson 1983.

*sigloi* of c. 5.4 g each ( $5.4 \times 2 = 10.8$ ) circulating in Asia Minor and used by Xerxes and Darius to finance their military operations there.<sup>328</sup> Using the ratio of gold to silver as 1:10, 1 gold daric was worth c. 8 ( $(8.3 \times 10) \div 10.5$ ) Cypriot silver *sigloi*. Apart from these probable equivalencies, the Cypriot coins of the 6th and 5th centuries have little in common with the Persian issues. The Cypriot silver *sigloi* were issued mostly in divisions of thirds, sixths, tenths and twelfths, and apart from reasons of prestige and expressing independence they seemed to have been mostly used within the island rather than for international transactions.

#### The 4th century BC

During the 4th century BC three more types have been introduced, the gold Cypriot stater of 8.44 g, the 7 g silver didrachm, as well as bronze versions. The 8.44 g golden staters were not issued by all city-states. They were inspired by the 8.3 golden daric, the Persian coin *par excellence*, and were mostly issued by Salamis and Kition. Although the 11 g silver *sigloi* continued to be issued, a new 7 g silver standard didrachm was adopted by the majority of the Cypriot kings. This new standard was described as Rhodian or Chian, and was most probably following the standard of the Hekatomnid mints and other areas of the Aegean and Asia Minor,<sup>329</sup> with which Cypriots had cultural contacts and close trade relations. It facilitated internal transactions, as 12 silver didrachms were equal to 1 golden Cypriot stater. Its weight could also match 10 attic *obols* that were 0.72 g each ( $0.72 \times 10 = 7$ ). Therefore, the addition of the 8.44 g golden staters and the 7 g silver didrachm was intended mostly for internal transactions but could also facilitate Cyprus' internationalisation and its mercantile and commercial needs, as well as its military obligations.

#### Linguistic variations and use of symbols and iconography

The early Cypriot coins were issued with the Cypriot syllabic script. Although the syllabic script continued to be the most common, several coinages of the Archaic and Classical periods bear either Phoenician or a combination of Phoenician and Cypriot syllabic legends. From the end of the 5th century there was a Greek, or a combination of Greek and Cypriot syllabic legends.<sup>330</sup>

Apart from the linguistic variations, Cypriot coins displayed a diversified iconography whose principal types were related to Near Eastern cults and traditions. The major ones are the ankh, the sign of Tanit, and

the flying winged disc. The ankh sign, present in most Cypriot royal issues, is the Egyptian symbol of life, and is formed by a circle and a cross attached to its lowest part; it was used both on Archaic- and Classical-period issues as a main iconographical feature, but also as a secondary symbol. The occasional use of the sign of Tanit, a symbol that refers to one of the Carthaginian deities associated with Baal Amon, on coins of certain Cypriot city-states is a confirmation of religious affiliation with deities from Carthage and close cultural and commercial contacts with that city. The sign of Tanit, which is similar to the ankh symbol, except that the cross is replaced by a triangle, appears on coins of Kition, Salamis, and Lapethos. The winged solar disc is another Near Eastern symbol that appears on the coins of Paphos and Kition. There is, of course, also very clear Greek influence on Cypriot coin iconography, especially in the 4th century, in the form of Greek gods, e.g. Athena, Aphrodite, Artemis, Apollo, and Hercules.

Other unique iconographic legends on Cypriot coins linked to royal ideology are the foreparts of a boar or of a lion, or a combination of the foreparts of a lion and boar superimposed. All such symbols and iconographic legends point to strong Cypriot ties to the island's neighbours and trade partners - Egypt, Phoenicia, Syria, Assyria, Kilikia, Karia, Lykia, Ionia, and Greece. They also extend as far as Carthage, due to cultic and cultural ties, mainly with the Semitic-speaking inhabitants of the island.

#### Political economy

It is clear that the introduction of coinage by the Cypriot city-states at the end of the 6th century BC had nothing to do with their obligation to pay tribute to the Persians. An important aspect of Darius' fiscal reforms is that he did not monetise tribute itself, but its accounting. Tribute in general was expected to be paid in kind, and or in weighted silver, and not necessarily in coinage. In principle, all tributary peoples could send regular gifts to the central court and these were then assimilated in with the tribute:<sup>331</sup> gifts had an ideological value, whereas the tribute was purely financial in nature. If tribute was not destined for massive monetisation by coinage what was the reason for minting royal coins in the form of silver *sigloi* and golden darics? The answer lies in its political functionality, especially for expenditure, prestige, and ideology. With the new innovation, Darius crowned his achievements by creating a legacy, *mnemosynon*, of achieving more than his predecessors. The same applied to the kings of Cyprus, the issue of coins was mostly for political functionality, especially for expenditure, as well as prestige and ideology, and, most

<sup>328</sup> Briant 2002: 409.

<sup>329</sup> Markou 2009: 282.

<sup>330</sup> Markou 2014: 397.

<sup>331</sup> Briant 2002: 396.

importantly, as a means of expressing their internal political independence within the Persian Empire.

Pseudo-Aristotle's *Oikonomika* refers to coinage in more detail: 'First, we will look at the royal economy. This exercises power over the whole and has four aspects: relating to coinage, to goods that can be sent out (*exagogima*), to goods that can be brought in (*eisagogima*) and to expenditure. [Let us take] each of these separately. With regard to currency, I mean what to mint *timion* or *euonon* of large and small denomination.'

Coinage, therefore, was one of the major aspects of royal economy. That is, one of the king's primary tasks was to ensure an adequate supply of coined money in various denominations to meet demand for expenditure for goods and services. The king was responsible for the purpose and timing of the issue of coinage, as well as its value, the denominations and types that would determine and express the concept of the *timion* (high price) or *euonon* (fair price).<sup>332</sup> Monetisation of the Cypriot economy and the issue of coins by the respective kings of the city-states, although predating Pseudo-Aristotle's *Oikonomika*, follows its directives. It was part of the royal economy and thus the king's prerogative and duty to issue coins: it was his decision what kind of currency and what denominations, and when, as well as what material – bronze, silver, or gold.

The issue of Cypriot gold staters, in the beginning of the 4th century BC, is a good example of the alignment of the Cypriot kings' fiscal and monetary policies with Pseudo-Aristotle's directives. The earlier Cypriot gold coins are dated in context to the Cypriot War, between 392–380 BC, and were issued by Milkyathon of Kition and Evagoras I of Salamis. The gold coins minted in various denominations, especially the smaller ones of 1/10th and 1/20th, were issued to cover war expenses, mainly in salaries and provisions to the soldiers and sailors involved in the fighting. Considering the average pay of an oarsman to be 4 attic *obols* per day, the 1/10th denomination would cover three days' pay per oarsman, and by presuming the cost of provisions at the equivalent of 2 attic *obols* per day, the 1/20th denomination would cover three days' provisions<sup>333</sup> per soldier or oarsman. In general, the gold staters of 8.44 g and their denominations gave a greater flexibility to the Cypriot kings to deal with external transactions with a recognised equivalency of 1 to 1 of the gold staters to the gold daric, and 1 to 10 gold to silver. It also facilitated internal transactions, as 1 gold stater was equivalent to 12 silver ( $8.44 \times 10 \div 7 = 12$ ) didrachms

and its 1/12 denomination was equivalent to one silver ( $(8.44 \times 10 \div 12) \div 7 = 1$ ) didrachm.

Tracking issues of coins gives a fair idea of political events on the island. For example, Pumyathon of Kition seems to have increased the issue of his gold coins during 332 BC. This was most probably to support the defence of Tyros against Alexander's siege. As from 332/331 BC, i.e. after the domination of the Mediterranean by Alexander, the Cypriot city-states seemed to have stopped issuing their own coins and started issuing Alexander's coins as a sign of their surrender to the Makedonians. Pumyathon, in spite of a very impressive gift to Alexander of a golden sword, was punished for his stance during the siege of Tyros by losing control of copper-rich Tamassos to Salamis.<sup>334</sup> After Alexander's death the Cypriot kings resumed the issue of coins, with their name and iconography, until their abolition c. 312/310 BC.

The volumes of Cypriot coins in circulation are not known, nor to what degree monetisation of the island's fiscal system helped the intensification and sustainability of its maritime economy. Clearly monetisation made internal transactions faster, less costly, and more reliable. Any coinage system without international recognition for its equivalency and reliability was not always easy to use outside its local environment. In Athens, for example, the state, by a decree enacted c. 423 BC, made the use of foreign coins, weights and measures a punishable offense. Any person with foreign money must hand it over to the city to be exchanged by the superintendent of the city's mint;<sup>335</sup> this way uniformity of coins and weights was achieved and rates of exchange established.

### Credit and finance

In this study of the Cypriot maritime economy, other important fiscal requirements, such as credit and finance, must not be overlooked, especially in the international arena, as overseas and long-distance trade in the Third Economic Cycle reached a very high degree of complexity due to internationalisation.

International and long-distance trade involves complex exchange networks and mechanisms that are not similar within the friendly and protected family or neighbourhood environment. The monetary system just described provided an autonomous instrument and recognition of common value to transacting parties. This is not sufficient for the system to work efficiently and with minimum costs. In addition, a number of other disciplines have to be present. Thus, although transactions by monetary use of precious metals, which

<sup>332</sup> See Aperghis 2004: 119 for discussion and references.

<sup>333</sup>  $1/10\text{th gold 4th-century stater} = 8.44 \text{ g silver} = 1.2 \text{ Cypriot silver}$   
 $(8.44 \div 7) \text{ 4th-century didrachm} = c. 12 (8.44/0.72) \text{ silver attic obols} = c.$   
 three days' average pay (for the equivalent salary of 4 attic *obols* per day).  
 The  $1/20\text{th gold 4th-century stater} = \text{three days' provisions}$  (for the equivalent cost of provisions for 2 attic *obols* per day).

<sup>334</sup> Ath. 4.167c–d.

<sup>335</sup> I.G. 1(2); see Michell 1940: 339 for discussion.

eventually took the form of coined money, constituted the ultimate reference in monetary matters, in order to have a fully regulated and institutionalised system other features and disciplines were also necessary, first and foremost the institution of credit and a legal framework for its application and the resolution of disputes.

Cyprus, having well-established, long-distance trade activities, must have had money-lending arrangements in the form of banking institutions and money-lenders, or it would have been impossible to develop such successful international trade. Indicative is the way the reciprocal trade of the Amarna era was conducted, during the First Economic Cycle, including a hidden credit arrangement from the king of Alashiya to the pharaoh of Egypt, and vice versa. During the Second Economic Cycle the private Cypriot entrepreneurs who paved the way for the Mediterranean trade to continue and thrive could not have succeeded unless they had the financial backing of royal institutions, temples, and other elite organisations. During the Third Economic Cycle there is evidence of rich private money-lenders from Cyprus, who were involved in financing international maritime ventures.

Such individuals, operating in Athens, were the aforementioned Antipatros and the philosopher Zenon, both from Kition. The latter, coming from a rich mercantile family, was in Athens with a capital fund of some 1000 silver talents which he used to finance and loan to maritime merchants and traders.<sup>336</sup> Presumably other money-lenders, for example from Zenon's family, existed back in Cyprus, especially in the rich emporia of Salamis, Kition, Amathus, and the other coastal city-states of the island. Why did Antipatros and Zenon chose to live and operate out of Athens instead of their native city of Kition? The answer is because Athens was the centre of trade at that time with enormous demands for the supply of basic foodstuffs, such as grain, with its own well-established legal system (*dikai emporikai*) that provided good opportunities and a good legal framework for money-lenders. Antipatros and Zenon took advantage of the fact that banking in Athens, like all other commercial ventures, was in the hands of immigrants – *metics*. Pasion, the most famous and wealthiest of all Greek bankers, who operated in Athens, was originally a slave.<sup>337</sup> In spite of their wealth, money-lenders in general, who made their money on high interest and mortgages on fixed and movable property, were, at best, considered as a necessary fact of business life, and did not enjoy good reputations among ancient societies.<sup>338</sup>

As for borrowers, Athens was home to seafarers, ships' captains, and merchants seeking capital for their maritime ventures. One such individual might well have been the Cypriot merchant and captain Heiraklides, whom we have met already, who was awarded an honorary decree by the Athenians for his services in importing grain. Loans sought to finance maritime ventures involved complexity and risks that justify high rates of interest. Both lenders and borrowers had to know this complex world of maritime credit finance and trade in order to conduct their businesses successfully. This would include those Cypriots involved on both sides of the venture, i.e. those providing the international finance, and those conducting international trade.

### Finance for international trade – Demosthenes' speech *Against Lakritos*

One may try and navigate through this world of credit finance and international trade by going through a typical 4th-century BC legal case described in Demosthenes speech *Against Lakritos*.<sup>339</sup> The speech refers to a legal dispute that had arisen as a result of a legal contract to lend money for the supply of grain from Pontos to Athens. The contract, drafted c. 340 BC, refers to a normal business transaction or maritime loan, *nautikon daneion*, with the usual conditions prevailing at the time. In the contract, Androkles from the demos of Sphettos and Nausikrates from Karystos, lent 3000 drachms to Artemos and Apollodoros of Phaselis to purchase grain from Pontos and transport it to Athens. Upon their arrival back in Athens the borrowers would sell the grain and from the proceeds settle the loan against an interest of 225 drachms per 1000 borrowed. As a security for the loan the borrowers were to pledge 3000 amphorae of wine, which they would purchase from Chalkidiki on their way to Pontos. The ship, estimated at 75 tons dead weight,<sup>340</sup> may be considered a large vessel, although about half the capacity of the Alonessos wreck.

In the agreement, in case of shipwreck or if the captain had to abandon any part of the cargo to save the ship, or pay ransom to pirates, then the risk was the creditors', who risked losing any amount not rescued, jettisoned, or paid to pirates. In other words, based on these terms, the lenders could lose part or all of the sum lent to the borrowers, with no right of redress. For all other risks the borrowers were responsible. The lawsuit was brought against Lakritos, brother of the now deceased Artemos, who, although standing as security for his brother, refused to pay the debt.

<sup>336</sup> Διογ. Βίοι 7.13.

<sup>337</sup> Dem. *pro Phorm.* 43, 48.

<sup>338</sup> Not much has changed in nearly 3000 years,

<sup>339</sup> Dem. *Lakr.* 35.10–14; for discussion, see Bresson 2016: 280–285.

<sup>340</sup> Mitchell 1940: 243.

Looking more closely at the contract, some specific details stand out:

- (i) The agreement was in writing. Oral agreements were valid and binding, but more difficult to validate. Agreements required the presence of witnesses and were to be deposited with the appropriate authority.
- (ii) The contracting parties were of various origins, Androkles was an Athenian, but Nausikrates was from Karystos (on the southern tip of Euobea), while the two borrowers were from Phaselis, in southern Asia Minor. This is an indication of the internationalism of the Athenian banking system and economy. The city offered profitable and multiple business opportunities, largely from its steady need for grain, as well as a flexible monetary system of coined money, based on a functioning and stable legal system. A benefit of this was that transaction costs were sharply reduced, while the concentration of capital and coined money made credit more readily available, thus contributing to the growth of credit and the intensification of the economy. The amount borrowed within the contract in question was 3000 drachms, and the loan was made only to cover a return cargo of grain to Athens, as no loan could be made for trade in foreign markets.
- (iii) The itinerary of the ship and time of departure were precisely defined, as well as the purpose of the loan. The debtors were obliged to purchase 3000 amphorae of wine from Chalkidiki. At a selling price of 2 drachms each, they represented a value that was double the amount loaned. The wine-filled amphorae, which would be sold at Pontos to raise the cash to buy the grain, were to be used as collateral against the loan,<sup>341</sup> and only one loan against the ship and its cargo was allowed over the same trip. To guard against fraud, it was customary to load in the presence of witnesses.<sup>342</sup> The ship would take on grain at Pontos and return to Athens where the grain and other merchandise will be sold and with the proceeds the loan would be settled, plus 22.5% interest, within twenty days of arrival. Cohen argues that in Athens there was no maritime interest rate as we know it today expressed as a percentage over a fixed period of time.<sup>343</sup> The Greek term of interest used by ancient Greek writers is *τόκος*. Since *τόκος* for maritime loans was not related to the passage of time it is best translated as yield rather than interest. Although

there is merit in Cohen's argumentation for this present narrative, the widely accepted term interest is used here.

- (iv) The usual interest rate for a two-way trip similar to the one described in the case *Against Lakritos* in 340 BC was 22.5%. There are other cases reported with rates of 30%, e.g. the case of Phormio in 330 BC. Occasionally rates were even higher, depending on the itinerary and time and length of trip. The short three- to four-month return trips were much preferred since they gave the chance for higher interest rates and to loan the money again during the same sailing season. The loans could be repaid anywhere, and money-lenders in Athens, for example, had no objection to getting their payments in Cyprus or Rhodes for a voyage to Egypt. Since the sea routes from Cyprus and Rhodes were open all year, they could receive their money quickly rather than wait for the next sailing season.<sup>344</sup> For this reason, Cypriot money-lenders such as Zenon and Antipatros might well have kept offices both in Athens and Kition. For one-way voyages (*heteroplous*) the rate was 10% – 12%. These might have involved cases of reduced risk since the ship might have been travelling in convoy with other merchantmen and escorted by *trieres* with armed marines. In all instances the money-lender might have a representative on board to collect the principal plus interest when it was properly due.
- (v) The return trip for such a maritime venture would take three to four months. Therefore, the loan at 22.5% interest for such a short period of time was quite a profitable arrangement for the lenders. For such high-risk agreements involving maritime loans, where the lender bore the risk of wreckage, loss at sea, or ransom payments, this was the usual fee range.
- (vi) Although the interest seems high on the part of the borrower one has to take into consideration that the 22.5% fee was a composite fee of interest plus insurance premium. The amount of profit involved on the part of both parties was such that it was worth the risk.
- (vii) Apart from the reserved security or interim collateral provided by the purchase of the 3000 amphorae there was no fixed mortgage on land or immovable property due to the fact that the two debtors were not Athenian citizens, therefore they could not own property in Athens to mortgage. Any other losses apart from those mentioned in (iv) above were down to the debtors

<sup>341</sup> Similar to a 'floating' charge in modern banking.

<sup>342</sup> *Phorm.* 28, 29.

<sup>343</sup> Cohen 1992: 44–46; Goransson 2007: 206; Isager and Hansen 1975: 4.

<sup>344</sup> *Dionys.* 29; see Michell 1940: 347 for comments and discussion.

and the responsibility was extended to all their property either at land or sea. The law forbade the money of orphans being used for maritime loans and ventures.<sup>345</sup> Money could be borrowed on slaves as a guarantee, but no free man could be enslaved for the repayment of a loan.

Such, then, were the day-to-day underpinnings of credit finance and trading that, Cypriot merchants and bankers would have been aware of. It was customary for merchants who had retired from sea trade to use their expertise and savings to lend to others for sea ventures.<sup>346</sup> Cypriot maritime entrepreneurs could use the much bigger commercial centre of Athens as a base of operation, but at the same time keep an on-going operation in Cyprus, since no legal loans could be made in Athens for trade in foreign markets. They could buy and sell from any place they chose as they were dealing with an open market and they could use any internationally acceptable currency, although the Attic system was the preferred one.

It is known that similar trade transactions and banking loans and arrangements were being conducted at the same time in southern Mesopotamia and Babylon, where we know Cypriot copper was traded. These transactions were carried out at the famous banking houses of the Egibi sons or the Murassu family, who undertook large-scale and complex business loans both for the government and individuals. Orders were accepted and carried out to transfer funds from the account of one merchant to that of another. Deposits were received and interest paid thereon. They lent money on mortgage and even went into joint venture partnership with traders.<sup>347</sup>

In other words, international trading and its complexity had come a long way since the days when Carthaginian merchants carried out exchanges in Atlantic regions, leaving goods on the beaches to be traded and going back to their ships until the locals had taken the goods and left in their place products or silver whose equivalence in value was acceptable to the sellers.<sup>348</sup> The process would involve various methods of two-way communication between the parties, e.g. smoke signals, until a satisfactory deal was reached.

## RELIGION, THE TEMPLES, AND SANCTUARIES

Temples and sanctuaries were places for worship and cultic ceremonies, as well as political and economic activities. In an article, Fourier highlights the dynamic role of sanctuaries in defining the geographical boundaries, as well as the ideological and political

environment of Cypriot city-states in the Iron Age, which continued to evolve during the Classical period.<sup>349</sup> The territorialisation that took place in the Second Economic Cycle, and which continued into the Third, was defined by the proliferation of extra-urban sanctuaries that played a role in legitimising the king's strategies, and, as such, they established a very close bond and relationship between priesthood and kingship. This bond had political, ideological, and also economic characteristics, and sanctuaries became involved in a system that reflected the cultural, political and economic fluidity of the environment in Cyprus in the Third Economic Cycle, where city-states were conquered, ceded, bought, and alliances formed and changed to serve the needs of a particular development. During this period of fluidity, cultic memory of sacred temples or sanctuaries was not erased but adapted and reused, as happened with Apollo/Reshef and Athena/Anat at Idalion after the conquest of the city by Kition. This is further testimony of the mutual respect and close alliance between priesthood and royalty, and that past history was not lost but was incorporated and carried forward. There is no evidence of a Pancyprian sanctuary or cult, a strong sign of the individuality of the political and religious players on the island.

As evidenced from the 'Ingot God' and 'Horned God' figurines found in temples at Enkomi, and dated to the end of the First, beginning of the Second Economic Cycle, the cult of deities was closely associated with the manufacture and processing of copper. This relation extended to other economic and maritime activities as well as manufacturing processes. For example, during the 4th century BC in the Third Economic Cycle, there is evidence of a religious connection to the salt works of the Kition lagoon. The official in charge of salt production was most likely connected to the temple of Artemis, which extended its existence into the Roman period.

A 4th-century BC syllabic inscription from Palaepaphos provides evidence that the Paphian king maintained dual authority, that of king and the powerful office of high priest of the *Wanassa*.<sup>350</sup> The well-known ritual procession from Paphos to Palaepaphos,<sup>351</sup> itself perhaps a continuation of an ancient custom established during earlier economic cycles, attests even further to the strong bonds of cult and royalty and how ritual ceremonies might have been used as markers of religious, political, and economic features.

Another such example is represented, perhaps, by the sacred festival of *Egersis*, presumed to have taken place at

<sup>345</sup> Lysias, *Diogeit.* 25.

<sup>346</sup> Dem. *Apat.* 4.

<sup>347</sup> Michell 1940: 334; Westermann 1930.

<sup>348</sup> Hdt. 4.196.

<sup>349</sup> 'Constructing the Peripheries: Extra-Urban Sanctuaries and Peer-Polity Interaction in Iron Age Cyprus', Fourier 2013: 102.

<sup>350</sup> Meier and Kargeorghis 1984: 205.

<sup>351</sup> Str. 14.6.3; see Fourier 2013: 109 for commentary and reference to the Golgian processions.

Kition every year. This sacred festival was celebrated every year at Carthage and Tyros,<sup>352</sup> and, given the close cultural and religious relation of these two cities with Kition, it is reasonable to consider that the same festival was also celebrated at Kition. The festival featured the ceremony of *Egersis*, where the city's tutelary god, Melqart, worshipped as the owner and husband of the city, came back to life (*egersis*) with the arrival of the first spring equinox. For the entire duration of the ceremony no foreigners were allowed in the city and the festival was of immense cultural and religious significance, as Melqart was doomed to die again at the end of summer, symbolising the annual cycle of vegetation. Sacrificing to the god during the festival was a tradition reserved for the royal house and the king of the city; it identified the god with the king. The festival added to the ideology of kingship and priesthood being closely related. As part of the ceremony, an effigy of Melqart was placed on a giant raft and ritually set ablaze. As it floated away into the sea, it represented the rebirth, the *Egersis*, of Melqart. After the body of the latter was consumed by fire and the sea, the king and his chief consort would take on the roles of Melqart and Astarte in a ritual marriage, which guaranteed the fertility of the king and enshrined and legitimised his authority. The king was considered now to be the living Melqart, purified by fire and water every year. For the ordinary citizen, these religious ceremonies were the foundations of the very existence and prosperity of their city and created an unbroken bond between royalty and priesthood. The key events most likely took place at the port, the centre of maritime activity, next to the temples and the copper and textile workshops, in the presence of the royal family, the religious leaders, the commercial elite, and the people, signifying the importance of religion and royalty for the city's political, social, and commercial existence, including its maritime activities.

Although the evidence indicates that, in general, it was the palace where diplomatic relations and social transactions took place,<sup>353</sup> most likely it was the temples, the earliest treasuries, that first issued loans to both state and individuals. This practice is found in the Near East as well as Greece, examples including the temple at Delos, which, when under Athenian control, lent money for up to five years against 10% interest, and also the temple of Athena in Athens, which, between 433–427 BC, lent money at 6%. There is no evidence that this was happening in Cyprus, but the possibility cannot be excluded given the close political and economic relation between kingship and priesthood.

## DOCUMENTATION – LANGUAGE

As explained previously during analysis of the Second Economic Cycle, to accommodate the new demographic

reality there was a complete transformation and segmentation of the documentation and language institution of the island. The important characteristic of this transformation is that the Cypriot syllabic script, one of the pillars of the Cypriot institutional system, continued and developed in such a way that it formed the common denominator for the expression not only of royal authority but for the economic management of most of the island. This continuity, that has its roots in the First Economic Cycle, was extended right through the Second and to the end of the Third.

The use of the various developments of the Syllabic script to express the indigenous languages was a continuous affair throughout all three Economic Cycles studied here. The Cypriot syllabary was also the vehicle for written expression on the first Cypriot coins issued at Salamis, Paphos, Kourion, and Idalion. Syllabic script continued to be used by the Greek Arcado-Cypriot dialect, from the first evidence of such use in the 10th century BC with the Opheltas obelos, until the syllabic inscription of Nikokles, last king of Paphos,<sup>354</sup> at the end of the Third Economic Cycle.

The Phoenician alphabet was the writing tool of the Semitic-speaking Cypriots. Unlike elsewhere on the island, it was used as the expression of royal authority by the royal houses of the Semitic-speaking group on the island at Kition, and to a certain degree at Lapethos. The dominance that the Phoenician alphabet acquired on the island is confirmed by the fact that the 4th-century BC economic archive unearthed at Idalion, a city-state annexed by Kition c. the second quarter of the 5th century, is mainly written in the Phoenician alphabet.

A third writing system, the Greek alphabet, appeared on the island in the late 5th/early 4th century BC, mainly due to increased commercial and cultural connections with Greece. It was used mainly by Greek-speaking Cypriots, at Paphos, Soloi, Salamis, and elsewhere.

The appearance of digraphic and bilingual inscriptions is a clear sign of the need to communicate to more than one linguistic constituent of Cypriot society at the same time. An example is the inscription at Idalion on a dedication to Reshef Mykal (Apollo Amyklos in Greek), by the Phoenician prince Baalrom, presented in both the Phoenician alphabet and the Cypriot syllabary. Other examples of digraphic inscriptions are found at Amathus, with the simultaneous use of the Cypriot syllabary and Greek alphabet.

The Third Economic Cycle produces evidence of a wider use of written documentation for recording events, agreements, and ownership transfers, e.g. the

<sup>352</sup> Curt. 4.2.10.

<sup>353</sup> Fourier 2013: 110.

<sup>354</sup> Iacovou 2013: 114.

Pumyathon inscription, in the Phoenician alphabet, commemorating the Kitian naval victory over their enemies (Salaminians) and their allies the Paphians in c. 392 BC, and the Idalion tablet respectively. It is assumed that land registration of some written form must have existed, otherwise collection of taxes would have been an issue. An inscription in cursive Phoenician alphabet found at Kition shows that the script was also used to record payments and allocations of funds, and that special schools existed for the teaching and training of scribes.<sup>355</sup>

The Greek alphabet, introduced into Cyprus at the end of the 5th century BC,<sup>356</sup> together with the Greek *koine* imposed later by the Ptolemaians, eliminated the Semitic language and Phoenician alphabet immediately after the termination of the Semitic dynasties at Kition and Lapethos, at the end of the 4th century BC. The replacement of the Syllabic script by the Greek alphabet took a little longer, as, in certain cases, it extended into the period when Cyprus was under the Ptolemaians, as evidenced by syllabic scripts, by local craftsmen, dated to the last quarter of the 3rd century BC found at Idalion.<sup>357</sup> This widespread use and unique longevity of an admittedly difficult script, which very few could read outside Cyprus, speaks volumes for the strong institutional base of the Cypriot socio-political system. Clearly it had helped the internal organisation of the maritime economy, although it would have been of limited use for the external arm of this international activity. The Phoenician alphabet used by Semitic-speaking Cypriots, and which was widespread along Phoenician trading routes and in its colonies, was a more useful tool for exports, especially at places like Carthage, while the Greek alphabet, introduced in the late 5th/early 4th century BC, was instrumental in advancing trade and cultural exchange with Greece.

#### THE NAVAL WAR OF THE EASTERN MEDITERRANEAN (334–331 BC). CYPRIOT PARTICIPATION: A CASE-STUDY OF COSTS AND FINANCIAL IMPLICATIONS

As previously mentioned, at the same time Alexander the Great defeated the Persians on land at Granikos in 334 BC and Issos in 332 BC, another very important war, at sea this time, between the Makedonians and the Persians was being fought in the Eastern Mediterranean (334–331 BC). The Cypriots, with their navies, had a decisive and continuous role in this war. For the first two years, from May 334 BC to March 332 BC, they constituted, together with the Phoenicians, the major component of the Persian navy that fought against Alexander and his Makedonians in the Aegean. In the

third year, on or about April 332 BC, they switched sides, abandoning the Persians and joined Alexander at Tyros in the siege of the city, fighting with him until the dissolution of the Persian navy in the spring of 331 BC in Crete and the Peloponnese.<sup>358</sup>

A case-study can be presented to examine the financial implications, requirements and involvement of the Cypriot city-states with their navies, consisting of c. 150 warships, mainly *triereis*. By looking into the institutions and costs involved an attempt can be made to ascertain the impact on the island's economy of the entire naval and military activities at sea, particularly its maritime and naval economies.

For the Persians, the naval war in the Aegean had two important strategic aims. The first was to disrupt the supply networks of grain and other vital supplies to Greece and Alexander's army. The second, and equally important, was to create a second front in the rear of the Makedonian army and distract Alexander's attention from his main thrust on land. Alexander, recognising the Persian superiority at sea, compared to his inferior naval power, handed the initiative in the Aegean to the Persians, while restricting their movements and effectiveness by controlling the coasts of Asia Minor and blocking Persian access to harbours and safe anchorages for the resupplying of food and men.

While Alexander was preparing for his campaign against the Persians, which began with the crossing to Asia Minor at Sestos, on or about May 334 BC, the Persian navy with 300 *triereis*, Cypriots included, was actively involved helping Persian land forces put down another Egyptian uprising (336–334 BC).<sup>359</sup> When Darius' spies informed him of Alexander's intentions, he ordered a fleet to be constructed<sup>360</sup> and had it sail to meet Alexander's navy at Miletos. That navy, as Arrian informs, was made up of 400 warships, mainly *triereis*.<sup>361</sup> The Phoenicians contributed 200 vessels, the Cypriots 150, and the remaining 50 coming from other Persian subjects on the coast of Asia Minor.<sup>362</sup> The Cypriots and Phoenicians were led by their kings, who commanded the respective squadrons supplied by the various city-states, and were tasked with facing Alexander's navy of c. 182 warships.<sup>363</sup> Although Alexander, due to Persian superiority at sea, had disbanded his navy and relied instead on blockading the enemy from safe anchorages and harbours on the coast, soon reassembled his navy and engaged his enemies in naval battles on numerous occasions. What followed was an intense, two-year sea campaign, with the Persian navy, including Cypriots

<sup>355</sup> CIS nos. 86A, 87B; Healey:1974. Script dated by Pappa 2017 to the 6th century BC.

<sup>356</sup> Colombier 1991: 433–437.

<sup>357</sup> Mitford 1980: 264. A syllabic script is also found in the Roman archive of Paphos, dated to the 1st century BC.

<sup>358</sup> Parpas 2013: 63–168.

<sup>359</sup> Diod. 16.40.6

<sup>360</sup> Diod.17.7.2

<sup>361</sup> Arr. 1.18.5; Diodoros puts the number at 300 *trieres* (17.29.2).

<sup>362</sup> Parpas 2013: 79–89.

<sup>363</sup> Justin. 11.6.2; Parpas 2013: 64–65.

and Phoenicians, often gaining the upper hand and almost cancelling out Alexander's victories on land by their domination at sea. By taking Tenedos they had effectively disrupted grain supplies from the Black Sea, blockading the sea lanes from the Hellespont; they also captured Lesbos and laid siege to the city of Mytilene, sealing off the supply route of mercenaries to Alexander's army; they soon took Chios, Cos, and Miletos as well, and put most of Alikarnassos under their control, ultimately reaching as far west as Andros and Siphnos.

Up until November 333 BC, when news of Alexander's victory over Darius at Issos reached the Aegean, the Persian sea forces were in control, in spite of having to weaken their presence by transporting 20,000 mercenaries to support Darius.<sup>364</sup> In the winter of 333/332 BC, the Cypriot ships stationed at Cos and Alikarnassos made the decision to abandon the Persians and joined Alexander with 120 *triereis* for the siege of Tyros, which lasted for six or seven months until the winter of 332 BC. The Cypriot contingents, accompanied by their kings, played a decisive role in capturing Tyros (see Figure 82), and after the siege the Cypriot navy supplied Alexander's army on its way to Egypt and during the siege of Gaza, until it was ordered, together with the Phoenicians, to accompany Amphoterus with 100 *triereis* to Crete and the Peloponnese to help defeat Agis III and eradicate the remaining Persian presence in the Aegean.

It is hard to say whether these 100 *triereis* were included with the 120 that participated in the siege of Tyros, or whether they were additional ships ordered by Alexander. Nevertheless, for the purpose of this present case-study it is assumed that the Cypriots had a continuous average combat presence, with a fleet of c. 150 ships, from the spring of 334 BC until the early summer of 331 BC. For approximately the first two years they fought with the Persians against the Makedonians and for the last year they fought with the Makedonians against them. At the siege of Tyros, as well as naval power they provided siege engines, engineering support,<sup>365</sup> and ancillary services by helping with troop transports and resupplying the navy.

The island's resources must have been stretched to their limits, especially after the battle at Issos, when

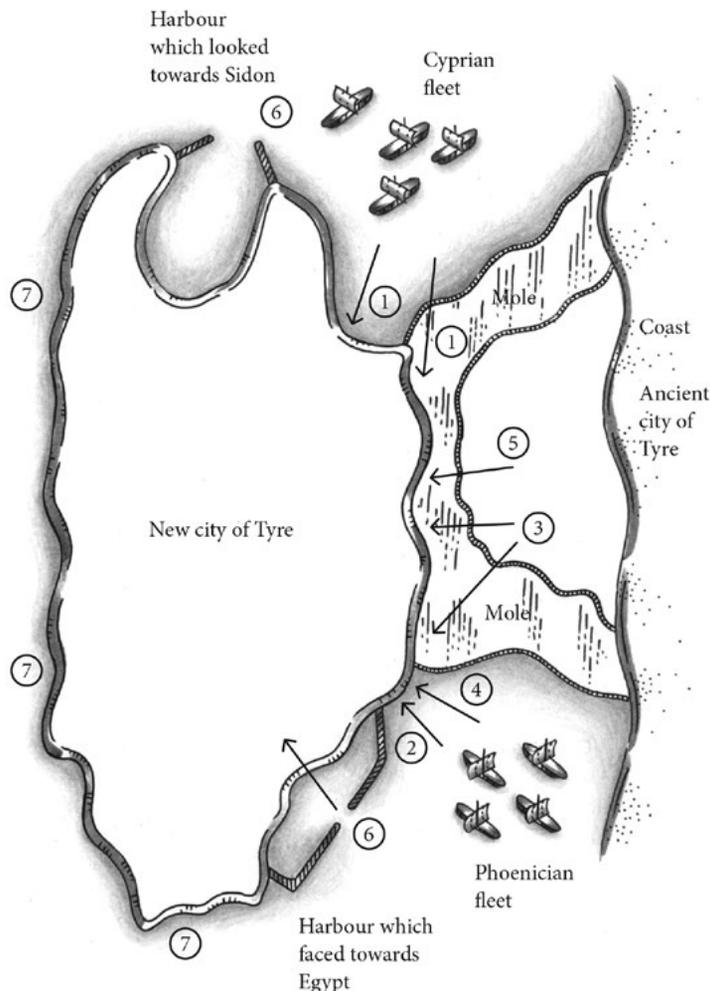


Figure 82: The Cypriot navy during the siege of Tyros, attacked from the Sidonian port (drawing: Philipos Vasiliades, after Parpas 2013: 160).

8000 mercenaries used the island as a stop-over station, before reaching Egypt, under Amynta's leadership.<sup>366</sup>

Overall, it was a major naval campaign with related activities, that included the construction, and especially the maintenance, of 150 *triereis* and the complements and crews of c. 30,000 trained oarsmen and officers, as well as the logistics to keep the necessary supplies flowing. The infrastructure involved to support such a major naval campaign and related activities required functioning and stable institutions, together with multidiscipline organisational structures and a strong financial base. These financial aspects and requirements of the Cypriot city-states in the naval operations of this three-year period can be further analysed in three parts: (1) infrastructure, (2) ships, and (3) crews.

**Infrastructure**

As previously referenced, the Persian navy in the Aegean of 400 *triereis* included c. 150 Cypriot *triereis*,

<sup>364</sup> Bosworth 1988: 99 believes that 200 ships were needed to transport these troops from Lykia to Issos; Parpas 2013: 108-109.

<sup>365</sup> Arr. 2.21.1.

<sup>366</sup> Parpas 2013: 128-131, Fig. 15.

commanded by the respective kings of the city-states participating in the campaign. The *triereis* were built on the direct orders of Darius himself,<sup>367</sup> and these were presumably the 120<sup>368</sup> from Salamis (King Pnytagoras), Amathus (King Androkles), Soloi (King Stasikrates) and Kourion (King Pasikrates) that deserted the Persians in 332 BC in the Aegean, and joined Alexander at the siege of Tyros. The rest were most probably supplied by Kition and Lapethos, and perhaps Marion, who did not join Alexander at the siege but sent *triereis* into the Aegean. Thus it seems at least four to seven Cypriot city-states participated in the construction programme of the 150 *triereis* that formed part of the Persian navy,<sup>369</sup> the vessels being built in the respective shipyards of the cities by their own skilled shipwrights and personnel, using timber from the Troodos Mountains, and related material and equipment. This must have been an urgent programme on a very tight schedule and requiring the necessary organisation, skills, and access to sources of material and equipment. The timber taken from the Troodos forests had to be prepared and seasoned for at least two years, if not longer, before use,<sup>370</sup> and thus the shipyards must have had such timber already in stock. This reveals a continuous operation that included a steady production and storing of processed shipbuilding timber.

A similar practice was followed in shipyards in Athens and Korinthos. Planks used for the hulls were carved and curved to shape by the shipwrights themselves during construction. The shipyards would also have to be well stocked and connected with reliable sources of supply of hanging equipment, sails, ropes, hemp, flax for cordage, copper for casting the ram and preparing the nails, as well as resin, pitch, bitumen, and all other related materials. Only for manufacturing 150 rams and nails they would have used close to 50–75 tons copper. In short, an extensive and efficient supply network of raw material and equipment was an indispensable part of the naval infrastructure and shipbuilding industry.

One must assume that the city-states had skilled shipwrights and suitable shipyards, and probably shipsheds, like those excavated at Kition. From the time the trees were felled and fashioned into a seaworthy vessel there were many other important steps and disciplines that had to be followed, including the training of sailors and oarsmen. Thus, a successful shipbuilding industry was a complex and sophisticated operation that required funding, a reliable raw-material supply network, planning and management, construction

facilities, and technical skills and knowledge, as well as training.

Evidently the Cypriot shipbuilding industry was an organised institution that did not operate on an ad hoc basis. During peacetime the shipyards were busy constructing commercial merchantmen but were ready and prepared to embark on the construction of warships as and when ordered by the Great King.

From the evidence of the enormous costs involved, one must assume that the cost of financing naval fleets for the Persian navy was undertaken by the Persian royal treasury, and that the particular financing arrangements were the subject of negotiations between the kings of the cities and the satrap in charge, depending on the particulars of each case. In general, it can be considered that the major Cypriot raw materials, i.e. timber and copper, were requisitioned at no cost, being considered already as the property of the Great King. The rest of the bought-out equipment, as well as the salaries of shipwrights and other personnel, were paid for from the Persian royal treasury, presumably against a fixed price per *trieres*. In the absence of figures from Cyprus, the calculations used here are based on comparative prices and values from Greece during the same period. Although there is no such thing as a 'standard cost' for a *trieres*, it seems reasonable to consider that the corresponding prices and values applying in Cyprus did not differ much from elsewhere.

### Ships

As discussed, the ships were the property of the Persian navy. Although the cost of building a *trieres* was not always the same, it is generally accepted, that during the Classical period and the Third Economic Cycle the cost to build battle-ready *trieres* was c. 2 Attic talents in silver.<sup>371</sup> Therefore, the total capital cost for the 150 Cypriot *triereis* that joined the Persian navy was c. 300 talents in silver, funded from the royal treasury.

Another important aspect of this navy was its maintenance cost. A replacement or full repair of a hull during this period was estimated at 5000 drachms, i.e. c. 0.83 talents in silver. In Athens during this period the amount of 1200 drachms, or 0.2 talents in silver, was considered sufficient for a regular ship repair for normal wear and tear.<sup>372</sup> The cost of oars could reach 5 drachms each.<sup>373</sup>

It is impossible to put a figure on the cost of repair of the Cypriot squadron in the Aegean because of so many unknown factors involved. To have an order

<sup>367</sup> Diod.17.7.2.

<sup>368</sup> Arr.2.20.3.

<sup>369</sup> From Arrian's narrative we can suggest Salamis had the biggest participation. Marion and Lapethos, two loyal cities to Persia, might have also participated with the Kition squadrons.

<sup>370</sup> Gabrielsen 1994: 142; Meiggs 1982: 125.

<sup>371</sup> Gabrielsen 1994: 139.

<sup>372</sup> Gabrielsen 1994: 144–145

<sup>373</sup> And.2.11; Gabrielsen 1994: 140.

of magnitude and a rough figure, a minimum cost of 0.2 talents in silver per ship per quarter year can be estimated. This translates to 10 talents per month ( $0.2 \times 150 \div 3$ ) in silver for the entire squadron. Thus, the cost of maintenance for the first two years, when the Cypriot squadron was with the Persian navy, was c. 240 talents in silver. In the normal course of events, this cost was funded by the Persian commanders. The cost for the twelve months that the fleet was with Alexander was thus 120 talents in silver, and presumably the Cypriot city-states, one way or another, were compensated by Alexander. In all, the total cost for normal maintenance of the fleet for three years was c. 360 talents in silver. Taking into consideration the intense naval activities undertaken in these three years this does not appear an excessive amount, it might even be an average estimate on the low side.

### Crews

The use of large *trieres* fleets represented a considerable problem in terms of securing trained and loyal crews. The total crew for each *trieres* is estimated at 200 men, made up of 170 oarsmen, 16 specialists (*hyperesia*), i.e. helmsman (*kybernetes*) and other officers, and 14 soldiers (*epibatai*). There were occasions when warships would carry more fighters, in some cases between 65 to 100; these troop carriers were called *hoplitagogoi* or *stratiodides*.<sup>374</sup> Manning a Persian fleet of 400 *trieres* in the Aegean, requiring a total of 80,000 ( $400 \times 200$ ) complements of trained oarsmen and sailors, put immense pressure on the Cypriot and Phoenician city-states, the main suppliers of ships and their crews. The crews were supplied from the citizens of the cities and countryside, as well as mercenaries and even slaves.<sup>375</sup> It is not known whether the citizens of the cities and countryside were conscripted or recruited freely, nor from where the Cypriot city-states managed to recruit the 30,000 sailors and *hyperesia*. It appears the mutiny at Kaunos against Konon, was organised by Cypriot crews coming from Karpas, who served mostly as oarsmen.

### Provisioning

Food supply was clearly a very important aspect of campaigning at sea – it was vital that oarsmen were kept adequately fed and watered to provide the necessary power to the ship; speed was of the essence. The maximum speed for a *trieres* was seven knots per hour, and to achieve this each oarsman had to produce 1/14th horsepower. The *trieres* by construction were limited as to the quantities of food and water they could carry, and were therefore compelled to travel near the shore for

provisions; for long trips in unfriendly territory they had to rely on supply ships accompanying the fleet. The diet of the crew, apart from grain, the staple food for the period, included fish, meat, oil, garlic, olives, onions, and wine.<sup>376</sup> It is estimated that an excessively active adult male needs 3822 calories per day.<sup>377</sup> The US Army Quartermaster Corps advises that the calorific content of an army ration needed to sustain a soldier in combat condition is 3600 calories per day,<sup>378</sup> produced by consuming 3.5 lbs of bread manufactured by milling 3.9 lbs of grain. It has also been suggested that a realistic estimated intake needed by a Makedonian soldier in Alexander's army was the same, about 3600 cal.<sup>379</sup> In addition to the calories a minimum amount of 70 g of protein is also needed. In terms of grain consumption here, the findings of Engels can be followed, who relied on data from the US Army Quartermaster Corps, and an average consumption considered of 3 lbs of bread per oarsman per day, produced by milling 3.34 lbs of grain.<sup>380</sup> This will provide 3085 cal plus c. 140 g of protein. A sailor at sea might supplement this diet with fish, onions, olive oil and wine. For calculating the cost of grain, an average price of six drachms per *medimnos* is estimated,<sup>381</sup> producing a cost of 1.75 *obols* per oarsman per day, which is in the same parameter as the two *obols* reported by Demosthenes as *siteresion*. The orator considered a provision of two *obols* to be adequate under normal circumstances, as far as basic dietary needs were concerned,<sup>382</sup> for an Athenian campaign against Philippos of Makedonia.

Following Demosthenes then, this means the cost to feed the complement of a fully manned *trieres* per month was 2000 ( $(2 \times 200 \times 30) \div 6$ ) drachms. The same complement required therefore 15,180 l ( $75.9 \times 200$ ) or 289 *medimnoi* ( $15,180 \div 52.53$ ) of grain monthly.

To summarise:

a) For their staple diet for the two-year period that the Cypriots were with the Persians they required 54,648,000 l ( $24 \times 15,180 \times 150$ ) of grain or 1,040,400 *medimnoi* ( $24 \times 289 \times 150$ ) of grain. At a cost of two *obols* per oarsman per day this translates to 2000 drachm ( $2 \times 30 \times 200 \div 6$ ) per *trieres* per month, or 1200 talents ( $2000 \times 150 \times 24 \div 6000$ ) in silver for the entire two-year period.

<sup>374</sup> IG. 1(3).60 illustrates how a squadron of 30 ships carried 5 *ebibatai*, 40 *hoplites*, 10 archers, and 10 *peltasts* each. Thuk. 6.4.3, suggests more than 100 troops were carried; Wallinga 1984: 426, n. 38.

<sup>375</sup> Xenophon (Hell. 1.6.24) mentions a decree ordering the inclusion of slaves among the crew of 110 ships.

<sup>376</sup> Arist. Ach. 544–545; Gabrielsen 1994: 119–120; Plut. Mor. 349A; Thuk. 3.49.3.

<sup>377</sup> Gabrielsen 1994: 120. According to Garnsey 1989: 39, for an oarsman working for four hours this would be 4070.

<sup>378</sup> Engels 1978: 123; US Army Reserves Officers Training Corps Quartermaster, University of Texas, 1972.

<sup>379</sup> Engels 1978: 123.

<sup>380</sup> Engels 1978.

<sup>381</sup> Gabrielsen 1994: 120, n. 39; Markle 1985: 279–281, 293–297.

<sup>382</sup> Dem. 4.28; Gabrielsen 1994: 114 and 120 for discussion.

b) For their staple diet for the one-year period that the Cypriots were with Alexander they required 27,324,000 l (12 x 15,180 x 150) of grain, or 520,200 *medimnoi* (12 x 289 x 150) of grain. At a cost of two *obols* per oarsman per day this translates to 2000 drachm (2 x 30 x 200 ÷ 6) per *trieres* per month, or 600 talents (2000 x 150 x 12) ÷ 6000) in silver for the entire one-year period.

The figures are staggering and are a measure of the logistics and support this fleet of 150 *triereis* and complements of 30,000 men required for the three-year naval operations. These calculations do not include the costs of feeding those troops provided by the Persians and Makedonians.

It would have been impossible for the Cypriot city-states to meet this expenditure, or that it could have been considered as part of the tribute due. It has to be assumed that the funds came from the royal treasury of the Persian Empire.<sup>383</sup> Alexander, after defeating the Persians in Asia Minor and his victory at Issos, and the capture of the satrap's treasuries as well as the royal treasury at Damascus of 3000 talents in silver plus other valuables, was also in a position to finance the needs of his navy.

There is no information on who transported and supplied these provisions, but it is not unreasonable to consider that Cypriot private merchants and transporters had a major share in the enterprise. It was common practice for the Persian army and navy to rely on private merchants for its supply of foodstuff. As mentioned previously, the Persian army in Cyprus, with general Glos in 381 BC, relied on its supplies of grain coming from private merchants transporting them with their ships from Kilikia.<sup>384</sup> They most probably obtained the grain from the surplus of the royal granaries. When Evagoras interrupted this supply of grain with his fleet, the Persian navy took over and supplied the army with grain themselves. At the same time Evagoras acquired the grain for his army and the city of Salamis from Egypt. It can thus be presumed that the Cypriot merchants, during military and naval conflicts, were busy with their merchantmen supplying grain for the warring armies and navies. Most of this grain they obtained from the surplus of the royal granaries. We can thus consider that the Cypriot maritime economy benefitted from the participation of the island's navy in the three-year naval conflict in the Mediterranean between 334 and 331 BC. The decision of their kings to switch camps was tactically a stroke of genius, and, accordingly, to the victors went the spoils.

## Pay

To complete an understanding of the total cost for the three-year campaign it is necessary to try and define the amounts disbursed to the crews and complements of the *triereis* for salaries. Scholars specialising on the subject prefer to consider pay and provisioning as complementary and do not differentiate them. Markle<sup>385</sup> considers a daily payment as 3–6 *obols*, called *trophe*. It has also been proposed that during the Peloponnesian war the salaries ranged between 3–6 *obols*,<sup>386</sup> in certain cases paid partially. In 407 BC, Lysandros asked Kyros the Younger to offer the Athenian oarsmen pay of 1 drachm a day in his effort to convince them to join the Peloponnesian fleet.<sup>387</sup> Ultimately pay was settled at 4 *obols* a day.<sup>388</sup> Demosthenes suggested the same composite salary of 6 *obols* per day.<sup>389</sup> For the calculations here, estimates are based on a net salary of 4 *obols* per oarsman per day, plus 2 *obols* for provisions per oarsman per day, making a maximum composite total of 6 *obols*.

Therefore, for the two-year period the Cypriots were with the Persians the net salary requirement for their complements and crews was 4000 drachms (4 x 30 x 200 ÷ 6) per *trieres* per month, or 2400 talents (4000 x 150 x 24 ÷ 6000) in silver for the entire two-year period. For the one-year period the Cypriots were with Alexander, the salary requirement for their complements and crews would have been 50% of this, i.e. 1200 talents in silver.

As with the provisions, these sums were way beyond the financial capabilities of the Cypriot kingdoms, and it seems certain that they would have been covered by the Persian royal treasury and from some of the booty Alexander obtained from Darius' treasury at Damascus respectively.

## Summary and conclusions

i) It is now possible to summarise the total cost in silver for the Cypriot fleet consisting of 150 *triereis* as follows:

Capital expense for building 300 <i>triereis</i>	300 talents
Maintenance cost for normal wear and damage 334–332 BC	240 talents
Maintenance cost for normal wear and damage 332–321 BC	120 talents
Salaries 333–332 BC	2400 talents
Salaries 332–331 BC	1200 talents
Provisions 334–332 BC	1200 talents
Provisions 332–331 BC	600 talents

<sup>383</sup> When Alexander conquered Persepolis and Susa, he found 180,000 talents in silver in Darius' palaces. This means the Persians had the financial capacity to shoulder very easily such an expense.

<sup>384</sup> Diod.15.3.

<sup>385</sup> Gabrielsen 1994: 110–111; Markle 1985: 295.

<sup>386</sup> Gabrielsen 1994: 111–113; GOS 259–259.

<sup>387</sup> Xen. *Hell.* 1.5.4.

<sup>388</sup> Gabrielsen 1994: 113; Xen. *Hell.* 1.5.6–7.

<sup>389</sup> Dem. 51.11.

Total cost 6060 talents<sup>390</sup>

The annual cost for maintenance, salaries, and food per *trieres* is estimated thus at 12.8 talents ((1200 + 600 + 120) ÷ 150) in silver. Hanson<sup>391</sup> estimates, in general, the cost at 12 talents in silver per year, which is very close to the calculations above.

These were very large amounts. Such campaigns could only be financed from strong royal treasuries in the way described above. It may even be suggested that one of the reasons the Cypriots were eager to switch sides after the battle of Issos was that they realised the Persians, being the losing side, would have had problems shouldering the costs of the campaign and paying for their food and salaries.

ii) The amounts of grain required for the fleet of 150 *triereis* over such a prolonged period were also enormous:

Grain 334–332 BC	54,648,000 l
Grain 332–331 BC	27,324,000 l
Total	81,972,000 l
I.e. in <i>medimnoi</i>	
Grain 334–332 BC	1,040,400 <i>medimnoi</i>
Grain 332–331 BC	520,200 <i>medimnoi</i>
Total	1,560,400 <i>medimnoi</i>
I.e. in tons	
Grain 334–332 BC	32,252 tons
Grain 332–331 BC	16,126 tons
Total	48,378 tons

As a very plausible working hypothesis, it may be considered that for the two-year period between 334–332 BC c. 50% of the grain was obtained locally. The remaining 50% was supplied by private merchants from surplus grain from royal granaries from Kilikia, Cyprus, Syro-Palestine, and Egypt.<sup>392</sup> To provide an estimate of the number of merchantmen needed to supply this 50% of the fleet, the calculations are based on type of vessel such as the Kyrenia wreck, capable of carrying c. 25,500 l. of grain. This would equate to a standing merchant fleet of 100 ships<sup>393</sup> for one return trip per

<sup>390</sup> The Athenians in the Samian war demanded from the Samians about 20 talents per year per ship to cover their expenses for the war and for providing 60 ships for 9 months (Robbins 1918: 361–388). Considering that the Athenians provided additionally for the troops and marines who took part in the war, the two figures seem to be reasonably aligned.

<sup>391</sup> Hanson 2005: 262.

<sup>392</sup> A modern example of how merchant fleets contributed to the outcome of a war is the position of the Soviet Union being kept alive by American and British merchant sea-power during World War II (Hanson 2005: 265).

<sup>393</sup> Each fully manned *trieres* needed 15,180 l grain per month. A merchantman of the capacity of the Kyrenia wreck could carry c. 25,500 l (14 tons + 0.55) of grain. Therefore c. two Kyrenia merchantmen were needed to supply every three *triereis*. The trip from the Cyprus coast and the Levant took about a month. Therefore, for every three *triereis* to have continuous supplies for two months

merchantman, lasting two months. This represents an operation of enormous logistical complexity. In the 4th century BC, boats were available with capacities greater than that of the Kyrenia vessel, which should have reduced the logistical complexities involved when using only medium-sized merchantmen.

iii) From the information available from the ancient sources, and from the above calculations, it is clear that to provide and maintain a fully manned fleet of *triereis* was as complex an operation as to construct and ready them for naval battle. The greatest cost was to maintain them and provide the complements with salaries and provisions. In both cases the Cypriot shipping industry and maritime commercial community played a major role. Their involvement in the naval warfare between 334–331 BC, with its long duration and intense fighting activity, with large number of *triereis* and complements and enormous needs in terms of supply and provisioning, is proof enough.

iv) The kings of the Cypriot city-states must also have been generously rewarded with booty and bonuses. Pnytagoras of Salamis was honoured and given many prizes by Alexander, including the copper-rich city of Tamassos.<sup>394</sup> The other Cypriot kings must have similarly been honoured and rewarded, and their wealth is demonstrated by their participation in Alexander’s victory celebrations in the capacity of sponsors (*choregoi*).<sup>395</sup>

**MARKETING SURVEY – INTERNATIONAL PRICES – COMPARISON TABLES AND CHARTS**

As with the First and Second Economic Cycles earlier, a similar marketing survey can be attempted for major Cypriot export products during the Third. By analysing the possible prices and values on the international markets, it is possible to explore how they might have influenced the commercial options of the Cypriot maritime traders during this period. A start can be made by defining under what commercial conditions and exchange mechanisms continuity was achieved for Cyprus’s important institution of long-distance trade.

During the Third Economic Cycle grain dominated trade volume. In addition, therefore to the important trade of metals, an attempt must be made to determine how the prices and marketing conditions of the grain trade, and other agricultural products, undertaken by

they needed a convoy of four Kyrenia merchantmen to travel to and from continuously between the Aegean and the coasts of Cyprus and the Levant. This means for the 75 *triereis* in the Aegean that were supplied from Cyprus and the Levant, 100 merchantmen of the capacity of the Kyrenia vessel were needed to carry enough grain to last for two months.

<sup>394</sup> Ath. 4.167c–d.

<sup>395</sup> Curt. 4.8.14, Nikokreon of Salamis and Stasikrates of Soloi were among the *choregoi*. Parpas 2013: 158–159 for discussion.

independent shippers had changed the nature of the Cypriot maritime economy.

**Trade and prices of metals**

Although Cyprus was an acknowledged supplier of copper ever since the First Economic Cycle and beyond, and was a major player in the manufacture of iron and its proliferation, there remains a lack of direct information on metal prices and their exchange values in Cyprus, and their equivalencies with other metals, especially silver, that was used not only as a reserve and measure of value but as an instrument of payment. The expansion of the Mediterranean and Near Eastern economies from the 6th century BC onwards is clearly linked to the increasing role of silver as money metal in transactions.

*Average prices of metals in Greece*

Table 11 gives approximate absolute values and approximate average ratios of values of metals during the Third Economic Cycle in Greece.<sup>396</sup>

Metal	Value per talent in drachms	Ratio to lead in drachms	Metal ratios
Gold	60,000 drachms	1:21,201	Gold to silver 1:10; after c. 350 BC 1:13
Silver	6,000 drachms	1:2,120	Silver to copper 1:170; silver to iron 1:480
Tin	233 drachms	1:82.3	Tin to lead 1:82; silver to tin 1:25
Bronze	60 drachms 1 <i>obol</i>	1:21.3	Bronze to copper 1:1.7; bronze to iron 1:5
Copper	35 drachms 1 <i>obol</i>	1:12.4	Copper to iron 1:3; copper to tin 1:6.5
Iron	12 drachms 1 <i>obol</i>	1:4.4	Iron to tin 1:19.5
Lead	2 drachms 5 <i>obols</i>	1:1	

Table 11: *Approximate absolute values and approximate average ratios of values of metals during the Third Economic Cycle in Greece.*

Table 11 provides useful deductions for the prevailing prices and metal ratios during the Third Economic Cycle. By comparing these values with corresponding prices from the Appendix for Ugarit, Egypt and Babylonia, which refer to the First and Second Economic Cycles, some meaningful conclusions can be reached in terms of how prices of metals varied right through the three

Economic Cycles in the Eastern Mediterranean and the Near East.

It can be seen that the international ratio of gold to silver of 1:2, which prevailed for most of the Second Economic Cycle (Appendix) changed to 1:10 (Table 11) for Greece in the Third Economic Cycle. Gold compared to silver became more expensive. This ratio during the closing years of the Third Economic Cycle, the early Hellenistic period, change to 1:13, making gold even more expensive compared to silver. This could be due to decreases in the volumes of gold available, or increases in the volumes of silver, making it more common and less valuable.

During the First Economic Cycle in Ugarit, silver to copper was stable at 1:200. In Egypt, during the beginning of the Second Economic Cycle, after a short spike of 1:60, the ratio of silver to copper during most of the Second Economic Cycle returned to a stable ratio of 1:100 (Figure 83). At the end of the Second Economic Cycle, c. 550 BC, the ratio of silver to copper in Babylonia was reported at 1:180, i.e. the price of copper was reduced by 45% compared to Egyptian prices. For most of the Third Economic Cycle this ratio in Greece stabilised at 1:170, i.e. the reduction in copper price was c. 40% compared to Egyptian levels. It is also interesting to observe that the value of copper in silver in Greece and Babylonia in the Third Economic Cycle, and at the end of the Second respectively, compared to its value in Ugarit during the First Economic Cycle, had increased only marginally, by 15% and 10% respectively.

The ratio of silver to iron in Greece during the Third Economic Cycle was reported at 1:480, while the corresponding ratio of copper to iron was c. 1:3 (Figure 84). The 1:3 ratio of copper to iron is indicative of the market position between the two metals when they had to compete for the same application. In Babylon at the end of the Second Economic Cycle, the ratio of silver to iron from Yamana, western Asia Minor, was 1:240, and the corresponding ratio of copper to iron from the same area was 1:1.33 (240/180), i.e. iron in Greece during the Third Economic Cycle was half the price of the corresponding price of iron from Yamana, in Babylon, while the price difference between copper and iron from Yamana in Babylon was not as great as it was in Athens (Figure 84). Copper to tin in Greece during the Third Economic Cycle was c. 1:6.5 (Table 11), while the corresponding ratio of copper to tin in Babylon (Appendix) at the end of the Second Economic Cycle was 1:4.5 (180/40). The price difference might reflect the better availability of tin in the West than in the East, or even more demand and thus at a lower price.

*Case-study: Copper and iron in Greece and Babylon*

The following case-study figures are based on a theoretical consignment of 10 tons of copper (or iron)

<sup>396</sup> After Bresson 2016: 262; Treister 1995.

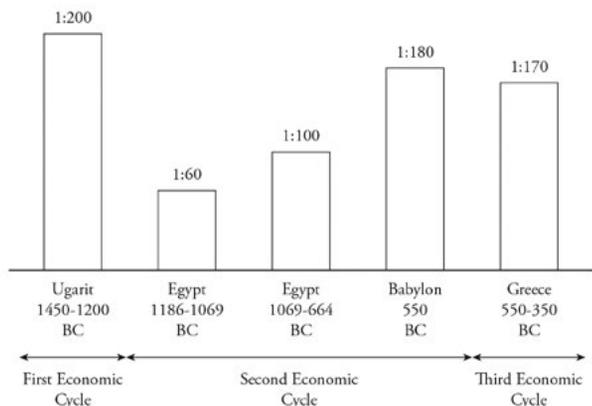


Figure 83: Ratios of silver to copper from First, Second and Third Economic Cycles (drawing: Philipos Vasiliades).

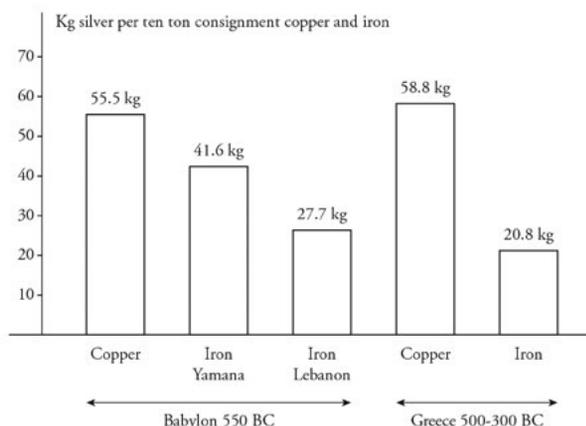


Figure 85: Prices of copper and iron in Babylon 550 BC, and Greece 500-300 BC (drawing: Philipos Vasiliades).

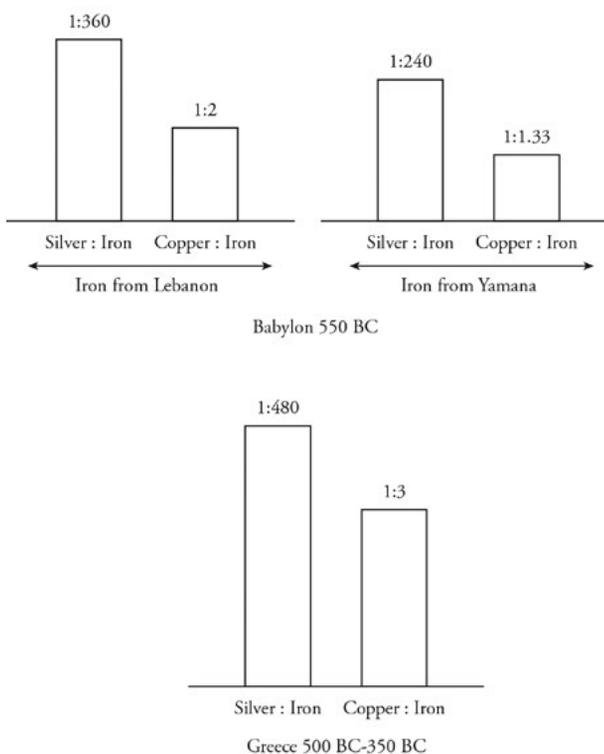


Figure 84: Ratios of silver to iron, and copper to iron from Yamana in Babylon 550 BC. Ratios of silver to iron, and copper to iron from Yamana in Athens 500 BC-350 BC (drawings: Philipos Vasiliades).

to Athens, between 500-350 BC, which could typically be carried on a medium-sized merchantman, and a similar consignment to Babylon c. 500 BC (Figure 85): (1) Athens: copper value: 58.8 kg in silver for 10 tons; iron value: 20.8 kg in silver for 10 tons; (2) Babylon: copper value: 55.5 kg in silver for 10 tons; iron from Yamana, western Asia Minor, value: 41.6 kg in silver for 10 tons; iron from Lebanon value: 27.7 kg in silver for 10 tons.

**Trade and prices of grain**

During the Third Economic Cycle grain dominated maritime trade volume. Large quantities of grain

were transported from the Black Sea, Bosphoros, Sicily, Egypt, and Cyrene to cities and regions whose outputs were insufficient to meet demands, either because of population increases, insufficient land under crops, or bad crop years due to drought. As mentioned previously, Athens, since the 6th century BC, was in annual need of large quantities of grain to feed its population. Thus, the trade of grain during the Third Economic Cycle became a truly international maritime activity – with political strings attached. It was not only in the hands of kings and government officials in charge of surplus supplies, but was especially under the control of numerous private merchants, independent shippers and captains, as well as wealthy financiers. Among these players, Cypriots, drawing on centuries of experience and contacts in long-distance trade, had a very important role. To be successful in such diverse and complex trading activities they needed to have a solid grasp of the support mechanisms of international trade, and, most importantly, of international prices at strategic locations at any given time.

Once again, information and prices from Cyprus itself are not available, and thus details are taken from its trading partners in an attempt to reconstruct the international market environment that Cypriot maritime grain traders were working in.

*Average prices of grain in Athens during the Third Economic Cycle and during the great famine of 330-326 BC*

The average market price of grain in Athens was c. 6 drachms per *medimnos* grain (52.53 l), equating to 2 l per g ((52.53 ÷ 6) ÷ 4.33) in silver (see Table 12). During the great famine of 330-326 BC), the open-market price for 1 *medimnos* grain reached 16 drachms. This was an extremely high price compared to the 5 drachms per *medimnos*<sup>397</sup> at which an independent Cypriot shipper

<sup>397</sup> Michell 1940: 263; Syll. 304=IG II2, 360.

supplied the state. The open-market price reached 0.75 l grain per 1 g ((52.53 ÷ 16) ÷ 4.33) in silver (see Table 12). There were cases when prices reached even higher prices, i.e. 18 drachms per *metretes* or 0.5 l grain ((39 ÷ 18) ÷ 4.33), per 1 g in silver.<sup>398</sup>

*Average prices of barley in Babylonia, 340–390 BC*

According to the *Babylonian Astronomical Diaries*, the average price of barley in Babylon was c. 20 *sut* per Babylonian shekel (1 *sut* = 6 l). Due to social unrest and volatility caused by Alexander’s campaign, the presence of his army, and the wars of his successors, there was a wide variation of barley prices in the period 330–290 BC.<sup>399</sup> Table 12 presents some examples:

340 BC: c. 1 shekel = 20 *sut* = 120 l barley (average); 1 g in silver = 120 ÷ 8.33 = 14.4 l barley

330 BC: c. 1 shekel = 10 *sut* = 60 l barley; 1 g in silver = 60 ÷ 8.33 = 7.2 l barley

325 BC: c. 1 shekel = 3.3 *sut* = 19.8 l barley; 1 g in silver = 19.8 ÷ 8.33 = 2.38 l barley

300 BC: c. 1 shekel = 20 *sut* = 120 l barley; 1 g in silver = 120 ÷ 8.33 = 14.4 l barley

290 BC: c. 1 shekel = 30 *sut* = 180 l barley; 1 g in silver = 180 ÷ 8.33 = 21.6 l barley

The price of grain reached its peak c. 325 BC, when Alexander was preparing to invade Arabia. Evidently the purchasing of grain for the needs of the army and the conscription of farmers raised prices. When Selefkos I established his rule and peace prevailed in Babylonia, between 300–290 BC, prices dropped and became more affordable.

*Average prices of barley in Persepolis, 504–503 BC*

According to the *Persepolis Fortification and Treasury Texts* the price of barley at Persepolis in 504–503 BC was 1 Babylonian shekel silver (8.33 g in silver) for one *itriba* barley (c. 30 l), i.e. 1 g silver corresponded to 3.6 l barley (Table 12), a relatively expensive price.

*Case study: Prices of grain in the Near East from the First to the Third Economic Cycle*

To draw meaningful overall conclusions on the challenges independent international grain traders faced during the Third Economic Cycle, and the reasons behind their maritime activities, it will be useful to consider the history of the international price

variations of grain over a range of countries from the First until the end of the Third Economic Cycle.

As seen from Table 12 and Figure 86, the values of grain and barley during the First Economic Cycle were relatively low compared to corresponding prices in the Third; this is particularly true for centralised economies such as those of Egypt and Hatti. At Ugarit, with more of a market economy, prices were higher but still nowhere near the high prices found in Athens in the Classical period. Therefore, any international trade of grain in the First Economic Cycle, and presumably for most of the Second, was most likely in the hands of states who were in control of surpluses and could use distribution of grain as a political tool. Thus, independent traders had very little motivation to participate in the international trade of grain, especially with average-sized merchantmen that rarely exceeded 15,000 l capacity.

Country	Litres grain/wheat/emmer per 1 g silver	Total value in silver per 15,000 litres of grain
Hatti 1200 BC	35.46 l barley	423 g
Hatti 1200 BC	12.80 l wheat	1121 g
Ugarit 1200 BC	9.70 l wheat	1546 g
Egypt 1200 BC	38.46 l barley	390 g
Egypt 1200 BC	83.3 l emmer	180 g
Athens 550–350 BC	2 l grain (average market price)	7500 g
Athens 330–326 BC	0.75 l grain (open-market price)	20,000 g
Persepolis 504 – 503 BC	3.6 l barley	4166 g
Babylon 340 BC	14.4 l barley	1042 g
Babylon 330 BC	7.2 l barley	2084 g
Babylon 325 BC	2.38 l barley	6302 g
Babylon 300 BC	14.4 l barley	1045 g
Babylon 290 BC	21.6 l barley	695 g

Table 12: Prices and values of grain from the First to the end of the Third Economic Cycle.

The scarcity of supply and the increased demand due to population increase meant that the parameters of international grain trade changed dramatically in the Third Economic Cycle. The increase in international market prices and corresponding increases in merchantmen capacity, that provided economy of scale in transportation of grain, motivated independent shippers and wealthy financiers to take the lead in international trade of grain, which grew in unprecedented volumes. Grain not only had commercial and social value and importance, but could also be used as a political tool. This is seen, for example, when

<sup>398</sup> Bresson 2016: 171; Dem. *Phaenippus* 42.20.

<sup>399</sup> Aperghis 2001: 83–84.

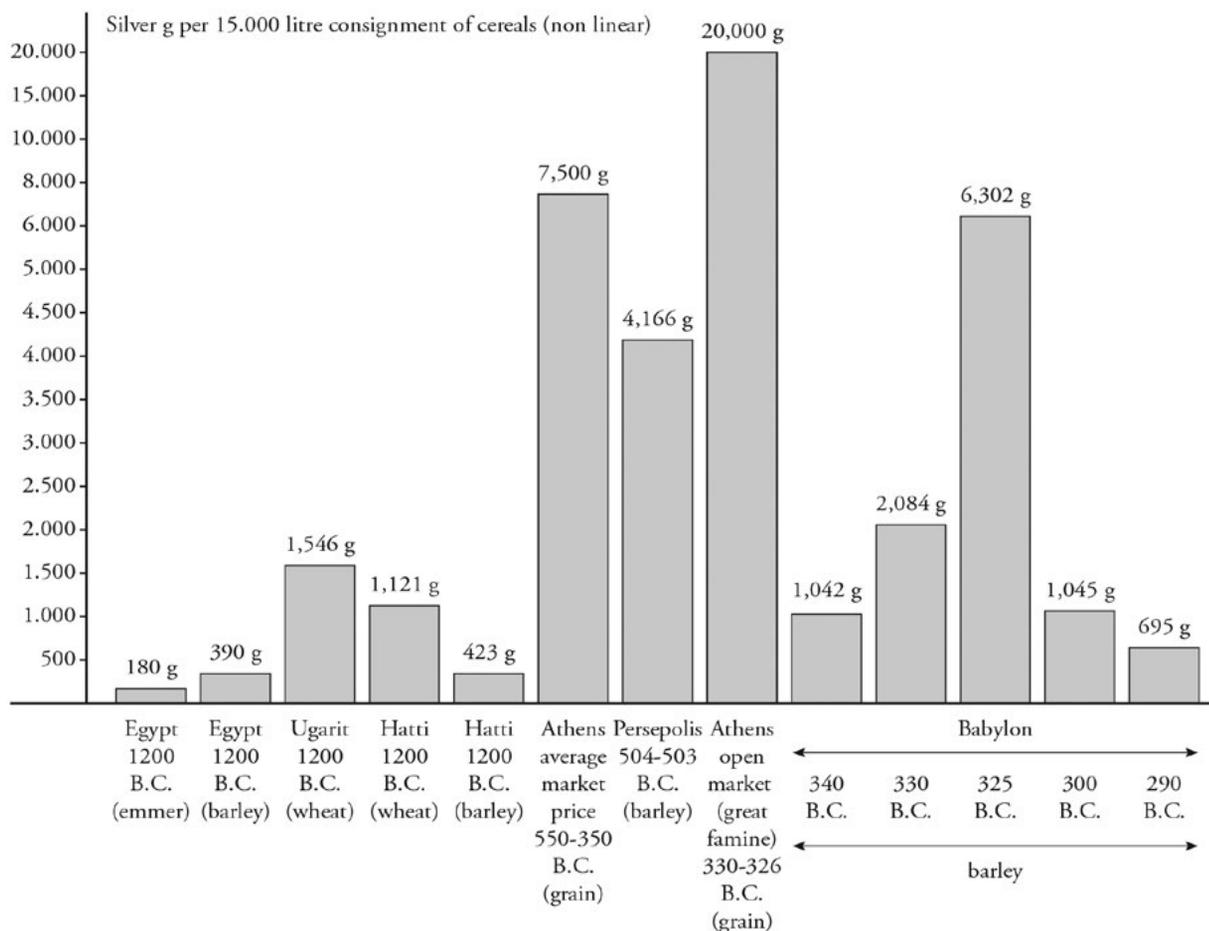


Figure 86: Prices of grain in the Near East and Athens from the First, Second, and Third Economic Cycle (drawing: Philipos Vasiliades).

Evagoras of Salamis became directly involved in the trade of grain with Athens; evidently his policies were directed by both commercial and political motives.

It is interesting to observe the two high spikes in grain prices that occurred first in Athens, during the great famine (330–326 BC), mentioned previously, which was partly caused by Alexander’s campaign and the policies of his satrap in Egypt, Kleomenes. The second spike was in Babylon at roughly the same period, 325 BC onwards, again the result of Alexander’s military presence and the needs of his army (Figure 86). Any independent grain trader, including Cypriot maritime merchants and financiers, would have been aware of these price variations and realities in the marketplace and would follow them very carefully – the secret of long-distance trade success being based on the well-known axiom of buy low, sell high.

**Trade and prices of wine**

During the Third Economic Cycle, apart from the trade of grain, the international trade of wine also reached high volumes, yielding handsome profits for traders and shippers of high-quality wine. The involvement of the Cypriot maritime economy in the long-distance

trade of wine is demonstrated by the Mazotos and Kyrenia shipwrecks, lost in Cypriot waters, carrying Rhodian and Chian wines, two highly priced wines of exceptional quality. It is not known whether Cypriot wines were as highly rated and priced as the wines from Chios and Thasos, or whether their prices and ratings matched more those wines of middling quality, like those from Rhodes, Kos and Knidos. Neither is it known whether Cypriot wines were rated as ‘ordinary’, and mostly kept for local consumption, like the ordinary wine from Attica. Even with an estimated high cost of transport of wine of about one drachm per amphora<sup>400</sup> and middlemen margins, trade of high-quality wine was a very profitable maritime activity for producers and traders. As Cypriot wine prices are not known, a summary of the issues facing Cypriot shippers and transporters of wine can be attempted by comparing prices from neighbouring countries, especially Greece.

*Average prices of Greek wines*

Customs declarations at Pelousion in 259 BC (Table 13) indicate that high-quality wines from Chios were priced at 18 drachms per 22–23 l Chian amphora. From

<sup>400</sup> Bresson 2016: 172.

details of the Poseidia festival at Delos it is known that wine from Knidos cost 4 drachms and 2 *obols* per 26 l amphora. Comparable prices from the same festival for Kos wines were 3 drachms and 2 *obols* per 26 l amphora. From these figures it is reasonable to extrapolate a price of 4–6 drachms per 26 l amphora for Rhodian wines, whose quality was compared to those from Knidos.<sup>401</sup> Ordinary wines from Attica were priced at c. 4 drachms per 39 l amphora. Taking into consideration the general financial and social climate at the time it is fair to think that these are the average prices that prevailed in the Classical period and the Third Economic Cycle.

*Average prices of wine in Persepolis, 504–503 BC*

The *Persepolis Fortification* and *Treasury Texts* reveal that the price of wine c. 504–503 BC was 1 Babylonian shekel to 1 *marrish* (10 l), thus 1 l of wine was equivalent to 0.381 g in silver.

*Case study: Prices of wine in the Near East from the First to the Third Economic Cycle*

As was done above for the grain trade, to draw meaningful overall conclusions on the challenges independent international wine traders faced during the Third Economic Cycle, the approach will be to consider the international price variations of wine over a range of countries from the First to the end of the Third Economic Cycle (Table 13 and Figure 87).

It is clear from Table 13 and Figure 87 that values of wine in the international market in the Third Economic

**First Economic Cycle**

Hatti	0.122 g	1830 g	0.013 Ug.skl/litre
Egypt	0.062 g	930 g	0.0066 Ug.skl/litre
Ugarit	0.216 g	3243 g	0.023 Ug.skl/litre

**Third Economic Cycle**

Origin	Silver per litre	Total value per g in silver per 15,000 litres of wine	Price/amphora
Chios	3.55 g	53,250 g	18 drachms/23 l
Knidos	0.75 g	11,250 g	Four drachms and two <i>obols</i> /26 l
Rhodes	1.04 g	15,600 g	4–6 drachms/26 l
Athens	0.465 g	6975 g	4 drachms/39 l
Persepolis	0.381 g	5215 g	1 Babylonian skl/10 l

Table 13: Prices and values of wine from the First to the Third Economic Cycle.

Cycle increased considerably compared to the relatively low prices of wine in the First. This is an indication of the advances in the winemaking industry and growth of larger elite and wealthy societies who became accustomed to higher quality imported wines, while ordinary wines were distributed among the lower local classes. The value of one shipload of 15,000 l of high-quality wine from Chios was comparable to the same shipload of 10 tons of copper, and about two and a half

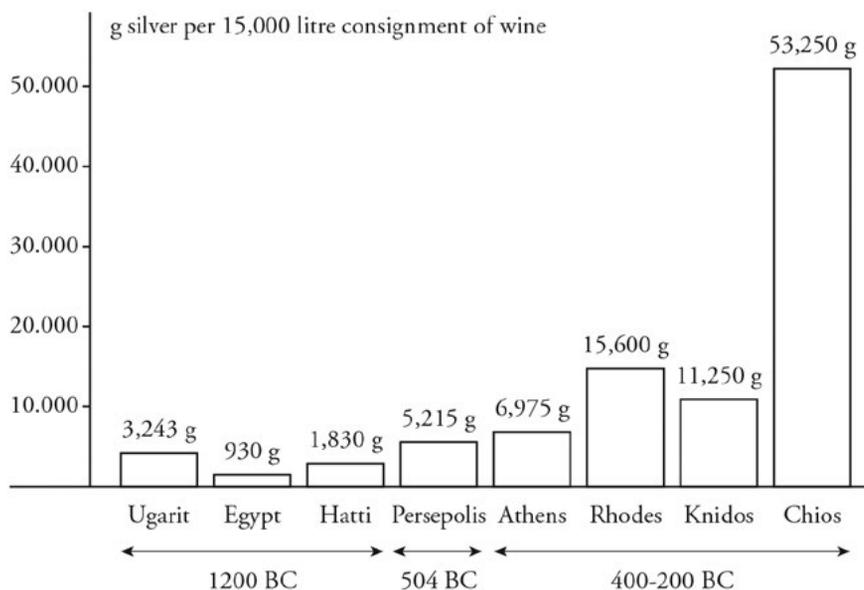


Figure 87: Prices of wine in the Near East and the Aegean from the First, Second and Third Economic Cycles (drawing: Philippos Vasiliades).

<sup>401</sup> Bresson 2016: 172.

times more than the price a comparable shipment of 15,000 l grain would fetch in the open market in Athens during the great famine. It is thus not surprising to encounter a flourishing wine trade, supported by written and archaeological evidence, during this period.

### Trade and prices of olive oil

Production and distribution of olive oil and the manufacture of *pithoi* and earthenware jars as containers to store and distribute agricultural products became one of the principal industries in the Eastern Mediterranean. Olive oil from the Palestine littoral and the Aegean was celebrated for its quality. At the end of the Third Economic Cycle it is known that oil from Miletos and Samos, as well as from Syria and Palestine, was being imported into Egypt.<sup>402</sup> In Cyprus the number of olive trees planted and the production of oil increased considerably, and it seems clear that Cypriot oil continued to be among the island's leading export agricultural commodities from the period of the First Economic Cycle.

#### Average prices of olive oil in Egypt

At the end of the Third Economic Cycle there was a very strict state olive oil monopoly in Ptolemaic Egypt and prices of oil were set at the very high price of 46 drachm per *metretes*,<sup>403</sup> i.e. 1 l would cost 5.3 g in silver.

#### Average prices of olive oil in Athens

At the end of the 4th century BC prices of olive oil in Athens were quite low at 12 drachms per *metretes*, i.e. 1 l would cost 0.61 g in silver.<sup>404</sup> This price can be compared to the low price of oil in Ugarit in 1200 BC, set at 0.51 g (0.6 x 9.4 ÷ 11) in silver per litre.

#### Case study: Prices of olive oil

For a consignment of 15,000 l of olive oil the price in Egypt at the end of the Third Economic Cycle would be 79.5 kg (15,000 x 5.3) in silver (Figure 88).

For the same consignment in Athens at the end of the 4th century BC it would be c. 9.5 kg (15,000 x 0.61) in silver (Figure 88).

For comparison purposes, in Ugarit in 1200 BC a consignment of 15,000 l was 7.65 kg (15,000 x 0.51) in silver (Figure 88).

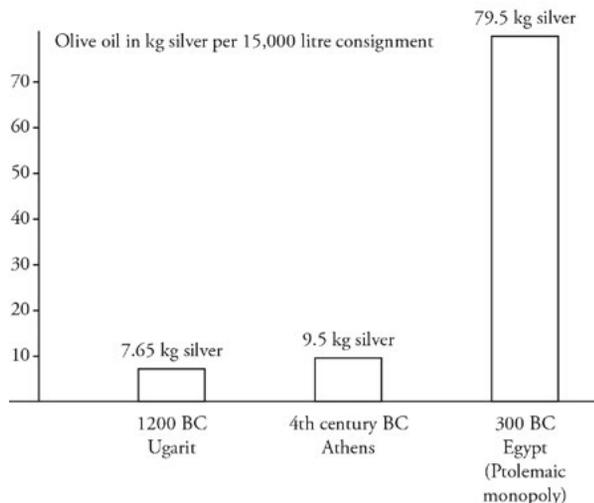


Figure 88: Prices of olive oil, First to Third Economic Cycles (drawing: Philipos Vasiliades).

### Trade and prices of salt

A vital commodity that is normally underreported is salt, the mineral being indispensable for the preparation and preservation of food, especially fish, a staple for the populations of the Eastern Mediterranean. The process of salt panning was simple, being undertaken mainly at sea lagoons, and salt and brine lakes. In spite of inland sources of salt, inland areas needed an exchange relationship with the coast to ensure sufficiency of supply. As mentioned previously, Kition has provided evidence of the existence of an official in charge of the salt lake there. This testifies to the production, distribution, and perhaps long-distance trade of salt. Purity of salt was important, and its quality thus made it an exportable commodity. Salamis was considered among the best-known sources of salt,<sup>405</sup> and a percentage of its output was very probably exported. State authorities would also be expected to benefit from the imposition of a special salt tax.<sup>406</sup>

According to Plutarchos, salt was transported by the shipload (τὰ ἀληγὰ πλοία).<sup>407</sup> Although presumably a high-volume, low-value operation, there were periods when salt prices soared, e.g. during the siege of Athens by Demetrios Poliorketes, when 1 *medimnos* of salt reached 40 drachms.<sup>408</sup> This would make a consignment of 15,000 l cost 1.9 talents ((15,000 ÷ 52.53) x 40) ÷ 6,000) or 51.8 kg in silver. This is a price comparable to a corresponding shipment of 15,000 l of Chian wine or 10 tons of copper to Greece c. 500 BC (Figure 89).

<sup>402</sup> Michell 1940: 85; Pap. Cair. Zenon, 59012 and 59077: 267.

<sup>403</sup> Michell 1940: 285.

<sup>404</sup> IG II (2) 1356, II.7–8, 13–14; Markle 1985: 280–281. For the prices of olive oil and their variations, see Pritchett and Pippin 1956: 184; for discussion, see Bresson 2016: 405, n. 97.

<sup>405</sup> Plin. NH. 31.86; for commentary, see Davies 2001: 24.

<sup>406</sup> Davies 2001: 24.

<sup>407</sup> Plut. Mor. 685D

<sup>408</sup> Michell 1940; Plut. Dem. 33.3.

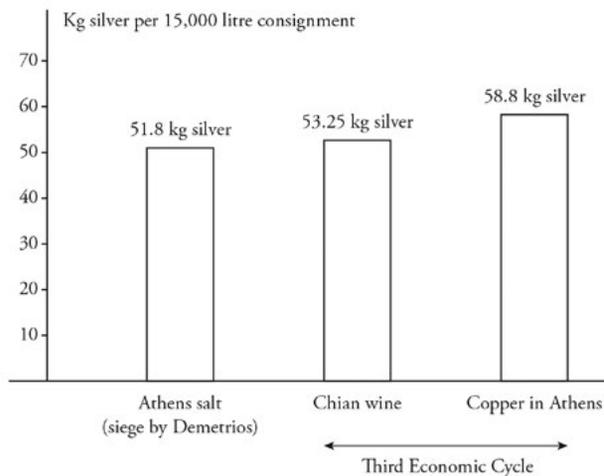


Figure 89: Comparison of prices in Athens of salt during the siege of Athens with top-quality wine and copper during the last part of the Third Economic Cycle (drawing: Philipos Vasiliades).

### Cost of shipping

As for the cost of freight and shipping, although there is very little evidence on which to estimate costs of freight and shipping. The only indication is in a speech from Demosthenes, his *Against Timotheos*,<sup>409</sup> in 373–372 BC, revealing that the freight cost (*naulon*) for transporting timber from Makedonia to Athens was c. 1750 drachms. The capacity of the ship involved is not revealed, but assuming it was a medium-sized, 20-ton merchantman, then an idea of the shipping costs can be extrapolated; these were high in comparison to the value of goods. On the assumption that this was the freight involved in the medium-sized shipments of the case studies under discussion above, then for copper consignments to Athens the costs would represent 13.5% ( $1750 \times 4.54 \div 58,800$ ) of the value of the goods, while for a corresponding shipload of Chian wine it would represent 15% ( $1750 \times 4.54 \div 53,250$ ).

### The movement and mobility of people, the human capital

The movement and mobility of Cypriots outside the island was essentially maritime in nature and related to trade and the dissemination of knowledge and skills. This was true for the First Economic Cycle, with the Cypriot presence in Egypt, Ugarit, and Tiryns, as well as for the Second, with Cypriots in Egypt, the Levant, Al-Mina, Crete, Euboea, the Aegean, and Sardinia. The same mobility with predominantly maritime and mercantile characteristics continued during the Third Economic Cycle in Athens, Pontos, Egypt, and elsewhere. Thus, one sees Cypriot deployment of human capital outside Cyprus all through the three economic cycles, motivated and guided by maritime trade and

entrepreneurial drive by seafaring individuals, rather than outright colonialism, as was the case for the Greeks and the Phoenicians. In other words, Cypriot expansion overseas was not implemented to achieve territorial expansion but was more a pattern of negotiations among trading partners looking for the creation of new means of wealth and in search of new sources of raw material.

The differentiator of the Third Economic Cycle with respect to the two previous ones was, in addition, Cypriot involvement in naval and military activities beyond the island, a result of its shipbuilding abilities and knowledge which were very much in demand during the turbulent years of the Third Economic Cycle.

### Marketing survey summary

The marketing surveys of the Third Economic Cycle can now be presented in the same way as the First and Second (Chapters 2 and 3 respectively), to help understand the challenges and exchange mechanisms of the Cypriot maritime and long-distance trade activities, as well as the motivations and strategic policies of Cypriot export institutions.

- (i) The Cypriot export institutions and maritime economy expanded and continued even further during the Third Economic Cycle. Cypriot private shippers had an active participation in the international trade of grain that dominated the volume of commerce during the Classical period. Furthermore, the Cypriot city-states extended their naval economy by supplying warships, mainly *triereis*, to the Persian navy, with associated materials and services. During the wars of Alexander's successors, they expanded the range of their warships to *tetrereis*, *pentereis*, and even larger warships, which tipped the balance in favour of one or other of the combatants.
- (ii) The international price ratio of gold to silver had changed to 1:10, making silver less expensive than in the previous economic cycles. The price of silver to copper in Greece during the Third Economic Cycle stabilised at 1:170, a significant reduction to the price of silver to copper at 1:100 that prevailed in Egypt for most of the Second Economic Cycle. The ratio of copper to iron in Greece during this period was set at 1:3, making iron a much cheaper and more attractive proposition than copper when competing for the same application. The price of iron from western Asia Minor was twice as expensive in Babylonia than in Greece. This price difference in metals between East and West was also reflected in the ratios of copper to tin. This price difference and fluctuations highlight

<sup>409</sup> Bresson 2016: 91; Dem. *Timotheos* 49.29.

the complexity of international trade and the importance of optimum market knowledge and the level of practical difficulties facing Cypriot international traders in their marketing strategies and planning.

- (iii) Trade of agricultural products dominated maritime trade, especially sales of grain, which became a truly international maritime activity, with private shippers and wealthy financiers claiming the lion’s share. The price of grain and barley in the Third Economic Cycle were much more expensive than corresponding prices in the previous economic cycles. This was particularly true during times of war, with price manipulation by exploitative merchants and political strongmen. The increased volumes of trade encouraged the construction of larger merchantmen, although the average capacity of 15–20 tons still dominated commercial fleets. Grain became a commodity of commercial and social value that was also used as a political tool.
- (iv) As evidenced by nautical archaeology, trade of wine during the Third Economic Cycle reached very high volumes and became a very profitable activity for traders and shippers of high-quality wines. Prices of wine had steadily increased since the First Economic Cycle, culminating at the end of the Third Economic Cycle with values of the best wine bringing comparable income to corresponding consignments of copper. Olive oil was another agricultural product that was widely traded internationally. High-quality oil from Miletos and Samos were not only exported to the Black Sea but joined also the producers from Syria and Palestine who were supplying the Egyptian market at very attractive prices. Although direct proof is lacking, Cypriot olive oil very likely continued to be one of the major export agricultural commodities of the island. As evidenced from Kition and Salamis, salt was another commodity product that drew the particular attention of ruling authorities, and could well have been a potential export item in the diversified portfolio of products of Cypriot long-distance traders.
- (v) Table 14 summarises the various international price options of commodities and qualities of products to different markets.
- (vi) The cost of shipping was an important parameter for the Cypriot maritime economy. These costs could range according to the nature and value of a particular consignment of goods. Nevertheless, transport by sea was a much more attractive option than land, especially in the case of large-volume merchantmen.

Product	Quantity	Value in silver
Copper in Greece	10 tons	58.80 kg
Iron in Greece	10 tons	20.80 kg
Grain in Greece, average price	15,000 l	7.50 kg
Grain in Athens, open market (great famine)	15,000 l	20.0 kg
Wine from Athens	15,000 l	6.975 kg
Wine from Rhodes	15,000 l	15.60 kg
Wine from Knidos	15,000 l	11.25 kg
Wine from Chios	15,000 l	53.25 kg
Olive oil in Athens, 4th century BC	15,000 l	9.5 kg
Olive oil in Egypt, 300 BC (state monopoly)	15,000 l	79.50 kg
Salt in Athens during Demetrios’ siege	15,000 l	51.80 kg

Table 14: Comparison of prevailing international commodity prices in the Eastern Mediterranean during the Third Economic Cycle.

**CONCLUSIONS**

During the Third Economic Cycle, Cyprus, for the first time, came under continuous political and military control by a dominant imperial power that imposed its own fiscal administration and regular compulsory tributary system – the Persian Empire. The Cypriot city-states, although vassals within the Persian empire, were not under the administration of a resident Persian satrap, but kept their independence, and their kings were left undisturbed to manage their internal political and economic affairs as long as their actions and policies were aligned with the interests and policies of the Persian Empire in the Eastern Mediterranean.

The first half of the Third Economic Cycle was marked by unsuccessful Greek efforts to put the island under their control, and Persian determination to keep Cyprus under their influence. Cyprus’ geostrategic position and rich natural resources were vital for their navy and for their efforts to control the sea lanes and trade routes of Eastern Mediterranean.

The periods after the Peace of Kallias and the King’s Peace presented opportunities to the island’s maritime economy to thrive, and for its entrepreneurs, shippers and traders to expand their activities in a truly international fashion.

The institutions of long-distance trade and maritime commerce, the pillars of the Cypriot economy, continued their existence right through the First to the Third Economic Cycle. Although over the centuries they might have evolved, changed and adopted their strategies, these remained basically entrepreneurial in nature, supported by the ruling elite of the island.

The Cypriot city-states of antiquity, especially those of the Archaic and Classical periods (along with the Phoenicians), can be compared as ancient counterparts of later states, i.e. Venice and Genoa, at the height of their maritime glory. The Cypriot city-states like the medieval Italian city republics were essentially commercial, and their whole policy was to support key institutions for the protection and expansion of entrepreneurial international trade, and thereby a class of rich merchants and independent shippers were able to thrive and maximise their wealth, for their own benefit and that of the state.

Cypriot financiers and merchants had an active involvement in the international grain trade. They operated not only from the island itself but from international centres, such as Athens, where Cypriot lenders and shippers participated in the supply of grain and other imported commodities.

Pseudo-Aristotle's *Oikonomika* indicates that the Cypriot fiscal and political administration had similar features to Persian systems. This is reflected in Cyprus' assessment for tax and tribute by the Persians and the island's important role as a supplier of *triereis* and other warships, as well as naval services. The Persian navy comprised of squadrons of warships, mainly *triereis*, supplied by the subordinated coastal city-states, paid and financed by the royal treasury. Therefore, during the numerous naval battles in the Eastern Mediterranean, the Cypriot economy benefitted by supplying the Persian navy with warships, trained sailors and oarsmen, as well as the necessary food supplies.

Cypriot shipyards and shipwrights maintained, together with their Greek, Phoenician and Carthaginian counterparts, a leading position in the design and building of new, state-of-the-art warships, i.e. *pentereis*, *hexereis*, and the other large vessels that characterised the naval warfare activities of the period.

The long-established Cypriot institutions that existed on the island since the First and Second Economic Cycles, i.e. individual kingships, long-distance trade, production and export of metallurgy products, credit and finance, and language and script, continued until the end of the Third Economic Cycle, when Cyprus was caught in the catastrophic wars between the successors of Alexander the Great. The Ptolemaians abolished the

institution of independent Cypriot city-states c. 312–311 BC, putting to death its kings, and by 295 BC the whole of Cyprus was annexed as one unified province within the Ptolemaic kingdom, and completely transforming the island's political and economic landscape; centuries-old institutions were eradicated or fundamentally changed, introducing new rules and directives.

Although it is true that commerce is always hampered by war, Cypriot maritime activities during the turbulent years of the Third Economic Cycle went on, and even flourished, taking advantage of the opportunities provided. In general, and to a very large extent in war different rules apply to commerce, Cypriot entrepreneurs took very little notice of the disturbances and continued their maritime and mercantile activities by exploiting opportunities and high prices.

No evidence exists of the scale of wealth of Cypriot city-states, or contributions by the maritime economy to this wealth. One can only presume it was substantial. An idea, perhaps, can be inferred by Ptolemaios' income from Egypt alone, i.e. 14,800 silver talents in silver, plus about 45,500 tons of wheat.<sup>410</sup> Taking into consideration the great difference that existed between the Egyptian and Cypriot economies, then the income of a Cypriot king of a wealthy coastal city-state would have been considerably lower. It is worth remembering that copper-rich Tamassos was sold to Kition for 50 silver talents.

There is no real way to measure the income per capita and growth in the Cypriot economy during the three economic cycles under consideration. That there was growth there is no doubt, and this is evidenced in the archaeological record. As seen in the course of this present study, there is also little doubt that the maritime economy played a decisive role in the island's finances and its social development. One can only assume that Cyprus's maritime economy followed the path of the general global growth and social development.<sup>411</sup> During the First Economic Cycle there was real growth, followed by a slow-down at the beginning of the Second, until growth resumed for the rest of this period and into the Third Economic Cycle. In spite of actual positive change over this period, the rate of growth does not match the extraordinary increases in the global economy that followed later in the industrial revolution of the 19th century AD.

<sup>410</sup> Bresson 2016: 104.

<sup>411</sup> See Morris 2010: 166, fig. 3.7.

## Appendix

### Weights and measures, prices and means of exchange, consumption, conversions and production rates

#### FIRST ECONOMIC CYCLE 1450–1200 BC

1. WEIGHTS AND MEASURES	
DESCRIPTION	SOURCES – DISCUSSION
<b>Hittite</b> 1 skl = 11.4 g 1 mina = 40 skl = 456 g 1 talent = 60 minas = 2400 skl 1 talent = 27.36 kg	Mederos <i>et al.</i> 2004; Monroe 2010: 20–21
<b>Ugarit</b> 1shekel = 9.4 g 1 mina = 50 skl = 470 g 1 talent = 60 minas = 3000 skl 1 talent = 28.2 kg	Mederos <i>et al.</i> 2004; Monroe 2010: 20–21; Vita 2017: 526
<b>Carchemish</b> 1 skl = 7.83 g 1 mina = 60 skl 1 talent = 60 minas 1 talent = 28.2 kg	Mederos <i>et al.</i> 2004; Monroe 2010: 20–21
<b>Mesopotamia</b> 1 skl = 8.4 g 1 mina = 60 skl 1 talent = 60 minas = 3600 skl 1 talent = 30.2 kg	Mederos <i>et al.</i> 2004; Powell 1987: 90 -
<b>Egypt</b> 1 <i>deben</i> = 10 <i>qedets</i> 1 <i>qedet</i> = 9.1 g 1 <i>deben</i> = 91 g 1 large <i>deben</i> = 45.5 g 1 small <i>deben</i> = 13.1 g 1 <i>h3r</i> -sack = 76.56 l	Muchs 2016: 113–15; Papasavvas 2018  Muchs 2016: 114
<b>Akkadian, Old Babylonian</b> 1 <i>kurru</i> = 300 l	Monroe 2007: 3
<b>Carchemish, Ugarit and Middle Babylonian</b> 1 <i>kurru</i> = 150 l	Monroe 2007: 4

2. CONVERSIONS	
DESCRIPTION	SOURCES – DISCUSSION
1 lb = 0.453 kg	International Standards
1 l grain = 1.32 lbs grain	International Standards
1 l barley = 0.55 to 0.6 kg barley	Monroe 2007: 3; US Grain Standards 1997
1 <i>kor</i> = 320–340 l	Monroe 2009: 278
1 l grain = 0.593 kg grain	International Standards
1 l olive oil = 0.92 kg olive oil	International Standards
Wheat: barley = 1:1.2	Manning <i>et al.</i> 2018: 129

3. CONSUMPTION	
DESCRIPTION	SOURCES – DISCUSSION
<b>Animal carrying provisions</b> 10 lbs grain/day 10 lbs forage/day 80 lbs water/day	Engel 1978: 145
Northern Syria: 250 kg cereal/person/annum	Manning and Fisher 2018: 127
LBA Cyprus: 202 kg barley-wheat/person/annum	Manning and Fisher 2018: 129; Padgham 2014: table 2.8
15 l olive oil/person/annum	Keswani 2015: 19; Manning and Fisher 2018: 126–127

4. METAL EQUIVALENCIES	
DESCRIPTION	SOURCES – DISCUSSION
<b>Egypt</b> 18th Dynasty (1550–1295 BC) 19th Dynasty (1295–1186 BC) Gold: silver: copper = 1:2:200	Muchs 2016: 113–115; Papasavvas 2018
20th Dynasty (1186–1069 BC) Silver: copper = 1:60 Gold: copper = 1:200	Muchs 2016: 113–115; Papasavvas 2018
<b>Ugarit</b> (14th–13th century BC) Gold: silver: copper = 1:4:800	Heltzer 1978; 1999; Monroe 2010; Papasavvas 2018; Stieglitz 1979: 18, 20

5. WAGES	
DESCRIPTION	SOURCES – DISCUSSION
<b>Ugarit and Hatti</b> Male worker salaries = 1 Ug.sk1 silver/month Female worker salaries = 0.625 Ug.sk1 silver/month Sailor salaries = 5 l grain/day or 1800 l/year = 1.66 Ug.sk1 silver/month or 15.6 g silver/month.	Hittite Law 150; Hoffner 1997; LH 239; Monroe 2010: 27; Monroe 2009: 95
<b>Egypt</b> Male worker salaries = 2.73–3 Ug.sk1 silver/month Male foreman/scribe salaries = 4.63–5 Ug.sk1 silver/month	Janssen 1975: 460–466; Monroe 2010: 27

6. PRICES	
DESCRIPTION	SOURCES – DISCUSSION
<b>Ugarit: Metal</b> Copper = 15 Ug.sk1 silver/talent Copper = 0.5 Ug.sk1 silver/kg Tin = 0.5 Ug.sk1 silver/kg 1 talent bronze basin = 100 Ug.sk1 silver Royal silver bowl = 260–320 Ug.sk1 silver 1 mina gold cup = 200 Ug.sk1 silver	KTU 4.337; Monroe 2010: 22 KTU 4.337; Monroe 2010: 22 KTU 4.337; Monroe 2010: 22 Ug. 5 38: 25–37; Monroe 2010: 22 KTU 4.265; Monroe 2010: 22
<b>Ugarit and Hatti: Wheat and Barley</b> Wheat in Ugarit: 1 Ug. parisu = 90 l = 1 Ug.sk1 silver Wheat in Hatti = 0.0083 Ug.sk1 silver/l Barley in Hatti = 0.003 Ug.sk1 silver/l	Heltzer 1999: 445; Monroe 2010: 22 Hittite Law 183; Monroe 2010: 22 Hittite Law 183; Monroe 2010: 22
<b>Egypt: Barley and Emmer</b> Barley in 19th Dynasty Egypt (1295–1186 BC) 1 h3r-sack = 76.56 l = 2.2 dbn copper 1 Ug.sk1 silver = 360 l barley Barley: 0.277 Ug.sk1/100 l Emmer in 19th Dynasty Egypt (1295–1186 BC) 1 h3r-sack (76.56 l) = 1 dbn copper Emmer: 0.125 Ug.sk1 silver/100 l	Muchs 2016: 114      Muchs 2016: 114

6. PRICES	
DESCRIPTION	SOURCES – DISCUSSION
<p><b>Ugarit and Hatti: Slaves and Animals</b>                      Donkey in Ugarit = 10–30 Ug.skl silver                      Ox in Ugarit = 10–17 Ug.skl silver                      Horse in Ugarit = 35–200 Ug.skl silver                      Slave in Ugarit = 10–120 Ug.skl silver                      Slave in Hatti = Average 33 Ug.skl silver                      Sheep = 1–1.5 Ug.skl silver (Average 1.25)                      Sheep = 2/3–1 Ug.skl silver                      Donkey Hatti = 50 Ug.skl silver</p>	<p>Heltzer 1999: 446; Monroe 2010: 27                      Heltzer 1999: 446; Monroe 2010: 27                      Courtois 1990: 125; Monroe 2010: 27                      Heltzer 1999: 445; Monroe 2010: 27                      Hittite Laws 176–177; Hoffner 1997                      Heltzer 1999: 446; Monroe 2010: 27                      RS 18.024; RS 18.028                      Hittite Law 180; Hoffner 1997</p>
<p><b>Ugarit and Hatti: Textiles</b>                      Wool = 1–7 Ug.skl silver/talent                      Purple wool = 4–5 Ug.skl silver/talent                      Simple garment = from 1 Ug.skl silver                      Linen garment = 4 Ug.skl silver/piece                      Ritual garment (Ugarit) = 25 Ug.skl silver/piece                      Ritual garment (Hatti) = 20–30 Ug.skl silver/piece</p>	<p>Vita and Matoian 2014: 317;                      Stieglitz 1979: 19; Vita and Matoian 2014: 321.                      RS. 15.035 (4.146); Vita <i>et al.</i> 2014: 325, n. 138;                      Monroe 2010: 26;                      Hittite Law 182; Monroe 2010: 26</p>
<p><b>Ugarit: Olive oil and Wine</b>                      1 l wine = 0.026 Ug.skl silver                      Wine: 0.285 Ug.skl silver/kaddu jar                      Olive oil: 0.6–1.6 Ug.skl silver/kaddu jar                      Olive oil: average 1.1 Ug.skl silver/kaddu jar                      Olive oil: average 0.1 Ug.skl silver/l                      1 kaddu jar = 11 l</p>	<p>Administrative Texts 4.341, 4.290, 4.771, 4.808;                      Monroe 2016: 92; KTU 4.219; RS 16.179;                      Zamora 2000: 356, 490; Vita 2017: 531;                      Zamora 2003; Vita 2017: 526</p>
<p><b>Egypt: Wine and Resin</b>                      1 l wine = 0.0066 Ug.skl silver                      1 l resin (terebinth) = 0.023 Ug.skl silver</p> <p><b>Hatti: Olive oil and Honey</b>                      1 zipatani fine/good olive oil = Two Hittite skl silver                      1 zipatani honey = 1 Hittite skl silver</p>	<p>Monroe 2016: 92;                      Monroe 2016: 92; Papyrus Turin 1907/08</p> <p>Fappas 2013: 160; KBo 626+</p>

7. PRODUCTION	
DESCRIPTION	SOURCES – DISCUSSION
<p>1 mature castrated sheep produces 750 g wool                      1 shepherd attends to c. 140 sheep                      12–20 m<sup>3</sup> wood produce 1 ton charcoal                      300 kg charcoal produce 1 kg copper                      6 tons charcoal produce 30 kg copper                      5 kg olives produce 1 l olive oil                      1 olive tree produces on average 20 kg olives                      1–3 murex glands are needed to dye 1 g of wool</p>	<p>Nosch 2014: 373                      Nosch 2014: 374                      Constantinou 1982: 22                      Constantinou 1982: 22                      Stech 1982: 116                      Keswani 2015                      Keswani 2015                      Bresson 2016: 356–357</p>

8. SHIPBUILDING COSTS	
DESCRIPTION	SOURCES – DISCUSSION
<p><b>New Kingdom Egypt</b> (12th century BC)                      40 cubit, 20 m-long mast = 4 <i>dbn</i> or 38 Ug.skl silver                      30 cubit, 20m-long mast = 3 <i>dbn</i> or 29 Ug.skl silver                      30 cubit, 15m keel = 6 <i>dbn</i> or 58 Ug.skl silver                      Planks c. 15m = 0.25 <i>dbn</i> silver                      Upper/lower yard = 10 <i>dbn</i> or 96.8 Ug.skl silver</p> <p><b>Ugarit</b>                      Construction cost of medium- to large-sized merchantman = 540 Ug.skl silver or 5 kg silver (average)                      Sail and clothing material 40–50 Ug.skl</p>	<p>Janssen 1975: 375–385; Monroe 2010: 25</p> <p>Monroe 2009: 113–117; Monroe 2010: 24; RS.18.025, KTU 4.338</p>

**SECOND ECONOMIC CYCLE  
(1200 – 525 BC)**

9. PRICES	
DESCRIPTION	SOURCES – DISCUSSION
<p><b>Metal Equivalencies</b>  <b>Egypt</b>            20th Dynasty (1186–1069 BC)            Silver to copper = 1:60            Gold to copper = 1:200</p> <p>Third Intermediate Period (1069–664 BC)            21st – 25th Dynasty            Silver to copper = 1:100            Gold to silver = 1:2</p> <p><b>Babylonia (550 BC)</b>            Silver to copper = 1:180            Silver to iron = 1:240 (Origin Yamana)            Silver to iron = 1:360 (Origin Lebanon)            Silver to tin = 1:40            Copper to tin = 1:4.5            Copper to iron (Yamana) = 1:1.33</p>	<p>Muchs 2016: 113–115; Papasavvas 2018.</p> <p>Muchs 2015: 159</p> <p>Oppenheim 1967; YOS 6 168</p>
<p><b>Textiles</b>  <b>Babylonia (550 BC)</b>            1 talent purple wool = 600 skl silver            Silver to blue purple wool = 1:6            Silver to vegetable dye (<i>inzahuretu</i>) = 1:40            1 talent vegetable dye (<i>inzahuretu</i>) = 756 g silver            Silver to vegetable dye (<i>huratu</i>) = 1:240            1 talent vegetable dye (<i>huratu</i>) = 126 g silver            Silver to linen (<i>tumanu</i> fibre) = 1:90            1 talent linen fibre = 336 g silver            Silver to Egyptian alum = 1:180            1 talent Egyptian alum = 168 g silver</p>	<p>Oppenheim 1967; YOS 6 168</p>
<p><b>Egypt</b>  <b>Barley</b>            20th Dynasty Egypt (1186–1069 BC)            1 <i>h3r</i> sack = 76.56 l = 2.2 <i>dbn</i> copper            1 Ug.skl silver = 360 l barley            0.277 Ug.skl silver = 100 l barley            2.6 g silver = 100 l barley</p> <p>1 <i>h3r</i> sack = 76.56 l = 8 <i>dbn</i> copper            1 Ug.skl silver = 98 l barley            1 Ug.skl silver = 100 l barley            9.5 g silver = 100 l barley</p> <p>1 <i>h3r</i> sack = 76.56 l = 24 <i>dbn</i> copper            1 Ug.skl silver = 32.6 l barley            3 Ug.skl silver = 100 l barley            28.5 g. silver = 100 l barley</p> <p>1 <i>h3r</i> sack = 76.56 l = 3.5 <i>dbn</i> copper            1 Ug.skl silver = 225 l barley            0.44 Ug.skl silver = 100 l barley            4.15 g. silver = 100 l barley</p> <p>1 <i>h3r</i> sack = 76.56 l = 2 <i>dbn</i> copper            1 Ug.skl silver = 392 l barley            0.225 Ug.skl silver = 100 l barley            2.375 g. silver = 100 l barley</p>	<p>Muchs 2016: 114</p>

9. PRICES	
DESCRIPTION	SOURCES – DISCUSSION
<p><b>Emmer</b>                      20th Dynasty Egypt (1186–1069 BC)                      1 <i>h3r</i> sack = 76.56 l = 1.33 <i>dbn</i> copper                      0.166 Ug.sk1 silver = 100 l</p> <p>1 <i>h3r</i> sack = 76.56 l = 4 <i>dbn</i> copper                      0.5 Ug.sk1 silver = 100 l</p> <p>1 <i>h3r</i> sack = 76.56 l = 24 <i>dbn</i> copper                      1 Ug.sk1 silver = 100 l</p> <p>1 <i>h3r</i> sack = 76.56 l = 3.5 <i>dbn</i> copper                      0.25 Ug.sk1 silver = 100 l</p>	

**THIRD ECONOMIC CYCLE  
(525–295 BC)**

10. WEIGHTS AND MEASURES	
DESCRIPTION	SOURCES – DISCUSSION
<p><b>Attic</b>                      1 <i>kotule</i> = 0.27 l                      1 <i>khous</i> = 12 <i>kotule</i> = 3.28 l                      1 <i>metretes</i> = 39.39 l                      1 <i>medimnos</i> = 52.53 l                      1 <i>medimnos</i> barley = c. 27 kg                      1 <i>medimnos</i> wheat = c. 31 kg                      1 <i>plethron</i> = 29.6 m                      1 <i>stadion</i> = 177.6 m                      1 <i>plethron</i> (area) = c. 0.09 ha                      1 sq. km = 100 ha</p> <p><b>Weight Units</b>                      1 drachm silver = 4.54 g                      1 mina = 454 g                      1 talent = 27.279 kg</p> <p><b>Currency Units</b>                      1 drachm = 6 <i>obol</i>                      1 mina = 100 drachms                      1 talent = 60 minai = 6000 drachms                      1 stater = 2 drachms                      1 <i>obol</i> = 0.72 g                      1 drachm silver = 4.33 g                      1 mina = 433 g                      1 talent = 25.908 kg</p> <p><b>Persian</b>                      1 gold daric = 8.3 g                      1 silver <i>siglos</i> = 5.4 g                      1 <i>artaba</i> = 39.4 l</p> <p><b>Babylonian</b>                      1 Babylonian skl silver = 8.33 g                      1 <i>sut</i> = 6 l</p> <p><b>Cyprus</b>                      1 Cypriot silver <i>siglos</i> (5th century) = 10.55–11 g                      1 Cypriot gold (4th century) stater = 8.44 g                      1 Cypriot silver (4th century) didrachm = 7 g                      1 Cypriot gold stater = 12 silver didrachms (7 g each)                      LBA Syro-Palestinian <i>necef</i> shekel used in Cyprus = 10.5 g                      LBA Hittite shekel = 11.4 g</p>	<p>Bresson 2016: 439                      Bresson 2016: 439                      Bresson 2016: 439                      Bresson 2016: 439                      Stroud 1998:55                      Stroud 1998:55                      Bresson 2016: 439                      Bresson 2016: 439                      Bresson 2016: 439                      International Standards</p> <p>Bresson 2016: 440</p> <p>Bresson 2016: 440</p> <p>Briant 2002: 409                      Bresson 2016: 440</p> <p>Aperghis 2004: 141                      Aperghis 2001: 84</p> <p>Markou 2009: 280                      Markou 2009: 281                      Markou 2009: 282</p> <p>Kroll 2008: 41</p>

10. WEIGHTS AND MEASURES	
DESCRIPTION	SOURCES – DISCUSSION
<b>Egypt in the Persian Period</b> 1 karsh = 10 shekel 1 karsh = 1 <i>deben</i> = 10 kites 1 shekel = 40 hallurs 1 hallur = 5 quarters 1 gold stater = 33.5 hallurs in gold 1 <i>deben</i> = 5 Ionian staters 1 stater = 18.2 g 1 shekel = 9.1 g	Yardeni 1994: 70  Muchs 2016: 190

11. CONVERSIONS	
DESCRIPTION	SOURCES – DISCUSSION
1 lb = 0.453 kg	International Standards
1 l grain = 1.32 lbs grain	International Standards
1 l barley = 0.60 kg barley (US Grade One and Two)	US Grain Standards (1st June 1997)
1 l barley = 0.55–0.60 kg barley (US Grade Three and Four)	US Grain Standards (1st June 1997)
1 bushel = 36.3477 l	Jennes 1962: 67

12. PRODUCTION RATES	
1 ha produces 1,200 l barley (limited rainfall)	Aperghis 2004:140; Garnsey 1992: 148
4100–7000 vines are planted per ha	Bresson 2016: 123

13. FOOD PRICES	
DESCRIPTION	SOURCES – DISCUSSION
Persepolis (504/3 BC)	Aperghis 2004: 141; Hallock 1960; P.F tablets 504/3 BC
1 Babylonian skl silver = 1 <i>irtiba</i> barley (c. 30 l)	
1 Babylonian skl silver = 1 <i>irtiba</i> fruit	
1 Babylonian skl silver = 1 <i>marrish</i> wine (10 l)	
1 Babylonian skl silver = 1/3 sheep	
1 drachm = 15 l barley	
<b>Athens during the great famine (330–326 BC)</b>	Michell 1940: 263; Syll. 3.304; IG II.2,360
1 <i>medimnos</i> grain = 5 drachms (state trade prices)	
1 <i>medimnos</i> grain = 16 drachms (open market)	
10 l grain = 1 drachm (state trade prices)	
1 <i>metretes</i> barley = 18 drachms	Bresson 2016: 172; Dem. <i>Phaenippos</i> 42.20
Average price of grain in Athens	
1 <i>medimnos</i> grain = 6 drachms	Gabrielen 1994: 120; Markle 1985: 270–281, 293–297
1 <i>choinix</i> grain (1/48th <i>medimnos</i> or 839 g) = 3/4 <i>obol</i>	Gabrielen 1994: 120
Prices of barley Babylon	
340 BC: 1 drachm = 60 l barley (average)	Aperghis 2001: 83–84
330 BC: 1 drachm = 30 l barley	
325 BC: 1 drachm = 10 l barley	
300 BC: 1 drachm = 60 l barley	
290 BC: 1 drachm = 90 l barley	

13. FOOD PRICES	
DESCRIPTION	SOURCES – DISCUSSION
Olive oil	
<b>Ptolemaic Egypt</b>	
1 <i>metretes</i> oil = 46 drachms	Michell 1940: 285
Oil (4th century BC Panathenaic Games)	
1 <i>metretes</i> oil = 12 drachms	Bresson 2016: 405, n. 97; Pritchett and Pippin 1956: 184
<b>Wine</b>	
<b>Early 4th century BC</b>	Bresson 2016: 171–172
Attic wine: 4 drachms per amphora of 39 l	
<b>Custom declaration at Pelousion 259 BC</b>	
Chios wine: 18 drachms per amphora of 23 l	
Poseidia festival Delos (190–180 BC)	
Knidos wine: 4 drachms and 2 <i>obol</i> per amphora of 26 l	
Kos wine: 3 drachms and 2 <i>obol</i> per amphora of 26 l	
Rhodes wine: 6 drachms per amphora of 26 l (extrapolated)	
<b>Salt</b>	
Athens during the siege of Demetrios Poliorketes 1 <i>medimnos</i> salt = 40 drachms	Michell 1940: 124; Plut. <i>Dem.</i> 33.3

14. PERFUME	
DESCRIPTION	SOURCES – DISCUSSION
<i>Myrrhon rhodinon</i> (rose-petal perfume): 4–4.5 drachms per <i>kotule</i> (0.27 l)	Bresson 2016: 352
Kupros or kuprinon perfume: 1 mina silver per <i>kotule</i>	

15. CALCULATION FOR TRIBUTE ASSESSMENT	
DESCRIPTION	SOURCES – DISCUSSION
1/12 mina gold assessed for every 1.5 km <sup>2</sup>	Briant 2002: 394; Mnesimachos inscription (c. 225 BC)

16. IMPORT DUTIES	
DESCRIPTION	SOURCES – DISCUSSION
<b>Athens <i>ellimenion</i> duties</b>	
<i>Penteicosti</i> : 2% on all exports and imports (In 400/399 BC it reached a total of 30 talents)	Dem. <i>Neaeram</i> 27; Mavrogiannis 2011: 137–138
<i>Eikosti</i> : 5% on exports and imports to allies	Mavrogiannis 2011: 137–138
<i>Dekati</i> : 10% on imports from the Black Sea (410 BC)	Mavrogiannis 2011: 137–138; Polyb. 4.44
<b>Grain tax law 374–373 BC</b>	
Tax in kind levied on Imbros and Lemnos 1/12th on production	Bresson 2016: 410
<b>Ahiqar Scroll Elephantine (475 BC)</b>	
Ionian ship: 20% of cargo value Phoenician ship: 10% of cargo value Additional 'portion of the oil': 20% on value of oil carried	Yardeni 1994: 67–78

17. METAL PRICES IN GREECE	
DESCRIPTION	SOURCES – DISCUSSION
1 talent gold = 60,000 drachms	Bresson 2016: 262; Treister 1995
1 talent silver = 6000 drachms	
1 talent tin = 233 drachms (Athens 5th century BC) 1 talent bronze = 60 drachms plus 1.5 <i>obol</i> (worked metal Athens mid 4th century BC)	
1 talent copper = 35 drachms plus 1 <i>obol</i> (Athens 5th century BC) 1 talent iron = 12 drachms plus three <i>obol</i> (worked metal Delphi mid 4th century BC) 1 talent lead = 5 drachms plus 5 <i>obol</i> (Epidauros)	
Metal ratios in Greece (computed from above metal prices)	
Gold to silver = 1:10 before 350 BC	Aperghis 2004: 142
Silver to copper = 1:170, $1:(27,279) \div (35+1/6) \times 4.54$	
Silver to iron = 1:480, $1:(27,279) \div (12+0.5) \times 4.54$	
Gold to silver = 1:13 (Early Hellenistic)	Aperghis 2004: 142
Copper to iron = c. 1:3	
Bronze to iron = c. 1:5	
Copper: tin = c. 1:6.5	
Iron: tin = c.1:19.5	

18. TRIERES	
DESCRIPTION	SOURCES – DISCUSSION
Speed 7 knots/hour	Gabrielen 1994: 118
Construction cost for a <i>trieres</i> : 2 silver talents	Gabrielen 1994: 139
Replace or full repair of hull: 5000 drachms	Gabrielen 1994: 144–145
Repair for normal wear and tear: 1200 drachms	Gabrielen 1994: 144–145
1 oar: 5 drachms	Gabrielen 1994: 140
Complete set of equipment for a <i>trieres</i> (345–344 BC) = 2169 drachms	Gabrielen 1994: 152, n. 16
Complete set of equipment for a <i>trieres</i> (323–322 BC) = 4100 drachms	Gabrielen 1994: 152, n. 8
Shiphsheds: 1–1.5 silver talent each	

19. CONSUMPTION	
DESCRIPTION	SOURCES – DISCUSSION
1.5 l (1.98 lbs)/day barley (man in Babylon)	Aperghis 2004: 220
2.3 l (3 lbs)/ day grain (combat soldier in Alexander's army)	Engel 1978: 145
3600 cal per soldier per day in Alexander's army	Engel 1978: 123
4070 cal per oarsman working 4 hours	Gabrielen 1994: 120
39 lbs grain produce 3.5 lbs bread to obtain 3600 cal	Engel 1978: 124
4.33 lbs grain produce 3.9 lbs bread to obtain 4070 cal	
2 silver <i>obol</i> per oarsman per day (based on 3600 cal)	Demosthenes 4,28; Gabrielen 1994: 114, 120
Average for Alexander's army: 3 lbs grain per day = 2770 calories (3 lbs x 0.453 = 1.36 kg)	Engel 1978: 124
Xerxes soldier: 1 <i>choinix</i> per day = 248 kg/yr	Engel 1978: 125
Spartan soldier: 4.50 <i>choinix</i> per day = 1100 kg/year	Engel 1978: 125; Hdt.7, 187.1; Thuk. 4, 16.1
Civilian population: 237 kg/year	Moreno 2007
Energy requirement for 6 hour's work = 1.5 kg food = 700 g grain, 150 g fish/mutton, 150 g oil, 500 g wine	FAO/WHO/VNU (724–1985); Gabrielen 1994: 120, n. 36
Adult male average wine consumption: 0.5–1 l per day	Bresson 2016: 122
Slave force labour: 260 l per year	Bresson 2016: 122

20. SALARIES	
DESCRIPTION	SOURCES – DISCUSSION
<b>Classical Greece</b> (beginning of 5th century BC)	
Rowers: 3 <i>obol</i> per day average salary	Meijer 1986: 69
Peloponnesian war	
Rowers: 6 <i>obol</i> per day average composite salary	Markle 1985: 295
Average daily payments: 3–6 <i>obol</i>	Gabrielen 1994: 110
<b>Hellenistic period</b>	
Infantry man: 6–8 <i>obol</i> per day composite pay Cavalry man: 12–16 <i>obol</i> per day composite pay	Aperghis 2004: 202
Ration allowance: 2 <i>obol</i> per day	

21. CALCULATIONS FOR SALARIES AND PROVISIONS IN CYPRIOT COINAGE	
DESCRIPTION	SOURCES – DISCUSSION
(1) 1/12 gold 4th-century stater = 7 g silver = 1 (7/7) Cypriot silver 4th century BC didrachm = c. 10 (7/.72) silver attic <i>obol</i> = 2.5 (10/4) days average pay (for the equivalent salary of 4 attic <i>obol</i> per day)	
(2) 1/10 gold 4th-century stater = 8.44 g silver = 1.2 (8.44/7) Cypriot silver (4th century BC) didrachm = c. 12 (8.44/.72) silver attic <i>obol</i> = 3 (12/4) days average pay (for the equivalent salary of 4 attic <i>obol</i> per day)	
(3) 1/24 gold 4th-century stater = 2.5 days provisions (for the equivalent provision cost of two attic <i>obol</i> per day)	
(4) 1/20 gold 4th-century stater = 3 days provisions (for the equivalent provision cost of two attic <i>obol</i> per day)	

22. SLAVES	
DESCRIPTION	SOURCES – DISCUSSION
90 slaves = 1 talent silver (3rd and 2nd century BC)	II Macc. 8,10–11

23. TRANSPORT BY SEA	
DESCRIPTION	SOURCES – DISCUSSION
1 drachm per amphora (indicative)	Bresson 2016: 172
1750 drachms per merchantman transporting wood from Makedonia to Athens	Bresson 2016: 91

## Bibliography

- Allen, J. 1984. Pots and Poor Princes: A Multidimensional Approach to the Role of Pottery Trading in Coastal Papua, in S.E. van der Leeuw and A. Pritchard (eds) *The Many Dimensions of Pottery. Ceramics in Archaeology and Anthropology*: 407-63. University of Amsterdam: Albert Egges van Giffen Instituut, *Cingula* 7.
- Alston, L.J. 2008. New Institutional Economics, in S.N. Durlauf and L.E. Blume (eds) *The New Palgrave Dictionary of Economics on Line*. Basingstoke: Palgrave Macmillan.
- Amadasi-Guzzo, M.G. 2017. The Idalion Archive-2. The Phoenician Inscriptions, in N. Papademetriou and M. Toli (eds) *Αρχαία Κύπρος: Πρόσφατες εξελίξεις στην αρχαιολογία της ανατολικής Μεσογείου (Ancient Cyprus: Recent Developments in the Archaeology of the Eastern Mediterranean)*: 275-284. Athens: Museum of Cycladic Art-Nicholas and Dolly Goulandris Foundation.
- Amadasi-Guzzo, M.G. and V. Karageorghis 1977. *Fouilles de Kition III, Inscriptions Phéniciens*. Nicosia: Department of Antiquities.
- Amadasi-Guzzo, M.G. and J.A. Zamora 2018. The Phoenician Name of Cyprus: New Evidence from Early Hellenistic Times. *Journal of Semitic Studies* 63/1: 77-97.
- Andreades, A.M. 1933. *History of Greek Public Finance*. English translation by C.N. Brown. Cambridge, MA.
- Andreou, G.M. 2014. Tochni-Lakkia: Archaeology. *Legislation and Economic Crisis. CBRL Bulletin* 9: 53-54.
- Andreou, G.M. 2016. Understanding the Rural Economy of Late Bronze Age Cyprus: A Diachronic Perspective from the Vasilikos Valley. *Journal of Mediterranean Archaeology* 29: 143-172.
- Andreou, G.M. 2019. Gray Economics in Late Bronze Age Cyprus, in C. Kearns and S.W. Manning (eds) *New Directions in Cypriot Archaeology*: 160-189. New York: Cornell University Press.
- Anson, E.M. 1989. The Persian Fleet in 334. *Classical Philology* 8: 44-49.
- Aperghis, G.G. 2004. *The Seleukid Royal Economy: The Financial and Administration of the Seleukid Empire*. Cambridge: Cambridge University Press.
- Aperghis, M. 2001. Population - Production - Taxation - Coinage: A Model for the Seleukid Economy, in Z.H. Archibald et al. (eds) *Hellenistic Economies*: 69-102. London - New York: Routledge.
- Archibald, Z.H. et al. (eds) 2001. *Hellenistic Economies*: 11-62. London - New York: Routledge.
- Artzy, M. 1987. On boats and Sea Peoples. *Bulletin of the American School of Oriental Research* 266: 75-84.
- Artzy, M. 1988. Development of War/Fighting Boats of the 2nd Millennium B.C. in the Eastern Mediterranean. *Report of the Department of Antiquities Cyprus*: 181-186.
- Artzy, M. 1997. Nomads of the Sea, in S. Swiny, R.L. Hohlfelder and H.W. Swiny (eds) *Res Maritimae: Cyprus and the Eastern Mediterranean from Prehistory to Late Antiquity*: 1-16. Cyprus American Archaeological Research Institute, Monograph 1. Atlanta, GA: Scholars Press.
- Artzy, M. 2003. Mariners and their Boats at the End of Late Bronze Age in the Eastern Mediterranean. *Tel Aviv* 30: 232-246.
- Artzy, M. 2006. The Carmel Coast During the Second Part of the Late Bronze Age: A Centre for Eastern Mediterranean Trans-shipping. *Bulletin of the American Schools of Oriental Research* 343: 45-64.
- Artzy, M. 2013. The Importance of the Anchorages of the Carmel Coast in the Trade Networks During the Late Bronze Age Period. *Michmanim* 24: 7-24.
- Artzy, M. 2016. Distributers and Shippers: Cyprus and the Late Bronze II Tell Abu Hawam Anchorage, in S. Demesticha and A.B. Knapp (eds) *Maritime Transport Containers in the Bronze-Iron Age Aegean and Eastern Mediterranean Studies, in Mediterranean Archaeology and Literature*: 79-110. Studies in Mediterranean Archaeology and Literature. Uppsala: Paul Åström's Förlag.
- Aruz, J. 2014. Cauldrons, in J. Aruz et al. (eds) *Assyria to Iberia at the Dawn of the Classical Age*: 272-281. The Metropolitan Museum of Art New York: Yale University Press New Haven and London.
- Aruz, J. 2016. Bronze to Iron: Art in Transition, in J. Aruz and M. Seymour (eds) *Assyria to Iberia: Art in the Iron Age*: 14-29. New York: The Metropolitan Museum of Art.
- Aruz, J. et al. (eds) 2014. *Assyria to Iberia at the Dawn of the Classical Age*. New York - New Haven: The Metropolitan Museum of Art - Yale University Press.
- Ashton, N.G. 1972. How Many Pentereis. *GRBS* 20: 237-243.
- Aubert, J.J. 1994. *Business Managers in Ancient Rome. A Social and Economic Study, 200 B.C. - A.D.250*. Columbia Studies in the Classical Tradition. Leiden: E.J. Brill.
- Aubert, M.E. 2001. *The Phoenicians and the West: Politics, Colonies and Trade*. Cambridge: Cambridge University Press.
- Aubert, M.E. 2008. Political and Economic Implications of the New Phoenician Chronologies, in C. Sagona (ed.) *Beyond the Homeland: Markers in Phoenician Chronology*: 247-259. Leuven: Peeters.
- Aupert, P. 1979. Rapport sur les travaux de l'École française à Amathonte de Chypre en 1978. Les

- activités sur le terrain. Le port d'Amathonte. *Bulletin de Correspondance Hellénique* 103: 725–728.
- Aupert, P. 1980. Amathonte, Rapport Préliminaire (1975–1979). *Report of the Department of Antiquities Cyprus*: 217–231.
- Aupert, P. 2000. The Inner Harbour, in P. Aupert (ed.) *Οδηγός Αμαθούντας, Guide to Amathus*. Nicosia: Bank of Cyprus Cultural Foundation.
- Bachhuber, C. 2006. Aegean Interest on the Uluburun Ship. *American Journal of Archaeology* 110: 345–363.
- Bachhuber, C. and R.G. Roberts (eds) 2009. *Forces of Transformation: The End of the Bronze Age in the Mediterranean*. British Association of Near Eastern Archaeology Publication Series 1. Oxford: Oxbow.
- Badian E. 1966. Alexander the Great and the Greeks of Asia in *Ancient Society and Institutions: Studies Presented to Victor Ehrenberg on his 75th Birthday*. Oxford: Basil Blackwell.
- Badian, E. 1967. Agis III. *Hermes* 95: 170–192.
- Badian, E. 1994. Agis III: Revisions and Reflections, in I. Worthington (ed.) *Ventures into Greek History*: 259–292. Oxford: Clarendon Press.
- Baika, K. 2013. Small Scale and Rock Cut Naval Bases, in Blackman *et al.* (eds) *Shipheds of the Ancient Mediterranean*: 231–253. Cambridge: Cambridge University Press.
- Barjamovic, G. 2018. Commercial Networks and Infrastructure of Trading in Western Asia, in K. Kristiansen, T. Lindkvist and J. Myrdal (eds) *Trade and Civilization. Economic Networks and Cultural Ties, from Prehistory to the Early Modern Era*: 1–27. New York – Cambridge: Cambridge University Press.
- Bar-Kochva, B. 1976. *The Seleukid Army: Organization and Tactics in the Great Campaigns*. Cambridge: Cambridge University Press.
- Basch, L. 1972. Ancient Wrecks and the Archaeology of Ships. *IJNA* 1: 1–58.
- Basch, L. 1987. *Le muse imaginaire de la marine antique*. Athens: Institute Hellenique pour la preservation de la tradition nautique.
- Basch, L. and M. Artzy 1985. Ship Graffiti at Kition, in V. Karageorghis and M. Demas (eds) *Excavations at Kition V. The Pre-Phoenician Levels, Part I*: 322–336. Nicosia: Department of Antiquities.
- Bass, G.F. 1967. *Cape Gelidonya: A Bronze Age Shipwreck: Transactions of the American Philosophical Society Held in Philadelphia for Promoting Useful Knowledge*. New Series, Vol. 57 (8). Philadelphia, PA: The American Philosophical Society.
- Bass, G.F. 1973. Cape Gelidonya and Bronze Age Maritime Trade, in H.A. Hoffner Jr. (ed.) *Orient and Occident*: 29–38. Neukirchener–Vluyn: Neukirchener Verlag.
- Bass, G.F. 1986. A Bronze Age Shipwreck at Ulu Burun (Kas): 1984 Campaign. *American Journal of Archaeology* 90/3: 269–296.
- Bass, G.F. 1988. Return to Cape Gelidonya. *INA Newsletter* 15/2: 3–5.
- Bass, G.F. 2013. Cape Gelidonya Redax in J. Aruz. *et al. Cultures in Contact: From Mesopotamia to Mediterranean in the Second Millennium BC*: 62–71. New York: Metropolitan Museum of Art.
- Bass, G.F. and C. Pulak. 1989. The Bronze Age Shipwreck at Ulu Burun (Kas): 1986 Campaign. *American Journal of Archaeology* 93/1: 1–29.
- Beckman, G. 1996. Hittite Documents from Hattusha, in A.B.Knapp (ed.) *Sources for the history of Cyprus. Near Eastern and Aegean texts from the third to the first millennium BC*. Sources for the History of Cyprus 2. New York: 31–35
- Beckman, G. 1996a. *Hittite Diplomatic Texts*. The Ancient World 7. Atlanta, GA: Society of Biblical Literature.
- Belgiorno, M.R. 2008. Ancient Perfume and Textiles at Pyrgos–Mavrorachi. *Cyprus Today*. 46/3: 2–15.
- Bell, C. 2005. The Influence of Economic Factors on Settlement Continuity Across the LBA/Iron Age Transition on the Northern Levantine Littoral. Unpublished Ph.D. dissertation, Institute of Archaeology University College London.
- Bell, C. 2006. *The Evolution of Long-Distance Trading Relationships Across the LBA/Iron Age Transition on the Northern Levantine Coast. Crisis, Continuity and Change. A Study Based on Imported Ceramics, Bronze and its Constituent Metals*. British Archaeological Reports International Series 1574. Oxford: Archaeopress.
- Bell, C. 2012. The Merchants of Ugarit: Oligarchs of the Late Bronze Age Trade in Metals, in V. Kassianidou and G. Papasavvas (eds) *Eastern Mediterranean Metallurgy and Metalwork in the Second Millennium BC*: 180–187. Oxford: Oxbow Books.
- Bell, C. 2016. Phoenician Trade: The First 300 Years, in J.C.M. Garcia (ed.) *Dynamics of Production in the Ancient Near East 1300–500 BC*: 91–105. Oxford: Oxbow Books.
- Beloch, J. 1899. Die Grossindustrie im Altertum. *Zeitschrift für Sozialwissenschaft* 2: 18–26.
- Benson, J.L. 1973. *The Necropolis of Kaloriziki*. Studies in Mediterranean Archaeology 36, Gothenburg: Paul Åström's Förlag.
- Berlejung, A. 2012. The Assyrians in the West: Assyrianization, Colonialism, Indifference, or Development Policy, in M. Nissinen (ed.) *Congress Volume Helsinki 2010*: 21–60. Leiden: E.J. Brill.
- Bevan, A. 2010. Making and Marking Relationships: Bronze Age Branding and Mediterranean Commodities, in A. Bevan and D. Wengrow (eds) *Cultures of Commodity Branding*: 35–85. Walnut Creek, CA: Left Coast Press.
- Bevan, A. 2014. Mediterranean Containerization. *Current Anthropology* 55: 387–418.
- Bikai, P.M. 1978. *The Pottery of Tyre*. Warminster: Aris and Phillips.
- Bikai, P.M. 1987. *The Phoenician Pottery of Cyprus*. Nicosia: A.G. Leventis Foundation.

- Billows, R.A. 1990. *Antigonos the One Eyed and the Creation of the Hellenistic State*. Berkeley: University of California Press
- Billows, R.A. 2019. The Battle of Salamis and Cyprus in the Diadochi Era, in S. Rogge *et al.* (eds) *Salamis of Cyprus: History and Archaeology from the Earliest Times to Late Antiquity. Conference Held in Nicosia, 21–23 May 2015*: 458–68. Munster – New York: Waxmann.
- Birney, J.K. 2007. Sea Peoples or Syrian Peddlers. The Late Bronze and Iron I Aegean Presence in Syria and Kilikia. Unpublished Ph.D. dissertation, Harvard University, Cambridge, MA.
- Blackman, D. *et al.* 2013. *Shipheds of the Ancient Mediterranean*. Cambridge: Cambridge University Press.
- Blue, L. 1995. A Topographical Analysis of the Location of Harbours and Anchorages of the Eastern Mediterranean in the Middle and Late Bronze Ages, and Their Relation to Routes of Trade. Unpublished Ph.D. dissertation, University of Oxford.
- Boardman, J. 1999. *The Greeks Overseas*. London: Thames and Hudson Ltd.
- Boardman, J. 2006. Early Euboean Settlements in the Carthage Area. *Oxford Journal of Archaeology* 25/2: 195–200.
- Bombardieri, L. and G. Muti 2018. Erimi Laonin tou Porakou. A Textile Community of Practice in Middle Bronze Age Cyprus. *Fasciculi Archaeologiae Historicae* 31: 25–38.
- Bony, G. 2016. Evolution paléo-environnementale de la baie de Kition: mise en évidence d'un possible environnement portuaire (Larnaca, Chypre), in C. Sanchez and M.P. Jézégou (eds) *Actes du Colloque International Les Ports dans L'Espace Méditerranéen Antique*: 371–381. Montpellier-Lattes: Editions de l'Association de la Revue Archéologique de Narbonnaise.
- Bordreuil, E. 2007. Poids et mesures dans les textes administratifs en ougaritique: unités pondérales et quantification du cuivre, in V. Matoian, M. Al-Maqdissi and Y. Calvet (eds) *Études Ougaritiques II*, RSO XX: 283–296. Leuven:Peeters.
- Borza, E.N. 1990. *In the shadow of Olympus: The emergence of Macedon*. Princeton, NJ: Princeton University Press.
- Bosworth, A.B. 1975. The Mission of Amphoterus and the Outbreak of Agis' War. *Phoenix* 2: 27–43.
- Bosworth, A.B. 1998. *Conquest and Empire: The reign of Alexander the Great*. Cambridge: Cambridge University Press.
- Bosworth, A.B. 2002. *The Legacy of Alexander: Politics, Warfare, and Propaganda Under the Successors*. Oxford: Oxford University Press.
- Bosworth, A.B. and E.J. Baynham (eds) 2000. *Alexander the Great in Fact and Fiction*. Oxford: Oxford University Press.
- Botta, P.E. 1972. *Monument de Ninive III-IV: Inscriptions*. Paris: Imprimerie nationale, (first published 1849).
- Bourogiannis, G. 2012. Introduction to the Phoenician Problematic, in P. Adam-Veleni and E. Stefani (eds) *Greeks and Phoenicians at the Mediterranean Crossroads*: 31–41. Thessaloniki: Archaeological Museum of Thessaloniki Publications 15.
- Bresson, A. 2016. *The Making of the Ancient Greek Economy*. Princeton, NJ: Princeton University Press.
- Briant, P. 2002. *From Cyrus to Alexander*. Winona Lake, IN: Eisenbrauns.
- Broodbank, C. 2010. Ships A-sail from Over the Rim of the Sea: Voyaging, Sailing and the Making of Mediterranean Societies c. 3500–800 BC, in A. Anderson, J. Barrett and K. Boyle (eds) *The Global Origins and Development of Seafaring*: 249–264. Cambridge: McDonald Institute for Archaeological Research.
- Broodbank, C. 2013. *The Making of the Middle Sea: A History of the Mediterranean from the Beginning of the Emergence of the Classical World*. London: Thames and Hudson.
- Brunt, P.A. (trans.) 1976. *Arrian: Anabasis of Alexander, Books I–IV*. Loeb Classical Library. Cambridge, MA: Harvard University Press.
- Bücher, K. 1893. *Die Entstehung der Volkswirtschaft*. Tübingen: Laupp.
- Buchholz, H.G. 1988. Der Metallhandel des zweiten Jahrtausends Im Mittelmeer, in Heltzer, M. and E. Lipinsky (eds) *Society and Economy in the Eastern Mediterranean c. 1500–1000 BC*: 187–228. Leuven: Uitgeverij Peeters.
- Bushnell, L. 2016. *Precious Commodities: The Socio-economic Implications of the Distribution of Juglets in the Easter Mediterranean During the Middle and Late Bronze Age*. British Archaeological Reports International Series 2826. Oxford: Archaeopress.
- Cadogan, G. 2018. A Step up from Maroni Vournes to Kalavassos–Ayios Dhimitrios, in L. Hulin, L. Crew and J. Webb (eds) *Structures of Inequality on Bronze Age Cyprus, Studies in Honour of Alison K. South*: 107–120. Nicosia: Astrom Editions.
- Cambridge Ancient History* 2005, 2nd edition. Cambridge: Cambridge University Press.
- Cannavò, A. 2015. Cyprus and the Near East in the Neo-Assyrian Period. *Kyprios Character*: 1–9.
- Cannavò, A. 2007. The Role of Cyprus in the Neo-Assyrian Economic System: Analysis of the Textual Evidence. *Rivista di Studi Fenici* 35/2: 179–190.
- Carlson, D. 2004. Cargo in Context: The Morphology, Strategy, and Origin of the Amphoras for a Fifth Century B.C. Shipwreck. Unpublished Ph.D. dissertation, University of Texas.
- Carlson, D. 2013. A View from the Sea: The Archaeology of Maritime Trade in the 5th century B.C. Aegean World, in A. Slawish (ed.) *Trade and Finance in the 5th*

- Century B.C. *Aegean World*: 1–24. Byzas 18. Istanbul: Deutsches Archaeologisches Institut.
- Carruba, O. 1968. Contributo alla di Cipro nel II millenio. *Studi classisi e orientali* 17: 5–29.
- Casson, L. 1971. *Ships and Seamanship in the Ancient World*. Princeton, NJ: Princeton University Press.
- Casson, L. 1991. *The Ancient Mariners*. Princeton, NJ: Princeton University Press.
- Catling, H.W. 1964. *Cypriot Bronze-work in the Mycenaean World*. Oxford: Clarendon Press.
- Catling, H.W. 1996. The Sub-Minoan Phase of the North Cemetery, in J.N. Coldstream and H.W. Catling (eds) *Knossos North Cemetery. Early Greek Tombs*: 639–649. Annual for the British School at Athens 28. London: British School at Athens.
- Catling, H.W. and E.A. Catling 1980. The Mould and Crucible Fragments: The Foundry Refuse, in M.R. Popham, L.H. Sackett and P.G. Themelis (eds), *Lefkandi. The Iron Age: The Settlement and the Cemetery*: 93–97. London: Thames and Hudson for the British School at Athens.
- Cawkwell, G. 2005. *The Greek Wars: The Failure of Persia*. Oxford, Oxford University Press
- Cerny, J. 1934. Fluctuation in Grain Prices During the Twentieth Egyptian Dynasty. *Archiv Orientalní* 6: 73–178.
- Chavane, M.J. and M. Yon 1978. *Testimonia Salamina 1. Salamine de Chypre X*. Paris: Éditions de Boccard.
- Childs, W.P. 1994. The Stone Sculpture of Marion: A Preliminary Assessment, in F. Vendenabeele and R. Laffineur (eds) *Proceedings of the 2nd International Congress of Cypriot Studies, Brussels and Liege, 17–19 May 1993*: 107–115. Brussels: A.G. Leventis Foundation and Frije Universiteit Brussel, Université de Liege.
- Childs, W.A.P. 2003. L'urbanisme a Chypre, d'après les feuilles De l'Université de Princeton a Marion (Polis Chrysochous), in M. Reddé, L. Dubois, D. Briquel, H. Lavagne and F. Queyrel (eds) *La naissance de la ville dans l'Antiquité*: 97–107. Paris: Éditions de Boccard.
- Christodoulou, D. 1959. *The Evolution of the Rural Land Use in Cyprus*. London: Geographical Publications Limited.
- Christodoulou, P. 2009. Nicocréon: le dernier roi de Salamine de Chypre. Discours idéologique et pouvoir politique. *Cahiers du Centre d'Etudes Chypriotes* 39: 235–258.
- Christou, D. 1997. Appendix. Some Brief Thoughts on the Ancient Harbor of Kourion, in S. Swiny, L.H. Robert and H.W. Swiny (eds) *Res Maritimae – Cyprus and the Eastern Mediterranean in Prehistory to Late Antiquity, Proceedings of the 2nd International Symposium 'Cities on the Sea', Nicosia, 18–22 October 1994*. Atlanta, GA: Scholars Press Cyprus.
- Christou, D. 2003. The Royal Tomb of Curium, in G. Ioannides and S.A. Hadjistyllis (eds) *Proceedings of the 3rd International Congress of Cypriot Studies, Nicosia, 16–20 April 1996*: 545–559. Nicosia: Society of Cypriot Studies.
- Clark, G. 2007. *A Farewell to Alms: A Brief Economic History of the World*. Princeton, NJ: Princeton University Press.
- Cline, E.H. 1995. My Brother, My Son: Rulership and Trade Between the LBA Aegean, Egypt and the Near East, in P. Rehak (ed.) *The Role of the Ruler in the Prehistoric Aegean*: 143–150. *Aegaeum* 11. Liege: Université de Liege.
- Cline, E.H. 2014. *1177 B.C. The Year Civilization Collapsed*. Princeton, NJ: Princeton University Press.
- Coale, A.J. and P. Demeny 1966. *Regional Model Life Tables and Stable Populations*. Princeton, NJ: Princeton University Press.
- Cohen, E.E. 1992. *Athenian economy and society: A banking perspective*. Princeton: Princeton University Press.
- Cohen, R. and R. Westbrook (eds) 2000. *Amarna Diplomacy. The Beginnings of International Relations*. Baltimore: The Johns Hopkins University Press.
- Coldstream, J.N. 1986. Kition and Amathus: Some Reflections on Their Westward Links During the Early Iron Age, in V. Karageorghis (ed.) *Proceedings of the International Archaeological Symposium 'Cyprus Between the Orient and the Occident'*: 321–329. Nicosia: Department of Antiquities.
- Coldstream, J.N. 1998. The First Exchanges Between Euboeans and Phoenicians: Who Took the Initiative, in S. Gittin, A. Mazar and E. Stern (eds) *Mediterranean Peoples in Transition: Thirteenth to Early Tenth Centuries BCE*: 353–360. Jerusalem: Israel Exploration Society.
- Coldstream, J.N. 2000. Exchanges Between Phoenicians and Early Greeks. *National Museum News* 11: 15–32.
- Commons, J.R. 1934. *Institutional Economics*. New York: Macmillan.
- Consalez de Canales, F. et al. 2006. The pre-colonial Phoenician Emporium of Huelva ca. 900–770 BC. *Bulletin Antieke beschaving* 81: 13–28.
- Constantakopoulou, C. 2007. *The Dance of the Islands. Insularity, Networks, the Athenian Empire, and the Aegean World*. Oxford: Oxford University Press.
- Constantinou, G. 1982. Geological Features and Ancient Exploitation of the Cupriferous Sulphide Orebodies of Cyprus, in J.D. Muhly, R. Maddin and V. Karageorghis (eds) *Early Metallurgy in Cyprus, 4000–500 BC*: 13–24. Nicosia: Department of Antiquities.
- Constantinou, G. 1992. Ancient Copper Mining in Cyprus, in A. Marangou and K. Psillides (eds) *Cyprus, Copper and the Sea*: 43–76. Nicosia: Government of the Republic of Cyprus.
- Constantinou, G. 2010. The Birth of an Island, in S. Hadjisavvas (ed.) *Cyprus: Cross Roads of Civilizations*. Nicosia: The Government of the Republic of Cyprus.
- Constantinou, G. 2012. Late Bronze Age Copper Production in Cyprus from a Mining Geologist's Perspective, in V. Kassianidou and G. Papasavvas (eds) *Eastern Mediterranean Metallurgy and Metalwork*

- in the Second Millennium BC: 4–13. Oxford: Oxbow Books.
- Costa, A.E. 1974. Evagoras I and the Persians, c. 411 to 391 BC. *Historia* 23: 40–56.
- Courtois, J.C. 1983. Les poids de Palaepaphos–Skales, in V. Karageorghis (ed.) *Palaepaphos–Skales, An Iron Age Cemetery in Cyprus*: 424–425. Konstanz: Universitätsverlag Konstanz.
- Courtois, J.C. 1984. Les poids de Pyla-Kokkinokremos, Etude Métrologique, in V. Karageorghis and M. Demas (eds) *Pyla-Kokkinokremos, A Late 13th-Century B.C. Fortified Settlement in Cyprus*: 80–85. Nicosia: Department of Antiquities, Cyprus.
- Courtois, J.C. 1984a. Poids en pierre, in J.C. Courtois (ed.) *Alasia III: Les objets des niveaux stratifiés d'Enkomi*: 107–134. Fouilles C.F. Schaeffer 1947–1970, Mission Archéologique d'Alasia VI. Paris: Éditions Recherche sur les Civilisations.
- Courtois, J.C. 1990. Poids, prix, taxes et salaires à Ougarit (Syrie) au IIe millénaire, in R. Gyselen (ed.) *Prix, salaires, poids et mesures*: 119–127. *Res Orientales* 2, Paris: Groupe pour l' Etude de la Civilisation du Moyen-Orient.
- Craddock, P.T. et al. 1997. Casting Metals in Limestone Moulds. *The Journal of Historical Metallurgy Society* 31/1: 1–7.
- Crewe, L. 2007. *Early Enkomi: Regionalism, Trade and Society at the beginning of Late Bronze Age in Cyprus*. Oxford: Archaeopress.
- Crewe, L. 2012. Beyond Copper: Commodities and Values in Middle Bronze Cypro-Levant Exchange. *Oxford Journal of Archaeology* 31/3: 225–243.
- Dandamayef, M.A. 1995. The Neo Babylonian Tamkaru, in Z. Zevit, S. Gitin and M. Sokolof (eds) *Solving Riddles and Untying Knots: Biblical, Epigraphic and Semitic Studies in Honour of Jonas C. Greenfield*: 523–540. Winona Lake, IN: Eisenbrauns.
- Daszewski, W.A. 1985. The Main Harbour and Auxiliary Anchorages of Nea Paphos, in Light of Underwater Observations. *CAARI Library, Meander* 6: 327–336.
- Davies, E.M. 2012. The Problem of the Missing Harbour of Evagoras at Salamis, Cyprus: A Review of the Evidence and Pointers to a Solution. *International Journal of Nautical Archaeology* 41/2: 362–371.
- Davies, E.M. 2016. New Evidence of the Shipheds Built by Evagoras at Salamis, Cyprus. *The International Journal of Nautical Archaeology* 45/2: 447–449.
- Davies, J.K. 1998. Ancient economies models and muddles, in Parkins and Smith (eds) *Trade, traders and the ancient city*: 225–256. London – New York: Routledge.
- Davies, J.K. 2001. Hellenistic Economies in the Post-Finley Era, in Z.H. Archibald et al. (eds) *Hellenistic Economies*: 11–62. London – New York: Routledge.
- Davies, J.K. 2005. Linear and nonlinear flow models for ancient economies, in J.G. Manning and I. Morris (eds) *The ancient economy Evidence and models*: 127–56. Stanford, CA: Stanford University Press.
- Deger-Jalkotzy, S. 2008. Decline, Destruction, Aftermath, in C.W. Shelmerdine (ed.) *The Cambridge Companion to the Aegean Bronze Age*: 387–315. Cambridge: Cambridge University Press.
- Demesticha, S. 2011. The 4th-Century B.C. Mazotos Shipwreck, Cyprus: A Preliminary Report. *The International Journal of Nautical Archaeology* 40/1: 39–59.
- Demesticha, S. 2017. Η υποβρύχια αρχαιολογική έρευνα στο ναυάγιο Μαζωτού ('when the ship sank with the loss of all its cargo'. *The Underwater Archaeological Research at Mazotos Shipwreck*), in N. Papademetriou and M. Toli (eds), *Αρχαία Κύπρος: Πρόσφατες εξελίξεις στην αρχαιολογία της ανατολικής Μεσογείου (Ancient Cyprus: Recent Developments in the Archaeology of the Eastern Mediterranean)*: 285–300. Athens: Museum of Cycladic Art. Nicholas and Dolly Goulandris Foundation.
- Demesticha, S. 2019. Shipwrecks: Tracing the Role of Cyprus in the Seaborne Trade Networks of the Eastern Mediterranean. *Kyprios Character. History, Archaeology and Numismatics of Ancient Cyprus*.
- Dercksen, J.G. 2014. The Old Assyrian Trade and its Participants, in H.D. Baker and M. Jursa (eds) *Documentary Sources in Ancient Near Eastern and Greco-Roman Economic History: Methodology and Practice*: 75–83. Oxford: Oxbow Books.
- Deszo, T. Ver. A. 2013. Assyrians and Greeks: The Nature of Contacts in the 9th–7th Centuries B.C. *Acta Antiqua Academiae Scientiarum Hungaricae* 53/4: 325–359.
- Devillers, B. 2008. *Holocene, Morphogenesis and Anthropisation of a Semi-Arid Watershed, Gialias River, Cyprus*. Oxford: Archaeopress.
- Diakonoff, I.M. 1992. The Naval Power and Trade of Tyre. *Israel Exploration Journal* 32/3–4: 168–193.
- Dikaïos, P. 1969–1971. *Enkomi Excavations 1948–1958, Vol. 1 and 2*. Mainz: Philipp Von Zabern.
- Doxiadis, C.A. and J.G. Papaioannou 1974. *Ecumenopolis. The Inevitable City of the Future*. Athens: Athens Center of Ekistics.
- Dragmar, D. and S. Guner 2000. A Social Psychological Analysis of Amarna Diplomacy, in R. Cohen and R. Westbrook (eds) *Amarna Diplomacy. The Beginnings of International Relations*: 174–188. Baltimore: The John Hopkins University Press.
- Dross-Krupe, K. and M.L. Nosch 2016. Textiles, Trade and Theories: How Scholars Past and Present View and Understand Textile Trade in the Ancient Near East and the Mediterranean in Antiquity, in K. Dross-Krupe and M.L. Nosch (eds) *Textiles, Trade and Theories, From the Ancient Near East to the Mediterranean*: 293–329. Munster: Ugarit-Verlag.
- Duncan-Jones, R.P. 1982. *The Economy of the Roman Empire*, 2nd edition. Cambridge: Cambridge University Press.

- Economidou, M. 1997. *Mythology and Coinage*. Nicosia: Bank of Cyprus Cultural Foundation.
- Eisenberg, S. 1991. Metallurgical Analysis of the Ram, in Casson, L. and J.R. Steffy (eds) *The Athlit Ram*. Nautical Archaeology Series 3. College Station, TX: Texas A&M University.
- Elat, M. 1991. Phoenician Overland Trade within the Mesopotamian Empires, in M. Cogan and I. Ephal (eds) *Ah-Assyria... Studies in Assyrian History and Ancient Near Eastern Historiography Presented to Hayim Tadmor*: 21–35. Scripta Hierosolymitana, Vol. 33. Jerusalem: The Magnes Press, Hebrew University.
- Elayi, J. and A.G. Elayi 1997. *Recherches sur les poids Phéniciens*. Transeuphratène Supplément 5. Paris: Gabalda.
- Emanuel, J.P. 2014. The Sea Peoples, Egypt and the Aegean: Transference of Maritime Technology in the Late Bronze Early Iron Transition (LH IIIB-C). *AegST 1*: 21–56.
- Emanuel, J.P. 2016. Maritime Worlds Collide: Agents of Transference and the Metastasis of Seaborne Threads at the End of the Bronze Age. *Palestine Exploration Quarterly* 148: 265–280.
- Emanuel, J.P. 2016. *Warfare or Piracy? Describing and Defining Naval Combat in the LB-EI Aegean and Eastern Mediterranean*. Paper presented in the International Conference 'The Aegean and the Levant at the turn of the Bronze and Iron Ages'. Warsaw: University of Warsaw.
- Emanuel, J.P. 2018. Differentiating Naval Warfare and Piracy in the Late Bronze – Early Iron Age Mediterranean: Possibility or Pipe Dream in L. Niesiolowski-Spano and M. Wecowski (eds) *Change Continuity and Connectivity North Eastern Mediterranean at the turn of the bronze Age and in the Early Iron Age*: 68–80. Wiesbaden: Harrassowitz Verlag.
- Empereur, J.Y. et al. 2017. *The Hellenistic Harbour of Amathus Underwater Excavations, 1984–1986, Vol. I. Architecture and History*, Athens: École Française d' Athènes.
- Engels, D.W. 1978. *Alexander the Great and the Logistics of the Macedonian Army*. Berkeley – Los Angeles: University of California Press.
- Eyre, C.J. 2013. *The Use of Documents in Pharaonic Egypt*. Oxford: Oxford University Press.
- Faegersten, F. 2003. *The Egyptianizing Male Limestone Statuary from Cyprus: A Study of a Cross-Cultural Eastern Mediterranean Votive Type*. Lund: Lund University.
- Fantalkin, A. 2006. Identity in the Making: Greeks in the Eastern Mediterranean During the Iron Age, in A. Villing and U. Schlotzhauer (eds) *Naukratis: Greek Diversity in Egypt: Studies on East Greek Pottery and Exchange in the East Mediterranean*: 199–208. London: The British Museum.
- Fantalkin, A. 2014. Naukratis as a Contact Zone: Revealing the Lydian Connection, in R. Rollinger and K. Schnegg (eds) *Kulturkontakte in Antiken Welten: Vom Denkmodell zum Fallbeispiel*: 27–50. *Colloquia Antiqua* 10: 27–50. Leuven – Paris: Peeters.
- Fantalkin, A. and O. Tal 2015. When the River Meets the Sea: A Neo-Assyrian Logistical Network in Operation. *Skyllis* 15/1: 21–27.
- Fappas, I. 2013. Precious Gifts and the Circulation of Oils in the Ancient Eastern Mediterranean, in A. Papadopoulos (ed.) *Proceedings*: 157–183. *The Dutch Archaeological and Historical Society*. Amsterdam: The Dutch Archaeological and Historical Society.
- Feldman, M.H. 2006. *Diplomacy by Design*. Chicago: University of Chicago Press.
- Feldman, M. 2014. Metalwork, in Aruz, J. et al. (eds) *Assyria to Iberia at the Dawn of the Classical Age*: 157–162. New York – London: The Metropolitan Museum of Art – Yale University Press.
- Ferrara, S. 2007. *The Cypro-Minoan Script in Context: A view from Ugarit. The Textual Evidence and its Archaeological Significance*. Seminar given at the Oriental Institute, Oxford 16th October 2007.
- Ferrara, S. 2012. *Cypro-Minoan Inscriptions. Volume 1: Analysis 1*. Oxford – New York: Oxford University Press.
- Figueira, T.J. 1981. *Aegina: Society and Politics*. Salem, NH: Ayer.
- Finley, M.I. 1973. *The Ancient Economy*. Berkeley, CA: University of California Press.
- Finley, M.I. 1977. *Die Antike Wirtschaft*. Munich: DTV Wissenschaftliche Reihe.
- Finley, M.I. 1999. *The Ancient Economy*. Berkeley, CA: University of California Press.
- Fischer, P.M. and T. Bürge (eds) 2017. *Sea Peoples Up-to-Date. New Research on Transformations in the Eastern Mediterranean in the 13th–11th Centuries BCE, Contributions to the Chronology of the Eastern Mediterranean*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Fischer, P.M. and T. Bürge 2018. *Two Late Cypriot City Quarters at Hala Sultan Tekke. The Soderberg Expedition 2010–2017*. Studies in Mediterranean Archaeology, Vol. 117. Uppsala: Paul Åström's Förlag.
- Fleming, N.C. 1974. Report of Preliminary Underwater Investigations at Salamis, Cyprus. *Report of the Department of Antiquities Cyprus*: 163–174.
- Fourier, S. 1999. Chypre et la Grèce de l'Est à l'époque archaïque. Unpublished Ph.D. dissertation, Université Lumière Lyon 2.
- Fourier, S. 2009. East Greek and Cypriot Ceramics of the Archaic Period, in V. Karageorghis and O. Kouka (eds) *Cyprus and the East Aegean, Intercultural Contacts from 3000 to 500 BC*: 131–138. Nicosia: A.G. Leventis Foundation.
- Fourier, S. 2013. Constructing the Peripheries: Extra-Urban Sanctuaries and Peer-Polity Interaction in Iron Age Cyprus. *Bulletin of the American Schools of Oriental Research* 370: 103–122.

- Frahm, E. 1997. *Einleitung in die Sanherib-Inschriften*. Orient Research Archive, Supplement 26. Vienna: Institute for Oriental Studies.
- Frost, H. 1985. The Kition Anchors, in V. Karageorghis and M. Demas (eds) *Excavations at Kition V. The Pre-Phoenician Levels*: 281–221. Nicosia: Department of Antiquities.
- Gabrielsen, V. 1994. *Financing the Athenian Fleet*. Baltimore, MA: The Johns Hopkins University Press.
- Gale, N.H. and Z.A. Stos-Gale 2007. Cross Cultural Minoan Networks and the Development of Metallurgy in Bronze Age Crete, in S.L. Niece *et al.* (eds) *Metals and Mines, Studies in Archaeometallurgy*: 103–111. London: Archetype Publications and the British Museum.
- Garnsey, P. 1989. *Food Health and Culture in Classical Antiquity*. Cambridge Department of Classics Working Paper no.1. Cambridge: University Press.
- Garnsey, P. 1992. Yield of the Land, in B. Wells (ed.) *Agriculture in Ancient Greece: Proceedings of the 7th International Symposium at the Swedish Institute*: 147–153. Athens.
- Garnsey, P. *et al.* 1983. *Trade in the Ancient Economy*. London.
- Gaudry, A. 1855. *Recherches scientifiques en Orient entreprises par les ordres du gouvernement pendant les années 1853–1854*. Paris.
- Gennadiou, A. 2019. Geography and Demography of Cyprus: Quantifying a Kingdom of the Cypro-Classical Period”, in S. Rogge *et al.* (eds) *Salamis of Cyprus: History and Archaeology from the Earliest Times to Late Antiquity. Conference Held in Nicosia, 21–23 May 2015*: 354–378. Munster – New York: Waxmann.
- Georgiadou, A. 2015. The Tablet of Idalion (ICS 217). *Kyrios Character. History, Archaeology and Numismatics of Ancient Cyprus*.
- Georgiadou, A. 2016. La diffusion de la céramique chypriote d'époque géométrique en Méditerranée orientale. *Cahiers du Centre d'Etudes Chypriotes* 46: 89–112.
- Georgiadou, A. 2018. The Vasilikos Valley Within the Amathusian Territory in the Iron Age: Settlement Patterns and Inequalities, in L. Hulin, L. Crewe and J.M. Webb (eds) *Structures of Inequality on Bronze Age Cyprus. Studies in Honour of Alison K. South*: 155–168. Nicosia: Åström Editions.
- Georgiou, A. 2012. Pyla Kokkinokremos and Maa Palaeokastro: A Comparison of Two Naturally Fortified Cypriot Settlements, in A. Georgiou (ed.) *Cyprus an Island Culture: Society and Social Relations from the Bronze Age to the Venetian Period*: 65–83. Oxford: Oxbow Books.
- Georgiou, A. (ed.) 2012. *Cyprus an Island Culture: Society and Social Relations from the Bronze Age to the Venetian Period*. Oxford: Oxbow Books.
- Georgiou, A. 2015. Cyprus During the 'Crisis Years' Revisited, in A. Babbi, F.B. Erhart, B.M. Aguilera and S. Mühl (eds) in *The Mediterranean Mirror Cultural Contacts in the Mediterranean Sea Between 1200 and 750 BC*: 129–145. Mainz: Verlag des Römisch-Germanischen Zentralmuseums.
- Georgiou, A. 2017. Flourishing Amidst a 'Crisis': The Regional History of the Paphos Polity at the Transition From the 13th to the 12th Centuries BCE, in P.M. Fischer and T. Burge (eds) *'Sea Peoples' Up to Date, New Research on Transformations in the Eastern Mediterranean in the 13th–11th Centuries BCE*: 207–227. Sonderdruck, Vienna: Workshop Austrian Academy of Science.
- Georgiou, A. 2018. From the Hand to the Wheel: From the Hand to the Wheel. Revisiting the Transformations of the Late Cypriot Ceramic Industry of Fine wares During the 13th-to-12th century BC Transition, in I. Caloi and C. Langhor (eds) *Technology in Crisis. Technological Changes in Ceramic Production During Periods of Trouble*: 177–200. Louvain: Presses Universitaires de Louvain.
- Georgiou, A. 2018a. Ceramic Fluidity at Regional Variations Elucidating the Transformed Ceramic Industry of Finewares in Cyprus at the Close of the Late Bronze Age, in A. Cannavò and L. Thély (eds) *Les Royaumes de Chypre à l'épreuve de l'histoire*: 29–48. *Bulletin de Correspondance Hellénique*.
- Georgiou, A. 2019. Tracing the Foundation Horizon of Palaepaphos: New Research on the Early History of the Paphos Region, in C. Kearns and S.W. Manning (eds) *New Directions in Cypriot Archaeology*: 190–218. New York: Cornell University Press.
- Georgiou, A. and A. Georgiadou 2019, Spinning, Weaving and Purple Dyeing at Kition: New Evidence for the Textile Industry at the Settlement of *Bamboula* During the Late Bronze–Early Iron Age. Appendix: Analyse Biochimique, par Nicolas Garnier. *Cahiers du Centre d'Etudes Chypriotes* 49: 103–128.
- Gesche, H. 1974. Nicokles von Paphos und Nikokreon von Salamis. *Chiron* 4: 103–125.
- Gibbins, D. 2001. Shipwrecks and Hellenistic Trade, in Z.H. Archibald *et al.* (eds) *Hellenistic Economies*: 273–212. London – New York: Routledge.
- Gilboa, A. 1999. The View from the East: Tel Dor and the Earliest Cypro-Geometric Exports to the Levant, in M. Iacovou and D. Michaelides (eds) *Cyprus: The Historicity of the Geometric Horizon*: 119–139. Nicosia: Archaeological Research Unit, University of Cyprus.
- Gilboa, A. 2013. A Propos Huelva: A Reassessment of Early Phoenicians in the West, in J.M. Campos and J. Alvar (eds) *Tarteso: El emporio el metal*: 311–342. Cordoba: Almuzara.
- Gilboa, A. *et al.* 2008. Tel Dor and the Chronology of Phoenician 'Pre-Colonization' Stages, in C. Sagona (ed.) *Beyond the Homeland: Markers in Phoenician Chronology*: 379–422. Leuven: Peeters.
- Gilboa, A. *et al.* 2015. Dor, The Carmel Coast and Early Iron Age Mediterranean Exchanges, in A. Babbi, F.B. Erhart, B.M. Aguilera and S. Mühl

- (eds) *The Mediterranean Mirror Cultural Contacts in the Mediterranean Sea Between 1200 and 750 BC*: 85–110. Mainz: Verlag des Römisch-Germanischen Zentralmuseums.
- Giumlia-Mair, A. et al. 2011. Miniature Ingots from Cyprus, in P.P. Betancourt and S.C. Ferrence (eds) *Metallurgy: Understanding How, Learning Why: Studies in Honour of James D. Muhly*. Prehistory Monographs 29. Philadelphia: INSTAP Academic Press.
- Gjerstad, E. 1979. The Phoenician Colonization and Expansion in Cyprus. *Report of the Department of Antiquities Cyprus*: 230–254.
- Gjerstad, E. et al. 1937. *The Swedish Cyprus Expedition: Finds and Results of the Excavations in Cyprus 1927–1931, Vol. III*. Stockholm: Swedish Cyprus Expedition.
- Gomme, A. 1933. A Forgotten Factor of Greek Naval Strategy. *Journal of Historical Studies* 53: 16–24.
- González de Canales, F. et al. 2006. The Pre-colonial Phoenician Emporium of Huelva ca. 900–770 BC. *Bulletin Antieke Beschaving* 81: 13–28.
- Goransson, K. 2007. *The transport amphorae from Euesperides: The maritime trade of a Cyrenaican city 400–250 B.C.* Lund: Lunds Universitet.
- Goren, Y. et al. 2003. The Location of Alashiya: New Evidence from Petrographic Investigation of Alashiyan Tablets from El-Amarna and Ugarit. *American Journal of Archaeology* 107: 233–255.
- Gorman, V.B. 2001. *Miletos, the Ornament of Ionia*. Ann Arbor, MI: The University of Michigan Press.
- Grainger, J.D. 1991. *Hellenistic Phoenicia*. Oxford: Clarendon Press.
- Greene, E.S. et al. 2013. Expanding Contacts and Collapsing Distances in Early Cypro-Achaic Trade: Three Case Studies of Shipwrecks off the Turkish Coast, in M.I. Lawall and J. Lund (eds) *The Transport Amphorae and Trade of Cyprus*: 22–34. Aarhus: Aarhus University Press.
- Green, K. 1986. *The Archaeology of the Roman Economy*. London.
- Greif, A. 1993. Contract, Enforceability and Economic Institutions in Early Trade: The Magribi Trader Coalition. *American Economic Review* 83: 525–548.
- Greif, A. 2006. *Institutions and the Path to the Modern Economy: Lessons from Medieval Trade*: 91–123. Cambridge: Cambridge University Press.
- Groningen, B.A. 1933. *Aristotle: Le second livre de l'Économique*. Leiden: Sijthoff.
- Gunter, A. 2014. Beyond 'Orientalizing': Encounters Among Cultures in the Eastern Mediterranean, in J. Aruz, S. Craft and Y. Rakic (eds) *Assyria to Iberia at the Dawn of the Classical Age*: 248–254. New York – London: The Metropolitan Museum of Art New York – Yale University Press.
- Guterbock, H. 1967. The Hittite Conquest of Cyprus Reconsidered. *Journal of Near Eastern Studies* 26: 73–81.
- Haarer, P. 2001. Problematizing the Transition from Bronze to Iron, in A.J. Shortland (ed.) *The Social Context of Technological Change. Egypt and the Near East, 1650–1550 BC*: 255–273. Oxford: Oxbow Books.
- Hadjidemetriou, K. 2002. *A History of Cyprus*. Nicosia: Hermes Media Press Ltd.
- Hadjicosti, M. 1997. The Kingdom of Idalion in the Light of New Evidence. *Bulletin of the American School of Oriental Research*: 49–36.
- Hadjicosti, M. 1999. Idalion Before the Phoenicians: The Archaeological Evidence and its Topological Distribution, in M. Iacovou and D. Michaelides (eds) *Cyprus: The Historicity of the Geometric Horizon: Proceedings of an Archaeological Workshop, University of Cyprus, 11th October 1998*: 35–54. Nicosia: University of Cyprus.
- Hadjicosti, M. 2013. Case Study: Idalion, in D. Pilides and N. Papadimitriou (eds) *Ancient Cyprus Cultures in Dialogue*: 66–67. Nicosia: Department of Antiquity.
- Hadjicosti, M. 2017. Το Αρχείο του Ιδαλίου. 1 Ιστορικό και Αρχαιολογικό Πλαίσιο. ( The Idalion Archive 1. Historical and Archaeological Context, in N. Papademetriou and M. Toli (eds) *Αρχαία Κύπρος: Πρόσφατες εξελίξεις στην αρχαιολογία της ανατολικής Μεσογείου (Ancient Cyprus: Recent Developments in the Archaeology of the Eastern Mediterranean)*: 257–274. Athens: Museum of Cycladic Art. Nicholas and Dolly Goulandris Foundation.
- Hadjioannou, K. 1971. *Ancient Cyprus in Greek Sources*, Vol. I. Nicosia: Archbishopric of Cyprus (reprinted Nicosia: Epiphaniou Publications).
- Hadjisavvas, S. 2014. Jewellery from Tomb at Kition, in J. Aruj et al. *Assyria to Iberia at the Dawn of Classical Age*: 188–192. New York – London: The Metropolitan Museum of Art New York – Yale University Press.
- Hadjisavvas, S. 2017. *Excavations at the Late Bronze Age sites of Pano Mantilaris and Paliotaverna, 1984–2000*. Nicosia: Department of Antiquities.
- Hadjisavvas, S. and A. Chaniotis 2012. Wine and Olive Oil in Crete and Cyprus: Socio-economic Aspects, in G. Cadogan, M. Iacovou, K. Kopaka and J. Whitley (eds) *Parallel Lives: Ancient Island Societies in Crete and Cyprus*: 157–173. Annual for the British School at Athens 20. London. British School at Athens.
- Hallo, W. 1983. Lukalbanda excavated. *Journal of Near Eastern Studies* 103.
- Hallock, R.T. 1960. A New Look at the Persepolis Treasury Tablets. *Journal of Near Eastern Studies* 19: 90–100.
- Hammond, N.G.L. 1980. *Alexander the Great King, Commander and Statesman*. Bristol: Bristol Press.
- Hansen, J. 1989. Botanical Remains, in A.K. South, P. Russell and P.S. Keswani (eds) *Vasilikos Valley Project 3: Kalavassos–Ayios Dhimitrios II: Ceramics, Objects, Tombs, Specialist Studies (SIMA 71.3)*: 82–93. Gothenburg: Paul Åström's Förlag.

- Hansen, M.H. 1986. *Demography and Democracy: The number Of Athenian Citizens in the Fourth Century BC*. Aarhus: Systime.
- Hansen, M.H. 2000. The Hellenic Polis, in M.H. Hansen (ed.) *A Comparative Study of Thirty City State Cultures, An Investigation Conducted by the Copenhagen Polis Centre*: 21–187. Copenhagen: The Royal Danish Society of Sciences and Letters.
- Hansen, M.H. 2011. How to Convert an Army Figure to a Population Figure. *Greek, Roman, and Byzantine Studies* 51/2: 239–253.
- Hanson, V.D. 2005 *A war like no other*. New York: Random House Inc.
- Harrison, C.M. 1999. Triremes at Rest: On the Beach or in Water. *Journal of Hellenistic Studies* 119: 168–171.
- Hauben, H. 1970. The King of the Sidonians and the Persian Imperial Fleet. *Ancient Society* 1: 1–8.
- Hauben, H. 1972. The Command Structure in Alexander's Mediterranean Fleets. *Ancient Society* 3: 55–65.
- Hauben, H. 1973. The Chief Commanders of the Persian Fleet in 480 BC. *Ancient Society* 4: 23–37.
- Hauben, H. 1976. Expansion of Macedonian Sea-Power Under Alexander the Great. *Ancient Society* 7: 79–105.
- Hauben, H. 1976a. Fleet Strength at the Battle of Salamis (306 B.C.). *Chiron* 6: 1–5.
- Hauben, H. 1987. Cyprus and the Ptolemaic Navy. *Report of the Department of Antiquities, Cyprus*: 213–226.
- Healey, J.P. 1974. The Kition Tariffs and the Phoenician Cursive Serie. *Bulletin of the American Schools of Oriental Research* 216: 53–60.
- Heltzer, M. 1978. *Goods, Prices and the Organization of Trade in Ugarit*. Wiesbaden: Reichert.
- Heltzer, M. 1987. Labour in Ugarit, in M.A. Powell (ed.) *Labour in the Ancient Near East*: 237–250. American Oriental Series 68. New Haven: American Oriental Society.
- Heltzer, M. 1988. The Late Bronze Age Service System and its Decline, in M. Heltzer and E. Lipinski (eds) *Society and Economy in the Eastern Mediterranean (c.1500-1000 BC)*: 7–18. Leuven: Peeters.
- Heltzer, M. 1999. The Economy of Ugarit, in W.G.E. Watson and N. Wyatt (eds) *Handbook of Ugaritic Studies*: 423–454. Leiden: Brill.
- Heltzer, M. and E. Lipinski 1988. *Society and Economy in the Eastern Mediterranean (c. 1500-1000 BC)*. Leuven: Uitgeverij.
- Hermay, A. 1999. Amathus before the 8th Century BC, in M. Iacovou and D. Michaelides (eds) *Cyprus: The Historicity of the Geometric Horizon*: 55–67. Nicosia: Archaeological Research Unit, University of Cyprus.
- Hermay, A. 2009. Ionian Styles in Cypriote Sculpture of the Sixth Century BC, in V. Karageorghis and O. Kouka (eds) *Cyprus and the East Aegean, Intercultural Contacts from 3000 to 500 BC*: 244–251. Nicosia: A.G. Leventis Foundation.
- Hicks, J.M. 1969. *A Theory of Economic History, Vol. I*. Oxford: Clarendon Press.
- Hill, G. 1940 *A History of Cyprus: To the Conquest by Richard Lion Heart, Vol. I*. Cambridge: Cambridge University Press.
- Hirschfeld, N. 1993. Incised Marks (Post-Firing) on Aegean Wares, in C. Zerner (ed.) *Wace and Blegen: Pottery as Evidence for Trade in the Aegean Bronze Age, 1939-1989*: 311–18. Amsterdam: J.C. Gieben.
- Hirschfeld, N. 2011. The Cypriot Ceramic Cargo of the Uluburun Shipwreck, in W. Gauss, M. Lindlom, R.A.K. Smith and J.C. Wright (eds) *Our Cups are Full: Pottery and Society in the Aegean Bronze Age*: 115–120. Oxford: Archaeopress.
- Hodder, I. and E. Orton 1976. *Spatial Analysis in Archaeology*. Oxford: Oxford University Press.
- Hodgson, G.M. 2004. *The Evolution of Institutional Economics: Agency, Structure and Darwinism in American Institutionalism*. London – New York: Routledge.
- Hodos, T. 2006. *Local Responses to Colonization in the Iron Age Mediterranean*. London – New York: Routledge.
- Hoffner, H. 1997. The Laws of the Hittites: A Critical Edition. *Documenta et Monumenta Orientis Antiqui* 23, Leiden: E.J. Brill.
- Hoftijer, J. and W.H. van Soldt 1998. Appendix: Texts from Ugarit Pertaining to Seafaring, in S Wachsmann (ed.) *Sea-Going Ships and Seamanship in the Bronze Age Levant*: 333–344. College Station, TX: Texas A&M University.
- Hochfelder L.R. 1995. Ancient Paphos Beneath the Sea: Survey of the Submerged Structures, in V. Karageorghis and D. Michaelides (eds) *Proceedings of the International Symposium 'Cyprus and the Sea' Organized by the Archaeological Research Unit of the University of Cyprus and the Cyprus Ports Authority, Nicosia, 25-26 September 1993*: 191–210. Nicosia: Archaeological Research Unit, University of Cyprus.
- Holland, T. (trans.) 2013. *Herodotus: The Histories*. Penguin Ancient Classics. London: Penguin Books.
- Horden, P. and N. Purcell 2000. *The Corrupting Sea: A study of Mediterranean History*. MA, Oxford: Blackwell Publishing.
- Howe, T. (ed.) 2015. *Trade in the Ancient Mediterranean*: 7-46. Publications of the Association of Ancient Historians 11. Chicago: Ares Publishers.
- Howitt-Marshall, S.D. 2012. The Anchorage Site at Kouklia-Achni, South West Cyprus: Problems and Perspectives, in A. Georgiou (ed.) *Cyprus an Island Culture, Society and Social Relations from the Bronze Age to the Venetian Period*: 104–121. Oxford: Oxbow Books.
- Hult, G. 1978. *Hala Sultan Tekke 4. Excavations in Area 8 in 1974 and 1975, SIMA* 45: 4. Gothenburg: Paul Åström's Förlag.
- Hunt Ortiz, M.A. 2003. *Prehistoric Mining and Metallurgy in the South-West Iberian Peninsula*. British Archaeological Reports International Series 1188. Oxford: Archaeopress.
- Iacovou, M. 2002. From Ten to Naught. Formation, Consolidation and Abolition of Cyprus's Iron Age

- Polities. *Cahiers du Centre d'Études Chypriotes* 32: 73–87.
- Iacovou, M. 2004. Phoenicia and Cyprus in the First Millennium B.C.: Two Distinct Cultures in Search of Their Distinct Archaeologies. *Bulletin of the American Schools of Oriental Research* 336: 61–66.
- Iacovou, M. 2004a. Mapping the Ancient Kingdoms of Cyprus. Cartography and Classical Scholarship During the Enlightenment, in G. Tolia and D. Loupis, *Eastern Mediterranean Cartographies: Tetrada Ergasias 25-26*: 263–285. Athens: Institute for Neohellenic Research, National Hellenic Research Foundation.
- Iacovou, M. 2005. The Early Iron Age Urban Forms of Cyprus, in B. Cunliffe and R. Osborne (eds) *Mediterranean Urbanization 800–600 BC: Proceedings of the British Academy*: 17–43. Oxford: Oxford University.
- Iacovou, M. 2005a. Cyprus at the Dawn of the First Millennium B.C. Cultural Homogenization Versus the Tyranny of Ethnic Identification, in J. Clarke (ed.) *Archaeological Perspectives, on the Transmission and Transformation of Culture in the Eastern Mediterranean*: 125–134. Levant Supplementary Series 2. Oxford: Oxbow Books.
- Iacovou, M. 2006. 'Greeks', 'Phoenicians' and 'Eteocypriots': Ethnic Identities in the Cypriot Kingdoms, in J. Chrysostomides and C. Dendrinos (eds) *Sweet Land: Lectures on the History and Culture of Cyprus*: 24–59. Camberley: Porphyrogenitus.
- Iacovou, M. 2006a. The Basileus in the Kingdoms of Cyprus, in S. Deger-Jalkotzy and I.S. Lemos (eds) *Ancient Greece from the Mycenaean Palaces to the Age of Homer*: 315–335. Edinburgh Leventis Studies 3. Edinburgh: University of Edinburgh.
- Iacovou, M. 2007. Site Size Estimates and the Diversion Factor in Late Cypriot Settlement Histories. *Bulletin of the American Schools of Oriental Research* 448: 1–22.
- Iacovou, M. 2007a. Advocating Cypro-centricism: An Indigenous Model for the Emergence of State Formation on Cyprus, in S.W. Crawford, A. Ben-Tor, J.P. Dessel, W.G. Dever, A. Mazar and J. Aviram (eds) *Up to the Gates of Ekron: Essays on the Archaeology and History of the Eastern Mediterranean in Honor of Seymour Gitin*: 461–475. Jerusalem: The W.F. Albright Institute of Archaeological Research and The Israel Exploration Society.
- Iacovou, M. 2008. Cyprus from Migration to Hellenization, in G.R. Tsetschaldze (ed.) *Greek Colonization: An Account of Greek Colonies and Other Settlements Overseas Vol. 2*: 219–288. Leiden: E.J. Brill.
- Iacovou, M. 2008a. Cyprus at the End of the Late Bronze Age: Crisis and Colonization of Continuity and Hybridization. *American Journal of Archaeology* 112/4: 668–684.
- Iacovou, M. 2008b. Cultural and Political Configurations in Iron Age Cyprus: The Sequel to a Protohistoric Episode. *American Journal of Archaeology* 112: 625–657.
- Iacovou, M. 2012. From Regional Gateway to Cypriot Kingdom: Copper Deposits and Copper Routes in the Chora of Paphos, in V. Kassianidou and G. Papasavvas (eds) *Eastern Mediterranean Metallurgy and Metalwork in the Second Millennium BC: A Conference in Honour of James D. Muhly*: 58–69. Oxford: Oxbow Books.
- Iacovou, M. 2012a. External and Internal Migrations During the 12<sup>th</sup> Century BC: Setting the Stage for an Economically Successful Early Iron Age, in M. Iacovou (ed.) *Cyprus and the Aegean in the Early Iron Age: The Legacy of Nicolas Coldstream: 207–227*. Nicosia: Bank of Cyprus Cultural Foundation.
- Iacovou, M. 2013. Aegean-Style Material Culture in Late Cypriot III: Minimal Evidence, Maximal Interpretation, in E. Killebrew and G. Lehman (eds) *The Philistines and other 'Sea Peoples' in Text and Archaeology*: 585–618. Atlanta, GA: Society of Biblical Literature.
- Iacovou, M. 2013a. The Cypriot Syllabary as a Royal Signature. The Political Context of the Syllabic Script in the Iron Age, in P. Steele (ed.) *Syllabic Writing on Cyprus and its Context*: 133–152. Cambridge Classical Studies. Cambridge: Cambridge University Press.
- Iacovou, M. 2013b. Cyprus During the Iron Age Through the Persian Period: From the 11<sup>th</sup> Century BC to the Abolition of the City-Kingdoms (c. 300 BC), in M. Steiner and A. Killebrew (eds) *The Oxford Handbook of the Archaeology of the Levant c. 8000–332 BCE*: 795–824. Oxford Handbooks of Archaeology. Oxford: Oxford University Press.
- Iacovou, M. 2013c. Historically Elusive and Internally Fragile Island Polities: The Intricacies of Cyprus's Political Geography in the Iron Age. *Bulletin of the American Schools of Oriental Research* 370: 15–47.
- Iacovou, M. 2014. Beyond the Athenocentric Misconceptions: The Cypriote Polities in Their Economic Context. *Cahiers du Centre d'Études Chypriotes* 44: 95–117.
- Iacovou, M. 2014a. Cyprus During the Iron Age Period (Late Cypriot IIC–IIIA) to the Restructuring (LC IIIB) of its Settlement Pattern, in M.L. Steiner and A. Killebrew (eds) *Oxford Handbook of Archaeology of the Levant (c. 800–332 BC)*: 660–674. Oxford: Oxford University Press.
- Iacovou, M. 2014b. 'Working with the Shadows': In Search of the Myriad Forms of Social Complexity, in T. Yalanakis, J. Wilkinson and J. Bennet (eds) *Athyrmata: Critical Essays on the Archaeology of Eastern Mediterranean in Honour of E. Susan Sherratt*: 117–125. Oxford: Archaeopress.
- Iacovou, M. 2018. From the Late Cypriot Polities to Iron Age 'Kingdoms'. Understanding the Political Landscape of Cyprus Within, in A. Cannavò and L. Thély (eds) *Les royaumes de Chypre à l'épreuve de l'histoire: Transitions et ruptures de la fin de l'âge du Bronze au début de l'époque hellénistique*: 11–32. Bulletin de

- Correspondance Hellénique, Supplément. Athènes: École française d'Athènes.
- Iacovou, M. 2020. Greeks on the Island of Cyprus: 'At Home' on the Frontiers, in F. De Angelis (ed.) *A Companion to Greeks Across the Ancient World*: 247–271. Hoboken, NJ: John Wiley and Sons, Inc.
- Iacovou, M. and A. Karnava 2019. An Administrative Ostrakon from Kouklia–Hadjiabdoullah. *Cahiers du Centre d'Etudes Chypriotes* 49: 37–52.
- Iacovou, M. and D. Mylona 2019. Purple Dye Production Under Royal Management: Evidence from the Cypro-Classical Citadel of Ancient Paphos. *Cahiers du Centre d'Etudes Chypriotes* 49: 167–178.
- Iakovides, S.E. 1986. Destruction Horizons at Late Bronze Age Mycenae, in Φίλια Έπη εις Γεώργιον Μυλωνάν διά τα 60 έτη του ανασκαφικού του έργου (*Friendly Epics to George E. Mylonas, to Commemorate his Sixty Years as an Excavator*): 233–260. Athens: Library of the Archaeological Society of Athens.
- Ilieva, P. 2019. Phoenicians, Cypriots and Euboeans in Northern Aegean: A Reappraisal. *AURA* 2: 65–102.
- Ioannou, C. 2015. Cypriotes and the Phoenicians. *Kyprios Character. History, Archaeology and Numismatics of Ancient Cyprus*: 1–16.
- Isager, S. and M.H. Hansen 1975. *Aspects of Athenian society in the 4<sup>th</sup> century B.C. A historical introduction to and commentary on the speech against Dionysodorus in the Corpus Demosthenicum (XXXII–IIIIVIII and LVI)*. Odense.
- Janssen, J.J. 1975. *Commodity Prices from the Ramesside Period: An Economic Study of the Village of Necropolis Workmen at Thebes*. Leiden: E.J. Brill.
- Jenness, D. 1962. *The Economics of Cyprus: A Survey to 1914*. Montreal: McGill University Press.
- Jones, M.R. 2007. Oxhide Ingots, Copper Production, and the Mediterranean Trade in Copper and Other Metals in the Bronze Age. Unpublished MA dissertation, Texas A&M University.
- Jones, R.E. and S.J. Vaughan 1988. A Study of Some 'Canaanite' Jar Fragments from Maa-Palaeokastro by Petrographic and Chemical Analysis, in V. Karageorghis and M. Demas (eds) *Excavations at Maa-Palaeokastro 1979–1986*: 386–398. Nicosia: Department of Antiquities.
- Kantor, H.J. 1947. *The Aegean and the Orient in the Second Millennium B.C.* The Archaeological Institute of America Monograph 1. Boston: Archaeological Institute of America (reprinted 1997).
- Karageorghis, V. 1969. *Salamis in Cyprus: Homeric, Hellenic, Hellenistic and Roman*. London: Thames and Hudson.
- Karageorghis, V. 1969a. *Salamis Recent Discoveries in Cyprus*. New York: McGraw Hill.
- Karageorghis, V. 1973. *Salamis Excavations in the Necropolis of Salamis, Vol. 3*. Nicosia: Department of Antiquities.
- Karageorghis, V. 1978. *Ancient Cyprus*. Athens: National Bank of Greece Cultural Foundation.
- Karageorghis, V. 1983. *Palaeopaphos Skales: An Iron Age Cemetery in Cyprus*. Konstanz: Universitätsverlag Konstanz.
- Karageorghis, V. 1985. *The Cyprus Department of Antiquities 1935–1985*. Nicosia: Department of Antiquities.
- Karageorghis, V. 1996. Some Aspects of the Maritime Trade of Cyprus During the Late Bronze Age, in V. Karageorghis and D. Michaelides (eds) *The Development of the Cypriot Economy. From the Prehistoric Period to the Present Day*: 61–70. Nicosia: Department of Antiquities.
- Karageorghis, V. 2002. *Κύπρος: Το σταυροδρόμι της Ανατολικής Μεσογείου 1600–500 π.Χ.* (*Cyprus: The Crossroads of Eastern Mediterranean 1600–500 B.C.*). Athens: Kapon Editions.
- Karageorghis, V. 2005. *Excavations at Kition VI. The Phoenician and later levels, Part I*. Nicosia: Department of Antiquities.
- Karageorghis, V. 2012. *Ancient Cyprus, 9000 Years of Culture*. Nicosia: A.G. Leventis Foundation.
- Karageorghis, V. 2014. The Royal Tombs of Salamis on Cyprus, in J. Aruz, S. Craft and Y. Rakic (eds) *Assyria to Iberia at the Dawn of the Classical Age*: 188–192. New Haven – London: The Metropolitan Museum of Art New York – Yale University Press.
- Karageorghis, V. and M. Demas 1988. *Excavations at Maa Palaeokastro 1979–1986*. Nicosia: Department of Antiquities.
- Karageorghis, V. and M. Demas 1984. *Pyla Kokkinokremos. A Late 13th century BC Fortified Settlement in Cyprus*. Nicosia: Department of Antiquities.
- Karageorghis, V. and M. Demas 1984. *Pyla Kokkinokremos: A Late 12th century BC Fortified Settlement in Cyprus*. Nicosia: Department of Antiquities.
- Karageorghis, V. and M. Demas 1985. *Excavations at Kition V. The Pre-Phoenician Levels, Part II*. Nicosia: Department of Antiquities.
- Karageorghis, V. and M. Demas 1988. *Excavations at Maa Palaeokastro 1979–1986*. Nicosia: Department of Antiquities.
- Karageorghis, V. and F. Lo Schiavo 1989. A West Mediterranean Obelos from Amathus. *RStFen* 17: 15–29.
- Karageorghis, V. and F.G. Maier 1984. *Paphos History and Archaeology*. Nicosia: A.G. Leventis Foundation.
- Karageorghis, V. and D. Michaelides (eds) 1995. *Proceedings of the International Symposium 'Cyprus and the Sea', Organized by the Archaeological Research Unit of the University of Cyprus and the Cyprus Ports Authority, Nicosia, 25–26 September 1993*. Nicosia: Archaeological Research Unit, University of Cyprus.
- Karageorghis, V. and D. Michaelides (eds) 1996. *The Development of the Cypriot Economy, from the Prehistoric Period to the Present Day*. Nicosia: University of Cyprus and Bank of Cyprus.
- Karageorghis, V. and N.C. Stambolides (eds) 2003. *Ploes: Sea Routes: Interconnections in the Mediterranean, 16th–*

- 6th c. B.C.: *Proceedings of the International Symposium Held in Rethymnon, Crete, September 29th–October 2nd, 2002*. Athens: University of Crete and the A.G. Leventis Foundation.
- Kardulias, E. 2007. Negotiation and Incorporation on the Margins of World Systems: Examples from Cyprus and North America. *Journal of World Systems Research* XIII (1): 55–82.
- Kassianidou, V. 2004. And at Tamassos There are Important Mines of Copper. *Cahiers du Centre d'Études Chypriotes* 34: 33–36.
- Kassianidou, V. 2012. Copper Oxhide Ingots and Cyprus: The Story so Far. Cyprus Numismatic Society. *The Numismatic Report*: 9–54.
- Kassianidou, V. 2012a. The Origin of the Metals in Iron Age Cyprus, in M. Iacovou (ed.) *Cyprus and the Aegean in the Early Iron Age. The Legacy of Nicolas Coldstream*: 229–254. Nicosia: Bank of Cyprus Cultural Foundation.
- Kassianidou, V. 2013. The Production and Trade of Cypriot Copper in the Late Bronze Age: An Analysis of the Evidence, in F. Serra (ed.) *Pasiphae. Rivista di Filologia e Antichità Egee* VII: 134–135. Pisa: Fabrizio Serra.
- Kassianidou, V. 2013a. The Exploitation of the Landscape: Metal Resources and the Copper Trade During the Age of the Cypriot City-Kingdoms. *Bulletin of the American Schools of Oriental Research* 370: 49–82.
- Kassianidou, V. 2014. Cypriot Copper for the Iron Age World of the Eastern Mediterranean, in J.M. Webb (ed.) *Structure, Measurement and Meaning: Insights into the Prehistory of Cyprus. Studies on Prehistoric Cyprus in Honour of David Frankel*: 261–271. Studies in Mediterranean Archaeology 143. Uppsala: Paul Åström's Förlag.
- Kassianidou, V. 2017. Η παραγωγή και το εμπόριο Κυπριακού Χαλκού κατά την Εποχή του Χαλκού νέα δεδομένα. Νίκος Παπαδημητρίου και Μαρία Τόλη (επιμ.) *Πρόσφατες εξελίξεις Στην αρχαιολογία της ανατολικής Μεσογείου*: 111–134. Athens: Museum of Cycladic Art.
- Kassianidou, V. and A. Charalambous 2019. Analysis of the Copper Artefacts from the Necropolis of Salamis, in S. Rogge *et al.* (eds) *Salamis of Cyprus: History and Archaeology from the Earliest Times to Late Antiquity. Conference Held in Nicosia, 21–23 May 2015*: 313–336. Munster – New York: Waxmann.
- Kassianidou, V. and G. Papasavvas (eds) 2012. *Eastern Mediterranean Metallurgy and Metalwork in the Second Millennium BC*. Oxford: Oxbow Books.
- Katzev, M.L. 1981. The Reconstruction of the Kyrenia Ship, 1972–1975. *National Geographic Society Research Reports* 13: 315–328. Washington, DC: National Geographic Society.
- Kearns, C. and S.W. Manning (eds) 2019. *New Directions in Cypriot Archaeology*. New York: Cornell University Press.
- Kelly, T. 1992. The Assyrians, the Persians and the Sea. *Mediterranean Historical Review* 7: 7–28.
- Keswani, P. 1993. Models of Local Exchange in Late Bronze Age Cyprus. *Bulletin of the American Schools of Oriental Research* 292: 73–84.
- Keswani, P. 1996. Hierarchies, Heterarchies, and Urbanization Process: The View from Bronze Age Cyprus. *Journal of Mediterranean Archaeology* 9/2: 211–250.
- Keswani, P. 2004. *Mortuary Ritual and Society in Bronze Age Cyprus*. Monographs in Mediterranean Archaeology. London: Equinox.
- Keswani, P. 2015. Oil Production, Storage, and Political Economy at Late Bronze Age, Kalavassos, Cyprus, in A. Jacobs and P. Cosyns (eds) *Cypriot Material Culture Studies. From Picrolite Studies to Proskinitaria Analysis: Proceedings of the 8th Annual Postgraduate Cypriot Archaeology Conference Held in Honour of the Memory of Paul Astrom at the Vrije Universiteit, Brussels, Belgium, 27–29 November 2008*: 1–24. Brussels: Vrije Universiteit.
- Keswani, P. 2018. On the Relationship Between Modes of Agricultural Production and Social Inequality in Bronze Age Kalavassos: A Theoretical Essay, in L. Hulin, L. Crew and J. Webb (eds) *Structures of Inequality on Bronze Age Cyprus, Studies in Honour of Alison K. South*: 139–154. Nicosia: Åström Editions.
- Kiligoglou, V. *et al.* 2009. Cypriote and Cypriote-type terracotta figurines in the Aegean: chemical characterization and provenance investigation, in V. Karageorgis and O. Kouka (eds) *Cyprus and the East Aegean Intercultural Contacts from 3000 to 500 B.C. An International Archaeological Symposium held at Pythagoreion, Samos, October 17th–18th 2008*: 193–205. Nicosia: A.G. Leventis Foundation.
- Killebrew, A. and G. Lehmann (eds) 2013. *The Philistines and Other 'Sea Peoples' in Text and Archaeology*. Archaeology and Biblical Studies 15. Atlanta, GA: Society of Biblical Literature.
- Kirieleis, H. 2009. Intercultural Commerce and Diplomacy: Near Eastern, Egyptian and Cypriot Artefacts from the Heraion of Samos, in V. Karageorghis and O. Kouka (eds) *Cyprus and the East Aegean, Intercultural Contacts from 3000 to 500 BC*: 131–138. Nicosia: A.G. Leventis Foundation.
- Kitchen, K.A. 2008. Aalas(h)i(y)a (Irs) and Asiya (Isy) in Ancient Egyptian Sources, in D. Michaelides, V. Kassianidou and R.S. Merrillees (eds) *Egypt and Cyprus in Antiquity*: 1–18. Oxford: Oxbow Books.
- Knapp, A.B. 1985. Alashiya, Caphthor/Keftiu, and Eastern Mediterranean Trade: Recent Studies in Cypriote Archaeology and History. *Journal of Field Archaeology* 12/2: 231–250.

- Knapp, A.B. 1986. Production, Exchange and Socio-political Complexity of Bronze Age Cyprus. *Oxford Journal of Archaeology* 5: 35–60.
- Knapp, A.B. 1991. Spice, Drugs, Grain and Grog: Organic Goods in Bronze Age East Mediterranean Trade, in H. Gale (ed.) *Bronze Age Trade in the Mediterranean. Papers Presented at the Conference Held at Rewley House, Oxford in December 1989*: 21–68. *Studies in Mediterranean Archaeology* 90. Jonsered: Paul Åström's Förlag.
- Knapp, A.B. (ed.) 1996. *Sources for the history of Cyprus. Near Eastern and Aegean texts from the third to the first millennium BC*. Sources for the History of Cyprus 2. New York.
- Knapp, A.B. 1996a. Near Eastern and Aegean Texts from the Third to the First Millenia BC, in P.W. Wallace and A.G. Orphanides (eds) *Sources for the History of Cyprus II*. Altamont, NY: Greece-Cyprus Research Center.
- 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. 1999. The Archaeology of Mining: Fieldwork Perspectives. From the Sydney Cyprus Survey Project (SCSP) in S.M.M. Young et al. (eds) *Metals in Antiquity*: 98–109. *British Archaeological Reports International Series* 792. Oxford: Archaeopress.
- Knapp, A.B. 2000. Archaeology. Science-based Archaeology and the Mediterranean Bronze Age Metals Trade. *European Journal of Archaeology* 3: 31–56.
- 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 Bronze Age Cyprus*. Cambridge: Cambridge University Press.
- Knapp, A.B. 2013a. Revolution Within Evolution: The Emergence of a 'Secondary State' on Prehistoric Bronze Age Cyprus. *Levant* 45.1: 19–44.
- Knapp, A.B. 2018. *Seafaring and Seafarers in the Bronze Age Eastern Mediterranean*. Leiden: Sidestone Press.
- Knapp, A.B. 2018a. Wealth, Inequality and Complexity: Mortuary Practices at Kalavassos-Ayios Dhimitrios, in L. Hulin, L. Crew and J. Webb (eds) *Structures of Inequality on Bronze Age Cyprus, Studies in Honour of Alison K. South*: 7–19. Nicosia: Åström Editions.
- Knapp, A.B. and S. Demesticha 2017. *Mediterranean Connections: Maritime Transport Containers and Seaborne Trade in the Bronze and Early Iron Ages*. London – New York: Routledge.
- Knapp, A.B. and V. Kassianidou 2008. The Archaeology of Late Bronze Age Copper Production, in Ünsal Yalçin (ed.) *Anatolian Metal IV, Der Anschnitt* 21: 135–147. Bochum: Deutsches Bergbau Museum Bochum.
- Knapp, A.B. and S.W. Manning 2016. Crisis in Context: The End of the Late Bronze Age in the Eastern Mediterranean. *American Journal of Archaeology* 120/1: 99–149.
- Kohe, D.P. 2007. *Law and the Rural Economy in the Roman Empire*. Ann Arbor, MI: University of Michigan Press, 2007.
- Korner, C. 2019. The Kings of Salamis in the Shadow of the Near Eastern Empires: A Relationship of 'Suzerainty', in S. Rogge et al. (eds) *Salamis of Cyprus: History and Archaeology from the Earliest Times to Late Antiquity. Conference Held in Nicosia, 21–23 May 2015*: 327–339. Munster – New York: Waxmann.
- Kourou, N. 2003. Rhodes: The Phoenician Issue Revisited. Phoenicians at Vroulia, in N. Stambolides and V. Karageorghis (eds) *Sea Routes... Interconnections in the Mediterranean 16th–6th c. BC. Proceedings of the International Symposium Held in Rethymnon, Crete, 29 September–2 October 2002*: 249–262. Athens: The University of Crete and A.G. Leventis Foundation.
- Kristiansen, K. 2018. Theorizing Trade and Civilization, in K. Kristiansen, T. Lindkvist and J. Myrdal (eds) *Trade and Civilization. Economic Networks and Cultural Ties, from Prehistory to the Early Modern Era*: 1–24. Cambridge – New York: Cambridge University Press.
- Kristiansen, K. 2018a. The Rise of Bronze Age Peripheries and the Expansion of International Trade 1950–1100 BC, in K. Kristiansen, T. Lindkvist and J. Myrdal (eds) *Trade and Civilization. Economic Networks and Cultural Ties, from Prehistory to the Early Modern Era*: 87–112. Cambridge – New York: Cambridge University Press.
- Kristiansen, K., T. Lindkvist and J. Myrdal (eds) 2018. *Trade and Civilization. Economic Networks and Cultural Ties, from Prehistory to the Early Modern Era*. Cambridge – New York: Cambridge University Press.
- Kroll, H.H. 2008. Early Iron Age Balance Weights at Lefkandi, Euboea. *Oxford Journal of Archaeology* 27/1: 37–48.
- Kuhrt, A. 2007. *The Persian Empire: A Corpus of Sources from the Achaemenid Period*. London – New York: Routledge.
- Kypri, Y. 1999. *The Consolidation of Hellenism in Cyprus During the Period of the City-Kingdoms as Evidenced by Coins*. Nicosia: Bank of Cyprus Cultural Foundation.
- Kyrris, C.P. 1996. *History of Cyprus*. Nicosia: Lambousa Publications.
- Lagarce, J. et al. 1983. Les fouilles a Ras ibn Hani en Syrie (campagnes de 1980, 1981 et 1982). *Comptes-Rendus de l'Académie des Inscriptions et Belles Lettres*: 249–290. Paris: Éditions de Boccard.
- Laroche, E. 1971. *Catalogué des textes Hittites*. Paris: Klincksieck.
- Larsen, M.T. 1967. *Old Assyrian Caravan Procedures*. PIHANS 22. Istanbul: Netherlands Institute voor het Nabije, Osten.
- Lauinger, J. 2012. Esarhaddon's Succession Treaty at Tell Tayinat: Text and Commentary. *Journal of Cuneiform Studies* 64: 87–123.

- Lauinger, J. 2013. Neo-Assyrian Scribes, 'Esarhaddon's Succession Treaty', and the Dynamics of Textual Mass Production, in P. Delnero and J. Lauinger (eds) *Texts and Contexts: Approaches to Textual Circulation and Transmission in the Cuneiform World*: 285–314. *Studies in Ancient Near Eastern Records* 9. Berlin – Boston: Walter De Gruyter.
- Lauinger, J. 2013a. The Neo-Assyrian Adê: Treaty, Oath, or Something Else. *Journal for Ancient Near Eastern and Biblical Law* 19: 99–115.
- Leidwanger, J. 2004. Episkopi Bay Survey. *Institute of Nautical Archaeology Quarterly* 32/1: 17–27.
- Leidwanger, J. 2013. Opportunistic Ports and Spaces of Exchange in Late Roman Cyprus. *Journal of Marine Archaeology* 8: 221–243.
- Lemos, I.S. 2001. The Lefkandi Connection: Networking in the Aegean and the Eastern Mediterranean, in L. Bonfante and V. Karageorghis (eds) *Italy and Cyprus in Antiquity 1500–450 BC*: 215–226. Nicosia: Costakis & Leto Severis Foundation.
- Lemos, I.S. 2005. The Changing Relationship of the Euboeans and the East, in A. Villing (ed.) *Greeks in the East*: 53–60. London: British Museum Press.
- Lemos, I.S. and H. Hatcher 1991. Early Greek Vases in Cyprus: Euboean and Attic. *Oxford Journal of Archaeology* 10/2: 197–208.
- Leonard, R.J. 1997. Harbour terminology in Roman Periplo, in R. Swiny et al. (eds) *Res Maritimae – Cyprus and the Eastern Mediterranean from Prehistory to Late Antiquity, Proceedings of the 2nd International Symposium: Cities on the Sea*: 163–200. Nicosia, 18–22 October 1994, CAARI Monograph Series 1 Atlanta.
- Leonard, J.R. 2005. Roman Cyprus: Harbours, Hinterland, and Hidden Powers. Unpublished Ph.D. dissertation, State University of New York.
- Leonard, J.R. et al. 1998. Geoarchaeological Investigations in Paphos Harbour, 1996. *Report of the Department of Antiquities, Cyprus*: 141–147.
- Leonard, J.R. and R.L. Hohlfelder 1993. Paphos Harbour, Past and Present: The 1991–1992 Underwater Survey. *Report of the Department of Antiquities, Cyprus*: 365–379.
- Lewis, D. 1994. The Athenian Tribute Quota Lists 453–450 BC. *Annual for the British School at Athens* 89: 285–301.
- Linder, E. and Y. Kahanov 2003. *The Ma'agan Mikhael ship: The Recovery of a 2400 Year-Old Merchantman. Final Report I*. Jerusalem: Israel Exploration Society and the University of Haifa.
- Linder, E. 1981. Ugarit: A Canaanite Thalassocracy, in G.D. Young (ed.) *Ugarit in Retrospect, 50 Years of Ugarit and Ugaritic*: 31–42. Winona Lake, IN: Eisenbrauns.
- Linder, E. 1991. The Discovery, in Casson, L. and J.R. Steffy (eds) *The Athlit Ram*. Nautical Archaeology Series 3. College Station, TX: Texas A&M University.
- Lipinski, E. 1977. An Ugaritic Letter to Amenophis III Concerning the Trade with Alashiya. *Iraq* 39: 213–217.
- Lipinski, E. 1988. The Socioeconomic Condition of the Clergy in the Kingdom of Ugarit, in M. Heltzer and E. Lipinski (ed.) *Society and Economy in the Eastern Mediterranean, ca. 1500–1000 BC*: 125–150. Leuven: Uitgeverij Peeters.
- Lipinski, E. 2004. *Orientalia Lovaniensia Analecta, Itineraria Phoenicia* 127. *Studia Phoenicia* XVIII. Leuven: Uitgeverij Peeters.
- Liverani, M. 1962. *Storia du Ugarit*. *Studi Semitici* 6. Rome: Universita di Roma.
- Liverani, M. 1987. The Collapse of the Near Eastern Regional System at the End of the Bronze Age: The Case of Syria, in M. Rowlands, M. Larsen, K. Kristiansen (eds) *Centre and Periphery in the Ancient World*: 66–73. Cambridge: Cambridge University Press.
- Liverani, M. 1988. *Antico Oriente. Storia, Società Economia*. Rome – Bari: Laterza.
- Liverani, M. 1990. *Prestige and Interest: International Relations in the Near East ca. 1600–1100 BC*. Padua: Sargon Press.
- Liverani, M. 2000. The Great Power's Club, in R. Cohen and R. Westbrook (eds) *Amarna Diplomacy. The Beginnings of International Relations*: 15–27. Baltimore: The Johns Hopkins University Press.
- Liverani, M. 2001. *International Relations in the Ancient Near East 1600–1100 BC*. New York: Palgrave Macmillan.
- Liverani, M. 2014. *The Ancient Near East: History, Society and Economy*. London – New York: Routledge.
- Lo Cascio, E. 2005. La 'New Institutional Economics' e l' *Economia Imperiale Romana*, in M. Pani (ed.) *Storia Romana et Storia Moderna. Fasi in Prospettiva*: 69–83. Bari: Edilpuglia.
- Lo Cascio, E. 2006. The Role of the State in Roman Economy: Making Use of the New Institutional Economics, in P.F. Bang, M. Ikeguchi and H.G. Ziche (eds) *Ancient Economies, Modern Methodologies: Archaeology, Comparative History, Models and Institutions, Pragmateiai* 12: 215–254. Bari: Edilpuglia.
- Lo Schiavo, F. 2003. Sardinia Between East and West: Interconnections in the Mediterranean, in V. Karageorghis and N.C. Stambolides (eds) *Ploes: Sea Routes: Interconnections in the Mediterranean, 16th–6th c. BC. Proceedings of the International Symposium Held in Rethymnon, Crete, September 29th–October 2nd, 2002*: 15–34. Athens: University of Crete and the A.G. Leventis Foundation.
- Loizou, C. 2019. Tomb 77: Cenotaph of Nicocreon, Last King of Salamis? Some New Remarks, in S. Rogge et al. (eds) *Salamis of Cyprus: History and Archaeology from the Earliest Times to Late Antiquity. Conference Held in Nicosia, 21–23 May 2015*: 458–468. Munster – New York: Waxmann.
- Luckenbill, D.D. 1924. *The Annals of Sennacherib*. University of Chicago, Oriental Institute Publications 2. Chicago: University of Chicago Press.

- Luckenbill, D.D. 1926–1927. *Ancient Records of Assyria and Babylonia*. Vols. 1 and 2. Chicago: The University of Chicago Press.
- Maguire, L.C. 1990. The Circulation of Cypriot Pottery in the Middle Bronze Age. Unpublished Ph.D. dissertation, University of Edinburgh.
- Maguire, L.C. 1995. Tell el-Dab'a: The Cypriot Connection, in W.V. Davies and L. Shofield (eds) *Egypt, the Aegean and the Levant: Interconnections in the Second Millennium BC*: 54–65. London: British Museum Publications Ltd.
- Maier, F.G. 1985. Factoids in Ancient History: The Case of Fifth Century Cyprus. *Journal of Historical Studies* 105: 32–39.
- Maier, F.G. 2010. *Guide to Palaipaphos (Kouklia)*. Nicosia: Bank of Cyprus Cultural Foundation.
- Maier, F.G. and V. Karageorghis 1984. *Paphos History and Archaeology*. Nicosia: A.G. Leventis Foundation.
- Malinowski, B. 1922. *Argonauts of the Western Pacific*. New York: Dutton.
- Manning, J.G. 2018. *The Open Sea, The Economic Life of the Ancient Mediterranean World from the Iron Age to the Rise of Rome*. Princeton, NJ: Princeton University Press.
- Manning, S.W. et al. 2014. Becoming Urban: Investigating the Anatomy of the Late Bronze Age Complex, Maroni Cyprus. *Journal of Mediterranean Archaeology* 27/1: 3–32.
- Manning, S.W. 1998. Changing Pasts and Socio-political Cognition in Late Bronze Age Cyprus. *World Archaeology* 30: 39–58.
- Manning, S.W. 1999. Prestige Distinction and Competition: The Anatomy of Socioeconomic Complexity in Fourth to Second Millennium BCE. *Bulletin of the American Schools of Oriental Research* 292: 35–58.
- Manning, S.W. 2019. Environment and Socio-political Complexity on Prehistoric Cyprus: Observations, Trajectories and Sketch, in C. Kearns and S.W. Manning (eds) *New Directions in Cypriot Archaeology*: 99–130. New York: Cornell University Press.
- Manning, S. and F. De Mita 1997. Cyprus, the Aegean and Maroni-Tsaroukkas, in D. Christou (ed.) *Cyprus and the Aegean in Antiquity*: 103–142. Nicosia: Department of Antiquities.
- Manning, S.W. and D. Fisher 2018. Locating the Late Bronze Peasant in Cyprus, in L. Hulin, L. Crew and J. Webb (eds) *Structures of Inequality on Bronze Age Cyprus, Studies in Honour of Alison K. South*: 121–138. Nicosia: Åström Editions.
- Manning, S.W. and S. Swiny 1994. Sotira Kaminoudhia and the Chronology of the Early Bronze Age in Cyprus. *Oxford Journal of Archaeology* 13: 149–172.
- Mantzourani, E., K. Kopanias and I. Voskos 2019. A Great King on Alashiya? The Archaeological and Textual Evidence, in J.M. Kelder and W.J.I. Waal (eds) *From LUGAL. GAL to Wanax? Kingship and State Formation in the Late Bronze Age Aegean*: 1–33. Leiden: Sidestone Press.
- Marcus, E. 2006. Venice on the Nile? On the Maritime Character of Tell Dab'a/Avaris, in E. Czerny, I. Hein, H. Hunger, D. Melman and A. Schwab (eds) *Timelines. Studies in Honour of Manfred Bietak*: 187–189. Orientalia Lovaniensia Analecta 149/1-3. Leuven: Peeters.
- Marin-Aguilera, B.M. et al. 2018. Colouring the Mediterranean: Production and Consumption of Purple Dyed Textiles in Pre-Roman Times. *Journal of Mediterranean Archaeology* 31/2: 127–154.
- Markle, M.M. 1985. Jury Pay and Assembly Pay at Athens, in P.A. Cartledge and F.D. Harvey (eds) *Crux: Essays Presented to G.E.M. de Ste. Croix on his 75th birthday*: 265–297. London: Duckworth.
- Markoe, G.E. 1985. *Phoenician Bronze and Silver Bowls from Cyprus and the Mediterranean*. Berkeley: University of California Press.
- Markoe, G.E. 2000. *Phoenicians*. Berkeley: University of California Press.
- Markoe, G.E. 2003. Phoenician Metalwork Abroad: A Question of Export or On-site Production, in N. Stambolides and V. Karageorghis (eds) *Sea Routes... Interconnections in the Mediterranean 16th-6th c. B.C., Proceedings of the International Symposium Held in Rethymnon, Crete, 29 September–2 October 2002*: 209–216. Athens: The University of Crete and A.G. Leventis Foundation.
- Markou, E. 2009. Gold and Silver Weight Standards in Fourth Century Cyprus: A Resume, in N. Holms (ed.) *Proceedings of the XIVth International Numismatic Congress, Glasgow, 2009*: 280–284. Glasgow: International Numismatic Council.
- Markou, E. 2012. Gold Coinage and Economic Politics in Cyprus, Fourth Century B.C. Cyprus Numismatic Society. *The Numismatic Report* 39–43 (2008–2012): 117–132.
- Markou, E. 2012a. Coinage and Economic Politics, in D. Pilides and N. Papademetriou (eds) *Ancient Cyprus Cultures in Dialogue: Exhibition Organized by the Department of Antiquities, Cyprus, on the Occasion of Cyprus' Presidency of the Council of the European Union 2012 at Royal Museums of Art and History, Brussels, October 31, 2012–February 17, 2013*: 88–91. Exhibition catalogue. Nicosia: Department of Antiquities.
- Markou, E. 2014. Symbols in the Archaic and Classical Cypriot Coinage: Influences, Duration and Diffusion, in K. Dörtlük, R. Boyraz Seyhan and O. Tekin (eds) *Proceedings of the First International Congress of the Anatolian Monetary History and Numismatics Held in Antalya, Turkey, 25–28 February 2013*: 397–408. Antalya: AKMED.
- Markou, E. 2017. Από τον Ευέλθοντα στον Μενέλαο: Νομισματική παραγωγή και οικονομική πολιτική στην Κύπρο, 6ος–4ος αι. π.Χ. (From Evelthton to Menelaus: Numismatic Production and Economic Policy in Cyprus, 6th–4th c. BC), in N. Papademetriou

- and M. Toli (eds) *Αρχαία Κύπρος: Πρόσφατες εξελίξεις στην αρχαιολογία της ανατολικής Μεσογείου. Ancient Cyprus: Recent Developments in the Archaeology of the Eastern Mediterranean*: 301–321. Athens: Museum of Cycladic Art. Nicholas and Dolly Goulandris Foundation.
- Marr, J.L. and P.J. Rhodes 2008. *The Old Oligarch: The Constitution of the Athenian Attributed to Xenophon*. Liverpool: Liverpool University Press.
- Martinez, I.N. 2014. The Phoenician Ships of Mazarrón, in J. Aruz, S. Craft and Y. Rakic (eds) *Assyria to Iberia at the Dawn of the Classical Age*: 243–245. New York: The Metropolitan Museum of Art.
- Masson, O. 1983 *Les inscriptions chypriotes syllabiques*. Paris: Éditions de Boccard.
- Matthaus, H. 1998. Cyprus and Crete in the Early First Millennium B.C.: A Synopsis with Special Reference to New Finds from the Idaean Cave of Zeus, in V. Karageorghis and N. Stambolides (eds) *Eastern Mediterranean: Cyprus-Dodecanese-Crete 16th-6th century B.C., Proceedings of the International Symposium Held in Rethymnon, Crete, 13-16 May 1997*: 127–158. Athens: University of Crete and A.G. Leventis Foundation.
- Matthaus, H. 2014. Metal Finds from the ‘Royal Cemetery’ of Tamassos: Local Traditions, Phoenician and Cultural Influences in Archaic Cyprus, in V. Karageorghis, E. Poyiadji-Richter and S. Rogge (eds) *Cypriote Antiquities in Berlin in the Focus of New Research*: 103–35. Schriften des Instituts für Interdisziplinäre Zypern-Studien 10. Munster: Waxmann.
- Matthaus, H. 2016. Metalwork from the Levant to Iberia during the Early First Millenium B.C., in J. Aruz and M. Seymour (eds) *Assyria to Iberia: Art and Culture in the Iron Age*: 273–282. New Haven – London: The Metropolitan Museum of Art – Yale University Press.
- Mattingley, D.J. 1988. Oil for export? Comparison of Libyan, Spanish and Tunisian olive oil production. *JRA* 1: 33–56.
- Mattingley, D.J. 1988a. The olive oil boom. Oil surplus, wealth and power in Roman Tripolitania. *LibSt* 19: 21–24.
- Mavrogiannis, T. 2011. Το πολιτικό πρόγραμμα του Ευαγόρα Α΄, το εμπόριον της Σαλαμίνας και τα τείχη της Αθήνας (The Political Programme of Evagoras I, the Trade of Salamis and the Walls of Athens), in A. Demetriou (ed.) *Proceedings of the 4th International Congress of Cypriot Studies, 29 April-3 May 2008*: 133–169. Nicosia: Society of Cypriot Studies.
- Mavronanos, G. 2015. *Yadnana and the Assyrians: Illuminating the Role of Cyprus Within the Trade Network of the Assyrian Empire*. Unpublished MA dissertation, Tel Aviv University.
- McAdams, R. 1974. Anthropological Perspectives on Ancient Trade. *Current Anthropology* 15/3: 239–258.
- McCloskey, D.N. 2015. Max U Versus Humanomics: A Critique of Neo-institutionalism. *Journal of Institutional Economics* 12/1: 1–27.
- McDonald, C.F. et al. (eds) 2015. *Studies of Crete and Cyprus Presented to Gerald Cadogan*. Athens: Kapon Editions.
- McFadden, G.H. 1954. A Late Cypriote III Tomb from Kourion, Kaloriziki No. 40. *American Journal of Archaeology* 58: 131–142, pl. 18–27.
- McGeough, K.M. 2011. Ugaritic Commercial Practices and Biblical Law, in G. Frame, E. Lichti, K. Sonik, J.H. Tigay and S. Tinney (eds) *A Common Cultural Heritage: Studies on Mesopotamia and the Biblical World in Honor of Bary L. Eihler*: 65–76. Bethesda, MD: CDL Press.
- McGeough, K.M. 2015. ‘What Is not in my House you Must Give me’: Agents of Exchange According to the Textual Evidence from Ugarit, in B. Eder and R. Pruzsinsky (eds) *Policies of Exchange: Political Systems and Modes of Interaction in the Aegean and the Near East in the Second Millennium BC*: 85–96. Oriental and the European Archaeology 2. Vienna: Austrian Academy of Sciences Press.
- McKenzie, J. 2013. Kition, in D. Blackman et al. (eds) *Shiphsheds of the Ancient Mediterranean*: 349–361. Cambridge: Cambridge University Press.
- Mederos, A. 1996. La connexion levantino-cypriote. Indicios del comercio atlántico con el Mediterraneo oriental durante el Bronce Final (1150–950 AC). *TrabPrehist* 53, face 2: 95–115.
- Mederos, A. and C.C. Lamberg-Karlovsky 2004. Weight Systems and Trade Networks in the Old World 2500–1000 B.C., in M. Hudson and C. Wunsch (eds) *Creating Economic Order: Record-Keeping Standardization and the Development of Accounting in the Ancient Near East: A Colloquium Held at the British Museum in November 2000*: 199–114. Bethesda, MA: CDL Press.
- Meeus, A. 2004. The Territorial Ambitions of Ptolemy I, in H. Hauben and A. Meeus (eds) *The Age of the Successors and the Creation of the Hellenistic Kingdoms, 323-276 BC*: 263–306. Leuven: Peeters.
- Meiggs, R. 1982. *Trees and Timber in the Ancient Mediterranean World*. Oxford: Clarendon Press.
- Meiggs, R. and D. Lewis 1996. *A Selection of Greek Historic Inscriptions*. Oxford: Oxford University Press.
- Meijer, F. 1986. *A History of Seafaring in the Classical World*. London: Croom Helm.
- Menard, C. and M.M. Shirley 2005. *Handbook of New Institutional Economics*. Dordrecht: Springer Verlag.
- Menard, C. and M.M. Shirley 2014. The Contribution of Douglas North in New Institutional Economics, in S. Galiani and I. Senet (eds) *Institutions, Property Rights and Economic Growth: The Legacy of Douglas North*: 11–29. Cambridge: Cambridge University Press.
- Merrill, A.L. and T.W. Overholt (eds) 1977. *Scripture in History and Theology: Essays in Honor of J. Coert Rylaarsdam*. The Pittsburgh Theological Monograph Series 17. Pittsburgh: Pickwick Press.

- Merrillees, R.S. 1962. Opium Trade in the Bronze Age Levant. *Antiquity* 36: 287–292.
- Merrillees, R.S. 1992. The Government of Cyprus in the Late Bronze Age in P. Åström's (ed.) *Acta Cypria*: 310–329. SIMA PB120, Jonsered: Paul Åström's Förlag.
- Meyer, E. 1895. *Die Wirtschaftliche Entwicklung des Altertums*. Jena: G. Fischer.
- Michael, M. 2014. Reconstructing the Maritime Cultural Landscape: The Case Study of the Coastal Landscape of Larnaca on the Island of Cyprus in the Late Bronze Age. *Proceedings of the 5th International Congress of Underwater Archaeology: A Heritage of Mankind*. Cartagena: Ministry of Education, Culture and Sports.
- Michell, H. 1940. *The Economics of Ancient Greece*. Cambridge: Cambridge University Press.
- Mieroop, M. van de 2007. *A History of the Ancient Near East ca. 3000–323 BC*. Oxford: Blackwell Publishing.
- Mitford, T.B. 1961. The Hellenistic Inscriptions of Old Paphos. *Annual of the British School at Athens* 56: 1–41.
- Mitford, T.B. 1971. *The inscription of Kourion*. Philadelphia.
- Mitford, T.B. 1980. Roman Cyprus, in H. Temporini (ed.) *Aufstieg und Niedergang der Römischen Welt*, II.7.2: 1285–1384. Berlin.
- Mitford, T.B. 1980. *The nymphaeum of Kafizin: the inscribed pottery*. Berlin – New York: de Gruyter.
- Mlynarczyk, J. 1990. *Nea Paphos in the Hellenistic Period. Nea Paphos III*. Warsaw: Archeobooks.
- Monahan, E. and Spigelman, M. 2019. Negotiating a New Landscape: Middle Bronze Age Fortresses as a Component of the Cypriot Political Assemblage, in C. Kearns and S.W. Manning (eds) *New Directions in Cypriot Archaeology*: 133–159. New York: Cornell University Press.
- Monankhov, S. 2005. Rhodian Amphoras: Development in Form and Measurement, in V.F. Stolbova and L. Hannestad (eds) *Chronologies of the Black Sea Area in the Period ca. 400–100 BC*: 69–95. Aarhus: Aarhus University Press.
- Monankhov, S. and E. Kuznetsova 2017. Overseas Trade in the Black Sea Region from the Archaic to the Hellenistic Period, in V. Kozlovskaya (ed.) *The Northern Black Sea in Antiquity, Networks, Connectivity and Cultural Interactions*: 59–99. Cambridge: Cambridge University Press.
- Monroe, C. 2000. Scales of Fate: Trade, Tradition and Transformation in the Eastern Mediterranean ca. 1350–1175 BCE. Unpublished Ph.D. dissertation, University of Michigan.
- Monroe, C. 2007. Vessel Volumetrics and the Myth of the Cyclopean Bronze Ship. *Journal of the Economic and Social History of the Orient* 50: 1–18.
- Monroe, C. 2009. *Scales of Fate: Trade, Tradition, and Transformation in the Eastern Mediterranean*. *Alter Orient und Altes Testament* 357. Münster: Ugarit-Verlag.
- Monroe, C. 2010. Sunk Costs at Late Bronze Age Uluburun. *Bulletin of the American Schools of Oriental Research* 357: 15–29.
- Monroe, C. 2011. From Luxuries to Anxieties: A Liminal View of the Late Bronze Age World-system, in T.C. Wilkinson, S. Sherratt and J. Bennett (eds) *Interweaving Worlds: Systematic Interactions in Eurasia, 7th to 1st Millennium BCE*: 87–99. Oxford: Oxbow Books.
- Monroe, C. 2015. Tangled up in Blue: Material and Other Relations of Exchange in the Late Bronze Age World, in T. Howe (ed.) *Traders in the Ancient Mediterranean*: 7–46. Publications of the Association of Ancient Historians 11. Chicago: Ares Publishers.
- Monroe, C. 2016. Measure for 'Measure': Connecting Text to Material Culture Through Late Bronze Age Shipping Jars, in S. Demesticha and A.B. Knapp (eds) *Maritime Transport Containers in the Bronze-Iron Age Aegean and Eastern Mediterranean*: 79–96. Studies in Mediterranean Archaeology and Literature, PB 183. Uppsala: Paul Åström's Förlag.
- Monroe, C. 2018. Marginalizing Civilization: The Phoenician Redefinition of Power circa 1300–800 B.C., in K. Kristiansen, T. Lindkvist and J. Myrdal (eds) *Trade and Civilization: Economic Networks and Cultural Ties, from Prehistory to the Early Modern Era*: 195–241. Cambridge: Cambridge University Press.
- Moorey, P.R.S. 1994. *Ancient Mesopotamian Materials and Industries: The Archaeological Evidence*. Oxford: Clarendon.
- Moran, W.L. 1992. *The Amarna Letters*. Baltimore: Johns Hopkins University Press.
- Moreno, A. 2007. *Feeding the Democracy: The Athenian Grain Supply in the Fifth and Fourth Centuries B.C.* Oxford: Oxford University Press.
- Morhange, C. et al. 2000. Recent Holocene Paleo-Environmental Evolution and Coastline Changes of Kition, Larnaca, Cyprus, Mediterranean Sea. *Marine Geology* 170: 205–230.
- Morkholm, O. 1978. The Alexander Coinage of Nicocles of Paphos. *Chiron* 8: 135–147.
- Morris, I. 2005. Archaeology Standards of Living and Greek Economic History, in J.G. Manning and I. Morris (eds) *The Ancient Economy: Evidence and Models*: 91–126. Stanford, CA: Stanford University Press.
- Morris, I. 2007. Introduction, in I. Morris, W. Scheidel and R.P. Saller (eds) *The Cambridge Economic History of the Greco-Roman World*: 1–12. Cambridge: Cambridge University Press.
- Morris, I. 2011. *Why the West Rules for Now*. London: Profile Books.
- Morrison, J.S. 1987. Athenian Sea-Power in 323/2 B.C.: Dream and Reality. *Journal of Historical Studies* 107: 88–97.
- Muchs, B. 2016. *The Ancient Egyptian Economy, 3000–30 BC*. Cambridge: Cambridge University Press.

- Muhly, J.D. 1972. The Land of Alashiya: References to Alashiya in the Texts of the Second Millennium B.C. and the History of Cyprus in the Late Bronze Age, in V. Karageorghis and A. Christodoulou (eds) *Proceedings of the First International Congress of Cypriot Studies Held in 1969*: 201–219. Nicosia: Society of Cypriot Studies.
- Muhly, J. 1980. The Bronze Age Setting, in T. Wertime and J. Muhly (eds) *The Coming of the Age of Iron*: 35. New Haven: Yale University Press.
- Muhly, J.D. 1985. The Late Bronze Age in Cyprus: A 25-Year Retrospect, in V. Karageorghis (ed.) *Archaeology in Cyprus 1960–1985*. Nicosia: Zavallis Press Ltd.
- Muhly, J.D. 1996. The significance of metals in the Late Bronze Age Economy of Cyprus, in V. Karageorghis and D. Michaelides (eds) in *The Development of Cypriot Economy from the Prehistoric Period to the present day*: 45–60. Nicosia: University of Cyprus.
- Muhly, J.D. 2003. Trade in Metals in the Late Bronze Age, in N. Stambolides and V. Karageorghis (eds) *Sea Routes... Interconnections in the Mediterranean 16th–6th c. B.C., Proceedings of the International Symposium Held at Rethymnon, Crete, 29 September–2 October 2002*: 141–150. Athens: University of Crete and A.G. Leventis Foundation.
- Muhly, L. 1991. The development of copper metallurgy in the Late Bronze Age, in N.H. Gale (ed.) *Bronze Age trade in the Mediterranean*: 180–196. Studies in Mediterranean Archaeology 90. Gotteburg: Paul Åström's Förlag.
- Muhly, L. 2009. The origin of the name Ionian, in V. Karageorghis and O. Kouka (eds) *Cyprus and the East Aegean: Intercultural Contacts from 3000 to 500 BC*: 141–150. Nicosia: A.G. Leventis Foundation.
- Muhly, J.D. and V. Kassianidou 2012. Parallels and Diversities in the Production, Trade and Use of Copper and Iron in Crete and Cyprus from the Bronze Age to the Iron Age, in G. Cadogan, M. Iacovou, K. Kopaka and J. Whitley (eds) *Parallel Lives: Ancient Island Societies in Crete and Cyprus*: 119–140. Annual for the British School at Athens 20. London: British School at Athens.
- Munro, J.A.R. and H.A. Tubbs 1891. Excavations in Cyprus, 1890. *Journal of Hellenic Studies* 12: 59–198.
- Murrey, W.M. 2012. *The Age of the Titans: The Rise and Fall of the Great Hellenistic Navies*. Oxford: Oxford University.
- Na'aman, N. 2005. *Ancient Israel and its Neighbours: Interaction and Counteraction*. Collected Essays, Vol.1. Winona Lake, IN: Eisenbrauns.
- Nicolaou, I. 1971. *Cypriot Inscribed Stones*. Nicosia: Department of Antiquities.
- Nicolaou, I. 1986. Cypriots in the East and West. Foreigners in Cyprus (Archaic to Roman Period), in V. Karageorghis (ed.) *Proceedings of the International Archaeological Symposium 'Cyprus Between the Orient and the Occident'*: 423–438. Nicosia: Department of Antiquities.
- Nicolaou, K. and A. Flinder 1976. Ancient Fish Tanks at Lapithos, Cyprus. *International Journal of Nautical Archaeology and Underwater Exploration* 5/2: 133–136.
- North, D.C. 1977. Economic Growth: What Have we Learned from the Past. Carnegie-Rochester Conference Series on Public Policy. *Elsevier* 6/1: 157–177.
- North, D.C. 1979. A Framework for Analysing the State in Economic History. *Explorations in Economic History* 16: 249–259.
- North, D.C. 1981. *Structure and Change, in Economic History*. New York – London: W. Norton & Co.
- North, D.C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- North, D.C. 1996. Epilogue: Economic Performance Through Time, in L.J. Alstom, T. Eggertsson and D.C. North (eds) *Empirical Studies in Institutional Economics*: 342–355. Cambridge: Cambridge University Press.
- Nosch, M.L. 2014. Mycenaean Wool Economics in the Latter Part of the 2nd Millennium BC Aegean, in C. Breniquet and C. Michel (eds) *Wool Economy in the Ancient Near East and the Aegean*: 370–400. Oxford: Oxbow Books.
- Nosch, M.L. 2014a. Linen Textiles and Flax in Classical Greece Provenance and Trade, in K. Dross-Kruppe (ed.) *Textile Trade and Distribution in Antiquity*: 17–42. *Philippika* 73. Wiesbaden: Harrassowitz.
- Ogilvie, S. 2011. *Institutions and European Trade: Merchant Guilds, 1000–1800 BC*. Cambridge: Cambridge University Press.
- Olmstead, A.T. 1931. The Text of Sargon's Annals. *The American Journal of Semitic Languages and Literatures* 47: 259–279.
- Olmstead, A.T. 1978 (1948). *History of the Persian Empire*. Chicago: The University of Chicago Press.
- Oppenheim, A.L. 1967. Essay on the Overland Trade in the First Millennium B.C. *Journal of Cuneiform Studies* 21/1: 236–254.
- Oron, A. 2006. The Athlit Bronze Casting Reconsidered: Scientific and Technical Examination. *Journal of Archaeological Science* 33: 63–76.
- Osborne, R. 1999. Archaeology and the Athenian Empire. *Transactions of the American Philological Association* 129: 319–332.
- Otten, H. 1963. *Neue Quellen zum Ausklang, des Hethitischen Reiches*. *MDOG* 94: 1–23.
- Padgham, K. 2014. *The Scale and Nature of Late Bronze Age Economies of Egypt and Cyprus*. British Archaeological Reports International Series 2594. Oxford: Archaeopress.
- Pakkanen, J. 2013. The Economics of Shipshed Complexes: Zea, A Case Study, in D.J. Blackman, N.B. Rankov K. Baika, H. Gerding and J. Pakkanen

- Shipheds of the Ancient Mediterranean*: 55–75. Cambridge: Cambridge University Press.
- Papademetriou, N. and M. Toli (eds) 2017. *Αρχαία Κύπρος: Πρόσφατες εξελίξεις στην αρχαιολογία της ανατολικής Μεσογείου*. *Ancient Cyprus: Recent Developments in the Archaeology of the Eastern Mediterranean*. Athens: Museum of Cycladic Art-Nicholas and Dolly Goulandris Foundation.
- Papadopoulos, J.K. 1997. Phantom Euboians. *Journal of Mediterranean Archaeology* 10/2: 191–219.
- Papantoniou, G. and A. Satraki 2019. Geography and Demography of Cyprus: Quantifying a Kingdom of the Cypro-Classical Period, in S. Rogge et al. (eds) *Salamis of Cyprus: History and Archaeology from the Earliest Times to Late Antiquity. Conference Held in Nicosia, 21–23 May 2015*: 340–353. Munster – New York: Waxmann.
- Papasavvas, G. 2012. Profusion of Cypriot Copper Abroad, Dearth of Bronzes at Home: A Paradox in Late Bronze Age Cyprus, in V. Kassianidou and G. Papasavvas (eds) *Eastern Mediterranean Metallurgy and Metalwork in the Second Millennium BC*: 117–128. Oxford: Oxbow Books.
- Papasavvas, G. 2013. Cypriot Metalwork of the Late Bronze Age, in F. Serra (ed.) *Pasiphae, Rivista di Filologia e Antichità Egee VII*: 169–178. Pisa: Fabrizio Serra Editore.
- Papasavvas, G. 2018. Values, Weights and Equivalences of Metals in the Late Bronze Age Eastern Mediterranean, or What Could a Copper Oxhide Ingot ‘Buy’. in A. Giumlia-Mair and F. Lo Schiavo (eds) *Bronze Age Metallurgy on Mediterranean Islands. Volume in Honour of Robert Maddin and Vassos Karageorghis*: 600–629. Drémil-Lafage: Editions Mergoïl.
- Pappa, E. 2017. ‘You give me letters instead of money?’ Commercial transactions in the Near East and the Western Mediterranean ca. 1100–600 BCE: social innovation and institutional inhibition of Phoenician Commerce. *Museu de Arqueologia e Etnologia da Universidade de Sao Paulo*, 28: 1–30.
- Pappa, E. 2013. *Early Iron Age Exchange in the West. Phoenicians in the Mediterranean and the Atlantic*. *Ancient Near Eastern Studies Supplement Series* 43. Leuven: Peeters.
- Parpas, A.P. 2013. *Alexander the Great: The Dissolution of the Persian Naval Supremacy 334–331 BC*. Charleston, SC: CreateSpace Independent Publishing Platform.
- Parpas, A.P. 2014. *Alexander the Great in Erbil. The Military Battle of Gaugamela 331 B.C. The Political Victory at Arbela*. Charleston, SC: CreateSpace Independent Publishing Platform.
- Parpas, A.P. 2016. *The Hellenistic Gulf. Greek Naval Presence in South Mesopotamia and the Gulf, 324–64 BC*. Charleston, SC: CreateSpace Independent Publishing Platform.
- Parpas, A.P. 2018. *The Assyrian Empire and Cyprus*. Charleston, SC: CreateSpace Independent Publishing Platform.
- Parpola, S. 1998. *The Correspondence of Sargon II, Part I: Letters from Assyria and the West, State Archives of Assyria I*. Helsinki: Helsinki University Press.
- Parpola, S. 2015. *The Correspondence of Sargon II, Part I: Letters from Assyria and the West, State Archives of Assyria 1*. Helsinki: Helsinki University Press.
- Parpola, S. and K. Watanabe 1988. *Neo Assyrian Treaties and Loyalty Oaths*. State Archives of Assyria, Vol. 2. Helsinki: Helsinki University Press.
- Peltenburg, E.J. 1996. From Isolation to State Formation in Cyprus, ca. 3500–1500 BC, in V. Karageorghis and D. Michaelides (eds) *The Development of the Cypriot Economy, from the Prehistoric Period to the Present Day*: 17–44. Nicosia: University of Cyprus and Bank of Cyprus.
- Peltenburg, E.J. 2012. Text Meets Material in Bronze Age Cyprus, in A. Georgiou (ed.) *Cyprus: An Island Culture. Society and Social Relations from the Bronze Age to the Venetian Period*: 1–23. Oxford: Oxbow Books.
- Peltenburg, E.J. and M. Iacovou 2012. Crete and Cyprus: Contrasting Political Configurations, in G. Cadogan, M. Iacovou, K. Kopaka and J. Whitley (eds) *Parallel Lives: Ancient Island Societies in Crete and Cyprus*: 345–363. *Annual for the British School at Athens* 20. London: British School at Athens.
- Petit, T. 2001. The First Palace of Amathus and the Cypriot Paleogenesis, in I. Nielsen (ed.) *The Royal Palace Institution in the First Millennium B.C.: Regional Development and Cultural Interchanges Between East and West*: 53–57. *Monographs of the Danish Institute at Athens Series*, Vol. 4. Aarhus: Aarhus University Press.
- Petruso, K.M. 1984. Prolegomena to Late Cypriot Weight Metrology. *American Journal of Archaeology* 88: 293–304.
- Petruso, K.M. 1992. *Ayia-Irini: The Balance Weights*. Keos VIII. Mainz: Verlag P. von Zabern.
- Petruso, K.M. 2003. Quantal Analysis of Some Mycenaean Balance Weights, in K.F. Foster and R. Laffineur (eds) *Proceedings of the 9th International Aegean Conference ‘Metron: Measuring the Aegean Bronze Age’, New Haven, Yale University, 18–21 April 2002*: 285–291. *Aegaeum* 24, Liège: Université de Liège.
- Phelps, W. et al. (eds) 1999 *The Point Iria Wreck: Interconnections in the Mediterranean ca. 1200 B.C.* Athens: Hellenic Institute of Maritime Archaeology.
- Pickles, S and E.J. Peltenburg 1998. Metallurgy, Society and the Bronze/Iron Transition in the East Mediterranean and the Near East: 67–100. Report of the Department of Antiquities, Cyprus. Nicosia: Department of Antiquities.
- Pilides, D. and A. Destrooper-Georgiades 2008. A hoard of silver coins from the plot of the corner of Nikokreontos and Hadjopoullou Streets

- (east extension of the settlement of the hill of Agios Georgios, Lefkosia): 307–335. Report of the Department of Antiquities, Cyprus. Nicosia: Department of Antiquities.
- Polanyi, K. 1957. The Economy as Instituted Process, in K. Polanyi *et al.* (eds) *Trade and Market in the Early Empires: Economies in History and Theory*: 243–270. New York: Free Press.
- Polanyi, K. 1963. Ports of trade in early societies. *The Journal of Economic History* 23: 30–45.
- Polanyi, K. 1968. *Primitive Archaic and Modern Economies: Essays*. Garden City, NY: Anchor Books.
- Polanyi, K. *et al.* 1957. *Trade and Market in the Early Empires: Economies in History and Theory*. New York: Free Press.
- Polzer, M.E. 2011. Early Shipping in the Eastern Mediterranean, in A. Catsambis, B. Ford and D.L. Hamilton (eds) *The Oxford Handbook of Maritime Archaeology*: 349–378. Oxford: Oxford University Press.
- Polzer, M.E. 2014. The Bajo de la Campana Shipwreck and Colonial Trade in Phoenician Spain, in J. Aruz *et al.* (eds) *Assyria to Iberia at the Dawn of the Classical Age*: 230–242. New Haven – London: The Metropolitan Museum of Art New York – Yale University Press.
- Pomey, P. Y. Kahanov and E. Rieth, 2012. Transition from Shell to Skeleton in Ancient Mediterranean Ship-Construction: Analysis, Problems, and Future Research. *International Journal of Nautical Archaeology* 41/2: 235–314.
- Popham, M.R. *et al.* 2002. Traders, Ancestors: the ‘Heroes’ of Lefkandi, in J.M. Højte (ed.) *Images of Ancestors*: 13–42. Aarhus: Aarhus Studies in Mediterranean Archaeology.
- Popham, M.R. and I.S. Lemos 1995. An Euboean Warrior Trader. *Oxford Journal of Archaeology* 14: 151–157.
- Popham, M.R. and I.S. Lemos 1996. *Lefkandi III, The Early Iron Age Cemetery at Toumba: The Excavations of 1981, 1984, 1986 and 1992–4*. Annual of the British School at Athens 29. London: British School at Athens.
- Postgate, J.N. 1992. *Early Mesopotamia: Society and Economy at the Dawn of History*. London: Routledge.
- Poursat, J.C. 1977. *Les ivoires mycéniens: Essai sur la formation d’un art Mycénien*. Athènes: l’École française d’Athènes.
- Powell, M.A. 1987–1990. Masse und Gewichte. Sumerian and Babylonian Weight Measures, in E. Ebeling and B. Meissner (eds) *Reallexikon der Assyriologie*: 508–517. Berlin: der Gruyter.
- Pritchett, W.K. 1953. The Attic Stelai, Part I. *Hesperia* 22: 225–299.
- Pritchett, W.K. and A. Pippin 1956. The Attic Stelai, Part II. *Hesperia* 25: 178–238.
- Pulak, C. 1997. The Uluburun shipwreck, in S. Swiny *et al.* (eds) *Res Maritimae: Cyprus and the Eastern Mediterranean from Prehistory to late Antiquity*: 233–262. Atlanta, GA: Scholars Press.
- Pulak, C. 1998. The Uluburun Shipwreck: An Overview. *International Journal of Nautical Archaeology* 27: 188–224.
- Pulak, C. 1999. The Late Bronze Age shipwreck at Uluburun: Aspects of Hull Construction, in W. Phelps *et al.* (eds) *The Point Iria Wreck: Interconnections in the Mediterranean ca. 1200 BC*: 208–238. Athens. The Hellenic Institute of Maritime Archaeology.
- Pulak, C. 2000. The Copper and Tin Ingots from the Late Bronze Age Shipwrecks at Uluburun, in U. Yalcin (ed.) *Anatolian Metal I, Der Anschnitt* 13: 137–157. Bochum: Deutsches Bergbau Museum.
- Pulak, C. 2000a. The Balance Weights from the Late Bronze Age Shipwreck at Uluburun, in C.F.E. Pare (ed.) *Metals Make the World Go Round. The Supply and Circulation of Metals in Bronze Age Europe: Proceedings of a Conference Held at the University of Birmingham in June 1997*: 247–266. Oxford: Oxbow Books.
- Pulak, C. 2008. The Uluburun Shipwreck and Late Bronze Age Trade, in J. Aruz, K. Benzel and J.M. Evans (eds) *Beyond Babylon: Art, Trade and Diplomacy in the Second Millennium BC*: 289–305. New York: Metropolitan Museum of Art.
- Raban, A. 1995. The Heritage of Ancient Harbour Engineering in Cyprus and the Levant, in V. Karageorghis and D. Michaelides (eds) *Proceedings of the International Symposium ‘Cyprus and the Sea’, Organized by the Archaeological Research Unit of the University of Cyprus and the Cyprus Ports Authority, Nicosia 25–26 September 1993*: 139–189. Nicosia: Archaeological Research Unit, University of Cyprus.
- Radner, K. 1999. Traders in the Neo-Assyrian Period, in J.G. Dercksen (ed.) *Trade and Finance in Ancient Mesopotamia*: 101–126. Leiden: Nederlands Historisch-Archeologisch Instituut.
- Radner, K. 2010. The Stele of Sargon II of Assyria at Kition: A Focus for an Emerging Cypriot Identity, in R. Rolinger, B. Gufler, M. Lang and I. Madreiter (eds) *Interkulturalität in der Alten Welt: Vorderasien, Hellas, Ägypten und die vielfältigen Ebenen des Kontakts*: 429–450. Wiesbaden: Harrassowitz.
- Rankov, N.B. 2013. Slipping and launching, in D.J. Blackman and N.B. Rankov (eds) *Ships of the Ancient Mediterranean*: 102–123. Cambridge: Cambridge University Press.
- Raptou, E. 2002. Nouveaux témoignages sur Palaepaphos à l’époque Géométrique d’après les fouilles de Kouklia-Plakes. *CCEC* 32: 115–133.
- Reyes, A. 1994. *Archaic Cyprus: A Study of the Textual and Archaeological Evidence*. Oxford: Oxford Clarendon Press.
- Roberts, K. 2011. *The Origins of Business, Money, and Markets*. New York: Columbia University Press.
- Rogge, S., C. Ioannou and T. Mavrogiannis (eds) 2019. *Salamis of Cyprus: History and Archaeology from the Earliest Times to Late Antiquity. Conference Held*

- in Nicosia, 21–23 May 2015. Munster – New York: Waxmann.
- Romane, P.J. 1987. Alexander's Siege of Tyre. *The Ancient World* 16: 79–90.
- Robins, F.E. 1918. The cost to Athens of her second empire. *Classical Philology* 13: 361–388.
- Rostovtzeff, M.I. 1910. *Studien zur Geschichte des Römischen Kolonate*. Leipzig: B.G. Teubner.
- Rostovtzeff, M.I. 1933. Review of J. Hasebroek, *Griechische Wirtschafts- und Gesellschaftsgeschichte* (Tubingen, 1931), in *Zeitschrift für die gesamte Staatswissenschaft* 92: 333–339.
- Rostovtzeff, M.I. 1941. *The Social and Economic History of the Hellenistic World*, Vols 1–3. Oxford: Oxford University Press.
- Roux, G. 1992. *Ancient Iraq*. London: Penguin Books.
- Rupp, D.W. 1987. Vive le Roi: The Emergence of the State in Iron Age Cyprus, in D.W. Rupp (ed.) *Western Cyprus: Connections. An Archaeological Symposium Held at Brock University, St. Catharines, Ontario, Canada, 21–22 March 1986*: 147–168. *Studies in Mediterranean Archaeology* 77. Goteborg: Paul Åström's Förlag.
- Rupp, D.W. 1988. The 'Royal Tombs' at Salamis (Cyprus): Ideological Messages of Power and Authority. *Journal of Mediterranean Archaeology* 1/1: 111–139.
- Rutter, J.B. 1992. Cultural Novelties in the Post-Palatial Aegean: Indices of Vitality or Decline, in W.A. Ward and M.S. Joukowsky (eds) *The Crisis Years: The 12th Century B.C.E. from Beyond the Danube to the Tigris*: 61–78. Dubuque, IA: Kendall Hunt Publishing Co.
- Ruzicka, S. 1988. War in the Aegean 333–331 B.C. A Reconsideration. *Phoenix* 42: 131–151.
- Saggs, H.W.F. 1989 *Civilization Before Greece and Rome*. New – Haven: Yale University Press.
- Sagona, C. (ed.) 2008. *Beyond the Homeland: Markers in Phoenician Chronology*. Leuven: Peeters.
- Sarikakis, Th. 1998. *Arrian: The Anabasis of Alexander* (translated and commented on by Th. Sarikakis). Athens: Academy of Athens.
- Satraki, A. 2008. Manifestation of Royalty in Cypriot Sculpture, in G. Papantoniou (ed.) *Postgraduate Cypriot Archaeology 2005*: 27–35. *British Archaeological Reports International Series* 1803. Oxford: Archaeopress.
- Satraki, A. 2012. Cypriot Politics in the Early Iron Age, in M. Iacovou (ed.) *Cyprus and the Aegean in the Early Iron Age, The Legacy of Nicolas Coldstream*: 261–284. Nicosia: Bank of Cyprus Cultural Foundation.
- Satraki, A. 2012a. *Κύπριοι Βασιλείς από τον Κόσμοσσο μέχρι το Νικοκρέοντα. Η πολιτειακή οργάνωση της αρχαίας Κύπρου από την Ύστερη Εποχή του Χαλκού μέχρι το τέλος της Κυπροκλασικής περιόδου με βάση τα αρχαιολογικά δεδομένα*, *Cypriot Kings from Cosmasos to Nicosreon*. *Archaiognosia* 9. Athens: University of Athens Arhaiognosia.
- Satraki, A. 2013. The Iconography of Basileis in Archaic and Classical Cyprus: Manifestations of Royal Power in the Visual Record. *Bulletin of the American Schools of Oriental Research* 370: 123–144.
- Schaeffer, C. and A. Schaeffer-Boehling (eds) 1978. *Ugaritica VII. Mission de Ras Shamra XVIII*. Leiden: E.J. Brill.
- Schloen, J.D. 1995. The Patrimonial Household in the Kingdom of Ugarit: A Weberian Analysis of Ancient Near Eastern Society. Unpublished Ph.D. dissertation, Harvard University.
- Seager, R. and C. Tuplin 1980. The Freedom of the Greeks of Asia: On the Origins of a Concept and the Creation of a Slogan. *Journal of Historical Studies* 100: 141–154.
- Sewell, D.A. 2015. The Seafarers of Maroni, in C.F. McDonald, E. Hatzaki and S. Andreou (eds) *Studies of Crete and Cyprus Presented to Gerald Cadogan*: 186–119. Athens: Kapon Editions.
- Sherratt, S. 1994. Commerce, Iron and Ideology: Metallurgical Innovations in 12th–11th Century Cyprus, in V. Karageorghis (ed.) *Cyprus in the 11th Century B.C.: Proceedings of the International Symposium Organized by the Archaeological Research Unit of the University of Cyprus and the Anastasios G. Leventis Foundation, Nicosia, 30–31 October 1993*: 261–284. Nicosia: A.G. Leventis Foundation.
- Sherratt, S. 1998. Sea Peoples and the Economic Structure of the Late Second Millennium in the Eastern Mediterranean, in S. Gitin, A. Mazar and E. Stern (eds) *Mediterranean Peoples: Transition, Thirteenth to Early Tenth Centuries BCE: In Honour of Professor Trude Dothan*: 292–313. Jerusalem: Israel Exploration Society.
- Sherratt, S. 2003. The Mediterranean Economy: 'Globalization' at the End of the Second Millennium B.C.E, in W.G. Dever and S. Gitin (eds) *Symbiosis, Symbolism, and the Power of the Past: Canaan, Ancient Israel, and Their Neighbours, from the Late Bronze Age Through Roman Palaestina*: 37–62. Winona Lake, IN: Eisenbrauns.
- Sherratt, S. 2009. The Aegean and the Wider World: Some Thoughts on a World Systems Perspective, in W.A. Parkinson and M.L. Galaty (eds) *Archaic State Interaction: The Eastern Mediterranean in the Bronze Age*: 81–106. Santa Fe: School for Advanced Research Press.
- Sherratt, S. 2011. Between Theory, Texts and Archaeology: Working with the Shadows, in K. Duistermaat and I. Reguluski (eds) *Intercultural Contacts in the Ancient Mediterranean: Proceedings of the International Conference at the Netherlands Flemish Institute in Cairo, 25–29 October 2008*: 3–29. *Orientalia Lovaniensia* Alanecta 20. Leuven: Peeters.
- Sherratt, S. 2015. Cyprus and the Near East: Cultural Contacts (1200–750 B.C.), in A. Bobbi, F.B. Erhart, B.M. Aguilera and S. Mühl (eds) in *The Mediterranean Mirror Cultural Contacts in the Mediterranean Sea Between 1200 and 750 BC*: 71–83. Mainz: Verlag des Römisch-Germanischen Zentralmuseums.

- Sherratt, S. 2016. From 'Institutional' to 'Private': Traders, Routes and Commerce from the Late Bronze Age to the Iron Age, in J.C.M. Garcia (ed.) *Dynamics of Production in the Ancient Near East 1300-500 BC*: 289-301. Oxford: Oxbow books.
- Sherratt, S. 2019. Phoenicians in the Aegean and Aegean Silver, 11th-9th Centuries BC, in L. Bonadies, I. Chirpanlieva and E. Guillon (eds) *Les Phéniciens, les Puniques et les autres: Échanges et identités en Méditerranée ancienne*: 129-138. Orient et Méditerranée. Paris: Éditions de Boccard.
- Sherratt, S. and A. Sherratt 1991. From Luxuries to Commodities: The Nature of Mediterranean Bronze Age Trading Systems, in N.H. Gale (ed.) *Bronze Age Trade in the Mediterranean*: 351-386. *Studies Mediterranean Archaeology (SIMA)* 90. Jonsered: Paul Åström's Förlag.
- Sherratt, S. and A. Sherratt 1993. The Growth of the Mediterranean Economy in the Early First Millennium BC. *Ancient Trade: New Perspectives. World Archaeology* 24/3: 361-378.
- Silver, M. 1995. *Economic Structures of Antiquity*. Contributions in Economics and Economic History 159. Westport, CT: Praeger.
- Sinclair, R.K. 1978. The King's Peace and the Employment of Military and Naval Forces. *Chiron* 8: 378-387.
- Singer, I. 1999. A Political History of Ugarit, in W.G.E. Watson and N. Wyatt (eds) *Handbook of Ugaritic Studies*: 603-733. Leiden: E.J. Brill.
- Singer, I. and G.G. Singer 2014. Alashiyan Products in Hittite Sources, in Z. Csabai (ed.) *Studies in Economic and Social History of the Ancient Near East in Memory of Peter Vargyas*: 317-335. Pécs - Budapest: University of Pécs - L' Harmattan Hungary Publishers.
- Sitry, Y. 2014. Unique Wooden Artifacts: A Study of Typology and Technology, in J. Tresman (ed.) *The Ma'agan Mikhael Ship. The Recovery of a 2,400-Year-Old Merchantman: Final Report, Vol. 2*: 182-191. Haifa: Israel Exploration Society and University of Haifa.
- Skarlatidou, E.K. 2010. *Το Αρχαϊκό νεκροταφείο των Αβδήρων (The Archaic Cemetery of Abdera)*. Thessaloniki: Archaeological Institute of Macedonian and Thracian Studies.
- Smith, A. 1976. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Chicago: University of Chicago Press.
- Smith, J.S. 1994. *Seals for Sealing in the Late Cypriot Period*. Ph.D. dissertation, Bryn Mawr College, Pennsylvania.
- Smith, J.S. 2002. Changes in Workplace: Women and Textile Production on Late Bronze Age Cyprus, in D. Bolger and N. Serwint (eds) *Engendering Aphrodite: Women and Society in Ancient Cyprus*: 281-311. *Cyprus American Archaeological Monographs* 3. Boston: American Schools of Oriental Research.
- Smith, J.S. et al. 2015. Textile Tools from Apliki Cyprus, in E.A. Strand and M.L. Nosch (eds) *Tools, Textiles and Contexts-Investigating Textile Production in the Aegean and Eastern Mediterranean Bronze Age*: 329-335. Oxford: Oxbow Books.
- Smith, M. 2001. *Untold Stories: The Bible and Ugaritic Studies in the Twentieth Century*. Peabody, MA: Hendrickson Publishers.
- Snodgrass, A.M. 1982. Cyprus and the Beginning of Iron Technology in the Eastern Mediterranean, in J.D. Muhly, R. Maddin and V. Karageorghis (eds) *Early Metallurgy in Cyprus 4000-500 BC*: 285-295. Nicosia: Department of Antiquities.
- Snodgrass, A.M. 1994. Gains, Losses and Survivals: What we Infer for the 11th Century BC, in V. Karageorghis (ed.) *Cyprus in the 11th Century B.C.: Proceedings of the International Symposium Organized by the Archaeological Research Unit of the University of Cyprus and the Anastasios G. Leventis Foundation, Nicosia, 30-31 October 1993*: 167-173. Nicosia: A.G. Leventis Foundation.
- Snodgrass, A. 1995. Cyprus and Early Greek History, in G. Papageorgiou (ed.) *Cyprus: From Prehistory to Modern Times*: 99-123. Lectures on History and Archaeology. Nicosia: Bank of Cyprus Cultural Foundation.
- Socratous, Z. 2018. *Κυπριακοί Ναύσταθμοί κατά την Κλασική Περίοδο: Η περίπτωση του Κουρίου (Cypriot Naval Stations During the Classical Period: The Case of Kourion)*. Unpublished Dissertation for Master of Arts, University of Cyprus.
- Sommer, M. 2010. Shaping Mediterranean Economy and Trade: Phoenician Cultural Identities in the Iron Age, in S. Hales and T. Hodos (eds) *Material Culture and Social Identities in the Ancient World*: 114-137. Cambridge - New York: Cambridge University Press.
- South, A.K. 1980. Kalavassos Ayios Dhimitrios 1979: A Summary Report. *Report of the Department of Antiquities, Cyprus*: 22-53.
- South, A.K. Kalavassos Ayios Dhimitrios 1987: An Important Ceramic Group from Building X: 223-228. Report of the Department of Antiquities, Cyprus. Nicosia: Department of Antiquities.
- South, A.K. 1989. From Copper to Kingship: Aspects of Bronze Age Society Viewed from the Vasilikos Valley, in E. Peltenburg (ed.) *Early Society in Cyprus*: 315-324. Edinburgh: Edinburgh University Press.
- South, A.K. 1992. Kalavassos Ayios Dhimitrios 1991: 133-146. Report of the Department of Antiquities, Cyprus. Nicosia: Department of Antiquities.
- South, A.K. 1996. Kalavassos Ayios Dhimitrios, in D. Christou *Chronique des fouilles et découvertes archéologiques à Chypre en 1995. Bulletin de Correspondance Hellénique* 120: 1076-1077.
- South, A.K. 1997. Kalavassos Ayios Dhimitrios 1992-1996: 151-175. Report of the department of Antiquities, Cyprus. Nicosia: Department of Antiquities.
- South, A.K. 2012. Tinker, Tailor, Farmer, Miner: Metals in the Late Bronze Age Economy at Kalavassos, in V. Kassianidou and G. Pappasavvas (eds) *Eastern*

- Mediterranean Metallurgy and Metalwork in the Second Millennium BC*: 35–47. Oxford: Oxbow Books.
- South, A.K. 2014. From Pots to People: Estimating Population for Late Bronze Age Kalavassos, in J.M. Webb (ed.) *Structure, Measurement and Meaning. Studies in Prehistoric Cyprus in Honour of David Frankel*: 69–77. SIMA 143. Uppsala: Paul Åström's Förlag.
- South, A.K. 2015. Neighbours or Rivals: Buildings and People at Kalavassos and Maroni, in C.F. Macdonald, E. Hatzaki and S. Andreou (eds) *The Great Islands*: 219–223. Athens: Kapon Editions.
- South, A.K. et al. 1989 *Vasilikos Valley Project 3: Kalavassos Ayios Dhimitrios II: Ceramics, Objects, Tombs, Specialist Studies*. SIMA V. LXXI. 3. Goteborg: Paul Åström's Forlag.
- Spantidaki, S. 2016. Textile Trade in Classical Athens, From Fiber to Fabric, in K. Dross-Krupe and M.L. Nosch (eds) *Textiles, Trade and Theories, From the Ancient Near East to the Mediterranean*: 125–138. Munster: Ugarit-Verlag.
- Spyridakis, C. 1963. *Cypriot Kings of the 4th Century BC, 411–311/10 BC*. Nicosia: Society of Cypriot Studies.
- Stager, L.E. 2001. Port Power in the Early and Middle Bronze Ages: The Organization of Maritime Trade and Hinterland Production, in S.R. Wolf (ed.) *Studies in the Archaeology in Israel and Neighbouring Lands in Memory of Douglas L. Esse*: 625–638. *Studies in Ancient Oriental Civilization* 59. Boston: American Schools of Oriental Research.
- Stager, E.L. 2003. Phoenician Shipwrecks in the Deep Sea, in V. Karageorghis and N.C. Stambolides (eds) *Ploes: Sea Routes: Interconnections in the Mediterranean, 16th–6th c. B.C.: Proceedings of the International Symposium Held in Rethymnon, Crete, September 29th–October 2nd, 2002*: 233–248. Athens: University of Crete and the A.G. Leventis Foundation.
- Stager, L.E. 2011. Ashkelon on the eve of Destruction in 604 BC, in L.E. Stager et al. (eds) *Ashkelon 3, The seventh century BC*: 3–12. Winona Lake, IN, Eisenbrauns.
- Stager, L.E. et al. (eds) 2011. *Ashkelon 3, The seventh century BC*. Winona Lake, IN, Eisenbrauns.
- Stambolides, N. 2016. Eleutherna on Crete: The Wider Horizon, in J. Aruz and M. Seymour (eds) *Assyria to Iberia: Art in the Iron Age*: 283–289. New York: The Metropolitan Museum of Art.
- Stambolides, N. and V. Karageorghis (eds) 2003. *Sea Routes... Interconnections in the Mediterranean 16th–6th c. B.C.: Proceedings of the International Symposium Held in Rethymnon, Crete, 29 September–2 October 2002*. Athens: University of Crete and A.G. Leventis Foundation.
- Starr, I. 1990. *Queries to the Sun God: Divination and Politics in Sargonid Assyria*. Helsinki: Helsinki University Press.
- Stech, T. 1982. Urban Metallurgy in Late Bronze Age Cyprus, in J.D. Muhly, R. Maddin and V. Karageorghis (eds) *Early Metallurgy in Cyprus 4000–500 BC*: 105–106. Nicosia: Department of Antiquities.
- Steel, L. 2004. A Cup of Mellow Wine: Feasting in Bronze Age Cyprus. *Hesperia* 73: 281–300.
- Steel, L. 2016. Exploring Aredhiou: New Light on the Rural Communities of the Cypriot Hinterland During the Late Bronze Age. *American Journal of Archaeology* 120: 511–536.
- Steele, P. (ed.) 2013. *Syllabic Writing on Cyprus and its Context*. Cambridge: Cambridge University Press.
- Steiner, G. 1962. Neue *Alašiya*-Texte. *Kadmos* 1: 130–138.
- Stieglitz, R.R. 1979. Commodity Prices at Ugarit. *Journal of the American Oriental Society* 99: 15–23.
- Stos-Gale, Z.A. et al. 1997. Lead Isotope Characteristics of the Cyprus Copper Ore Deposits Applied to Provenance Studies of Copper Oxhide Ingots. *Archaeometry* 39/1: 83–124.
- Stos-Gale, Z.A. and N.H. Gale 1994. Metals, in A.B. Knapp and J.F. Cherry (eds) *Provenience Studies and Bronze Age Cyprus: Production, Exchange and Politico-Economic Change*: 92–121. *Monographs in World Archaeology* 21. Madison, WI: Prehistory Press.
- Strand, E.A. and M.L. Nosch (eds) 2015. *Tools, Textiles and Contexts: Investigating Textile Production in the Aegean and Eastern Mediterranean Bronze Age*. Oxford: Oxbow Books.
- Stroud, R.S. 1998. *The Athenian Grain-Tax Law 374/3 BC*. Princeton, NJ: American School of Classical Studies at Athens.
- Stylianou, P. 1992. The Age of the Kingdoms: A Political History of Cyprus in the Archaic and Classical Periods. *Studies and Memoranda II*: 373–530. Nicosia: Archbishop Makarios III Foundation.
- Stylianou, P. 2000. The Ancient Kingdoms in *The History of Cyprus: Ancient Cyprus*, Vol. 2, Part B: 465–618. Nicosia: Archbishop Makarios III Foundation.
- Swiny, S. et al. (eds) 1997. *Res Maritimae: Cyprus and the Eastern Mediterranean from Prehistory to Late Antiquity*. Cyprus American Archaeological Research Institute, Monograph 1. Atlanta, GA: Scholars Press.
- Theodoulou, Th. 2006. Ναυτική δραστηριότητα στην Κλασική Κύπρο: Το λιμενικό δίκτυο στα τέλη του 4ου αιώνα π.Χ. (Naval Activity in Classical Cyprus: The Port Network at the End of the 4th Century BC). Unpublished Ph.D. dissertation, University of Cyprus.
- Thonemann, P. 2015. *The Hellenistic World Using Coins as Sources*. Cambridge: Cambridge University Press.
- Torres Ortiz, M. 2008. The Chronology of the Late Bronze Age in Western Iberia and the Beginning of the Phoenician Colonization in the Western Mediterranean, in D. Brandherm and M. Trachsel (eds) *A New Dawn for the Dark Age? Shifting Paradigms in Mediterranean Iron Age Chronology. Proceedings of the XV world congress Lisbon 4-9 September 2006*: 135–147.

- British Archaeological Reports International Series 1871. Oxford: Archaeopress.
- Tozzi, P. 1978. *La Rivolta Ionica*. Transactions and Proceedings of the American Philological Association. Pisa: Giardini.
- Treister, M.Y. 1995. *The Role of Metal in Ancient Greek History*. Leiden: E.J. Brill.
- Tuplin, C. 1996. *Achaemenid Studies, Historia Einzelschriften*. Stuttgart: Franz Steiner Verlag.
- Van Brempt, L. and V. Kassianidou 2016. Facing the complexity of copper sulphide ore smelting and assessing the role of copper in south central Cyprus: A comparative study of the slag assemblage from Late Bronze age Kalavassos-Ayios Dhimitrios. *Journal of Archaeological Science: Reports* 7: 539–553.
- Van Brempt, L. 2016. The Production and Trade of Cypriot Copper in the Late Bronze Age: From Ore to Ingot: Unraveling the Metallurgical Chain. Unpublished Ph.D. dissertation, University of Cyprus.
- Van Groningen, B.A. 1933. *Aristotle. Le second livre de l'Economique*. Leiden.
- Van Soldt, W.H. 1990. *Fabrics and dyes at Ugarit. Ugarit-Forschungen* 22: 321–358.
- Van Soldt, W.H. 1991. *Studies in the Akkadian of Ugarit. Dating and Grammar*. Neukirchen-Vluyn: Neukirchener Verlag.
- Veblen, Th.B. 1899 (1934). *The Theory of the Leisure Class: An Economic Study in the Evolution of Institutions*. New York: The Modern Library.
- Vidal, J. 2006. Ugarit and the Southern Levantine Seaports. *Journal of the Economic and Social History of the Orient* 49/3: 269–279.
- Viglaki-Sofianou, M. and P. Marantidou 2009. The Cypriot Collection in the Archaeological Museum of Samos: A New Exhibition, in V. Karageorghis and O. Kouka (eds) *Cyprus and the East Aegean: Intercultural Contacts from 3000 to 500 BC*: 189–192. Nicosia: A.G. Leventis Foundation.
- Vigo, M. 2010. Linen in Hittite Inventory Texts, in C. Michel and M.L. Nosch (eds) *Textile Terminologies in the Ancient Near East and the Mediterranean from the Third to the First Millennia BC*: 290–322. Ancient Textiles Series 8. Oxford: Oxbow Books.
- Villing, A. 2006. 'Drab Bowls' for Apollo: The Mortaria of Naukratis and Exchange in the Archaic Eastern Mediterranean, in A. Villing and U. Schlotzhauer (eds) *Naukratis: Greek Diversity in Egypt*: 31–46. London: The British Museum.
- Villing, A. et al. 2014. Naukratis: Greeks in Egypt, in A. Villing, M. Bergeron, A. Johnston, A. Masson and R. Thomas (eds) *The Material Culture of Naukratis: An Overview*: 2–32. London: The British Museum.
- Villing, A. and U. Schlotzhauer 2006. Naukratis in the Eastern Mediterranean: Past, Present and Future, in A. Villing and U. Schlotzhauer (eds) *Naukratis: Greek Diversity in Egypt*: 1–10. London: British Museum Research Publications.
- Viroilleaud, C. 1965. *Le Palais Royale Ugarit 5*. Mission de Ras Shamra II. Paris: Imprimerie National – Librairie C. Klincksieck.
- Vita, J.P. 1999. The Society of Ugarit, in W.G.E. Watson and N. Wyatt (eds) *Handbook of Ugaritic Studies*: 455–492. Leiden: E.J. Brill.
- Vita, J.P. 2017. Oil in Ugarit: Its Price, its Use as a Means of Payment and Administrative Procedures. Addendum: Oil for Wool, in W.G.E. Watson and N. Wyatt (eds) *Internationales Jahrbuch für die Altertumskunde Syrien-Palästinas*: 527–544. Band 48. Munich: Ugarit-Verlag.
- Vita, J.P. and V. Matoian 2014. Wool Production and the Economy in Ugarit, in C. Breniquet and C. Michel (eds) *Wool Economy in the Ancient Near East and the Aegean*: 310–339. Oxford: Oxbow Books.
- Vitas, D. 2013. *Νέα Πάφος – Σαλαμίνα: Η τοπογραφία και η πολεοδομική τους ανάπτυξη κατά την Ελληνιστική Περίοδο (Nea Paphos – Salamis: The Topography and their Urban Development During the Hellenistic Period)*. Unpublished Ph.D. dissertation, University of Cyprus.
- Vonhoff, C. 2019. Iron Weapons from the Archaic Royal Tombs at Salamis, in S. Rogge et al. (eds) *Salamis of Cyprus: History and Archaeology from the Earliest Times to Late Antiquity. Conference Held in Nicosia, 21–23 May 2015*: 177–194. Munster – New York: Waxmann.
- Vonhoff, C. 2013. Offensive Weapons in Cyprus Early Iron Age Elite Burials (LCIII/CG) as Indicators of Autochthonous Traditions and External Cultural Influences, in L. Godart and A. Sacconi (eds) *Pasiphae: Rivista di Filologia e Antichità Egge* 7: 193–204. Pisa – Rome: Fabrizio Serra Editore.
- Voskos, I. and A.B. Knapp 2008. Cyprus at the End of the Late Bronze Age: Crisis and Colonization or Continuity and Hybridization. *American Journal of Archaeology* 112: 659–684.
- Votruba, G. 2017. Did Vessels Beach in the Ancient Mediterranean? An Assessment of the Textual and Visual Evidence. *The Society of Nautical Research. The Mariner's Mirror* 103/1: 7–29.
- Wachsmann, S. 1998. *Seagoing Ships and Seamanship in the Bronze Age Levant*. College Station, TX: Texas A&M University Press.
- Wallinga, H.T. 1984. The Ionian Revolt. *Mnemosyne* 37: 402–437.
- Warburton, D.A. 2018. Prices and Values: Origins and Early History in the Near East, in K. Kristiansen, T. Lindkvist and J. Myrdal (eds) *Trade and Civilization. Economic Networks and Cultural Ties, from Prehistory to the Early Modern Era*: 56–86. Cambridge – New York: Cambridge University Press.
- Ward, W.A. and M.S. Joukowsky (eds) 1992. *The Crisis Years: The 12th Century BCE from Beyond the Danube to the Tigris*. Dubuque, IA: Kendall Hunt Publishing Co.

- Watkin, H.J. 1987. The Cypriote Surrender to Persia. *Journal of Historical Studies* 107: 154–163.
- Watson, W.G.E. and N. Wyatt (eds) 1999. *Handbook of Ugaritic Studies*. Leiden: E.J. Brill.
- Watson, W.G.E. and N. Wyatt (eds) 2017. *Internationales Jahrbuch für die Altertumskunde Syrien-Palästinas*. Band 48. Munich: Ugarit-Verlag.
- Webb, J.M. 1999. *Ritual Architecture, Iconography and Practice in Late Cypriot Bronze Age*. Studies in Mediterranean Archaeology and Literature, Pocket-book 75. Jonsered: Paul Åström's Förlag.
- Webb, J.M. 2002. Device, Image and Coercion: The Role of Glyptic in the Political Economy of Late Bronze Age Cyprus, in J.S. Smith (ed.) *Script and Seal Use on Cyprus in the Iron Ages*: 111–154. Colloquia and Conference Papers 4. Boston, MA: American Institute.
- Webb, J.M. and J. Weingarten 2012. Seals and Seal Use: Markers of Social, Political and Economic Transformations on Two Islands, in G. Cadogan, M. Iacovou, K. Kopaka and J. Whitley (eds) *Parallel Lives: Ancient Island Societies in Crete and Cyprus*: 85–104. Annual for the British School at Athens 20. London: British School at Athens.
- Weber, M. 1909. *The Agrarian Sociology of Ancient Civilizations*. London: New Left Books.
- Weber, M. 1921. Die Stadt. Eine Soziologisch Untersuchung. *Archive für Sozial-wissenschaft und Sozialpolitik* 47: 621–672.
- Weigerber, G. 1982. Towards a History of Copper Mining in Cyprus and the Near East: Possibilities of Mining Archaeology, in J.D. Muhly et al. (eds) *Early Metallurgy in Cyprus, 4000-500 BC*: 25–32. Nicosia: Cyprus Department of Antiquities.
- Westbrook, R. 2000. International Law in the Amarna Age, in R. Cohen and R. Westbrook (eds) *Amarna Diplomacy. The Beginnings of International Relations*: 15–27. Baltimore: The Johns Hopkins University Press.
- Westerberg, K. 1983. *Cypriote Ships from the Bronze Age ca. 500 BC*. SIMA PB22. Gothenburg: Paul Åström's Förlag.
- Westermann, W.L. 1930. Warehousing and banking in antiquity. *Journal of Economic and Business History*.
- Westholm, A. 1936. *The Temple of Soli: Studies on Cypriote Art During Hellenistic and Roman Periods*. Stockholm: The Swedish Cyprus Expedition.
- Wheeler, T. and R. Maddin 1980. Metallurgy and Ancient Man, in T.E. Wertime and J.D. Muhly (eds) *The Coming of the Age of Iron*: 99–126. New Haven: Yale University Press.
- Whitbey, M. 1998. The grain trade of Athens in the fourth century B.C., in H. Parkins and C. Smith (eds) *Trade, traders and the ancient city*: 102–128. London – New York.
- White, D. 2002. *The Excavation. The University of Pennsylvania Museum of Archaeology and Anthropology's Excavations on Bate's Island, Marsa Matruh, Egypt, 1985–1989*. Institute for Aegean Prehistory, Prehistory Monograph 1. Philadelphia: Institute for Aegean Prehistory Academic Press.
- Whitewright, J. 2011. Efficiency or Economics? Sail Development in the ancient Mediterranean, in W.V. Harris. and K. Iara (eds) *Maritime Technology in the Ancient Economy: Ship – Design and Navigation*. *Journal of Roman Archaeology* 84: 89–102.
- Wiesehöfer, J. 2014. *Ancient Persia from 550 BC to 650 BC*. London – New York: I.B. Tauris.
- Winckler, H. 1889. *Die Keilschrifttexte Sargons nach den Papierabklatschen und Originalen neu herausgegeben*, 2 Vols. Leipzig: Verlag Eduard Pfeiffer.
- Woldbaum, J.C. 2011. Greek Pottery, in L.E. Stager et al. (eds) *Ashkelon 3, The seventh century BC*: 127–133. Winona Lake, IN: Eisenbrauns.
- Wood, J.R. et al. 2020. The Origin of Tel Dor Hacksilver and the Westward Expansion of the Phoenicians in the Early Iron Age. *Journal of Eastern Mediterranean Archaeology and Heritage Studies* 8/1: 1–21.
- Wright, G.R.H. 1992. *Ancient Building in Cyprus*. Handbuch der Orientalistik 7, Abteilung, Kunst und Archäologie. I Band, Der Alte Vordere Orient 2B/7/1 and 2B/7/2. Leiden: E.J. Brill.
- Yardeni, A. 1994. Maritime Trade and Royal Accountancy in an Erased Customs Account from 475 BCE on the Ahiqar Scroll from Elephantine. *The Bulletin of the American Schools of Oriental Research* 293: 67–78.
- Yon, M. 1992. The Goddess of the Salt Lake, in G.C. Ioannides (ed.) *Studies in Honour of Vassos Karageorghis. Society of Cypriot Studies Bulletin* 54–55: 301–306.
- Yon, M. 1994. *Κίτιον, Ανασκαφές στην πόλη και στο λιμάνι, 1976–1993* (Excavations in the City and the Harbour, 1976–1993), Nicosia: Bank of Cyprus Cultural Foundation.
- Yon, M. 1995. Kition: The Harbour and the City. French Excavations 1976–1993, in *Cyprus: From Prehistory to Modern Times*: 271–287. Nicosia: Bank of Cyprus Cultural Foundation.
- Yon, M. 1995a. Kition et la mer à l'époque classique et hellénistique, in V. Karageorghis and D. Michaelides (eds) *Proceedings of the International Symposium 'Cyprus and the Sea'. Organized by the Archaeological Research Unit of the University of Cyprus and the Cyprus Ports Authority, Nicosia 25–26 September 1993*: 119–130. Nicosia: Archaeological Research Unit, University of Cyprus.
- Yon, M. 1999. Salamis and Kition in the 11th–9th Century B.C.: Cultural Homogeneity or Divergence, in M. Iacovou and D. Michaelides (eds) *The Historicity of the Geometric Horizon*: 17–33. Nicosia: Archaeological Research Unit, University of Cyprus.
- Yon, M. 2000. A Trading City: Ugarit and the West. *Near Eastern Archaeology* 63: 192–193.
- Yon, M. 2004. *Testimonia de Kition, textes littéraires, inscriptions, monnayage. Kition Bamboula V*. Paris: ERC.

- Young, G.D. (ed.) 1981. *Ugarit in Retrospect, 50 Years of Ugarit and Ugaritic*. Winona Lake, IN: Eisenbrauns, 1981.
- Zaccagnini, C. 1987. Aspects of Ceremonial Exchange in the Near East During the Late Second, Early First Millennium BC, in M. Rowlands, M. Larsen and K. Kristiansen (eds) *Centre and Periphery in the Ancient World*: 57–65. Cambridge: Cambridge University Press.
- Zaccagnini, C. 2000. The Interdependence of the Great Powers, in R. Cohen and R. Westbrook (eds), *Amarna Diplomacy. The Beginnings of International Relations*: 15–27. Baltimore: The Johns Hopkins University.
- Zamora, J.A. 2000. *La vid y el vino en Ugarit*. Banco de datos filológicos semíticos nord occidentales, Monografías 6. Madrid: Consejo de investigaciones científicas.
- Zettler, R. 1992. 12th Century B.C. Babylonia: Continuity and Change, in Ward and Joukowsky (eds) *The Crisis Years: The 12th century B.C. from Danube to the Tigris*: 179–180. Dubuque, IA: Kendall Hunt Publishing Co.
- Zomeni, Z. 2014. The Quaternary Environment of the Pyla-Kokkinokremos Area, in V. Karageorghis and A. Kanta (eds) *Pyla-Kokkinokremos: A Late 13th Century Fortified Settlement in Cyprus. Excavations 2010–2011*: 215–216. Uppsala: Paul Åström's Förlag.
- Zournatzi, A. 2019. Smoke and Mirrors: Persia's Aegean Policy and the Outbreak of the 'Cypriot War', in S. Rogge *et al.* (eds) *Salamis of Cyprus: History and Archaeology from the Earliest Times to Late Antiquity. Conference Held in Nicosia, 21–23 May 2015*: 313–336. Munster – New York: Waxmann.
- Zukerman, A. and D. Ben-Shlomo 2011. Mortaria as a Foreign Element in the Material Culture of the Southern Levant During the 8th–7th centuries BC. *Palestine Exploration Quarterly* 143/2: 87–105.

# Index

## A

Abarnahara 186, 208  
Achaemenid 38, 173, 174, 186, 187, 188, 207, 212, 213, 214, 217, 218, 220, 223, 269, 280  
Added value 77, 78, 79, 131, 132, 168  
Aegean iii, vii, 1, 6, 9, 11, 14, 25, 28, 31, 33, 34, 41, 48, 50, 51, 57, 62, 79, 80, 82, 83, 85, 86, 94, 96, 99, 105, 108, 110, 111, 112, 113, 115, 121, 129, 130, 131, 133, 134, 135, 136, 138, 140, 141, 142, 143, 145, 148, 149, 152, 159, 162, 167, 168, 169, 170, 172, 173, 174, 176, 177, 178, 179, 182, 184, 187, 189, 193, 202, 203, 210, 218, 219, 220, 226, 227, 233, 234, 235, 236, 238, 243, 244, 245, 257, 258, 259, 260, 261, 262, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 277, 278, 279, 280, 281, 282  
Ahiqar scroll 184, 205, 218, 220, 254, 281  
Akestor 103, 104, 133, 153  
Akhenaten 41  
Alashiya i, 7, 10, 12, 13, 25, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 52, 53, 54, 55, 57, 60, 64, 70, 76, 77, 78, 80, 81, 95, 108, 128, 136, 160, 166, 168, 229, 264, 269, 270, 271, 274  
Alassa i, ii, 7, 17, 21, 25, 57, 71, 96, 97, 98, 104, 105  
Alexander the Great iii, ix, 2, 174, 175, 178, 186, 193, 219, 233, 247, 258, 259, 262, 264, 265, 275  
Al Mina 193  
Alonessos iv, 202, 205, 229  
Amarna i, x, 7, 10, 12, 13, 15, 25, 31, 34, 36, 38, 41, 42, 43, 44, 45, 46, 47, 54, 57, 58, 60, 62, 75, 77, 82, 128, 159, 160, 161, 166, 201, 229, 260, 261, 264, 270, 273, 281, 282  
Amathus ii, iii, 88, 98, 104, 105, 108, 110, 131, 134, 139, 140, 141, 142, 144, 148, 149, 153, 162, 171, 181, 184, 185, 186, 187, 190, 191, 192, 194, 195, 196, 202, 203, 215, 218, 223, 225, 229, 232, 235, 258, 260, 262, 265, 267, 275  
Andokides 193, 220, 223, 224, 225  
Antalkida's Peace 174  
Antigonos 173, 185, 188, 189, 191, 209, 220, 224, 259  
Antipatros 178, 225, 226, 229, 230  
Apliki 16, 33, 58, 59, 78, 88, 131, 135, 140, 278  
Arcado-Cypriot 152, 232  
*Argyrikon telos* 207  
Aristagoras 179, 180  
Arnuwanda 13  
Aromatics ii, 16, 18, 54, 76, 77, 82, 83, 135  
Arwad 87, 110, 127, 144, 186  
Ashurbanipal 89, 90, 93, 95, 122, 125, 127, 146, 147, 149, 192, 208  
Assyria 1, 14, 42, 62, 63, 89, 91, 92, 93, 121, 122, 124, 125, 126, 127, 128, 129, 151, 166, 174, 227, 257, 262, 264, 267, 271, 272, 275, 276, 279  
Assyrianisation 121, 126  
Assyrian Royal Annals 90  
Astarte 88, 102, 154, 156, 232  
Athens iv, vii, viii, 38, 142, 146, 150, 151, 163, 164, 167, 171, 172, 174, 177, 184, 189, 193, 196, 199, 201, 202, 212, 216, 218, 219, 220, 221, 222, 223, 224, 225, 226, 228, 229, 230, 231, 232, 235, 239, 240, 241, 242, 243, 244, 245, 246, 247,

253, 254, 255, 256, 257, 258, 260, 261, 262, 263, 264, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 279, 281

Athlit 118, 199, 262, 270, 274

## B

Ba'al 37, 52, 106, 121, 126, 127, 128  
Babylonia vii, 11, 62, 90, 93, 156, 157, 159, 160, 161, 163, 164, 165, 166, 167, 174, 206, 209, 217, 239, 241, 245, 251, 271, 282  
Bahrain 90, 93  
Bajo de la Campana 111, 129, 140, 276  
Barley ii, iii, vi, vii, 38, 62, 75, 76, 82, 150, 165, 166, 168, 221, 226, 241, 246, 248, 249, 251, 252, 253, 255  
Beloch, Karl Julius 2, 258  
Branding ii, iii, 58, 73, 74, 134, 143, 161, 168, 258  
Bresson, Alain 2, 3, 5, 17, 62, 66, 70, 79, 111, 130, 151, 163, 186, 193, 203, 222, 223, 224, 229, 239, 241, 242, 243, 244, 245, 247, 250, 252, 253, 254, 255, 256, 259  
Bronze cauldron 131, 135, 140, 162  
Bronze stand vi, 74  
Bucher, Karl 2  
Byblos 8, 52, 80, 87, 88, 106, 107, 118, 186

## C

Cambyses 94, 146, 147, 173, 176, 207  
Canaan 87, 88, 277  
Cape Gelidonya 10, 33, 34, 38, 39, 50, 54, 58, 61, 62, 110, 111, 112, 113, 131, 258  
Carchemish 47, 51, 53, 55, 62, 87, 93, 160, 161, 166, 248  
Cayagiz Koyu 111  
Ceramic trade iii, 143  
Chytroi ii, 105, 106, 159, 171, 185, 186  
Coinage iv, 85, 96, 101, 129, 150, 151, 189, 191, 208, 212, 213, 214, 224, 226, 227, 228, 256, 257, 262, 271, 273  
Common maritime and mercantile zone 1, 10, 17, 31, 41, 43, 48, 49, 50, 51, 52, 80, 84  
Copper i, ii, iii, iv, vi, vii, 1, 6, 7, 8, 10, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 25, 27, 28, 30, 31, 33, 36, 38, 39, 42, 44, 45, 46, 50, 51, 54, 55, 56, 58, 60, 61, 62, 63, 65, 66, 71, 72, 73, 74, 75, 76, 78, 79, 80, 81, 82, 83, 84, 88, 93, 95, 96, 98, 99, 100, 102, 103, 104, 105, 106, 118, 120, 126, 127, 128, 129, 130, 131, 132, 134, 139, 140, 142, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 170, 171, 172, 173, 179, 185, 188, 189, 190, 191, 192, 193, 196, 203, 205, 206, 208, 210, 213, 215, 216, 217, 218, 219, 220, 224, 225, 228, 231, 232, 235, 238, 239, 240, 243, 244, 245, 246, 247, 249, 250, 251, 252, 255, 260, 261, 266, 267, 268, 269, 274, 275, 276, 278, 279, 280, 281  
Copper and iron in Babylonia 164  
Cost of ships iii, 118  
Credit i, iii, iv, 18, 45, 49, 58, 62, 63, 150, 151, 152, 226, 228, 229, 230, 231, 247  
Cross selling 131  
Customary law i, 4, 50, 51, 53, 106

Cypriot grain trade iv, 224

Cypriot Syllabary 95, 104, 133, 142, 151, 152, 153, 190, 215, 232, 266

Cypriot uprising iii, 179, 180, 181, 182, 184, 185, 191, 192, 216

Cypro-Minoan 10, 20, 23, 36, 55, 56, 63, 64, 78, 80, 81, 99, 152, 153, 262

Cyrus vii, 94, 146, 173, 177, 207, 219, 259

## D

DAM.GAR 43, 128

Darius vii, 173, 175, 179, 180, 182, 186, 206, 207, 208, 209, 211, 217, 218, 220, 224, 227, 233, 234, 235, 237

Demetrios 173, 178, 188, 189, 195, 199, 244, 246, 254

Demosthenes iv, 151, 175, 205, 225, 226, 229, 236, 237, 245, 255

Dilmun 38, 90, 93

## E

Egypt i, vi, vii, viii, 2, 7, 9, 10, 11, 12, 13, 14, 15, 17, 25, 29, 30, 31, 32, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 51, 52, 53, 54, 55, 57, 60, 62, 64, 71, 74, 75, 76, 77, 78, 81, 82, 83, 84, 85, 86, 87, 88, 90, 93, 94, 95, 96, 102, 107, 108, 111, 115, 116, 117, 120, 125, 126, 128, 136, 138, 144, 145, 146, 147, 149, 151, 154, 157, 159, 160, 162, 163, 164, 165, 166, 167, 168, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 182, 184, 185, 188, 189, 193, 201, 205, 206, 208, 209, 210, 218, 219, 220, 222, 223, 224, 225, 226, 227, 229, 230, 234, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 260, 262, 264, 268, 271, 275, 280, 281

Eleutherna 140, 279

Elissa ii, 110, 112, 116

Embargo, trade restrictions 14, 17, 126, 127

Emmer ii, iii, vii, 75, 76, 82, 165, 168, 241, 249, 252

Engels, D.W. 69, 236, 262

Enkomi i, ii, vi, 10, 16, 17, 19, 20, 21, 28, 30, 31, 32, 36, 39, 46, 50, 54, 55, 56, 57, 58, 59, 62, 64, 65, 72, 80, 81, 96, 98, 100, 101, 102, 108, 115, 129, 134, 135, 148, 158, 160, 161, 231, 261

Episkopi Bamboula ii, 25, 32, 98, 104, 105

Erimi *Laonin tou Porakou* 78, 135, 259

Esarhaddon 52, 89, 90, 93, 95, 101, 102, 103, 104, 105, 106, 107, 110, 121, 122, 124, 125, 126, 127, 128, 146, 147, 149, 168, 186, 190, 192, 270

Esarhaddon's Succession Treaty 93, 122, 270

Eshuwara 48

Eteocypriot 104, 152

Evagoras I 170, 171, 174, 178, 185, 188, 193, 194, 202, 224, 228, 261, 272

Ezekiel 78, 107, 136, 166

Ezra 208

## F

Finance iii, iv, 18, 58, 63, 68, 126, 129, 150, 151, 177, 179, 193, 218, 225, 226, 227, 228, 229, 231, 237, 247, 257, 260, 276

Finley, Moses 2, 3, 261, 262

## G

Greece vii, viii, 2, 9, 14, 82, 86, 87, 88, 110, 117, 118, 119, 120, 121, 133, 141, 142, 147, 150, 151, 162, 165, 171, 173, 174, 175, 177, 180, 189, 195, 197, 201, 203, 208, 220, 223, 224, 225, 226, 227, 232, 233, 235, 239, 240, 242, 244, 245, 246, 255, 256, 263, 266, 267, 269, 273, 274, 277

## H

Hala Sultan Tekke i, ii, vi, x, 17, 20, 21, 23, 32, 50, 62, 68, 69, 70, 78, 79, 96, 97, 101, 108, 135, 136, 156, 262, 265

Harbours ii, iv, vii, 6, 15, 28, 32, 35, 36, 37, 38, 40, 106, 108, 110, 114, 118, 127, 142, 185, 189, 193, 194, 196, 197, 213, 233, 259, 270

Hatti i, vi, 10, 11, 12, 13, 14, 15, 23, 30, 31, 37, 40, 45, 46, 47, 51, 62, 63, 69, 71, 74, 75, 76, 77, 78, 79, 81, 82, 83, 84, 87, 88, 93, 95, 136, 154, 166, 167, 169, 241, 243, 249, 250

Hattusha 9, 13, 39, 51, 70, 79, 85, 87, 149, 166, 168, 258

*Hemioliai* 201

Hemispherical bronze bowl 134

Herakleides 202, 223, 224, 225

Herodotos ix, 94, 118, 140, 142, 173, 175, 180, 182, 186, 191, 195, 197, 207, 208

Hiram 88, 140, 141

Hittites x, 12, 13, 14, 40, 41, 62, 79, 87, 95, 130, 265, 269

Huelva 88, 96, 108, 139, 140, 152, 260, 263, 264

Hull ii, 27, 32, 33, 34, 40, 71, 112, 113, 114, 116, 118, 199, 202, 203, 235, 255, 276

## I

Iadnana 90, 95

Iberia 1, 88, 96, 131, 136, 139, 152, 168, 169, 257, 262, 264, 267, 272, 276, 279, 280

Idalion ii, iii, iv, vi, vii, 7, 100, 102, 104, 108, 121, 129, 133, 141, 144, 151, 153, 156, 158, 159, 171, 185, 186, 189, 190, 201, 209, 213, 214, 215, 216, 217, 226, 231, 232, 233, 257, 263, 264

Idalion archive iv, 7, 214, 215, 257, 264

Idalion tablet iv, 171, 185, 190, 209, 215, 233

Import duties i, 36, 37, 38, 43, 68, 74, 110, 122, 126, 214, 219, 254

Intermediaries 31, 41, 42, 50, 70, 72, 80, 84, 127, 159, 161

Ionian revolt iii, 171, 174, 176, 179, 180, 182, 184, 185, 191, 192, 209, 216, 217, 219, 281

Iron iii, vi, vii, x, 56, 88, 95, 96, 97, 100, 103, 104, 105, 106, 108, 109, 111, 112, 126, 127, 128, 129, 130, 131, 133, 134, 137, 138, 139, 140, 148, 149, 150, 152, 153, 159, 160, 161, 162, 163, 164, 167, 168, 170, 171, 205, 206, 208, 231, 239, 240, 245, 246, 251, 255, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281

Iron knives 130, 139, 162, 168

## K

Kalavassos *Ayios Dhimitrios* i, ii, vi, 21, 23, 24, 25, 65, 67, 96, 97, 279

Keel vi, 112, 113, 114, 115, 118, 203, 250

Kekova Adasi iii, 111, 134, 135, 142, 145, 168

Ken-Amon 34

Kepce Burnu iii, 111, 134, 142, 145

*Kerkouros* 201, 202

Kilikia vi, ix, 40, 51, 63, 68, 70, 72, 90, 91, 94, 107, 111, 124, 127, 129, 136, 143, 176, 180, 181, 182, 197, 210, 222, 224, 227, 237, 238, 259

Kition i, ii, iii, iv, vi, vii, ix, 20, 21, 23, 29, 31, 32, 40, 50, 65, 68, 69, 70, 72, 78, 88, 90, 91, 92, 95, 96, 97, 98, 99, 101, 102, 103, 104, 105, 108, 109, 115, 116, 117, 118, 121, 129, 135, 136, 139, 140, 141, 144, 148, 153, 154, 155, 156, 158, 171, 175, 176, 177, 178, 185, 186, 187, 188, 189, 190, 193, 194, 196, 197, 198, 202, 203, 213, 215, 217, 218, 225, 226, 227, 228, 229, 230, 231, 232, 233, 235, 244, 246, 247, 257, 258, 259,

- 260, 263, 264, 265, 267, 272, 273, 276, 281, 282  
 Kleomenes 219, 226, 242  
 Knapp, Bernard ix, 7, 8, 14, 16, 17, 19, 25, 29, 30, 35, 39, 40, 48, 49, 52, 54, 55, 57, 58, 59, 60, 65, 68, 71, 73, 74, 77, 78, 80, 81, 86, 115, 135, 257, 258, 269, 273, 279, 280  
 Kommos 139, 140, 142  
 Kourion ii, iii, iv, 98, 105, 131, 133, 135, 148, 150, 151, 158, 180, 181, 184, 185, 186, 187, 191, 192, 195, 217, 218, 226, 232, 235, 260, 272, 273, 278  
 Kushmeshusha 46, 54  
 Kyrenia iv, vi, vii, 110, 112, 114, 117, 141, 188, 192, 196, 202, 203, 204, 205, 225, 238, 242, 268
- L**
- Lapethos ii, iv, 30, 105, 131, 148, 185, 186, 187, 188, 192, 193, 196, 217, 218, 227, 232, 233, 235  
 Ledra ii, 105, 106, 158, 159, 171, 185, 186  
 Lefkandi 62, 131, 140, 141, 152, 260, 269, 270, 276  
 Levant iii, 1, 12, 14, 28, 29, 31, 34, 50, 56, 57, 62, 74, 79, 80, 84, 85, 88, 90, 93, 94, 96, 102, 107, 110, 111, 115, 121, 124, 125, 129, 130, 131, 133, 136, 137, 138, 141, 142, 143, 144, 148, 149, 152, 154, 160, 162, 168, 176, 180, 202, 203, 238, 245, 261, 262, 263, 265, 266, 269, 271, 272, 273, 276, 280, 282  
 Lukka 40, 41
- M**
- Ma'agan Mikhael iv, 110, 112, 114, 202, 203, 270, 278  
 Maa *Palaeokastro* i, ii, vi, 18, 28, 29, 32, 41, 97, 98, 108, 263, 267  
 Mahadu 35, 36, 37, 46  
 Makedonia 172, 174, 179, 180, 236, 245, 256  
 Mandattu 90, 91, 126, 133  
 Mari 41, 130  
 Mariners i, 29, 31, 32, 36, 40, 41, 50, 65, 99, 102, 106, 114, 115, 126, 143, 144, 154, 257, 260  
 Mariner trade 31, 32, 34, 38, 54, 60, 84  
 Marion ii, iv, 105, 141, 142, 176, 185, 186, 187, 188, 191, 196, 218, 220, 235, 260  
 Maritime Transport Containers x, 34, 49, 71, 74, 80, 257, 269, 273  
 Marketing Survey ii, iii, iv, v, 73, 81, 161, 167, 238, 245  
 Maroni i, ii, vi, x, 17, 21, 22, 23, 26, 32, 57, 68, 72, 78, 96, 97, 98, 104, 259, 271, 277, 279  
 Marriannu 36, 56  
 Mazaron 112  
 Mazotos iv, 117, 141, 202, 203, 204, 242, 261  
 Melikiathon 189  
 Melqart 102, 140, 232  
 Merchantmen ii, 27, 34, 35, 38, 39, 109, 110, 111, 112, 114, 115, 116, 119, 120, 154, 201, 202, 205, 210, 211, 218, 220, 222, 224, 230, 235, 237, 238, 241, 246  
 Meyer, Eduard 2, 273  
 Miletos 93, 135, 141, 142, 144, 179, 180, 182, 184, 211, 217, 233, 234, 244, 246, 264  
 Minet el Beidha 46  
 Mixed cargo viii, 33, 72, 132, 205, 206  
 Monroe, Chris ix, 8, 9, 13, 16, 25, 33, 36, 37, 38, 39, 42, 44, 49, 50, 51, 52, 53, 54, 55, 56, 57, 62, 63, 64, 68, 69, 70, 71, 75, 76, 77, 79, 80, 81, 82, 84, 87, 88, 110, 112, 118, 133, 138, 139, 140, 169, 204, 248, 249, 250, 273  
 Morphou *Toumba tou Skourou* i, 30  
 Mortaria 94, 134, 135, 143, 144, 145, 161, 162, 280, 282  
 Muchs, Brian 5, 16, 17, 25, 62, 64, 75, 76, 151, 155, 162, 165, 248, 249, 251, 253, 274
- Myrtou *Pighades* i, vi, 30, 105
- N**
- Najafehabad stele 92  
 Naukratis iii, 144, 145, 146, 151, 193, 219, 226, 262, 280  
 Nea Paphos 261, 273, 280  
 Neo-Assyrian Empire ii, iii, vi, 89, 90, 91, 93, 96, 111, 120, 121, 126, 128, 145, 168, 170  
 Neosoikoi 196, 197  
 Nikokreon 188, 220, 238, 263  
 Niqmaddu 13, 46, 47  
 North, Douglas i, vi, 2, 4, 5, 7, 17, 23, 28, 30, 40, 67, 89, 105, 130, 133, 138, 140, 141, 142, 143, 192, 194, 196, 202, 203, 222, 260, 262, 268, 272, 273, 274
- O**
- Olive oil ii, iv, vi, vii, 10, 14, 16, 18, 21, 23, 24, 30, 34, 37, 39, 54, 55, 59, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 76, 77, 81, 82, 83, 84, 97, 134, 135, 136, 142, 168, 184, 190, 215, 219, 236, 244, 246, 248, 249, 250, 254, 264, 272  
 Olympias D, vi, vii, 119, 120, 200  
 Onesilos 176, 180, 181, 184, 185, 190, 192  
 Orientalising luxury products iii, 132  
 Orontes 143, 178, 213, 224, 225
- P**
- Palaeopaphos i, ii, iv, vi, vii, x, 27, 28, 29, 31, 32, 72, 78, 88, 95, 96, 97, 98, 99, 103, 104, 105, 108, 130, 134, 135, 136, 139, 140, 145, 148, 149, 153, 156, 158, 162, 181, 182, 183, 184, 191, 193, 195, 199, 200, 215, 216, 218, 231, 261, 263, 267, 277  
 Palaeopaphos *Hadjiabdullah* vii, 216  
 Palestine 88, 93, 171, 173, 180, 186, 187, 207, 238, 244, 246, 262, 282  
 Peace of Kallias iii, 174, 175, 176, 177, 184, 185, 188, 223, 224, 246  
 Penteires 199  
 Persepolis Fortification Texts iv, 213, 214, 215  
 Persian Empire ii, iii, vii, 1, 2, 85, 93, 94, 120, 151, 170, 172, 173, 174, 175, 178, 185, 186, 206, 207, 210, 212, 214, 216, 217, 223, 224, 226, 228, 237, 246, 269, 274  
 Persian fiscal administration iv, 173, 206, 207, 217  
 Persian navy 2, 170, 171, 172, 175, 176, 178, 179, 180, 181, 182, 187, 194, 197, 210, 211, 220, 226, 233, 234, 235, 236, 237, 245, 247  
 Persian royal navy iv, 94, 173, 210, 211  
 Phoenician alphabet 141, 152, 192, 232, 233  
 Phoenicians iii, 85, 88, 94, 102, 108, 118, 128, 129, 131, 137, 138, 139, 141, 142, 170, 175, 176, 178, 187, 193, 211, 233, 234, 245, 247, 257, 259, 260, 263, 264, 266, 267, 269, 271, 275, 278, 281  
 Phoros 186, 207, 208, 216  
 Pirates i, 13, 40, 41, 45, 88, 106, 110, 128, 203, 204, 229  
 Planking 33, 112, 113, 114, 118, 203  
 Pnytagoras 187, 188, 191, 192, 199, 235, 238  
 Point Iria 10, 33, 38, 39, 54, 110, 111, 132, 276  
 Polanyi, Karl 2, 3, 5, 276  
 Population iii, vii, 6, 16, 18, 19, 21, 22, 23, 29, 46, 64, 66, 67, 71, 75, 77, 84, 95, 99, 100, 103, 104, 139, 144, 156, 165, 168, 180, 182, 186, 187, 188, 191, 192, 210, 219, 220, 221, 222, 223, 225, 240, 241, 255, 257, 265, 279  
 Ports ii, iv, vi, 3, 13, 14, 18, 23, 27, 32, 34, 35, 36, 37, 38, 39, 43, 46, 47, 51, 55, 66, 74, 88, 95, 106, 108, 110, 111, 116, 122,

126, 127, 128, 136, 138, 141, 144, 172, 187, 193, 195, 203, 213, 214, 218, 219, 259, 265, 267, 270, 276, 281  
 Pottery ii, 14, 16, 18, 21, 23, 30, 31, 34, 60, 65, 72, 79, 80, 83, 94, 105, 130, 131, 132, 139, 141, 142, 143, 202, 203, 224, 257, 258, 259, 262, 265, 271, 273, 281  
 Private enterprise i, 3, 6, 8, 18, 31, 33, 39, 46, 54, 55, 56, 57, 60, 61, 80, 95, 138, 155, 168  
 Pseudo-Aristotle's *Oikonomika* iv, 212, 214, 215, 217, 218, 219, 224, 228, 247  
 Ptolemaic kingdom iii, 2, 170, 172, 173, 175, 178, 179, 185, 189, 191, 195, 247  
 Ptolemaios ix, 173, 175, 178, 179, 185, 188, 189, 191, 192, 193, 195, 199, 226, 247  
 Puduheba, Hittite Queen 64  
 Pumiathon 188, 189  
 Purple wool 79, 82, 83, 156, 157, 160, 166, 167, 250, 251  
 Pyla *Kokkinokremos* i, ii, vi, 18, 29, 32, 41, 62, 97, 98, 108, 263, 267  
 Pyrgoteles 199

**Q**

Qadesh 12, 13, 14, 69, 79

**R**

Rabisu 36, 43, 44  
 Ram vii, 33, 114, 118, 151, 199, 200, 201, 235, 262, 270  
 Rapanu 19, 47, 48, 55, 56, 57  
 Rasap-abu 36, 55, 56, 57  
 Ras ibn Hani 35, 46, 47, 269  
 Ratios of silver to copper vii, 163, 240  
 Ratios of silver to tin 163  
 Religious Institutions iii, 153  
 Rigging ii, 32, 115  
 Ritual garments 167  
 Roikos 191, 223, 225  
 Rostovzeff, Michail 2, 277  
 Royal grain surplus iv, 223  
 Royal Tombs at Salamis 280

**S**

Sail-making industry iv, 201  
 Salamis ii, iii, vi, vii, 20, 46, 96, 99, 100, 101, 104, 105, 106, 108, 129, 131, 133, 134, 135, 140, 141, 144, 146, 147, 150, 151, 153, 157, 158, 159, 161, 162, 171, 173, 174, 176, 177, 178, 180, 181, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 199, 202, 208, 210, 212, 217, 218, 220, 223, 225, 226, 227, 228, 229, 232, 235, 237, 238, 242, 244, 246, 259, 261, 262, 263, 265, 267, 268, 269, 270, 272, 275, 277, 280, 282  
 Salt v, vii, 20, 190, 231, 244, 245, 246, 254, 281  
 Sangiwa 48  
 Sardinia 14, 74, 88, 96, 105, 108, 129, 134, 136, 139, 140, 159, 162, 168, 169, 245, 270  
 Sargon II vi, 89, 90, 91, 92, 127, 275, 276  
 Sargon stele 90, 91, 95  
*Satrapies* 207, 208, 210, 223  
 Sea Peoples 41, 73, 85, 86, 87, 88, 98, 99, 115, 257, 259, 262, 263, 266, 268, 277  
 Sennacherib vi, 89, 116, 117, 125, 127, 143, 146, 147, 166, 271  
 Ship construction ii, 106, 112, 118, 201, 204  
 Ship graffito vi, 115  
 Shiphsheds iv, vii, 194, 196, 197, 198, 235, 255, 258, 259, 261, 272, 275, 276

Shipwrights 34, 106, 114, 115, 117, 118, 125, 127, 147, 189, 193, 199, 200, 201, 209, 210, 211, 220, 235, 247  
 Sidon 8, 52, 87, 88, 107, 117, 118, 124, 126, 144, 159, 160, 161, 186, 187, 189, 205, 206, 208  
 Sinama 48, 56, 57  
*Sitonai* 223, 224  
 Size of ships iv, 205  
 Soloi ii, iv, 105, 141, 142, 158, 171, 180, 181, 182, 184, 185, 186, 187, 191, 192, 193, 195, 196, 212, 218, 232, 235, 238  
 Stasikypros 216  
 State enterprise 8, 33, 54, 60  
 State maritime economy 30, 31, 32, 44, 50, 80  
 Suppiluliuma 13, 39, 46, 166  
 Syria 10, 12, 25, 40, 64, 87, 89, 90, 129, 132, 133, 140, 141, 143, 144, 160, 166, 179, 210, 227, 244, 246, 249, 259, 270  
 Syro Palestine 93

**T**

Tamassos ii, iv, vii, 100, 105, 106, 150, 158, 159, 161, 171, 181, 185, 186, 188, 189, 192, 193, 228, 238, 247, 268, 272  
 Tamkaru 189, 261  
 Tanit ii, 110, 112, 116, 227  
 Tax i, 25, 35, 36, 37, 38, 43, 71, 126, 127, 142, 143, 146, 172, 182, 185, 186, 207, 208, 212, 214, 216, 217, 218, 219, 222, 244, 247, 254, 279  
 Tell Ammar 161  
 Temple iii, vii, 3, 13, 29, 65, 78, 93, 102, 106, 107, 108, 115, 116, 140, 145, 153, 154, 155, 156, 181, 190, 191, 193, 195, 199, 200, 209, 219, 226, 231, 232, 281  
*Tetreires* 199  
 Textiles ii, iii, 14, 16, 18, 39, 65, 68, 74, 76, 77, 78, 79, 83, 84, 102, 132, 135, 136, 150, 154, 155, 156, 157, 166, 167, 250, 251, 258, 261, 271, 274, 278, 279, 280  
 The New Institutional Economics C, i, ix, 1, 3, 4, 8, 270  
 Tiglath-Pileser 88, 89, 126, 127  
 Tin ii, iii, vi, vii, 10, 19, 33, 36, 42, 55, 56, 63, 68, 74, 75, 79, 88, 96, 106, 129, 130, 139, 159, 160, 162, 163, 164, 165, 205, 206, 239, 245, 249, 251, 255, 276  
 Tochni *Lakkia* 23, 32, 39, 66, 69, 70, 72  
 Tramping 18, 33, 54, 61, 70, 72, 132  
 Travelling smiths 31, 61  
 Tribute iv, 2, 13, 25, 37, 39, 44, 62, 84, 90, 91, 93, 121, 122, 127, 128, 130, 133, 140, 146, 155, 166, 169, 170, 171, 172, 173, 178, 179, 180, 182, 186, 188, 206, 207, 208, 209, 210, 211, 212, 213, 214, 216, 217, 219, 220, 224, 227, 237, 247, 254, 270  
 Trierarchy 5, 212  
*Trieres* vi, ix, 117, 118, 119, 120, 147, 197, 199, 200, 211, 212, 230, 233, 235, 236, 237, 238, 255  
 Tudhaliya 13, 14, 39, 84, 169  
 Tyros vii, 8, 37, 51, 52, 53, 78, 87, 88, 93, 105, 106, 107, 116, 117, 118, 121, 127, 128, 130, 136, 140, 141, 144, 152, 159, 160, 161, 166, 169, 174, 177, 178, 186, 187, 189, 191, 192, 195, 199, 226, 228, 232, 233, 234, 235

**U**

Ugarit i, vi, vii, x, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19, 20, 25, 28, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 46, 47, 48, 51, 52, 53, 54, 55, 56, 57, 59, 60, 61, 62, 63, 67, 68, 69, 70, 71, 72, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 95, 100, 107, 110, 131, 136, 138, 148, 151, 154, 157, 159, 160, 161, 162, 163, 164, 167, 169, 190, 193, 239, 241, 243, 244, 245, 248, 249, 250, 258, 262, 264, 265, 270, 272, 273, 277, 278,

279, 280, 281, 282  
 Uluburun 10, 25, 33, 34, 35, 38, 41, 45, 50, 54, 58, 60, 62, 64, 65,  
 71, 72, 74, 75, 76, 77, 78, 79, 80, 82, 83, 110, 112, 113, 159,  
 258, 265, 273, 276  
 Ura 51, 53, 63, 81  
 Urtenu 19, 36, 46, 48, 55, 57, 80, 81  
 Uruk 159, 163, 206

**W**

Weapon industry ii, 79  
 Weights and measures i, iii, v, 10, 16, 49, 55, 62, 95, 150, 152,  
 168, 228, 248, 252  
 Wen Amon 88  
 Wheat ii, iii, vi, 69, 70, 71, 75, 76, 82, 84, 165, 221, 223, 224,  
 226, 241, 247, 248, 249, 252  
 Wine ii, iv, vi, vii, viii, 14, 16, 21, 23, 25, 33, 34, 65, 66, 67, 71,  
 72, 73, 74, 77, 81, 82, 84, 104, 116, 117, 134, 135, 136, 141,  
 142, 162, 167, 184, 190, 202, 203, 204, 205, 206, 214, 215,  
 218, 222, 223, 224, 225, 229, 230, 236, 242, 243, 244, 245,  
 246, 250, 253, 254, 255, 264, 279

**X**

Xenophon 94, 175, 177, 201, 207, 210, 218, 223, 224, 236, 272  
 Xerxes 174, 176, 179, 184, 195, 205, 208, 211, 212, 218, 220,  
 224, 227, 255

**Y**

Yabinu 19  
 Yadnana 90, 272

**Z**

Zakarbaal 107  
 Zenon 224, 225, 229, 230, 244

*The Maritime Economy of Ancient Cyprus in Terms of the New Institutional Economics* deals with the maritime economy of ancient Cyprus from 1450 BC to 295 BC, and comprises three parts which correspond to three distinct economic cycles:

- first economic cycle during the age of internationalism 1450–1200 BC
- second economic cycle during political volatility, economic growth and transformation 1200–525 BC
- third economic cycle in the Persian Empire until annexation into the Ptolemaic kingdom.

The principles of New Institutional Economics are used to trace the island's institutions and their continuity and to reconstruct its maritime history. A unique feature is that for the first time a traditional descriptive and cultural approach is complemented by systematic and mathematical analysis and marketing documentation which results in meaningful examination of economic performance. This new approach highlights and explains the maritime economic activity of Ancient Cyprus and the Eastern Mediterranean in general. It brings together, for the first time, three distinct disciplines, that is History, Archaeology and Economic theory, in order to create a balanced explanation and reconstruction of the maritime economy of ancient Cyprus and of the challenges which confronted the ancient seafarers and traders of the Eastern Mediterranean. The approach and methodology is influenced by the author's engineering, business background and training.

*Andreas P. Parpas* was born in Cyprus in 1950. He studied Engineering and Business Studies in the UK, Classical History at the University of Athens and then pursued a professional career with his own companies in Cyprus, Greece and the Middle East. During his business activities he worked and travelled extensively in all Middle Eastern countries. He has particular interests in Alexander the Great, the Hellenistic period and the presence of Hellenism in the Near East as well as in the ancient history of Cyprus. Has published two titles on Alexander the Great and three further titles: *The Hellenistic Gulf*, *The Assyrian Empire and Cyprus*, and *The Naval Economy of Cyprus in Terms of the New Institutional Economics Approach*. He is currently researching in collaboration with the Saudi Commission for Archaeological Research and Studies the relations between Saudi Arabia and the Greeks during the Hellenistic period. He is also working on an ongoing project with the University of Basra in Iraq on the Hellenistic presence in Southern Mesopotamia.

