Global and local in Late Bronze Age Central Macedonia.

Economy, mobility and identity

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Ole Christian Aslaksen

UNIVERSITY OF GOTHENBURG
DEPT OF HISTORICAL STUDIES

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Sammenfatning

Hvilken betydning hadde større og tettere nettverk for områdene mellom sentra i perioden 1700-1100 f.kr? Sentralmakedonia ligger mellom de velkjente egeiske og sentraleuropeiske bronselalderkulturene, med Axiosdalen som innfartsåre. I denne avhandlingen undersøkes virkningene av bronsealderens raskt voksende nettverk gjennom en ny syntese av gjenstands-, landskap- og bosetningsmaterialer fra Sentralmakedonias Axiosdal. Virkninger diskuteres i lys av mobilitet, politisk økonomi og identitet.

I kapittel 2 kontekstualiseres studien forskningshistorisk, mens en teoretisk og metodologisk ramme (med fokus på mobilitet, politisk økonomi og identitet) presenteres i kapttiel 3. En skisse for en «bronsealderverden», som karakteriseres av stabile nettverk, legges frem i kapittel 4. Sentralmakedonias tellsamfunn kunne knytte seg til disse nettverkene ikke bare i kraft av deres strategiske beliggenhet (en naturlig mellomstasjon), men også gjennom besittelse av rike ressurser (kap.5). I kapittel 5 diskuteres gjenstander som vitner om mobilitet, men også bronsealderens reisende som fraktet nøkkelvarer som kobber og tinn. I kapittel 6 analyseres landskap og politiske enheter og deres kapasitet til å mobilisere resurser for å delta i bronsealderverdenens nettverk. I kapittel 7 presenteres en kontekstuell analyse av dekorert keramikk for å forstå dens bruk. I kapittel 8-12 analyseres keramikkdekoren på ulike typer dekorert keramikk i lys av identitetsskapende prosesser.

Tellsamfunnenes heterogene materialer står i kontrast til «hermetiske» kulturer, «mobilitetsrom» og områder definert av «peer-polity interaction». I den siste modellen gis indre relasjoner den viktigste rollen på bekostning av langdistansekontakt. Sentralmakedonias betydelse ligger i muligheten til å belyse multietniske samfunn med nøkkelplasseringer i forhold til viktige kommunikasjonsårer. I denne regionen ble tilgang til «internasjonal» keramikk brukt til å knytte lokale og tilreisende sammen, samtidig som dekorens mønster og dekorative teknikker ble brukt til å definere politiske enheter (...og identiteter) fra dal til dal, og på et større plan også en bredere etnisk-aktig gruppe mellom elvene Nestos og Aliakmon.

Abstract

What impact did expanding Bronze Age networks have on regions located between the great centers in the period 1700-1100 BC? Where the Aegean meets the Balkans, Central Macedonia lies between well-known cultures connected by veins of communication such as the Axios River. In this doctoral dissertation the impact of increased communication is investigated through a new synthesis of artifacts, landscapes and settlement materials from Central Macedonia. The impacts are discussed in a framework of mobility, political economy and identity.

In chapter 2 the study is contextualized in the research history of Central Macedonia, while a theoretical and methodological framework is presented in chapter 3 focusing on mobility, political economy and identity. In chapter 4, a sketch of the "Bronze Age World" characterized by stable networks is presented. With a strong resource base and a location within routes of communication, Central Macedonia could have joined these networks. I discuss this along with "mobility attesting" objects in chapter 5, where I also address the travelers. In chapter 6 I look at landscape relations and the formation of political structures within which resources could be mobilized to participate in the Bronze Age. In chapter 7 a contextual analysis of the largest category of mobility attesting objects, decorated pottery, is pursued to address possible users. In chapter 8-12 decoration techniques and motifs are discussed to understand the pottery's role in formation of identities.

The heterogeneity of the tell assemblages could represent a diversity which defies the old notion of "hermetic" cultures, mobility rooms, or peer polity-like areas where the intra-regional relations are given primacy over the inter-regional. Herein lays the significance of Central Macedonia for the understanding of the Bronze Age: giving a glimpse of a pre-historic multi-ethnic region with capable political formations. In this region it is suggested that access to "international" types of decorated pottery were used to connect travelers and locals at tells to dwellers of different communities. At the same time, the use of decorative techniques and motifs were used strategically to separate dwellers of different polities, and at a higher level between ethnic like groups between the Nestos and the Aliakmon.

Acknowledgements

There are many people I owe the sincerest gratitude, and I have been lucky to have been part of a great academic milieu(s). I could truly thrive during my time in Gothenburg and my many stays in Thessaloniki. This doctoral project could not have been finalized without the able help and support of my supervisors Kristian Kristiansen and Kostas Kotsakis. With generosity they have given ideas, feedback, critique, help to arrange appointments and insights into the Bronze Age. Ken and Diana Wardle and Stelios Andreou welcomed me warmly and allowed me to look through materials and notes, provided interesting insights of great consequence to my work and even allowed me to take numerous photos. Per Cornell introduced me to thoughts which eventually changed my take on theory, and I thank Tove Hjørungdal for challenging me. Euridice Kephalidou taught me the ropes in the Archaeological Museum of Thessaloniki and guided me through her collections. I owe her and the staff of the Archaeological Museum of Thessaloniki the greatest thanks for making my stays pleasant and efficient.

Working with Central Europe and the Balkans was a new challenge. Here Joanna Sofaer, Magdi Vicze, Horia Ciuguidean and Nick Boroffka shared their vast knowledge with me, which literally opened these regions for me. I also received great input from Marie Louise Stig Sørensen, Nona Palincas and Anita Synnestvedt. I generously received a large number of books from one of the greatest archaeologists, Bernhard Hänsel, and on short notice Alix Hänsel met me and showed me materials from Troy in Berlin. I thank them both for valuable input. After Greece, Germany became the country I visited most, where Forging Identities had inspiring yearly meetings in the German Archaeological Institute.

During my years as a doctoral student, I had the great pleasure of being part of the Forging Identities team, consisting of doctoral students Dalia Pokutta, Mikael Kuijpers, Samantha Scott Reiter, Heidi Wrobel Nørgaard, Sascha Mauel, Nicole Taylor, Christina Karlsson, and Vanessa Guyot along with the Post doc's Claes Uhnér, Paulina Suchowska-Ducke, Tim Flohr Sørensen and Christian Horn, the latter of which provided discussions and ideas over coffee on a daily basis during his stay in Gothenburg. Without his support I would have finished much earlier, but with significantly less inspiration! Forging Identities provided courses and a forum which kept the ideas flowing and provided generous funding. A board of leading Bronze Age researchers included Johannes Müller, Marie Louise Stig Sørensen, Svend Hansen, Joanna Sofaer, Helle Vandkilde (the project manager), Kostas Kotsakis and Kristian Kristiansen. Through the project I had the opportunity to meet and work with the best. Back home in Gothenburg I was part of several groups of researchers. These include the members of the Anatolia Seminar, Folke Josephsson, Sandra Karlsson, Mats Pehrsson and Ingela Wiman. These spurred an interest in the languages of the Bronze Age which led to joint projects including the conference "Decline vs Collapse". The archaeological research seminars led by Elisabeth Nordbladh provided an arena for great academic discussions. It is impossible to ignore the Bronze Age seminars of Kristian Kristiansen and Christian Horn, where I met with Peter Skoglund, Johan Ling, Jarl Nordbladh and Serena Sabatini. I also owe Carol Gillis, Madeleine Miller and Ann-Louise Schallin the warmest thanks for their support and Sophie Bergerbrant and Lene Os Johannessen for their comments.

I had two "eduvacations" which gave me new input and ideas. By funding the workshop "Local and Global", Panos Dimas and the Norwegian School in Athens gave me the opportunity to bring together a group exciting scholars. I was also a Guest Student Researcher for 6 weeks at UC Berkeley's department of Anthropology where I had access to their excellent library, and where I was warmly greeted Rosemary Joyce and Laurie Wilkie who, aided by their graduate students, made my stay great. In the US I had the opportunity to meet with other great scholars to discuss ideas, including Michael Shanks, Douglass Baily and Ian Morris.

Amongst those not mentioned so far, my fellow students in Gothenburg and Thessaloniki, in particular Jacob Forsbäck, Helene Carstenbrandt, Anna Wessman, Anna Ihr and Brita Planck whom I shared office with, and in Thessaloniki Georgia Kedrou and Efi Tsiolaki who I worked with at the storage facility of the Toumba Thessaloniki project all created good times.

I wish to thank my oldest fellow archaeologist, Lene Os Johannesen for inviting me back to the University of Oslo to present a paper and for visiting me in Thessaloniki, and who together with Marina Prusac, Jo Simon Stokke Frøshaug and Adam Lindhagen kicked off my Balkan days at the Desilo excavation in 2009. Marina Prusac's (2007) dissertation was a great inspiration. My journeys in Central Europe had in fact already started at the Százhalombatta excavation superbly run by Magdolna Vicze, but later brought me to Croatia, Bosnia, Serbia, FYRO Macedonia, the University of Thessaloniki and its French Collection, the Archaeological Museum of Thessaloniki and its Heurtley Collection, the Norwegian School at Athens, the Teleac excavation in Romania run by Horia Ciugudean, Svend Hansen and Nick Boroffka, the University of Southampton, Cambridge University, the home of the Wardle family in Birmingham and the Hänsels in Berlin, the University of Kiel and the Eurasian Department of the German Archaeological Institute in Berlin, the University of Aarhus and UC Berkeley. With help and funding from Forging Identities (EU FP 7) and the University of Gothenburg (who financed my final year) my time as a doctoral student was spent in mobility, to my greatest delight. Of course this dissertation could not have been produced without the help of Rich Potter and Thomas Ekholm. My mentor in GIS, David Hill, also deserves my great gratitude for teaching me how to make maps in Turkey in 2005.

My family, friends and (in particular!) Anita, for sustained back up all the way

Preface – Balkan Journeys

The study here presented was part of the Forging Identities Project (EU FP7), which aimed to shed light on the impact of mobility of social life, the scale and extent of networks including people, plants, objects, animals, ideas and knowledge, and the formation of European and regional identities through interaction in the Bronze Age. 10 Ph.D. and 4 post-doctoral projects have dealt with mobility and identity in regions spanning from Greece to Sweden in the Bronze Age; it involved the University of Gothenburg, Aarhus University, University of Kiel, Aristotle University of Thessaloniki, University of Southampton, University of Cambridge and the Free University of Berlin. Mandatory courses were given at several of these institutions, demanding a high degree of mobility by the participants themselves.

Travels came to mark this project. The collection of objects (mostly pottery), landscape and settlement data included library work, trips to the Archaeological Museum of Thessaloniki, the storage of the Toumba Thessaloniki excavation and the French collection which is located in the basement of the University of Thessaloniki (with the kind help and permission of Professor Kotsakis, Professor Andreou and Dr. Kephalidou). I also had the opportunity to photograph pottery from the Hungarian Százhalombatta excavation (in the Matrica Museum, with the kind permission of Dr. Sofaer), and from the two Romanian sites Cetea and Viile Maieri (with the kind permission of Dr. Ciugudean at the National Museum at Alba Iulia). I also had the pleasure of travelling in and around Britain, where I met Professor K. Wardle and the archaeologist D. Wardle, who let me look through their documentation from the Assiros excavation.
For the purpose of this project, I had to acquaint myself with the material, get my hands on relevant publications and to see the landscape; tasks which brought me to several European countries. The total amount of travel time accounts for almost a quarter of the time spent on the doctoral project here presented. Needless to say, this study of mobility was heavily influenced by my own mobility, enabled by a Marie Curie grant from the European Union (EU FP 7) within the framework of the Forging Identities (ITN) project.

The camera became my most important tool. When collecting landscape data, coordinates could be acquired for a large number of sites through some key publications (Besios and Grammenos 1997; French 1967), but the sites also had to be seen. On the road I could double check the coordinates and take photos of sites and landscapes, later to return to the computer and ArcGIS 10. In Thessaloniki, I created a basic photo database of the excavated material from the sites Axiochori, Limnotopos, Kilindir and Tsautsitsa for Dr. Kephalidou. A series of sketches were drawn by hand and digitally with the help of photos in ArcGIS. The aim was not to make a catalogue or an extensive publication of materials as this has already been done (see Hochstetter 1984; Hochstetter 1987; Jung 2002; Horejs 2007), but to use existing materials to address the impact of mobility through objects and their decoration (references to discussed and depicted objects are found in appendix 2). A fast way to create an index was to draw vector outlines loaded with data in ArcGIS, assigning ID numbers to the finds with an auto-number function (for example "Object 123"), and then export the information in a readable format (see appendix 2). Discussions on metal- and small finds are found in chapter 5, while pottery is discussed in chapter 8-12.

The landscape study builds on the writings of French (1967), Rey (1919), Heurtley (1939) and Grammenos (et. al. 1997). Further, the works by Andreou (et al 1996; 2001), Kotsakis (1989; 1990) and Wardle (2010) from the neighboring Langadas Basin provide parallels for what became an in-depth study of the Lower Axios' hinterland. Substantial bioarchaeological works give much information on past landscape use (e.g. Kroll 1983). Creating maps in ArcGIS gave possibilities for data exploration; the rasters included LANDSAT 4-5, SRTM DEM 90m, VMAP.5 and digitized Soviet army maps of the Eastern Mediterranean in addition to high resolution vector data (10m) from the University of Thessaloniki. Soviet vector data of Western Anatolia and the Aegean (50m) were provided by Hill, archaeologist at the University of Oslo. Vectorized Soviet military maps covering the surroundings of Axiochori (Eastview) (10m) were also acquired. I also vectorized settlement plans in ArcGIS, including Kastanas (after Hänsel 1989; see appendix 1), Assiros (after Wardle 2009), and Toumba Thessaloniki (after Margomenou 2005).

However, the project did not start on a computer or at the library, but μέτα οδος, by travelling to the Százhalombatta dig (under the auspices of Dr. Vicze), Hungary, in the summer of 2009. A few weeks after the trip to Hungary, I set out on a Balkan journey which began with excavations in Desilo (directed by Dr. Prusac and Dr. Lindhagen), Bosnia, and ended in Thessaloniki.

In retrospect I see that my interpretations and ideas are connected to my own Balkan journeys. The experience of travelling by train through Bosnia was that of travelling in a mountainous country (not too dissimilar from a train trip in Norway!). The landscape also changed from what I perceived to be mountainous to flat as I approached Belgrade. After a brief stay, I traveled to Skopje and then to Thessaloniki. If I had travelled by air, I would have left from the Skopje Alexander the Great Airport and landed in the Thessaloniki Airport Makedonia. These similarities express contesting claims to the past rather than harmonic sharing. The cities are also very distinct; amongst the communist era architecture of Skopje you find the works of Japanese architect Kenzo Tange. Tange's plan incorporated the past in the present as the fortified Kale hill was integrated into the later city center which had been destroyed by an earthquake (Lin 2010: 193). This hill also contains a Late Bronze Age settlement, from where you can look down to older quarters that survived the earthquakes of 1963 where a Turkish minority still resides. This is an example of how spatial and temporal influences from several regions mix and materialize in the landscape and city.

The first Balkan journey altered me as a researcher, traveling out with a proposal, but returning with a project aimed at studying the particular modulations of objects and decoration co-present in different regions, the mechanisms behind their travels, and the formation of identities and multi-culture.

Table of Contents

Chapter 7

Chapter 8

Chapter 9

Chapter 10

Chapter 11

Chapter 12

Part III - Reflections

Chapter 13

Table of Figures

Part I - Introductory Chapters

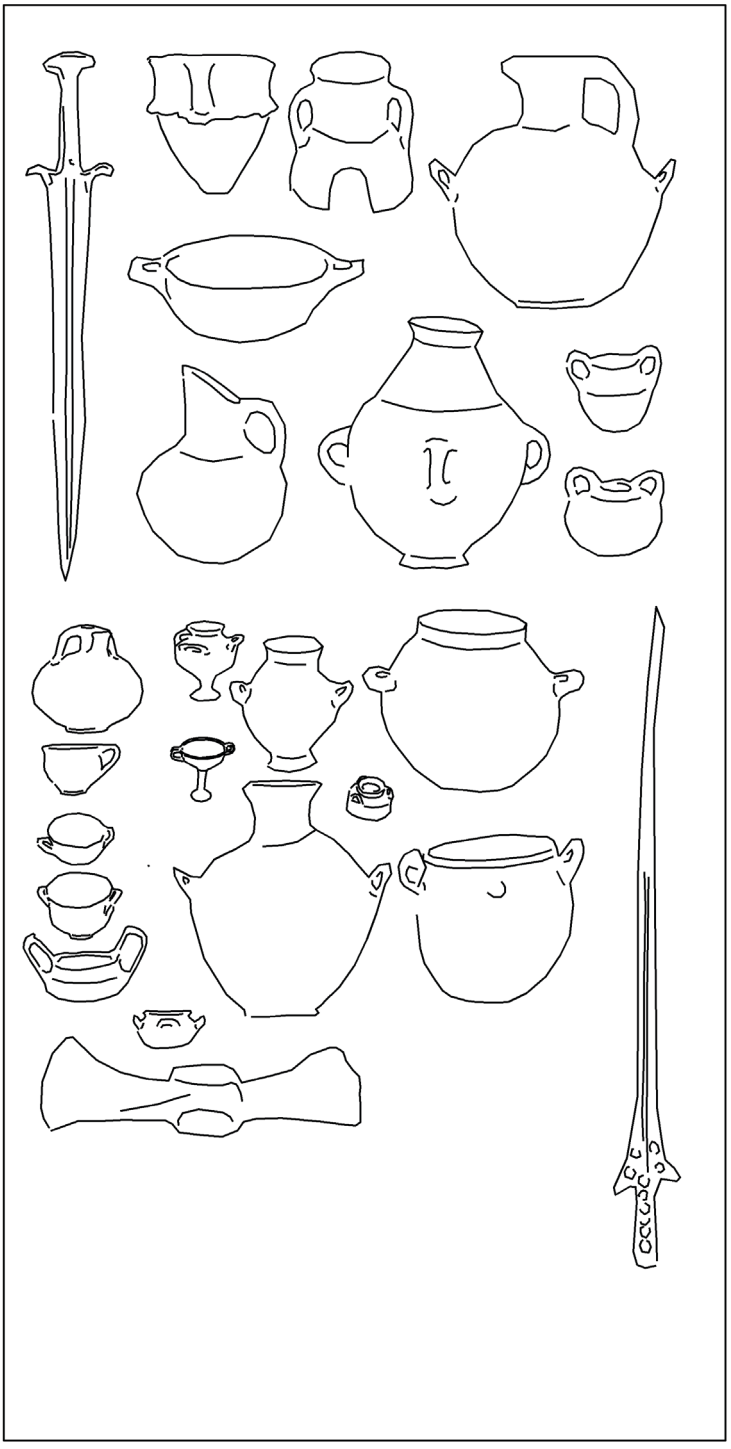
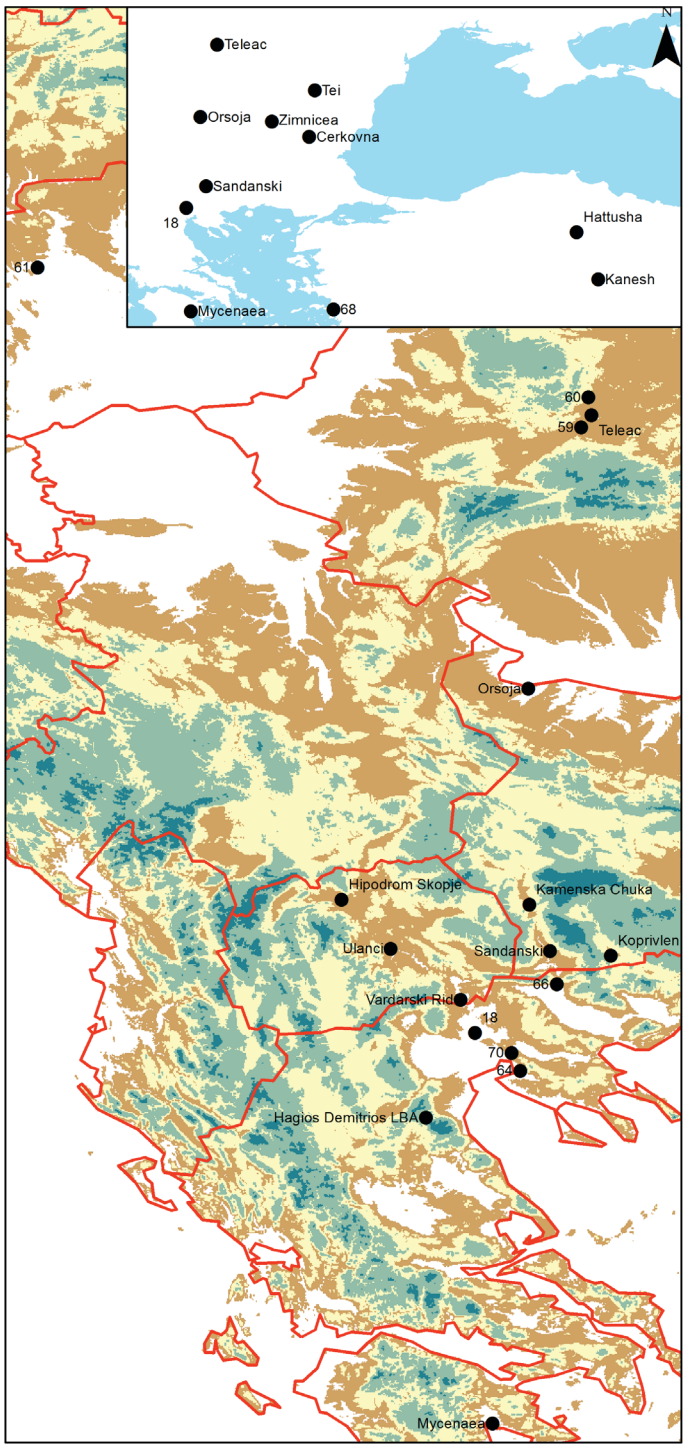


Figure 1 Map of the Bronze Age World, the Balkans, the administrative province of Central Macedonia, and a map of settlements in the Lower Axios Area (red dots = Bronze Age, black dots = Iron Age, red/black dots = multi-period sites – Bronze and Iron Age). The Lower Axios Area is shown on a USGS LANDSAT image built with band 3 (green: peak vegetation), 4 (red: vegetation slopes) and 5 (near infra-red: biomass content and shorelines) shows wetlands and river-plain (green) – agricultural lands, above 40m (purple) and highland with less vegetation (dark purple). Some objects encountered in Northern Greece, from left, a) Mycenaean sword from Gravena (W. Macedonia), b) two pyranoi cooking pots, c) hydria, d) whishbone handle bowl, e) cut away neck jug, f) a four handled amphora g) two kantharoi (closed jars), h) stirrup jar (Mycenaean), i) amphoriskos (Mycenaean), j) amphoriskoid container, k) storage jar, l) alabastron (Mycenaean), m) belly handle amphora (Mycenaean), n) open jar, o) cup (Mycenaean), p) kylix (Mycenaean), q) deep bowls, skyphos and krater (Mycenaean), r) kantharos bowl, s) Hochstetter (1984) type 5 bowl, closed with traversing handles, t) collared axe and u) rapier, from Tetovo. Inspired by Hochstetter (1984), Jung (2002), exhibits in Archaeological Museum in Thessaloniki's and National Museum of Macedonia (Skopje). Site numbers are indexed in appendix 2.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Orsoja
Hipodrom Skopje
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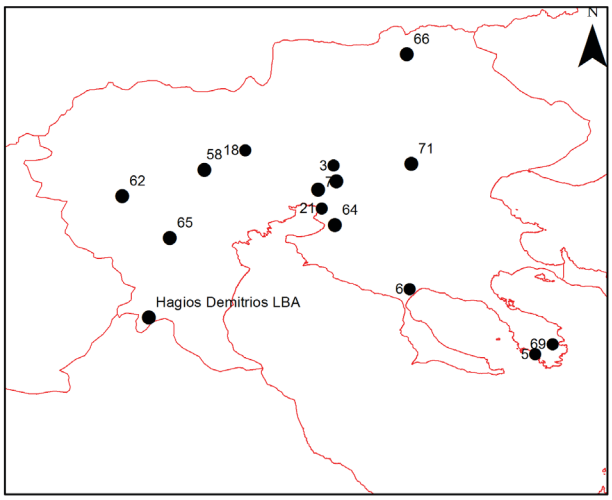
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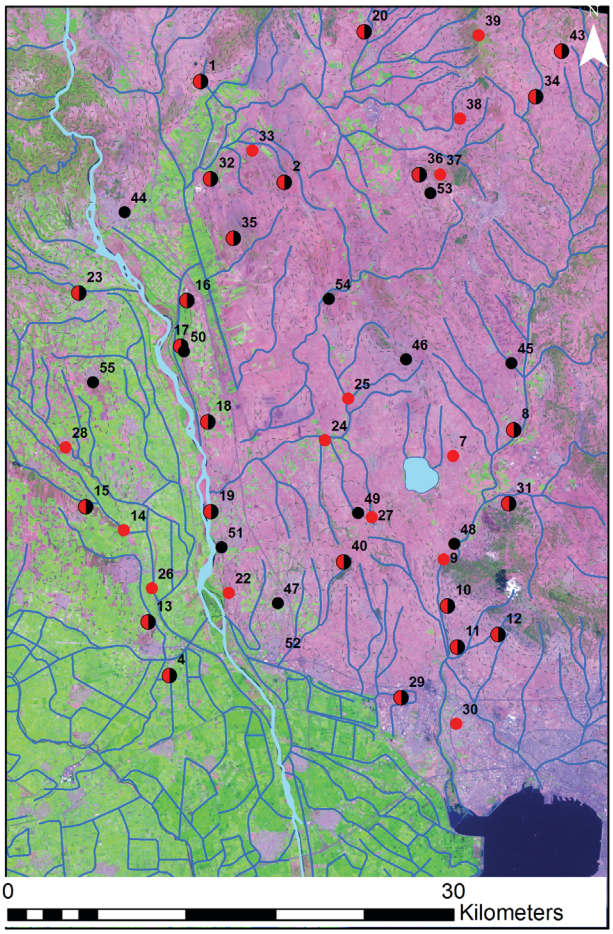
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1.0.0 Introduction

The purpose of this study is to examine the impact of mobility in the period between 1700 and 1100 BC in the Lower Axios Area of Central Macedonia during the Bronze Age: a bay where the Axios River connected the Aegean and the Balkans (fig.1). The Bronze Age was a period of mobility and intensification, altering the manner in which people lived across Europe and large parts of the world. They became more connected and lived more often in increasingly large settlements, even cities (in the Near East), in more organized political formations (Kristiansen and Larsson 2005: 1; R. Håland and G. Håland 2000: 89; Gillis et al. 2004; see Gates 2003: 50-51). In particular, the period 1400-1200 BC reflects this intensification in the Eastern Mediterranean and the Aegean, referred to as the "international period" (see ch.4.).

Beyond key regions like Hittite Anatolia, Mycenaean Greece and the Carpathian Basin, we find the areas in-between. To understand the large networks which arose in the Bronze Age, and which now become better known to us through strontium and metal isotope analysis (Price et al.2004; Nafplioti 2009; Evans et al. 2006; Ling et al. 2013), there is a need to understand the regions through which intensified contact may have been mediated. Central Macedonia has a heterogeneous assemblage of decorated pottery which was known in contemporary Southern Greece (often referred to as "the South") and the Balkans and Central Europe ("the North"), which had more homogenous pottery assemblages constituting, for example the Mycenaeans and the Urnfield Culture (see Kristiansen and Larsson 2005: 361; see also ch.9.-12.). Small finds (for example whorls, pins and molds) and metal artifacts are fewer than pot sherds, but likewise show connections to both the North and the South. Against this dynamic picture stands the *toumbes*, tell settlements, which show a staggering continuity (see Kotsakis 1999: 68; Kotsakis 2007). Central Macedonia is a complex region with a heterogeneous material which illuminates the Bronze Age *impact* on the diverse world between the centers in terms of:

- Mobility of people - who came to and/or passed through regions situated in-between like Central Macedonia?

- Implications for political economies – to what extent did polities have the ability to mobilize sufficient resources to actively connect to the long distance networks channeling travelers between centers?

- The formation of new identities - in the face of an expanding world, how did people envisage themselves as members of communities and polities within a region, connected to the Bronze Age World?

An *interpretive synthetic approach* is needed to understand *the dynamics of mobility* defined by interplay between mobility, political economies and identity formation:

1. This includes discussing how small finds and metal objects attest mobility and the possibility of a political economy geared towards mobility which was played out in the landscape. Employing GIS, visibility and control, paths and resources, territories and hierarchies are explored in order to assess the nature and extent of a political economy (ch.5.-6.).

2. Paired with a review of settlement histories, a study of settlement contexts and access to different types of decorated pottery in households at tells is pursued to understand how "international" pots were combined into a regional assemblage (contextual analysis, ch.7.). Further, approaching the relations between motifs on pottery associated with different regions, and slight divergences in different parts of Central Macedonia (Northern Greece), can shed light on subtle boundaries between neighbors and groups of people within settlements or between polities (ch.8.-12.).

An interpretive synthetic approach must be scalar and address the long distance networks from the bottom-up, without conflating local networks or long distance connections. "Contacts", "connections" and "networks" often remain undefined. In this monograph, these are broken down and connected to travelers whose journeys could lead to cross-cultural encounters and ultimately the existence of a Bronze Age: travelers had to transport tin and copper to the different societies which produced and used bronze constituting the Bronze Age World.

Perhaps, especially in such a diverse period as the Bronze Age, it is necessary to recognize that identities are layered and not necessarily exclusive.'Ethnicity' can cross-cut identities such as 'trader' and 'potter' or 'man' and 'woman' or political affiliation (Meskell 2002). A crafter's "professional" identity, whether a smith or a potter, would be defined by the capacity to enact skills and knowledge derived from a community of peers (presumably with a craft tradition) to make a desired object (see Budden and Sofaer 2009: 204), but as an individual, he or she could feel an affinity with other people (who could be professional warriors or traders) also defined as 'Luwian', 'Lucca', 'Neshite' or 'Ahhiyawa', or a place like 'Nesha' (see ch.4). The Hittite realm contained many different peoples with different languages (see e.g. MacSweeney 2009), and the formation of large political entities in the Bronze Age may have led to the formation of multi-cultural communities not only as people moved to trade metal, but also through the inclusion of several groups in states. These two factors were interdependent: to get weapons to conquer one needed a steady stream of metals (regular trade) to forge. As with Malinowski's Kula Ring, metal trade in the Bronze Age could have led to the spread of more than copper and tin including "…various articles of domestic use and minor gifts. … and not only objects of material culture, but also customs, songs, art, motives and general cultural influences" (Malinowski 2013: loc.2283). An intensification of mobility through metal trade would bring diverse groups together, and affect several parts of society (Kristiansen and Larsson 2005). Mixing became a key topic in this study, and identities connected to ethnicity and multi-ethnicity, as well as affiliations with different polities, was emphasized.

There are several factors that call for a study of mobility in Central Macedonia in the period 1700-1100 BC. Between 1700 and 1400 BC strong elites formed in Anatolia and Greece, and in the period between 1400 and 1200 BC interaction peaked between the states that emerged. Around

1200 BC there was a crisis that up-rooted the Hittite and triggered the decline of palatial mainland Greece (ch.4). In Central Macedonia, studying the period 1700-1100 BC allows us to approach how emerging large scale networks impacted on an area in-between. Focusing on the Lower Axios allows us to get a detailed picture of a connection point in a period of change (fig.1). Thus, the outcome of this study will address the Bronze Age as much as Central Macedonia.

1.1.0 Research Perspectives and Relevant Discourses

The last interpretive synthetic volume on Central Macedonia's Bronze Age was Heurtley's (1939) "Prehistoric Macedonia", which remains a standard work. My intention is not to cover the entire reach of Greek Macedonian provinces, FYRO Macedonia and Southwestern Bulgaria but rather to take a small section, the Lower Axios Area, and analyze it in light of "global" and more local developments. For Heurtley (1939), a key aspect of his work was to present little known material and weave a narrative. My focus is to highlight processes rather than to publish materials or provide an exhaustive review (e.g. Andreou et al. 1996; Andreou et al. 2001).

A series of publications, primarily from the 1980's onwards (Hochstetter 1984; Hochstetter 1987; Jung 2002; Horejs 2007) cover pottery and small finds in a detailed manner, and connections from Thessaloniki to the Tisza River (Slovakia) could be shown (Hänsel 1982; Wardle 1975). Recent reviews of the archaeological material of Northern Greece have given extensive accounts of the material from different sites and the theories fronted by different researchers, but have not presented "grand syntheses" of regions (Andreou et al. 1996: 538; Andreou et al. 2001). The sum of contemporary works does however provide a strong foundation for a larger synthetic study that draws together the threads of accessible landscape and settlement data, metal, pottery and small finds assemblages. Further, a study like the one here proposed addresses Central Macedonia in a broad perspective rather than from the vantage point of one site (e.g. Hänsel 1989; Hänsel 2002; Hänsel and Aslanis 2010). There seems to be two main directions amongst researchers working with Central Macedonia, either focusing on 1) long distance contacts or 2) local dynamics:

1) Mobility and Long Distance Contacts

Earlier approaches emphasized the role of northern invaders and southern traders in the shaping of Central Macedonia's material culture (e.g. Heurtley 1939). Hänsel (1982: 20) identified imitation and stylistic influxes in the 16th century BC Carpathian cultures parallel to the development of hierarchical Mycenaean states in Greece. A Central European and an Aegean cultural "*Raum*" were defined by stylistic similarities. These were rooted in the movements of metal prospectors, specialists and traders seeking out copper and/or tin (Hänsel 1982: 21). In later periods migrations could have spread fluted ware pottery and Urnfield Culture (Hänsel 1982: 34). The movement of people means that events can be traced in different regions. Incoming northerners in Troy have recently been discussed by A. Hänsel (2008: 73) in light of the appearance of new handmade coarse ware (with rope decoration) in Troy VI and the appearance of "knobbed ware", fluted ware and stamped pottery in Troy VIIB, as well as cooking stands ("pyranoi"). A two stage migration was proposed, parallel to a similar northern invasion at Kastanas in layer 13 (ch,7) (A. Hänsel 2008: 74).

The idea of a "*Raum*" of communication has recently been expanded by Horejs (2007D: 301; see also Koukouli-Chrysanthaki 1978: 249) who notes that encrusted pottery associated with the Danubian regions reached Central Macedonia but not further, vice versa that matt-painted and later Mycenaean pottery remained mostly a Central Macedonian phenomenon. Cooking-related pot shapes and wish bone handle bowls show an affinity to the Danubian Regions, and indicate increased contact at the dawn of the Late Bronze Age (Horejs 2005: 89). These were part of micro-regional networks which conjoined between rivers. Against the regular constant "everyday" contact stands cross-cultural encounters with travelers from afar, suggested to have been rather episodic. The sparse occurrence of Mycenaean prestige finds in the Balkans could have come to Central Macedonia through direct contact and then been distributed further through local networks. This model provides an alternative to the traditional "direct contact approach" (Horejs 2009: 204).

2) Receptivity and Local dynamics

The latter model (see Horejs 2009) which emphasizes the role of local networks ties in with recent developments in the study of local and intra-regional dynamics which emphasize the role of feasting as a mechanism of resource mobilization, exchange and alliance building (Andreou 2001: 166, 168 and 170; Kotsakis 2007: 14-15). Recent studies promote local distributed production patterns and storage (e.g. Margomenou 2008). While previous models promoted the role of central sites (e.g. Wardle 1983), more recent approaches focus on micro-polities with only a few sites functioning in loosely defined hierarchies (Andreou and Psaraki 2007: 403; Andreou et al. 1996: 585). Competitive feasting is indicated by the presence of game, wine and advanced decorated pottery: first the Balkan encrusted pottery, then the appropriation of southern matt-painted pottery which outlived its southern counterparts in Central Macedonia, and in the end Mycenaean pottery which gained an unparalleled distribution. The matt-painted decoration's variability could have indicated a link between motifs and owners, while the more general and homogenous motifs on Mycenaean pots reflected the greater accessibility to this pot, perhaps associated with a particular way of consuming wine (Andreou and Psaraki 2007: 413 and 417). Mycenaean traders cross-cut local elite networks, and local demand led to the localization of the production technique. The difference in production techniques was so great that the Mycenaean pottery would most likely have been produced by a separate group of potters with the knowledge and skills to make a distinct type of decorated pottery (Andreou and Psaraki 2007; Kiriatzi et al. 1997; see also Tsamis 2010).

These two directions are not so much in opposition, and similar foci are shared amongst most archaeologists working in Greek Macedonia (ch.2.). There are several points which can serve as a foundation for my study and open up crucial discussions related to mobility, political economy and identity. Firstly, the clusters or networks of tells (see Andreou 2001; Kotsakis and Andreou 1987) can be pinned down in greater detail to specific landscapes, adding to the understanding of their extent and their resource base. Secondly there are many indications of contact, but why would people come to Central Macedonia, and not least who would come and what opportunities did the locals have to join these networks (ch.5.-6.)? Thirdly, the feasting mechanism has been argued for convincingly through studies of type frequency and pot morphology (see Andreou and Psaraki 2007). To pin down the groups who used the pots, a contextual study of "international" decorated pottery at sites in several areas is pursued (ch.7.). In light of contextual data, the manner of its use can be further addressed. By lifting the perspective to several sites in different areas of the Central Macedonian region and in particular the Lower Axios Area, "elites" and "social groups" can be more closely defined by focusing on how motifs and pots could be used to differentiate and produce an intra-group sense of belonging (ch.8.-12.). While there are breaks in the transition to the Early Iron Age (e.g. the rise and appearance of extramural graves, opposed to less conspicuous Late Bronze Age burial forms), there are also continuities in potting traditions and at most settlements in terms of architecture and plan (Andreou 2010). What can be learnt by contrasting the Bronze and Iron Age (ch.12.)? Addressing these issues with a synthetic approach can aid greatly in the assessment of the impact of Bronze Age mobility in a region in-between.

1.2.0 The Relevance of Central Macedonia

In the larger discourses of mobility and identity, Central Macedonia may have a particular relevance due to its location and assemblage. Objects tangle with identities, not in a one-to-one relationship, but rather in complex manners particularly evident in the heterogeneous assemblage of Central Macedonia. 'Material culture' is the physical surroundings, both moveable (objects) and fixed (landscapes and monuments), which people live with and through (see Hodder 2012). The physical character of a thing, the tangibility and sensibility of material culture, its materiality, could very likely be part of explicit and tacit processes of identification with social groups (social identity) (Vandkilde 2007: 20). Not only material properties, but also the *style* can be a medium of social practice (Conkey 1990: 6-7), which can be defined as the "patterned variation in appearance" (Earle 1990: 73). Meanings are not stable, but negotiated and thus change through time and space from one archaeological 'culture' to another (an area with a relatively homogenous material assemblage; Hodder 1982: 1). Defining an identity, for example ethnicity, is about finding common ground between people within a group as well as points which distinguish them from others – both of which can materialize in objects (see e.g. MacSweeney 2009: 102-103). A study of identity should therefore be synthetic and include many materials, as no single group of objects can yield sufficient information sites and areas should be studied comparatively. A complicating factor, the material culture used to identify with a group can be the same as what is employed by another to some extent, but combined differently (see ch.3.2.0; Bürdek 2005: 329). Ancient Greek culture is believed to have been formed in the Archaic colonies in the face of "the other" (see Malkin 2003: 72), yet included Orientalizing elements (e.g. painted sphinxes; Richter 1987: 297). The ancient Greeks of Asia Minor may have emerged from a multi-ethnic context in which Anatolians mixed with incoming migrants from Greece (see Bintliff 2006). In periods with a high degree of mobility, such mixes can occur in regions in-between, indicating the movement of people since someone must have carried both the mixed goods and ideas.

In the emergent mobile Bronze Age, researchers must also assess multi-culture and multi-ethnicity as objects from different cultures are sometimes found together in the areas in-between – an outcome of the movement of people from different places, generating cross-cultural encounters, again giving rise to novelties. This could be expressed in hybrid objects and practices (products of "mixed origins"; see Van Dommelen 2005: 118; Van Dommelen 1997: 309; see also Stockhammer 2012) and trans-cultural phenomena, shared in different cultures (Sabatini 2007: 53). In Kristiansen and Larsson's (2005) inter-contextual archaeology, sharing symbols and practices is fundamental in the formation of trans-European chiefly identities. Identifying shared objects and practices at sites with heterogeneous assemblages could be the key to understanding multi-cultural or multi-ethnic societies. For this purpose, the assemblage of Central Macedonia is well suited as it includes objects and imitations derived from several regions of the Bronze Age World (see ch.5.-12.). In the following chapters new analyses and discussions are presented which deal with a range of materials to approach this:

- The ability to mobilize resources and join networks is assessed through a review of "mobility attesting objects" and resources (ch.5). This is further discussed in light of settlement patterns and routes in order to better grasp the extent of political economies (ch.6).

- How impulses were dealt with is approached by a contextual study of "international" pottery in the Lower Axios Valley (ch.7). Which regional identity strategies the pots and motifs were employed in is studied by means of a detailed comparative analysis of motifs (ch.8.-12.). The analysis is discursive rather than statistic and is centered on a selection of pots with well-preserved motifs that could be compared. This focus is art historic and typical for Classical archaeology. Vase painters and their schools are identified by meticulous studies of details (e.g. Boardman 1975), in essence similar to the studies of Mycenaean paleography in which the hands of different writers can be identified by looking at the personal tweaks of the scribe when he combined incised lines into signs (Palaima 2008). While the manner in which decoration is painted or inscribed is embedded in tradition and a social context, so is the choice of motifs (see Shanks 1999: 14). Studying the particularities of motif use, and how these were

composed of motif elements, but also how the lines were put together can reveal the particularities of crafter communities and their connections "abroad". Importantly, it also reveals something about the taste of the users. Inspired by art history, this method is subjective (Boardman 1975: 8-9) but can yield information on the slight differences which are often of importance in identification strategies (see ch.3. and ch.8).

The Bronze Age is characterized by long distance networks necessary to regularly distribute the amounts of tin and copper needed to maintain a high level of metallurgy and cultural areas defined by more or less material homogeneity (Kristiansen and Larsson 2005: 361). By studying Central Macedonia, pinched in-between Central Europe and the Aegean, an area defined by heterogeneity rather than homogeneity, an important part of the Bronze Age could be uncovered: the nature of Bronze Age multi-culture and possible multi-ethnic populations.

1.3.0 Dissertation Structure

The study is divided in four parts:

Part I - Introductory Chapters (ch. 1.-2.)

Part II - Concepts: Theory & Methods (ch. 3.-4.)

Part III – Analyses (ch. 5.-12.)

Part IV – Reflections (ch. 13.)

Part I is introductory, and includes a history of research (ch.2.). Theory and methods (ch.3.) is presented in Part II as well a discussion of a Bronze Age World (ch.4.). A wide range of material is included in this synthetic study. A thematic outline thus seemed to be the best solution, with eight chapters focusing on imports and economic basis (ch.5.), landscape and political economy (ch.6.) settlement histories and a contextual study (ch.7.), and "international pottery" types (ch.8.-12.), before the threads were collected in a concluding chapter (ch.13). The different types of material demanded different methods (subsequently presented in the relevant chapters), although related to a common instrumentalist theoretical framework (ch.3.). Chapter 4 deals with the "Bronze Age World", and address methodology as well as background material. The shape of networks and the travelers discussed in chapter 4 recur in the analytical chapters 5-12 (Part III), and are thus not only descriptive but also conceptual. The degree of connectivity and the types of networks envisaged at a macro level impacts upon the (regional) analyses of Central Macedonia's landscapes (ch.5.-6.), settlements (ch.7.) and pottery (ch.8.-12.).

The pottery and other illuatrations were drawn in ArcGIS 10. and assigned random object numbers listed in appendix 2. Scale bars were set to 5 cm. All site names and numbers are indexed in appendix 2.

2.0.0 History of Research

In this review of Bronze Age archaeology in Central Macedonia, I will briefly look at its context and its characteristics as a distinct field of research with ties to Classical archaeology, Greek Archaeology and European prehistoric archaeology as well as its connections to the paradigmatic trends of archaeology (culture-historic, processual and post-processual archaeology, and the current focus on material culture). While the application of theory differs between German, English and Greek archaeology, methodology and central questions such as the impact and nature of "foreign" contact ties the field together. A number of sites have been excavated by Greek (Toumba Thessaloniki), German (Kastanas; Hänsel 1989), British (e.g. Limnotopos, Tsautitsa, Kilindir, Axiochori, Sitagroi and Assiros; Heurtley 1939; Renfrew et al. 1986; Wardle et al. 1980), American (Torone; Cambitoglou and Papadopoulos 2001) and French (Gona and Dikili Tash; Rey 1919; Séfériadès 1983) archaeologists. While sites including Axiochori, Limnotopos, Tsautsitsa and Kilindir were published in the first half of the 20th century (see Heurtley 1939), more recently excavated and well published Late Bronze Age sites include Kastanas (Hänsel 1989), Toumba Thessaloniki (Andreou et al. 1991), Assiros (Wardle et al. 1980), Hagios Mamas (Hänsel and Aslanis 2010) and Torone (Cambitoglou and Papadopoulos 2001). Important excavations from other periods or nearby areas include Vardarski Rid (across the border in FYRO Macedonia; Mitrevski 2005), Angelochori (see Stefani, and Meroussis 1997), various sites on Thasos (e.g. Kastri) (Koukouli-Chrysanthaki 1992), Sitagroi (Renfrew et al. 1986), Dikili Tash (Séfériadès 1983), Anchialos (Gimatzidis and Tiverios 2010), Archondiko (Pilali-Papasteriou and Papaefthymiou-Papanthimou 2002), Servia (Ridley et al. 2000) and Vergina (see Andreou et al. 2001; Andronikos 1969). Surveys have been published since the First World War (Rey 1919) to more recent times (Besios et al. 1997). In this great range of works, some tendencies prevail, which are identified below.

2.1.0 The Characteristics of Archaeology in Central Macedonia and its Research Context

While Classical archaeology has traditionally been accused of not keeping up with theoretical developments (Morris 2001; Randsborg 2001: 80), the same cannot be said for the North Greek archaeology. The archaeology of Northern Greece has subsequent links to culture historic archaeology (e.g. Heurtley 1939; Hammond 1976: 129), processual (see Renfrew et al. 1986: 12) and post-processual paradigms (for a critical look at research trends, see Kotsakis 1991; Kotsakis 1998; Fotiadis 1993), but has distinct characteristics. Kotsakis (1991) draws attention to the effect of having scholars like Renfrew, a major contributor to theoretical developments in archaeology working on the Greek Neolithic. Renfrew and other well-known innovators conducted large projects in Northern Greece. Gimbutas (1986) and Sherrat (1986) are amongst the scholars who have worked at Sitagroi. Gimbutas also excavated on the FYRO Macedonian side of the border with Garašanin at Anza, using modern multi-disciplinary approaches (Gimbutas 1976).

The use of multi-disciplinary methods was pursued early and became a feature of North Greek archaeology. In the 1920's Heurtley had already sampled wood, minerals, soil plant remains, metals and bones as part of his research. Half a century later, a combination of science-based methods were employed in Neolithic archaeology at sites like Nea Nikomedeia (Bintliff 1976; Rodden et al. 1996), Sitagroi (Renfrew et al. 1986) and Servia (Ridley et al. 2000) in the 1960's and 1970's, and then through the multidisciplinary work at Bronze Age Kastanas (Hänsel 1989) and Assiros (K. Wardle et al. 1980; K. Wardle 1986; K. Wardle 1987; K. Wardle 1988) in the 1970's and 1980's.

The teams at Kastanas and Assiros pursued studies of the ancient flora, fauna, geology and were committed to refining Heurtley's relative chronologies with ^{14}C dates and dendrochronology. While the migration model was pursued by Hänsel (1982: 34), who saw his research as a test of Heurtley's theory of a Lausitz invasion in the Early Iron Age, such explanatory models were avoided in the contemporary field of processual archaeology (Cassel 2000). In the final synthesis of the Kastanas project, Hänsel (2002) gave a fine-grained analysis of changes that may have been introduced by incoming elite in the Lower Axios. This was not the case in the Langadas Basin and the Bay of Thessaloniki which were marked by staggering continuity. Sites like Assiros, Kastanas, Toumba Thessaloniki and Hagios Mamas, although not far apart, had their own developments, marked by continuity (Hänsel 2009: 91).

While Northern Greece arguably followed a trajectory different from Argolis (see Bintliff 1997; Halstead 1994), it tends to be seen in relation to other regions rather than on its own terms. Often the research on this region has been centered on whether it was a periphery of the North (Central Europe and the Balkans) or the South (the Mycenaean realm), thus strengthening the perception of Central Macedonia as different (Andreou et al. 1996: 560-651) or even "otherly" (Kotsakis 1998: 47; see Said 1989). In European prehistoric archaeology Central Macedonia has been regarded as a key region through its role as a communication vein to the Aegean, albeit one which was culturally behind (Andreou et al. 1996: 560; see Childs 1951: 129). Thus, for example the Mycenaean material has been studied from a southern "Mycenocentric" perspective rather than in terms of local cultures (Wardle 1993: 120). This has however changed in the last decades as researchers increasingly focus on how "foreign" goods entered local systems (see the works of e.g. Andreou and Psaraki 2007; Kiriatzi 1997; Horejs 2007).

The tendency of perceiving Central Macedonia as "different" is found outside archaeology as well (Kotsakis 1998). Macedonia did not become part of Greece until 1913. Behind the modern conflict between FYRO Macedonia and Greece lies an older conflict (Sjöberg 2011). Prehistoric archaeology

in the early 1900's did not play a direct role in nation building projects but was literally borne at the battlefields of the Great War (Kotsakis 1998; Davis 2000).

2.1.1 The Roots of Prehistoric Archaeology in Central Macedonia

In 1912, upon the conquest of Thessaloniki by the Greek forces in the Balkan Wars, excavations were initiated within 15 days (Dyson 2006: 186). When soldiers of the Triple Entente entered Thessaloniki and the Balkan front was opened, excavations proceeded quickly as the First World War raged. Following the soldiers, archaeologists from the French and British schools in Athens pursued excavations. On occasion, the soldiers would use the tells as military positions. The archaeologists managed to spark the enthusiasm of the troops, and soon the soldiers collected finds in their trenches for the archaeologists (see Casson and Gardner 1919: 22-23). Sites of all dates were discovered by the French, British and Greek archaeologists.

The Bronze Age pottery assemblage uncovered in this early period of Central Macedonian archaeology was markedly different from that which was found in Southern Greece, comprising a palimpsest of local handmade and Mycenaean pottery. It was recognized that the handmade pottery was similar to that found across the Central and Northern Balkans, and to some extent in Troy (see Heurtley 1939).

Heuzey and Daumet's (1876) work was a key work in the 19th century, yet the brunt of work on Macedonia was conducted in the 20th century. The survey of the German archaeologist Traeger (1901) was amongst the earliest, focusing on the settlement mounds in the vicinity of Thessaloniki and the Axios. Traeger (1902: 62) noted that the landscape had numerous mounds, while a particularly large one (Axiochori), located by lake Amatovo (which is drained today), in fact consisted of a conical tell on top of another one. The tells were defined as settlements and not burial mounds. Traeger (1902) saw a northern connection with Hungarian Vatin Culture and the cultures of Siebenburg in Romania. The pottery was connected to northern invasions. Pottery connections to Central Europe and the Aegean were thus identified more than 100 years ago.

In the next decade, the Frenchman Rey (1919), leader of the archaeological service of L'Armee Oriental in Northern Greece, excavated a series of tells and presented the first larger survey of sites in Northern Greece in the course of the First World War. Rey introduced two trends in Central Macedonian. The first one was that of extensive surveys and the second was the use of technology. Rey used aerial photography (obtained from army pilots) to locate sites (Rey 1919: fig. 15). This was a novel technology, which was increasingly used in archaeology after the First World War (see Reeves 1936). The newly discovered settlements were classified according to their shapes. They were either steep sided mounds, mounds on tables, or tables without mounds. This classification is still in use.

The French method of excavation was to dig narrow deep trenches to locate the stratigraphic position of pottery and architectural remains. This method did not give many opportunities for exploring settlement plans as the trenches were too narrow, some interesting discoveries were however made. Gona and Sedes proved to be built on terraces of sundried bricks. Rey (1919: 286) saw that this was a resemblance to what had been discovered at Sesklo. Rey did not take a staunch "migrationist" stance on why changes occurred, and pointed out that an abandonment of the mounds and the founding of table settlements could also be the result of autochthonous developments (Rey 1919: 252). Rey (1919: 269-270) introduced a tripartite chronological division of a pre-Mycenaean, Mycenaean and post-Mycenaean age, and placed Central Macedonia in a larger regional context where he emphasized a southern wave of influence between two periods of Balkan influence.

The British teams which worked along the Axios during the First World War and the following decade excavated a series of sites, notably the large settlements of Axiochori (Vardarhofsta), Limnotopos (Vardino), Kilindir, and Tsautsitsa with a nearby Iron Age cemetery (see Heurtley 1939). Casson placed Tsautsitsa and Kilindir in a larger trans-Balkan context and discussed large scale invasions as a motor of change. Through metal finds and pottery he connected Central Macedonia with Hungary, Romania and Turkey (Casson 1968: 156-157). Interestingly, Casson notes the coexistence of handmade and wheel made pottery at Tsautsitsa in the same graves, each with their own set of shapes and decorations (Casson 1925: 11 and 19-21). This indicated that the different types of pottery were not necessarily reserved for particular groups (Casson 1921: 25-26).

The material culture with connections to the Northern Balkans was interpreted in light of the waves of migrations. The Mycenaean material was interpreted as trading goods, while skull fragments and a burnt layer at the Toumba of Tsautsitsa and Kilindir were connected with violent destruction. Casson discusses the possibility of an invasion of a new people, but contends that the invaders could have been of the same race as their victims ("Aryan stock") (Casson 1968: 135 and 155-156). The invaders buried their dead in a new fashion, outside the settlements. Heurtley, later the excavator of Axiochori (*Vardarhofsta*), was a member in Casson's team. Such close connections could have been important in the formation of the field of research..

Heurtley excavated Axiochori in 1926, the same year as Casson (1968) originally published his book *Macedonia, Thrace and Illyria* which together with Rey's publications (1919) formed the first standard works on the Macedonian Bronze Age. A Russian team had excavated at Pateli in Western Macedonia, but they never published (Hammond 1982: 645-646). The French, under Rey's (1919) supervision, had surveyed a large amount of sites but only excavated limited test trenches at three of them (Gona, Sedes and Kapudzilar). The work of the British thus came to form the empirical backbone of Central Macedonian archaeology. Heurtley's

excavations and synthesis covered several sites from Western and Central Macedonia, and he was able to create a better chronological framework for the region, largely because of his relatively meticulous work at Axiochori. Heurtley's *Prehistoric Macedonia* (1939) remains a standard work in the archaeology of Northern Greece, with great impact on later excavators (e.g. Hänsel 1989).

Heurtley (1939: 128-129) drew attention to a Trojan connection from the Early Bronze Age as well as later Mycenaean, Balkan and Central European ones. He posited several invasions (the Minyans in Chalcidice and the Lausitz invasion) of new people who introduced new types of decorated pottery and architecture. The Lausitz people literally brought the Iron Age with them. At Axiochori and Limnotopos, a burnt layer was discovered together with several specimen of fluted and grooved ware at the end of the Mycenaean period. Heurtley connected this pottery with the Lausitz Culture (mostly known from Central Europe). Heurtley, like his colleague Casson (above), used the migrations as an explanation for cultural change to a greater extent than Rey. According to Casson (1925: 29) the mythical Dorians came through Central Macedonia. These theories were much in line with the contemporary culture historic archaeologies in which race, pots and regions were often linked (see Trigger 1996: 125). While the northern Dorians or Lausitz invaders were harbingers of destruction, the Mycenaeans brought development. The raising of the terraces of Axiochori was connected with the Mycenaean arrival, preceding the havoc wrought by northerners (Heurtley, and Hutchison 1926: 10).

Heurtley's view is apparent in later works including Grbić (1957) and Hammond (1982). Although initially critical of using migrations as a single prime mover of cultural change (Grbić 1957: 140), Grbić interprets similarities in the pottery assemblage as a sign of an Illyrian contingent in the Dorian horde (Grbić 1957: 149). Hammond (1976; 1972: 336) saw the migration of people such as the Phrygians (who could have been carriers of Lausitz Culture) and Dorians as the motor behind the distribution of objects and change. Within a framework of migrationism, Macedonia is an attractive region to study since its impassable mountains stand between the North Balkans and the rich Danubian cultures and Mycenaean Greece, pierced by only a few river valleys like the Strymon and the Axios, deemed as ideal routes for possible invaders.

After 1945 little happened within the field of Late Bronze Age archaeology in Central Macedonia until the German excavations of Kastanas and the British excavations at Assiros in the 1970's. The excavations at Vergina exposed graves spanning as far back as the transition to the Early Iron Age (Andronikos 1969). Several graves in each tumulus could represent family groups whose members were buried together (Radt 1974: 99). By the 1970's Central Macedonia had been established as a cultural historic highway between the Aegean, Anatolia and the Northern Balkans used by migrating hordes, but rarely studied from a perspective of local development (Andreou et al. 1996: 561). Yet new ideas came forth in the decades after the Second World War, while some of the older were abandoned: 'race' became a less relevant topic in the post war era (see Andreou et al. 1996: 561). Migrations did not fall out of interest as Heurtley's Lausitz invasion was one of the theories Hänsel (1989: 21) wanted to test with his excavations at Kastanas. It differed however as Hänsel worked with a multidisciplinary approach, employing archaeobotanics, geology and archaeozoology.

Neolithic archaeology seemed to have gained preeminence in Northern Greece in the period 1945-1970 (see Andreou et al. 1996: 561-562). In Greek Macedonia, the Nea Nikomedeia excavations in 1961-1964 initiated a wide use of new scientific methods (Rodden and Wardle 1996). In Western Macedonia the excavation of Servia, which continued until the 1970's, provides a good parallel to the Nea Nikomedeia excavation as both these projects employed ^{14}C dating in Northern Greece relatively early (Mould et al. 2000: 17). Both Rey and Heurtley had maintained a keen interest in new methods: Rey with his pioneering use of aerial photography and Heurtley with his extensive sampling strategy pursued archaeologies that were relatively modern. Heurtley collected samples of soil, wood, grain and slag in addition to bones and a representative selection of pottery that also included coarse ware. The Neolithic excavations in Northern Greece can be said to have brought Northern Greek archaeology into a processual episteme in terms of methodology, but there was already a strong multidisciplinary tradition to build on.

2.1.2 New Methods and Ideas

From the mid-1970's excavations in Central Macedonia applied multi-disciplinary methods which held a high standard and which offered a fuller picture of the development at sites. Some of these sites I term key sites as they were excavated with good contexts, and include ^{14}C dates. It is worth looking at these sites in some detail as they shed light on the developments in the archaeology of Central Macedonia.

Kastanas: Scientific approaches had already been introduced in Stone Age archaeology with the excavations at Nea Nikomedeia when Bernhard Hänsel started his excavations at Kastanas. Kastanas was a small site on the banks of the River Vardar, just south of Axiochori. The site was slowly eroding into the river which provided a place to dispose of the excavated soil. The aims were to find out more about the migrations of the Lausitz people and Mycenaean contact than Heurtley (1939) had traced, and to expand the knowledge of settlement and finds chronology at the crossroad between the Central Balkans and Greece (Hänsel 2002: 11-12). Yet, Hänsel's approach was quite different from that of his predecessors as he employed a large variety of scientific methods directed towards solving particular problems related to mobility and settlement histories. Methodologically, the Kastanas excavation was similar to the settlement archaeological scheme pursued by Hanschmann and Milojčić (1976) at Argissa Magula in Thessaly. The latter was Hänsel's teacher in Heidelberg. The Argissa Magula material had several connections to Central Macedonia, for example cord decorated pottery found in Chalcidice (Hanschmann and Milojčić 1976: 218).

Some of the problems the German team set out to explore may perhaps fall into the category "culture history", but the methodological approach was very much up to date with the current Anglo-Saxon processual archaeology. Hänsel's main aims were to establish an improved chronology, and to explore the site with the available scientific methods (Hänsel 1989: 31). This enabled him to give a careful assessment of the possibility of migrations (Hänsel 2002).

Of the large Bronze Age excavations in Northern Greece, Kastanas is the only one to be extensively published. As opposed to the previous excavations, a larger part of the settlement surface was uncovered. Hänsel did not uncover large terrace structures like at Toumba Thessaloniki (below). It should however also be noted that Kastanas is not as large as Toumba Thessaloniki, and the tell settlement could have been raised without massive terraces. Rey (1919: 37) did not detect any such structures in his test pits at Kastanas either. It is possible that Kastanas was an outlier satellite settlement in a larger system centered around Axiochori (see Hänsel 2002B: 89).

Assiros: In the period 1975-1981 Wardle (1980: 229) excavated the site of Assiros in the Langadas Basin, less than 40 km from Kastanas. Wardle (1980: 231) sought to investigate the same problems as Hänsel, although in a different area. He arrived at the conclusion that within the spheres of architecture and pottery, the site of Assiros exhibits continuity rather than dramatic change at the dawn of the Early Iron Age. The tell was inhabited in the Late Bronze Age and Iron Age. This site was larger than any previously excavated except Axiochori and turned out to mainly be used for storage in the Bronze Age. Like Hänsel, Wardle used refined excavation methods, scientific approaches and discovered a large complex on built upon terraces. The Assiros excavations commenced in three brief seasons of 1986-1988. The team discovered that a large proportion of the space at the tell (75%) was dedicated to storage in the Bronze Age, along with apsidal Iron Age houses and an Iron Age intramural pithos burial (Wardle 1987: 315-317; Wardle 1988: 387; Wardle 1989: 449). Wardle demonstrated a likeness in the incised pottery of Assiros and Southern Bulgaria (1980: 248), but could also identify Mycenaean imports (Wardle 2009). Assiros has often been thought to have functioned as storage for emergent elites who sought to collect a staple surplus (Wardle 1983: 40).

Wardle's (1989: 463; Wardle et al. 1980: 263) stance on an Early Iron Age migration in Central Macedonia eventually became the most widely accepted. Wardle contends that the invasions may well have struck in the Axios Valley, but did not affect areas far beyond. Wardle (1983: 40) notes that the horizon of destruction at Axiochori was not contemporary with that of Assiros. In light of the material excavated at Hagios Mamas, Hänsel (2002; 2003; 2011) could later demonstrate that the migrations he detected at Kastanas were not recognized in Chalcidice either. The abrupt changes at Kastanas, and presumably the other tells of the Lower Axios Area, could have been connected to a takeover by elites rather than a full replacement of the population. This interpretation accommodates for a continuation in handmade pottery as parts of the old population would have remained (Hänsel 2002).

The Assiros team has not yet published a series of volumes, but a significant amount of data has been published in articles. These have a social focus. The publication of a small "hoard" of miniature pots and whorls has been interpreted as a child's cache of toys (K. Wardle and D. Wardle 2007). Interestingly, miniatures have been found at Kastanas too (see Hochstetter 1984: 179). Mycenaean pottery from Assiros was sampled and neutron activation analysis (NAA) was pursued early on (Jones 1986). Wardle (2009) could show that by the Late Helladic IIIC period most of the wheel made pottery was locally or regionally produced (as opposed to earlier periods). Using ^{14}C dates and dendrochronology, Wardle (et al. 2003) dated a Proto-Geometric amphora at Assiros to ca.1070 cal. BC, a pottery type usually not dated earlier than 1025 BC. These results are at odds with the chronology proposed by Jung, Weninger and Andreou (2009), who with a background in the synthetic study of the pottery of Kastanas and Toumba Thessaloniki, disapprove of moving back the chronology of the Proto-Geometric pottery.

Torone: Chalcidice is a region with a distinct history from that of the Langadas and the Vardar Valley. This was already acknowledged by Heurtley (1939), drawing upon the material from early excavations at Hagios Mamas near Olynthos, Kritsana and Molyvopyrgo. Torone was a well-known city state in the Classical period and was inhabited throughout the Bronze Age (see Cambitoglou and Papadopoulos 2001). The Bronze- and Iron Age settlements were excavated by Papadopoulos and Cambitoglou over the course of several field seasons.

The site lies on a promontory at Chalcidice, surrounded by forests and mountains. The landscape secludes the site from the outside, so the site would have been easier accessed from the sea. Torone has produced the earliest evidence of contact with Mycenaean Greece (Papadopoulos 2001: 280) as Late Helladic I-II pottery was found in Torone. In the Middle Bronze Age, the potter's wheel and controlled reduction firing was introduced in Torone which also had imports of Middle Helladic Minyan pottery. The new firing techniques differed from the older Early Bronze Age methods when the potters used firing pits (Andreou et al. 1996: 583; Cambitoglou and Papadopoulos 1991: 167; Cambitoglou and Papadopoulos 1990: 142). In context with the Late Helladic I and II sherds local Minyan pottery was discovered (for a discussion of the local Minyan pottery, see ch. 9). These technologies reached other Central Macedonian sites much later (Papadopoulos 2001: 279). From the Early Bronze Age period Torone had an expansive contact network, testified through, for example the sherd of a Trojan anthropomorphic lid (Andreou et al.1996: 585; Cambitoglou and Papadopoulos 1994: 147). Compared to the other sites of Central Macedonia, Torone shows a strong southern connection at an early stage. In contrast to Kastanas, Torone also has a long history of continuity. In the Early Iron Age, a burial ground was established just outside the site with pottery kilns nearby (Papadopoulos 1989: 11; Cambitoglou and Papadopoulos 1988: 214). Carrington-Smith (1991) could identify a similar pattern at the nearby site of Koukos, and most interestingly uncovered Late Helladic IIIC pottery in the Iron Age graves.

S. Morris (2009: 265) suggested that early contact with a Southern Greece dominated by elites buried in the

conspicuous Shaft Graves, as displayed by the finds from Torone, could indicate the presence of Mycenaean entrepreneurs looking for resources, possibly establishing an emporia. This interpretation is close to what was suggested by the excavators of Axiochori (see Davis et al. 1926: 199)

Hagios Mamas: From 1994-1996 Hänsel excavated at Hagios Mamas, near the classical polis of Olynthos. The site is much larger than that of Kastanas and is located at Chalcidice by the bay of Kassandras. Hagios Mamas is thus closer to Torone than Kastanas. Unlike at Kastanas, both the architecture and the pottery exhibit a great degree of continuity. Layers dating to the Middle Bronze Age were unearthed at Hagios Mamas, a period of which little is known in the hinterland of the Lower Axios. This period is defined by the use of Minyan pottery elsewhere and seems like a very gradual transition between the Early and Late Bronze Age. At Hagios Mamas, regular streets lined with rows of houses constructed with wooden beams and mud bricks appeared (Hänsel and Aslanis 2010: 276). In the Middle Bronze Age layers (see ch.4), evidence of purple dye was discovered which could indicate an early and advanced textile industry (Hänsel and Aslanis 2010; Becker and Kroll 2008: 157).

The Late Bronze Age local production of Minyan pottery as well as matt-painted and encrusted wares seem to have replaced the fine grey wares by the early 16th century. Amongst the interesting long distance imports from the North, a Vatin jug could also be mentioned (Horejs 2007: 287). Horejs (2007: 341-343) contends that it is not necessary to reconstruct a large scale migration to explain trans-Balkan similarities in the pottery assemblage. Similar to Horejs' "communication room", a South Balkan koiné has been proposed by Koukouli-Chrysanthaki (1992: 820) in her study of Thasian materials.

The concept of a "communication room" and Macedonia's role in larger networks is further theorized by Horejs (2007), who addresses the numerous links to neighboring regions analytically. The pottery (which includes Middle Bronze Age Minyan imports, Late Bronze Age local Minyan, Mycenaean, matt-painted and encrusted decoration) has been shown to have connections to the Balkans and the Aegean both when it comes to shapes, motifs and decoration techniques. Horejs (2007B: 301) regards Macedonia as a buffer which blocks these styles and decoration methods from reaching further. This observation was also made by Harding (2003) who noted that the Rhodopians "filtered" Mycenaean pottery, although metal shapes (e.g. rapiers) reached as far as Central Europe if not beyond (see Kristiansen and Larsson 2005). In regards to the metal artifacts, few have been found, perhaps a result of the conspicuous lack of grave finds in Central Macedonia. Horejs (2011: 204) contends that the few objects, for example swords, could have travelled through local networks. This model lies close the Renfrew's (1986) peer polity interaction.

Toumba Thessaloniki: The large site of Toumba Thessaloniki was excavated by the University of Thessaloniki from 1984 to 2009, and is the last of the "big digs" in Central Macedonia. The site exhibits a line of continuity rather than a series of violent destructions (Kotsakis and Andreou 1987: 226; Jung, Weninger and Andreou 2009: 183). Middle Bronze Age layers have been uncovered at Toumba Thessaloniki, but the site is known particularly for its Late Bronze Age. At the site of Toumba Thessaloniki, casemate walls were constructed. The settlement became more organized throughout the Late Bronze Age with large mud brick complexes divided by regular streets. A 225m^2 large building with storage facilities at Toumba Thessaloniki has yielded many interesting finds. In one of the rooms of the building a horse bit made of bone resembling Central European types was discovered. In another, a "hoard" that included a double axe was found (for an overview of these finds, see Mavroeidi et al. 2006). The large complexes have been interpreted as the communal houses of powerful lineages. Production at the site included purple dye and textiles (Veropoulidou et al. 2008). The archaeological evidence shows a rich well connected (both locally and inter-regionally) society (Andreou et al. 1996: 582).

Although there was an increase of Mycenaean imports in the Late Bronze Age, it never exceeded 5.5% of the assemblage at Toumba Thessaloniki (Andreou et al 1996: 582; Andreou 2001: 163 and 166-170). The work of Kiriatzi (1997) on technology shows that the wheel-made and handmade pots were so different in terms of clay composition, technology and decoration that they likely were made by different potters, which at some point came from Southern Greece and transferred their skills.

Toumba Thessaloniki is the only Late Bronze Age site in Northern Greece which has yielded burials. These were intramural and relatively inconspicuous in comparison to the northernmost Mycenaean graves of the Olympos region which could mark the Mycenaean border (see Mulliez 2010; Feuer and Schneider 2003: 236). The Toumba Thessaloniki graves did however contain both matt-painted and wheel made amphoriskoi pottery like the warrior graves of Aiani to the south (Karamitrou-Mentessidi 2008: 72) and Klučka Hipodrom to the north (handmade imitations were found at Klučka; Videski 2007: 212).

The approach chosen by the Greek team could be described as that of a social archaeology. An example could be Andreou and Psaraki (2007) who focused on the social dynamics of pottery. Feasting with fine handmade pottery and later at a broader scale with Mycenaen pottery presented a key feature of the Central Macedonian society. The Mycenaean pottery was traded at a wider scale and enabled new groups to feast (Kotsakis and Andreou 1999; see Andreou and Psaraki 2007: 417). According to Andreou and Psaraki (2007) the networks through which the Mycenaean pottery flowed was separate from that of the old matt-painted pottery.

Landscape surveys: In addition to the large excavations in Central Macedonia, a series of landscape surveys should be mentioned. French (1967) set out to re-discover the sites found during the First World War, but he also collected sherds from each period from most of the mounds he visited, measured the sites and took their coordinates. He never published his results in an accessible manner, but his catalogue (French 1967) has been of great use for later archaeologists, and remains a key work in Northern Greek archaeology. In later writings French (1973) dispels Early Bronze Age migrations of the 'Minyans' and 'Luwians' from Anatolia, and rather posits autochthonous developments on the basis of his survey material.

Besios, Grammenos and Kotsos (1997) discovered several new sites in Central Macedonia in an extensive survey, which is still the largest compilation of sites from the Neolithic to historical periods. The Langadas Survey served to map the landscape developments in one valley in greater detail than the extensive surveys of Greek Macedonia (Kotsakis 1989; Kotsakis 1990). The Langadas Survey had a social focus and its results pointed towards cultural continuity rather than breaks. Throughout the Late Bronze Age and the Early Iron Age there was a continuous increase of tells and later of table settlements. By the end of the Late Bronze Age, summits with a great view across the valley were inhabited. Marginal areas were increasingly utilized while areas with diverse soil conditions were preferred in the Iron Age, testifying to diversified production (Andreou et al. 1996: 578). Andreou (2002) sees the continuity in light of a resilience to change by small scale household centered tell societies with a distributed production pattern. A structuring of the landscape related to processes at the tells, a formation of settlement clusters and the rise of micro-political entities of "toparchies" consisting of a few tells each has been convincingly argued (Kotsakis and Andreou 1987; Andreou and Kotsakis 1986; Kotsakis 2007; Andreou 2002). The decline of one would not impact upon the others. Andreou (2002) proposed that the decline of Kastanas could be seen in light of failed subsistence strategies compared to Toumba Thessaloniki's success (evident in its continuity).

Materials from the different sites are most often compared, similar methodologies are pursued and topics like "foreign" contacts, migrations and dating are debated within what today could be presented as a field with roots more than 100 years old. From the summary above, it is evident that not only the archaeological practice but also the material is unique in its combination of Balkan and Aegean influences. The diversity of the material and the variety within rather small regions like Central Macedonia makes it difficult to analyze patterns and to create a synthetic narrative; the last attempt was made by Heurtley (1939). Later publications have taken one site (e.g. Kastanas or Assiros) or material (e.g. pottery or animal bones) as a vantage point for discussing Central Macedonia, or completely avoided broader synthetic interpretations despite presenting materials from entire regions (see Andreou et al. 2001: 260).

2.2.0 Summary

The pre-historic archaeology of Northern Greece is for this reason a field in itself. The nature of external contacts and migrations remain important topics in academic discourses (Heurtley 1939; Hänsel 1989). The migrations of Lausitz invaders and Minyans were written in ages of migration (both in ancient times and the first half of the 20th century; see Kotsakis 2007: 15) in a region which seems inherently multi-ethnic, pursued with a framework of culture historic archaeology. Yet, the Late Bronze Age material of Macedonia is not only understandable in terms of local processes. The uncommon mix of Mycenaean, matt-painted and encrusted pottery, metal and prestige objects from the Aegean and the Balkans, and the tell settlements (Central European) with mud brick architecture (Aegean) suggests both intense multi-directional contact and unique local processes. A synthetic approach is adopted (ch.3) to grasp the regional complexity.

Macedonia has been the subject of political struggles. The Macedonian provinces of today did not become part of Greece until 1912 when they were seized from the Ottomans (Davis 2000). Yet both before and after, 'Macedonia' has been contested (see Danforth 1993; Brown 1998; Zahariadis 1994). The contemporary politics, the ethnography (Oglivie 1921; Efstratiou et al. 2006) and later history of Macedonia (Mazower 2004) are interesting subjects, but remain difficult to include in this dissertation as the topic is too large to be covered adequately. Moreover, the Hellenistic empires and Alexander the Great are the main political battle grounds today as well as in the recent past due to, amongst other things, their role in the construction of national coherent identities and imagined communities (see Kotsakis 2003; Anderson 2006). The groups of today are difficult if not impossible to trace in the Bronze Age. Even so, there is much political weighting in, for example place names. The use the names found on modern maps are used for the sake of convenience rather than for ideological causes, just as well established English names like Kanesh and Hattusha are preferred where possible.

Part II - Concepts: Theory & Methods

3.0.0 Theory and Methods: Mobility, Political Economy and Identity

The aim of this chapter is instrumentalist: to provide a compact set of analytical tools which can aid in the interpretation of a varied material which sheds light upon the impact of increased mobility. I address theory and methods appropriate for the different types of material uncovered in the vicinity of the Lower Axios consecutively in the relevant chapters – "mobility attesting objects" (ch.5), landscapes (ch.6), settlement contexts (ch.7) and decorated pottery in the Lower Axios Area (ch.8-12), which I compare to the neighboring areas of the Bay of Thessaloniki and the Langadas Basin (but also other areas from where reasonable comparanda can be derived). In regards to the time scope, a certain flexibility was maintained since comparison with earlier and later periods served to contextualize the period 1700-1100 BC. Three key points form a rough framework; mobility, political economy and identity, discussed in this chapter.

Mobility refers to the movement of people, plants, animals and objects across long or short distances and unlike in the case of migrations (a type of mobility), mobility in a general sense is not final (see Metzner–Nebelsick 2010). In sociology, where social mobility is a topic, it refers to the movement of people between social positions within a group (Lipset and Bendix 1991: 1-2; see Forging Identities 2009: 4). Before resources can be expended, they need to be mobilized – set in motion for a purpose, for example alliance building, infrastructure projects and/or trade (see Hirth 1996: 4; Earle 1991: 3). In the Bronze Age, there are symbolic, political and material convergences across large stretches of land in Europe (see Kristiansen 1999). The flows of metals spurred the formation of new identities as people interacted at an unprecedented scale (e.g. Kristiansen 1998: 287). The topic of this monograph is how this impacted on areas in-between, in this particular case the Lower Axios Area and Central Macedonia. At a macro-level a Bronze Age World emerged in a dynamic relation to political economies in regions and sub-regions (which are referred to below as areas; see ch.6.); these economies enabled the mobilization of tradable goods and the formation of the more or less stable alliances needed for traders to pass to and/or through areas, thus also politicizing trade and exploitation. Mobility can therefore be regarded as being intertwined with identities and the political economies of Bronze Age *polities* (autonomous socio-political units; Renfrew 1986B: 2), in the sense that these polities were bigger than before and needed to connect to networks of metal trade to exist (ch.5; see also Renfrew 1969: 159-160). The mobilization of people to go off and trade or extract tradable resources (commodities) therefore generated cultural encounters and altered how people lived. Hodder (2012: loc.386) points out that "things connect humans and things", and this holds particularly true for objects of bronze, the existence of which rested on distributed materials, knowledge and skills.

The mobility of ideas, knowledge and technology, techniques, goods, plants and people depended on the social, economic and political contexts which served as 'logistical' preconditions in the same way as the technologies of mobility which in the Bronze Age consisted of ships, donkey caravans, horses and chariots. The two former belonged to the trader, the two latter to the warrior. In the next chapter (ch.4.) the emergence of a Bronze Age World as an outcome of increased mobility is discussed. The impact of this must however be captured in local environments in regions like Central Macedonia where complex networks could have converged. The starting point should therefore be the different types of movement.

3.1.0 Mobility and Political Economy

Mobility has been approached in a number of ways in anthropology and archaeology. In this section I address some models which can provide a background for understanding the movement of objects. These movements became of importance in the formation of identities and the development of local economies (see Kristiansen 1998). With reference to the Mycenaean case, I identify some factors which serve to untangle mobility and impact from the diverse material in Central Macedonia.

For the phenomenologist Ingold (2000: 194) movement in the landscape is essential as the identity of the landscape and its users alike is created through engagement. These micro-movements could serve to open up long distance networks as they would provide the means needed to join the Bronze Age World. At a larger scale Kristiansen and Larsson (2005) addressed the formation of what could be described as the "globalized" identities of chieftains across Europe who shared values and symbols, interacting with peers afar through, for example, metal trade. To participate in the Bronze Age World, a certain quantity of goods would have had to be collected locally or regionally to acquire tin and/or copper traded in larger networks. Moreover, for the technology to be sustained and developed, access to raw materials must have been regular for crafters to practice metallurgy frequently enough to maintain techniques (bodily/skills) and "update" technological knowledge. Regularity and frequency are preconditions for the tremendous increase of complexity at all levels discussed in chapter 4.

As a journey could change a person, for example a chieftain returning with cosmological knowledge of the world which in turn secures his power (see Helms: 1988: 264), an artifact can be valued for particular journeys (Kopytoff 2000). Distance is social and surrounding communities could be classified roughly as "similar", "like us", and "different" (Helms 1988: 28). Travels are therefore not purely economic, but also alter the traveler (see Clifford 1997). This did not lead to an all-out "Coca-colonization" of culture in its most general sense but the formation of a diverse world within which dwellers residing hundreds of kilometers apart could share taste, ideas and skills or elements in their lifestyle. An example could be

the Iron Age emergence of table settlements, which have a similar appearance to the embanked enclosures of the Bronze Age Terra Mare culture in the Po delta (Mercuri et al. 2006: fig.1). Peschiera daggers and fibula are other co-present objects supporting a link to this area, already theorized by Casson (1968: 135-136). It should however be noted that behind the co-presence of technology, techniques, objects, plants and animals in regions often far apart lies the traveler (see ch. 5.). This forces us to turn our attention to the nature of the journey – who travelled and with what aim(s)?

While I discuss the Bronze Age traveler in some detail in chapter 4, it should suffice to say that he or she was complex. Hänsel (2002: 97) writes of warriors, traders and rulers travelling between the centers of the Bronze Age Balkans and in Central Europe tying together regions. These are good examples of travelers that could have roamed the Bronze Age World (ch.4). Kristiansen and Larsson (2005: 12-13) propose a framework for the study of mobility which emphasizes journeys (of for example warriors), transmissions (cosmological knowledge) and transformations (social organization). Transmissions were selective and did not lead to a homogenized world, even if the same elements could be traced across Europe either in the same or different media (including both moveable objects and immobile monuments). Kristiansen and Larsson (2005) operate with "originals", "imports" and "imitations". This archaeology is coined "inter-contextual" and captures local adaptations, acculturation, the re-contextualization, and local responses to diffusion (Kristiansen and Larsson 2005: 27). The framework is summarized in the following manner (Kristiansen and Larsson 2005: fig.7):

1) Description: Diffusion -> Acculturation –> Contextualization

2) Interpretation: Message -> Materialization -> Meaning

3) Explanation: Transmission -> Transformation -> Institutionalization

(After Kristiansen and Larsson 2005: fig.7)

This model frames how a similar message can be told in different manners, gaining meanings in their context, and how transmissions of meaning transform the local and leads to institutionalization of influxes from the outside. This lies behind the formation of chiefdoms in Scandinavia with integrated Aegean elements (Kristiansen and Larsson 2005). Types of movement materialize in different manners and include prestige goods and fine items of high social value exchanged between rulers or given to vassals. This could create reciprocal bonds in which a gift would be expected in return (for an example of reciprocity, see Malinowski 2013: loc.2339). Alliances created with prestige goods were sometimes sealed with marriage. Parallel to inter-marital links between royal families, gift exchange networks existed between royal elites in the "international period" of the Eastern Mediterranean (see Veldhuis 2012: 83; see ch.4). Rich female graves with "exotic" personal objects could have belonged to "Fremde Frauen" (see Jockenhövel 1991). Overlapping with prestige goods, personal objects – sometimes inalienably tied to an individual (see Weiner 1992) – can be identified. These typically include fibula worn as part of an attire, but also swords bound to the carrier through years of practice and fighting, emerging as one with the hand of the wielder (see Molloy 2008: 131). Trade goods include objects with which value is tied to their practical aspects rather than their social value. The oxhide ingot is one such object. While the shape would tell buyers what it was, the material (copper metal) rather than the design was coveted (Kristiansen and Larsson 2005: 35-37).

The strength of the inter-contextual framework is that it includes several types of material (for an example, see fig. 2) and thus movements of objects and ideas: personal mobility, gift exchange between elites and trade. These were most likely parallel in the Eastern Mediterranean: heads of state traded commodities and exchanged gifts, merchants carried bulk cargoes, possibly alongside small caches of objects in the possession of each crewman which could be traded in harbors ("trampling") (see Knapp 1993: 339).

Figure 2 The Bulgarian Razlog stele(after Ganeva 2005: fig.1) and Tragana ship, painted on pyxis (after Mountjoy 2012: fig.3) along with the ships of the Seapeople as depicted on the Medinet Habu Frieze (upper right; see Hankey 1974:57). These were not ***identical*** *but represent variations of the same topic – ships with zoomorphic sterns – expressed in different media (stone and pottery), in different places.*

Kristiansen and Larsson's (2005) approach draws on and extends key aspects of Hodder's (1982) contextual archaeology, as they address several contexts at a European scale. Objects can acquire context-dependent meanings, and in a similar vein as Geertz (1973: 6-7), Hodder could observe that slight differences in, for example pottery shapes and small divergences in motifs could carry meaning and be part of strategies to signal group affiliation at different levels from territorial units to age and gender groups. A filled triangle can denote a woman, an open triangle can (in a particular context) signify a mountain (Hodder 1982: 171). Between tribal groups, select material symbols can be mobilized to signify differences. Dress served to demarcate the Njemps and the Pokots who were in a competitive relation (Hodder 1982: 29). An important point is that objects and style can selectively be mobilized to stress identity. Their *meaning* is rooted in the particular discourse in which they are employed (Tilley 1999: 76; see Kristiansen and Larsson 2005: 14). Thus, in the Bronze Age, the role of an object could change along its journey (see Kopytoff 2000: 384), as exemplified with the Hattusha sword, a Mycenaean sword found in Hattusha which was re-inscribed with a victory dedication (Cline 1995: 271):

> "As Tudhaliya the Great King shattered the Aššuwa-Country, he dedicated these swords to the Storm-God, his Lord"
>
> (Cline 1995: 271)

The sword was most likely a trophy from the Hittite-Aššuwa war, in which the Mycenaeans may have been involved (Cline 1996; Hansen 1994: 215). The skill to wield it would have been dependent on tacit techniques, embodied through hours of practice, most likely taught by a warrior who had already mastered the weapon type (Kristiansen 2002; Molloy 2008). The sword was a tool of war and belonged to a fierce Mycenaean warrior in the service of the Aššuwa federation fighting the Hittite, whose king later employed the sword as a symbol of his victories. Thus, the same sword became part of two different identities, "Mycenaean Warrior" and "Conquering Hittite king".

While this sword changed meaning along its journey from one context to another, it was wielded by a member of an "international warrior class" (see Kristiansen and Larsson 2005), including for example Mycenaean and Balkan fighters who shared techniques to wield a particular sword type, either made in Mycenaean Greece, imitated or imported to FYRO Macedonia, Bulgaria and Romania (ch.4). From an inter-contextual perspective, the sword had both a local role and a role in a long distance network, tied together by journeys. Its production rested on the movement of raw metal and production knowledge of a particular shape. In the Bronze Age the raw materials the sword was made of could have moved through gift exchange but were most likely traded judging by the volume, the nature of (most likely) regular metal trade (ch.4), and not least the bulk cargos found with Bronze Age wrecks (see ch.4.1.5).

Sword trajectory
1) Copper/tin – Bronze Age economy
2) Smiting/knowledge, shape: Mycenaean (type B; Hansen 1994: 213)
3) Skill – Mycenaean sword fighting, appropriated at home and in battle
4) Wielded by warrior abroad - retrieved in the lands of Aššuwa by Hittites - Grey arrow
5) Re-inscribed by Hittite victor in Hattusha -Black arrow

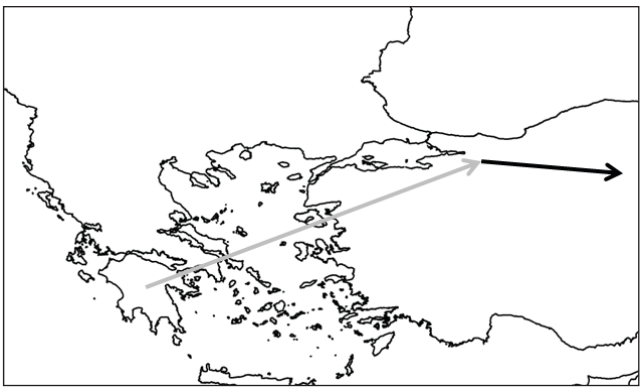


Figure 3 A sword's journey – from being forged by the Ahhiyawa and transported to Aššuwa by a warrior trained by masters at home, it became a trophy displayed in the Hittite capital (VMAP5).

Trade has been defined as the material-economic aspect of exchange by Oka and Kusimba (2008: 340). Trade is not isolated from a social context, and decision making in pre-historic trade would have included other considerations than pure profit (see Oka and Kusimba 2008: 368). The socially embedded nature of the economy has been stressed by earlier researchers (Polanyi 1944; Finley 1973). Finley (1973) proposed a "primitivist" stance, which downplayed profit. In regards to the Bronze Age, Larsen (1987) could show that these approaches were faulted in light of Bronze Age text material from Kanesh which attested the presence of an Old Assyrian diaspora trading community in possession of a network which connected Anatolia and Afghanistan with silver as a "currency". From this trade, profit was reaped (Larsen 1976: 367; ch.4). A long distance large scale trade would have has a significant impact on the regions it tied together.

The importance of long distance contact is illustrated by the Mycenaean case. Parkinson and Galaty (2007: 124) suggest that the Mycenaean states emerged from a tribal Middle Bronze Age which through contact with the Minoan, and in extension even farther with Eastern Mediterranean states, gained access to prestige goods. The emergent Mycenaean palaces imported raw materials and exported finished products as well as locally produced bulk commodities (objects whose key characteristic is tradability) (Shelton 2010: 145). For a time the Mycenaeans were counted amongst the key players of the Eastern Mediterranean (ch.4). Their realms were administered with the help of a bureaucracy of scribes and notables (see Bennet 2001: 26-27), although it seems that villages and temples enjoyed more freedom than what has earlier been believed (Nakassis et al. 2010: 244-246). Traders shipped commodities across a Mediterranean dotted with sites where Mycenaean imports have been found, especially pottery which may have been attractive to "sub-elite" groups (Manning and Hulin 2005: 290). In the Levant there was a rise in the use of Mycenaean deep bowls in the transition to the LH IIIC period (see Yasur-Landau 2010).

Wijngaarden (2002) identified 348 Mediterranean sites with Mycenaean pottery, attesting the extent of Late Helladic networks. Inter-Mediterranean in their character, these networks included regions far apart like Cyprus and Sardinia. The Mycenaean connections implied by the pottery finds were parallel to the metal trade, and could have brought Mycenaeans into contact with people from places even farther afield. Ling's (2012; Ling et al. 2013) recent results from metal isotope analyses of Swedish bronzes shows that a proportion of the Swedish copper came from Cyprus, although Spain and the Central Massif were the main suppliers (while Sweden's own ores were not exploited). As some Mycenaean sherds have

been found in Spain (Wijngaarden 2008: 132), Mycenaean and northern traders would have met at several places. While Miletus became a Mycenaean stronghold in Asia Minor, not all of these finds represent similar strongholds or colonies (see Yasur-Landau 2010: 48). In the North Aegean there was a local production of Mycenaean pottery, but not in the same manner as at Miletus where several kilns operated within a fortified settlement (see Pilali-Papasteriou 2003: 3-4). Along a similar vein as Kristiansen and Larsson (2005), Wijngaarden (2002: 126) suggests that trade is recognized through the appearance of "imported original" pots, migrations through a substantial production of imitations and, infrequent contact through "distant derivations".

A key aspect when studying Bronze Age mobility is to recognize the diverse travelers which brought with them different impulses, and were received in different manners in regions of extremely different character. In the Aegean it is hard to imagine a pure gift economy like the Kula trade (Malinowski 2013) despite gifts being regularly exchanged between the great rulers. Feasting may have served to mobilize local resources for trade in the Bronze Age World. Within the diverse Mycenaean economy palaces acquired textiles from their own workshops and through taxation. Support of dependent female textile workers and payment in grain to male weavers could be acquired through feasts in which prestige goods (e.g. fine textiles) were distributed in exchange for staples (Nakassis et. al. 2011: 181-182; Halstead 2011).

In Mycenaean Greece, the palatial centers of the Late Helladic III period could have formed nuclei in landscapes dotted with hamlets, connected with roads (Hope Simpson and Hagel 2006). In Corinth these overlooked the fertile lands from the hills with access to roughly the same sized territories which indicate a heterarchy rather than a hierarchy (Tartaron 2010: 169). This conforms to the "small world" concept which captures clusters of smaller sites enmeshed in tight networks of intermarriage, exchange and trade. Such areas were scattered between the Mycenaean palatial centers and to various extents were integrated (Tartaron 2010: 178-179). This model has similarities with Kristiansen's (2010) "decentralized complexities", in which a scattered resource base was exploited from a number of sites with populations bound together by reciprocal bonds ("Germanic mode of production", Gilman 1995: 241-243). Chieftains could distribute gifts and in return mobilize labor for mound-building and resources for trade. Lupack (2011: 215) suggests that the damos, community leaders of corporate groups, and the temples operated land and resources with extensive autonomy while ultimately connected to the palace. These smaller worlds were integrated in the Bronze Age World as elites began to increasingly appropriate foreign luxuries. Some prestige goods were used to build identities, some were used to build both local (with peers and clients) and inter-regional alliances (foreign kings). As Knapp (1993: 342) proposed, this may have spurred independent traders. The outcome was a trans-Mediterranean distribution of Mycenaean pottery (see Wijngaarden 2002).

While I return to the Mycenaeans below (ch.4), it should already be mentioned that these examples show multi-layered economies and stress the importance of long distance trade in the formation of local identities and economies. In the Late Bronze Age it seems that the local identities and economies could not exist without regular contact with the greater Bronze Age World as Bronze Age societies required tin and copper (ch.4.). At the same time there is a need to identify the political economies which enabled the vast networks which emerged in the Bronze Age. Pullen (2011: loc.147) citing Feinman (2004:2), defines a political economy as the components of an economic system (production, distribution and consumption) which goes beyond domestic units and supports the concept of hierarchical institutions and relations. Below (ch.4.0.0) I invoke what I refer to as the Bronze Age World, and following Kristiansen and Larsson (2005) I stress the importance of identifying individual Bronze Age travelers which transferred ideas, objects, techniques and technology (see ch.4.1.4-4.1.5 and ch.5.):

1) Warriors

2) Crafters

3) Traders

Through sporadic encounters, the establishment of emporia, and/or regular and frequent journeys, these groups of travelers were behind the co-presence (Knapp and Van Dommelen 2010) of objects, foods, staple goods, ideas, techniques and technology in different regions in the Bronze Age, carrying the Bronze Age World on their shoulders.

3.2.0 Identities

As previously mentioned, Hodder (1982) showed how different objects and decorations were mobilized to distinguish tribes and subdivisions within tribes (age, gender etc.). 'Identity' is an immense field, but recent discussions have provided applicable concepts. People can operate with several identities (ethnicity, age, gender, class), which are tied to individuals and collectives (Meskell 2002: 280). In studies of ethnic identities (below), it was previously often stressed that this was attached to territories and was unchangeable in character. Opposed to this essentialist position, it has been claimed that identity is often a situational construct (Jones 1997: 143). While this in many respects may be true, it should be noted that ethnicity (and other identities) is also ascribed by others (Eriksen 1990: 23). Previously 'identity' often referred to a shared sameness, but now more often it also includes a difference to others (Meskell 2002: 280). 'Identity' is a non-static negotiation processes rather than a singular unchangeable core which is inextricably tied to history, people and place (see Rowlands 1994). In archaeology, it must be clearly stated that identities today may have differed drastically from those of the past (see Insoll 2007), and the 'stickers' with modern names should be regarded as practicalities when describing the peoples of the past.

Recent approaches have brought objects into the identity equation (Gell 1998; Olsen 2003; Hodder 2012; see Geismar and Horst 2004; Gell 1986), drawing on perspectives from continental philosophy (see e.g. Harman 2002) and post-humanism. Thinkers like Bourdieu (1995), Haraway (1990)

and Mauss (1973) have waged key impact on archaeological theory. Haraway's (1990: 223) cyborg analogy shows how identities are composite fields which include relations to people, objects and spaces (e.g. household, hospital etc.; see also Williams 2010). Also Bourdieu (1995: 35) includes both material and social entities when he looked at the configuration of class (an identity) in France. Members of particular groups interact largely with different objects in different manners in different places. How people perform tasks (with their bodies and objects) is to a large extent dependent on learning within a cultural framework. In the anthropological literature this point was driven by Mauss (1973);

"..the technique of *digging*. The English troops I was with did not know how to use French spades, which forced us to change eight thousand spades per division when we relieved the French division and vice versa" (Mauss 1973: 71).

The role of things as enablers and obstacles is fundamental in the materiality approach of archaeology (see Olsen 2003; Hodder 2011; Cornell and Fahlander 2007). Construction, production (of for example Myceaean pottery) and use/consumption are all activities that are undertaken in concert framed in social contexts (see Schiffer and Skibo 2008; Lemonnier 1986: 179), and could thus have aspects which denote group identities (see Russel 2006; Sofaer 2007) which sometimes crosscut each other (e.g. ethnicity and class) (Meskell 2007). If we return to Mauss' example of the spades (above), the context of learning was the French or British army where recruits would imitate bodily movements of more seasoned soldiers, either gaining a new digging skill or adapting an old to that of their respective armies and their issued spades.

What kind of identities may we expect to find in the Bronze Age? From a methodological and historical perspective ethnicity is interesting. In Anatolia the Hittite lived surrounded by more or less dominated peoples. These mixed and even intermarried with the royal family (for example with Luwians; Bryce 1999: 18). Earlier at Kanesh, members of diaspora Assyrian trading communities lived with locals and had Anatolian wives (Veenhof 1977: 113; see Joukowsky 1996: 196). According to Curtin (1984: 3) trade diasporas (alien merchants living abroad) occur throughout history, generating multi-ethnicity as different groups lived together at the same settlements to trade (see Burns 2010: 1-3). The Mycenaean palace was a multi-cultural multi-ethnic space in the sense that people from different corners of the world were connected to it (e.g. Anatolian women), and their group identity along with their occupation was indicated by scribes (see Nosch 2011). "Foreigners" included people from Egypt, the Ionian Islands, Anatolia, Phoenicia and Cyprus (Yasur-Landau 2010: 40). Scribes may have identified people differently than they identified themselves. This was the case in Babylonia, which was home to at least 11 different peoples ruled by the Babylonians and later the Kassites. Here scribes could give people with names clearly belonging to one group a designation which placed him or her in another (Brinkman 2004: 284-285).

The peoples of the Bronze Age had their own languages, but material culture could cross-cut geographic borders. As mentioned above, Mycenaean pottery has been found at 348 sites in the Mediterranean (Wijngaarden 2002). It is evident that the Ahhiyawa were regarded as separate groups by others, but to what extent did they share a notion of sameness on the inside, and thus conform to definitions of ethnicity (see Fernández-Götz 2013)? Most likely, if ethnicity existed in past communities it had a different form than it has today, but the manner in which it has recently been approached can serve as a vantage point to study general macro-group identities. To operationalize ethnicity Fernández-Götz (2013: 121) suggests a broad approach which includes analyses of settlement environments, burials, ornaments and style, or a conspicuous absence of these. Together with religion, language, rituals, behavior and customs, material culture can express ethnicity (see Knapp: forthcoming; Andreu Diaz 1998: 205-206). A study of ethnicity along this line is thus synthetic.

Ethnic territories may transcend political entities. If the Mycenaean core area, which in the Late Helladic IIIA-B period was characterized by highly similar pottery, belonged to an ethnic group, this would be divided into several polities (Wright 2011: loc.6498). Conversely, the Hittites controlled a vast multi-ethnic empire (see MacSweeney 2009). Emberling (1997: 304) describes ethnicity as an extended genealogic group which is related to, but not synonymous with the polities. The answer to the question at the beginning of the last section is that we may expect complex mesh-works and multi-culturality or even multi-ethnicity within geographic areas (see Jones 1997: 135 and 141). In the Bronze Age Mediterranean the environment that different groups operated in would be one of interconnectivity (see Hall: forthcoming). Diasporas, frequent travels and dependencies may have shaped the group identities of the peoples we know from texts (see ch.4).

The archaeological discourses on identity owe much to anthropology. Identities can be signaled actively (Barth 1969: 18), by necessity through tangible (material) objects. This may express cultural difference. Barth (1969: 19) stresses that despite differentiation, ethnic groups can persist together:

1) By each having a niche of their own (territorial or ritual) and remaining independent.

2) By monopolizing an area and engaging in competition, which entails border politics.

3) Maintaining reciprocal bonds and maintaining a situation in which ethnic groups occupying different niches of their own are interdependent.

4) Two groups occupy the same niche, and according to Barth (1969: 20) it is likely that one will outcompete the other.

In unequal situations some of the alternatives the minority party may choose are to *assimilate* by joining the larger group, *integrate* by accepting some practices from the dominant party, or *segregate* by maintaining ethnic identity or creating new fields in which they can maintain boundaries (see Barth 1969: 33). Barth (1969) stresses that ethnicity is played out at different levels in different societies and can be credited to have taken part in moving "ethnicity" away from modern

nationalist primordialist discourses. Moreover, the example of ethnic groups in the Swat Valley also shows that the same geographic areas could be exploited by different groups, some nomads, others villagers (Barth 1965: 1088). This resembles the image we get from Bronze Age Lower Babylonia where at least 11 different peoples dwelt (see Brinkman 2004). The most practical approach to study identities may be to look at structured differences and internal similarities in a broad assemblage (pottery, metal objects and small finds) in several contexts (following Hodder 1982, above) within a specific area within a region and its communities, which must then be discussed in reference to the Bronze Age World and neighboring areas.

3.3.0 Encounters and Multi-Cultural Environments

The arena within which (local) identities formed was at the highest level of the Bronze Age World, but this consisted of scattered locations which housed several groups, for example Kanesh and Babylon (above; see Hall: forthcoming). Encountering something new, for example in middle grounds (see Falck 2003), generally forces people to act (Stockhammer 2012: 16) such meetings have been discussed extensively in post-colonial theory (Bahba 1994).

The "port of trade" model deals with neutral zones in which traders could operate and from where goods could be distributed (see Polanyi 1963). Ports of trade are also referred to as gateway communities often located in borderlands (Hirth 1978). A border can be regarded as a social process as much as a line (see Van Houtoum and Van Naerssen 2002). Kristiansen (1999: 86-88) notes the existence of border zones which could be up to 60 km wide, signified by the appearance of "foreign" goods, depositions (hoards and single finds) and fortified settlements. Gateway communities and border areas would be middle grounds for people of different origins. Below (ch.4) Western Anatolia is lifted forth as an example. The middle grounds can be multi-ethnic, and are signified by cross-cultural encounters.

Post-colonial theory and globalization studies offer several approaches to how foreign influxes (outcome of encounters) were mediated. Robertson (1994) describes the relationship between the global and local as dynamic and interdependent, using the term "glocalization" to describe a process signified by local appropriation of the global (localization, also discussed in e.g. Friedman 1990; Friedman 1994: 116). Maran (2011) adopted the concept of glocalization to approach Mycenaean grave goods in the Shaft Graves. The initially peripheral Mycenaean elites appropriated what they perceived to be Minoan culture. What started out as a Minoan dominated (cultural) relationship ended with a Mycenaean supremacy in the 15th century. Mycenaean elites not only included religious objects from Crete, but also Central Europe and Anatolia in their burials. People do not passively receive things, but rather appropriate and employ them, often in new and unexpected ways. Possible local responses to global flows can materialize and, according to Vandkilde (2005: 9), include processes of 1) homogenization, 2) hybridization and/or 3) fragmentation:
1) Urnfield burials may signify *homogenization* in terms of burial customs as similar customs were adopted in a large area.

2) *Hybridization* can be defined as "the practice of mixed origins", emphasizing the process of interaction that can result in new situations (Van Dommelen 2005: 118).

3) The genesis of scattered small societies in the advent of the Late Helladic may be an indication of *fragmentation* (see Andreou et.al 1996: 577). The Late Helladic IIIC localism in choice of motifs on generally the same pot shapes (e.g. skyphoi) could be another kind of fragmentation (see Mountjoy 1990).

Hybridization resides in the very core of the Bronze Age, as bronze is an alloy of copper and tin. Kristiansen (1998: 287) argues that bronze in itself requires mobility. Modern objects that consist of materials from several regions, designs from yet other places and which are assembled at various spots are said to have complex geographies (Dicken 2007: 4) – several spatial dimensions are stored within the same object. The Bronze Age saw a rise of such objects.

Hybrid objects are materializations of meetings, interaction and in the case of bronze, trade. Hybrid spaces are likewise built environments which include architectural features from different areas (Kearns 2011), or areas where encounters take place, for example harbors (see Falck 2003; Myhre 2004). Epstein (2009) sees hybridization as a trans-cultural process which transcends boundaries between cultural or ethnic groups. Sabatini (2007: 53) proposed that house urns, which were used in different regions (forming a *koiné*), represent a trans-cultural phenomenon that materialized slightly differently but had a similar idea behind it. Stockhammer (2012) recently pursued a practice-centered approach to hybridization, and shows how objects associated with one particular culture could be employed in new ways abroad. Kylikes, which together with deep bowls were used for wine drinking in Greece, could be used as an incense burner in the Levant (Stockhammer 2012: 30). In the latter case of hybridization, objects connected with a particular culture and practice were employed unaltered together with other objects abroad. This differs from hybridization in the sense that one employs design ideas from different cultures to make a new decorative style or vessel.

An example of a particular kind of hybridization linked to practice is found in the modern globalized world and design studies. The design scholar Bürdek (2005: 329), using the SPOKK project (focused on youth culture) as a vantage point, sees how different sub-culture identities are built with the same consumer goods. Using the same codes, which include objects as well as attitudes and certain behaviors, members of sub-cultures are able to experience affinity. The manner in which commonly shared consumer goods like certain boots or sneakers are combined in specific attires, rather than the goods in themselves, are defining to the appearance of, for example "punks" and "skins" (which use the same boots). Sub-cultures are global and highlight how group identities can transcend ethnic and gender divisions. In the modern global world, global classes are discussed in sociology, and

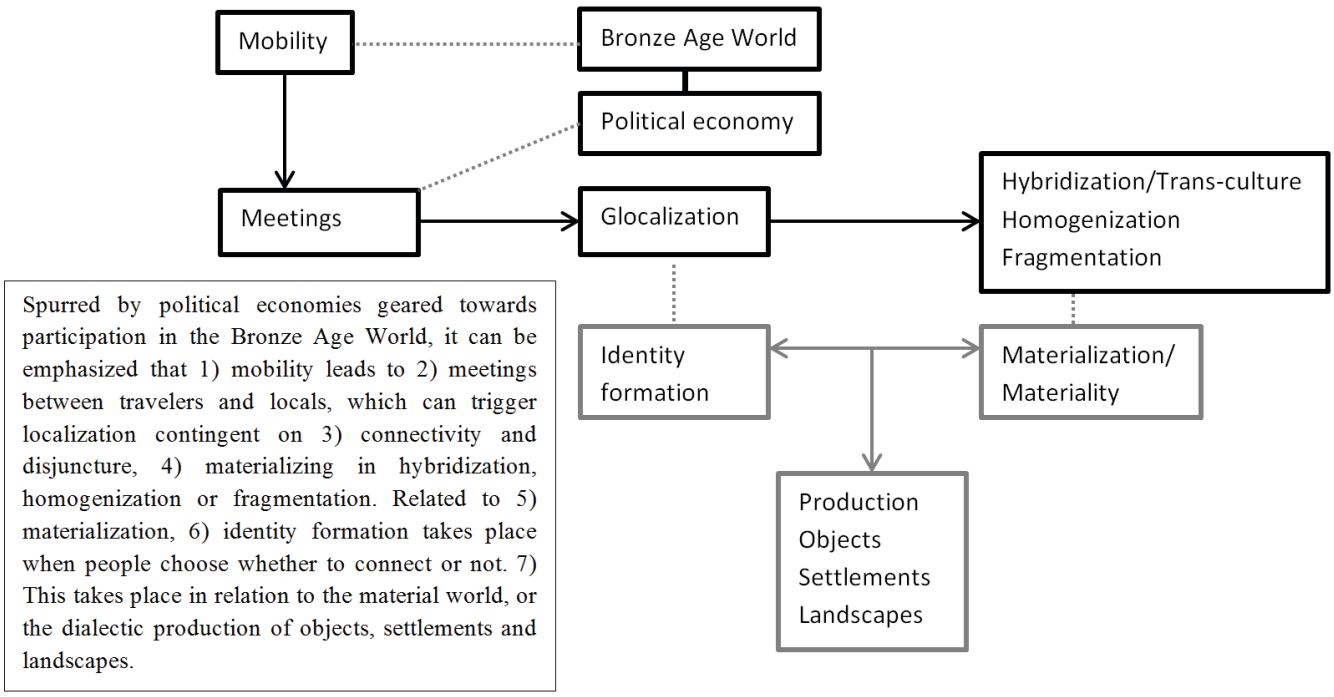


Figure 4 Identity formation and mobility in relation to 'local' political economies and the Bronze Age World.

refer to diaspora groups on the one hand (Sassen 2007) but also a *trans-national capitalist class* which consists of executive professionals who share refined tastes of food and music, travel extensively, have education from prestigious schools and are fluent in foreign languages and culture to an extent that members of this group identify with each other rather than their countrymen or as "global citizens" (Archer 2007: 233; Sklair 2007: 98; Falk 1993: 43). Knowledge of other cultures and proficiency in the ways of the foreign is an applicable definition of cosmopolitanism.

Travels and diaspora also become prominent features in individual and group identities in the Bronze Age (see Clifford 1997). The Bronze Age chieftain of Kristiansen and Larsson (2005) was a cosmopolite when he negotiated his identity with objects shared abroad like the chariot, in use from Europe to China in the Bronze Age (Anthony 2007: 466). Identifying how participation in the "globalized" Bronze Age World can be pursued by looking at hybridization or homogenization, but also fragmentation as an expression of persistent differentiation. Identities, or elements of them, could also be shared across vast distances which calls for an inter-contextual approach (Kristiansen and Larsson 2005). "Global objects" could be imported or emulated, and then become passively enculturated, mobilized in identity strategies to produce group borders (e.g. ethnic) or used to reify or justify social relations and power (see Carr and Neitzel 1995: 6). In figure 4, I summarize the key concepts of this chapter, how mobility and identity connect and materialize, and then affect the manner in which people structure their built environment and landscape. People, travelers and locals, must be kept in mind when discussing encounters. Palimpsest assemblages of objects from across the Bronze Age World, hybrid objects and practices, homogenous elements or resistance to them and fragmentation show the presence of people with different cultural backgrounds inter-mingling. Palimpsest assemblages at settlements could represent multi-ethnicity expressed through a material multi-culture.

3.4.0 Concepts and Analytical Strategy

Mobility, political economies and identities have now been discussed in a brief manner. These three are interlinked to an extent that one cannot understand one without the two others. Mobility is recognized in this study through co-presence, political economy through the possibility to control resources and neighbors, and identities through maintenance or transgression of borders by manipulating pottery, landscapes and settlements. In the following chapters (ch.4.-12.), mobility attesting objects, landscapes, settlement contexts and several types of pottery are addressed in the following order:

1) From the previous discussion and the framework presented above (fig.4), it is evident that to address the impact of increased connections in the Bronze Age, the approach must include a review of trans-regional connections and dependencies against which identities were played out (ch.4) and towards which political economies may have been geared.

2) A brief discussion of a possible economic base and "mobility attesting objects" follows. The mobilization of objects and resources is approached by looking at economy, routes and territories (ch.5).

3) Discussion on the context of the pottery, the most frequent mobility-attesting object type, and key settlements (ch.7). The contextual study gives information on the manner in which different types of decorated pottery were used – whether separate (see Andreou and Psaraki 2007) or together as in Chalcidice (Horejs 2007; below, ch.6).

4) Examination of how the execution of decorative motifs may have been linked to the Bronze Age World, but were utilized in local strategies of identification. The links to the Bronze Age World would ultimately be tied to the formation of a political economy in the Lower Axios valley of Central Macedonia (ch.7-12).

Working with landscapes, small finds, bronzes, settlements and pottery in one study represents an analytically challenging endeavor. Design could be a good concept to think with as it address alterations of landscapes and all types of objects (Highmore 2008; see also Caple 2005), which is precisely what is required to understand the motors that drove mobility and the identities which are formed through encounters with foreigners. In regards to objects, Heskett (2006) contends that "design is to design a design to produce a design" (Heskett 2006: 16) and thus captures the layers within an object: shape, decoration, material(s), techniques – the tacit skillful shaping of the object, technology – knowledge of pyrotechnics, building of molds and kilns, and aesthetics. Schiffer (et al.2001) notes that the archaeologies emphasizing design are connected to a chaîne opératoire and object biographies (adopted from Kopytoff 2000; see also Melheim and Lund 2011; Kuijpers 2008; Lemonnier 1986; Nienhuis et al. 2011; Sellet 1993) as a simplified version. A synthetic and scalar approach has similarities with design centered approaches, objects biographies and the chaîne opératoire approach (which seeks to untangle the sequence of a raw material's practical, mental and social transformation into an object that after use became discarded; see Sellet 1993), in the sense that it helps to untangle interrelated aspects of the small finds- and pottery assemblage, contextual information, and Central Macedonian landscapes, which inform on the design of mobility, political economy and identity.

In regards to this project, 'design' provides methodological coherence. Within the organization of the landscape, settlements in relation to routes, other settlements and possible resources could be referred to as a landscape design while the organization of a pot surface is an aspect of the pot's design. The sum of morphology, decoration and production can say something crucial about how pots were utilized to create borders or connect. Design in this sense is then not only aesthetics, but also politics. The politics of identity as expressed by design may not have been explicit for the Bronze Age people, but formation of group identities would have impacted on the power relations (see Carr and Neitzel 1995: 6). How could politics have been justified? Ideas of how the world is put together, its cosmology, may have had a similar function as modern ideology in Bronze Age societies (Kristiansen 2010; Kristiansen 2012B). Kristiansen states:

"Thus social life in the Bronze Age was ritualized, and it took place in a similarly ritualized landscape. In this way, economy and ideology were unified in the reproduction of society". (Kristiansen 2010: 176)

Kotsakis (2007; 1999) discussed the repetitious nature of tell-dwelling in the Neolithic and the Bronze Age of Central Macedonia and the resultant formation of tall tells, reflecting long lines of ancestry – and thus prestige. People were even buried within the confines of the house at some tells (Toumba Thessaloniki; Mulliez 2010). This fits well with Kristiansen's (2010) notion of a politicized and ritualized landscape as beliefs seem to have merged with the possibilities to exploit the landscape economically and participate in the Bronze Age World which the locals of Central Macedonia evidently did (ch.5). Landscape studies (ch.6) not only address access to resources, and thus politics, but at the same time its justification.

The designs of local leaders or the elites of the powerhouses of the Eastern Mediterranean and the Balkans would have been of key importance in the Late Bronze Age in regards to where it was feasible or possible to travel. It has been argued that on a limited scale, micro-polities (toparchies; see Kotsakis 2007) were networked in a manner that provided for household based production, distribution of goods, technology and defense. Elites mobilized goods through feasting with advanced handmade pottery, and later the introduction of Mycenaean pottery led an expansion of this group which may have experimented with extramural burials to emphasize the individual (Valla et al. 2013). The Bronze Age tell could be defended, but also served as a monument (Kotsakis 2007). Recent theories tend to keep a sober view on foreign contacts, although it has been established that this was constant (Andreou 2010). Goods are suggested to have moved through down-the-line trade within a koiné located between the North Aegean and the Lower Danube. Since Aegean pottery is rarely found north of Central Macedonia, and "Balkan" pottery is rarely found south, Central Macedonia is regarded as a buffer rather than a mediator (Horejs 2007D). Taking a broad overview I try to pin down the economy and test out these theories in one area, the Lower Axios, to assess scale and the possibility for participating in a Bronze Age World.

It is vital to assess the ability to control resources and routes in order to judge the size of possible polities. Using GIS viewsheds, Thiessen polygons, density, size and distance to other tells, routes and resources can be correlated to explore the political economy and the manner in which resources were allocated (Kristiansen 2012) by *design*. Earle (1997: 67-68) emphasizes that the development of political systems would be connected to the ability of some to lead others. Legitimacy to lead could be derived from the interlinked spheres of economy (Earle 1997) and cosmology (Kristiansen 2010).

A certain degree of economic exploitability is paramount in the formation of larger political entities (Earle 1997: 67). Mobilization of staples (staple finance – for example bulk produce of grains) can enable the appropriation of foreign prestige objects and wealth which again could serve to manifest power; this could apply to the Mycenaeans who initially could have accessed Eastern Mediterranean networks through the Minoans (Parkinson and Galaty 2007; see Earle 1991: 3). Earle (1991: 3), citing Renfrew (1975), notes that chiefdoms that emphasize the collective through investment projects enabled through corporate labor could be defined as "group oriented chiefdoms", while other types of chiefdoms may be geared towards investments that embellish individual chieftains. These are termed individualizing chiefdoms, a concept which to some extent captures how the elites buried in the Shaft Graves vested resources in their own aggrandizement and legitimized their power (Graziadio

1991: 406). Conversely, foreign prestige goods (e.g. ivories) could be used in homely identity strategies (see Burns 2010: 192). The cited examples illustrate the link between politics and economics. Such relations would be played out in the landscape and can be addressed by looking at economic and ideological/cosmological control, reflected in the form and distribution of settlements in the landscape (see Wright 2004B: 115).

The role of network strategies have recently been taken up in the archaeology of Central Macedonia (see Andreou 2010: 651), and can describe variability (fragmentation) or homogenic areas. In a script-less society, transmission of knowledge would require a master-student relation of, for example crafting and combat skills (for examples of a transfer of tacit knowledge; see Apel 2008) and oral transmissions of explicit knowledge (e.g. ideology, beliefs). Networks of people across short and long distances could be traced by looking at the co-presence of personal objects, pots, techniques, and technology. Network analysis was discussed early on by processual archaeologists (see Clarke 1968) and has recently gained popularity in archaeology again. Great strides have been taken in the use of network theory (see Knappett 2013). In the text, 'networks' are used as an analogy to evoke an image of interconnections (see Glatz 2009).

Andreou (2010: 653) points out that most sites in Central Macedonia in the Bronze Age enjoyed unrestricted access to the Aegean, and inland sites like Assiros could attain imported, regionally and locally produced pots. Likewise, in regards to objects (e.g. encrusted pottery) stemming from or made with techniques associated with the Balkans and Central Europe, they are frequent at sites including Tsautsitsa and Kilindir, but also appear at coastal sites (see Heurtley 1939). These links have been laid out by previous researchers (e.g. Jung 2002; Hochstetter 1984; Wardle 1975), but with some notable exceptions, few attempts have been made to pin these to the travelers that by necessity must have brought objects and impulses alike with them. An approach based on the traveler, moving through a landscape of political, economic and cosmological relations with political and ethnic boundaries expressed with style and social practices (or the lack of them, e.g. Late Bronze Age burial customs, see Wardle 1998: 239), is more flexible than the network theory alone. Below, in chapter 8.-12., boundaries and connections are traced by a close study of pottery motifs (see ch.8 for methods overview).

Placing the traveler center stage moves the discourse away from amorphous processes and ties them to the humans involved in shaping their world. An open question is how great the distances travelers could venture and at what frequency. A question one may ask is whether the Wietenberg spiral décor was the result of local developments or Mycenaean influxes (Hoddinott 1989; L. Dietrich and O. Dietrich 2011). In Kikkuli's manual (see also ch.4.1.4), horses were trained to quickly trot 70 km (Nyland 1992: 293; Starke 1995), a conservative measure of a daily ride. This is about the same distance as a modern tank or armed personnel carrier (APC) are able to move in one stage, although this distance is shorter in combat situations – supplies, fuel and repairs slow the advancement as well as the fighting. Infantrymen march ca. 30 km per day, and have probably done so since the Roman period (Hobæk 2012). The trip from Egypt, along the Levantine coast to Kaş is about 1500 km, a proportion of the nearly 3000 km long round trip which is proposed to have been the route of the Uluburun ship (below, ch.4.1.5; fig.7). By comparison, the Vikings established river borne routes to the Black Sea stretching a distance of about 1500km (see Graham-Campbell et al. 1994: 189). For the Balkans, historic migrations seem to follow river routes (for an extensive discussion, see Hammond 1976), over short distances compared to the networks of the Vikings. The distribution of stylistic elements in the Balkans could thus very likely be due to the horizontal movement of people just as much as vertical transmission through tradition or mere coincidence.

An analytical framework based on mobility, political economy and identities can capture the consequences of the increased connectivity of the Bronze Age. Many of the theories referred to above derive from neo-evolutionary schemes. These include general models for how societies may work. Indeed, these have been perceived as too general to be useful, projecting a simplistic picture of the past. However, looking at how different mechanisms and traits derived from, for example the chiefdom model are combined in different societies can be a vantage point for discussing their unique internal dynamics and relations to the world (see Kristiansen 1991: 16). A synthetic approach, which takes several types of material from within a larger area, can provide a different angle to the material than studies which use one site as a vantage point to discuss a region. Questions related to broad issues like the impact of mobility, political economy and identity may demand a synthetic approach since neither of these are expressed in a single material, and needs also to be scalar as mobility and political economy, and hence also identity, are played out in relation to local and global contexts.

The significance of Central Macedonia and the impact of mobility in the middle ground say something about the extent and nature of the world system (see ch.4) and how it worked outside the regions often thought of as central (e.g. Mycenaean Greece). As mobility flowed between such middle grounds, a study of this kind can also shed light on the larger inter-regional networks.

4.0.0 A Bronze Age World of Mobility

In this chapter "the Bronze Age World" is explored. It is important to keep in mind that this is only one version of the Bronze Age. Both processual and post-processual archaeologists came to emphasize local rather than global perspectives (see Kristiansen and Larsson 2005: 4). The results of strontium (e.g. Price et al. 2004; Evans et. al. 2006) and isotope analyses (e.g. Ling 2012; Ling et al. 2013) shows that people crossed great distances and moved both commodities (e.g. copper and tin) and ideas (e.g. warrior ideologies, Kristiansen and Larsson 2005), favoring the latter perspective. In a study of a region in-between, it is necessary to discuss its context: the Bronze Age World. How the Bronze Age World is envisaged will influence further analyses of connectivity and impact in regions.

What does Bronze Age World mean in this context? The degree of mobility indicates that several groups lived their lives tangled to larger networks constituting a Bronze Age World (see Hall: forthcoming). According to the Oxford English Dictionary, *one's world* could be defined "one's life and activities", while *the world* could be "all of the people and societies on the earth" (Oxford Concise Dictionary 2006). The Bronze Age World included bronze-using societies that interacted, and the Bronze Age World of an individual included the people that partook in and together created a world of interaction. In the following chapters, an applicable framework for a study of the relation between the Bronze Age World and the regions which constituted it is presented, which also takes into consideration mobile individuals. A central argument is that the Bronze Age World can be pinned down to regions, where it tangled with the world of locals.

A vast subject in itself, aspects of the Bronze Age World of relevance to this study are explored. Firstly, the emergence of the Bronze Age World is addressed. Do the networks of the Bronze Age World differ from earlier ones – and in which ways (ch.4.1.0)? A review of the period 1700-1100 BC is then pursued, in which the key characteristics of this period are discussed (ch.4.1.1). The Bronze Age World has been subject to modeling with the help of World Systems Theory (e.g. Kristiansen 1998) and network theory (e.g. Knappett 2009). The different centers and "key nodes" were connected at several levels (ch.4.1.2; see also Beaujard 2011), but beyond the borders areas in-between are found (4.1.3). Emphasizing networks and borders is a way to move from a macro-level Bronze Age World to regions and areas (ch.4.1.2-4.1.3). Focusing on travelers and Bronze Age seafaring can help to break down amorphous networks to individuals, who ultimately carried the weight of the Bronze Age World (ch.4.1.4-4.1.5).

4.1.0 A Brief Review of Networks before 1700 BC

If something like a 'Bronze Age Mobility' or a resultant 'Bronze Age World' existed as a system different from that of previous periods, one ought to ask in what way. Major innovations (e.g. agriculture) and languages (e.g. Indo-European; see Anthony 2007) may have spread with migrations of large groups settling "abroad" (see Bramanti et al. 2009; Anthony 2007). Examples of historic mass movement migrations count that of the Vandals and Slavs of historic periods (see Starr 1971: 210; Todd 1994: 477; see Metzner-Nebelsick 2010). In this brief review, I rather seek to focus on examples of more or less stable regional networks in the Balkans. This, because the routes used in preceding periods may be said to provide the roots of the well-connected societies of Central Macedonia of the period 1700-1100 BC, although the character of the networks for which the routes were utilized now differed (below).

Long distance routes already existed in the Balkans at least as far back as the 5th millennium BC during the North Greek Late Neolithic and the Bulgarian Chalcolithic (Mercyte 2005: 12). Painted and incised pottery in the Balkans display great similarities, entailing the mobility of crafters as well as goods. Graphite pottery decoration executed in Northern Greece and South Eastern Europe bear great resemblances in terms of motifs although techniques may have differed. Gardner could demonstrate that Romanian graphite pottery decoration was drawn directly onto the pot surface while in Greece the graphite was painted (Gardner 1979). Most likely, travelers transmitted aesthetic taste while the skills were adapted (rather than copied) in particular ways in different regions. In this case we could assume that a significant number of potters did not settle abroad to practice their skills of applying graphite decoration in the same manner as at home. Graphite decoration has also been located in inner Anatolia (Alişar) and the Black Sea littoral (Dündartepe) (Thiessen 1993: 208). The distribution of graphite pottery represents the spread of a taste, but exchangeable objects were also carried along a north-south route. The obsidian found at Mandalo seems to have come from the Carpathians in the Greek Neolithic (Kilikoglu et al. 1996). This could have been exchanged by long distance travelers venturing by sea and rivers, perhaps wanting Spondylos shells (distribution of Spondylos shells, see Müller 1997: fig.1). In Central Macedonia, gold was in use since the Neolithic (see Vavelidis and Andreou 2009: 361).

In the Late Copper Age, mobility could have generated knowledge of the world which was drawn into local settings. The burials of the Bulgarian Varna cemetery (4560-4450 BC; Higham et al. 2007: 652) included gold painted vessels (with motifs similar to the graphite painted vases), copper, precious shells and Baltic amber (Gimbutas 1977) drawing distant corners of the world into the graves. Chapman (2000: 104) provides one particularly revealing practice in the Copper Age Balkans, the deliberate fragmentation of figurines, copper axes, Spondylos shell ornaments, clay altars, anthropomorphic lids, select pots and seals to cement local and interregional ties (giving and receiving fragments

of a whole object). The range of Copper Age societies in Israel is evident in their use of arsenical copper from the Caucasus, deriving from sources 1300 km away (Shalev et al. 1992: 64). Objects that testify 4th millennium long distance routes include ring shaped pendants known from North Central Anatolia and Central Europe (Zimmerman 2007). In extent, the preceding long distance routes could perhaps match those of the Bronze Age, but even so, the Bronze Age represented something qualitatively new.

In an investigation of Bronze Age mobility, a logical point of departure may be copper. Ling (2012; Ling et al. 2013) showed that the isotope composition of the copper turned out to be closer to Spanish, Alpine and Cypriote sources than to Swedish ores, amongst the richest in Europe. Strontium analysis from the Bell Beaker period yields results concerning personal journeys. The Amesbury Archer, buried near Stonehenge, was originally most likely from the Alpine region (Evans et. al. 2006). The Amesbury Archer was not a lone example: Douglas Price (et. al. 2004: 32) shows that in the Bell Beaker period, several people in Central Europe were buried up to 500km from where they were born, although others like those buried at Singen (Germany) were less mobile in life while still in possession of bronze (Oelze et al. 2011; Weglian 2001). The Bell Beaker period falls within the late 3rd millennium BC (Cunliffe 1994: table 3), roughly contemporary with the Early Bronze Age of Northern Greece, and in part with the onset of the Old Assyrian period (which begins at the end of the 3rd millennium; Larsen 1976: 33) and the Early- and Middle Minoan culture. Urbanization took off during the Bronze Age in the Near East and in Egypt pyramids exemplifies monumental architecture (from ca.2700 BC) (Gates 2003: 50-51 and 87). Judging from strontium results (above), *people moved* in this period.

At the onset of the Bronze Age, resources were mobilized at an unprecedented scale and rate in a period when societies were dependent on copper and tin, resources they most often had to acquire "abroad". Networks became indispensable as society used more energy (on for example urbanizing and raising the first ancient wonders of the world) than before while at the same time relying upon the procurement of resources from distant lands (Kristiansen 1998: 287). With the rise of the city, writing also came. The Bronze Age opened new intellectual horizons with the poem 'Gilgamesh' and the possibility to record events and transactions enabled the rise of the bureaucrat (R. Håland and G. Håland 2000: 83). The Akkadian king Saragon and his grandson Naram-Sin represent early empire builders in the last quarter of the 3rd millennium BC. Naram-Sin fought several Anatolian kings (Cline and Graham 2011: 17), a venture that would have required large amounts of bronze for weapons. His conquest and empire, a new form of society, rested on networking – the ability to get metals to the forges in a flow steady enough to feed armies with spears and swords.

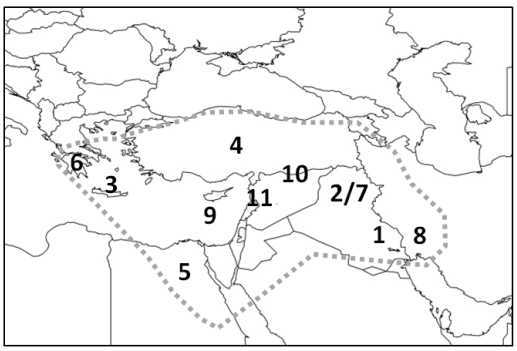
Raw materials flowed together with ideas and elaborate finished objects in efficient networks that evidently distributed *more*, enabling the building of cities, pyramids and innovations like writing. The spread of *exclusive* taste and shared ideas became manifest in bronzes. Conspicuous Early Bronze Age burials in Anatolia include Alaca (Gürsan-Salzman 1992: 69) and Horoz Tepe, both of which contained cast bronze stags, sistra and jewelry (Özgüç and Akok 1958; Joukowsky 1996: 166). Other places in Anatolia with evidence of advanced metallurgy include Mahmatlar, Kalınkaya, Kayapınar Oymaağac-Göller, Eskiyapar and Troy. Shapes like the quadruple spiral bead also recur in Troy's treasure – indicating the mobility of people (with beads) and shared taste as well as access to raw materials (Özguz and Temizir 1993: 627). While the first larger known political entities emerged around 1650 BC in Anatolia and somewhat later in the Aegean, interconnected elites had already formed in the Early Bronze Age in several places.

Before the establishment of the Hittite Empire, the Old Assyrians moved to Anatolia and settled there together with diverse groups of Anatolians in, for example Kanesh, increasing not only access to wealth but also knowledge – writing was brought to Anatolia by Mesopotamian merchants (Larsen 1976: 89-90). The Old Assyrian merchants tied together Afghanistan and Anatolia with donkey caravans transporting bulk cargoes of tin, copper, cloth by the ton, and precious materials such as Lapis Lazuli (Larsen 1976; Veenhof 2010). The *karum* institution (literally harbor) allowed investors in Assur to reap silver profits through the Assyrian merchant communities in Anatolia, of which there were about 40. While the Assyrians lived side by side with the Anatolians and intermarried several generations, they maintained their identity as Assyrians (Larsen 1976; Larsen 2013; Veenhof 2010).

By the Early Bronze Age, people became dependent upon the mobility of raw material and thus had to move more frequently themselves to keep the supplies running. Long distance networks may already have been established, but these grew "thicker" as more objects, and hence more people, moved to feed economies that had to sustain larger concentrations of people and monumental architecture. An illustrating example of Bronze Age intensification could be found in Uruk, which had about 1500 inhabitants around 4000BC and 20000 inhabitants around 3000 BC (Cline and Graham 2011: 12) – entailing by necessity that the citizens of Uruk had to acquire more food and merchandize to sustain themselves. This means that 20000 people *trusted* that sufficient amounts of food would be transported to the city. The Bronze Age represents the rise of dependable long distance networks, and examples like the "Uruk system" (3800-3100 BC) provide evidence of this (see Stein 1999).

4.1.1 An Age of Mobility, 1700-1100 BC

At the onset of the 2nd millennium BC, long distance networks were in place through which commodities, ideological laden prestige objects, knowledge, skills and metals flowed by ships and donkey caravans in an expansive system. To be able to practice metallurgy at a high level one must assume that the smiths could practice their skills regularly. Local exchange, down-the-line, was probably behind some circulation of metal, but networks like that of the Old Assyrian merchants could supply the large quantities needed for smiths to practice regularly enough to produce bespoke weapons and ornaments in order to feed arms to armies with thousands of soldiers. In the period ca.1700-1100 BC, the Old Assyrian merchants' power over Anatolia declined and was replaced by that the Hittite kings (Joukowsky 1996: 233-235; Larsen 1976). Both the Hittite and the Mycenaean realms arose from existing elites. Other strong political entities also came forth in this period collectively constituting an international "club" of rulers (Feldman 2004). This chapter is meant to briefly describe the period 1700-1100 BC, a period of mobility, and its peak of political integration between 1400-1200 BC between the "big players" including (fig.5):



1. **Babylonia** (18th-17th century BC, 16th- 12th century BC Kassite period)
2. **Mitanni** (18th-15th century BC)
3. Minoan Crete (18th-15th century BC)
4. **The Hittite** (17th/15th-13th century BC)
5. **Egypt** (post-Hyksos, 16th-11th century BC)
6. **Mycenaean Greece** (15th-12th century BC)
7. **Assyria** (post 14th century BC)
8. Elam (14th Century BC)
9. (Alashiya)
10. (Carchemish)
11. (Ugarit)

(Minor powers, in parenthesis, the realms of the "great kings" in bold letters, see Güterbock 1983: 135. The Ahhiyawa were for a while counted amongst the great kings by the Hittite, but does not occur in e.g. Babylonian texts, see Bryce 2007)

Figure 5 Main powers of the Eastern Mediterranean (VMAP 5).

In the 17th century BC the Hittites (in Hittite *Neshites*), originating from Kanesh (in Hittite known as *Nesha*), began to take control over a vast part of a multicultural Anatolia and fought battles beyond, even conquering Babylon. Their subjects included Luwians and Hattians and many other peoples. The Hittite king was connected to the divine as the Pharaohs of Egypt although unlike the Pharaohs, the Hittite royals married outside their own family, also with members of other groups. Thus, Luwians intermarried with the royal family even though different laws applied the Luwians and Hittites (see Hoffner 1997: 179-180; Joukowsky 1996: 233 and 256; Shaw 2000B: 7). The Hittites were open to impulses from their subjects and neighbors. From the Hattians and Hurrians the Hittite inherited ceremonies and religion (Joukowsky 1996: 258). The Hittite had a relatively compact core area (compared to their large interest sphere; see Glatz 2009: fig.10) from which they dominated other peoples in Anatolia from the middle of the 2nd millennium BC.

In Greece, the Shaft Graves of Mycenae were built containing objects from both Central Europe and Crete, gathering imports from all corners of the world (Maran 2011) while the Neo-Palatial period of Crete was heralded by the construction of grand palaces. These stood until what was likely a conquest by the increasingly powerful Mycenaeans in the 15th century, replacing the written language Linear A with their own Linear B (Biers 1996: 63). The Mycenaean also took over the Minoan Anatolian possessions in Miletus and built palaces throughout the Late Helladic IIB and Late Helladic IIIA-B period, which ended in destruction by fire ca. 1200 BC. This was roughly simultaneous with the destruction of Bogazköy (the Hittite capital Hattusha), but unlike the Hittite, the Mycenaean realm probably lingered for over 100 years (Dickinson 2010: 486). While there are different takes on the fall of the Minoan, a weakening after the Theran eruption and a subsequent Mycenaen conquest is the most reasonable explanation due to the major shifts towards a mainland material culture and ideologies (Driessen 2002: 260). Until their demise around ca.1200 BC, most scholars now believe the Mycenaeans were organized in several smaller kingdoms run in a highly similar manner with a Wanax and Lawagetes on top of an administration of scribes to effectuate their rule (Nakassis et al. 2010; Kilian 1988; see also, ch.3).

Between the main powers in the period 1400-1200BC, a close relationship was maintained between the Eastern Mediterranean powers which had by now emerged and formed close bonds; the Hittite king referred to his Ahhiyawa counterpart (now commonly accepted to have been the Mycenaeans; for an alternate view see Ünal 1991) as 'brother' in the Piamaradu letters (Beckman et al. 2011). The Eastern Mediterranean rulers with the same level of power partook in gift exchange, while they received tribute from those with lower positions in the international hierarchy of kings. There is a high degree of similarity between prestige objects from different areas in this period, and hybridity in motifs (e.g. hunting lions; known from Egypt to Greece), techniques (e.g. niello) and material choices (gold, bronze and ivory) (Feldman 2004: 58). According to Feldman (2004: 101), exchangeable prestige items could have been made by palace-employed expert crafters trained in several traditions and techniques, forming an "international style" in the period 1400-1200 BC.

Objects decorated in the international style helped the possessor to become an "ideal" ruler (see Feldman 2004). Ideas of rulership were also carved in stone. While rulers from Mycenae to China, Egypt and possibly all the way up to Scandinavia used chariots as a symbol of prestige and weapon (Kristiansen and Larsson 2005; Anthony 2007), their

built environments were also affected. Both Mycenae and Bogazköy had gates flanked by sculpted lions, and according to one legend the citadel of Tiryns was built by Cyclopes from Lycia (Bryce 1989: 13; Strab. 8.6.11). It is not unthinkable that such legends had a grain of truth in them – crafters from Asia Minor could have been contracted for work abroad (Bryce 1989: 8). In a treaty with the rebellious Wilusian Alaksandu, the Hittite king Muwatalli mentioned the Lukka as a menace together with the Masa, Karkisa and Warsiyalla. It could be imagined that these people lived in Western Anatolia (Bryce 1989: 8) and perhaps gladly lent their masonry skills and knowledge of architecture to the Ahhiyawa, enemies of the Hittite. While legends remain legends, the Hittites and the Mycenaeans were great castle builders until their realms were broken around 1200 BC, and the Mycenaeans had most likely adapted Anatolian architectural knowledge (Wright 2006: 37).

The wave of destruction that struck the Eastern Mediterranean around 1200 BC has been attributed to the mysterious Sea People. As they attacked Ugarit, a request of help was written to the Hittites, but it never reached its destination as the city was ravaged and burnt as the letter was written. In Egypt, two waves of Sea People attacked. The first counted people from Libu, Kehek and Meshwesh, and Lukka, Sherdan, Sheklesh, Tursha and Aqaiwash, the latter five referred to as "people of the Sea" (Hankey 1974: 52). The joint forces of North African tribesmen and Sea People were defeated by Merenptah, who settled the survivors. A second wave was stopped by Ramses III (Van Dijk 2000: 295-298; Shaw 2000: 322). According to the Egyptians the Sea People came in search of food for the first time. This may well reflect the poor conditions across the Bronze Age World at the time; before their fall, the Hittite lacked food reserves. In the second wave which was defeated by Ramses III, a confederate force of Pulsati, Tjekkeru, Danuana and Washash had ravaged the Khatti (the Hittite), Kode (Cilicia), Carchemish (Turkish-Syrian border), Arzawa (western Anatolia; see Meriç 2003: 80) and Alashiya (Cyprus) before meeting their doom in Egypt (Hankey 1974: 53). The Medinet Habu friezes (see Hankey 1974: 57) show a merciless battle – the wounded being slaughtered on the shores. This group conspired against the Egyptians after having taken on the "full circuit" of mighty realms of the Eastern Mediterranean.

The 1200 BC crisis meant that the role of the palace changed, and because of their interconnectedness the great powers fell together. In their absence, Levantine and Cypriote merchants came to rise in the 12th and 11th century BC (A. Sherrat and S. Sherrat 1998). If we look to the Balkans and Central Europe, this wave of destruction and upheaval roughly coincides with the spread of fluted ware from the 13th century BC (Bulatović 2009) which reaches Central Macedonia during the 12th century. In the Balkans Hänsel (2002B: 97) sees a correspondence between the rise of the Urnfield Culture and the fall of the Balkan and Central European Middle Bronze cultures (e.g. the ancient Istrians who raised the Monkodonja fortress and the "tholos tombs" along with the Tumulus culture). In the Balkans and Central Europe, the period 2000-1200 BC was one of centralization, evident at Feudvar in Serbia, then later at the citadel of Monkodonja. According to Hänsel (2002B: 96-97), this period was one in which metal trade spurred the movement of crafters, kings and "hero" warriors traveling between central sites. The distribution of rapiers, socketed spears and Naue II swords attests that warriors from the North were in contact with Aegean peers (Harding 1984; Sandars 1983: 64). While we know little of the Balkans and Central Europe from the written sources of the Eastern Mediterranean, it is interesting that the years around ca.1200 BC also proved decisive here.

The networks utilized to acquire copper and tin, luxurious objects, ideas about rulership and crafts preceded the formation of larger political entities in Anatolia and Southern Greece and did not lead to uniform developments at every connected location. Rather, these networks enabled the rise of an international political system with several compatible major powers, through which kings shared ideas and taste. As discussed in this chapter, the process of integration was in an incipient phase in the period 1700-1500 BC, and accelerated until the demise between 1200-1100 BC, if we look at it from a Mycenaean or Hittite perspective. The Bronze Age did not necessarily represent a spatial expansion of networks, but rather an intensification, which meant that things got bigger and more plentiful. Held and McGraw define globalization as a process of "widening, deepening and speeding up of world-wide interconnectedness" (Held and McGraw 2000: 2), and this could well apply to the Bronze Age. Donkey caravans and ships may not necessarily have moved things faster, but if carrying both commodities like ingots or prestige objects to be given away (like a chariot) within a system of stable trade routes, the process of obtaining the foreign goods may have become a lot easier and in fact even dependable.

Macro-aspects of the Bronze Age World have been discussed so far. In the following chapters scalar aspects of the Bronze Age World are discussed. The network analogy applies to macro-networks, but also regional and local ones (e.g. Knappett 2009), and can thus serve to pin down the Bronze Age World (ch.4.1.2).

4.1.2 Nodes and Networks: Scalar Models of Interconnectivity

In the preceding chapters (4.1.0-4.1.1) I briefly examined the outline of a Bronze Age World of societies interconnected at an unprecedented scale, which again enabled the establishment of larger political entities. What effects did this interconnection have? There have been a series of advances in the modeling of the Bronze Age World. It has already been studied through the lens of Wallerstein's (1974) World System Theory to understand the complex inter-regional macro-scale interdependencies: what happens in Southern, Central and Northern Europe should be understood in relation to the larger setting. In the Bronze Age, areas without raw materials (e.g. Denmark) produced advanced metal shapes, thus making them dependent on other regions which possessed copper or tin (Kristiansen and Rowlands 1998). Tellingly, metallurgy was developed early in Mesopotamia, a region with few tin ores (R. Håland and G. Håland 2000: 88). It has also been pointed out that several systems could exist synchronically (Kardulias and Hall 2008: 575). Beaujard (2011) discussed this at a truly global scale, drawing parallels between cultures from temperate Europe to China in terms of their development and interconnection. The mobility that constituted the world system flowed between nodal centers like Mycenae, Hattusha, Troy, Thebes, Babylon, Ur, Pirak, Chirand and Chenggu. A nodal network model could be adapted to function at several levels, and I will briefly explore this here and in the following chapter (4.1.3). Thinking in terms of networks enables us to move from a very large (global) scale to the smaller scale (regional or local), without conflating any(see e.g. Knappett 2009; Knappett 2013: 6-7). Networks illustrate well the relation between the Bronze Age World and the regions it was constituted by.

Scalable Networks - the Mycenaeans

The nodal model can be transferred to the Mycenaean realm, now recognized to have consisted of several hierarchical mini-kingdoms (Nakassis et al.2010: 240; Parkinson and Galaty 2007). However peripheral, the Mycenaean realm was for a time part of the club of main powers in the period 1400-1200BC. Mycenaean Greece consisted of several networked palatial centers, again resting above villages and more local networks.

In the cuneiform tablets, a high ranking Ahhiyawa was referred to as 'brother' by his Hittite counterpart (Bryce 2002), and we also meet Attarissiya, an Ahhiyawa warlord ruling Ahhiya, perhaps a basileus. In light of the Hittite textual evidence regarding the Ahhiyawa, it has been argued that the Ahhiyawa were organized in something akin to a confederation consisting of several smaller entities which could form a common fist against external enemies (although internally diverse). With Mycenaean maritime power, the Aegean became a path rather than an impediment (Beckman et al. 2011; Kelder 2005). The emergent picture of the Mycenaean states is that they were more loosely aligned than previously assumed, and that a significant part of the production took place in villages, from which resources were collected to finance, for example payment for services and feasting – a mechanism to mobilize labor, create a sense of belonging and reify group identities. Notably, the feast could take place at different levels and on different occasions (Nakassis 2011: loc. 3337; see Wright 2004: 126).

If loosely aligned, Mycenaean local villages must have had more freedom than envisaged in a redistributive system. Gillis (1997: 512-513) propose that the smiths were independent crafters working out in the villages. Allotments referred to in texts, ta-ra-si-ja, of ka-ko, metal (copper), were minuscule to the extent that it would not have allowed the smiths to produce much or practice their trade (1.5 kg per annum). Gillis conversely suggested that rather than being an allotment it could have been an obligation. While this is not certain, it is an enticing idea. Nakassis (2011: loc.3434) showed that smithing could be an elite pursuit in the Pylian polity. Much of the land could have been in the hands of locals even if the landscape was subject to large scale palace-run engineering projects of terracing and damming. Individual administrators connected to the palaces were amongst the major landowners (Shelton 2010: 145). Although capable of mobilizing resources for sumptuous feasts and large scale building programs, Earle (2011) notes that the storages of the Mycenaean palaces are smaller than those of other complex societies. The surplus could have been used to feed residential crafters, warriors and palace staff rather than an entire population (judging from the size and quantity of the palaces of Argolis alone, we could expect the population to be large). The palaces would perhaps be in control of larger networks, but beneath several layers of other networks also existed in control of temples, the damos, land owners and crafters. Through these diverse networks, precious materials also found their way to the outskirts like the Arcadian plains (Alisøy-Bakke: forthcoming).

In this version of a Mycenaean economy the control exacted over trade could not have been *total*. Yet it must have sufficed to supply armies counting 100 chariots and foot soldiers (the force of Attarissiya; see Beckman 2011: 97), and most likely much bigger forces as the Ahhiyawa were counted amongst the major powers of the time; bold enough to protect the renegade Piamaradu and the fleeing Arzawan king Uhhaziti from the mighty Hittites (see Beckman et al. 2011). The palaces could have had traders in service, taxed locals and received tribute and gifts. The networks effectively spread impulses within potting, resulting in a very homogenous assemblage in the Late Helladic IIIA-B period (Mountjoy 1999). The Mycenaeans had a relatively homogenous material culture (see ch.11.2.0), but they had no comparable political unity.

4.1.3 Borders and Buffers

This manner of modeling the Bronze Age World, as a series of interconnected key nodes illustrates how centers connected, makes it pertinent to look at the role of borders (fig.6) and areas in-between. Kristiansen (1999: 85-87) discusses the existence of buffers between the realms of the Bronze Age, some as wide as 60 km. These were areas between large cultures where the populace could take possession of trade routes. Sometimes these zones were militarized through the building of forts, other times demarked with depositions. Although this definition is a generalist one, it can serve as a good vantage point for discussing the areas in-between the political entities of the Eastern Mediterranean. The west coast of Turkey was a buffer, composed of minor kingdoms (e.g. Arzawa) with shifting alliances and strong points such as Millawanda, a multicultural site where Mycenaeans may well have dwelt (Beckman et al. 2011: 276). According to Bryce (1998: 46) the Hittite kingdom consisted of a core, a periphery controlled by the king or his officials, vassals and from the reign of Suppiluliuma I (1344-1322 BC) the vice-regal kingdoms of Carchemish and Aleppo. Western Anatolia was where the Hittite and Mycenaean realms collided.

Anatolian Borderlands

The Western Anatolia buffer was militarized (fortified sites includes Bademgediği Tepe, possibly belonging to Arzawa, see Meriç 2003), had cities (e.g. Millawanda), and several burial sites. Burial customs have some diversity and include tholoi (e.g. near Colophon and Müskebi, see Alden-Bridges 1976; Mee 1998: 140) and slab lined pits in Troy VIh (Joukowsky 1996: 197). Mycenaean objects have been found at a number of sites in Western Turkey, the most well-known being Miletus and Troy. The lack of stirrup jars further inland (except for lone examples from sites including Maşat; Özgüç 1980: 309) could indicate a blockade of Mycenaean goods, but it has also been suggested that the fluids stored in the stirrup jars were loaded into more durable containers of skin for transport over land (Bryce et al. 2011). Alternatively, it may have been that with few exceptions, trade did not extend further inland when it came to commodities that were stored in, for example stirrup jars. Nevertheless we could assume that trade took place in the region; this could have been a valid reason to fight over the coast of Asia Minor, along which cargo ships like the Uluburun and the Cape Gelidonya could have passed (ch.4.1.5).

Anatolia was a patchwork of different peoples (see MacSweeney 2009). Western Anatolia was thus not only materially diverse, but also a multicultural region with frequent encounters between, for example Luwians, Hittites and Mycenaeans. In a letter from the Hittite king to Ammurapi, an Ugaritic king, the Hittite discuss payment to Ahhiyawa freebooters in Lukka (modern Lycia, see Beckman et al. 2011: 262) for resources:

> AhT 27A §7 (rev.27-29) Concerning those owing a service to obligation about whom you have appealed to My Majesty – on this occasion I have not sent Satelli to you? Now I have been told that the (Ah)hiyawan is tarrying in the land of Lukka, but that there are no (copper) ingots for him. In this matter don't tell me that there is no appropriate action. Give ships to Satelli, so that he may take the ingots to the (Ah)hiyawans. On a second occasion My Majesty will not again send to you persons owing a service obligation.
>
> (translation Beckman et al. 2011: 257)

According to the textual sources the Ahhiyawa-Hittite interaction was initiated in the 15th-14th century BC and was subsequently intensified during the 13th century before it waned (Beckman et al. 2011). The city of Millawanda was within the Ahhiyawa sphere of interest until reconquered, but its potters continued to produce Mycenaean pottery throughout the Late Helladic IIIC period, even after the Mycenaean palaces and Bogazköy had fallen. While being conquered by the Hittites had little impact on potting, the site of Millawanda was protected by casemate walls built after a Hittite pattern (Greaves 2002: 60). This represents hybridization from a practice perspective: people in Millawanda, probably of mixed origins, lived with material culture co-present in Mycenaean Greece (pottery) and the core area of the Hittite (casemate walls). The walls may have been a strict necessity as Western Anatolia was signified by frequent warfare: we meet the renegade Piamaradu who escaped over the sea to the lands of the Ahhiyawa and received protection there from the Hittite, and the unruly warlord Maduwatta who was taken under the wing of the Hittites when chased by the Ahhiya warlord Attarissiya. Maduwatta turned out to be a traitor (Beckman et al. 2011: 100), an act which illustrates how fast alliances could shift.

Like the Western Anatolian border, the Hittite northern border was maintained by constant engagements with the Kaska. These lived in villages and had no centralized authority. The Hittites never managed to beat them even if they could field some of the largest armies in the second half of the 2nd millennium. The Kaska consisted of several tribes without a grand capital or palaces, but were able to organize in times of danger (Yakar and Dinçol 1974: 94-95). The Hittites had fortresses in North Central Anatolia like Maşat from where they could distribute military forces to meet marauding Kaska, whose presence was overhanging; Nerik, a holy Hittite site (see Czichon et al. 2006), was in fact beset by the Kaska (see Yakar and Dinçol 1974: 94). The Kaska proved to be more resilient than the Hittite; in the Early Iron Age, the Neo-Assyrians battled the *Kasku*, which could have been involved in the destruction of the Hittites just as much as, or together with, the Sea People (Glatz and Matthews 2005: 63; Shaw 2000). Nomadic or non-centralized foes and adversaries like the Kaska were often fighting Near Eastern states, sometimes with luck (e.g. the Kassite conquest of Babylonia shortly after the second half of the 2nd millennium; Gates 2003: 68; Frankfort 1996: 127). Between the key nodes in the network of sites in the Bronze Age World, the nomads would have flowed.

In the light of imminent threats from tribes and other states, confederate structures make sense for Bronze Age polities; one way of creating a security around one's immediate reach would be to ally with neighbors if they could not be conquered. Beckman (et al. 2011: 6) proposes that the Mycenaeans could be modeled after the early Delian league, which consisted of several city states which banded together in times of war or "chipped in" together when engaging in

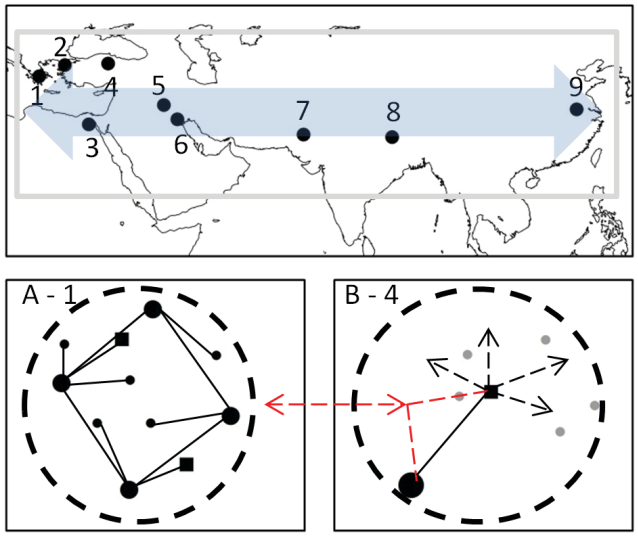


Figure 6 A Nodal Bronze Age – some key nodes include 1) Mycenae, 2) Troy, 3) Thebes, 4) Hattusha, 5) Babylon, 6) Ur, 7) Pirak, 8) Chirand and 9) Chenggu. B shows a pattern of Mycenaean cultural dominance (solid line), C shows a pattern of Hittite military dominance (dotted black line). These realms clashed in Asia Minor (red dotted line) (VMAP 5).

trade. Where the realms of the Mycenaeans or Hittite ended, was where cultural soft power or sufficient military hard power could not be projected *successfully enough* upon the myriads of diverse peoples in smaller political entities.

The Bronze Age World enabled elites to seize power and build realms which were networked (ch.4.1.1). These larger networks depended on the mobilization of goods in political economies in the different parts of the Bronze Age World, and it could thus be said that the larger elite networks rested on myriads of local networks with diverse agents like smiths, temples and landowners (ch.4.1.2). Between the realms, buffers were located. These lands were contested, diverse, but also by necessity where trade flowed through (ch.4.1.3). Comparing the Mycenaean and the Hittite could be an interesting task in itself. Southern Greece was signified by a relatively more homogenous material culture than Anatolia. The networked character of Mycenaean polities may have assimilated the dwellers of Southern Greece culturally, but the polities never merged into one state. In Anatolia, the Hittites ruled a realm many times the size of Mycenaean Greece, often depending on brute force to police vassals and tribes. Both cultural "soft power" (diplomacy, persuasion) and military "hard power" (coercive; see Wilson 2008: 114) would however rest on the ability join the trans-regional networks of the Bronze Age World. In the former case to obtain prized valuables to be distributed at feasts (see ch.3.1.0; see also Halstead 2011), in the latter case to obtain copper and tin for weapons. This is summarized in figure 6. The weight of the networks however, were carried by travelers (4.1.4) and par excellence those that travelled by sea (4.1.5). Thus it is necessary to move from "the World" to "ones World" to understand the Bronze Age World in a manner that can help in the analysis of Central Macedonia.

4.1.4 Bronze Age Travelers

The Bronze Age World hitherto described could not exist without the steady movement of people and a high degree of receptivity to novelties from the outside. As discussed in chapter 3, identifying co-presence in assemblages is the key to unraveling mobility unless using lead isotope, strontium or aDNA analyses (see Knapp and Van Dommelen 2010). In the Eastern Mediterranean, written sources and shipwrecks can give much information regarding different types of travelers, which enables us to address the movements behind the formation of trans-regional integration. In this chapter I will look into travelers in general and in the following chapter 4.1.5 I examine in greater detail different types of seaborne travelers.

Culture Historic archaeologists often used migrations and invasions as explanations for change (Härke 1998: 20; Chapman and Hamerow 1997: 4), ideas which were largely abandoned by Processual and Post-Processual archaeologists (Kristiansen and Larsson 2005: 4). Mobility includes several types of movements at different scales, often cyclic, while migrations are events, a one-way movement of few (e.g. exogamous marriages) or many people (movement of entire groups) (Metzner-Nebelsick 2010: 122), sometimes set to establish colonies (e.g. Miletus, see Yasur-Landau 2010: 48). Whether (or how) migrations can be visible in the archaeological material is a matter of debate (see Härke 1998), but in the written sources of the Hittites, the Egyptians and later the Assyrians, particular mass migrations are mentioned: the Hittites introduced the mass-exodus of rebellious peoples, an approach they pursued upon the conquest of Arzawa where a sizeable population segment was relocated (Beckman et al. 2011: 48). Likewise Merenptah relocated Seapeople survivors (Van Dijk 2000: 295).

There are several reasons for why groups migrate which include external pressure and famine, but also ideology (Hedeager and Tvarnø 2001: 143). The first wave of Sea People decided to move to search for a new life, as previously discussed in chapter 4.1.1. Merenptah settled a large group of Sea People which included men, women, children and elders, most likely with various trades and status (Moorey 2007). The mass movement of peoples can be characterized as events that would impact greatly on the societies at their destinations, but it can prove difficult to connect mass-migrations to material culture. These movements could not have propelled a stable network of trade, exchange and cultural integration as that of the Bronze Age World. Rather, constant mobility of smaller groups and individuals in the course of 600 years would be required to explain the level of integration observed. On the other hand mass movements could explain sudden and or massive changes in material culture (see Hänsel 2002).

Some individuals are known to us through the written sources in the period 1400-1200 BC. These include "exchanged" princesses (Moorey 2007) and mobile warriors like Piamaradu and Maduwatta (Beckman et al. 2011) and not least crafters. Princes and princesses in the royal houses of the great powers intermarried to seal alliances. This could have been one factor that led to a homogenization of taste in the upper echelons of the Bronze Age World, a precondition

for the widespread consumption of an international style. The international style would also require knowledge transfers, and therefore mobility amongst the crafters. Crafters could also be sent as gifts or exchanged (Moorey 2007; Zaccagnini 1983: 250), yet they did not necessarily have a low status. Whilst the term 'crafter' is not known in Linear B, several professions are encountered, 38 in all. The sources give a glimpse into a complex social world. There were two types of sword smiths. Smiths could have slaves, but the slaves were not of such low status that they could not marry a smith. Potters, fullers and *e-te-do-mo*, all three of which may have the title *wa-na-ka-te-ro* (which derive from *wa-na-ka*, wanax), and some may have possessed holdings, although these varied greatly in size (Gregersen 1997). While some crafters may have been tied to the palace, others could have been in possession of valuable knowledge or skills, and thus be sought after across the Bronze Age World.

The expert knowledge worker was priced, and could work abroad. Kikkuli was a Mitanni who worked as an expert horse trainer of chariot horses in Anatolia; his cuneiform manual was preserved demonstrating that his methods were astonishingly similar to modern horse training. Kikkuli appears not to have been the first horse trainer from abroad in Hattusha (Stärke 1995; Nyland 1992). He represents an expert with valuable knowledge of *hippology* and the skills needed to work with horses. The mobility of people such as Kikkuli would be instrumental in the spread of chariotry (see Anthony 2007) together with relevantly skilled carpenters and warriors proficient in riding chariots on the battlefield. For chariotry to diffuse, either these would have to travel, or people would have to come to them and learn.

We also learn of female traveling crafters from the written sources. Female textile workers were brought to the Mycenaean heartlands from Anatolia, more precisely the surroundings of Millawanda (Ergin 2007). It is unclear how they ended up in Mainland Greece, and it has been suggested that they were captives. Textiles were an important component in the Bronze Age economy, and could not only have rested on the capture of textile workers to supply the work force. Studies by Harris (2012: 89) show that regional textile traditions were derived from the same principles in Europe and the Eastern Mediterranean, while textual studies by Larsen (1976) and Veenhof (2003: 89) of old Assyrian texts from Kanesh (Kültepe, Turkey) show an enormous quanta of traded textiles, transported by donkey caravans. In a recent doctoral dissertation, Bergerbrant (2007) traces female mobility by looking at dress in Scandinavia and Northern Germany, operating with distances of up to 270km. Textile workers, techniques and garments must have travelled. As textiles were of great importance in the economy and textile workers seem to have been mobile in Northern Europe, it could also have been that the Anatolian female textile workers sought out work in Mycenaean Greece on their own accord. The crafters behind the "international style" must certainly have been mobile for techniques to move (e.g. the niello technique). Bloedow (1997: 444) argues that crafters could have travelled in search of employment or knowledge and skills, later to return home to practice them.

Experts and broad segments of crafters moved, together propelling inter-regional connectivity visible in the archaeological material. One theory suggests that Mycenaean ships had a smith-captain. This is not unlikely as smithing tools have been found on board Bronze Age ships (Lambrou-Phillipson 1995). The smith as an itinerant crafter is a Childean (Childe 1951: 98) idea much debated (e.g. Gibson 1996), but seen in light of the Bronze Age ships (ch.4.1.5) he or she become likely characters in the Late Bronze Age.

Traveling warriors were amongst the most mobile in the Bronze Age World. Gilgamesh could certainly fall in this category, but in later texts there is mention of real traveling warriors. The rebellious Hittite Piamaradu travelled to the lands of the Ahhiyawa, chased by the Hittite who then made several attempts to persuade the king of the Ahhiyawa to return him (Beckman et a. 2011: 119). Maduwatta, discussed previously, was received by the Hittite together with his household and warriors after fleeing from the Ahhiya warlord Attarissiya (Beckman 2011: 97). Both skills with weapons and knowledge of tactics and strategy could move with warlords as their allegiances shifted.

How can we recognize the traveling warrior? New types of weapons either represent new incoming warriors, or warriors who have travelled abroad later to return home with the knowledge necessary to wield a new weapon and the sufficient skill to survive in battle (Sandars 1983: 44). Pre-1200 BC, Aegean weapons are found in the Balkans, but after 1200BC Balkan weapons including socketed spears (as opposed to tanged) and Naue II swords entered the Aegean (traditional Mycenaean arms are generally not found in the North anymore; Harding 1984). While the dates do not coincide exactly, change seems to agglomerate around 1200 BC across the Bronze Age World, most likely because it was interconnected through the movement of war bands, armies, mercenaries and traveling chieftains in the 13th century BC (see Jung and Mehofer 2006: 134; see also Yasur-Landau 2010: 207). The Medinet Habu frieze vividly depicts in a series of scenes how Ramses III ensnared and slaughtered the second wave of Seapeople. As artists joined expeditions, it is reasonable to think that the artist behind this work could have witnessed the battle. The Medinet Habu frieze is indeed the first Egyptian work of art which depicts feelings, in this case anguish and horror (Wachsmann 1998: 169). This underlines the notion that the warriors were followed by a variety of people with different skills.

A diverse group of people must have travelled in the Bronze Age. Means of transportation on land could be horse or donkey. Nobles, warriors and crafters of different trades were discussed above and their regular movement between cultures would lie behind the co-presence of objects, but perhaps most of all the spread of new knowledge and skills. Traders, and especially those traveling by sea, would propel the movement of both objects and the other travelers. Thus, the Bronze Age ship wrecks highlight important sides of the Bronze Age World.

4.1.5 Bronze Age Seafaring

The veins of a Bronze Age inter-regional, or even global, economy must have been the waterways. The ship wrecks of the Late Bronze Age could be lone examples, just as all the amber in the entire Mediterranean could have been brought in one load; but these interpretations are unlikely. Czebreszuk (2007: 363) points out that archaeological materials, in particular amber (easily weathered and inflammable), are fragile and their presence probably reflects the tip of the iceberg. The same could be said about the Bronze Age ships as large-scale consumption is indicated in various sources, for example the hoards of Central Europe and Hittite sources. The detachment of the warlord Attarissiya of 100 chariots plus foot soldiers (Beckman 2011: 97) would have required a large quantity of bronze for the weapons, and as it is likely that such battles were frequent the supply of metal must have been steady. It is a very likely scenario that smiths would have followed both armies and ship crews to help repair and maintain the equipment. The wide production of bronze objects in similar shapes implies that the smiths were up to date with trends, and could practice their skills enough often to produce advanced types such as rapiers (both in Greece and Central Europe; see Harding 1984) or Apa swords (e.g. in Scandinavia and Central Europe; see Flohr Sørensen 2013: 46), and then teach it to their apprentices. Mobility is not likely to have been incidental or infrequent. The ships I discuss below were a few of many rather than lone examples.

A perspective worth keeping in mind is that the ships, in addition to bringing goods to be exchanged or traded, served as cultural meeting grounds. Monroe (2011) argues that the ship is a liminal zone, a space between cultures, a theme also explored by Kotsakis (2011), who frames the voyage as a transcultural experience transcending cultural borders. Hybridity could be defined as a "practice of mixed origins" (Van Dommelen 2005: 118). Life on board the Bronze Age ships, seen in light of the archaeological material, could fit well with this definition: none of the ships contained objects from only one culture, but as we shall see all of them contained objects from several. We can assume that travelers integrated and learnt the ways of the world én route to distant harbors, where some, like the Old Assyrian merchant, may have stayed for a season or for the rest of their life (see Larsen 1976).

The Hishuley Caramel wreck, found outside Haifa, carried a load of roughly half a ton of tin and copper. Two copper ingots had an isotope composition close to the Cypriote ores. A possible example of long distance contact, the tin ingots fell close to the composition of Cornish ores (Galili et al. 2012: 15). There were also objects from different areas onboard. A hoe with Egyptian and Levantine parallels was uncovered (13th century BC) (for an updated discussion of lead-isotope analyses, see Galili et al. 2012). Three axes had parallels in Anatolia (Galili et al. 2012), but similar specimen are also known from the Carpathians (Kristiansen 2012). The ship could have been guarded by a group Anatolian axe fighters, either sworn men of a king or mercenaries, capable of fending off attackers, perhaps pirates (see Wachsmann 1998: 321). As with the Uluburun ship (below) it was a medium size ship, 15-18 m long, carrying a smaller but still valuable cargo. The Hishuley Caramel ship was a cargo vessel, and the travelers could have included crafters, sailors and warriors from Anatolia and the Levant.

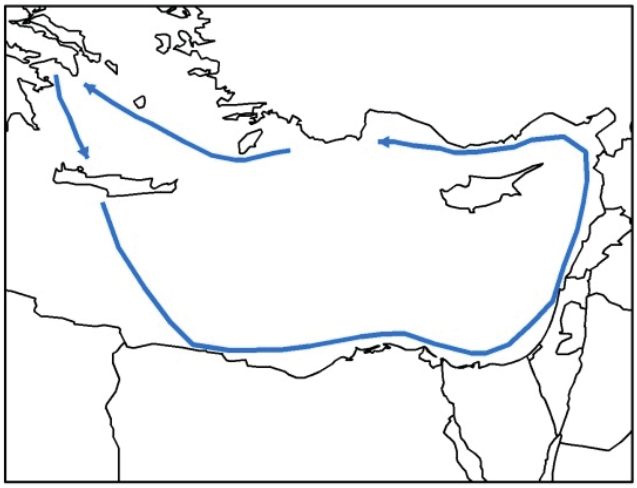


Figure 7 Proposed round trip of the Mediterranean taken by the Uluburun (after Pulak 2008: fig.97) (VMAP 5).

Two smaller Late Bronze Age ships have also been discovered, dating to the 13th century. The 11 meter long Cape Gelidonya ship carried a load of copper and tin ingots, in total a ton of metal (Bass et al. 1967; Muhly et al. 1977), while the Point of Iria ship transported staples and liquids in storage pots (pithoi, amphora and stirrupi) (Vichos 1999). The Point of Iria ship carried a different type of cargo and from the lack of a weapons assemblage (found at the Uluburun and Hishuley Caramel wreck) we could assume it was lightly guarded. Even on the small Cape Gelidonya ship, four socketed and a tanged spear were uncovered, badly corroded, but still attesting the presence of lightly armed guards (Bass 1967: 105). The ingots in the load of the Cape Gelidonya ship had counterparts in Greece, Sardinia, Cyprus and Crete (Muhly et al. 1977), personal objects included a Syrian seal, and tools included socketed hoes, chisels, stone hammers and anvils, two double axes and several knives (Bass 1967). The Point of Iria ship's cargo contained Cypriote (LC IIC/IIIA), Mycenaean (Late Helladic IIIB) and Minoan (LM IIIB) pottery, the mix of Cypriote jugs, Mycenaean deep bowls and cooking pots was used (or at least encountered) by the people on board in their daily life. We may wonder if dining with such a variety of pottery with a co-presence in different areas was "a practice of mixed origins". A likely route to or away from the Argolis has been suggested for the Point of Iria ship, while the Cape Gelidonya ship could have been én route to the Aegean. Both ships, although small, had heterogeneous assemblages composed of objects from different parts of the Bronze Age World. The Uluburun ship illuminates a different side of the Bronze Age economy. While the Cape Gelidonya and the Point of Iria ships have been proposed to belong to free traders, the Uluburun ship could have carried palatial tribute as the cargo fits tribute lists. This must be counted as an indication. Weights and scales, tools of traders, were also retrieved from the Uluburun, as from the Cape Gelidonya ship. It is uncertain if a trader would be needed on board a vessel carrying tribute (Cline and Yasur-Landau 2007; Pulak 1998).

The Uluburun ship dates to the late 14th century BC and carried copper, tin and glass ingots found in great quantities as well as 149 amphora and 9 pithoi, Baltic amber, ivory, ebony wood and large quantities of resins. Mycenaean drinking vessels and jugs, a gold chalice, Cypriote milk bowls and Buccero jugs were used by the travelers when dining and drinking on board. Objects from 9-10 different cultures were carried by the ship (Pulak 1998; Pulak 2008: 304). In addition to a trader, there must have been sailors, a captain and navigators with expert knowledge of seafaring on board. The presence of tools also indicates a metalworker. Four swordfighters appear to have been on board: two used Mycenaean swords, one had an Italic sword and the last possessed a Levantine sword. Six other warriors were equipped with socketed spears resembling contemporary Balkan arms. A stone scepter of a Black Sea type (but also depicted at the stelai of the great warrior in Hattusha) indicates proficient use of elite symbols or ritual objects (Kristiansen and Larsson 2005: 289; Pulak 1998). The Uluburun ship was probably not uncommon and fits the picture of a mobile Bronze Age, carrying a large load and a multicultural group of people.

The Uluburun ship travelled close to the coast in a counterclockwise route around the Eastern Mediterranean (fig.7). The origin of the oxhide ingots was Cyprus, while the tin may have been mined in Central Asia (as also indicated in written sources) or the Bolkardağ Valley (Taurus Range, Turkey), but isotope analysis of tin ingots is yet a far cry from yielding information on the location of metal sources despite being promising (Pulak 2008: 310). Recent isotope samples show that some of the tin from the Uluburun came from the same ores as the tin from the Hishuley Caramel ingots, and most interestingly ingots from both loads have a matching composition with Cornish tin ores (Galili et al. 2012: 15 and fig.22). Cornish tin was possibly mined in the Bronze Age, for example to supply the makers of the Nebra disc (ca.1600 BC) (see Haustein et al. 2010: 831), and together with imported Baltic amber (see Mukherjee et al. 2008) and exported copper (Ling et al. 2013; Ling 2012) shows a dynamic trade connection to Northern Europe. Analyses of organic materials have revealed compelling insights regarding the route of the Uluburun. Studies of snails found in resin containers suggest that these were loaded in Israel (Welter-Schultes 2008: 86), while Cucchi (2008) suggests that the ship could have been loaded with grains in Ugarit along with which the Syrian house mouse came. Thus, the ship may have been heading for the Aegean following the currents, but sunk by Kaş in modern Turkey (Welter-Schultes 2008, citing Bass 1987; Pulak 2008). This would have been the opposite direction of the Sea People if they finished off Ugarit before setting upon Egypt (see Van Dijk 2000: 297).

The Late Bronze Age ships all contained personal objects from different cultures in addition to carrying comparatively large loads of commodities. This gave the interaction carried out on board an interregional appearance equal to that of the metal loads or pot loads. They imply that people with skills from different traditions worked together, making the sea voyage a trans-cultural experience (see Kotsakis 2011). Warriors using Italic, Mycenaean and Levantine swords and Balkan socketed spears could, in the event of danger, potentially fight together in the very limited spaces of ship decks to protect the cargo from attackers, using techniques from different areas of the Bronze Age World (see Pulak 2008; Cluzan 2008).

Pirates may have been common characters in the Eastern Mediterranean, amongst them the Sikuli (Raban 1987: 121). While the rise of the Iron Age pirate, a product of post-1200 BC collapses, has been discussed extensively (see Luraghi 2006), Late Bronze Age piracy may have existed too, indicated by the weapon assemblages on the ships (Wachsmann 1998: 321). Seaborne warriors, whether mercenaries on way to a war, commissioned guards or sworn men of a king or noble man could not only protect the cargo, but under the right circumstances take what they wanted with force.

Outside the core-lands of the empires, for example in Asia Minor where volatile characters like the Ahhiyawa tarrying in Lukka to the despair of Hittite vassals (AhT 27A §7) and menaces like Piamaradu (above, ch.4.1.4) appeared, it is not unlikely that violence was used to acquire goods. An analogy to the Viking period has recently been used by Horn (2012) to explain Baltic maritime mobility in the Bronze Age. Like the Bronze Age, the Viking Age (9th-11th century BC) has been described as global since goods from almost literally across the world were moved between key harbors, connected by the most famous travelers of the age (Sindbæk 2007): the Viking warrior-traders (Sheehan 2013: 815; Hedeager 1994; see also Hedenstierna-Jonson 2002: 109). Slaves to be traded in the East could have been obtained én route through Russia. Goods, whether traded or plundered, could have been used for gift exchange back home in Scandinavia (Sheehan 2013: 821).

The possibility of trader-warriors should not be excluded in the Bronze Age as this too was a highly networked period with ripe opportunities for plunder. The warriors and crew of the Uluburun, if the ship had not been fully loaded, could form a small potent force. As it was, the cargo represented a wealth of different goods which could probably cater for many different needs. The boat was probably one of many, and it must be remembered that the Eastern Mediterranean is not vast – a voyage from Eastern Crete to the Nile was only 4 days, while from Thessaloniki to Ashkelon would be 12 days (Yasur-Landau 2010: 113). The regular communication needed to supply armies with weapons, rulers with ornaments of high quality and workers with tools could be carried out by the Bronze Age seafarer.

4.2.0 Operationalizing the Bronze Age World

Communication precedes organization. The Bronze Age World emerged from already far-reaching networks, but more intensified than before. Dependable networks gave increased access to goods from abroad which fueled domestic economies and enabled the building of pyramids and the development of cities (ch.4.1.0). In these networks ideas, people and goods flowed, which is especially apparent in the period 1400-1200 BC with the formation of something akin to a global ruler class of powerful dynasties in the Eastern Mediterranean sharing access to refined taste expressed in material culture (see Feldman 2004).

It is interesting to note that elites in Anatolia and Greece developed early states after these areas had been brought into the orbit of extensive trading networks. In the period 1700-1100 BC, and especially between 1400-1200 BC, not only traded commodities, but also fine art, skills, knowledge, exchanged objects and taste flowed between various "hot spots" in what must have been multilayered networks which were tangled with each other. The Pharaoh of Egypt and the Hittite king associated as "Great Kings" (see Güterbock 1983), but simultaneously ruled entirely different realms, in which various groups also networked both intra- and inter-regionally.

A way to model this intensified interaction at both inter-regional and intra-regional scales is to envisage the Bronze Age world as a series of interconnected nodes which includes the main sites of power in the Bronze Age (e.g. Hattusha) (see Beaujard 2011). From the centers of power other nodes, cities and fortresses could be controlled with hard military or soft cultural power. The ability to "lounge out" from controlled nodes defines the realms of, for example the Hittite and Mycenaean. In the areas in-between and at the outskirts of these realms, proxy-wars and full-scale confrontations took place (involving men like Piamaradu; see Bryce 1989). The realms were not bordered in a modern sense; nomads, semi-nomads and warlords had to be policed.

A hierarchical network operating at different levels, including a directional long distance contact which differed from "democratic" down-the-line trade and exchange in which the movement of goods is non-directional (see Sindbæk 2007: 60). In the Bronze Age, down-the-line trade could apply to a local level, but metal and prestige goods could also have been part of long distance networks *simultaneously*. Thus, the connections of the Bronze Age World must be thought of as both global and local. In the following chapters the material is discussed in relation to different scales: the Bronze Age World, the inter- and intra-regional scale, the area and the site.

The formation of the Bronze Age World of interconnected societies rested on the mobility of people transporting goods to be traded or exchanged, travelling to work "abroad" (whether displaced or traveling in search of work), travelling to fight or to build alliances. While displacement and migration of large population segments took place (see Moorey 2001), and must have led to new influxes of many kinds and tremendous proportions, the steady movements of traders, warriors and crafters would have disseminated new technology, techniques, objects, foods and ideas. In figure 8 I have summarized the types of possible travelers and examples of their "luggage".

These travelers belonged to diverse cultures, and their journeys would have generated cross-cultural encounters. Trans-regional integration between the nodes which either directly or indirectly became departure points or destinations rested on the shoulders of such individual travelers. When we observe that more objects, styles, foods and ideas were co-present in regions far apart in the Bronze Age, it was the outcome of more frequent movement of travelers in a regular manner. With the Old Assyrian example (see Larsen 1976), that of the Anatolian spinners in Tiryns (see Ergin 2007), the evidence from the shipwrecks (see ch.4.1.5), the evident mixes of people in Anatolia and the Mycenaean outpost of Millawanda all show that the Bronze Age was a period of multi-cultural communities, most likely even multi-ethnic. Relatively seamlessly, the Assyrians could maintain their identity abroad for more than one generation without being assimilated. Rather, they integrated and married Anatolians (see Larsen 1974). The same is probably witnessed in Millawanda, where Anatolians and Mycenaeans most likely could have lived within the walls of the city (Güterbock 1984: 115). The process of combination and re-combination of fragments witnessed in my Balkan journey (see Preface) can thus be recognized in the Bronze Age (objects and groups of people), perhaps because of the frequent cultural meetings. In the following chapters, travelers, transfers and impact will be traced and discussed in relation to Central Macedonia.

Traveler	"Luggage"	Transfer	Notes
Crafters	Techniques, skills	Technology	e.g. Anatolian spinners
Specialist crafters	Techniques, skills	Technology	e.g. Kikkuli, scribes
Artists, crafters	Observations	Depictions	
Envoys	Gifts, tribute, taste	Agreements	
Warlords	Retinue, dependents	Strategies	e.g. Piamaradu
Warriors	Weapons, taste	Tactics, skills	e.g. Uluburun guards
Royal/noble offspring	Prestige, taste	Alliances	To be married away
Sailors	Commodities, people	Personal objects	
Traders	Commodities	News, ideas, taste	e.g. Cape Gelidonya

Figure 8 Travelers, carrying several types of goods and knowledge, transferring new impulses.

Part III - Analyses

5.0.0 Central Macedonia – Resource Base, Mobility Attesting Objects and Travelers

Central Macedonia lies at the northern fringe of the Aegean regions, beyond the reaches of Olympos and south of the Central European plains (fig.1). Evidence of mobility is most abundant in the pottery material. The distribution of Mycenaean pottery (fig.9) around the Lower Axios lends credit to the notion of relatively unhindered contact with Southern Greece from the Middle Bronze Age throughout the Iron Age (Andreou and Psaraki 2010: 1000; Andreou 2010). Few tools, weapons or prestigious ornaments of metal or other materials have been published, perhaps because they were kept in circulation in ancient times, were not cared for, remained unobtainable or, granted their existence, have yet to be uncovered. It may however be worth examining some of the published finds as they attest mobility (below, see Vavelidis and Andreou 2008). Some of the most well-known are listed in appendix 2 with reference to where they have been published.

By studying the resource base (see ch.5.1.0) and objects attesting mobility (see ch.5.2.0), either in light of their production or their shape, along with a closer discussion of some key artifacts (see ch.5.2.1-5.2-2), participation in larger networks and Bronze Age travelers can be discussed (see ch.5.3.0). This can serve as a rough framework for later discussions of how mobility impacted on landscapes (ch.6), settlements (ch.7), and pottery (ch.8-12), and Central Macedonia's connection to the Bronze Age World. This is also the first step to understanding a political economy in the region built on resource access.

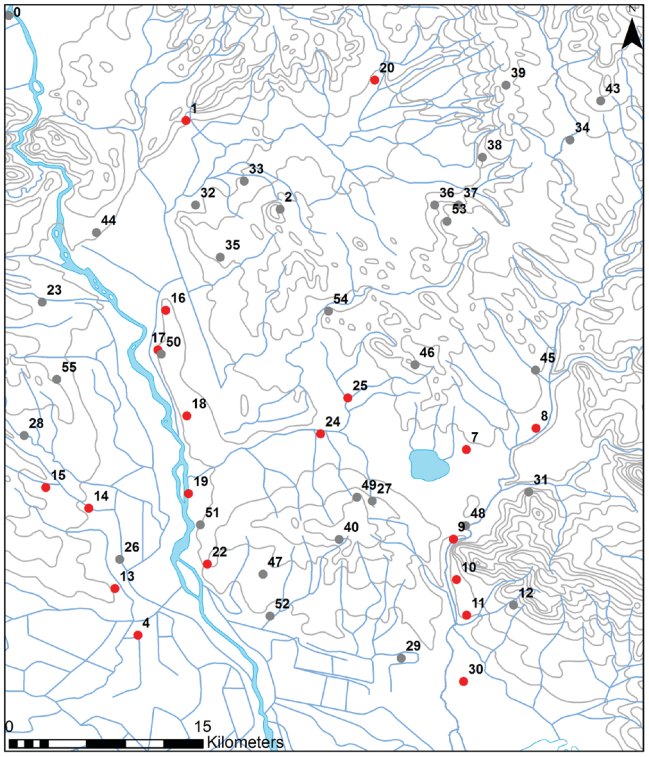


Figure 9 Distribution of Mycenaean pottery in the Lower Axios Area (Eastview vector map, KHM).

5.1.0 Possible Commodities and Exchangeables

Judging from the pottery material, it is evident that people travelled to Macedonia from both the Balkans and the Aegean region (ch.8-12). By looking at the settlement material it is evident that the pottery decoration became more complex in the 2nd millennium BC and that the types of decorated pottery became more numerous (ch.8). This correlates well with what was observed in chapter 4: that societies connected to the Bronze Age World had the potential to make a leap. The base for joining these networks could be strong, and in figure 10 key imports and exports are listed:

While it is not certain that these resources were extracted and exported in the Bronze Age, it is beyond doubt that Central Macedonia was resource-rich. The Serbo-Macedonian metallogenic province stretches south from Belgrade to Chalcidice (Frei 1995: 747), rich in gold, copper and silver. Near ores in the vicinity of the Axios (fig.11), traces of ancient mining have been attested (Pontokerasia: copper and gold; Metalliko: lead). Even if these could date to historic periods or even recent times (Stos-Gale and Gale 1982: 482), they nevertheless represent metal sources that are located relatively close to Bronze Age settlements (fig.11). Other sources nearby include Polykastro (lead, silver), Pigi (Molybdenite), Skra (lead, silver), Gerakari (copper, gold) and Vathi (copper, gold) (Melfos and Voudris 2012; Tsirambides and Filippidis 2012). Gold and silver later became a major source of wealth for the Argead dynasts of Classical and Hellenistic Greece, whom vigorously fought each other until the rule of Philip II (359-336 BC) (Schreiner 1996: 127). Near the Strymon, Mount Pangaeum was mined for gold in historic periods while Mount Dysorum was mined for silver (Thomas 2010: 75).

Placer gold has been attested in both Central Macedonia (in the Axios and the Gallikos River [the ancient Echedoros; Casson 1968: 3]; see Vavelidis and Boboti-Tsitlakidou 1993) and Chalcidice (Andreou and Vavelidis 2008), a subject to which I will return later. The name "Chalcidice" is derived from the ancient Greek work for "copper" or "metal" "χαλκός", in Mycenaean Linear B "ka-ko" (Cambitoglou and Papadopoulos 2001: 65). This should be understood as an indication rather than evidence of Bronze Age metal extraction, in particular because the Bronze Age name of Chalcidice remains unknown. It must be recalled that Sweden, one of modern Europe's largest copper exporters, imported copper from Southern Europe in the Bronze Age

Exports/Imports	Commodity Type	Reference
Timber (Highland)	Bulk export (?)	Athanasiadis et al. 2000: 340
Gold (Lowland/Highland)	Precious export	Thomas 2010: 75
Silver (Highland)	Precious export	Thomas 2010: 75
Crops (Lowland)	Bulk export	Kroll 1983
Copper	Bulk import (?)	Stos-Gale and Gale 1992: 791
Textiles	Precious export	Mauel 2009
Lead (Highland)	Precious export	Tsirambides and Filippidis 2012: 643
Tin	Precious import	

Figure 10 Possible resources and commodities flowing in and out of Central Macedonia.

from sources as far away as Cyprus (Ling 2012; Ling et al.2013). Cyprus was also the copper source of Late Bronze Age Thasian bronzes together with Lavrion and Ergani-Maden (Stos-Gale and Gale 1992: 791).

The Macedonian plains, which are pinched between the mountains, provide an excellent soil for the modern farmer; however, some of the most important like the Plain of Thessaloniki was significantly smaller during the Bronze Age as it largely formed after this period had passed. We must instead look at the land situated 30-40 m above sea-level for agricultural lands (fig.1, see also ch.6). Gentle hills and surrounding mountains could serve as grazing grounds for shepherds, while the sea was a source of murex shells which could be used for purple dye, highly valued in the Roman period. Purple was a color worn by senators and emperors, but was also known in the Levant and in the Aegean in the 2nd millennium BC (Koren 2005: 132). Traditionally it has been thought that dying a garment would require approximately 10000 snails, which would require a large workforce to collect and crush shells. However, recent studies conclude that less than 100 murex shells would be needed. This is attested at Bronze Age sites, for example Toumba Thessaloniki and Hagios Mamas, through the occurrence of murex shells (Veropoulidou et al. 2008: 173; Becker 2001). In Hittite texts, the colors of garments in lists are specified in detail rather than conveniently being counted together (e.g. 7 Hurrian shirts), which suggests that dyed textiles of certain origins were highly prized:

> AhT 19 §1 (obv.1-10) [2] large garments, among them 1 green and 1 white; 3 waistbands, among them 1 blue and 2 of natural color; 9 *tiyala* Hurrian shirts, among them 2 fine, 1 of plain linen, and 2 of fine linen; 1…sash; 1 *kapittašamna*; 3 flounced (?) Hurrian shirts, among them 2 blue-green and 1 of natural color; 7 Hurrian shirts, among them 2 of natural color and 3 of fine linen; 4 tunics, among them 2 trimmed and 2 of linen; 7 […] garments; […N] small garments; 3 dagger belts, among them 2 red and 1 of linen; 5 [garments, among them 4…] and 1 blue; 2 scarves and 2 cords for scarves; 1 herdsman's garment; 1 Hurrian shirt; […]; 2 scarves of black wool, among them […]; 2 blue straps; 3 […] garments.
>
> (translation by Beckman et al. 2011: 177)

If Central Macedonia could provide prized commodities such as fine garments (Mauel 2012: 143) dyed in exotic colors (see Veropoulidou et al. 2008) and precious metals (Vavelidis and Andreou 2008), it would be no surprise if traders sought out this region in a period of accelerating connectivity. While the scale of production may have been at a household level (Becker 2001) it could nevertheless have been lucrative to sell dyed textiles with other commodities from several households at several sites like Hagios Mamas and Toumba Thessaloniki (and smaller sites), providing a sufficient catch for foreign traders. The Hittite list cited above indicates that dyed textiles were counted in small numbers and that their origin ("Hurrian") mattered (as it is specifically mentioned that these shirts were Hurrian) (AhT 19). This resembles the branded merchandizes of the modern capitalist economy (see also Wengrow 2008).

Bulk commodities like agricultural produce and timber could also have attracted attention. Pollen analyses from Lake Doirani indicate that in the 2nd millennium BC oak forests were cleared from the lowlands and the foothills of Macedonia's tall mountains. This could be connected to increased focus on agriculture, but potentially also timber export to the Mycenaeans (Athanasiadis et al. 2000: 340). Later, Chalcidice was well known for timber export in the classical period (Cambitoglou and Papadopoulos 2001: 55). The possibility of grain export will be discussed below (ch.6.), as Kroll (1983: 151) provides intriguing evidence of intensive agriculture at Kastanas, while Assiros had large scale storages that could cover the needs of a larger population than resident at the tell (Kotsakis 2007: 12). This resource base could have provided a vantage point for trade given the right knowledge of how to extract and network both locally and with the wider Bronze Age World. In short the capacity for extraction and networking would reside in the design of the political economy.

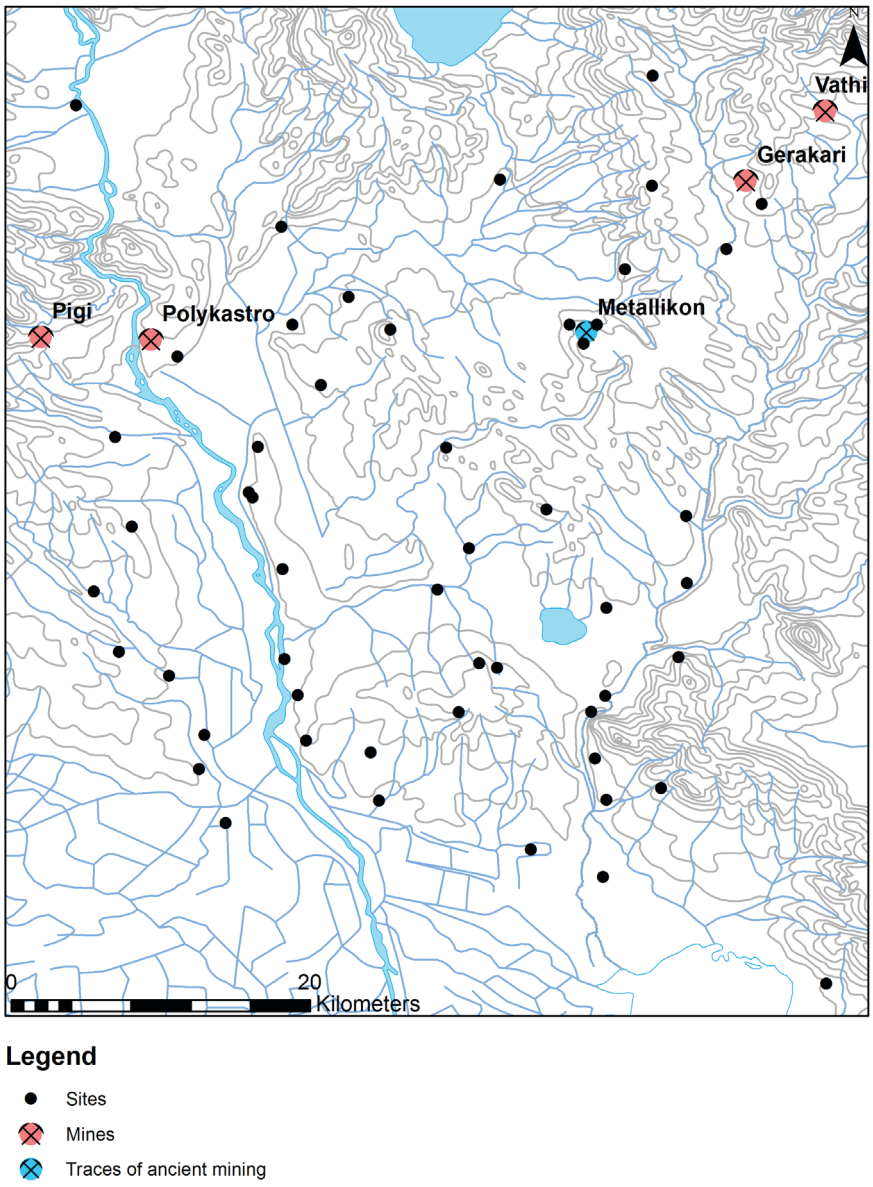


Figure 11 Distribution of mines and settlements (Eastview vector map, KHM).

5.2.0 Mobility Attesting Objects

It is through the co-presence of objects, style, technology and techniques which contacts can be defined and their nature discussed. Objects can attest movement through their material and form (and/) or decoration. The material of the finished objects may 1) have moved themselves (import) or they could be 2) produced to resemble counterparts abroad (copying), in which case the idea of their form or decorative motifs moved. Similar or same objects may even be 3) produced in techniques (both in terms of production and decoration) co-present in other regions, in which case not only ideas, but also the manner of how to realize them moved (crafter mobility). It may be added that some objects also requires particular skills to be used efficiently – in particular weapons, and co-presence of weapons could thus indicate either an incoming warrior or one that had ventured out and appropriated a weapon and relevant skills (on skills, see Molloy 2008). In all three cases, the movement of people, either with objects or skills which were attractive in more than one place, is a distinct possibility. As noted early on by Wardle (1975: 207), there are few mobility attesting objects in Central Macedonia despite the metal riches of the region. This is different from what is observed in the case of pottery, which includes diverse types from both the north and the south. Variability could be an indicator of contact, and seen against the attractive riches of the region and the diverse pottery assemblage, the dearth of metal objects may be related to social practices focused on circulation and use rather than a lack of contact with the outside world (see Vavelidis and Andreou 2008; ch.5.4.0). This is why these objects need to be discussed, and below I look into some of the best known gold ornaments (ch. 5.2.1) and weapons (ch.5.2.2) in greater detail. In appendix 2 I summarize some mobility attesting objects. Some examples from appendix 2 include:

1) Tools – pre-1200 BC:
North – (67) Chisel,
South – (15) Fish hook, with Aegean parallels

2) Tools – post-1200 BC
North – (73) Collared double axe, (84) mold for socketed chisel
South – (94) Iron double axe
3) Ornaments – pre-1200 BC
North – (22) Pin, (59) Cylinder
South - (1) Gold wire, (28) bronze armring

4) Ornaments – post-1200 BC
North – (55) "Wartzenhalsnadel", co-present in the Noua Culture.
South – (29) Bronze Pearl, (61) glass beads

5) Weapons – pre-1200 BC
North – (64) Socketed Spear
South – (69) Marble sword pommel from Assiros, found in Assiros' layer 7 (post-1200) but from a 14th century Mycenaean type ei sword

6) Weapons – post-1200 BC
North – (10) Tanged Peschiera dagger

From the objects in the list (derived from appendix 2), it is possible to draw some conclusions regarding metallurgy and crafting (which fused local and global networks), and ornaments which indicate the voyages of persons from the Aegean, the Balkans and Central Europe.

Voyages and Ornaments

The amount of metal objects is scant, at Assiros about 200 were found (D. Wardle and K. Wardle 2001: 30-31) with an additional 162 at Kastanas constituting 11% of the small finds material (Hochstetter 1987: 15). At Kastanas, gold is most frequently encountered in the Bronze Age, while bronze is more often encountered in the Iron Age. This differs from the situation at Assiros, where bronze is mostly encountered in the Bronze Age. At Toumba Thessaloniki there is a concentration in phase 4 (ca.1220-1100 BC), the Late Helladic IIIC period (D. Wardle and K. Wardle 2001: 30-31; Hochstetter 1987: 15-17; Mavroeidi et al. 2006). Hochstetter remarked that the majority of small finds and metal objects from Kastanas had Aegean parallels in the Bronze Age, while this shifts at the dawn of the Early Iron Age towards South Eastern Europe (Hochstetter 1987: 97). D. Wardle and K. Wardle (2001) note that the metal object assemblage is connected to the Balkans and Central Europe. This would mean that the smiths acquired most of their knowledge of shapes (e.g. curved knives, collared double axes and socketed spears; see appendix 2) from the Balkans or Central Europe through interaction with northern peers or by imitating imports brought by traders.

Personal objects, worn as part of attires, bear witness to the journeys of the people who were behind the transfer of knowledge, skills and who may have bartered for commodities. As early as in the transition phase from Middle- to Late Bronze Age, in the 17th century BC, a golden band of a Mycenaean type was encountered at Kastanas (layer 19, Hochstetter 1987: pl.1.6), while a chisel with a v pattern was uncovered at Hagios Mamas (layer 10, Becker 2005). The chisel, in itself a tool, could be deposited in hoards in Central Europe. The former of these objects will be discussed in some detail below, but together they epitomize the developments in the period 1700-1100 BC in Central Macedonia: Mycenaean ornaments tend to dominate the small finds assemblage until ca.1200, when Balkan and Central European ornaments increasingly take over (Hochstetter 1987: 101). Tools and molds already tended to have a co-presence in these areas.

In the object list in appendix 2 it is evident that neither the Aegean, Balkan nor Central European objects excluded each other in the Central Macedonian assemblage. An example is the various beads with Aegean co-presence, including faience but mostly of bronze (Hochstetter 1987: pl.23.10) which date to the period ca. 1200-1100 BC (Kastanas layer 14b-12). As these objects are co-present in the Aegean, it could be that they came to Kastanas with southern travelers. Pins connected to the Noua Culture by Hochstetter (from Kastanas layer 13, 1987: pl.15.13) and fibula show travelers from the North in the overlapping period (from Kastanas layer 13, Hochstetter 1987: pl.3.1; from Limnotopos layer IIb, Heurtley 1925: pl.19.12b). This would indicate that people came to Central Macedonia from both the north and south throughout the Bronze Age, staying for at least a while – perhaps as part of the retinue of a trader. If bartering for agricultural produce, seasonal trade is a possible scenario as the transactions would have to be timed to the harvests (for a parallel, see Gijanto 2011: 28). An interesting point to which I return below is that when it comes to Mycenaean pottery, local production takes off after 1200 BC when "northern" ornaments are most common and fluted ware is also introduced (see ch.11.2.0 and 13.0.0).

Metallurgy

Metal can in itself be mobility attesting. Bronze necessitates access to both copper and tin, while gold was traded and exchanged in commodity form or as prized ornaments. Silver functioned as the "currency" of the Old Assyrian merchants (Larsen 1976: 104) and lead was used for clamps (see appendix 2 object no. 40-41), seals and cosmetics (see Stos-Gale and Gale 1982; Pullen 1994: 35; Diamandopoulos 1996: 755). The Shaft Grave elite and Mycenaeans had silver from Lavrion in Attica (Stos-Gale and Gale 1982: 485), but politics in Mycenaean Greece could have dictated the need for multiple sources.

Metal mainly moves as a commodity in ingot form (the ingots from the Uluburun ship out-weigh all metal finds in, for example Mycenaean Greece), but is also a prime mover of other objects: stones were needed for molds and tools. Wood was needed for spear and bow shafts, but also fire wood for kilns. Practicing metallurgy meant that one had to be connected with local and regional networks as well as global. Traces of metallurgy have been unearthed at several of the Central Macedonian sites and indicate a non-centralized production (K. Wardle and D. Wardle 1999). This pattern is also identified when looking at, for example dye production and stone tools (Veropoulidou et al. 2008: 177; Tsiolaki 2009). Metal objects and Mycenaean pottery were also produced in a de-centralized fashion. Distributed production does not however necessarily mean that they were disconnected. As discussed above (ch.4) it seems that

the Mycenaeans mobilized goods from disparate villages to sustain palace-building, warfare and feasting in sizable polities like Pylos, measuring ca.2000 km^2 (Nakassis 2011: loc.4083). Below, in chapter 6, I study power relations and organization in a landscape perspective. Suffice to say that the feasting mechanism, a tool of soft power, could draw together people from many sites across larger regions.

Slag, molds and cinders have been found at all excavated Bronze Age sites in Central Macedonia, and pendant whetstones are frequently encountered. Hammer stones of various kinds have been found at Toumba Thessaloniki in the Bronze Age layers at the tell. Suitable hammer stones could be found in riverbeds and by the shores, and are often quartzite pebbles. Amongst the stone hammers at Toumba, there was also use wear associated with metal working (Tsiolaki 2009; for relevant discussions, see also Kuijpers 2008). Even if no workshops have been excavated, slag comes from the smelting process and there is no reason to collect it and bring it home. D. Wardle and K. Wardle (2001: 46) posit that metal working could have taken place outside the settlements, although one may suppose not too far away as there are numerous finds related to metal working on site.

Metallurgic knowledge must have been fairly distributed as dwellers at the storage site Assiros, the big site of Toumba Thessaloniki and small sites like Kastanas and Kilindir practiced metallurgy. At the latter site cores of silver (layer IIa) and lead (layer IIc) were in layers dating to the Late Bronze Age (Davis et al. 1926), perhaps waiting to have metals extracted by smelting. If brought to settlements as cores rather than ingots, one could assume that these metals were extracted in the region rather than being acquired from Aegean or Balkan merchants (who would have sold the metal in ingot form). Other metals like tin and possibly copper (see Owen 2006: 365) had to be acquired abroad, perhaps in exchange for locally extracted precious materials.

The nearest source of Phyllite, which was used for molds at Kastanas, are the Paikon Mountains which are a good 25 km east (Hochstetter 1987: 41; appendix 2). Possessing good hammer stones meant having to search rivers and seashores for suitable round stones and pebbles. Fuel would also have to be collected as well as clay for the kilns. This entails the ability to move around in a 25 km radius of Kastanas in a densely inhabited environment, propelling potential alliance-building and organization at an inter-tell level, but also strife. Thus, metallurgy necessitated a regional network as well as international contacts, and its practice in the Late Bronze Age would have altered people's lives. Agricultural tools were often of stone, but knives, bronze arrow heads and fishing hooks could be used to procure food from the sea and outback hills. Chisels and axes could have been used for woodworking. The ornaments co-present in Central Europe and the Balkans, and the Aegean may stem from travelers that provided a link to a larger Bronze Age World with networks through which metal and knowledge alike flowed (Appendix 2). The arrival of a trader from the Aegean (resulting in raw material exchange) may thus have spurred a trip to the beach (to get hammer stones). The relation between long and short distance jouneys reflects how different layers of mobility tangle ("local" and "global" networks).

5.2.1 Gold in Central Macedonia

Recent studies show that placer gold from the Axios, Gallikos and Chalcidice were used to produce gold objects, some with forms co-present in the Aegean in the Late Bronze Age (Vavelidis and Andreou 2008). This actualizes the use of gold resources in Central Macedonia to produce coveted possessions, and supports to some extent Hochstetter's (1987: 18) position that the lower Axios was located on the gold trade-route between Greece and Central Europe, which Central Macedonians took part in to a certain degree. The role of Central Macedonia could however have been greater than suggested.

Gold was both worked and extracted in Macedonia throughout the Bronze Age, and was in use as early as in the Late Neolithic (see Vavelidis and Andreou 2008). Gold had a role in the Balkans at an early stage. In the Chalcolithic, finds from Varna show that it was already used for fine ornaments (Gimbutas 1977; Renfrew 1986C). Further south in Northern Greece, there are relatively fewer gold objects. However, in the Final Neolithic of Northern Greece (which overlaps with the Bulgarian Chalcolithic and the Varna cemetery; see ch.4.1.0) gold spiral ornaments were found at the settlement Megalo Nisi Galanis near Katirini (Bailey 2000: 221). In the classical and Hellenistic period, gold was mined in Macedonia as discussed above (ch.5.1.0) – suggesting that gold working was deeply rooted in Greek Macedonia.

Production methods had become advanced by the Late Bronze Age. In a method believed to stem from later periods, salt water was already being used to purify the gold in the Late Bronze Age of Toumba Thessaloniki (Vavelidis and Andreou 2008: 362 and 365). Analyses show that the "aubergine-shaped" molds from Toumba Thessaloniki were used for gold working (Vavelidis and Andreou 2008). Such molds have also been found at Assiros (see D. Wardle and K. Wardle 2002), a site with few gold objects. Scarce amounts of gold slag were found in the Early Bronze Age layers and in period C at Axiochori (parallel to Kastanas' Late Bronze Age layers, 17-11; see ch.7) (Davis et al. 1926: 197).

A piece of a gold band is the earliest prestige find at Kastanas dating to the very beginning of the Late Bronze Age (layer 19; Hochstetter 1987: pl.1.6) attesting a frequent use of gold from about 1700 BC. In Southern Greece gold abounds in this period (Maran 2006: 143-144). The Kastaniote gold band resembles a specimen from the Shaft Graves which has a chemical composition similar to the placer gold of the Gallikos (Vavelidis and Andreou 2008: 365). The gold band (Hochstetter 1987: 15) is contemporary with the Minyan pottery of Northern Greece (e.g. Hochstetter 1984: pl.2.10), which became locally produced in the beginning of the Late Bronze Age. As discussed below, the local Minyan pottery (ch.9) was handmade although the shapes were similar to what was made on the potter's wheel in Southern Greece. Hartmann (1987: 127-128) proposed that gold was imported, which does not seem to be the case; rather, the object shapes, and thus taste, were imported at the dawn of the Bronze Age.

Vavelidis and Andreou (2008: 365) suggest that the few finds represent circulation practices rather than scarcity. While part of this circulation was local or intra-regional, it could also be the case that Aegean travelers began to arrive in apparently increasing numbers from around 1700 BC. A possible scenario could have been that they were after the gold. Contact with traders could have led to the transmission of shapes as the locals increasingly became exposed to the material culture of the travelers, which they copied. The traders and their followers may not have settled since the techniques used to make their own Minyan pottery were not transmitted. Gold had been around in Northern Greece since the Neolithic period, but contact with the traders who may have worked for the emergent elites in Southern Greece eventually could have spurred a development of advanced smithing techniques, peaking in layer 4 at Toumba Thessaloniki, ca. 1220-1100 BC (Vavelidis and Andreou 2008). By now the production of Central Macedonian Mycenaean pottery accelerated, indicating a technological transfer from Aegean crafters, possibly now settling abroad (see ch.10. and 13.).

In this scenario the whereabouts of the Central Macedonian gold in the period 1700-1100 BC would be in the Aegean rather than Central Macedonia. When the Aegean traders met the Central Macedonians they dined with Minyan pottery, and a bit later Mycenaean Late Helladic IIIA-B pottery, or Central Macedonian Late Helladic IIIC pottery (see ch.11). This scenario is close to early interpretations, which emphasized that the Mycenaeans came for Iron, and that the relatively late occurrence of gold meant that "northern invaders" and Mycenaean traders mingled at Axiochori (Davis et al. 1926: 198-199). This multi-ethnic scenario should perhaps be given attention again as Balkan and Central European small finds and ornaments outnumber Aegean personal objects after 1200 BC, the period when Mycenaean pottery became most popular.

While based on little material, this scenario explains the rise of advanced gold working technologies and why it peaks simultaneously with the increase of Southern Aegean connectivity (and not earlier or later). The 3000 gold objects of the Chalcolithic Varna cemetery only weighed 6 kg (Bailey 2000: 221), which means that with even a modest Late Bronze Age extraction of Central Macedonia's rich gold resources (e.g. placer gold from the various rivers like Axios and Gallikos), the attention of Southern Greek traders could be caught. The early development of advanced gold working technology would presumably have demanded the possibility to craft gold regularly and thus required a steady supply of raw materials. One could therefore expect a certain level of coordination in the extraction efforts.

5.2.2 Bronze Artifacts and Production: Swords and Spears

As seen above, there is evidence of metalworking at the excavated tells. Slag represents smelting of copper and gold, whilst the hot metal was poured into molds which most often were used to make objects co-present in the Balkans and Central Europe. Hammer stones and stone hammers (Tsiolaki 2009) were used for hammering, whetstones for sharpening. No furnaces are defined although the ovens of Kastanas dating to the end of the Bronze Age (layer 12) could have been used for metallurgy (Hänsel 1989: 184). Metalworking tied together "global" networks of metal trade and local networks of resource extraction, and in extension resource management. The small weapons assemblage is instructive to look at in regards to this as it gives insight into access to hard power.

Most of the weapon forms are connected to the Balkans. There are few excavated swords in Central Macedonia, but a marble pommel, most likely of a Mycenaean type Ei sword was uncovered at Assiros (layer 7, 1270-1220 BC). This sword type is normally dated to the 14th century BC. The pommel may well have come to Assiros in the 14th century with a sword carried by a Mycenaean warrior (with the knowledge and skill of how to handle it; see Molloy 2008; Sandars 1983: 44), but was discarded and lost (D. Wardle and K. Wardle 1999: 34; Wardle et al. 1980: 253). Another pommel was found at Toumba Thessaloniki (Mavroeidi et al. 2006: fig. 4). These swords are the only specialized tool of war, and the aforementioned specimens are probably some of the very few which found their way to Central Macedonia presumably carried by expert users.

The most common weapons in Central Macedonia had more than one use. Spears, axes, bows and arrows, knives (see appendix 2) and perhaps shafted stone tools or clubs (Hochstetter 1987: pl.30; for a German parallel, see Jantzen et al. 2011: 423) are objects which can be used for hunting and crafting as well as warfare. In Central Macedonia, weapons largely appear in the Late Bronze Age in the second half of the 2nd millennium. Amongst the earliest weapons finds was the socketed spear which was used by warriors from Scandinavia to Northern Greece and in the Aegean to an increasing extent after 1200 BC. At the end of the 14th century BC, a group of warriors armed with socketed spears had boarded the Uluburun and ventured to various places in the Eastern Mediterranean (above, ch.4.1.5). Spears were both used and produced in Central Macedonia, as attested by a Kastaniote mold for a socketed spearhead with midrib (layer 16, 1430 +100/-130 cal.BC, Hochstetter 1987: pl.5.3) which was roughly contemporary to a socketed spear from Limnotopos (layer IIa, ca.1400-1200 BC). This implies that the smith knew how to cast a spear co-present primarily in Central Europe and the Balkans, and thus shared knowledge of spear forms with smiths in these areas. It also meant that the warriors in Central Macedonia were accustomed to using weapons similar to those of their northern - rather than those of their southern neighbors. Lastly, it is interesting to note that dwellers at both Kastanas and Limnotopos were ca. 8km apart at sites with no signs of fortification, with the big site

of Axiochori and Aspros in between. It is thus evident that weapons were not monopolized by those who lived at the largest sites.

Barbed arrowheads were found at Kastanas in the period 1400-1200 BC (layer 15-13, Hochstetter 1987: pl.2.2). These were co-present in the Aegean and could be used in hunting and warfare. These activities could have been conducted by the same persons as both warfare and hunting were later eagerly pursued by the Macedonian kings (ch.12.0.0).

Knives would also have been needed by hunters as well as crafters and warriors. Curved blades were produced and used throughout the Late Bronze Age, co-present in the Balkans and Central Europe (see appendix 2). As early as in layer 7 (1270-1220 BC) a curved knife with a rib (also known in Central Europe and the Balkans), was uncovered at Assiros (Wardle et al. 1980: pl.22). A Peschiera dagger was found in layer 13 at Kastanas (1180 +-47 cal.BC) (Hochstetter 1987 pl.2.10), which according to Harding (1984: 173) was a small version of a flange hilted sword. We could assume that the Mycenaean warrior who visited Assiros in the 14th century would have been able to dine with Mycenaean pottery, and likewise, the warrior from Urnfield Central Europe or Italy who brought his knife in the 12th century dined with a kit which probably included pots decorated with the newly introduced fluting technique. This warrior had a hypothetical chance of meeting the person who wore the Noua pin (Hochstetter 1987: pl.15.13). As grave goods, knives were found together with amphoriskoi, and can be dated to the late 12th- early 11th century in the intramural graves at Toumba Thessaloniki (Mulliez 2010: 137; Morgan 2009: 63; Kotsakis and Andreou 1993: fig.1). Apart from the amphoriskos, this type of burial was uncommon when seen against contemporary customs in FYRO Macedonia and by the Olympos, where extramural cist burials with weapons (…and amphoriskoi) had appeared (see ch.12.3.1).

A trunnion axe mold was uncovered in the Late Bronze Age layers of Assiros, a type co-present in the Aegean (1220-1170 BC, phase 6, D. Wardle and K. Wardle 2001 pl.3.2). The collared double axe is found at Toumba Thessaloniki, (1220-1100 BC, phase 4, Andreou et al. 1991: pl.12; Mavroeidi et al. 2006: fig. 3-4) and Kilindir (ca.1400-1200 BC, layer IIc, Casson 1926: pl.17.2.1), while molds for this tool are found at both Assiros (1070-1000 BC, phase 2, D. Wardle and K. Wardle 2001: pl.3.3) and Toumba Thessaloniki (Mavroeidi et al. 2006: fig. 3-4). Buchholz (1960: 61) notes the difference between the Kilindir axe and Aegean counterparts while D. Wardle and K. Wardle (2001: 40) connect this form to the Balkans from where similar types are found in the Serbia, FYRO Macedonia and in Northern Greece from Epirus to Macedonia. In Central Macedonia, both the trunnion axe and the collared double axe belong in the second half of the 2nd millennium BC, with the latter likely surviving into the Early Iron Age as both a tool and a weapon (see appendix 2). It is conceivable that the smiths of Northern Greece were acquainted with axes co-present in the Aegean and the Balkans in the same period, tools that easily could become weapons, accessible to the dwellers of small sites like Kastanas and big sites like Toumba Thessaloniki alike.
Metalworking seems not to have been restricted to sites of a certain size or a coastal or inland location. At Assiros, Toumba Thessaloniki, Tsautsitsa and Kastanas mold fragments have been uncovered, slag has been encountered at Limnotopos and Axiochori, while a silver core was found at Kilindir (seen in the Archaeological Museum of Thessaloniki's collection). There were few objects which were exclusive weapons, but this may not mean that warfare was unknown in Central Macedonia. Warrior burials have been found both to the north (Ulanci and Hipodrom Skopje; Mitrevski 1997) and south (Hagios Demitrios, Olympos; Eder 2008; see also ch.12.3.1). The lack of Late Bronze Age weapons in Central Macedonia could be related to deposition practices rather than a peaceful way of life – a dangerous pursuit with such neighbors. The rich resource base and good natural communications could have served to connect the ancient tell dwellers to a Bronze Age World but would also have been the cause of strife in a society with a seemingly low degree of centralization. Competition for tradable resources might have lent opportunities to use the weapons, and necessitated the import of copper and tin to forge new weapons.

Spears and axes were produced at several sites in Central Macedonia, even small ones like Kastanas. As was evident in the treatment of the Uluburun ship, warriors travelled on trading journeys together with an array of other people with different skills. Together with other objects such as chisels with a V pattern (Schalk 2005), faience beads (Hochstetter 1987: pl.23.8 and 23.10), sickles (Casson 1926: pl.17.2.2), a Central European horse bit (Andreou et al. 1991 pl.14), fibula (Hochstetter 1987: pl.3.1) and tutuli (Hochstetter 1987: pl.1.4), the presence of Mycenaean swords indicate the presence of travelers, in this case warriors. The spearmen and smiths shared a knowledge of how to both use and make weapons of a northern type. Perhaps spearmen armed with socketed spears fought together with sword fighters armed with Mycenaean weapons like at the Uluburun, taking part in the Bronze Age World of the warrior.

5.3.0 Mycenaean, Balkan and Central European Travelers

To an increasing extent, travelers seem to have come to Central Macedonia in the period between 1700-1100 BC, and it would be valid to inquire why. Initially this may have been to trade for gold and silver, and even lead. The contact with Central Europe and the Balkans may have been the strongest as eventually tools and weapons were produced to have forms co-present in these areas (K. Wardle and D. Wardle 1999). There are, however, also several objects co-present in the Aegean. As the contact grew denser, it may indicate that other resources had caught the eyes of foreigners, for example agricultural bulk produce. Below, the transfer of Minyan, matt-painted, encrusted forms, decoration- and production techniques, and Mycenaean forms, decoration- and production techniques transferred to Central Macedonia as well as the fluted and grooved Lausitz pottery are examined (ch.9-12.). Forms may have come with traders as they may have brought along pottery to store in and consume

from, but techniques must have moved with crafters, or at least someone skilled if not an expert. In the "international period" of the Eastern Mediterranean it is conceivable that Mycenaean traders came to search for resources, of which there were plenty in Central Macedonia:

1) Precious metals export – gold has already been discussed in some detail, but the finding of a lead and a silver core at Kilindir (seen in the Archaeological Museum of Thessaloniki's collection; see also appendix 2 figure 2) could indicate that also these metals, of which there are plenty in the Macedonian mountains but little from settlement contexts, were exported. This may explain why the Bronze Age dwellers of Central Macedonia mastered advanced gold working, bronze smithing, and could use lead to mend vases (if metal was scarce, this would have been an expensive solution, in particular because suitable clays were evidently abundant) (Hochstetter 1987: 44). If precious metals were exports, one could wonder what they got in return. Whether copper was extracted is an open question since it seems that the Thasian bronzes had copper from Cyprus, Lavrion and the Anatolian Ergani-Maden deposit (Stos-Gale and Gale 1992: 791). This could have been the case in the Lower Axios Area as well. Tin must have been imported both in the Lower Axios Area and Chalcidice; other Bronze Age tin sources included Cornwall, Afghanistan, Central Asia and Bohemia (Kristiansen and Larsson 2005: 110), and recently, the possibility of Western Serbian sources have been explored (Bankoff et al. 2011). Even further north, salt mines have been uncovered in the Carpathian basin, which represent an additional northern commodity (Harding et al. 2010).

2) Fine textiles (see Mauel 2009) could also have been traded abroad. Locally produced purple dye would have given textiles an international look, but could also have given them the added value that could have come with having the "right brand" (Wengrow 2008). As discussed in chapter 4 the Hittites were keen on dyed textiles. Purple has been attested in Crete early on, and was later coveted by the Levantines. The Mycenaean imported Anatolian weavers for production in mainland Greece.

3) Agricultural produce and timber could have been bulk exports destined for export to distant shores. As mentioned in chapter 4.1.1, the Hittite were hit by a drought just before the advent of the Sea People, and the many infrastructure projects of the Mycenaeans meant that they had to improve their agricultural production, presumably to keep up with demands. The first wave of Sea People set out to find a better life; it is thus perceivable that grain could be exported to other regions. On board the Uluburun, precious ebony wood was amongst the finds (chapter 4.1.5), while Central Macedonian oak may not have been prized for prestige value, the deforestation coincides with the attraction of foreign traders to Central Macedonia (see Athanasiadis et al. 2000).

While Central Macedonia had much to offer in itself, it also had the role of a "station" along routes to the North (Hochstetter 1987: 18). Further north along the Axios, handmade amphoriskoi (below, ch.11.) attest a transfer of forms to potters, while rapiers from, for example Tetovo attest the transfer of fencing skills to warriors and possibly forms to smiths (Sandars 1963: 120; Sandars 1983: 44). Traders in the company of warriors could have come north to trade with locals, or these may in fact have traveled out. Either way, they passed through the tell societies of Central Macedonia, which thus functioned both as a destination in itself and a stop on a northern land route. Mycenaean contacts are demonstrated through the occurrence of figurines, the import of pots and later production techniques, a possible Linear B fragment and swords (N. Wardle 2004: 358). Traders and warriors came first, then crafters. Figurines from Hagios Mamas (see Becker and Kroll 2008: 166) and Bronze Age layers above the Poseidon temple at Poseidi near Mende (Gulf of Kassandras, Chalcidice) with 12th century Mycenaean pottery may be an indication of a transfer of beliefs from the South (N. Wardle 2004: 209-210). Such transfers did not necessarily only come from the South: the earlier spiral-decorated house altar at the Eastern Macedonian site of Dikili Tash has been connected to the Carpathian Basin and shows an import of ideas also from the North (Séfériadès 1983: 672).

Early ornaments like arm rings (1430 +100/-130 cal.BC, layer 16, Hochstetter 1987: pl.4.11) and socketed spears (Heurtley 1925 pl.19.2) which were also produced in molds of phyllite most likely from Mount Paikon (Hochstetter 1987 pl.5.3) attest early Central European travelers venturing south as early as the 15th century BC. Even earlier in the 17th century, a chisel with v patterns found its way to Hagios Mamas (Schalk 2005), to where Aegean traders also ventured. Warriors and crafters could have transferred skills as well as knowledge to Central Macedonia at an early stage, gradually to accelerate their interaction in the North Aegean towards the Early Iron Age. Dietrich (2009: 106) has recently connected the Carpathian Noua Culture to the Eastern Mediterranean by the means of looking at the distribution of Cypriote pins. A bone Noua pin was uncovered at Kastanas, which connects to Romania in the midst of the 12th century BC (Hochstetter 1987: 70). Bow fibulae are found at both Kastanas and Limnotopos and date to the same period as the pin (Hochstetter 1987: 34). These travelers may in fact have been after the same goods as their Aegean counterparts, or possibly traveling by to access the Eastern Mediterranean as traders or even warriors in service on ships like the Uluburun.

5.4.0 Concluding Remarks

Why do we find so many different types of decorated pottery and production techniques in Central Macedonia in the Late Bronze Age? While the numbers of imports may be small, the variability is great, suggesting a high degree of contact. Rather than ascribing movement of an object to down-the-line trade (Horejs 2011), I suggest that increasing awareness of Central Macedonia's resources could have brought increasing numbers of Balkan, Central European and Aegean warriors, traders and crafters. The presence travelers could be indicated by ornaments, weapons and tools, which in some instances would have demanded different skill sets co-present in other regions and thus a carrier.

While northern and southern travelers met throughout the period 1700-1100 BC, the former seems to have become more

prominent towards the end in light of metal- and small finds (see Hochstetter 1987: 101). Yet, it must also be kept in mind that local production of Mycenaean pottery accelerated in the Late Helladic IIIC period (Jung 2002: 224; Wardle 2009). Contact seems to have intensified from ca.1400 BC and onwards, as weapons become more frequently encountered and advanced gold working techniques were developed. Intensification of interaction with the Bronze Age World must have altered life and landscape use at a regional level as people were compelled to rely on an array of resources, from placer gold to good hammer stones (Vavelidis and Andreou 2008; Jung 2002:244-245; Tsiolaki 2009). Joining the Bronze Age World would have meant increased competition and incentives to import more metals to forge weapons and ornaments, thus also impacting on the political landscape. The degree to which the resources could have been exploited would rest on social organization, power strategies (soft versus hard; see ch.4) and the designs of locals. These topics relate to the design of political economies and are discussed in chapter 6 together with the possibilities suggested in this chapter.

Central Macedonia could have been connected to a Late Bronze Age World in which a larger population segment moved; crafters as well as warriors and traders (see ch.4.1.4). Such bands of travelers ventured through in-between places like Central Macedonia, transmitting crafting and combat techniques, taste and object shapes. The region of Central Macedonia and more enclosed spaces such as the Uluburun functioned as places of explicit (e.g. ideology) and tacit knowledge transmissions (ranging from smithing to potting) (see ch.4.1.5). For this to be possible, people had to be able to communicate efficiently, and it could be that both the elite and the less powerful could attain cosmopolite knowledge: on the Late Bronze Age ships, crafters, smiths and wood workers, warriors, sailors and traders travelled together and lived together with little room for separation (see ch.4.1.5). Embarking from the ship at places like Central Macedonia involved exchanging not only objects, taste and inspiration, but also knowledge and skills. If mobilized (see ch.6.), the resources could provide both a pretext for travelers to come to Central Macedonia, and building blocks with which a political economy could be designed.

Within a framework of multicultural contact and trade, I will commence to study how this mobility impacted on landscape, settlements and potting – the largest categories of material. This entails pinning down a political economy to the landscape, which would have been a destination and a thoroughfare for archetypical traders, warriors and crafters. As at Kanesh these could have stayed (see ch.4.1.0; see Curtin 1984: 3; Larsen 1976). 600 years of consistently imitating foreign dining vessels (ch.13.) and the presence a few but telling small finds discussed here could imply contact networks which went beyond co-incidental encounters and chance as skills and knowledge co-present in other regions were needed for them to be used. Jung (2002: 245) notes that through trade, Mycenaean pottery could have been introduced (including dining kits and containers for prized liquids), indicating an acculturation of Mycenaean dining habits and bodily ideals (see Jung 2002: 245). In this chapter, possible resources that could have been traded have been discussed, and it is hypothesized that groups of crafters, traders and warriors (perhaps like the band on board the Uluburun) could have come from north and south to either change from means of transport (donkey caravans or ship) or trade. To understand the extent of these connections, one needs to address how the rich resource base was mobilized (see ch.6.).

6.0.0 Landscapes, Political Economy and Mobility

How does mobility affect landscape use, or vice versa? In chapter 4 and 5 it was suggested that connecting to the intensified networks that constituted the Bronze Age World of the 2nd millennium BC could have spurred the mobilization of local resources. A first step to understanding the organization behind this process in Central Macedonia is to look at how the landscape could have been utilized as an economic and ideological base for participation in the Bronze Age World. In landscape phenomenology, it is emphasized that people and landscape create each other (e.g. Thomas 1996), a theme in materiality studies (e.g. Olsen 2003: 100; Hodder 2012). The human-matter dynamics in which landscape, objects and people create each other lies behind forms of social organization like chiefdoms or early states and ideology, and by extension the political economy which propelled inter- and intra-regional mobility (see Kristiansen and Larsson 2005). A landscape study may thus have the potential to unravel the designs of local groups, reflected in their landscape use. I seek to shed light upon various aspects of landscape use tied to organization and mobility by exploring and mapping the following aspects:

1. The "structure" of the landscape and its exploitation (ch.6.1.1). In this section structure in the landscape is discussed. Distribution and access to resources and paths are approached in light of the thoughts of urban geographer Kevin Lynch (1960), which have been adapted to archaeology (Jerpåsen 2009; Gansum et al. 1997).

2. Visual factors (ch.6.2.0-6.2.3). Can any hierarchies be pinned down? Height has been suggested to denote the status of the dwellers (Kotsakis 2007). Visibility is explored further by conducting a viewshed analysis of tells. A viewshed analysis measures what is visible (delimited by heights, e.g. hills) from a given point in the landscape (observer point). By looking at how the tells are approached in the landscape, a mobility perspective is added to the static picture yielded by the viewshed analysis.

3. Territory (ch.6.3.0-6.3.1) density (ch.6.3.2). Can hierarchies also be defined in the settlement pattern? I address this issue with Thiessen polygons (ch.6.3.1), a method that (heuristically) defines territories by drawing borders mid-way between them, and then a density analysis, which measures clustering of sites (ch.6.3.2). Settlement sizes are also compiled and matched with the data.

4. Connectivity (6.4.1) and defense (6.4.2) – what are the relations between sites, and to what extent do their locations emphasize interconnectivity or defense? A crucial question is if the settled landscape obstructs or eases, and thus spurs the movement of people, and in extension objects and ideas.

6.0.1 Overview: Central Macedonian Landscape Studies and Theories of Social Organization

Landscape studies in Central Macedonia rest on a substantial body of research conducted since the early 20th century (ch.2). Surveys by Rey (1919), French (1967) and Besios (et al. 1997) have resulted in regional maps of Central Macedonian settlements. The works of Kotsakis (1989: 5; 1990: 186) have shed light on settlement patterns in the Langadas; it was discovered that there was:

1. A settlement decrease in the Early Bronze Age.

2. A settlement increase in the Late Bronze Age.

3. No substantial decrease of settlements in the Iron Age. Settlements tend to be increasingly located close to the foothills of the surrounding mountains of the Langadas (east of the Gallikos).

(see Andreou et al. 1996: 578)

In the Bronze Age, the settlements were either tells or, towards the very end, a table raised directly below the tell (referred to as a tell upon table, fig.12). The tables were large settlements with embanked enclosures. These appear more frequently in the Iron Age, especially from the 10th century BC, simultaneous to a transition in burial customs (Andreou 2010: 654). In the transition from Bronze- to Iron Age, people went from burying the dead in sparsely equipped intramural inhumation pits to using richly furnished extramural cist burials, sometimes under a tumulus. In the Iron Age, both cremation and inhumation was practiced (Chavela 2012; see also Andreou 2010: 653), making the Iron Age landscape an arena for both the living and the dead (ch.12.3.1). This change may have entailed new beliefs, but also impacted on landscape divisions, and most likely also inter-tell politics.

Interpretive advances have been made successively, and settlement hierarchies have been identified in the Late Bronze Age (Kotsakis and Andreou 1987; Andreou et al. 1996). Assiros, which may have been a storage site used by several communities, and the grand site of Toumba Thessaloniki along with other terraced tells represent examples of what could have been central sites. In fact none of the tells in what I designate the Lower Axios Area (ch.6.1.1) could match Toumba Thessaloniki's size, which measured about 15 000m^2 (see Andreou 2001; Andreou et al. 1996; Kotsakis 2007). However such sizes were not uncommon for table sites in the Iron Age (see appendix 2, table sizes). According to Rey (1919: 49), the two tables of Kouphalia measured a total of 117462 m^2 (see appendix 2). Identifying tables is easy with Google Earth as the embankments are clearly visible (see fig.42). By Iliulousto a rectangular settlement can be identified, where house structures organized in regular blocks can be seen. The grid is not possible to date from above as it could stem from the Iron Age or even Classical or later periods (a weakness with remote sensing). Google Earth imagery of other tables

Figure 12 Axiochori, a tell upon table (3d model after Rey 1919: pl.IV)

(fig.42) illustrate the great increase of settlement space that came with horizontally extensive tables.

For the tells, terraces and casemate walls (thick walls with rubble filled chambers) represent major investments in labor, and gave a strong visual impression (e.g. Axiochori and Toumba Thessaloniki). The visual effects of terraced fortified mud brick settlements would have dominated the landscape visually, while also serving as ideologically laden monuments towering above their neighbors (Kotsakis 1989: 5; Kotsakis 2007). Of monumentalized sites, the storages of Assiros direct attention to the possibility that different sites may have had different roles as a large percentage of the settlement was dedicated to storage. Toumba Thessaloniki did not have anything similar despite being a large site. Rather, the site had large compounds with individual storages, indicating that like production, storing was a scattered household centered practice (Margomenou 2008: 194). If households at each site had storage and productive capacity, while at the same time, centralized storage facilities could have existed, the scale of inter-tell organization becomes crucial to the understanding of resource mobilization.

The question of specialized function was already raised by Heurtley (1927: 165) who suggested the possibility that the Western Macedonian site of Boubousti could have been a shepherd hamlet, and later by Hänsel (2002) who looked into the formation of mini-polities with centers like Axiochori surrounded by satellite sites, for example Kastanas. The concept of a toparchy has been applied to capture small political formations consisting of a few tells (Kotsakis 2007; Andreou 2001). The scale and nature of these would have had an impact on the degree of participation in the Bronze Age World since logistics depend on both social organization and technology (see Virilio 2005: 40). This is also underlined by the case of the Danish Bronze Age, where societies were decentralized but had the capacity to mobilize key resources to raise mounds and barter for copper and tin (see Kristiansen 2010).

Margomenou (2008: 194) discussed what appeared to be a divergence between results from settlement materials and landscape studies: the former exhibits features of small scale society with a high degree of independence and the latter shows a society of hierarchy and interdependence. Divergent patterns are also observed in other material groups. Archaeobotanic results show a pattern which could indicate large scale organization. Kroll (1983) suggested that the Late Bronze Age had intensive agricultural scheme with large fields. At Assiros, ^{13}D isotope values of ancient crops suggest that the crops stored at Assiros represent *one harvest* of well watered wheat which could have been the output of a large group of people pursuing intensive horticulture in fields that were either irrigated or receiving more rain in the Bronze Age than they would have today (Heaton et al. 2009: 2232). The degree of organization seems to have been low given the distributed production and storage patterns (Veropoulidou et al. 2008: 173-174), but high when looking at archaeobotanic data from Kastanas and settlement patterns, as well as the harvests of the horticulturalists from Assiros.

In terms of scale, the somewhat older "Assiros model" (Wardle et al. 1980: 261; Andreou et al. 1996: 579) emphasizes hierarchical systems of central sites surrounded by "satellites", while more recent theoretical works lift social relations that tied the settlements together (Andreou and Psaraki 2007; Andreou 2001; Veropoulidou et al. 2008; Margomenou and Roumpou 2011). A shift in focus from macro to micro relations may be detected in the literature as the networks and hierarchies are described as loose and localized (e.g. Veropoulidou et al. 2008: 173-174).

A kinship model has been suggested for Central Macedonia in which feasting was a mode of connecting communities and circulating goods. Lineages of note could mobilize resources and distribute them in feasting events, indicated by the high frequency of drinking related vessels throughout the Late Bronze Age (e.g. matt-painted and Mycenaean bowls; Andreou and Psaraki 2007; Andreou and Psaraki 2010). Feasting could be a mechanism in societies organized at different scales. The Mycenaeans, with bureaucracies and large polities measuring up to 2000 km^2 exemplify larger formations which utilized feasting to mobilize people, goods and alliances (Wright 2004). Halstead (2011: 35-36) discusses how food and drinks, together with exquisite clothing may have distinguished rich from poor, reifying hierarchies. The feast was a mechanism for distributing gifts and could be framed within religious ceremonies and banquets and served to cement power relations. Differently ranked individuals from various administrative entities provided food, while the palace provided the venue which served as an arena for gift exchange. Valuable "branded" gifts from palatial workshops could serve to connect the participants at the feast (see also Nakassis 2011: loc.3177). The feasting perspective could unite the localized production and the hierarchical settlement patterns as feasting could serve to mobilize large amounts of resources.

While feasting has been used to explain local flows of objects, resources, ideas and techniques, relatively few attempts have been made to explain the mechanisms behind trade which could have brought travelers to Central Macedonia. Recent studies show that the Mycenaean pottery in Central Macedonia was so different from other types of decorated pottery that it may have been made by a different group of Mycenaean potters, most likely of Mycenaean origin (Kiriatzi et al. 1997; see Garrigós et al. 2003). Mycenaean traders seeking out metals like iron was suggested as an explanation for the introduction of mud brick[1] terraces and Mycenaean pottery (Davies et al. 1926: 199). This theory has recently received little attention, as the scale has tipped from emphasizing foreign traders to local receptivity in the literature when it comes to discussing contact. At the modest scale, down-the-line trade has been suggested by Horejs (2011) as an explanation for the spread of prestige objects and weapons to Central Macedonia, a place where influxes from the North and the South stopped, rather than moving on (Horejs 2011: 204; Horejs 2007: 301).

Social organization, and thus local networks between sites, can inform about the logistic capacity to participate in the Bronze Age World. The recent studies of social organization emphasize:

1. Feasting as a means of resource mobilization in addition to playing a central role in group formation (Andreou and Psaraki 2007; Halstead 2011).
2. That "Everyday mobility" and down the line trade was used to explain the transfer of prestige objects and pottery (Horejs 2007D and Horejs 2009).

These models can serve as a vantage point in a study of how mobility and landscape use impact on each other. An important issue to keep in mind is the scale of social organization – which can be addressed by analyzing landscape patterns in Central Macedonia's Lower Axios hinterland in light of the presented models. The scale implied by the "Assiros Model" is greater than that implied by the "down the line trade model". The key issue is how these models match modeled landscape data and how the data from the Lower Axios matches the data from the Langadas (see Kotsakis 1989; Kotsakis 1990). Scale of organization, and the opportunity to mobilize resources (see ch.5. for a discussion of resource access), is of consequence to the understanding of the extent of local participation in trading networks. Did sparse impulses spread in local networks, or was there a strong presence of foreigners who steadily transmitted new ideas and brought copper and tin for trade and exchange with larger local polities?

1 While mud brick was also known in the Neolithic (Souvatzi 2013: 49), wattle and daub was the building material of the Early Bronze Age at Kastanas (Aslanis 1985). While the Middle Bronze Age was a hiatus at Kastanas, recent studies from Hagios Mamas at Chalcidice shows a transition to mud brick in this period (Aslanis 2009: 40; Aslanis and Hänsel 2010: 276). At Archondiko (Pilali-Papasteriou and Papaefthymiou-Papanthimou 2002: 142) shows a use of mud brick early in the second millennium BC. Mud brick is discussed in greater detail in chapter 9 together with Minyan pottery.

6.1.0 Landscapes of Central Macedonia – The Structure of Lower Axios

The river valleys of Central Macedonia are marked by numerous tells (fig.44 and fig.45), sometimes located in or near villages where they are used as picnic areas (Gallikos), locations upon which to erect small churches (Limnotopos), soccer fields (Axiochori), or they stand solemnly as tall monuments in the landscape (Philadelphia Toumba). While the tells represents loci strong continuity, river valleys are always in motion (Prusac 2007). The tells, visually prominent today and in the past, provide a link back in time to a landscape markedly different from that of today. The works of the geographer Lynch (1960), and the later adaptations of his ideas to archaeology (Gansum et al. 1997; Jerpåsen 2009), provided important methodological inspiration (below). The *structure* of a place can be approached by looking at superior and inferior "rooms" as defined by routes, edges and monuments (fig.13). Unchangeable movement-restricting features such as mountains and hills divide the landscape into larger "areas" comprised of "parts". Within the Lower Axios Area, the relations between rivers and land routes, maritime and inland zones, vegetation and resources, traversable and impassable hills, and man-made tells define a structure more or less constricting movement. Analyzing the structure could shed light on patterns of mobility, exploitation and dominance.

6.1.1. Regions, Areas and Parts of Central Macedonia

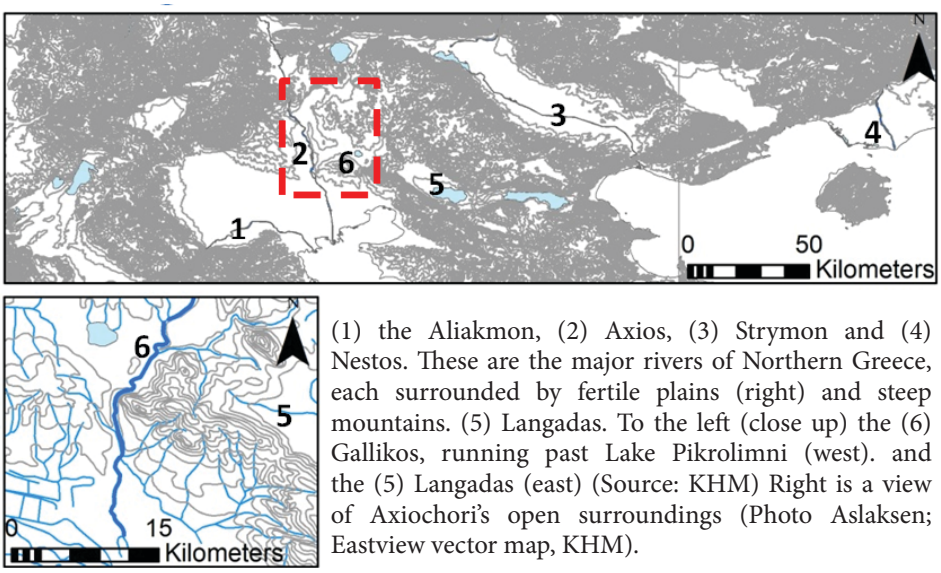
The landscape of Greek Macedonia is divided by mountains, some higher than 2000m (Casson 1968: 5), and steep hills visually enclosing areas which together constitute the administrative regions of the Eastern-, Central- and Western Macedonia. The mountains are pierced by rivers like the Axios, Aliakmon, Strymon and Nestos, creating well watered river plains with rich alluvial soils. Based on impassable mountains and the main routes of communication, a convenient area division of the Central Macedonian region could be the Lower Axios Area, the Langadas, the Bay of Thessaloniki, the Lower Strymon and Chalcidice (fig.14).

The area I refer to as the Lower Axios (fig.14, area marked with dotted square outline) has a high number of modern villages as well as ancient sites. Of the 101 sites mapped by French (1967), 30 lay in this area, which measures 1300 km2. This number can be raised to 35 in the Late Bronze Age with the inclusion of the data from more recent surveys (Besios et al. 1997). The area of the Lower Axios is surrounded by gentle hills to the west, low mountains to the north east, enclosing a plateau with agricultural lands and Lake Pikrolimni (the ancient Lake Chalastra; Dotsika et al. 2012: 2) east of the alluvial river plain. Low hills to the south east roll towards what would have been the sea in the Bronze Age. The valley splits in two arms to the north: to the east, where it continues to Lake Doirani and the Southern FYRO Macedonia, and north it narrows in and follows a pass connecting to Gevgeli (see fig.1). I also include the Gallikos, which is a smaller river running through a narrow valley east of the Axios (fig.14). These two rivers, and an Aegean seaboard in the Bronze Age, define the main routes of communication.

To the north, the Gallikos passes east of the plateau of Lake Pikrolimni, watered by a number of streams. In short the area of study is delimited from the Western Macedonia Province, FYRO Macedonia and the Langadas by more rugged hills and mountains, forming a bowl with "exits" to the sea by the Axios and Gallikos (fig.14 and fig.17), to the north by the Axios and by Lake Doirani and to the east by the Langadas Basin. East of the Gallikos lies the Langadas Basin and south east the Bay of Thessaloniki. After the First World War several lakes were drained, including Amatovo and Ardjiani (Casson 1968: 33) (fig.15). Rural development in the 20th century shaped the landscape, but did not alter the fact that the Lower Axios Area is a natural "hub" of routes between the Aegean and the Central Balkans surrounded by steep mountains. This area has four parts visually defined by hills – the Lower Axios Bay, the Lower Gallikos, the Pikrolimni Plateau and the North East Passage. The Lower Axios Bay is often referred to as the bay of Kastanas (e.g. Shultz 1989), which I find slightly misleading since Kastanas was but one of many sites in proximity to the bay (see fig.17).

Lynch (1960: 47-48)	Gansum (et al. 1997)	Adaptation	Description
1. City	Superior room	Area	Defined by impassable features (e.g. mountains)
2. District	Inferior room	Part	Segment defined by feature 3-6
3. Edges		Traversables or impassables	Traversable features (e.g. hills)
4. Paths		Route	A channel of movement
5. Landmarks		Monument	Visual point of reference
6. Node		Hub	A nexus of routes

Figure 13 Different defining parts of landscapes derived from urban studies and Scandinavian archaeology.



(1) the Aliakmon, (2) Axios, (3) Strymon and (4) Nestos. These are the major rivers of Northern Greece, each surrounded by fertile plains (right) and steep mountains. (5) Langadas. To the left (close up) the (6) Gallikos, running past Lake Pikrolimni (west). and the (5) Langadas (east) (Source: KHM) Right is a view of Axiochori's open surroundings (Photo Aslaksen; Eastview vector map, KHM).

Figure 14 Overview of key rivers and plains.

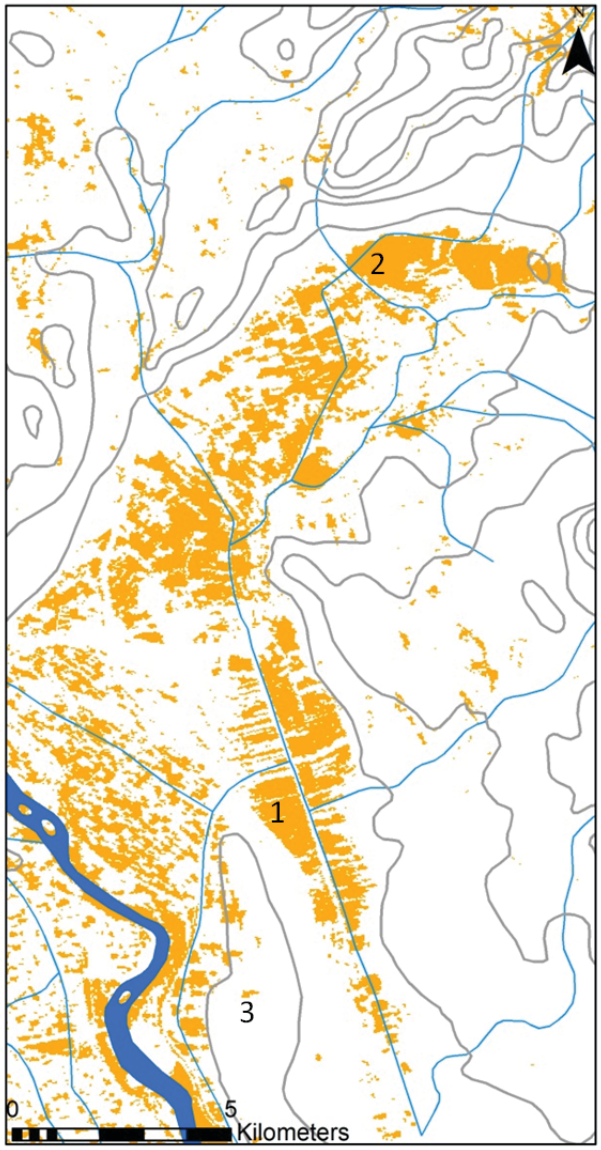


Figure 15 Farmed well-watered lands where Lake Amatovo (1) and Ardjiani (2) were located, west of the Axios and the land tongue upon which Axiochori is located (3). These areas (1, 2) could have been wetlands in the Bronze Age (Eastview vector map, KHM and LANDSAT).

6.1.2 Ancient Landscapes of Central Macedonia - A Survey of Bioarchaeology

While the mountains have remained the same, the features between them have changed significantly since the Bronze Age. Geology, palynology, archaeobotanics and archaeozoology can give an impression of how the landscape may have looked and been used (Becker and Kroll 2008; Becker 1986; Kroll 1982; Schulz 1989). The biroarchaeological data and geology thus give information on how mobility (e.g. resource exploitation, hunting and agriculture) connected the various parts of the landscape discussed above.

The lowlands and foothills of the mountains were subject to deforestation in the 2nd millennium BC (Athanasiadis et al. 2000: 340), a picture which fits general trends in the Balkans from ca. 2500 BC when human impact on landscapes becomes detectable (Willis 1992: 152-153). The intensified crop harvesting in the Late Bronze Age (Kroll 1982) fits this picture well as this would have required clearance. Studies of plant $^{13}C/^{12}C$ carbon variations at Assiros indicate that the grains in the Langadas were cultivated in a wet climate or in irrigated plots (Heaton et al. 2009: 2232). In the Lower Axios Area, numerous rivers would have provided the opportunity to lay out well-watered plots for agriculturalists or horticulturalists in the lowlands. Although I focus on the Lower Axios Area, it must be mentioned that bioarchaeological studies have been conducted at Hagios Mamas in Chalcidice (Kroll and Becker 2008) and at Assiros in the Langadas (Heaton et al. 2009; Jones and Halstead 1980; Jones et al. 1986), showing slightly different patterns, as noted above (ch.6.0.1). Studies which included biological remains like bones and seeds go back to the interwar period (see Heurtley and Hutchison 1926).

Early Studies of Bronze Age Livelihood

Studies of environments and livelihood have a long history in Northern Greece. At the excavation of Axiochori, Heurtley had already retrieved bioarchaeological data to give a rudimentary account of livelihood (Heurtley and Hutchison 1926). From Axiochori's period C, which covers the second half of the 2nd millennium, ca.1400-1050 BC (ca. half meter 24-9, parallel to Kastanas layer 17-11; see Hochstetter 1984: fig.54), oak was identified (through remains and impressions; Davis et al. 1926: 200). Amongst the domestic animals, dog and horse were identified for the same period. Wild animals include boar and stag, which both live in forests, were hunted, while fresh water shells (*Unio*) were preferred in the Bronze Age, shifting towards sea shells (*Cardio*) in the Iron Age; Spondylos shells were also collected in the Iron Age (Heurtley and Hutchison 1926: 45; see Geist 1999). These results build on a small sample, without statistical significance. Yet some of these observations are fit the picture given by the Kastanas material.

Modern Studies of Past Livelihood

The wetlands are today mostly confined to the coast, but in the Bronze Age these would have been located further up. Kastanas was an island, and Axiochori, Aspros and Limnotopos would have been located on a peninsula overlooking the brackish bay where the Axios met the Aegean (Kroll 1983: 18). This zone may have stretched all the way up to Axiopouli (Ghilardi et al. 2008: 114; Mauel 2009, citing Schulz 1989), but connects with the plain of Thessaloniki today. The 2200 km^2 plain of Thessaloniki, the biggest coastal plain in Greece, was formed through sedimentation from rivers such as the Axios and the Aliakmon from the 5th millennium BC to the 3rd century AD. The Macedonian capital of Pella had a harbor in the Archaic and Classical period. In the Hellenistic and Roman period, the lower Axios (referred to as the Kastanas Bay by Schulz 1989) and the harbor of Pella became landlocked by alluvial plainscapes. Before, both areas by the Axios and the Gallikos which are landlocked today had direct connections to the Aegean (Ghilardi et al. 2010; Ghilardi et al. 2008; Bintliff 1976; see also Bottema 1974; Syrides et al. 2009).

According to Becker (1986: 294-295) the dwellers of Kastanas ate birds which often live in environments with sandbanks, open waters with reedy or wooded banks, water meadows and fields, whilst turtles were also consumed. Although fish was rarely eaten, and if so mostly fresh water fish, it seems that marine resources were often exploited as large amounts of sea shells were found at the site roughly in the period 1400-1200 BC (Kastanas layer 17-14b; Becker 1986: 233). Towards the end of the Late Bronze Age and in the Early Iron Age fresh water shells come to dominate the large shell assemblage (Becker 1986: 295). The period 1700-1100 BC was one of increased contact with the Aegean, but also one of maritime resource use, peaking in the "international period". Seaweed was also harvested and used as a padding material (Kroll 1983: 104).

The use of marine resources differed in other regions such as the Chalcidice, where marine resources were preferred in all periods, murex shells were used to produce purple dye, as they were by the Bay of Thessaloniki (Veropoulidou et al. 2008), and salt water fish were preferred over freshwater fish, the favorite of the Kastaniotes. At both Hagios Mamas and Kastanas the immediate surrounding reed forests were exploited, for example, as hunting grounds for fallow deer (Becker and Kroll 2008: 122). Water buffalo were encountered at the end of the Late Bronze Age while a bone from an auroch was also uncovered; these animals would have been suited to a life in river deltas (Becker 1986: 30-31). This does not only say something about food consumption, but also the immediate environment and its exploitation.

Bioarchaeological materials not only give valuable information on the coastal zone, but provide important insights on the land environment. In the Late Bronze Age, Kroll identified Elm and Oak by looking at the sample materials used for ^{14}C analyses. This does not give a representative image of the environment around Kastanas, but the total absence of pine trees is revealing (Kroll 1983: 161). More recent results based on pollen from cores indicate that the forests were severely diminished in the 2nd millennium BC (Athanasiadis et al. 2000), and it may be that the most substantial woodlands were located at higher grounds. These areas were the source of an important part of the diet. The dwellers of Kastanas hunted fallow deer, red deer, and sometimes roe deer. In the transition to the Iron Age, after 1200 BC, the percentage of meat from hunted animals increased to over 50% and included boar, wolf, bear, lynx and lion (Becker 1986: 100 and 295). As the Iron Age progressed, domestic animals increased their numbers and size, but this age was evidently heralded by a change in livelihood. These forests provided hunting grounds as well as a source for berries and nuts (Kroll 1983). It is conceivable that there were woodlands in the vicinity of Kastanas although the most substantial forests were probably located at higher grounds (see Athanasiadis et al. 2000).

The hilly fringes of the plains were possibly also a source of riches. Although the evidence is not conclusive, it is highly likely that wine was both produced and consumed in Bronze Age Central Macedonia. Viticulture may have its roots as far back as in the Stone Age (Valamoti et al. 2007; Miller 2008: 944; see Mangafa et al. 1998). Grapes, associated with the exploitation of marginal areas, together with the intoxicating qualities of wine could represent an indicator of social complexity and the rise of elites (Valamoti et al. 2007: 54, citing Renfrew 1973). The occurrence of wine grape seeds from cultivated trees could suggest wine production (Kroll 1983: 67; Becker and Kroll 2008: 150). Grape pips have also been found at Toumba Thessaloniki, Assiros and Hagios Mamas, and it might be assumed that this drink was frequently consumed (Kroll 2003: 301). Wine, and thus also the fringes, had an important role perhaps especially as an ingredient in the feast (Andreou and Psaraki 2007). Game, wine and sweet berries, which enabled social cohesion through consumption at a feast, may all have been derived from the higher grounds surrounding the plains.

Near Kastanas, garden plots and fields must have been scattered close to the tell and along the river north of Kastanas in which herbs, chives, melon, vegetables and pulses were grown (see Kroll 1983). Flax, a water-demanding and work-intensive plant (Gamble 1982: 103), was the main

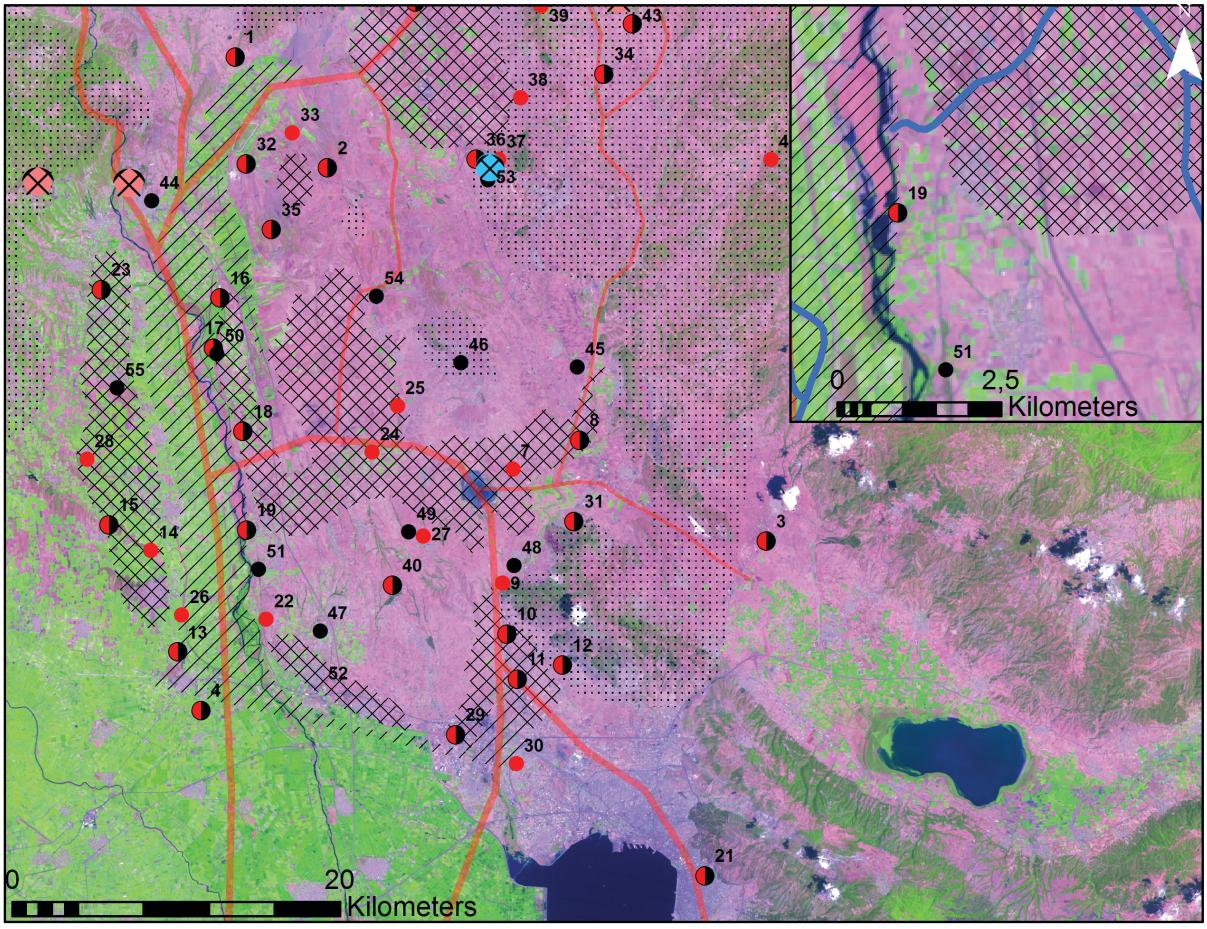
oil plant until the beginning of the Iron Age when imported olive oil may have gradually replaced it. This plant may have had a dual function as it also could have provided linen fibers, as in Mycenaean Greece (attested by written sources, see Chadwick 1990: 170), for the textile industry as an alternative to wool (Kroll 1983: 57). In layer 14b a cut-away neck jug was found to contain camelina seeds (Kroll 1983: 59). Poppy, also found at Kastanas, may have been believed to have had medicinal purposes (Kroll 1983: 135). Poppy, together with other poisonous plants like black henbane, black nightshade and butter flower, may have been added to wines to produce hallucinogenic effects (Tsamis 2010: 118). Key crops were spelt, emmer and einkorn, the two latter were of prime importance. Bread wheat only became more important in later periods although traces have been found at Assiros (Kroll 2000: 63; see Valamoti 2002 for discussions of bread wheat). Einkorn was cultivated on a large scale, and must have demanded large fields. While the fields were under attack by weeds, the reckless agricultural regimen perhaps aimed at export, eventually led to crop degradation at the dawn of the Early Iron Age (Kroll 1983: 149-152).

From the Early to the Late Bronze Age 70%-80% of the meat was derived from cattle, pig and sheep or goat. For each goat there were 4 sheep (Becker 1986: 294-1295). Animals were slaughtered outside the settlement and the meats divided. Often the meatiest parts did not end up at Kastanas (Becker 1986: 258). While cattle grazed the plains, the sheep must have been led to pasture in the highlands. In all periods except the Late Bronze Age, adult sheep and goats were the majority of the slaughtered animals. Younger animals were also slaughtered, 17.2 % before juvenility, while 33.3% were juvenile and 46.2% were adult (against 64.5% in the Early Bronze Age). It is uncommon to slaughter the youngest animals for meat if one seeks to use their milk or wool; sheep's wool was obtained in the Early Bronze Age (Becker 1986: 51). The amount of sheep and swine jumped in the Late Bronze Age animal bone assemblage. Relatively small in the Late Bronze Age, their sizes shrunk even more towards the transition to the Early Iron Age. In light of the frequent appearance of flax in the archaeobotanic material, it is conceivable that the sheep were kept for a range of products in the Late Bronze Age, largely meat rather than just for wool (see Becker 1986: 58 and 252; see Halstead 2011; Wardle et al. 1980).

From this brief review, some deductions about the ancient landscape can be made. Oak was most likely more common in highlands than lowlands, but may have existed also in plain fringes. Much of the food may have been derived from garden plots, but the intensive cultivation of einkorn would, according to Kroll (1983), have required fields of some size. Grasslands would have been required to feed cattle. It thus makes sense that a proportion of the lowlands were open. Fringe areas provided sweet berries and animals to be hunted, and could also have been used to cultivate grapes. The brackish bay upon which Kastanas was located was a source of seaweed and mollusk, while the reed forests provided birds and deer.

Resources	L.Axios Bay	Gallikos	Pikrolimni	N.E Passage
Highland:				
Pastures	X	X	X	X
Minerals	X			X
Wood	X	X	X	X
Hunting ground	X	X	X	X
Viticulture	X	X	X	
Lowland:				
Cropland	X	X	X	X
Pasture	X	X	X	X
Placer gold	X	X		
Riverborne communication	X	X		
Swampland	X			
Marine:				
Gastropods, shells	X	X		
Fish	X	X		
Seaborne communication	X	X		
Sites in Area (id)				
Bronze Age = 35	1, 4, 13, 14, 15, 16, 17, 18, 19, 22, 23, 26, 28, 32, 35	9, 10, 11, 12, 29, 30, 40	7, 8, 24, 25, 27, 31	2, 20, 36, 37, 38, 39
Iron Age = 34	1, 4, 13, 14, 15, 16, 17, 18, 19, 23, 32, 35, 44, 50, 51, 55	10, 11, 12, 29 40, 47, 52	8, 31, 45, 46, 48, 49, 54	2, 20, 36, 53

Figure 16 Distribution of key resources and sites in the Lower Axios Area.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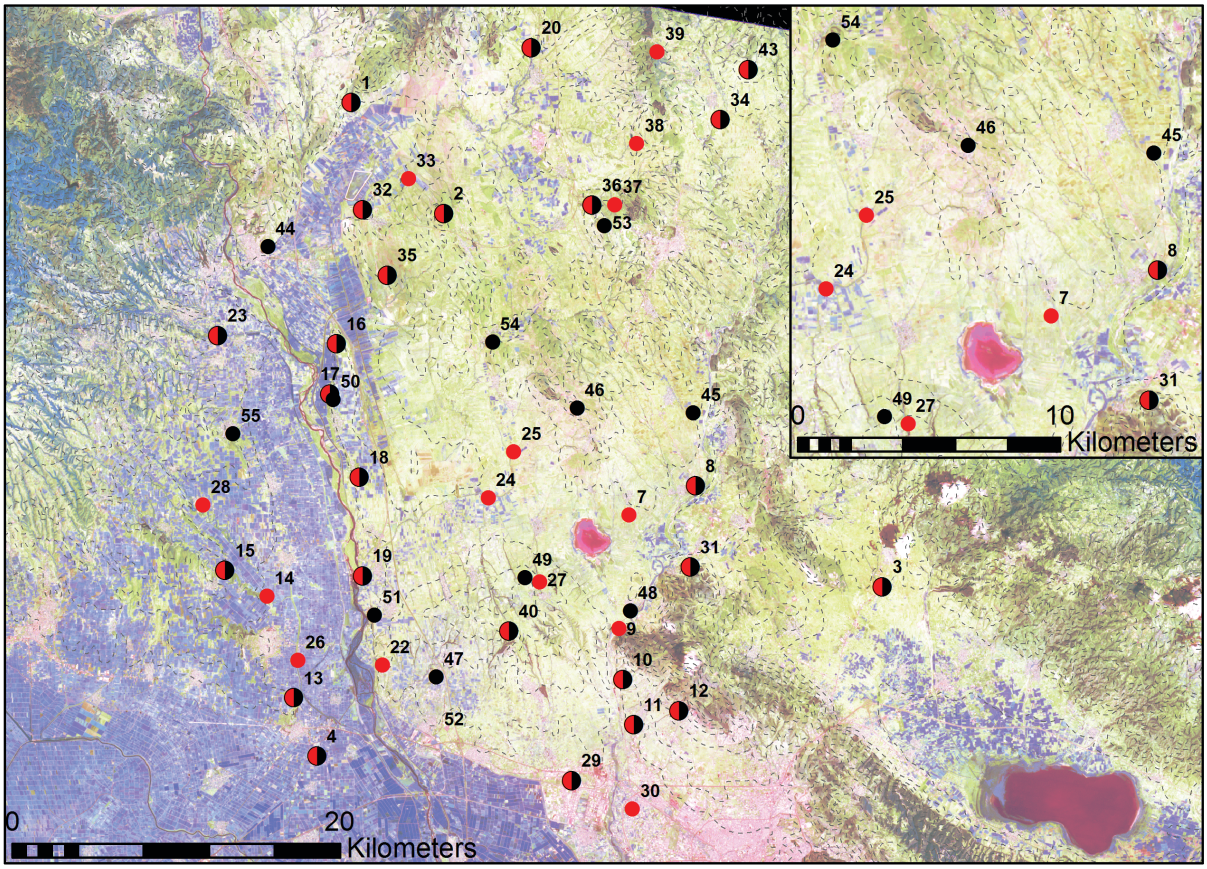
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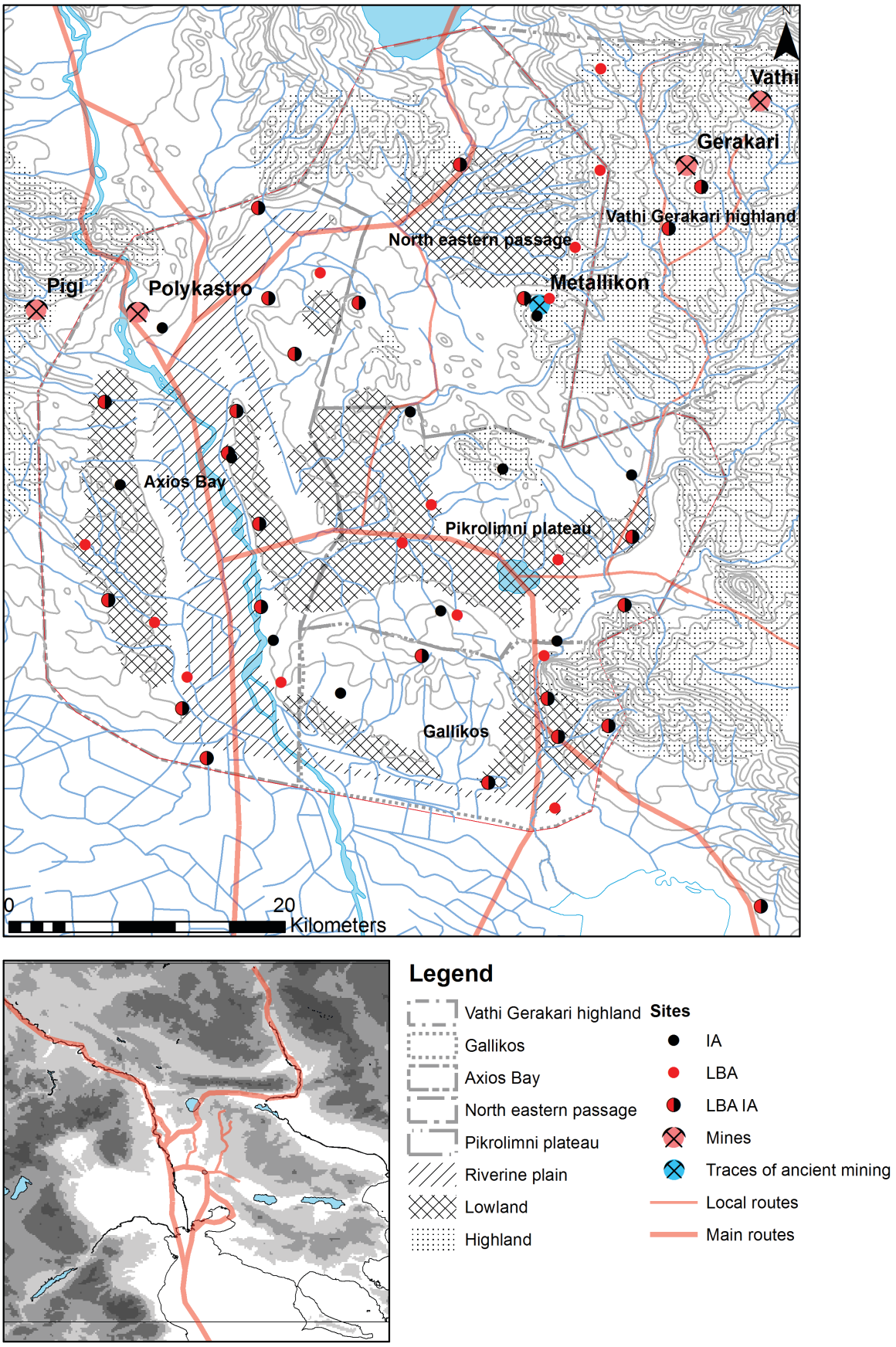


Figure 17 Distribution of sites, routes and resources in the Lower Axios Area. Approximate "resource areas" have been derived from Landsat imagery. Upper left image (Landsat 1-5) is created from a combination of band 3 (red: vegetation slopes), 4 (near infrared: biomass content and shorelines) and 5 (near infra-red: moisture content of soil and vegeation) shows wetlands and river-plain (green) – agricultural lands, above 40m (purple) and highland with less vegetation (dark purple). Lower left image (Landsat 7) is created from a combination of band 3 (red: vegetation slopes), 5 (near infra-red: moisture content of soil and vegetation) and 7 (panchromatic: sharper image). It is evident that around the agricultural lands by the North East Passage and the Pikrolimni Plateau (see lower left corner) is well watered and surrounded by sites. At the upper left corner image, the well-watered land near Kastanas is displayed (green) (Eastview vector map, KHM and SRTM).

The main components of diet in the Bronze Age were derived from lowland plains and croplands (fig.32 and fig.33), while possible key components for the feast were derived from the highland fringes – enabling accumulation of produce at, for example Assiros. The distance between highland and lowland was shortened with transport animals. Throughout the Bronze Age, horses were kept at Kastanas increasing in extent in the latter part of the 2nd millennium. The donkey was also introduced in this period, an important transport animal in the Near East (Sasson 1966: 163; see also Kardulias 1999). These two animals could transport people and goods efficiently, increasing the range of the dwellers at Kastanas and presumably also the other Late Bronze Age sites (Becker 1986: 74 and 87). Figure 17 displays the various riches of the lands in the Lower Axios Area of the Central Macedonia Region. The yellow areas are lowlands and the green are highlands. The lowland resources at the Pikrolimni Plateau encircled by sites and watered by rivers were assigned using Landsat Imagery of figure 1 and are displayed as purple. In figure 16 I have made an attempt to assign the different resources to different parts of the Lower Axios Area. Although perhaps not fully accurate, it indicates that the Lower Gallikos and Lower Axios Bay parts were diverse, while agricultural lands may have been concentrated by the Pikrolimni Plateau and the North East Passage. The parts complement each other as the bulk of resources were supplied by the latter two, while organization and communication could have been supplied by the former.

6.1.3 Key Land Routes of Mobility

If the parts of the Lower Axios Area complement each other, their connections need to be explored. When first visited, the Lower Gallikos, Pikrolimni Plateau (fig.18), and the North Eastern Passage to FYRO Macedonia were experienced as near-independent parts of the Lower Axios Area, delimited by traversable hills (fig.16). As already noted, the Lower Axios Area is a "bowl" with four exits through which four main routes pass. Along these, numerous local routes connect all four parts of the Lower Axios Area and the Vathi-Gerakari Highland. All the main routes lead to the Bronze Age World: by land or river into the Balkans, or by sea to the Aegean. Paths and tells relate as the vast majority of sites lie close to a main route (fig.17).

The Lower Axios Bay has an unmatched number of sites, but also direct access east to the Pikrolimni plateau. Hänsel (1989: 25) pointed out the unity between the alluvial Axios plain, the hills overlooking it upon which the settlements are located, and the mountains. This pattern also holds true for the north eastern passage and the Pikrolimni Plateau (fig.18): the tells look out over the landscape. This Pikrolimni Plateau stretches out towards the lower Axios although it is connected with passes to the Lower Gallikos, the Langadas and the North Eastern Passage. Direct access to this part means direct access to bountiful crop lands and grazing fields, and further communication to other parts, including the highland valleys where the mines of Gerkari and Vathi are found.

The structure of the landscape is such that the Axios is a gateway to FYRO Macedonia, the Aegean, and through the North East Passage also to Bulgaria. This area also connects to the Pikrolimni Plateau which is a "hub" in a local system, connecting all four parts of the Lower Axios Area and the neighboring Langadas Basin. This "hub" stretches from the old shores of Lake Amatovo to the Gallikos, which joined the northern mining areas and the Lower Gallikos. Markedly smaller environs than the Axios, and with no direct connection to the Balkans, this route may nevertheless have been important from an Aegean point of view. Woods and minerals from the highlands by the mines of Gerakari and Vathi, crops from the lowlands of the Pikrolimni Plateau, and placer gold from the Gallikos presents incentives for communication across regional borders, but also between constituent parts of the area (fig.16 and fig.17).

6.1.4 The Structure of the Lower Axios Area

Tying down resources onto maps opens discussion of mobility and resource use and provides a framework for further discussion on organization and scale. If we look at the landscape as a whole, it is well interconnected. The tall surrounding mountains of the Lower Axios Area form a bowl with two entries from the Aegean, the Lower Axios Bay and the Lower Gallikos, with exits to Gevgeli and Doirani leading into FYRO Macedonia and Bulgaria. If one looks at lower traversable hills, the landscape can be divided further into four parts which were interconnected by natural routes. The parts had different economic assets: the Lower Axios Bay and the Lower Gallikos had a varied resource base while the largest tracts of flat land were by the North East Passage and the Pikrolimni Plateau – the areas with fewest sites. The tells mostly lie along the main routes of communication which

Figure 18 Lake Pikrolimni photo (Photo Aslaksen).

would have enabled their inhabitants to trade with each other and with people passing by (fig.16 and fig.17). Feasting has been proposed to be the social glue and a mechanism with which resources were mobilized (Andreou and Psaraki 2007: 415-416). If so, it could be that the fringe resources which included game, viticulture, berries and herbs enabled feasts through which manpower could be mobilized to gather wood, metals, textiles and crops for exports, and in extension, participation in the Bronze Age World.

The economic landscape of the Lower Axios Area could have served as the base for a fairly large polity, depending on its ability to control land. I explore the possibility for a large polity with the capacity to draw together substantial tracts by looking at visibility, territories and defense and connectivity (below).

6.2.0 Visibility and Power

Visibility is an important element in the discussion of hierarchies, and can shed light on the matter of ideology and in extension scale. Mud brick terraces and retaining walls may have served to extend the settlement surface and provide defensive measures, but could also mean that some literally towered above others (Kotsakis and Andreou 1987; Kotsakis 2007). It has already been remarked that the majority of sites were located in the vicinity of main routes. Studying the relation between tells and routes, and the landscape as seen from the tells would yield information about control of the hinterland and how the tells were perceived in motion by the travelers coming to or passing by Central Macedonia.

The archaeological landscape of past monuments such as tells are faint reflections of a lively past in which people travelled from near and afar, venturing by on longer journeys or passing on the way to the fields. The landscape is actively organized through the performance of different activities (Gansum et al. 1997; see also Ingold 2000: 194), and in Mycenaean Greece dams, palaces and roads are clear examples of this. Wheatley and Gillings (2000) aptly describes visibility as that which "…refers to *past* cognitive/perceptual acts that served to not only inform, structure and organize the location and form of cultural features, but also to choreograph practice within and around them" (Wheatley and Gillings 2000: 3). This certainly holds true for Central Macedonia, where tells and later tumuli lie scattered in the landscape (fig.1). They catch the eye alike of travelers on the highway and farmers whose fields may lie on their very tops. As such, my approach is bipartite – I first explore what can be seen from the different tells with a viewshed analysis to determine what tracts could be observed from the various tells, and then commence exploring the tells with a visual analysis from the perspective of a traveler passing by from north or south. The topics of command and display address both ideology and possibilities to exercise power through visual command.

6.2.1 Viewshed Analysis – A hierarchy of Command

Although aimed at the modern prison system, Foucault's (2001: 179-180) concept of the *panopticon* illustrates the power of seeing; in the prisons of the 19th century, control was obtained by the wardens through the means of visual command. The wardens were stationed in towers from where they could observe the prisoners, who could not do the same in return. This gave the warden full control, and "automatized" his exercise of power over the prisoners as they would always feel the warden's gaze (even if the control tower would be empty). Intervisibility between sites could enable control of neighbors, landscapes and routes in a similar manner; a key question is which site has most neighbors under its gaze. In times of war it also means that signals may be sent (see Barber 2010). For the Romans, their power was manifest in imposing development projects across their empire (Alcock 1993), while proto-palatial peak sanctuaries formed "zones" of inter-visible sites forming a "ritual unity" (see also Soetens et al. 2001: 2). The visual aspects of the largest and most imposing terraced and/or fortified tells like Axiochori, Assiros and Toumba Thessaloniki (Kotsakis and Andreou 1987; Kotsakis 2007; Andreou 2001) can be further explored with a viewshed analysis. To efficiently construct an area-wide hierarchy of control, I analyzed the settlements and counted how many other sites of both Bronze and Iron Age date were within sight of each site (with the viewshed analysis tool of ArcGIS).

Approach

As mentioned above (ch.6.0.1) the height of the tells were increased as an important quality (fig. 44 and fig.45); this is a relevant starting point in the discussion of visibility. The heights of the tells can be derived from Rey's (1919) works (fig.19), but height measurements for the sites discovered after the First World War are largely non-existent in the Lower Axios Area. Viewshed analysis based on the height of the tell's location represents a cost efficient alternative and can address issues of control. Preliminarily, it could seem as if there are some very tall and some very low tells. Limnotopos, Aspros and Axiochori lie in a row at a ridge overlooking the Lower Axios Bay while Antophytos A and B are located nearby on the Pikrolimni Plateau. While this alone bears little weight, it does indicate a hierarchical difference that may be related to the landscape structure – the dwellers of Antophytos A and B, if below their neighbors at the ridge, could have delivered agricultural produce to Axiochori, Aspros and Limntopos.

Viewshed analysis (appendix 3) can be used to construct a hierarchy of sites based on how many other sites they could command within the gaze. It is an oft used approach in spatial archaeology, frequently used on landscapes (De Montis and Caschili 2012; de Reu et al. 2011; Ruestes 2008; Llobera 2008) but recently also within built environments (Paliou 2011). A detailed DEM created from 10m contours (Central Macedonia 1:50 000, University of Thessaloniki) provided an excellent background against which to run a viewshed analysis for each site in the Lower Axios Area in ArcGIS 10. The viewshed analysis generates a raster image of

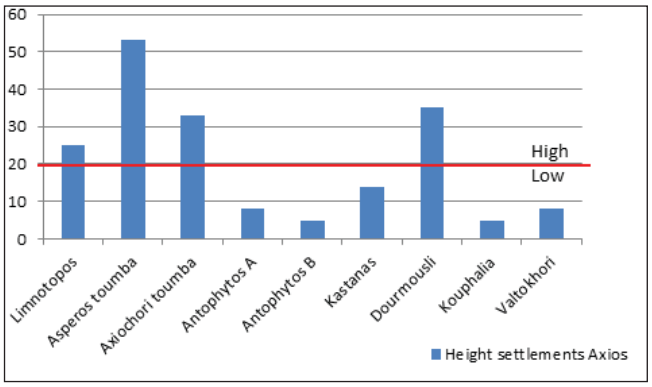


Figure 19 Settlement heights (m).

what is visible from a given observer point (in this case a tell site) based on elevations. In cases where a group of sites are of interest, one can conduct a cumulative viewshed analysis for all the sites or a group. This analysis in itself does not take in to account mobility, temporal/cyclical dynamics (e.g. the time of year/day), how far the eye actually sees or vegetation (Wheatley and Gillings 2000: 5), but does give a rough estimate which together with observations in the landscape may serve to answer if a hierarchy based on visual command of the landscape can be untangled further. A simple method to limit the "range" of each site is to grade the distances the eye can reach:

Distant 5km +

Intermediary 5km-500m

Restricted 500m-0m

(Wheatly and Gillings 2002: 203)

Although heuristic, these criteria serve to limit the range of the eye. From personal experience, I suggest that most sites are rarely visible at ranges of 10-12km on a clear day. In analysis of visibility, one must also take into account the size and shape of the tell along with its location (fig.22). Axiochori towers on a ridge while Antophytos A is lower and located on a flat plain. Sound judgment must prevail when reading viewsheds, and the analysis must be coupled with visits to the landscape.

Results

The viewshed analysis is presented in appendix 3 (viewshed analysis of all sites in the Lower Axios Area) and gave several results, amongst them that more tells had visual contact with sites at a distance of 5km to 10km/12km rather than less. As many locations were also settled in the Iron Age, and there were no major re-alignments in the settlement pattern (see fig 1, compare Bronze Age and Iron Age sites), there is no reason to believe that there were any changes in regards to visibility. In the Bronze Age there was only a low number of tells which were within a 500m radius of one another, although flat sites probably existed in the vicinity, for example 100m northeast of Kastanas a pottery scatter was discovered (Schulz 1989 fig.2). While flat sites are poorly known, we can assume that they were even more numerous around larger sites. In regards to tells, they were spaced in such a manner that they rarely had other sites in view within intermediary distance. Only one, Pentalophos B had three neighboring tells within an intermediary range. Several sites not have visual contact with neighbors at a distance closer than 5km, including Axiochori which had visual contact with the most sites (see fig.22). This may indicate a panoptic quality of this location, which also efficiently blocked land routes for other site which had a visual command over large tracts of land, for example Limnotopos and Aspros. This may have prevented them from exploiting their command as these sites, unlike Axiochori, had few opportunities to police the areas under their gaze.

In a visibility hierarchy based on the 'distant' category, Axiochori was on top followed by Xorygi (fig.20 and fig.21), the Aspros toumba and table. Controlling the ridge upon which Axiochori was located meant controlling the Pikrolimni Plateau and the Lower Axios Bay, and with the aid of the dwellers of Xorygi the North Eastern Passage (fig.23, cumulative viewshed). Controlling these two sites could give visual command of both the most feasible agricultural lands and the main routes. In addition, an unmatched number of other tells would be under a watchful gaze. Together, Axiochori and Xorygi command all of the lowland areas, mineral rich areas and routes. If a signal system would be in existence, it would be fast to send messages, making it impossible to pass through the territory from any direction without being noticed by the dwellers of Axiochori or Xorygi (fig. 23). The visibility hierarchy proposed is one of the great differences between the few sites on top and all those at the bottom: 29 of the tells had command of 5 or less other sites. In reality, the hierarchy has three tiers; those which include sites with panoptic command, and those which include the rest of the tells, which again stand over anonymous flat sites of which we know very little.

A viewshed analysis cannot stand on its own as it should be coupled with other observation and a good amount of caution. It gives a rough sketch of how control over landscapes may have been exacted: most sites and all key routes were within a distance of less than 30km (marching distance) from either Xorygi or Axiochori – meaning that those in possession of these sites could launch warriors to police the area in case of danger. The next point in the agenda must be to investigate the role of visuality *in motion*. The landscape is not static but filled with people moving about to conduct their chores as traders, warriors and crafters from near or afar. To add a mobility perspective, how the sites would be seen when approached from the north or south is addressed in the following section.

Figure 20 Xorygi seen from north (Photo Aslaksen).

Figure 21 Axiochori seen from Xorygi (Photo Aslaksen).

ID	Sites	Period(s)	Medium dist.	Distant	Total
18	Axiochori	LBA IA	0	16	16
2	Xorygi	LBA IA	0	14	14
17	Aspros	LBA IA	1	11	12
1	Tsautsitsa	LBA IA	0	7	7
16	Limnotopos	LBA IA	1	5	6
19	Kastanas	LBA IA	0	6	6
4	Valtokhori	LBA IA	1	4	5
13	Kouphalia A	LBA IA	1	4	5
26	Kouphalia Toumba	LBA	2	3	5
31	Petroto	LBA IA	2	3	5
8	Gallikos	LBA IA	2	2	4
12	Neochoruda	LBA IA	2	2	4
14	Livadihi	LBA	0	4	4
22	Dourmousli	LBA	0	4	4
35	Kotyle	LBA IA	0	4	4
36	Metalliko G	LBA IA	1	3	4
37	Metalliko D	LBA	2	2	4
38	Metalliko E	LBA	2	2	4
7	Xylokeratia	LBA	2	1	3
10	Pentalophos B	LBA IA	3	0	3
11	Pentalophos A	LBA IA	2	1	3
24	Antophytos A	LBA	1	2	3
25	Antophytos B	LBA	1	2	3
27	Xirochori Toumba	LBA	0	3	3
33	Vapheiochori A	LBA	1	2	3
15	Rakhona	LBA IA	0	2	2
23	Toumba Paionias	LBA IA	0	2	2
28	Dytiko	LBA	0	2	2
9	Philadelphia	LBA	1	0	1
20	Kilindir	LBA IA	0	1	1
29	Anchialos	LBA IA	1	0	1
30	Lakhanokipos	LBA	1	0	1
32	Vapheiochori B	LBA IA	0	1	1
39	Plagia Kilkis	LBA	0	0	0
40	Nea Mesimvria	LBA IA	0	0	0

Figure 22 The number of visible Bronze Age settlements seen from each site.

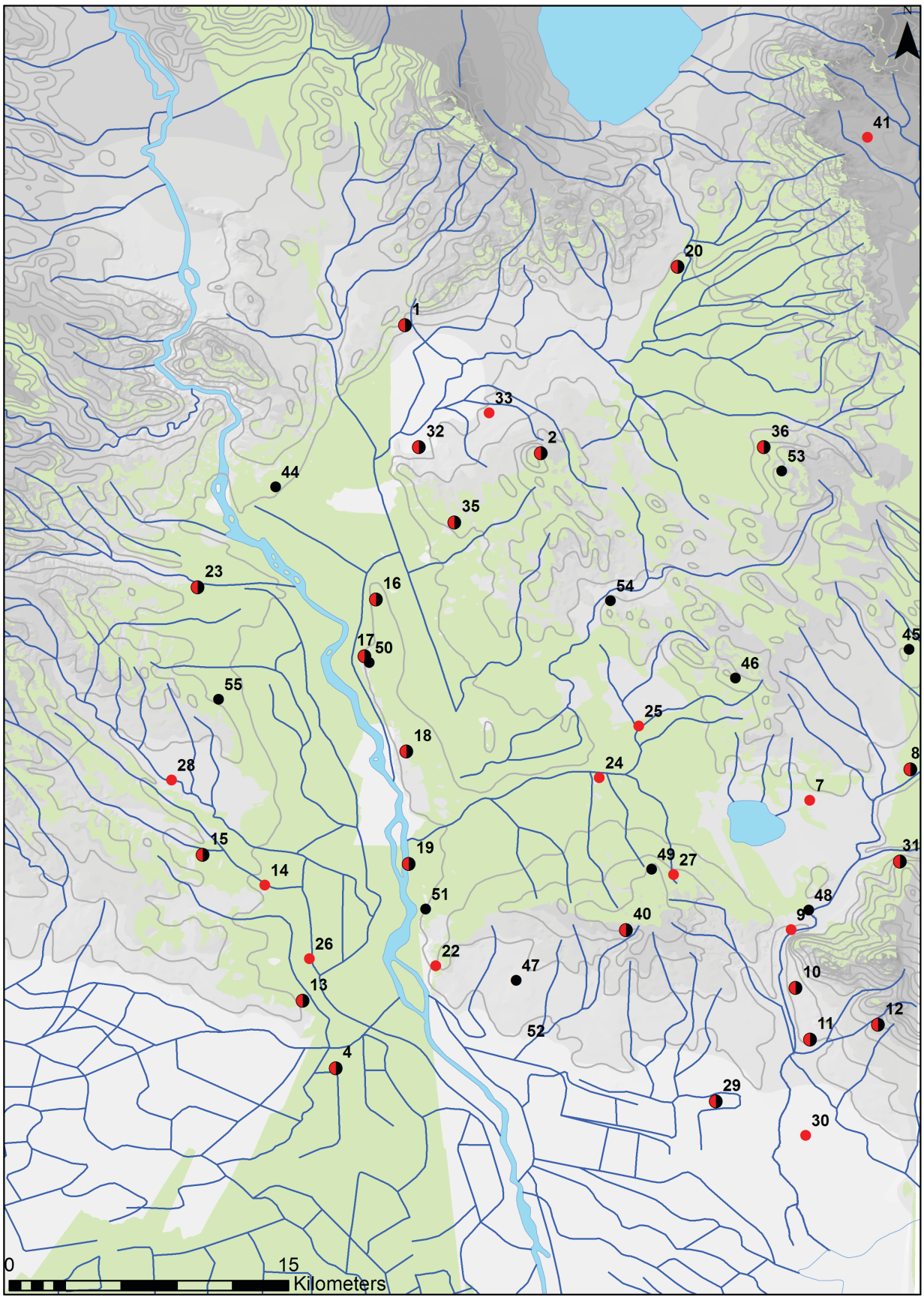


Figure 23 Cumulative viewshed analysis of Axiochori and Xorygi (Vector map University of Thessaloniki).

6.2.2 Mobility and Landscapes – "Visibility Chains"

Tells are most often easy to spot from afar by travelers (which is also the case with the table sites) (fig.44 and fig.45). The sites which consist of a tell upon a table are the most visible, and par excellence Axiochori (fig.25) as shown above. The site of Xorygi (fig.20 and fig.21) is highly visible from the north due to its location on a tall volcanic crag. Seen from the south its visibility is lessened by the low mountains and hills separating the plateau upon which Lake Pikrolimni is located and the North East Passage. Travelers from the North would have been immediately aware of Xorygi, just as travelers from the south would have been forced to notice Axiochori. Traveling past these sites would have meant traveling past sites not only imposing in nature, but sites which were also visually interconnected. A productive way of thinking about settlement relations could be to see how they form "chains" with the criteria of visibility and routes. This means linking up sites to their nearest neighbor within a reasonable distance of 5km (fig.24 and fig.27), giving an impression of the order in which they would be seen when moving through the landscape. Gathering that a daily march could be 30km, one would be able to cross through the Lower Axios Area in one day (see ch.3.4.0)

Traveling on either side of the Axios bay (fig.25) or up along the Gallikos, and beyond towards Lake Doirani would have meant following a trail of tells whether coming from the North or the South (fig.27). All the chains are in fact related to the main routes. Coming from the south along the Axios bay, one would pass by a succession of tells on each side of the bay. One would probably quickly notice Axiochori and Xorygi as these sites stand in high locations. Along the way, travelers would pass by sites with less command of the Axios Bay's hinterland. Simultaneously they would gaze upon Axiochori and the lesser sites they ventured by. Thus, the visual hierarchy is mirrored in chains 1, 2 and 3, which lie along the Aegean-FYRO Macedonia/Bulgarian route.

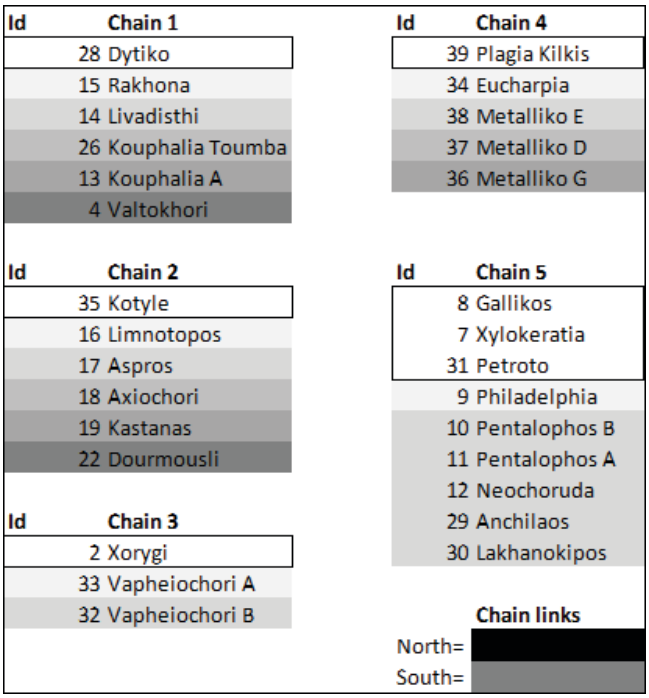


Figure 24 "Chains" of sites as they are encountered along routes. Sites with same color are visible simultaneously.

Approaching from the Gallikos (chain 5), one would meet closely spaced sites (fig.43) which would be noticed simultaneously. Neochoruda, Pentalophos A and B, Anchialos and Philadelphia Toumba would be noticed in a closer succession as they are spaced near each other around the fringe of what may have been the Gallikos bay. Entering the Pikrolimni Plateau, one would likewise be surrounded by tells rather than experiencing them hierarchically as along the Axios. Passing from the north by chain 4, one would first pass by a closely spaced succession of sites before reaching chain 3; yet even from Kilindir, one would have eyes fixed on Xorygi. This effect reproduced the visual hierarchy uncovered in the viewshed analysis (ch.6.2.1), and may have imposed the order of Axiochori on travelers and locals alike. Even if temporarily abandoned, the tells would have been imposing and could have served as landmarks.

Figure 25 Axiochori on ridge seen from the west (Photo Aslaksen).

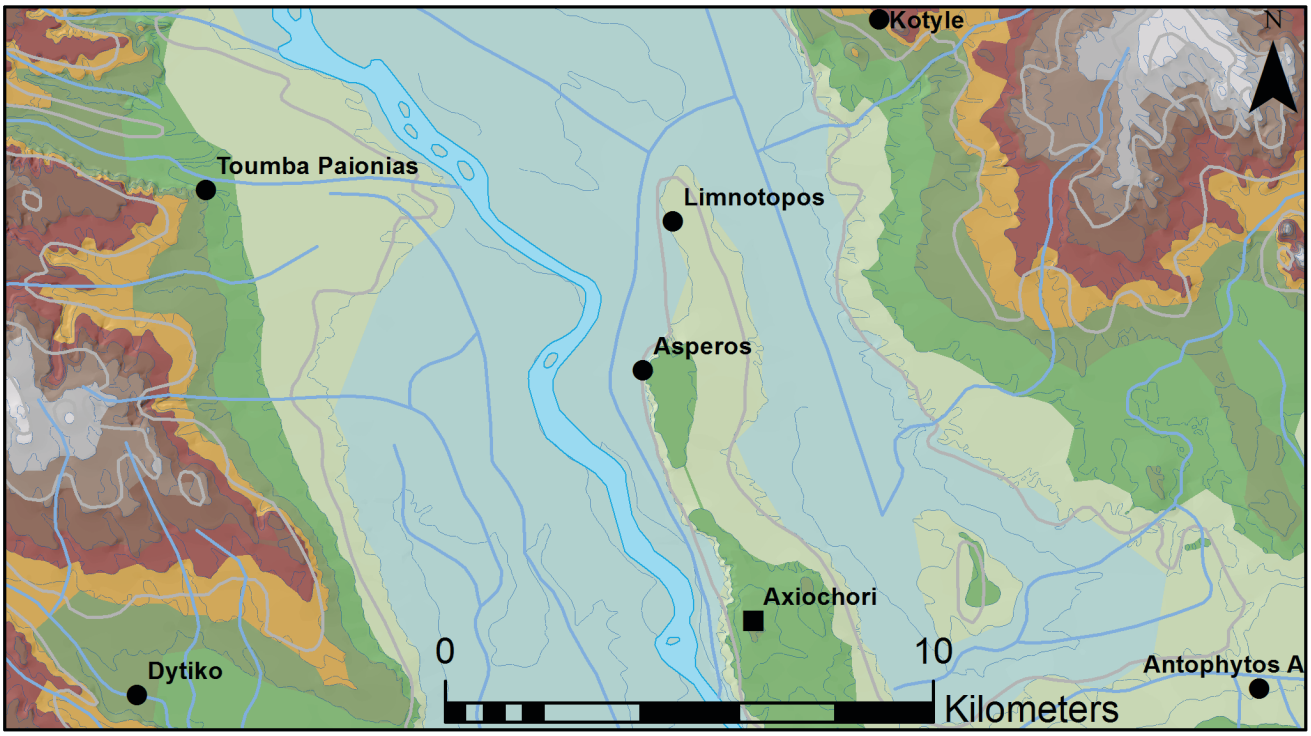


Figure 26 The surroundings of Axiochori (DEM based on vectorized 10m contors, EastView), the coastline is based on data from Schultz (1989) and the proportion of alluvial soils defined by Landsat imagery (fig.1, green areas) (DEM, derived from Eastview map).

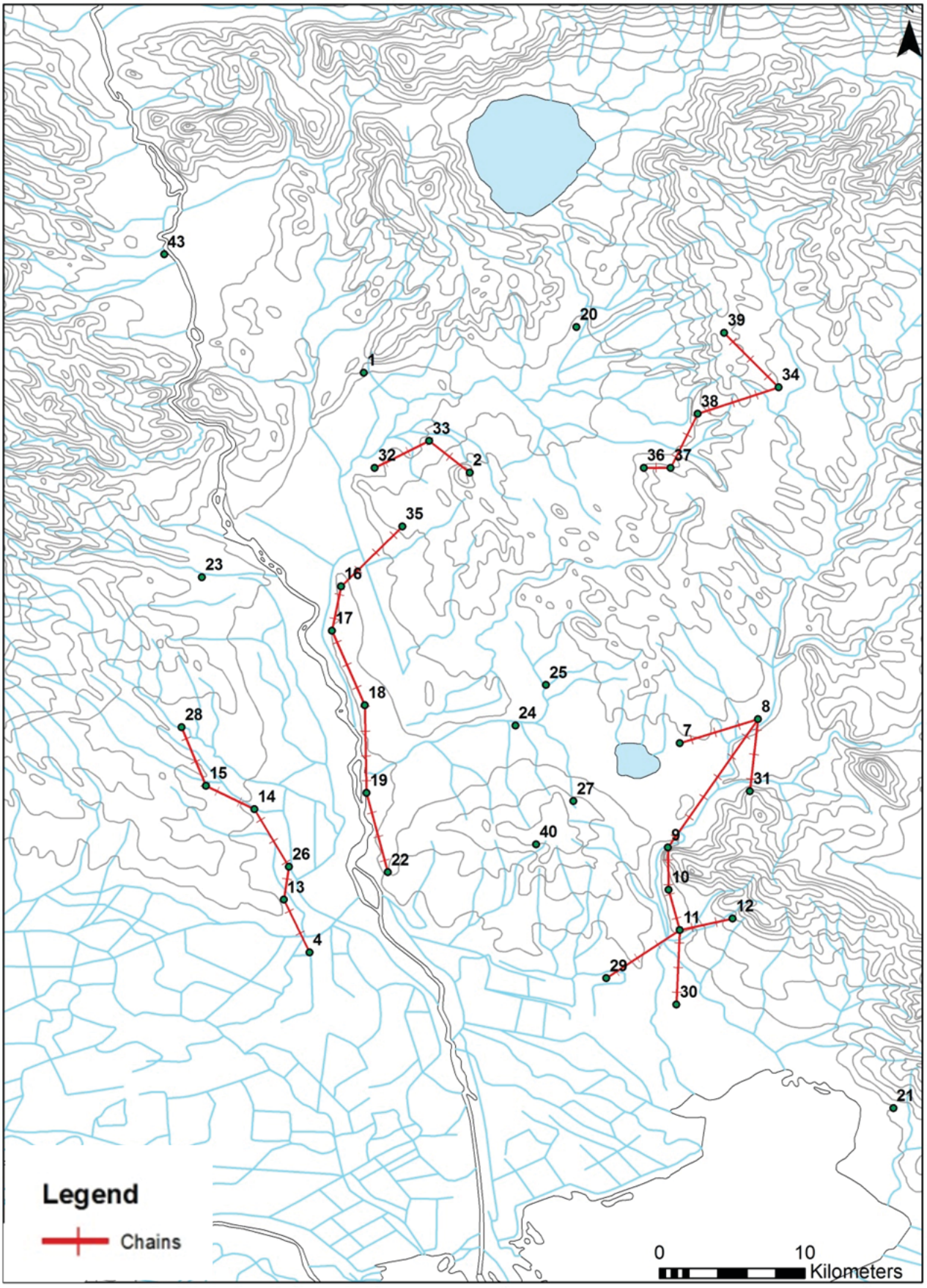


Figure 27 Map of visibility chains (Eastview vector map, KHM)

6.2.3 Visibility and Organization

As previously stated following the coast or a stream would be a matter of following a trail of tells (fig.27), as would sailing along the shores of the bay. While we know little of how people perceived space in the Bronze Age, it is reasonable to assume that the tells impacted on this in Central Macedonia. Few depictions of space remain from the Bronze Age (for a discussion of the Akrotiri frieze's accuracy see Friedrich and Sørensen 2010), and none from Bronze Age Central Macedonia. The only landmark we have from the Bronze Age is the tell. The viewshed analysis and the visual analysis of the tells both showed a top-heavy hierarchy, inscribed in the organization of the landscape. For locals and travelers alike, I suggest that they would experience a three tier hierarchy: the tells towering above flat sites, and Axiochori and Xorygi towering above the other tells with panoptic view. The height of Axiochori was above average, but it was not the tallest. It did however possess a spot with excellent command over a vast resource-rich territory with routes connecting the Aegean and the Balkans, and in extension Central Europe. This could represent an additional network level, above the toparchy (see Kotsakis 2007: 13-15; ch.6.0.1) in which Axiochori, through its command of routes and rich tracts (fig.26), could mobilize enough resources to access the networks of the Bronze Age World. To explore this pattern of dominance further, it is necessary to look at how territories were organized.

6.3.0 Territories

Thiessen polygons can give information on the theoretical size of the lands controlled by each site. Smaller territories indicate higher site density as the polygon sizes are defined by the distance to the neighboring site. To display clusters of sites I used a kernel density (appendix 4) analysis which produces a raster image indicating the density of features (in this case tells) within proximity to each other. The density of settlements may also reveal information regarding connectivity as spatial proximity may be a manner of establishing social proximity and vice versa in regards to social distance (Bourdieu 1995). Territories indicate a possible immediate resource base for the tells, but also opens for discussions of social affinity.

6.3.1 Thiessen Polygons

Approach

In Central Macedonia, Thiessen polygons can be applied at two levels – that of the tell-on-table and between all tells. Thiessen polygons were regarded as promising (Clarke 1968), and applied by, for example Darvill (1978) who combined Thiessen polygons and density analyses on prehistoric Ireland. Thiessen polygons are generated by drawing up straight lines between neighboring sites of the same type and date, which are then divided by a line traversing through the middle (Renfrew and Bahn 2000: 179). Where the traversing lines meet, the corners of the polygons (many-sided geometric figures) can be defined. Darvill (1978: 317) did not use Thiessen polygons to provide answers but to generate a background for discussions. Thiessen polygons have found a broad application in archaeology. A classic example is the use of Thiessen polygons to divide Mycenaean Greece into "palatial territories" (Renfrew 1975, see also Cherry 1986), which grew smaller as the society grew more complex (Gamble 1982: 104). Albeit an old method, Thiessen polygons may serve to generate relevant questions in regards to how the landscape of the Lower Axios was territorially organized.

To limit the extent of the polygons I used the borders of the Lower Axios Area as the ArcGIS tool generates an edge based on the extent of the point file (.shp which contains the tells, see appendix 2 for index of sites), which included sites as far away as Torone.

Results

If we look at the territoriality of the tells upon tables in the Lower Axios Area, it seems that there are only three territories (fig.29), of which two are rather small. Pentalophos B commands a part of the Pikrolimni Plateau while Axiochori is rather large controlling 25 other sites and the Axios Bay. Anchialos ends up with control over just 2 other sites while Pentalophos A controls 8. While the toparchy model does open for the possibility of small political entities, the territory size of Anchialos and Pentalophos A are quite small compared to Axiochori. As such, I would argue that the Thiessen polygons do not show 3 toparchies, but rather underline the centrality of Axiochori's location, as already indicated above (ch. 6.2.3). Yet, the territory of Pentalophos A and Anchialos could house strong local networks although if we recall the cumulative viewshed of Axiochori and Xorygi (fig.23), the former of these controlled the Pikrolimni Plateau and the ripe agricultural lands the territories of Pentalophos A which Anchialos lacks. This could have given at least Axiochori a strong position of dominance above sites in other clusters.

If we use the Thiessen polygons on the Iron Age table sites (fig.29), it is clear that these form three classes based on sizes. These are in general smallest by the coast and largest in the northern fringe towards FYRO Macedonia. This would mean that there was a population shift towards the sea. In the Vathi Gerakari Highland there was an increase of table sites indicating population growth, while the site of Polykastro and Metalliko D, with the largest polygon covering the

north of the Lower Axios Bay and the west of the North East Passage lowland in addition to a large portion of highlands, had access to 3 potential satellites each (fig.28). This may witness an increased focus on highland resources, a scenario similar to the developments in the Langadas (Kotsakis 1990).

Tables and plateau-like sites: satellite sites and polygon size

37	Metalliko D	231	3
44	Polykastro	211	3
49	Xirochori	122	5
31	Petroto	116	2
18	Axiochori	110	1
50	Aspros Table	108	3
55	Evropos	98	3
13	Kouphalia A	98	3
39	Plagia Kilkis	95	1
45	Pedino	95	0
42	Eptalophos	89	0
43	Gerakario	82	0
38	Metalliko E	71	0
47	Vatykhos	61	2
34	Eucharpia	53	0
52	Gefyra	50	0
11	Pentalophos A	45	2
29	Anchialos	41	1
48	Philapdelphia Table	38	1

Figure 28 Polygon sizes for Table sites and number of satellite sites.

The small polygon sizes by the Gallikos in the Iron Age (fig. 30) are also reflected in the preceding Late Bronze Age (fig.31). Along the Lower Axios Bay and at the Pikrolimni Plateau the polygon sizes increase somewhat but remain small. Close to highland areas the polygons become larger, perhaps reflecting a focus on hunting and forest exploitation rather than agriculture. Axiochori (18), Vapheiochori B (32) and Xorygi (2) have relatively larger territories than the other lowland sites.

Axiochori's case is once more of particular interest since the surrounding sites and those at the western bank of the Lower Axios Bay have smaller territories (fig.31). In that respect there are no great changes in the Iron Age except that there is an increase of territory sizes in a belt which includes Rakhona (15), Xirochori Table (49) and Gallikos (8) in addition to Axiochori (18) all of which are surrounded by sites with smaller territories. It seems that the Pikrolimni Plateau becomes shared by only Ano Apostoloi and the Xirochori table in the Iron Age rather than Antophytos A (24), Antophytos B (25), Xylokeratia (7) and Xirochori Toumba (27) as in the Bronze Age. This means that in the Iron Age more people at fewer sites shared larger swaths of land (fig.32), while in the Bronze Age the same soils were shared by fewer people who were more widely distributed under the gaze of Axiochori. The same could be said for the sites at the western bank of the Axios Bay, which may have connected rather than divided the population.

If one wonders what Axiochori and Xorygi controlled in the Bronze Age from their elevated positions, it might respectively be sites with access to A) lowland grazing fields and agricultural lands at the Pikrolimni Plateau, B) sites with access to marine environments in the Lower Axios Bay and C) sites in the northern fringes of the Lower Axios Area with access to highland resources like game and minerals, but also tracts of fertile soils. The average Bronze Age polygon was only slightly smaller than those of the Iron Age (fig.34), indicating similar settlement distributions. Yet the appearance of the table settlements may indicate nucleation in the Iron Age. In Mycenaean Greece tightly spaced polygons were an indicator of increased complexity (Gamble 1982: fig.12.3) – Mycenae, Tiryns and Midea lie within a radius of 8 km (measured from ArchAtlas 4.1), a situation similar to that of the Lower Gallikos, but also the Vathi Gerakari Highland. The issue of nucleation in the Iron Age may be further pursued by looking at site clusters with density analysis and a comparison of settlement sizes. This also has an impact on the understanding of the Bronze Age as a brief look at the polygons for each period show that they resemble each other to the extent that the Bronze Age in fact may have been the start of a long term trajectory of landscape organization.

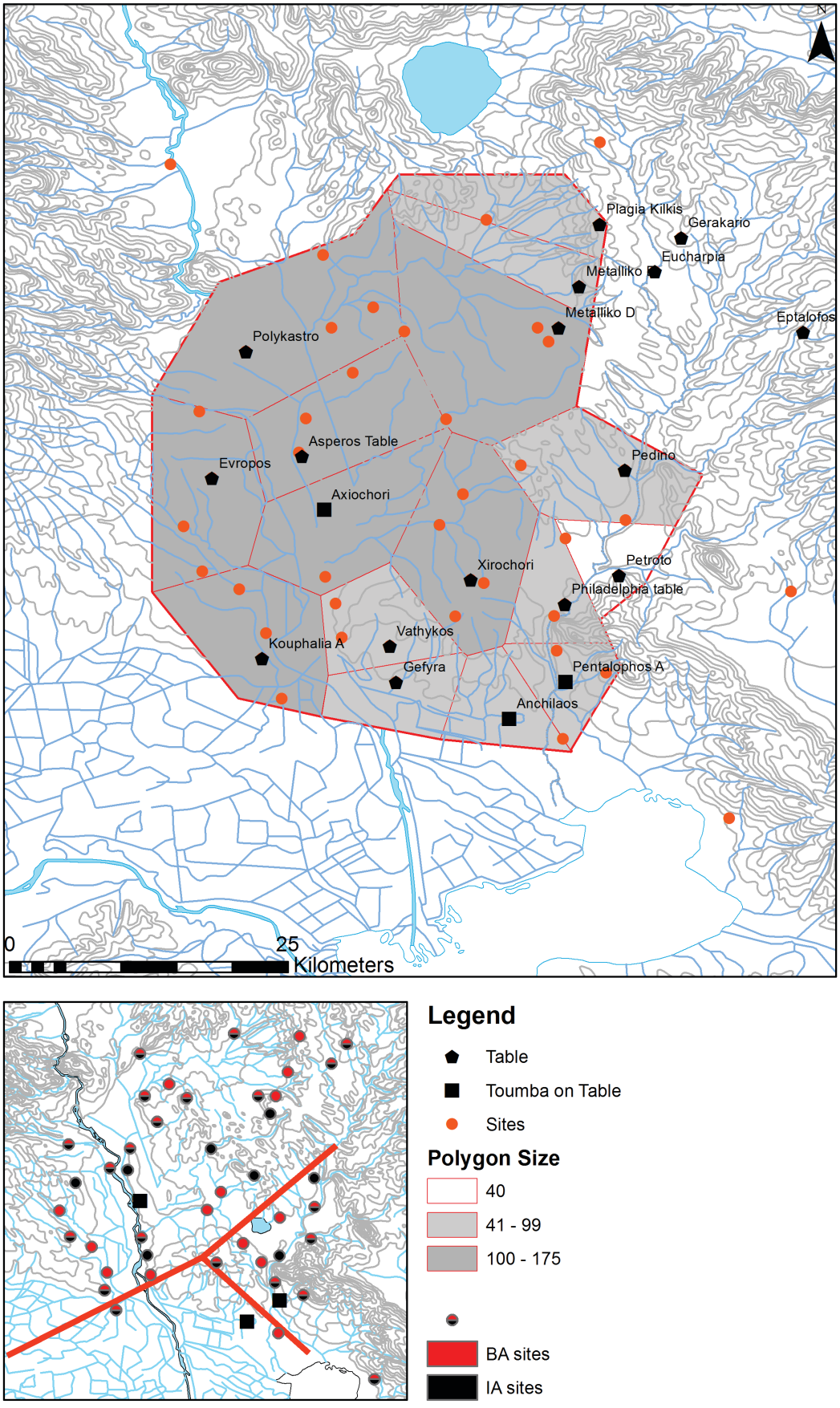


Figure 29 Thiessen polygons for tell on table sites and table sites (Eastview vector map, KHM)

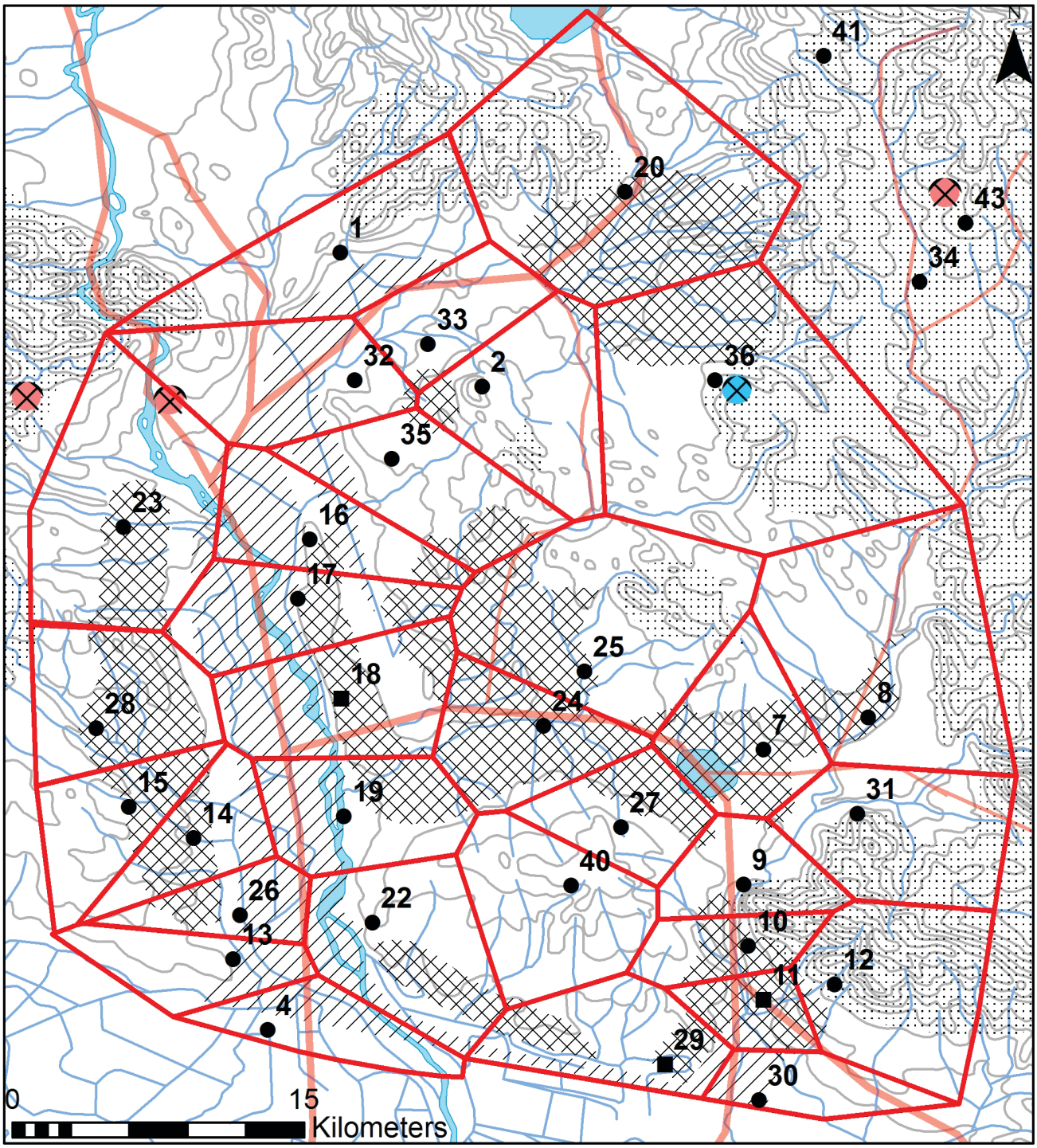


Figure 30 Late Bronze Age sites with Thiessen polygons and resource bases (Eastview vector map, KHM).

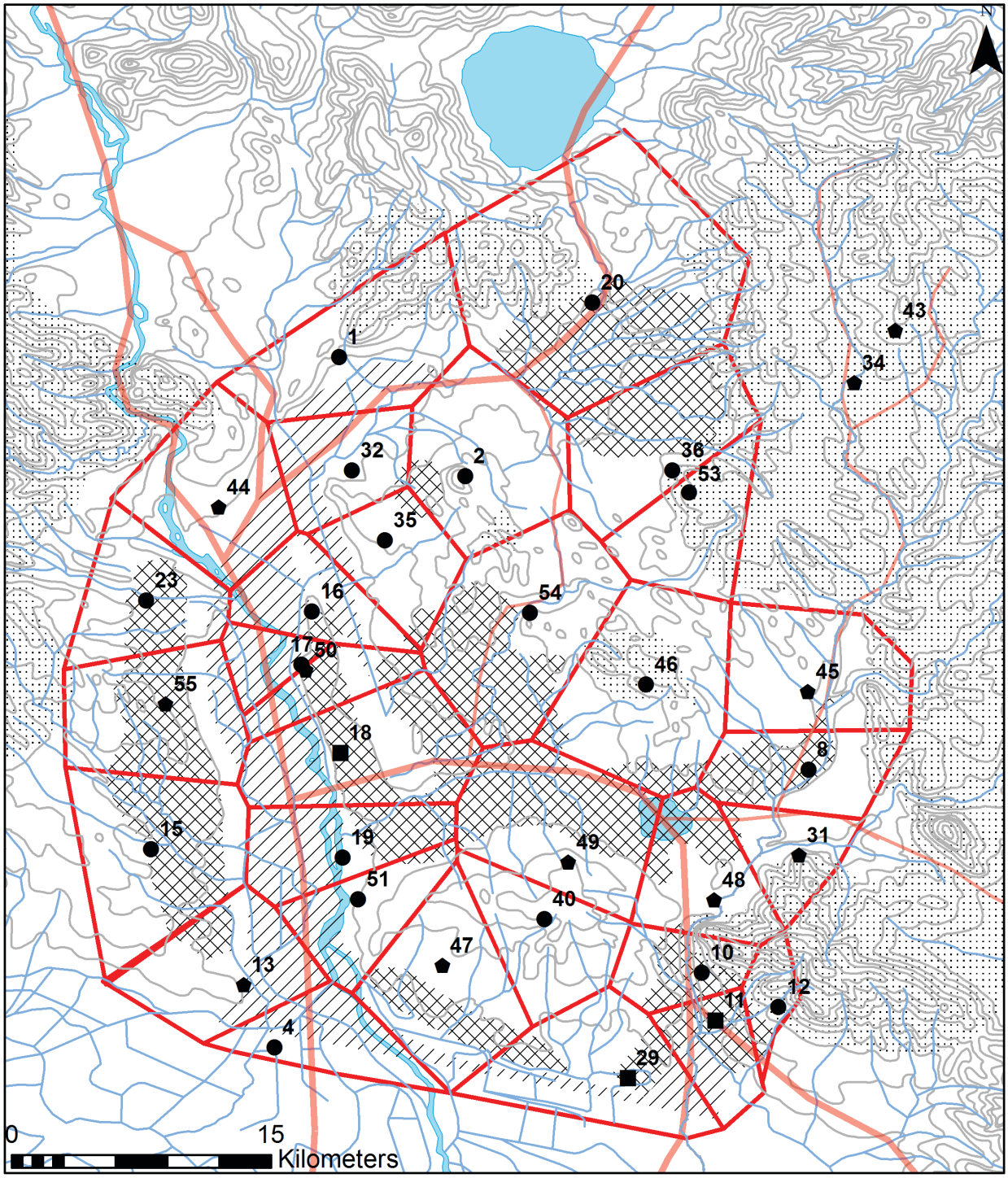


Figure 31 Early Iron Age sites with Thiessen polygons and resource bases (Eastview vector map, KHM).

Figure 32 Central Macedonian landscapes 1 lowland (red arrow indicates Axiochori) (Photo Aslaksen).

Figure 33 Central Macedonian landscapes 2 highlands. Mountains dividing the Lower Axios Area and the Langadas (Photo Aslaksen).

ID	BA Sites	km²
20	Kilindir	108
25	Antophytos B	88
8	Gallikos	88
23	Toumba Paionias	82
37	Metalliko D	75
1	Tsautsitsa	63
36	Metalliko G	60
22	Dourmousli	54
29	Anchilaos	53
32	Vapheiochori B	52
40	Nea Mesimvria	51
2	Xorygi	51
18	Axiochori	51
28	Dytiko	48
35	Kotyle	46
19	Kastanas	42
17	Aspros	41
7	Xylokeratia	41
24	Antophytos A	39
16	Limnotopos	38
38	Metalliko E	34
15	Rakhona	32
27	Xirochori Toumba	30
33	Vapheiochori A	29
14	Livadisthi	28
13	Kouphalia A	28
4	Valtokhori	28
9	Philadelphia	27
31	Petroto	24
39	Plagia Kilkis	23
26	Kouphalia Toumba	21
10	Pentalophos B	21
11	Pentalophos A	16
30	Lakhanokipos	15
12	Neochoruda	11
	Average km²	43,94286
	Median km²	41

ID	IA Sites	km²
20	Kilindir	138
8	Gallikos	78
54	Gynaikastro	75
46	Ano Apostoloi	72
15	Rakhona	66
1	Tsautsitsa	63
49	Xirochori	61
2	Xorygi	61
18	Axiochori	57
29	Anchilaos	54
44	Polykastro	54
55	Evropos	54
47	Vathylakkos	53
45	Pedino	53
36	Metalliko G	52
13	Kouphalia A	47
23	Toumba Paionias	41
40	Nea Mesimvria	39
19	Kastanas	37
48	Philadelphia table	37
53	Metalliko	36
32	Vapheiochori B	33
35	Kotyle	32
51	Prochoma	31
16	Limnotopos	30
4	Valtokhori	30
31	Petroto	23
10	Pentalophos B	23
11	Pentalophos A	22
50	Aspros Table	20
17	Aspros	13
12	Neochoruda	12
	Average km²	46,78125
	Median km²	44

Figure 34 Territory sizes, Thiessen polygons for Bronze and Iron Age sites. All sites were included regardless of size or potential role, in order to generate a (potential) basic division of land.

6.3.2 Tell Density and Size

Approach

Areas with high numbers of settlements were identified with the Thiessen polygons through the occurrence of small territories. To better lift forth areas with concentrations of settlements, a kernel density analysis (ArcGIS) was employed (see Appendix 4 for density maps). This tool counts features within a certain radius. It is reasonable to think that the dwellers of sites located close to each other had to work together and possibly developed a closer social affinity or reasons for conflict (for example over sources of water, plots and grazing fields). Ethnographic evidence shows that farming communities conducted their work within a 5km radius (Renfrew and Bahn 2000: 258; Gilman and Thornes 1985: 36), and thus the "search radius" was set to this distance.

Results

In the Bronze Age it seems that there were four discernible clusters, and five if the Gerakari-Vathi Highlands are included. These are shown in appendix 4. There is a medium to high density of sites by the Kouphalia Table (13), Pentalophos B (10), Xorygi (2) and Metalliko G, D and E (site no. 34, 35 and 36). Along the Lower Axios Bay, the Lower Gallikos and the Pikrolimni Plateau the tells lay close to or just above the lowland plains. In the north they cluster near the mineral resources. We do not know if these were exploited in the Late Bronze Age, but the sites are nevertheless dense here and in the Gerakari Vathi Highlands. Conversely, at the other side of the valley the sites are rather sparsely placed. Only Kilindir (20) and Tsautsitsa (1) are located along the ridge overlooking the plains. These sites lie close to high- and lowland resources, and in proximity to key routes between the Aegean and the Balkans.

In the Iron Age, there are fewer sites, but these remain clustered and in some instances even more so than in the Bronze Age. While the old clusters do not move, a new one appears at the ridge upon which Axiochori (18), Aspros (17) and Limnotopos (16) are located. Both Axiochori and Aspros develop table sites nearby (Aspros Table site no.50), while a similar formation also can be observed by Limnotopos although no surface finds were retrieved here to indicate habitation. By the Lower Gallikos there was an intensification of the cluster as tables develop near Pentalophos B (10), Anchialos (29) and Philadelphia (Philadelphia Table 48). As the site concentrations remain stable, a continuity of land use may be posited despite what may be seen as signs of nucleation (see Appendix 4).

It is evident that the tables in general are much bigger than the tells (Kouphalia measured 117462 m^2, see ch.6.01 and appendix 2). The tables developed at the end of the Late Bronze Age contemporaneously with the introduction of sometimes rich extramural cemeteries (see Chavela 2012; discussed below, ch. 7.2.4-7.2.6). This may indicate a population increase in the long run. From the Early Bronze Age to the Iron Age the population may have steadily increased, first with the increase of settlements in the Late Bronze Age, and then with the increase of site size in the Iron Age as well as increasing numbers of rich extramural graves (see ch.6.0.1). Using a combination of published materials (Besios et al. 1997; Rey 1916-1917; French 1967) and Google Earth, a series of size "guesstimates" are produced in appendix 2. Good estimations are difficult to produce without actually measuring the tells with a total station, and even then they would fall short as the tells are heavily eroded (Kastanas provides a good example, see Hänsel 1989). The figures in figure 35 and appendix 2 are thus to be counted as "ballpark estimates".

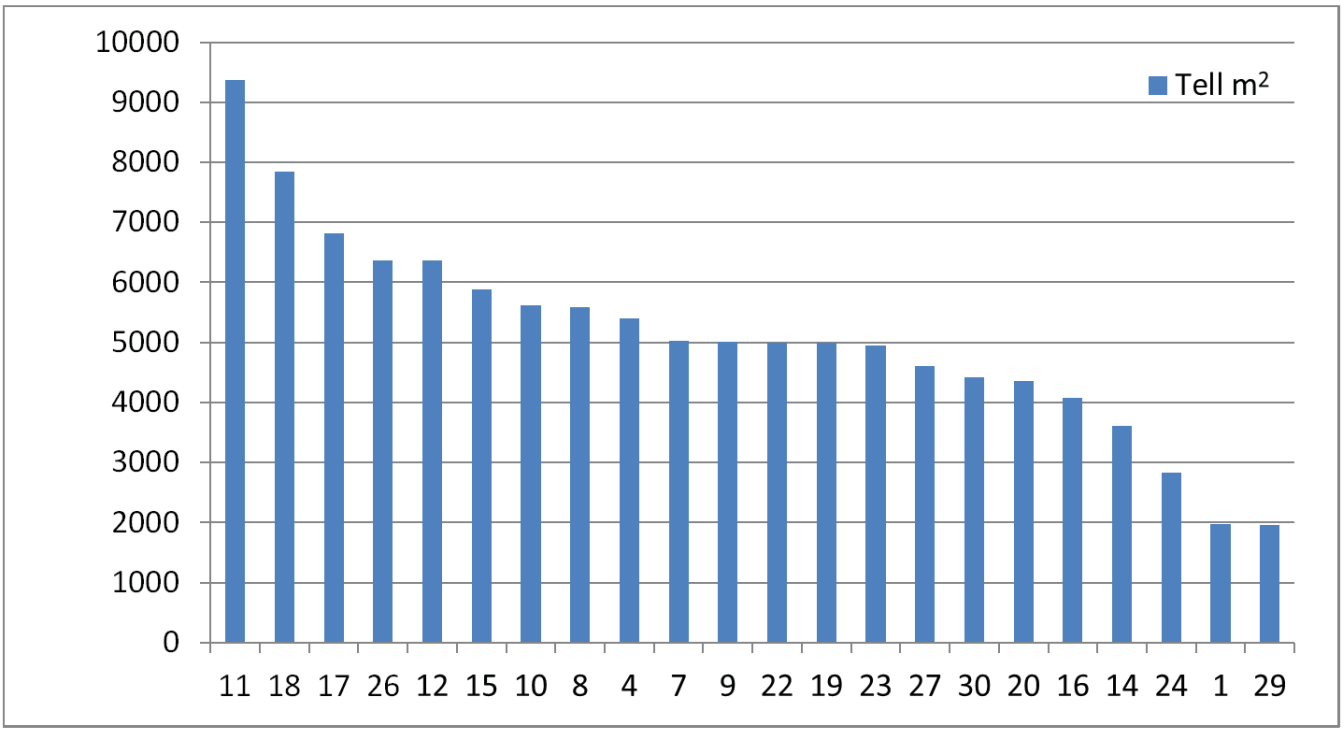
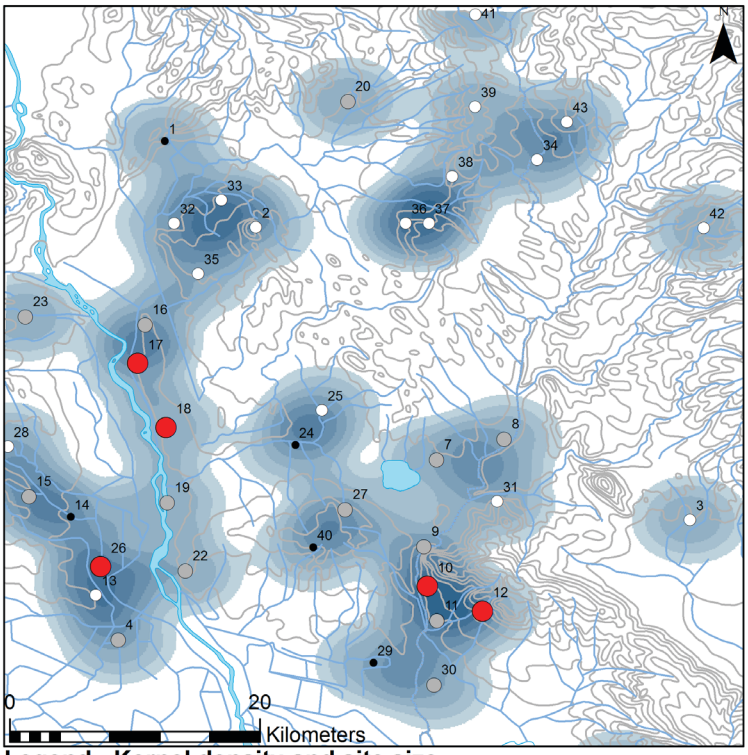
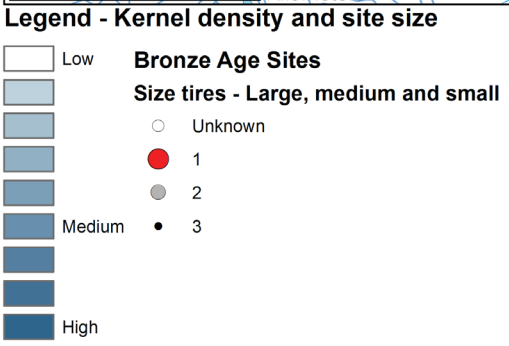


Figure 35 Approximation of tell size.





Size Groups					
Large		**Medium**		**Small**	
Id	**Site**	**Id**	**Site**	**Id**	**Site**
11	Pentalophos B	15	Rakhona	14	Livadhi
18	Axiochori	10	Pentalophos A	24	Antophytos A
17	Aspros	8	Gallikos	1	Tsautsitsa
26	Kouphalia Toumba	4	Valtokhori	29	Anchialos
12	Neochoruda	7	Xylokeratia	40	Nea Mesimvria Toumba
		9	Philadelphia		
		22	Dourmousli		
		19	Kastanas		
		23	Toumba Paionias		
		27	Xirochori Toumba		
		30	Lakhanokipos		
		20	Kilindir		
		16	Limnotopos		

Figure 36 Tells ranked according to size (see appendix 2) – displayed in clusters.

While the size estimates are rough, some general conclusions may yet be drawn: there are three tiers of the tells for which relatively good estimations could be made. These include large (6000m^2 +), medium (4000m^2-5999m^2) and small (0m^2-3999m^2) (fig.36). About half of the sites are found in the medium category or close to it, while a quarter are found in the large and small categories.

Also tall, Axiochori (18) was amongst the largest tells (with nearly 8000m^2). It was bigger than average (ca.5000m^2). Kastanas (19), with its 5000m^2 was close to the average. The big sites lie close to each other, as was the case with Aspros and Axiochori, and Pentalophos A and Neochoruda. Axiochori's large polygon indicates that it was far from neighbors, but its grand size shows that it might have needed a large hinterland; however this was poorly watered (see fig. 46).

Kastanas and Valtochori would have been located on islands, and are found in the medium sized tier. As Kastanas is located in the medium category and close to average, it might be assumed that the site was relatively representative for medium sized tell communities. Medium sized tells are not located near specific resources. Rakhona (15) was located near the highland resources, Limnotopos at the end of the ridge upon which Aspros and Axiochori were located, and Xirochori Toumba near the prime agricultural lands. The same could be said for the small sites.

The maximum site size increased drastically in the Iron Age with the introduction of the table site, but in the Bronze Age it is possible to assume that the tells first developed in greater numbers, then with terraces and fortifications in some instances, and eventually the table sites appeared; these were often near to tells – as was the case with Xirochori (27), Pentalophos B (11), Axiochori (18), Aspros (17), Kouphalia (26), Anchialos (29) and Philadelphia (9). This process accelerated in the Iron Age. The tables seem to appear where large sites had clustered in the Bronze Age (near Axiochori and Aspros), or where many sites were located in close proximity to each other (e.g. Lower Gallikos). The rich agricultural lands at the Pikrolimni Plateau did not produce an agglomeration of tables in the Iron Age or large tells in the Bronze Age. This could have been because the small sites here were outliers, possibly hamlets similar to Boubousti (see Heurtley 1927: 165) but with an agricultural-related role geared towards supplying larger sites in the Lower Axios Area under the gaze of Axiochori.

6.4.0 Defense and Connectivity Dynamics within a region.

Important in the formation of what emerges as a political economy, 'defense' and 'connectivity' needs to be discussed. 'Connectivity' is here regarded as a quality of a location in the landscape – the distance to rivers (fig.46) and the absence of obstructive hills and impassable mountains increase the possibilities for interaction between the dwellers of different sites. 'Defense' could be a location quality. High ground can make it more difficult for attackers to take control over a site. In addition, through the building of mud brick casemate walls a site may be modified to increase the possibilities for a successful defense (Toumba Thessaloniki; see Andreou 2010: 649). An easily defended spot in the landscape may reflect a choice of inaccessibility as this could be a benefit when defending. To some extent optimal defense and optimal connectivity are opposites as the latter would demand a maximum of accessibility. In this chapter, I assess how opportunities to connect or defend worked in the Lower Axios Area by looking at settlement locations.

6.4.1 Connectivity – Rivers and Inter-Tell Proximity

Approach

Two measurable indicators of connectivity are emphasized in this monograph – the distance between tells (fig.43) and the distance to waterways (fig.46). Water may be the key to understanding the choice of settlement locations in the Late Bronze Age. Rivers provide many benefits including water to drink or for fields and gardens (see ch.6.1.2), but also easy transportation of people and goods. Proximity to neighbors enables interaction, whether in the form of cooperation, competition or strife. Shorter distances to routes and neighbors increase the opportunity to interact.

Results

Of the countless rivers and streams, the two biggest are the Axios and Gallikos (the ancient Echedoros), both which carried placer gold (Vavelidis and Andreou 2008). While not all of these would be navigable for large ships, they could serve for small boats to carry goods, perhaps similar to the canoe-like boat discovered by Traeger (1904: 35; see also Basch 1972: 18). There are also numerous streams. A look at the Late Bronze Age distance to rivers reveals that proximity to rivers may have been decisive (fig.46) (see Kotsakis 1989: 9). To the extent that proximity to waterways is preferred to proximity to agricultural soil – more sites are located by the Lower Axios Bay and the Lower Gallikos than at the Pikrolimni Plateau and by the North East Passage. The relatively sparse distribution of sites at the Pikrolimni Plateau and by the North East Passage could perhaps be explained by close proximity to rivers by sites which are located near lowland resources: Antophytos A and B, Toumba Rakhona and Livadhi, Kilindir, Xirochori and Gallikos (see fig.17). Riverways may have enabled these settlements to transport their goods to the clustered settlements with sparse access to agricultural soils, such as those located close to the Lower Gallikos, but to a certain extent also the Lower Axios Bay – there are few rivers upon the ridge where Axiochori, Aspros and Limnotopos are located. Although perhaps well suited for grazing, this could have made it difficult to farm on the ridge. The sites by the Gallikos and the Axios Bay, where larger populations may have been resident (see fig.36) did however have access to the Aegean and the Bronze Age World, and to

passages to both FYRO Macedonia and the Balkans. These may have been markets for resources extracted in the Lower Axios Area. Big and small waterways formed the logistic capacity of the societies in Central Macedonia, enabling the growth of clusters which could be supplied by "outliers" (also referred to as satellites). Travelers on waterways may have come from near and afar spreading new ideas and objects.

The inter-site distance in the Lower Axios is relatively short (fig.43) and the number of tells is relatively high. This, together with access to waterways could have eased integration of impulses. In figure 9 it is noticeable that the distribution of Mycenaean pottery extends all the way up to Tsautsitsa and Kilindir while the highest densities of sites with access to Mycenaean pottery were located by the Lower Gallikos and the Axios Bay. This distribution may attest that the waterways were utilized to spread Mycenaean pottery, production techniques and technology, but also taste.

1500km^2 is often thought of as the approximate size of a "typical" chiefdom (Renfrew 1975: 13-14), not far from the ca.1300km^2 of the Lower Axios, and give a site density of 1 site per 36km^2, or 1 site per 3600 hectares, with an average distance of 3.9 km between the nearest sites. Koukounidou and Trantalidou (1991) note that in Western Macedonia the major sites are roughly 10 km from each other, while the smaller sites often lay 5km apart. A heuristic device, ethnographic parallels indicates that a catchment area for early agriculturalists would often be 5km (Gilman and Thornes 1985: 36). No single Late Bronze Age site could be said to command such an area by itself in the Lower Axios Area. Locations which enabled connectivity, by means of proximity to rivers amongst outliers and other settlements, were preferred in the Late Bronze Age. Proximity necessitated cooperation at some level, perhaps the formation of field systems, and could have led to feuding as well as cooperation. Similar and much smaller distances divided the later Greek poleis (Bintliff 2009: 111).This directs the attention towards defense.

6.4.2 Defensive Properties

Approach

'Defense' could be looked at through the categories of defendable locations, control (access to an area and visual overview) and defensive structures like casemate walls erected at Toumba Thessaloniki and Assiros (Andreou 2010: 649). The defensive measures that a single tell could have undertaken may not have been great in itself, but the sum of these at 30-40 settlements may have made it difficult for an attacker to move through even the valleys of Northern Greece as a series of battles would have to be fought. This is what Deleuze and Guattari's (2004: XIII) refers to as a "striated surface". In modern warfare this is referred to as deep defense (a series of fortified spots capable of supporting

Figure 37 Gynaikokastro (Photo Aslaksen).

Figure 38 Metalliko (Photo Aslaksen).

Figure 39 Evropos (Photo Aslaksen).

Figure 40 Xorygi (Photo Aslaksen).

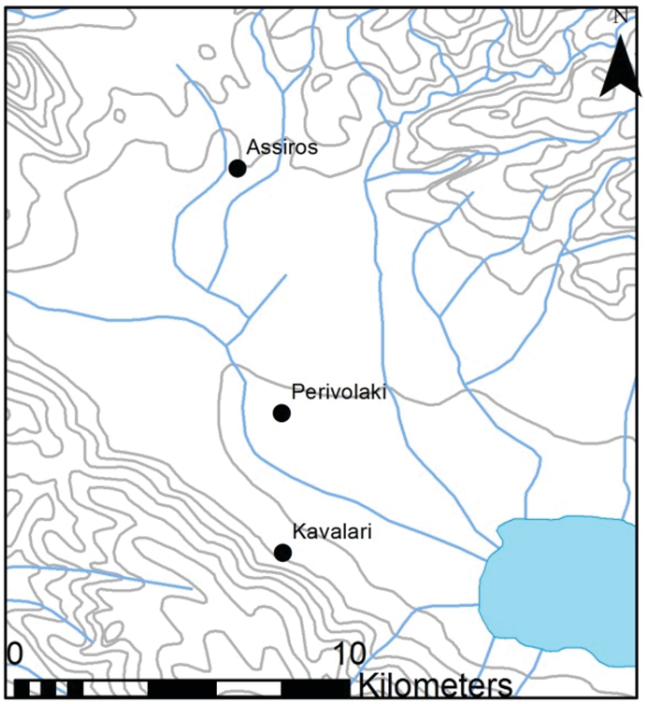


Figure 41 Assiros, Perivolaki and Kavalari, in the Langadas (Eastview vector map, KHM).

each other, slowing the enemy; Hill and Wileman 2002: 102). Inter-site strategies must be accounted for (N.Wardle 2004: 149; Andreou 2003) as well as measures directed at one site, for example casemate walls, suited to protect from warrior bands rather than armies. A 'striated surface' would inhibit connectivity – thus producing disjunction.

Defense

Casemate walls were raised at Toumba Thessaloniki and Assiros, a technique used in Anatolia which entailed dividing a thick wall with a series of chambers filled with rubble to strengthen it (Kotsakis 2007: 12-13; Kotsakis and Andreou 1989: 212). Cyclopean walls have been located in Thessaly (Loader 1995: 173), which can be defined as a Mycenaean borderland (see Eder 2008), but no such structures have been uncovered in Macedonia where fortifications are few and built of mud brick. There are no remains of a larger defense structure in Northern Greece on par with, for example Gla (Schofield 2007: 96; Shelton 2010: 144). Defense was a low priority at a regional level in Central Macedonia although networked strategies may have been used (see N.Wardle 2004: 149; Andreou 2003).

Area-wide defensive strategies may have been undertaken in the Iron Age,. A group of prehistoric settlements are found on top of high crags, some with Byzantine forts towering above in the landscape, others near defended cities. These are placed in well defended spots and form a chain that includes Evropos, Xorygi (fig.40), Metalliko (fig.38), and Gynaikokastro (fig 37). In the Classical to Late Roman period the town of Evropos occupied a defendable location (fig.39), while Metalliko and Gynaikokastro had Byzantine fortifications (French 1967: 13 and 21; Blackman 1997: 67). The sites are located at commanding spots that can be seen from afar and control the access routes to the Lower Axios Area. The rough distance between Evropos in the west and Gynaikokastro in the middle is ca.16-17 km while the distance from Gynaikokastro to Metalliko in the east is a mere 10 km, both easily within reach of horsemen or a foot soldier (see ch.3.4.0). These sites, which formed a defensive chain, were all in use in the Iron Age but not in the Bronze Age. Xorygi had material dated to the Late Bronze Age (see Besios et al. 1997: 86), but there are few other sites apart from the insular Kastanas and Valtochori which command spots that are naturally defendable. These did not command key access routes like Xorygi did.

From a strategic perspective, it is an asset to possess many defended spots with visual command which enables control. Although possibly of a later date, Axiochori's table had embankments, opening for the possibility that these settlements could be fortified (Davis et al. 1926: 208). If the other tables had similar defensive structures, the Iron Age would represent a period in which defense was focused upon. Yet the landscape in the Bronze Age may not have been uncomplicated to conquer even if most of the tells lacked defensive structures. The confined spaces on the tell would provide the defenders with an advantage against numerically superior enemies, and in cases of terraced tells, this advantage would be amplified as the defenders would be located well above the attackers. As indicated by the weapon finds (see appendix 2), even small sites like Kastanas had at least some lightly armed residents with the capability of producing their own spear heads. In the Iron Age, nucleation of population at tables may have increased access to manpower for defenders, but also provided the attacker with a few bigger targets. The Bronze Age population was more distributed, implying that a successful attacker would have to fight a series of smaller battles which in the long run may have been costly if the defenders were organized (N.Wardle 2004: 149; Andreou 2003). Yet, in the Lower Axios Area there seems to be largely an absence of both strategic (a line of defended settlements) and tactical defensive structures (few casemate walls have been identified) in the Late Bronze Age.

If we move beyond the Lower Axios Area, some defensive structures have been identified. Apart from the fortifications at Toumba Thessaloniki and Assiros, stone walls have been excavated at Kavalari above the Langadas (fig.41; Pappa 1989: 336). Further north across the Bulgarian border the site of Kamenska Čuka (Bankoff and Stefanovic 1998) may represent something as rare as a small Bronze Age fort controlling the route into Greek Macedonia. Kavalari exemplifies two phenomena of the Iron Age – an increased focus on highland resources as it is located by mountain foothills, and an increased focus on defense. Yet the site was also inhabited in the Late Bronze Age (Pappa 1989: 336).

Kavalari does not command any regional key routes, but Kamenska Čuka towers above the route from Bulgaria of Serres and the Lower Axios Area. A square multistoried fortification structure of stone with two meter thick walls, about 20m x 20m, contained Late Bronze Age encrusted Pottery, found further down the valley at Sandanski (fig.1) and in Central Macedonia. ^{14}C dates placed the site within the 14th-12th century BC while archaeomagnetic dates place the site between 1230-1160 BC. The site may have had a role in a larger regional trading system connecting Bulgaria to the

Aegean through Greek Macedonia (Bankoff and Stefanovic 1998: 279). While perhaps not built with the aim of defending the area against larger hordes, this small fortress may have been used to control and defend a trade route or provided a safe haven against smaller bands of hostile warriors.

6.4.3 Defense and Connectivity – Regional Systems

In the Late Bronze Age, no larger strategic schemes were employed to defend territories. Rather, certain tells seems to have been defended with relatively advanced measures. These include the casemate walls of Toumba Thessaloniki and Assiros. In Bulgaria, the fortified site of Kamenska Čuka had thick walls and command of a possible trade route. Affinity to Central Macedonia is evident in the encrusted Pottery found at both places, but no Mycenaean pottery was retrieved at Kamenska Čuka. A plausible explanation could have been that Mycenaean traders obtained goods from Bulgaria through Central Macedonia – where the meeting points included Axiochori and Toumba Thessaloniki. In this system, Kastanas may have been a port. The defensive measures taken at sites in the Bronze Age had the purpose of defending trade, and thus spurring movement of goods. Increased focus on defense in the Iron Age may have created a "striated surface" and made it more difficult for travelers to come through from the Balkans if Metalliko and Gynaikokastro formed a defensive line as they may have had in the Byzantine period.

Trade may also explain why sites cluster more by the coast than at fertile agricultural plains like the Pikrolimni Plateau; sites in this area could have supplied the clusters, for example by the mouth of the Gallikos. The local movement of goods could have been eased by the close proximity to rivers. The manner in which the Bronze Age landscape was populated could thus have provided the opportunity for participation in far-reaching networks. In figure 47 I tie this to a map showing an outline for a political economy which may have evolved as a response to increased trade in the Late Bronze Age.

6.5.0 Discussion: Extent and Scale of Organization

The results of the various approaches pursued in this chapter could be used to model a local organization which enabled participation in the Bronze Age World, and even spurred it as the settlement pattern indicates (above, ch.6.4.3). The landscape had a large and varied resource base (ch.5.), and a population distributed in a manner which enabled mobilization of these. Although largely unexplored, the existence of flat sites, like the one located near Kastanas (Becker 1986: fig.2; see Hänsel 1989), must have meant that the landscape was exploited at a greater scale than what is implied by the tells alone. While the population was lower than in, for example the Pylos (with a 168-195 settlements; Cosmopoulos 2006: 213), the many rivers and the proximity between tells connected the landscape and could have enabled exploitation. Feinman (2013: 49) recently pointed out, scale and complexity are not strictly tied to each other – factors like networking and cooperation could also be of essence. In the Bronze Age, connectivity was prioritized above defense (ch.6.4.3). Although no system can definitely be proven to have been in place by the means of a landscape analysis alone, I nevertheless suggest a model which could explain the different data patterns. In this model a few key nodes are represented by large clusters (appendix 4) with Axiochori on top based on its command of the productive parts of the landscape exploited (see fig.23). The clusters may represent confined networks of (typically 3-4 tell sites, appendix 4), perhaps constituting toparchies (see Andreou et al. 1996: 585; Andreou 2001: 170-171; Veropoulidou et al. 2008: 173). In this chapter, network-layer above that of small scale organization is suggested. This was the one which enabled the mobilization of goods from 30-40 settlements, and thus a role in the Bronze Age World.

In addition to tell height (Kotsakis 1989: 4-5), hierarchies can be defined in the sharp divisions, upon closer investigation of site size and visibility. More so, the tells which scored highest on these parameters clustered together (ch.6.3.2). Hierarchies were also evident for travelers, both from short and the long distances, as the visual hierarchy could be experienced in movement (ch.6.2.1-6.2.3). The tells lay along the main routes, and traveling along these meant watching Axiochori or Xorygi most of the time while passing chains of settlements. Visual command of nearly the entire productive landscape could be gained by control of Axiochori and Xorygi. The constant presence of these sites in the eyes of locals and travelers alike may have entrenched an enduring hierarchy in their minds, forming a cosmological center-point. This could explain the continuity in the landscape use. Being able to watch the landscape, for example the prime agricultural lands surrounded by smaller site by the North East Passage and the Pikrolimni Plateau, also meant that it could be policed from the two visually interconnected spots Xorygi and Axiochori (see fig.47).

At the ridge upon which Axiochori is located, there are several large tells (see fig.36), all of which have poorer conditions for agriculture than the nearby Pikrolimni Plateau due to the lack of rivers near the biggest sites. The sites of Antophytos A and B do however lie near to one which leads down to Kastanas (see fig.47). It could be that these two sites supplied the larger sites at the ridge with lowland resources, and that some of the produce could have been shipped out as export to acquire tin. From Xorygi and Axiochori, command of the sites located in the fringes by the mountains. These could have supplied woods and necessary goods for feasts (e.g. game, herbs and wine), occasions which could bind those further down in the hierarchy (ch.6.1.4).

If the hinterland supplied the core with a proportion of key resources, what did the coastal clusters provide in return? As metallurgy, and likely also other productive activities including spinning and weaving were distributed rather than centralized (see Veropoulidou et al. 2008: 173), traded raw

metals would be needed at all the small sites. Governance and distribution of, for example imported metals could have taken place at Axiochori, which had unparalleled command over the country and key routes (see fig.17 and fig.47). The tight cluster of sites by the Lower Gallikos did not similarly command large tracts of land, but did control a coastal zone by the gold rich Gallikos. The Lower Gallikos also had access to the Pikrolimni Plateau, but this was under visual command of Axiochori (fig.23). Agricultural resources could have been channeled from this part to the Lower Gallikos under the supervision of Axiochori for the purpose of feasts, trade and consumption. The Lower Gallikos and the cluster by Kouphalia could have been entry ports for Aegean merchants, warriors and crafters.

The close proximity between sites and mineral rich areas mined today is an *indication* rather than *evidence* of mining in the North East Passage part and the Vathi-Gerikari highland (fig.17). Yet even without mineral resources, these landscapes contained large tracts of farmable lands, a route to the Central Balkans and fringe highland resources which could be used to maintain bonds with the small group of large sites by Axiochori from where resources could be channeled further to other outliers or the cluster by the Lower Gallikos. Why do these sites cluster to the extent they do (appendix 4)? One answer could be that they were located halfway between Axiochori and Toumba Thessaloniki, and not far from Assiros either. This part is thus a natural meeting ground for local travelers from the Bay of Thessaloniki, the Langadas and the Lower Axios Bay with riverine routes to the rich highlands by Vathi Gerakari. Much suggests that this part of the area had a central function, but the sites in this area commanded significantly less land than Axiochori, and part of the land which their dwellers may have depended on (at the Pikrolimni Plateau) was under the gaze of Axiochori (appendix 3).

Another part of the landscape which would have been under the gaze of Axiochori was the diverse economic zone across the bay at the west bank of the Axios. These sites had access to a mix of lowland and highland resources. The bay could have been a path rather than an impediment. The area down by Kouphalia represents a cluster of sites, but one with less command than Axiochori of the hinterland (appendix 3, see fig.23 and fig.47). Circulation of goods from the western bank could have taken place via Kouphalia, opening local routes for the dwellers of Livadhi and Rakhona (which were visually connected to the areas north and east towards Axiochori rather than south to Kouphalia; see appendix 3). Goods could have been shipped out into the Bronze Age World from Valtochori, or into local systems from Toumba Kouphalia to Axiochori, which had the best visual command of the west bank of the bay (fig.47; see also fig.23).

For the clusters to function as small "microsystems" (see e.g. Andreou et al. 1996: 585; see appendix 4), a dependence on long distance trade could be envisaged as metal would be needed for tools, ornaments and weapons – at least tin would have been needed from the outside. The route between the Aegean and the Balkans was under the gaze of Axiochori and Xorygi (fig.23). The Lower Axios tied together the Central Balkans and the Aegean, both areas from which travelers came (ch.5.4.0). Short distance trade may have moved significant amounts of goods, distributed at the feast, but ornaments and arms require skill and a taste for their aesthetics (see Sandars 1983: 44) – and thus the presence of long distance travelers which may have brought both types of knowledge in addition to tin, if not also copper. Metal from the outside could have kept local networks going, also distributing other imports and cosmopolite knowledge. Sites like Axiochori distributed imported raw materials bought with produce from outliers. If goods were distributed and circulated rather than buried with the dead this explains the dearth of prestige goods (see Vavelidis and Andreou 2008). The feast as a spectacle could have included foreign crafters, traders and warriors, and been an event with a "global" air enabled with means (e.g. wine and game) derived from outlier sites. The settling of these areas may not only have been ideologically driven (see Andreou 2001: 165), but also economically.

What can be said about scale and logistic capacity? I propose that the scale of this political economy may have potentially included people from across the Lower Axios Area. The Lower Axios clusters consisted of sites, the spatial proximity of which could reflect social proximity. Why did these settlements not pursue synoikism? Evans-Prichard (1960: 169) showed that the Azande people in Sudan, who in fear of their neighbors' witchcraft, preferred to live apart rather than in larger settlements. The clusters of tells are constituted by sites which must have shared the resources of their immediate surroundings, yet a tell-centered idea of spatial structure coupled with a strong emphasis on linages and hereditary connections to tells (see Kotsakis 2007; Andreou 2001) may have prevented synoikisms. Grazing lands, food soil and hunting rights in the reed forests would have generated a need for organization as the sites had shared access to these resources due to their proximity. Harbor sites like Valtochori and Kastanas provided links with the larger area and the Bronze Age World, which is also a valuable asset (see fig.17 and fig.47).

Intermarriage and strife could have been two outcomes in local resource politics which could have bound the dwellers of the different sites (see Andreou 2001: 170). Conflict and family bonds are not necessarily in opposition. In Afghanistan, the Pashtun villagers have their fields close to those of their cousins; this means that they have to share irrigation canals. The Pashtun word for 'cousin' is synonymous with 'enemy' (Barth 2008: 17-18). As a function of the clustering, a system of strife and alliances sealed with marriage may have existed in the Lower Gallikos, by Xorygi, by Kouphalia, and between the sites on the ridge upon which Axiochori is located. The latter cluster was situated in the midst of the area. Alliances between linages within different clusters could have regulated intra-cluster affairs and spurred feasting to mobilize labor and exchange key imports like tin, a necessary component to make bronze weapons needed when intra-cluster alliances failed. In this system Axiochori came out on top in the Lower Axios Area, with its ultimate command of key agricultural resources and the main route north (see ch.6.2); two assets when traders came and thus a source of power. In this political economy feasting was, as suggested by Andreou and Psaraki (2007), a key mechanism used by elites to mobilize goods from outliers to sustain what I suggest was a formation covering roughly 1300 km^2, or half a day's march in any direction from Axiochori – an

area which was under the visual command of Axiochori. The network layer represented by a 1300km^2 valley-wide political economy was above the toparchy, and could have functioned to connect Central Macedonia with the Bronze Age World. Its design was rooted in dominance over productive parts of the Lower Axios Area.

In the period 1200-1000 BC major rearrangements took place with a nucleation of the population – perhaps coming from flat sites in the hinterland to the large table sites that emerged, heralding a new emphasis on defense. The landscape was now used for not only productive activities but also as a space for burying the dead (ch.12.3.1). The main population clusters do however persist (appendix 4), despite the possibility of an attack on Kastanas (layer 13, below, ch.7.1.3). This indicates that Axiochori retained a strong position in an Iron Age society which thus must have emerged from the Late Bronze Age, representing new designs.

Figure 42 Top right Iliolousto, top left Limnotopos. Rey (1917: 22) identified a table visible on the image, yet no traces of habitation observable in the surface. Bottom left Aspros tell and table, bottom right Xirochori tell and table (Google Earth).

Tsautsitsa	Vapheiochori A	5,8
Xorygi	Vapheiochori A	3
Valtochori	Kouphalia A	3,9
Xylokeratia	Gallikos	4,4
Gallikos	Petroto	5
Philadelphia Toumba	Pentalophos B	2,9
Pentalophos B	Pentalophos A	2,9
Pentalophos A	Pentalophos B	2,9
Neochoruda	Pentalophos A	2,9
Kouphalia A	Toumba Kouphalia	2,3
Livadisthi	Rakhona	3
Rakhona	Livadisthi	3
Limnotopos	Asperos	3,1
Asperos	Limnotopos	3,1
Axiochori	Asperos	5,4
Kastanas	Dourmousli	5,6
Kilindir	Plagia Kilkis	7,7
Dourmousli	Kastanas	5,6
Toumba Paionias	Limnotopos	7,27
Antophytos A	Antophytos B	3,2
Antophytos B	Antophytos A	3,2
Toumba Kouphalia	Kouphalia A	2,3
Xirochori Toumba	Nea Misimvria	3,6
Dytiko - Agrosykia	Rakhona	4,2
Anchialos	Lakhanokipos	4,1
Lakhanokipos	Pentalophos A	5,1
Petroto	Gallikos	5
Vapheiochori B	Vapheiochori A	3,4
Vapheiochori A	Xorygi	3
Eucharpia	Plagia Kilkis	4,7
Kotyle	Vapheiochori B	4,3
Metalliko G	Metalliko D	1,4
Metalliko D	Metalliko G	1,4
Metalliko E	Metalliko D	4
Plagia Kilkis	Eucharpia	4,8
Nea Misimvria	Xirochori Toumba	3,6
		3,918611

Figure 43 Site distance to nearest neighbor.

Figure 44 Upper left Limnotopos (from south), upper right Limnotopos (from east). Middle right Aspros and Axiochori from Limntopos (looking south). Lower left, Axiochori stadium and tell, lower right Axiochori (from east) (Photo Aslaksen).

Figure 45 Upper left Gallikos (from north), upper right Nea Khoroudha (from south). Middle left, Pentalophos A (from north), middle right Pentalophos A (from east). Bottom left, Pentalophos B (from north), bottom right Philadelphia Toumba (from north) (Photo Aslaksen).

Sites	Distance to waterways (m)
Tsautsitsa	277,4876229
Xorygi	726,0098483
Xylokeratia	783,3665832
Ghallikos	351,4120725
Philadelphia	149,5043592
Neochoruda	326,2513904
Rakhona	290,4891385
Kilindir	351,4467968
Toumba Paionias	240,3751002
Antophytos A	272,5946652
Antophytos B	97,90290554
Xirochori Toumba	78,90484689
Dytiko - Agrosykia	2,973089226
Petroto	616,7733712
Vapheiochori B	770,5693744
Vapheiochori A	486,0824012
Eucharpia	694,3689729
Kotyle	1178,174303
Metalliko G	1778,72855
Metalliko D	1290,258544
Metalliko E	499,7439342
Plagia Kilkis	1044,910402
Nea Mesimvria	356,328147
Average	550,6372356

Figure 46 Distance to major and minor waterways (m).

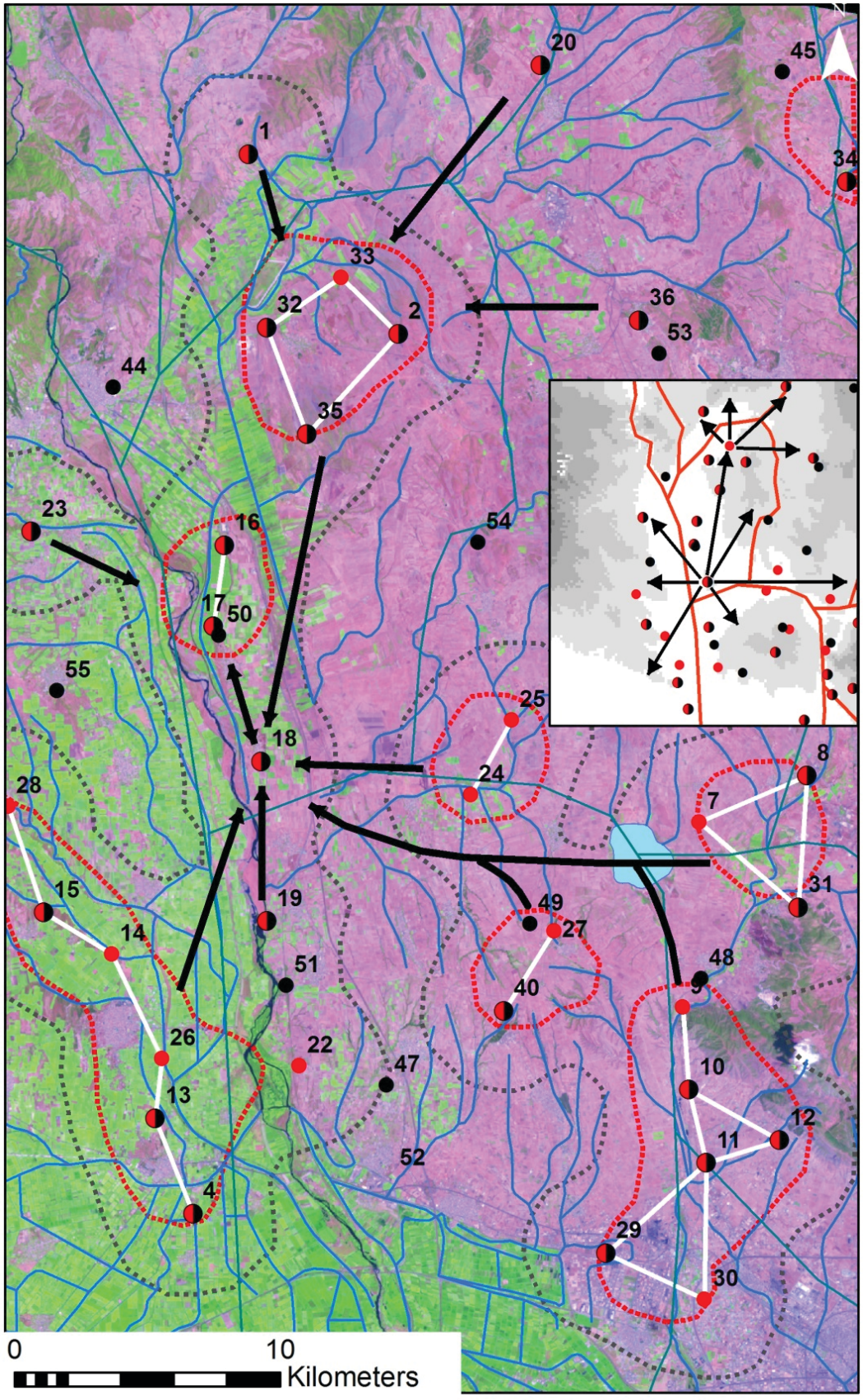


Figure 47 Economic system outline: A) Through visual command of the landscape, Axiochori controls most of the key agricultural areas at the Pikrolimni Plateau and the route into the Balkans along the Axios (thick red line). B) The big southern clusters (red and grey dotted lines) depend on agricultural land and routes commanded by Axiochori and Xorygi. Resources for feasting were brought to Axiochori from satellites, enabling the mobilization of staples and bulk produce from the lowlands to be traded. Key commodities like tin could be distributed at such feasts in return, to be circulated in local networks (white lines). The Axios Bay is represented by green, agricultural land purple and mountains dark color (Landsat 4-5, Eastview vector map, KHM).

7.0.0 Tells, People and Pottery – Contextual Studies of Tells

A possible outline for an area-wide political economy was suggested in chapter 6; it is of interest to understand how the material most frequently co-present in other regions was utilized by members of different communities in Central Macedonia. A comparative contextual study of decorated pottery from large and small tells with different roles in the Lower Axios Area and sites from neighboring areas is pursued in this chapter. A contextual study of decorated pottery can address relations between tell communities, and groups in Central Macedonia and travelers from both the North and the South.

While the prestige objects and weapons are relatively scarce, the pottery assemblage is abundant, diverse and highly unusual in its heterogeneous composition. Amongst the types of decorated pottery which were co-present in other regions, we find Minyan, encrusted, matt-painted, wheel made Mycenaean, Proto-Geometric and fluted "Lausitz" pottery. Decorated pots were imported and copied, but production techniques and technologies were also appropriated (see Hochstetter 1984; Jung 2002; Horejs 2007; Garrigós et al. 2003; Kiriatzi et al.1997). Several likely travelers were identified in chapter 5, amongst them crafters, traders and warriors. The latter two may have carried objects and taste, the former technology and techniques. However, the assemblage would not exist if the various decorated pots did not appeal to a larger local population of Central Macedonia (for a parallel, see Gijanto 2011), as indicated by the wide distribution of Mycenaean pottery to large and small sites alike. Their taste evidently differed from that of their neighbors: matt-painted, Mycenaean and encrusted pottery are rarely found in the same regions (with some exceptions Mycenaean pottery is not found north of Central Macedonia in the Balkans, see Alexandrov 2005). The distribution of the pots could well have been tied to the political economy defined in chapter 6 which could have enabled Central Macedonia's participation in the Bronze Age World.

A mechanism behind the steady influx of new types of decorated pottery has been suggested to have been feasting (see Andreou and Psaraki 2007). Older groups used matt-painted pottery during feasts at Toumba Thessaloniki. These events served to cement hierarchical relations with neighboring tell societies. Mycenaean pottery was incorporated in this system, but opportunistic Mycenaean traders circumvented older networks and provided new groups with the symbolic capital to feast, which again gave rise to increased competition at the dawn of the Iron Age (Andreou 2001: 170; Andreou and Psaraki 2007: 416-417). A similar dynamic was noted by Maran (2007) in Middle Bronze Age Thessaly, where new types of decorated pottery were utilized by aspiring groups. This highlights that pots were used by design in addition to being designed.

By looking at contexts of sites in the Lower Axios Area, it should be possible to expand the current knowledge on the character of the groups that used the international assemblage. The current knowledge on feasting largely derives from Toumba Thessaloniki, and largely rests on studies of pot morphology and type frequency (see Andreou and Psaraki 2007). With Hagios Mamas as a vantage point, Horejs (2007: 253) showed that Mycenaean and matt-painted pottery are often found in the same contexts in the second half of the 2nd millennium BC, and propose that these types of decorated pottery could have been used together. For the Lower Axios, the contextual occurrence of decorated pottery with affinity to different corners of the Bronze Age World has yet to be approached although the assemblage is comparatively well published (see Hochstetter 1984; Jung 2002; Heurtley 1939). In this area several sites of different character, size and location can be discussed (see ch.7.0.1), and yield information on the users of the pots and their role in the Lower Axios Area. For that purpose, the development at key sites is evaluated against the sites subject to contextual analysis of decorated pottery.

While decorated pottery is discussed in greater detail below (ch.8.-ch.12.), it is suffice to say for now that Minyan pottery was imported and copied locally, primarily in Chalcidice and by the Thermaic Gulf (see Horejs 2007: 211; Horejs 2007c). This differs from how Mycenaean pottery, which was first imported before the techniques and technology were adapted, spurring a regional industry that reached its peak in the Late Helladic IIIC period (see Jung 2002; Garrigós et al. 2003; Kiriatzi et al.1997). Matt-painted pottery may have come from Thessaly to Chalcidice, and then spread to the Lower Axios (Horejs 2007: 281). From the North, shapes and decoration of both encrusted pottery and later, at the dawn of the Iron Age, fluted ware arrived; the latter possibly produced after an initial period of import (Hochstetter 1984: 194; for an updated overview Macedonian pottery, see Horejs 2012). The great variety in the assemblage presents a challenge, and since a detailed analysis of encrusted, matt-painted, Mycenaean and fluted "Lausitz" pottery is pursued in chapter 8.-12., these types are focused on in this chapter as well.

7.0.1 Contextual Studies - Limitations

As the Lower Axios Area is the main geographic scope, the contexts at Kastanas, Axiochori, Tsautsitsa, Kilindir and Limnotopos are discussed in detail, although it was also instructive to look at Toumba Thessaloniki (ch.7.3) and Assiros (ch.7.4.) (fig.1). The nature of the Lower Axios Area assemblages limit some of the possibilities:

- The material published in Hochstetter's (1984) volume on handmade pottery from Kastanas can be tied to houses or outer plazas in some instances although the publication on the handmade pottery does not contain complete contextual information. Even though Jung's (2002) work on Mycenaean pottery does so, a presence/absence approach must be pursued. "Absence" refers to the absence of information rather than the absence of actual finds.

- While little information on houses and plazas were recorded by the English excavation teams in the inter-war period, the material can sometimes be related to features such as terraces and burnt layers. Even if the material may not reveal accurate patterns, it has the potential to reveal tendencies which become meaningful if seen in light of other sites like Kastanas.

A presence/absence analysis is a "coarse" method but is the only one that enables examination of the sites excavated by the British in the interwar period and Kastanas together. The main pillar of the contextual study is Kastanas as the assemblage from this site was excavated with modern methods and published extensively. To provide depth, a comparison with Toumba Thessaloniki was pursued, a larger site located by the Bay of Thessaloniki. Does this site exhibit a different consumption of decorated pottery than the much smaller site of Kastanas? Adding Assiros to the picture provides the possibility of relating the practice to the Late Bronze Age economy of Central Macedonia. Another relevant issue is whether preferences for pottery from particular regions changes in different periods. I argue that re-combining decorated pottery with a co-presence in other regions had political and economic implications both in regards to Central Macedonia and its role in the Bronze Age World.

7.1.0 Kastanas - Introduction

Kastanas first appears in the work of Rey (1919: 36); French (1967) also collected surface sherds some 50 years later. Hänsel's excavation (1975-1979) at Kastanas was methodologically advanced, and provided a firmer chronology of the development of the Lower Axios Area. Hänsel (1989: 21) defined this settlement as a satellite to the larger Axiochori which functioned as a harbor. Kastanas was located on an island. On the eastern shore of the island, a flat settlement was located 100-150m away, its nature, however, will remain unknown until further investigations have been conducted (Hänsel 1979: 202).

While Heurtley (1925; 1939) kept a representative sample of his finds, Hänsel kept enough material to make quantitatively sound statements. The material was however published in different manners. A selection of handmade pottery was published by Hochstetter (1984) while Jung (2002) published a representative amount of the wheel made pottery and a catalogue. Hochstetter's publication of the handmade pottery does not contain a catalogue. Publications of architecture, settlement phases (Hänsel 1989) and bioarchaeology (Kroll 1983; Becker 1986; above, ch.6.1.2) provide the opportunity to contextualize the pots with social life at the tell.

7.1.1 Kastanas - Chronology

Kastanas is a primary anchor point in the chronology of Central Macedonia. By means of correlating pottery and absolute dates, Jung and Weninger (2002: 286) connected the chronology of Kastanas to that of Southern Greece and the wider Bronze Age World. The dates from Kastanas are the only ^{14}C dates for the Lower Axios Area, but absolute dates have also been obtained from Toumba Thessaloniki, Assiros and Hagios Mamas. The dates from Assiros and Hagios Mamas have been published and discussed extensively, and the results have been correlated with each other and the Helladic chronology in a series of articles (see Hänsel et al. 2010; Jung and Weninger 2002; Horejs 2012; Jung and Weninger 2004; Weninger et al. 2009; Newton et al. 2005; Wardle 2009).

The Late Bronze Age at Kastanas is constituted by the phases K III (layer 19-18) which corresponds roughly to the period Middle Helladic III- Late Helladic IIIA. K IV (layer 17-14a) which corresponds to Late Helladic III A-III C and K V (layer 13-11) which corresponds to Late Helladic III C to the Middle Proto-Geometric period. Period KV is regarded as a transition period during which a new lifestyle was introduced, although Bronze Age pottery continued to be produced (Kroll 2000: 62). Hänsel (1989: 53) originally presented the following scheme:

K III (layer 19-18)	**1600-1400BC**
K IV (17-14a)	**1400-1200BC**
K V (13-11)	**1200-1000BC**

The historical data showed major discrepancies with the calibrated ^{14}C dates (fig.48; Wilkomm 1989), which could be due to the sample quality or perhaps even disturbances in the stratigraphy (Jung and Weninger 2002: 297):

Layer	cal.BC (Wilkomm 1989: 404)	Relative dates (Jung 2002: 228)
19		**MHIII-LHI**
18	**1465 +/-55**	-
17		**LH IIIA**
16	**1430 +100/-130**	**LHIIIA-LHIIIB**
15		**LHIIIB Middle-Late**
14b	**1340 +/- 40**	**LHIIIC**
14a		**LHIIIC**
13	**1180 +/- 47**	**LHIIIC**
12	**1220 +/- 26**	**LHIIIC-PG**
11	**1200 +/-75**	**MPG**

Figure 48 Dates of Kastanas' layers (After Jung and Weninger 2002).

A prolonged dating campaign has been pursued to increase the precision of the Kastanas dates. Newer dates place layer 16 around 1330 cal.BC (Jung and Weninger 2004: 224) and push layer 11 towards the end of the 11th century BC (Weninger and Jung 2009: 381). Despite discrepancies,

the ^{14}C dates have been used together with the Mycenaean pottery and allowed dating of the phases with divergences that count for decades rather than centuries (Jung and Weninger 2005: 224). A comparison between Toumba Thessaloniki and Kastanas places the beginning of the Late Helladic IIIC period around 1180/75 cal.BC, and places Toumba Thessaloniki's layer 4A-D and Kastanas layer 14b/a-13 in the range 1210-1170/50 BC (Weninger et al. 2009: 196). The most substantial material of the Late Bronze Age comes from K III, and much of it indicates the Bronze Age World between 1400-1200 BC was interconnected (e.g. Feldman 2004). My intention is not to pursue this discourse further, but it can be concluded Hänsel's (1989: 53) rough estimate fits adequately with the ^{14}C dates.

7.1.2 Kastanas - K IV – 1400 -1200BC

What kind of settlement was Kastanas in the "international period" (1400-1200 BC)? While little was recovered of the architecture of K III, there is a substantial body of features from K VI (layer 17-14a). In this period the settlement was composed of more or less freestanding buildings grouped around courtyards (Hänsel 2002: 14-15). The position of these shift slightly throughout the period, but all were built of mud brick and either had an apsidal, oval or square shape (see appendix 1 for plan drawings).

The *Hanghaus*, *Apsidenbau* and the *Ovalhaus* of layer 17 were in a ruinous state, yet it can be assumed that these houses were organized around a court. The *Herdhaus* contained mostly fine pottery and not so much coarse ware (Hänsel 1989: 82 and 331). According to the excavator, the southwestern part of the tell close to the *Apsidenbau* could have been used for storage due to the concentration of sherds from storage vessels (Hänsel 1989: 84-85).

Becker (1999) conducted a function analysis of the settlement space, combining plant remains and animal bones. In layer 16, she notes that the *Fünfeckhaus* had a variety of cooking and consumption vessels while the *Pithoshaus* could have been a communal storage area (Becker 1999: 105). The *Megaronhaus* has a large number of drinking vessels, and had a bench inside covered with what Kroll found to be seaweed (Hänsel 1989: 94). The *Megaronhaus* contained animal remains which indicated that fallow deer and swine were consumed in this space. A bronze knife and an arrowhead were associated with the *Megaronhaus*; this could thus have been a space for feasting (Becker 1999: 101). While essentially very different, the settlement in layer 16 of Kastanas, as described by Becker (1999) and Hänsel (1989), could have had some similarities with the society of Toumba Thessaloniki's phase IV (see Andreou and Kotsakis 1992: fig.6-7): the compounds seem to have functioned as "micro-systems" in which families had their own storages and production facilities (see Veropoulidou et al. 2008). The contemporary phase V at Toumba Thessaloniki produced multi-roomed houses which followed a similar layout to those of phase IV, although less well preserved. At Kastanas, the enclosed court which the *Fünfeckhaus* and the *Megaronhaus* were part of may have belonged to a family group with a similar degree of independence as the groups at Toumba Thessaloniki.

In layer 15 the large apsidal houses that now dominated the settlement became the arena for production and food preparation (Becker 1999: 106). Cooking also took place outside, as is attested by a hearth and pyranous fragments. In layer 14b there is a lack of clearly definable activity areas. While in the earlier phases the houses were kept clean of food refuse, this was not the case in layer 14b. Hänsel (1989: 119-120) proposed that an earthquake struck the settlement. The catastrophe was so destructive and sudden that objects on the floor of houses were captured in situ (mollusks and animal remains were found to have littered the floor). The assemblage in the houses reflects a frozen moment in time (Becker 1999: 107). One can contend that the single house rather than the court had now become the center for social life.

The role of the house may have been persevered in layer 14a, but in this period of the settlement there was a reduction of built spaces (Hänsel 1989: 136). There was also a reduction in the animal body size in this period, and the quality of the crops was in decline (see ch.6.1.2). There was an increased consumption of marine resources and wild animals, and brains and marrow were eaten significantly more (Kroll 1983: 151; Becker 1986: 295). This diet was in contrast to the previous consumption of domestic animals. A ruthless agricultural regime in the Late Bronze Age could have led to degradation and tipped the scale (Kroll 1983). According to Hänsel a new elite conquered a weakened Kastanas. Hänsel (2002: 15) suggests that this accelerated changes taking place in the twilight of the Bronze Age. In layer 14b-a, a large number of hearths were found outside in what had become a large open area on the tell.

There was a gradual decline in the number of houses on the tell which may indicate that fewer and fewer people lived there. While this is explored further in chapter 7.1.4, a point should be made regarding Kastanas' role in the Lower Axios Area. Hänsel (1979: 202) suggested that Kastanas was the harbor of Axiochori, which controlled the ridge upon which Aspros and Limnotopos were located. Andreou proposed that the increased agricultural output and decrease of housing units could be tied to a changed subsistence strategy which involved joining together households to maximize the workforce (Andreou 2001: 166). Hänsel (1989: 334-335) interpreted the nucleation process as a move towards concentration of power. This could perhaps be linked to the same process as the raising of terraces and growth of a lower table settlement at Axiochori (ch.7.2.3). In the period 1400-1200 BC, from being a site with compounds almost like Toumba Thessaloniki was, with densely packed buildings, Kastanas transformed into a site with fewer large buildings. Perhaps Kastanas transformed into a dependent agricultural satellite settlement. Smaller sites like Antophytos A and B (fig.47) could have had a similar layout, although this cannot be ascertained without further excavation.

7.1.3 Kastanas - K V – 1200-1000 BC

In layer 13 the tell was once more densely settled, but the houses were now built of wattle and daub rather than mud bricks. The houses were scattered, some square, others apsidal. Although the settlement plan shows a differently organized society, the large *Flechtwandhaus* was built in along the same axis as the *Einzelnhaus* of the previous period. Cooking in ovens and other productive activities took place in a roofed open area (Hänsel 1989: 147). Sheep were kept for wool in this period and given the concentration of spinning tools in the *Webhaus* textile production is implied (Hänsel 1989: 161; Mauel 2009). A building technique co-present in Central Europe, the new settlement plan, new pottery types (fluted ware; see Hochstetter 1984: 224), together with increased hunting at the expense of domesticated animals in the diet and new production patterns indicated the coming of a new population according to Hänsel (1989: 336). As indicated on the distribution map for Mycenaean pottery (Hänsel 1989: fig.58), however, Aegean influences survived and thrived (Jung 2002: 224; see ch.11.2.1) even if Late Helladic IIIC pottery would have been largely unknown for dwellers in wattle and daub houses in the Balkans and Central Europe where this building material was common (Bankoff 1979: 8).

In layer 12 there was a return to mud brick architecture. The building mass was organized in large multi-room complexes, almost like Roman insulae (apartment buildings) which, according to Hänsel (1987: 338), were organized in a Mycenaean fashion around square courts and narrow streets. There was a wide selection of ovens accessible in the *Nordhof* which may have been used for activities including metal working (Hänsel 1989: 183). In layer 12 there was a strengthening of contact with the Aegean made evident by an increase in the quantity of wheel made pottery and the architecture – perhaps connected with the decline of the palatial centers and subsequent population movements to other places in the Eastern Mediterranean (Hänsel 1989: 337; see Yasur-Landau 2010: 338). One of the rooms even had a clay bench and a central hearth which, according to the excavator, was similar to the composition of a megaron (Hänsel 1989: 336).

In layer 11 there were large irregular compounds with interconnected rooms rather than "apartments"; it is possible that this architecture excluded people. In layer 11 the courts in the western part of the settlement were an area where various productive activities took place, possibly including metal working. In the *Zentralhaus* spinning, weaving and cooking took place; the house also contained much Mycenaean pottery (Hänsel 1989: 199-203). If the house sizes reflect the social development at the tell, it demonstrates the gradual growth of larger households. The multi-room complexes of layer 11 resemble contemporary compounds of Toumba Thessaloniki's phase 4 (ch.7.3.1), although in a smaller version with fewer productive spaces. The Zentralhaus could well have housed a lineage, even if the building was small compared to the buildings at Toumba. For Hänsel (1987: 338) layer 11 marks the end of the Mycenaean influence in Central Macedonia. Wattle and daub architecture was reintroduced in layer 10. At this point the Early Iron Age began.

Hänsel (1989: 336-337) proposed that the material in KV reflects the Balkan migrations (layer 13) and the Aegean migrations (layer 12). Yet, the development trends could be said to reflect fluctuations between roles – perhaps as a harbor in layer 16 and 12, and a satellite producing textiles, most evidently in layer 13.

Discussion - Trends

A long-term enlargement of the household can be traced at Kastanas (fig.49), possibly reflecting a lineage based social structure similar to that identified at Toumba Thessaloniki (see Kotsakis 2007; Andreou and Psaraki 2007), but within a different architectural frame. Large apsidal houses already appear in layer 17 and 16. The open court around which smaller buildings were organized in layer 16 could have belonged to one group, perhaps in a similar fashion to the compounds in Toumba Thessaloniki (7.3.0). While there seems to have been a mix of square, oval and apsidal houses in in the earlier period KIV, the square houses become dominant in KV, which would enable a more planned use of the settlement space (see appendix 1 and fig.50). This happened in the same period as Axiochori expanded (ch.7.2.3), and could indicate a growing population and nucleation.

Producing a rough estimate of how many people lived on the tells is a daring endeavor, and cannot be counted as more than an indication (see fig.49 and fig.50). In a comparative study of Bronze Age households in Hungary, Scandinavia and Sicily, Stig Sørensen (2010: 127) calculates 5-10m^2 per person, a number derived from ethnographic sources. I adopted this number for Central Macedonia. By calculating what percentage of the excavated area was roofed, and then dividing the estimated size of the tell with the percentage that was roofed, an estimate of population density could be obtained by dividing the roofed space on 5 and 10 (see fig.50, below). This gave a result which seemed to follow the trends of the settlement development, with a decline in layer 14a (in accordance with Hänsel 1989). Layer 16 and 12 represent periods with strong Mycenaean contact. These two layers may truly represent harbor phases while, for example layer 14b-a and 13 represent phases in which Kastanas could have been a satellite (see also Hänsel 1989: 21).

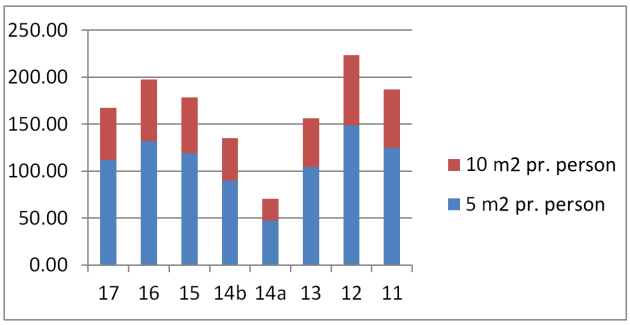


Figure 49 Roofed space at Kastanas in layer 17-11 with high and low population estimates

7.1.4 Re-combining Pottery from the Bronze Age World

The settlement development provides relevant information on the social context within which the different types of pottery were utilized. It is clear that Kastanas' was the home of very different types of communities, for example in layer 13 (see Hänsel 2002), a period representing what Yasur-Landau (2011: 13-14) describes as *deep change*, affecting behavioral patterns (tied to for example cult, domestic sphere or trade) in several ways reflected in material culture (see Hänsel 1989: 335-336). The aim in the following brief survey is to see which households had access to what kinds of decorated pottery, and to assess if these types were used together (based on the literature Jung 2002; Hochstetter 1984) in particular combinations depending on period and house type. The data is listed in appendix 1 and includes handmade (Hochstetter 1984) and wheel made decorated pottery (Jung 2002), grouped by the houses within which they were found.

Beginning with *layer 17* it is evident that the *Mittelbau* can be assumed to be the only house with Mycenaean pottery, yet all houses combined encrusted or incised and matt-painted pottery, although none of the houses contained much pottery (Hochstetter 1984: 204). Mycenaean pottery was found in small quantities from layer 19 and 18 (Jung 2002: 219), which started after a hiatus covering most of the Middle Bronze Age. These sherds were rare and exotic, which could be the reason why they were not widely distributed at the settlement. All the houses from where pottery has been published had both encrusted and matt-painted pottery, which could mean that access to decorated pottery was not restricted before the introduction of Mycenaean pottery.

Layer 16 provided a rich material, and has been important for Hänsel (1989) and Becker (1999) in their discussions on prehistoric life at the tells. Of the three houses that were uncovered more extensively, the *Pithoshaus* and the *Megaronhaus* had one room, while the *Fünfeckhaus* had several. It seems as if the dwellers of all the houses had access to Mycenaean and encrusted pottery in this period, while the *Pithoshaus* and the *Megaronhaus* lacked matt-painted pottery. This means that house size may not have been of essence when it came to access to decorated pottery, and that all types were fairly accessible. The pots may however have been mobilized differently as there is a lot indicating that the *Megaronhaus* was a festive space: although well-kept and clean, shards of fine vessels (like kantharoi) were found (Hänsel 1989: 94), and the dwellers of the house consumed fallow deer, swine and mollusks from seaweed cushioned benches (see Becker 1995).

In *layer 15* there are only two houses of which a significant part has been excavated. The *Ellipsenhaus* is rather large while the *Trapezhaus* is smaller and had a small antechamber where grains could have been stored (Hänsel 1989: 112). The *Ellipsenhaus*, *Kantenhaus* and *Trapezhaus* contained matt-painted pottery, the *Ellipsenhaus* contained Mycenaean pottery while both the *Kantenhaus* and *Ellipsenhaus* had encrusted pottery. At the eastern side of the tell a trench was dug where the *Antenbau* was excavated, yet few details have been published about this building. Rather large in size, the people living in the *Ellipsenhaus* could in theory combine encrusted ware, co-present in the Balkans; Mycenaean pottery, co-present in the Aegean; and matt-painted pottery co-present in Greek Macedonia, Northern Thessaly and FYRO Macedonia (see Hochstetter 1982b).

In *layer 14b* there is only one large house in a space which held three houses in the preceding period. The *Antenhaus* was a large, presumably apsidal house with external and internal pits and a hearth inside. At the opposite side of the tell, the *Dobbeltraumhaus* was excavated, resembling a square storage building, possibly the same as at Assiros. Both these houses contained Mycenaean, matt-painted and encrusted pottery. In *layer 14a* the *Einzelnhaus* had Mycenaean, matt-painted and encrusted pottery, even in a period of decline.

In *layer 13* there are several changes at Kastanas, including new types of architecture, pottery, agriculture and potentially also the use of space. Layer 13 is the period of the "Lausitz invasion"; however, it could have been a take-over by a new elite taking advantage of the weakened Kastaniotes noted in layer 14a who absorbed the local ways in layer 12 and 11 (Hänsel 2002: 26). Several activities now took place in the court that would probably have taken place indoors in the earlier part of the Late Bronze Age, for example cooking indicated by outdoor hearths and a large stove in the colonnade, *Ofenhalle*. Domed ovens became a hallmark in Central Macedonia in which bread could be baked, pottery and whorls burnt (see also Papadopoulos 2005: 417), and even metal melted (Hänsel 1989: 157; see also Heurtley 1927: 166-167). Whether the Macedonian domed oven was used for bread baking, pot firing and/or metal working is not a question with a definite answer yet (see Valamoti 2002: 6); it can be assumed that the plentiful einkorn was used for porridges made in the pyranoi (Horejs 2005: 88). The diet in Central Macedonia consisted of elements from both North and South: "Balkan" grains like millet and melon, known in the Aegean and even Egypt (Kroll 2000: 64; Kroll 1983: 76), matching the diversely decorated pots with which the food was consumed and stored. In layer 13 the mix of different types of decorated pottery prevailed although deep changes could have been instigated by invaders, including the new fluted ware (related to consumption) and wattle and daub houses (living quarters and productive spaces).

From appendix 1, some deductions may be made regarding contexts of pottery co-present in both the North and the South. In the large *Flechtwandhaus*, there was Late Helladic IIIC pottery, matt-painted and fluted pottery, or more specifically a fluted bowl. The function of this object could, from a practical perspective, be the same as the matt-painted bowl also found here, or the large variety of skyphoi. Re-combination was also apparent in the *Leichtbau* while only two types of decorated pottery were found in the *Ofenhalle*. Apart from encrusted whorls only Mycenaean pottery has been published in the *Webhaus*. Yet the palimpsests represented by the open spaces such as the *Straße* could suggest that there was not so much restricted access to objects co-present in different regions. Notably the wheel made Late Helladic IIIC pottery is widely distributed (see Jung 2002: pl.85), perhaps even more so than the fluted ware.

In *layer 12* the wattle and daub houses of layer 13 are replaced by square blocks of mud brick. All types of decorated pottery are found in the *Haupthaus*, while there seems to be less so near the *Loggia*. The distribution of wheel made pottery shows a concentration in the western area of the settlement while the area near the *Loggia*, the *Osthof*, seems to be almost empty. This also holds true for the handmade pottery, although there are a high number of jars in the *Loggia* in addition to pottery related to cooking, serving and eating/ drinking (Hochstetter 1984: 228; Hänsel 1989: fig.70; Jung 2002: pl.97; see appendix 1).

In *layer 11* the building mass at the settlement seems to have evolved into several compounds where the *Zentralhaus* has been extensively uncovered. A part of a compound, the *Folgebau,* with several rooms organized around a court was uncovered at the western end of the settlement. There is a re-combination of wheel made pottery and fluted ware in the *Zentralhaus*. In the compound around the *Nebenhof* there was also incised pottery. The *Seitenhaus* contained little decorated pottery, both inside and in the area just outside the doorway. The *Zentralhaus* seems to have the highest amount of pottery, both wheel- and handmade. It is difficult to compare household forms, although the *Zentralhaus* could have contained quarters for an extended linage (see Andreou 2001; Hänsel 1989: 336).

Despite the changes at the settlement, it seems that re-combination of pots with connections to both the North and the South was a persistent practice with the ability to integrate pots and people (see appendix 1). Several types of decorated pottery were available to dwellers of both big and small houses.

7.1.5 Kastanas – Summary

The use of space in the beginning of the period emphasized cooperation between distinct groups. Throughout the Bronze Age there was a move to larger and larger single houses, which became the foci of social life. In layer 14b-a the settlement was sparsely inhabited. The settlement in period K V, contemporary with the Late Helladic IIIC period, could have been influenced by Mycenaean settlement plans with multi-room mud brick blocks arranged around irregular courts (see Hänsel 1989: 336). The context of this southern architectural connection, however, was that of the Bronze Age tell, a settlement form co-present in Carpathian Basin (Andreou 2001: 163; Kristiansen and Earle 2010; Uhnér 2010: 2), and encrusted pottery also known along the Danube and South-Central Balkans (below, ch.10.). "Balkan" produce like millet was coupled with "Aegean" produce like melons. While the cooking pot, the portable hearth, is connected with the Balkans (Horejs 2005), it is evident that the pots to consume with and to store in consistently had the looks of counterparts from abroad.

Combining decorated pots with co-presence in different areas preceded the introduction of Mycenaean pottery which only became popular from layer 16. Using such mixes of pots for both storing and consuming goods would have enabled the dwellers to serve "foreign" travelers arriving from both the North and South with familiar pots combined into a local hybrid kit. In the *Megaronhaus* (layer 16) the remains of a feast may very well have been discovered (above, ch.7.1.2). If such kits were common at other tells, it would reveal an important feature to the feast: being able to draw together a dining kit consisting of pieces from all the corners of the world enabled the host to deal with local (with similarly mixed kits) and "foreign" (who would recognize homely elements in the kit) partners as a peer over wine and food, also in part derived from different regions (e.g. melons). This indicates that re-combining the pots into the mixed kit was of importance to secure the flow of goods. If the groups at the tells lived in separated units like that of the court in layer 16 surrounded by the *Fünfeckhaus* and the *Megaronhaus*, it is a possibility that some were actually foreign traders with their retinue of guards and crafters who stayed to trade as they did at Kanesh (Larsen 1976: 231) – and thus could transfer skills like potting (see Kiriatzi et al.1997) and not least taste. This comparison may not be unreasonable: while of different periods and cultures, Kanesh was a karum, an institution regulating Assyrian trading communities (Karum = literally a port above, ch.4), while Kastanas could have been a harbor of Axiochori (see Hänsel 2002). Since the "foreign" types of decorated pottery remained relevant throughout the period 1700-1100 BC (and even into the Early Iron Age), it could be assumed that contact with foreigners was persistent. Multicultural environments could thus be expected at both sites: northerners and southerners were at Kastanas simultaneously. Since nearly all the households from layer 17-11 had more than one kind of decorated pottery, the foreigners are not distinguishable – perhaps a result of rapid integration through an inclusive institution of feasting. A reason to integrate could be that the aim of coming to Central Macedonia was to trade. Their groups may likely have been small as no colonies have been identified (like Miletus, see ch.4).

Houses Kastanas - Sizes						
Layer	House name	Shape	m^2	preservation	peaople 5	people 10
17	Apsidenbau	Round		IA	0	0
	Mittelbau	Square	23.1	partial	4.62	2.31
	Herdhaus	Round	11	partial	2.2	1.1
	Ovalhaus	Round		IA	0	0
	Hanghaus			IA	0	0
16	Pithoshaus	Square	21.0975	applicable	4.2195	2.10975
	Megaron		10.78	partial	2.156	1.078
	Hauseck im osten	Square		IA	0	0
	Apsidenbau	Round		IA	0	0
	Fünfeckhaus	Square	31.52	applicable	6.304	3.152
	Südostecke			IA	0	0
15	Kantenhaus			IA	0	0
	Ellipsenhaus	Round	53.38	applicable	10.676	5.338
	Trapezhaus	Round	12	partial	2.4	1.2
	Profilhaus	Round		IA	0	0
	Antenbau	Square		IA	0	0
14b	Antenhaus	Round	37.63	partial	7.526	3.763
	Eckhaus	Square		IA	0	0
	Dobbelraumhaus	Square	14	partial	2.8	1.4
14a	Einzelhaus		29.25	partial	5.85	2.925
	Osthaus	Round		IA	0	0
13	Winkelhaus	Square	5	partial	1	0.5
	Flechtwandhaus		25	partial	5	2.5
	Ofenhalle	Square	11	partial	2.2	1.1
	Leichtbau	Square	17.1875	partial	3.4375	1.71875
	Webhaus	Square	10	partial	2	1
	Pfostenhaus	Round	10.66667	partial	2.133333	1.066667
12	Loggia raum 1	Square	3	partial	0.6	0.3
	Loggia raum 2	Square	20	partial	4	2
	Loggia raum 3	Square	19.2	partial	3.84	1.92
	Haupthaus raum 1	Square	44.88	applicable	8.976	4.488
	Haupthaus raum 2	Square	34.92	applicable	6.984	3.492
	Haupthaus raum 3	Square	19.78	partial	3.956	1.978
	Haupthaus raum 4	Square	5	partial	1	0.5
	Haupthaus total		104.58		20.916	10.458
11	Folgebau westraum	Square	25.22	partial	5.044	2.522
	Folgebau mittelraum	Square	8.925	applicable	1.785	0.8925
	Folgebau ostraum	Square	5	partial	1	0.5
	Seitenhaus	Square	28.8125	partial	5.7625	2.88125
	Zentralhaus raum 1	Square	21	applicable	4.2	2.1
	Zentralhaus raum 2	Square	34.4	applicable	6.88	3.44
	Zentralhaus raum 3	Square	29.6	partial	5.92	2.96
	zentralhaus total		85		17	8.5

Layer	settled space m²	excavated m²	% excavated site settled	total size tell
17	51.1	206	24.81	2250
16	63.3975	207	30.63	2150
15	65.38	225	29.06	2050
14b	51.63	224	23.05	1950
14a	29.25	221	13.24	1780
13	78.85417	242	32.58	1600
12	146.78	292	50.27	1480
11	152.9575	331	46.21	1350
		Avergage % roofed	31.23	

Layer	appr. Settled space m²	total people 5	total people 10	Population
17	558.13	111.63	55.81	56-112
16	658.48	131.70	65.85	66-132
15	595.68	119.14	59.57	60-120
14b	449.46	89.89	44.95	45-90
14a	235.59	47.12	23.56	24-48
13	521.35	104.27	52.13	52-104
12	743.95	148.79	74.40	75-149
11	623.84	124.77	62.38	62-125

Figure 50 House shapes and sizes at Kastanas (IA=inapplicable).

7.2.0 Axiochori, Kilindir, Limnotopos and Tsautsitsa.

The contexts from the sites excavated by British teams in the interwar period (Axiochori, Kilindir, Limnotopos and Tsautsitsa) are not well or consistently described if judged by today's standards, but Heurtley and Casson were pioneers in their own age. The pottery from sites has been correlated with the stratigraphy at Kastanas (Hochstetter 1984: fig.54; Jung 2002), which provides a chronological anchor point. Heurtley excavated mechanical half meter layers (spits) in squares at Axiochori, which represents the highest degree of precision he pursued in Greek Macedonia. All the objects were marked with a letter or Roman numeral denoting the horizontal context and a number for the half meter.

An object from Kilindir or Limnotopos, and in some instances Tsautsitsa, would be stored with a tag or were inked with letters and numbers, for example A3, denoting trench and period (Limnotopos, Heurtley 1939: 33-35) or meter below the surface (Kilindir, see Heurtley 1939: fig.28). The thick cultural layers covered long time periods (see Heurtley 1939; Casson 1968). Axiochori is the only site which can offers somewhat detailed information. The material from Limnotopos gave good results with careful examination (below, 7.2.6). The material from the sites excavated by Heurtley (Axiochori and Limnotopots) and Casson (Kilindir and Tsautsitsa), now stored at the Archaeological Museum of Thessaloniki, can yield information on the access to different types of decorated pottery by different communities, and whether the pattern of re-combination from Kastanas can be identified at other sites in the Lower Axios Area.

7.2.1 Axiochori

Axiochori (fig.12) was the largest of the sites excavated by Heurtley in 1925-1926. The site is also referred to as Vardarhofsta (Heurtley 1939: 36; Heurtley et al. 1925; Davis et al. 1926) and was surveyed by Rey (1919). Casson (1968: 46 and 82) places Amydon, the ancient capital of the Paionians, on the ridge upon which Axiochori was placed. Its size and panoptic qualities suggest that this site had a similar role in the Bronze Age of the Lower Axios Area (ch.6.5.0), in line with what Hänsel suggests (2002: 89). A contextual study of Axiochori's pottery material is of interest since it most likely had a central role in both the Lower Axios Area.

Hochstetter (1984: 279) points out that the collected material is scant compared to what was excavated at Kastanas. Yet, a sample which covers the different types of decorated pottery was collected. Heurtley's periods consist of several half meter units: Period A (half meter 35-29; Kastanas' Early Bronze Age an extensive account given by Aslanis 1985: 207), period B (half meter 28-25), period C (half meter 24-9), period D (half meter 8-2) and period E (half meter 1). The half meters conversely follow an opposite order of Heurtley's settlements

of which there are 22 (see Heurtley and Hutchison 1926: 8-10). Based on the published material, Hochstetter (1984: fig.54) dates period A to the Early Bronze Age, period B to the Late Bronze Age (Kastanas period III-IV, layer 19-14b), period C to the Late Bronze Age and Early Iron Age (Kastanas period IV-V layer 17-11) while period D corresponds to the Iron Age (Kastanas period VI-VIII layer 10-2). Period E corresponds to the archaic and classical periods.

The tell lies on top of two tables, one upper to the north, referred to as the "high table", and one lower to the south, the "low table" (fig.12). At the top of the tell a 3m wide trench was excavated with nine sectors, each named with a Roman numeral I-IX. Three pits were additionally dug, the East Pit, South East Pit and the South Pit. At the high table's eastern part, Trench A, Pit B and Pit F were dug while at the low table Trench C, Pit E and Pit F were dug (Heurtley 1939: fig. 37; Heurtley and Hutchison 1926; Davis et al. 1926). In that respect Axiochori presents valuable material from the Bronze and Iron Age, and the first account of the transition between these periods. The following development trajectory was proposed (Heurtley 1939: 38-39):

- Mud brick terraces of sector VIII half meter 17 (-16) and sector IX half meter 20 (-19) appear at the same point in time as the Mycenaean pottery. Mud brick architecture was introduced in the Middle Bronze Age at Hagios Mamas (Hänsel and Aslanis 2010: 279-280; Andreou 2010: 648), but seems to have been introduced in the Late Bronze Age at Axiochori only in half meter 20-18, in the international period. Post holes were excavated on the terraces (Heurtley and Hutchison 1926: 41), perhaps suggesting that they may have been covered with buildings.

- Two successive settlements (no.16 and 17) which may have consisted of reed huts were located between the 11th and 8th half meter. In this period fluted Lausitz pottery made its appearance, believed to have been the result of an invasion (Heurtley and Hutchison 1926: 10, 25 and 65).

- Of the 22 settlements identified by Heurtley at the tell, the Iron Age settlements (no.18-22 simultaneous with Kastanas period VI-IX, layer 10-1) have the most substantial pieces of architecture. A square multi-room house in settlement 21 with a pithos and the remains of a house with five pithoi (Heurtley and Hutchison 1926: 10 and 45).

Jung (2002: 230) correlates the earliest Mycenaean pottery found at Axiochori with layer 15 at Kastanas – thus placing this layer at the end of the Late Helladic IIIB period. A skyphos with the location 18 VIII (2) has counterparts in Kastanas layer 14b, and a krater found in trench V17 is correlated with Kastanas layer 13. Jung (2002: 231) notes that the burnt layer must be dated before layer 12 at Kastanas based on parallels in the Mycenaean pottery assemblage. Thus it can be assumed that the Mycenaean presence at Axiochori mainly dates to the Late Helladic IIIB-IIIC period.

An approximate measure of the size of the tell can be derived from Heurtley's (1939: fig. 36) plan. In the Late Bronze Age the size of the settlement on top of the uppermost terrace in half-meter 17 would was about 4534m^2 (estimates from Heurtley 1939: fig.36). The houses at Kastanas in the Late Bronze Age ranged from ca. 21m^2 (e.g. the Pithoshaus divided between 5 or 10 people = 2-4 inhabitants) to ca. 53 m^2 (e.g. Ellipsenhaus, with 5-10 inhabitants) (fig.49 and fig.50). If the houses would have been of the same shape at Axiochori, the settlement surface could have held ca.215-285 houses. As open spaces would also have been found on top of the terraces, the true number would probably be closer to the lower range. On average at Kastanas, a third of the space was roofed (fig.50). Transferred to Axiochori, this gives a total of 29-72 houses, or a roofed surface of 1511m^2. If one calculates that there was 5-10m^2 per person, it leaves us with a population of 150-300 people. If people lived in tightly packed compounds of the type known from Toumba Thessaloniki, ca. 18 would fit. It is however unlikely that Heurtley would not detect a large compound, yet, a population estimate of 150-300 people for the top terrace of a large tell is *reasonable*. As many or more may have additionally lived on the lower table and perhaps also the lower terraces of the nearly 8000m^2 large tell. It can seem that Axiochori climaxed in the 13th century as this may have been when the terraces were raised, the century in which Kastanas decline started.

Since the finds can be tied to excavation units, one could make basic inferences in regards to the possibility of different types of decorated pottery being used together. This was most likely the case at Kastanas, but did the ancient dwellers of Axiochori also pursue this practice, or did the dwellers at what was most likely a center employ different customs to distance themselves from the dwellers at the small satellite harbor of Kastanas? The coarse nature of recording at Axiochori makes contextual inferences difficult but if seen in light of the Kastanas assemblage, the material can nevertheless yield information.

7.2.2 Re-combination Praxis at Axiochori

In terms of re-combination of decorated pottery, Heurtley's (1939: fig.38; Heurtley and Hutchison 1926: 31) table shows that variations of incised, and thus also encrusted pottery, occur from the 27th-21st half meter and the 16th-13th as well as further (in the "Late Style") from half meter 21-17, 14-11 and 9-8. The matt-painted pottery occured from half meter 24-21,15 and 13. The Mycenaean pottery from half meter 22-9 while the "Lausitz" pottery, largely composed of fluted or grooved sherds, were found in half meter 18, 13, and 11-7. The pottery Heurtley refers to as 'Incised Early Iron Age' (see fig. 53), signified by thin and shallow straight lines on grey hard smooth surfaces, was found in half meters 8-5 (fig.50). Incised and encrusted ware were the only types of decoration before the 24th half meter, but from here on the half meters consequently contained pots decorated in techniques that are co-present in other regions (the Aegean) than the Balkans and Central Europe. The half meter units with pottery co-present in different regions in the Late Bronze Age and Early Iron Age (Heurtley's period B and C) can be summarized in

the following manner (after Heurtley 1939: fig.38):

-Incised/encrusted and matt-painted pottery are first found together in the half meter 24-22.

-Incised/encrusted, matt-painted and Mycenaean pottery can be found in half meter 21-19 and 15.

-Incised/encrusted and Mycenaean pottery can be found in half meter 17 and 12.

-Channeled, Mycenaean and incised pottery are found in half meter 18, 11 and 9.

-Mycenaean, channeled (fluted/grooved), incised and matt-painted pottery can be found in half meter 13.

If one counts how many times each type of decorated pottery is found in the same half meter with another type (see fig.53), a rough measure of how well "connected" or "combinable" the pottery was can be obtained. The encrusted/incised pottery "connects" 24 times with other types of decorated pottery in 15 half meters. Mycenaean "connects" 22 times in 13 half meters, matt-painted 11 times in 8 half meters and the "Lausitz" pottery connects 10 times in 5 half meters. The two least "connected" types are the matt-painted and "Lausitz" pottery, which perhaps unsurprisingly, also "connect" least with each other. It is evident that the latter part of the Late Bronze Age was the most diverse period as this is when most types of decoration are encountered in the pottery assemblage. In the latter case, this may be a result of the fact that fluted pottery is mostly an Iron Age phenomenon (see Hochstetter 1984). If the "connections" are averaged, a new picture emerges. Judging from fig.53 (based on the numbers above), the following pattern is revealed (see fig.51):

- The "Lausitz" pottery "connects" most, having on average (10 "connections"/5 half meters=) 2 "connections" to otherwise decorated pottery.
- Mycenaean has an average (22 connection/13 half meters) of 1.7 "connections", while encrusted and incised only have an average of (24 "connections"/15 half meters=) 1.6 "connections".
- Matt-painted pottery only "connects" (11 "connections"/8 half meters) on average 1.4 times per half meter.

The most important conclusion that may be drawn is that there was a gradual move to greater "interconnectivity" towards the Iron Age. It may be suggested that different types of decorated pottery could have been used together in an increasingly cosmopolitan manner.

The re-combination of different pottery types can be observed within contexts, as demonstrated in figure 53. Underneath the lowest terrace in trench IX21, an interesting case of re-combination can be seen as a Mycenaean amphora (fig.52) and a rope decorated pithos were found with an encrusted kantharos and a matt-painted bowl (object 1109 and 1074 Heurtley and Hutchison 1926: pl.14.21 and 16.c). These three vessels all served storage purposes: the amphora and the encrusted kantharos perhaps precious liquids. The weight of this observation may be questioned as the excavation unit was 0.5 m deep and 5x3 meters, but seen against the trend identified above and at Kastanas it becomes plausible that they were used together. On the lowest terrace at the tell (IX 19) the assemblage contained encrusted (Heurtley and Hutchison 1926: pl.13.24) and Mycenaean (Heurtley and Hutchison 1926: pl.15) pottery as well as some coarse ware. The terrace above (VIII 16 and IX 16) contained a mix of Mycenaean and coarse pottery (Heurtley and Hutchison 1926: pl.15.7, 15.11, 15.). This pattern was also apparent at the lower table, where Mycenaean, encrusted and matt-painted pottery alike were found in the 1st-2nd half meter in trench C.

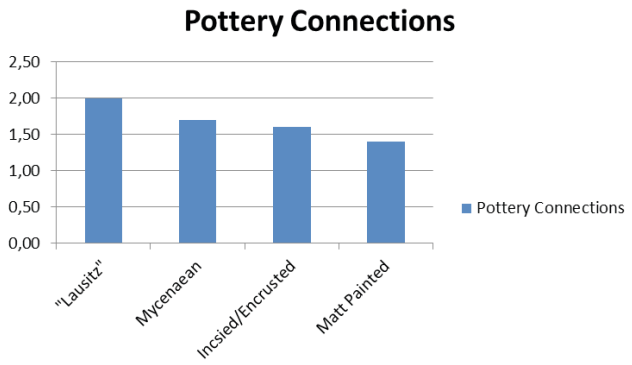


Figure 51 How many times on average pottery types occur with other pottery types.

2 Object 1074 was published by Heurtley and Hutchison (1926: 12.a, left) with the stratigraphic position IX 20, but upon inspection at the Museum of Thessaloniki It was determined that another position was inked on its inside – IX 21 (1). It was thus given an object number although not illustrated in this dissertation.

Figure 52 Amphora from Axiochori (object 1134)(accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

Figure 53 Layers within which different types of decorated pottery were found (Heurtley 1939: fig.38).

7.2.3 From Table to Tell at Axiochori – A Two Tier System?

At Axiochori it seems that encrusted and matt-painted pottery were used before Mycenaean pottery, and most likely together. The use of different types of decorated pottery related to dining preceded the strongest impact of the southerners who arrived at Axiochori around the time when the terraces were built (see ch.7.2.2). If we regard the terracing as the first detectable large-scale investment, Axiochori rose to prominence close to the end of the "international period" (1400-1200 BC). Another change which took place at Axiochori was the growth of a table settlement below the tell before the close of the Bronze Age, while later in the Iron Age the higher table became populated (Davis et al. 1926: 242; Kotsakis 2007: 15). The tell came to form an acropolis above an "Unterburg", a feature it might have shared with Pentalophos B, Anchialos, Toumba Thessaloniki, and possibly Molyvopyrgo (Langadas) and Gona (Vasilika Valley) (Heurtley and Radford 1927; Heurtley 1939; Rey 1919: 141). Mycenaean and matt-painted pottery were found at the bottom of the trenches, followed by fluted ware handles closer to the surface (Davis et al. 1926: 241). This enlargement of the settlement could date to the same period as the terracing of the tell.

The embanked high table of the Iron Age housed a significantly larger population, perhaps living in blocks or large square compounds like at Iron Age Kastanas (Hänsel 1989: fig.79). Most interestingly, a part of an earthen rampart was uncovered; however, this was not a casemate structure as the one at Toumba Thessaloniki. The date for the rampart is also uncertain and could stem from the Late Archaic period (Davis et al. 1926: 208 and 240)

The tell-on-table settlement structure literally places a segment of the population above the rest. As is evident from the pottery assemblage, the dwellers of what seems to be a Late Bronze Age "unterburg", at least to some extent, had access to some of the finely decorated pottery, both matt-painted and Mycenaean. What differentiated the dwellers of the low table from the high table was perhaps the long history of their ancestors made tangible in the tell itself – which consisted of a succession of dwellings (see Kotsakis 2007). Kotsakis (2007: 13; see also Kotsakis 1999) notes that tell-living entailed a degree of continuity. With the appearance of the low table, there was also an appearance of a group of people without access to a long history. If lineage and family history defined a hierarchy (see Andreou 2001: 170), it was cloaked by the fact that the dwellers at the low table also had access to refined "international" pottery from which they could dine. If a settlement hierarchy existed in the Lower Axios Area as indicated in chapter 6, it was likewise cloaked: the dwellers of the small tell of Kastanas and great Axiochori dined with the same kits. This might have been a necessity to participate in the "feasting economy" in which pots could serve to hide differences rather than to accentuate them between tell dwellers.

See printed book for this image.

Figure 54 The Tsautsitsa excavation, Bronze Age pithoi (Casson 1968. fig.42-43).

It was noted above that Axiochori and Xorygi have intervisibility with each other (fig.21) and can control most of the landscape (fig.23). Xorygi, like Axiochori, had no direct access to rivers and thus lacked irrigation (fig.47). The dwellers gave priority to visibility and defense upon the crag (see ch.6.4.1). A likely scenario could be that this was a control spot with affiliation to Axiochori, supplied by outliers like Tsautsitsa (see ch.7.2.4), Kilindir (see ch.7.2.5), and Vapheiochori A and B (see fig. 47).

7.2.4 Tsautsitsa

Tsautsitsa was excavated by Casson in 1921-1922 although initial work had been conducted by British troops as early as 1917 (Ignatiadou 2012: 115). The tell settlement yielded several interesting finds from the Bronze- and Early Iron Age (Casson 1968: 144; Casson 1925B; 1921; 1925; 1926; Heurtley 1939). Hochstetter (1984: 387) correlates the Bronze Age layers to Kastanas period IV and V (layer 17-11). The Bronze Age settlement was described by Casson in "Macedonia, Thrace and Illyria" (Casson 1968; see Casson 1925B). In the Bronze Age layers, he uncovered large pithoi and charred grains. The pottery assemblage contained encrusted, matt-painted and a few sherds of Mycenaean pottery. While very little is known of the context, Casson (1925B: 84) notes that the Mycenaean sherd was found with matt-painted and encrusted pottery. The settlement ended with the Iron Age, but a burial site was found nearby which I discuss in more detail below (ch.12.3.1).

The Iron Age layer is shallow and contained both pottery and bronze ornaments. Casson does not mention much about the architecture that was uncovered in the 3.8m deep 5m x 12m trench, but at a depth of 2.92 m he mentions 4 pithoi dug down into a floor (Casson 1968: 129) (fig.54). Judging from the published photos, large pithoi may have been frequently used for storage, although perhaps not to the same extent as at Assiros (below, ch.7.4.0). The capacity, however, seems greater than in most dwellings of contemporary Kastanas. Without more detailed contextual information very few deductions can be made, but the four well preserved pithoi found in the 60m2 should not be discounted as evidence of storage. Casson proposed that the first dwellers of the site were agriculturalists (Casson 1925B: 82), who he suggested could have been replaced by nomads buried at the cemetery which emerged in the Early Iron Age (Casson 1968: 128-129; below, ch.12.3.1).

Various spindle whorls and weights indicate that other activities also took place in the Early and Late Bronze Age of Tsautsitsa. Unlike Assiros, this was not primarily a storage site although the dwellers of Tsautsitsa did maintain a sizeable storage capacity. The material from the tell included brown burnished wishbone handled bowls, matt-painted pottery and encrusted pottery of various types. The only Mycenaean pot was an amphoriskos (Casson 1925B: pl.27.1.1; sherd inspected in the Archaeological Museum of Thessaloniki, see fig.55), probably used for fine liquids. An outlier in the Lower Axios Area removed from both the Aegean shores and the dense clusters of sites, Tsautsitsa's agricultural riches and access to both high and lowland resources may have presented its dwellers to the opportunity of appropriating imported precious liquids (e.g. oils or unguents), perhaps stored in an amphoriskos (fig.55) or an encrusted kantharos (Casson 1968: 36).

Figure 55 Amphoriskos from Tsautsitsa (Object 1058) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

7.2.5 Kilindir

Kilindir is located about 11km east of Tsautsitsa, and was also excavated by Casson (1916: 296-297). The site lies by a river bed south of the village of Kalindria and has layers dating from the Early Bronze and the Late Bronze Age, but not the Iron Age. Stratum IIa is correlated with Kastanas period III by Hochstetter (1984: fig.54), stratum IIb can be likened to early period IV at Kastanas, while stratum IIc is correlated to period IV, and ends in a destruction layer.

The pottery of layer IIa had encrusted ware co-present in the North, but not to other regions. Bronze objects such as a knife tie the ancient inhabitants of Kilindir (Casson 1926: 64) to the outside as they would have needed a tin smith. This picture also stands for layer IIb, but in layer IIc there is a major change. In addition to the encrusted ware there is now also matt-painted and Mycenaean pottery tying the site to the Aegean (Casson 1926: 66-67). Yet there were also metal finds such as a bronze sickle, known in the Balkans and a collared double axe which would have been compatible with the northern parallels (see ch.5.2.2; Casson 1968: fig.45). Pithoi recurred in layer IIa, IIb and IIc. Casson remarks that those in the latter layer could be as tall as 1,5 m. Two pithoi were found in situ with their bases at a depth 1m; the same depth as the Mycenaean pottery (Casson 1926: 67). It seems that layer IIc represents an increase of diversity in the pottery assemblage (created by re-combination), although the lack of contextual information hinders any detailed study of this.
Kilindir lay far removed from the Lower Axios Bay by the land route to FYRO Macedonia and Bulgaria via Lake Doirani. Similar to Tsautsitsa, it is relatively alone, un-clustered, with equal access to high and lowland resources. The size too is closer to Kastanas than Axiochori, and the site remains within the gaze of Xorygi. Yet the dwellers had access to Mycenaean pottery and tin (for bronzes like a collared axe or a sickle; Casson 1968: fig.45). While passing traders traveling north or south could have stopped by, it is also conceivable that the dwellers could have travelled via Xorygi to Axiochori to obtain goods originally from Tsautsitsa, exchanged at a feast for agricultural produce, meat and woods (see ch.6.5.0).

7.2.6 Limnotopos

The tell of Limnotopos, also referred to as Vardino and Kolibi, was one of the sites surveyed by Rey (1919: 21). British soldiers had dug a trench on top of the tell making the prehistoric tell into a small fortress. Rey measured the tell to be 55m above the sea level, 25m above the river plain and 15m above the escarpment, the north-south length of the tell being 47m (Rey 1919: 33). It was excavated in 1924 by Heurtley (1939).

At Limnotopos there are different contexts to which mixed assemblages can be attributed to. The strata are several meters thick in some instances, but an overview of the architecture was kept. Based on the evidence from Kastanas, Hochstetter (1984: fig.54) sees that stratum IIa at Limnotopos was roughly contemporary with Kastanas period III-IV, stratum IIb with Kastanas period IV-V and stratum IIc is connected to KVI. Stratum III is placed in the Iron Age and the tell continues into the Classical period having started in the Neolithic (Hochstetter 1984: 284-286). According to Heurtley (1939: 33-35), the first stratum of 1.5m consisted of a single settlement while the second stratum consisted of three, ending in an ashen layer after which the Iron Age commenced. The three successive settlements all belong to the Late Bronze Age and had Mycenaean finds. The last settlement corresponded to the Lausitz invasion at Axiochori (Heurtley 1939: 35). This in fact allows for a closer analysis of the finds in their approximate contexts than was possible at Tsautsitsa and Kilindir. Settlement IIa was ca.1m deep while IIb was ca.1.5m and IIc ca.1m (Heurtley and Hutchison 1926: pl.7). The finds were marked in a manner which conveyed contextual information: the trench is denoted by a big letter (e.g. A), a roman numeral denoting the stratum and a small letter denoting which settlement the finds belong to (a, b or c). It is thus possible to know what is roughly contemporary even if the contexts were not discussed in great detail.

In AIIa the end of the apsidal house with a dug down pithos was uncovered. A piece of reed impressed clay was found near the wall. Heurtley and Hutchison (1926: 30 and 51) thus initially believed that the walls were made with of wattle and daub on a stone foundation. In BIIb there were likewise remains of stones presumably from a hearth as they were blackened by fire, a more substantial amount of reed impressed clay and even a burnt clay brick as well as the remains of posts. In "Prehistoric Macedonia", Heurtley (1939: 35) contends that the apsidal houses of the Late Bronze Age date were made of mud bricks based on the solidity of the foundations, while the clay with reed impressions were thought to be the remnants of a roof. Although the house was not fully excavated, it could have had the same shape as the *Ovalhaus* at Kastanas. Based on corresponding pottery decoration, Hochstetter (1984: 285 and fig. 54) correlates layer IIa to Kastanas period KIV, and IIb (in which a bow fibula was found) to period KV.

In AIIa Mycenaean (Heurtley and Hutchison 1926: pl.12.1), encrusted and matt-painted pottery (fig.57) were uncovered. In the context A2b there is a combination of encrusted and Mycenaean pottery. In context BIIa there is a mix of Mycenaean, encrusted ware and some specimens of coarse ware with rope decoration. In B2b there is also coarse ware with rope decoration, encrusted, incised and Mycenaean pottery. Summarized in figure 56 and 57, there seems to be a high degree of re-combination of Mycenaean, encrusted and Lausitz pottery storage and dining vessels; matt-painted pottery seems not to have been very common at Limnotopos. Although the excavation method warrants caution in regards to interpretations, it could be assumed that the dwellers of the Late Bronze Age would have been familiar with Mycenaean pottery as well the as the local repertoire and the encrusted styles associated with the Balkans. A socketed spear was found in IIa (Heurtley and Hutchison 1926 pl.19.2), similar to a spear type produced at Kastanas (Hochstetter 1987: pl.5.3). This type was known between Scandinavia and the North Aegean, yet the carrier of this weapon could, unlike his peers in Central Europe and the Balkans, drink with a Mycenaean skyphos.

Limnotopos

Layer	A2a	A2b	B2a	D2a
Mycenaean	X	X	X	X
Matt-painted	X			
Encrusted/incised	X	X	X	X
"Lausitz"	X			

Figure 56 Distribution of decorated pottery by layer at Limnotopos.

Limnotopos was located on the same ridge as Axiochori and Aspros Toumba (fig.1 and fig.26). It is thus part of a group of rather large sites. Limnotopos directs attention towards the clustering tendencies encountered in chapter 6.3.2 (appendix 4). Evidently, the dwellers of Axiochori could not exercise a weapons monopoly, nor did they or any other claim a monopoly of pots decorated in a specific manner. If so, the position that Axiochori gained was not built on hard power and dominance but soft power. Andreou (2001: 170) suggests that the powerful linages at Toumba Thessaloniki rely on alliances with neighbors rather than force. Thus the large settlements of Aspros and Limnotopos could have grown together with Axiochori through a series of mutually beneficial deals. Cooperation between the most powerful groups at these sites may have been sealed over meals consumed with a similarly mixed set of decorated pottery. If site size (an indicator of population size) and the development of tables are indicators of success these groups evidently thrived together, and possibly reaped the fruits of the Lower Axios Valley with the aid of outliers (e.g. tells like Kilindir).

The question remains why the amount of matt-painted pottery seems minuscule compared to the other types of decorated pottery. This was also the case at Axiochori (above, ch.7.2.3), and Hochstetter (1984: 182 and fig.47) observes in a similar manner that only a small number of matt-painted sherds were uncovered at Kastanas. Matt-painted pottery, on the other hand, is relatively more popular at Hagios Mamas in the Late Bronze Age (Horejs 2007: 249, fig.154). Horejs (2007: 281) proposed a formation of matt-painted pottery micro-regions based

Figure 57 Pottery from Limnotopos - different types of decorated pottery found in the same trench and layer (object 760, 724, 1065, 364, 769, 302, 756, 1068, 1078 and 757) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

on decoration and fabric, discussed in greater detail below (ch.11). The Lower Axios Area is one of these micro-regions, and had a more or less homogenous assemblage. The relatively greater emphasis on Mycenaean and encrusted pottery rather than matt-painted and Minyan pottery (local and imitated) could be a small but crucial detail which altered the character of the mixed dining kit, differentiating the dwellers of the Lower Axios Valley from neighbors at Chalcidice in a manner parallel to the preference of different motifs in matt-painted pottery (see Horejs 2007C, on micro-regions).

7.3.0 Toumba Thessaloniki

Toumba Thessaloniki is located above the Thermaic Gulf in the city of Thessaloniki and has been excavated since 1984 by the University of Thessaloniki over the course of several seasons (Anagnostou et al. 1990; Andreou et al. 1994; Andreou and Kotsakis 1992; 1996; Andreou and Eukleidou 2010; Kotsakis et al. 1994; Souref 1992). The excavators utilized a series of different science based methods and interpretive strategies. Most of the social modeling has originated from the Toumba project, as discussed above (ch.2). The site has similarities with Axiochori, Pentalophos B, Molyvopyrgo and Gona (Heurtley 1939; French 1967) as it is located above a table onto which the tell settlement expanded in the 10th century (Soueref 1992: 284). The terraces were settled in the Early Iron Age (Kotsakis and Andreou 1989: 212), which according to Andreou (2002: 170) indicates increased competition for ancestral space. The maximum length and width is 150x100, while the tell is 23m high. The maximum area would thus be approximately 15000m^2 (Andreou 2009: 17). In the lower trenches an Early Bronze Age layer was uncovered dated to the late 3rd millennium BC (Andreou et al. 1994). The site was likely inhabited until the Hellenistic period, when surrounding communities, and perhaps also the population of Toumba Thessaloniki, were mobilized by Cassander to populate Thessaloniki (see Chamoux 2003: 47).

Little has been uncovered of the earlier periods, but at the dawn of the Late Bronze Age the habitations at the summit of Toumba Thessaloniki were organized into densely spaced large angular compounds built upon mud brick terraces (see Andreou and Kotsakis 1992: fig.6, 186), divided by pebble strewn streets. In the Late Bronze Age (ca.1350BC) a large casemate wall, 6 meters wide and 3 meters high with a stone façade, was built half way up the tell. This wall fell out of use in the Early Iron Age. The tell had a series of low terraces with a road leading to the top of the settlement (Margomenou 2005: 287-289; Andreou et al. 2001: 304; Andreou and Kotsakis 1989: 212; Andreou et al. 1991: 394; Kotsakis et al. 1994: 187). The casemate technique was well known in the Aegean and Anatolia, encountered for example in Miletus (Greaves 2002: 60) and Domuztepe (Mellink 1985: 551). In building materials and fortress architecture there are thus links to the Aegean, even if the settlement form, the tell, is similar to that of Central Europe.

While the settlement itself consists of 13 phases, the main Late Bronze Age layers consists of phase V, parallel to Kastanas layer 17-15, and IV, parallel to Kastanas layer 14b-13, while the Early Iron Age consists of phase III-I, the two first phases comparable to Kastanas layer 12-11 (Margomenou 2005: 289). Phase VIII can be likened with Kastanas layer 19, phase VII to Kastanas layer 18 and phase VI could be parallel with Kastanas layer 17-16 (Margomenou 2005: 291). The first Mycenaean pottery was of a Late Helladic III A1 type, attesting relatively early contact with Southern Greece. Somewhat earlier Minyan pottery was adopted in the Middle Bronze Age (phase X-VIII; see Andreou and Kotsakis 1996), and then incised pottery in layer VII. In phase VII-VI matt-painted pottery was introduced (Andreou and Psaraki 2007: 408). The encrusted pottery together with matt-painted pottery was most frequent in the early phases while Mycenaean pottery became more common in the decorated pottery assemblage from phase V and towards the end of the Late Bronze Age (see Margomenou 2005: 292-293; Andreou and Psaraki 2007: 405; Andreou 2009: 18). Yet, this pottery type never came to constitute more than 5.5% of the pottery material (Andreou et al. 2001: 304; Andreou and Kotsakis 1991: fig.7). Phase IVA-D heralds the beginning of the Late Helladic IIIC period and is parallel to the transitional phases before the Iron Age at Kastanas, and just as at Kastanas, Mycenaean pottery was most frequent in the Late Helladic IIIC period (Andreou 2009: 19; below, ch.11).

The existence of several workshops were revealed through the NAA analyses of pottery from Assiros (Jones 1986), the results of which were confirmed by Jung's (2002: 56; see also Mommsen et al. 1989) study of the Kastaniote material. Kiriatzi (2000; 2000B: 222) could show the same pattern at Toumba Thessaloniki and postulates that these workshops were run by crafters in possession of advanced knowledge with a large market, while the makers of the handmade pottery were more scattered and had a lower distribution range. The pottery may have been used in connection with new practices related to anointing the body and drinking alcohol (see Jung 2002: 245). Psaraki (2004: 277) could largely confirm this through a study of the handmade pottery, which shows the coexistence of the different types and a move to a greater degree of standardization. Andreou and Psaraki (2007: 417) saw the adaptation of Mycenaean pottery as a factor that subverted older practices and led to the inclusion of new groups in feasting practices.

The material from Toumba Thessaloniki shows a flourishing community surviving the 1200 BC crisis in the Mediterranean and the Lower Axios Area wave of destruction (see Andreou 2001). Phase 4 is in fact the richest period and exhibits continuity with the previous period V. The compounds had storage and production areas, and were probably the home of larger family groups (Andreou 2001: 168). Buildings with similar shapes were uncovered at Kastanas in layer 11 (e.g. the *Zentralhaus*). The only evidence for Late Bronze Age burials in Central Macedonia stems from the compounds of Toumba Thessaloniki: shallow burial pits which were uncovered in the storage space of both house A and house B in phase IV-III. In total 11 tombs were excavated at the settlement in shallow pits located in the streets and the storage rooms (Mulliez 2010: 136-137). Margomenou (2005) sees a connection to the Iron Age where pithos burials occurred in Northern Greece, to what had then become comparatively ostentatious extramural burials: an Iron Age burial site was uncovered near Toumba Thessaloniki (see Chavela 2012). The compounds also contained facilities for metal working, purple dye production, food preparation, cooking indicated by hearths and ovens, and specialized areas for the storage of large quantities of food staples, possibly also including wine and oil. In house E in phase IV a 1.2m diameter silo was uncovered. Inside the compounds the floors were covered by carpets, indicated by the imprints on the floor (Mulliez 2010: 136; Andreou et al. 1996: 582; Andreou 2010: 650).

3 At Kastanas about 130 matt-painted sherds were retrieved (Hochstetter 1984: 47), while at Hagios Mamas 1317 sherds were retrieved (Horejs 2007: 219).

Toumba Thessaloniki may very well have been home to highly successful groups (Andreou 2001). Like Axiochori, it developed a table underneath the tell. Also, both imported and local pottery was found here (Soueref 1992: 284), also as at Axiochori (see ch.7.2.3). The compounds of Toumba Thessaloniki are larger than anything excavated in the Lower Axios Area, and compare in access to "international" decorated pottery to Kastanas. In layer 16 at Kastanas, the buildings were organized around courts; a similar manner of seclusion is perhaps represented by the compounds of Toumba Thessaloniki. In layer 11 at Kastanas, there are large compound-like buildings (ch.7.1.3), yet the scale at Toumba Thessaloniki is greater, and while Kastanas experienced tumults in the 12th century (layer 13) Toumba Thessaloniki prospered (see Andreou 2001). While Kastanas was located on waters of the Axios Bay, Toumba Thessaloniki overlooked the Aegean hinterland.

Figure 58 Toumba Thessaloniki phase VI

7.3.1 Pottery in Context at Toumba Thessaloniki

A volume dedicated to the publication of decorated pottery from Toumba Thessaloniki has yet to be published, but nevertheless, it was possible to conduct a contextual study of the pottery. The decorated Late Bronze Age pottery was accessed with generous permission from the excavator, Professor Andreou. Two doctoral dissertations have previously explored aspects of the decorated pottery of Toumba, respectively the handmade (Psaraki 2004) and the wheel made Mycenaean (Kiriatzi 2000), while Margomenou (2005) presented a study of storage practices, vessels and in particular the pithos. The decorated pottery discussed here derives mainly from phase VI-III, the Late Bronze Age and the transition to the Iron Age (phase VII-II). In the following section the contexts of a small selection of sherds are discussed in relation to the re-combination of decorated pottery into mixed kits.

Despite disturbances, especially in the upper layers (see Andreou 2009: 19), a significant amount of finds can be tied to a precise context. Some of the phases at Toumba yielded more information (for example phase IV) than others (phase VII and VI), but most finds can be connected to a 4x4m square denoted by the first three digits of their find ID number and another three digits denoting the sub-unit (the passes). The results of a brief survey of contexts and types of decorated pottery is summarized in figure 65 (squares) and figure 66 (passes).

In phase VI (fig.58; see Andreou and Kotsakis 1992B; 1996) there is a quantity of matt-painted pottery that was found in square #32, #53 and #54, which also contained incised and encrusted pottery. #32 was located at the edge of the eastern tell, which seems to have been subject to disturbances. However, pass #32285 contained matt-painted (see Psaraki 2004: fig.6.11) and encrusted pottery (fig.63), which was also the case with #53218 (matt-painted sherd, see Psaraki 2004: 6.14 KA 1289; for encrusted pottery, see fig.63).

Figure 59 Toumba Thessaloniki phase V (after Andreou and Kotsakis 1996: fig.8 and 9).

There is significantly more material from phase V (fig.59; see Andreou and Kotsakis 1996). In phase V large houses with at least two rooms were uncovered, of these House M and H were respectively related to #53 and #54. In pass #53086 encrusted (Psaraki 2004: fig.6.G) and matt-painted pottery were found together (fig.63). In #52, #53 #54 and #243 there are several matt-painted and encrusted sherds found together which could strengthen an argument for re-combination practices (see fig.65).

Phase IV (fig.60; Andreou and Kotsakis 1996; 1992) yielded more data than the previous phases, which shows a trend of re-combination summarized in figure 65 and 66. The squares #243 and #261 contained a mix of matt-painted and encrusted pottery. #221 contains Mycenaean and matt-painted, while #51 contained Mycenaean and incised/encrusted. #244 contained Mycenaean, matt-painted and encrusted. In regards to specific passes, #54052, #261276 and #261299 contained both encrusted and matt-painted pottery, while #51067, #51096, #51097, #51100 contained Mycenaean and encrusted. #221118 and #244082 contained matt-painted and Mycenaean pottery.

Figure 60 Toumba Thessaloniki phase IV (Andreou and Kotsakis 1996: fig.4).

Since several passes contained mixes of pottery, it is likely that the squares which contained similar constellations also represent mixing of types of decorated pottery rather than co-incidences, despite their size of 4x4 meters. #244, related to building A, contained Mycenaean, encrusted and matt-painted. #261 being solely related to building B contained a mix of encrusted and matt-painted. In #71 a bowl with a fluted body was found. One could ask if the inhabitants of the compound building A were familiar with fluted, Mycenaean, matt-painted and incised/ encrusted, which would make them quite cosmopolitan (see fig.65 and 66).

From phase III (fig.61; Andreou and Kotsakis 1992), the squares #233 and #244 had assemblages in which re-combination was discernible, while #71, located by the entrance to house A, contained fluted ware (fig.63, object 871, KA 1207, #71083). There seem to have been few changes in the plan of the settlement, even the room structure within building A seems to be remarkably stable. #244 contained a matt-painted and fluted ware while #233 contained a mix of encrusted and matt-painted sherds from the sample of this study. Pass #233134 contained matt-painted pottery and Mycenaean pottery together. As #71 contained fluted ware it suggests that the inhabitants of house A could have had access to yet another form of decorated pottery. It seems as if a possible pattern of re-combination persisted at Toumba into the Iron Age.

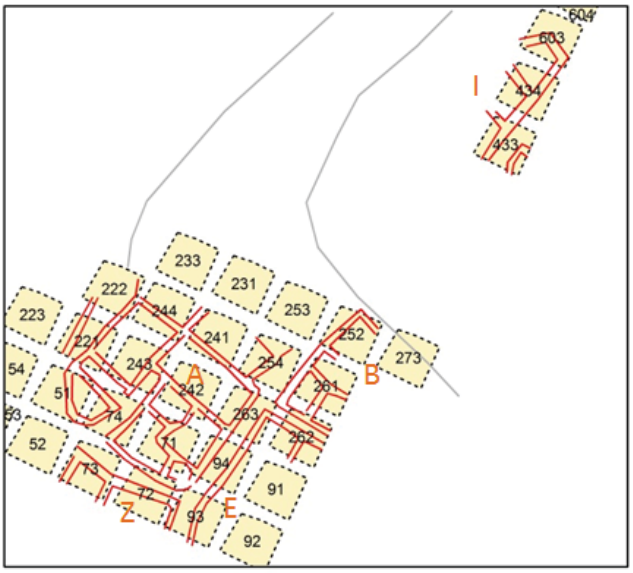


Figure 61 Toumba Thessaloniki phase III (after Andreou and Kotsakis 1992: fig.4).

Figure 62 Overview of different types of decorated pottery found in the same contexts at Toumba Thessaloniki (1) (object 947, 831, 805, 830, 802, 828, 867, 503, 895, 894 and 974) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

Figure 63 Overview of different types of decorated pottery found in same contexts at Toumba Thessaloniki (2) (object 879, 912, 957, 995, 871 and 960) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

Little material was taken into the sample from phase II (see Andreou and Kotsakis 1992; Andreou and Eukleidou 2010). In this period the northwestern corner of the main excavation area revealed significant structures, and building B and E retained their multi-room structure. Few sherds from phase II were included in this study, but it is sufficient to show that the assemblage was still varied, #241 containing matt-painted, Proto-Geometric and encrusted pottery while #13 contained a mix of fluted and encrusted pottery

The data on re-combination is summarized in figure 65 below and 66. It seems that the Mycenaean, encrusted and matt-painted pottery were not only encountered in the same houses but also together in the same contexts, indicating that they may have been used by the same people. This lends much credibility to the pattern identified at the sites in the lower Axios. The practice of re-combination is identified in both areas despite the fact that Kastanas went through deep changes during its transition period to the Early Iron Age, post 1200 BC. Phase IV at Toumba Thessaloniki was one of growth however (see Andreou and Kotsakis 1996). The self-sufficient compounds not only resemble the house type of layer 11 at Kastanas, but also the court surrounded by the *Fünfeckhaus* and the *Megaronhaus* of layer 16 in regards to privacy. Regardless of site function, the manner of the composition of the assemblage remains the same – thus connecting those residing at big and small tells. In regards to how large and small tells cooperated, Assiros provides valuable insights.

Figure 64 Toumba Thessaloniki phase II (after Andreou and Kotsakis 1992: fig.2).

Phase	Type	13	32	51	52	53	54	74	221	233	241	243	244	261
6	Matt-painted		KA1296			KA1823	KA1873							
	PT Wheelmade													
	Incised/encrusted		KA1740			KA1300	KA1704							
5	Matt-painted				1)	KA1961	KA1405					KA991		
	PT Wheelmade													
	Incised/encrusted				2)	KA715	KA1832					KA994		
4	Matt-painted						3)	KA1311	4)	5)		KA966	6)	7)
	PT Wheelmade			KA503					KA458				KA102	
	Incised/encrusted			KA496			KA733	8)		KA1972		KA1801	KA1029	9)
3	Matt-painted									KA1341			KA860	
	PT Wheelmade													
	Incised/encrusted									KA1721				
	Lausitz												10)	
2	Matt-painted										KA1324			
	PT Wheelmade										KA1079			
	Incised/encrusted	KA616									KA2587			
	Lausitz	KA701												

Figure 65 Different types of decorated pottery found in the same square/layer. KA numbers refer to pots from the excavation, while numbers with parenthesis refers to the following: 1) Psaraki 2004: pl.6.15, #52122, 2) Psaraki 2004: pl.3 #52131, 3) Psaraki 2004: pl.6.11, 4) Psaraki 2004: pl.6.19 #221118, 5) Psaraki 2004: pl.6.18 #233204, 6) Psaraki 2004: pl.619 #244135, 7) above, fig.62, object 830, 8) Psaraki 2004: pl.3 #74123, 9) above, fig.62, object 802 10) below, fig.147, object 641.

Phase	Passes	PT Wheelmade	Matt-painted	Incised/encrusted
6-7?	32285		1)	2)
6	53218		3)	4)
5	53086		KA1961	5)
4	51067	KA503		KA495
4	51096	6)		7)
4	51097	8)		KA1378
4	51100	9)		10)
4	54052		11)	KA733
4	221118	KA551	12)	
4	244082	13)	KA13157	
4	261276		14)	15)
4	261299		16)	17)
3	233134	19)	KA1341	

Figure 66 Different types of decorated pottery found within the same passes. 1) Psaraki 2004: pl.6.11, 2) Psaraki 2004: pl.4., 3) Psaraki 2004: pl.6.11, 4) Psaraki 2004: pl.6, 5) Psaraki 2004: pl.6, 6) Kiriatzi 2000: 272, 7) Psaraki 2004: pl.4, 8) Kiriatzi 2000: 272, 9) Kiriatzi 2000: 272, 10) Psaraki 2004: pl.1, 11) Psaraki 2004: pl.6.11, 12) Psaraki 2004: 6.19, 13) Kiriatzi 2000: 272, 14) fig.62, object 830, 15) fig.62, object 805, 16) fig62, object 828, 17) fig.62, object 802, 18) Kiriatzi 2000: 273.

7.4.0 Assiros

The site of Assiros in the Langadas Basin, although not yet published in a series of exhaustive volumes, holds an important place in the prehistory of Central Macedonia. The site was excavated in two campaigns, 1975-1979 and 1986-1989. By 1980, three sections had been opened which offered information on the tell side as well as the top. In the subsequent campaign(s) several more trenches were opened, making Assiros an extensively investigated tell (see Wardle et al. 1980; Wardle 1987; Wardle 1988; Wardle 1989; Wardle 1996; Wardle 2009). Wardle and the Assiros team worked with rigorous precision and employed a wide array of science-based methods. Several articles have been published on archaeobotanics (Jones 1981; Wardle et al. 1980; Heaton et al 2009), dendrochronology and dating (Newton et al. 2005). Key knowledge of the existence of several workshops in Central Macedonia producing Mycenaean pottery was discovered through studies of the Assiros material: in the Late Helladic IIIC period pottery from local and regional workshops had greatly outnumbered imported Mycenaean pottery (see Jones 1986).

While the character of the large grain storages of Assiros have been discussed recently (Margomenou 2008), Assiros remains central in discussions on social organization in Macedonia since the 1980's. As previously mentioned, Assiros has been suggested to represent a centralized storage for scattered communities across the Langadas (Wardle 1983: 40).

The early dendrochronology dates of layers that include a Proto-Geometric vase to 1070-1100 cal.BC (Newton et al. 2005) have sparked some discussion regarding the date of the transition from the Late Bronze Age to the Early Iron Age. Regardless of which stance one takes, this discovery opens a series of exciting questions (for a critical stance, see Weninger and Jung 2009). This dating moves the Proto-Geometric and the Late Helladic IIIC period back, unless of course this style was developed in Northern Greece. Newton (et al. 2005: 185) remains skeptical to this notion although it should be noted that middle grounds are often creative spaces. Yet, more dates from more sites would be needed before the chronology could be reassessed. Both the dates and the development of Proto-Geometric pottery in Central Macedonia require more research before sound conclusions may be drawn.

While it is difficult to address the practice of re-combining decorated pottery to create mixed sets due to the lack of published pottery, the presence of large quantities of Mycenaean pottery, and before that a few Minyan sherds (Wardle 1983: 17) indicate southern contact. Traders traveling north could have used this site as a stopover (N. Wardle 2004: 372). Likewise, encrusted pottery and a scarce amount of matt-painted pottery were found at the site (Wardle et al. 1980: 249). It could be assumed that the dwellers of Assiros followed a similar pattern to that observed in the Lower Axios Area of combining various cups, bowls and storage vessels co-present in different areas. For the purpose of this monograph, Assiros is yet indispensable as the development of the site is an important indicator of social development in the wider region.

7.4.1 Assiros' Settlement History

Assiros is 110x70m, and has a maximum settlement surface of 7700m^2, placing it in size between Kastanas (5000m^2) and Toumba Thessaloniki (13000-15000m^2) (above, ch.6.3.2). Wardle (1980: 231) pointed out that the settlement would have successively shrunk as the terraces got higher, and eventually by the time of abandonment in the Iron Age the space would have been about 40x70m, or about 2800m^2. This could explain why the settlements of the Neolithic were often more extensive than in the Bronze Age (see also Andreou et al. 1996: 578). Located close to the Lower Axios (in a straight line approximately 30km) it follows a different trajectory as there is no sign of dramatic changes at the dawn of the Iron Age like at Kastanas.

The Assiros team uncovered 9 phases, of which the first 5 belong to the Late Bronze Age while the next 4 belong to the Iron Age. The earliest phase is dated to ca.1350-1300 BC while the latest is dated to 750-650 BC. In the period 1200-1100 BC large casemate walls were constructed at Assiros in a similar technique as at Toumba Thessaloniki (Wardle 2009), a large investment in a time when the neighboring area to the west experienced turmoil (e.g. exemplified at Kastanas layer 13; see Hänsel 1989: 335). To access the 14m high settlement, one had to walk up a gravel road that followed the sides of the tell. Assiros had timber framed mud brick buildings arranged in blocks in its phase 9-8 within which massive amounts of grains were stored (ca.1360/1350-1310/1300 BC, and 1310/1300-1270/1200 BC). The rectangular blocks are divided by straight streets, differing greatly to the more sprawled layout of Toumba Thessaloniki (above) and Kastanas (above). When comparing these three sites, it is tempting to think of the concept of planned versus "landschaft stadt" as described by Hoepfner (et al. 1994) which grows in an organic fashion rather than being planned. The blocks, although they are re-modeled (especially the divisions of rooms) and in phase 9 and 6 burnt, remain a stable entity throughout the Bronze Age with an almost fixed order (Wardle 1989: 462).

Wardle (1980: 250) estimates that Assiros could have been inhabited from around ca.2000 BC due to the lack of typical earlier Early Bronze Age pot shapes. A ribbed vessel stem of the Minyan type made of local clay could be dated to 1800-1700 BC, which indicates early Aegean contact. The first Mycenaean pottery arrived by 1400-1350 BC attested by Late Helladic III A2 and Late Helladic III B sherds (Wardle et al. 1980: 252). The Late Helladic IIIA-B were periods of expansion in Southern Greece, and the pottery reached a pinnacle of homogenization (see Mountjoy 1999). Wardle (1989: 462) postulates that there may have been a link between the developments in Southern Greece and Northern Greece. This could fit the historical dates well, even if there is an absence of destruction in the Early Iron Age transition at Assiros. The site did however gain a more domestic appearance (Wardle 1989: 462; below).

If taken phase by phase an interesting pattern emerges regarding the organization of the tell which has consequences for the understanding of all of Central Macedonia. Unlike Kastanas the site is marked by a staggering continuity despite

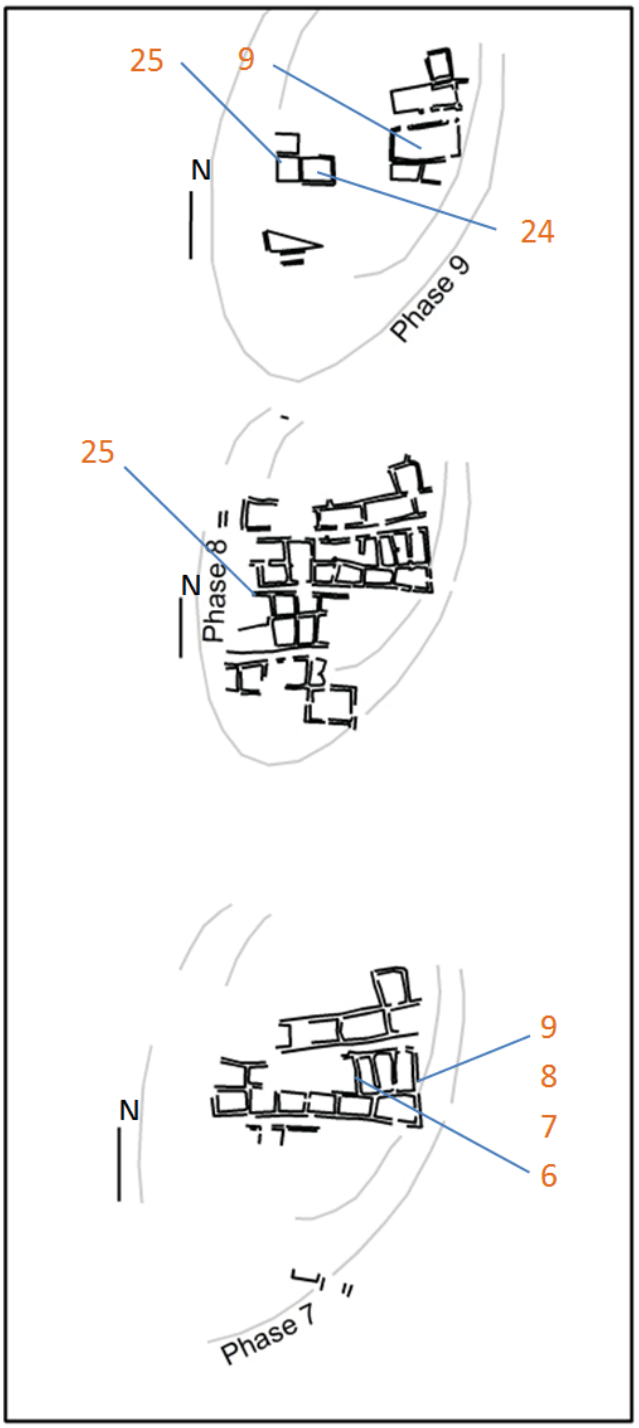


Figure 67 Assiros phase 9-7, numbers=room number (after Wardle 2009; Margomenou 2005).

the frequent fires at the site which devastated the settlement at least 6 times (phases 9, 6, 5, 3, 2 and 1) (Wardle 2009).

Phase 9 (fig.67) was the earliest phase at Assiros, and lasted from ca. 1350-1300 BC in conventional dates. In this phase the dendrochronological dates do not differ much, giving end dates for phase 9 ranging from 1360 to 1310 BC (Wardle 2009). The first Mycenaean pottery dates to the Late Helladic III A2 and Late Helladic III B period. In this phase it was mostly regional or imported, but some locally produced sherds were also identified (Wardle 2009). In the well-organized building mass, the large room 9 stands out as being densely packed with large and small storage containers like pithoi but also dug down wicker baskets and bins with clay

walls. The other storage containers were filled with einkorn while the pithoi contained a variety of crops, including broomcorn millet, possibly a mix of spelt and emmer, bitter vetch and hulled barley. The bins served to store einkorn. Spiklets of wheat were retrieved, probably stored in this form to protect it from diseases. Room 24 had large clay bins with millet and in room 25 there were also storage capabilities as several pithos pits were uncovered (Wardle 1989: 460-462; Wardle 1987: 328). All in all, it turned out that a staggering 75% of the building mass was dedicated to storage. If one takes into consideration that the surface of the tell at this point was 1700m^2, it would not differ much from the storage capability of a contemporary Mycenaean Palace (Wardle 1988: 387; see Earle 2011 for a comparative perspective of the Mycenaen palaces).

In phase 9 a fire devastated the site after which phases 8 (fig.67) (1300-1200BC in conventional dates, or 1360/1310-1270 cal. BC) followed on the same track. In some instances buildings were repaired with bricks from the previous phase. Among the more interesting finds was a Late Helladic III B piriform jar. In room 28 a large amount of grape pips were uncovered, possibly attesting grape pressing for wine. In phase 9 leaves from grape vines were used underneath jug stoppers to seal the contents. This was indicated by impressions on the stopper (Wardle 1987: 325 and 329; Wardle 2009).

In phase 7 (fig.67) (1200-1150BC in conventional dates, or 1220-1170 cal.BC) fewer of the walls rested upon older walls than in phase 8 although the "grid" seemed stable. While 24 rooms were identified, the excavator calculated that a total of a 100-120 rooms could have been distributed in regular blocks across the settlement. In some instances both the yards and the rooms had pithoi and scattered sherds including those from Mycenaean Late Helladic III C pots (Wardle et al. 1980: 242). There were also signs of metal working, including casting debris (Wardle 1989: 459). In the floor of yard 28, pithoi were dug into the floor, while two earlier hearths were also located. The surface of the room was plastered and it was apparent that the inhabitants had renewed this several times. In the neighboring room 27, a pit with wickerwork was found while in yard 24 another hearth was found. While cooking took place in unroofed spaces, they were as much enclosed as the rooms. Room 6, 7, 8 and 9 appear to have been narrow long rectangular rooms (see Wardle et al. 1980: fig.7). In room 8 a pithos was uncovered, while a few other sherds were also found here. In the two yards to the south, 3 and 5, sherds of Mycenaean pots were found as well as pithos sherds. Room 7 and 8 contained other interesting finds such as beads of bronze and shells together with grape pips and seeds. These were deposited after a significant change took place (Wardle 1987: 323 Wardle et al. 1980: 242).

For unknown reasons the floor levels were raised by 50 cm during the period. Of conspicuous finds a marble sword pommel stands out. A similar object was uncovered at Toumba, and shows an Aegean connection. In phase 7 the casemate walls were built giving the site a strong defensive perimeter (Wardle 2009; Wardle 1988: 384). Both the calibrated and the historical dates place phase 7 at the beginning of the transition phase to the Early Iron Age, in accordance with Hochstetter's (1984: 291) synchronization of Assiros and Kastanas based on pottery analogies. Unlike

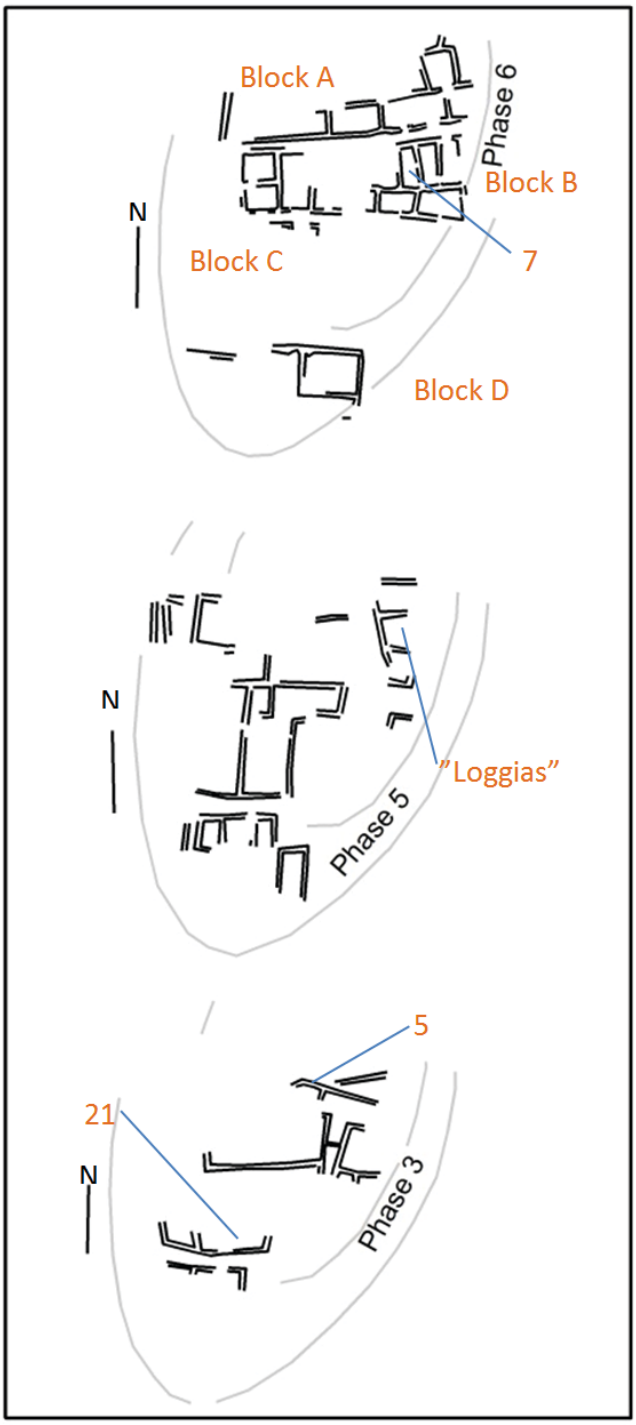


Figure 68 Assiros phase 6-3 (after Wardle 2009).

at Assiros, the period KV began with destruction around 1200 BC at Kastanas. At Assiros, however, there was a reorganization of the site reflecting a diminished need for centralized storage.

Phase 6 (fig.68) (1150-1100 BC in conventional dates, or 1220-1170 BC) yielded more architectural features than phase 7, but all in all it seems that the settlement plan from the preceding phase was intact. The devastating fire that struck the tell towards the end of phase 6 may be the reason why this layer was well preserved. The settlement consisted of several parallel blocks (named A, B, C and D) with rooms and yards. Several rooms had pithoi and storage facilities known from earlier periods, like clay bins. In room 7 a circular

domed clay structure with internal wicker impressions has been interpreted as an oven. Domed ovens were also found like at Kastanas (layer 13), although as the excavator points out, the solid buildings of Assiros had little in common with those of contemporary Kastanas (Wardle et al. 1980: 243-144; Wardle 1989: 459).

Unlike in phase 9 and 8, the new room divisions which emerged in phase 7 and 6 with several small rooms and courts, opposed to large storages like room 9 in phase 9-8, may not have allowed for concentrated storage. In these periods a pattern of scattered storage was apparent; few bioarchaeological remains were revealed. The excavator suggests that this could indicate that the site burnt to the ground before harvest (Wardle 1989: 457, 459). Of other activities, a trunnion axe mold could attest metal working. This axe is known from Troy VII, but is rare in the Southern Aegean (Wardle 1989: 458). As discussed above, metal working was commonly undertaken at most tells (above, ch. 5.2.2).

Phase 5 (fig.68) (1100-1050 BC in conventional dates, or 1170-1100 cal.BC) saw a re-planning of the site after a fire. Both in the north east and the south there are buildings consisting of rows of rooms, but the regular blocks of the earlier phases could not be recognized (Wardle 1989: 455; Wardle 1988: 380). To some extent the room divisions resemble the Loggia of Kastanas layer 11 (see appendix 1), yet the plan drawings give little information regarding the now more disorganized layout of the site. Phase 4 (1050-1000 in conventional dates and 1100-1080 cal.BC) follows the same settlement plan as phase 5, yet in terms of pottery, there was now a transition from Sub-Mycenaean to Proto-Geometric; Fluted ware was also introduced. Wardle notes that these pots are fired in a higher temperature than their Bronze Age counterparts (see Wardle 2009; Margomenou 2005: 249).

Phase 4 (fig.68) remains elusive, and was defined fairly late in the excavation. No remains of floors were uncovered. In phase 4, what has been interpreted as a "child's cache" was uncovered. Bovine figurines uncommon in Northern Greece with few exceptions such as Aiani and Hagios Mamas, spindle whorls, quartz pebbles, small bones and miniature pots seemed to form a small hoard of possible toys (K. Wardle and D. Wardle 2007). These were never retrieved by the owners. If one regards the function of this cache it could represent everyday tell life in a miniaturized version, with cattle herding (the bovine miniature; although less apparent in the fauna assemblage than pigs and sheep), product processing and consumption (spindle whorls and miniature vessels). At Kastanas, a small number of miniature vessels have also been found which included a miniature kantharos jar which was interpreted as a toy (Hochstetter 1984: 179, pl.71.1 and 114.5). If the miniatures in Northern Greece were toys rather than cultic objects, they represented a miniaturized version of adult life rather than a world of its own, and could have been a mechanism of reproduction of the tell life (see Kotsakis 1999).

If one follows the conventional dates, phase 4 would be the proper place to end this brief survey. Yet, if one follows the chronology based on ^{14}C samples and dendrochronology there are good reasons to continue. In the Iron Age phases

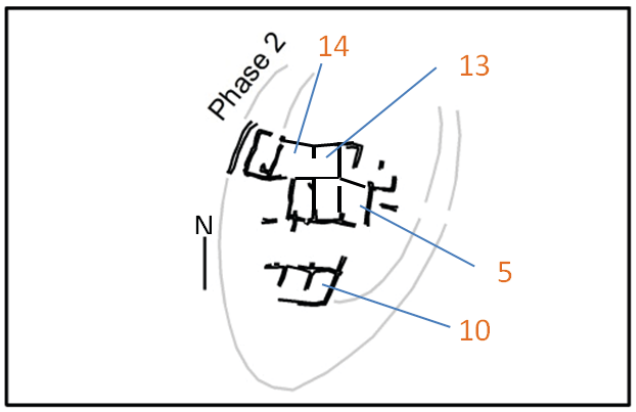


Figure 69 Assiros phase 2 (after Wardle 2009).

there was an introduction of "Lausitz pottery" and Proto-Geometric pottery. Phase 3 (fig.68) (1000-950 BC in conventional dates, 1080-1070 cal.BC) was to some extent built along the lines of phase 4 and 5, for example the south western street remained in the same position as in the preceding periods. There are however differences. The excavator noted that there were more open spaces in this period, indicating a smaller population (Wardle 1989: 454). Room 5 has an apsidal shape which is known from Kastanas and Toumba in the Late Bronze Age. This house shape was not prevalent at Assiros earlier. This was perhaps because square buildings are more easily fitted to a grid than apsidal or round ones. The internal room division of the building suggests that it could be closer to the shape known from Late Bronze Age Kastanas where apsidal buildings had one large room rather than several as is the case in house A's western section at Toumba Thessaloniki. Wardle (1988: 380) believes that the extension wall that continues to the east was not part of the apsidal building. Possible traces of terracing were also identified in phase 3 (1988: 378-380).

In phase 2 (fig.69) (950-900 BC in conventional dates, 1070-1000 cal.BC) the buildings were organized in single large rooms that may have constituted different households. The settlement was surrounded by a wall as it was in phase 4. Room 14 and 13 had both pithoi and large circular hearths although they lay next door (Wardle 1988: 378; Wardle 1989: 452-453). Wardle (1989: 453) contends that this is quite similar to the conditions at Kastanas layer 12-11. There were also a large number of loom weights, which was also the case at Kastanas, amongst which were incised examples (Wardle 1987: fig.3). Room 10 had a complete loom while room 5 had enough loom weights for two looms. Wardle points out that the size of the rooms were similar to those of Kastanas. If the settlement plans of Kastanas layer 12 and Assiros phase 2 are similar as indicated by the insula-like houses, it could be that they functioned similarly. In that case Assiros may have lost its central functions indicated by the massive stores in phase 9-8. From an economic perspective, it seems as if textile production gained an important role. The development of Assiros is thus one from center to satellite.

7.4.2 Assiros and the Lower Axios Area

The development of the built environment and the social processes at Assiros may in fact correspond well with the development at Kastanas. The Late Bronze Age storages of the early phases at Assiros have no parallels at Toumba Thessaloniki and Kastanas, the archaeobotanical evidence from Kastanas shows a surplus production of einkorn, possibly geared towards export (see Kroll 1983). Whether there was a site nearby to which the Kastaniotes sent their surplus remains unanswered, but there are certainly indications of centralization in the Late Bronze Age, and these correspond with the entry of the southerners from Mycenaean Greece on the scene in the "international period" 1400-1200 BC:

- Surplus production at Kastanas
- Compounds at Toumba Thessaloniki
- Centralized storage at Assiros
- Terracing at Axiochori, financed by surplus exacted from the hinterland in the entire Lower Axios Area – a position kept safe through good relations with the immediate neighbors north at Aspros and Limnotopos.

The staples at Assiros were quite similar to those of Kastanas with the exception of bread wheat, which was stored separately (see Valamoti 2002; Jones 1986 Kroll 2000: 63). The crops include einkorn, emmer, spelt and macaroni wheat, two-row and six-row, hulled barley and broomcorn millet. The pulses at Assiros were bitter vetch and lentils. Wardle suggested that einkorn was stored separately in bins. Figs and grapes, poppy and flax were also found, the latter indicating that the oil sources were the same at Toumba, Assiros and Kastanas. It has been suggested that there could be fewer types of crops in the Late Bronze Age than in the Early Iron Age (Kroll 2000: 63) which could indicate a focused agricultural regimen. Jones (et al. 1986: 98) calculated that in phase 9 one room could hold enough crops to feed 20 people for a year.

Kastanas and Assiros both had sheep, goats, pig, dogs, ass, red deer, fallow deer and roe deer as well as rabbits and horses. Cattle, and less so, pigs outnumber sheep and goats in the Bronze Age, but at Assiros the cattle are outnumbered by sheep, goats and pigs. Was there a lack of grazing fields around Assiros since they kept pigs (a stationary animal) and sheep (a long distance animal) or was the land exploited in a diverse manner? The rabbits could indicate that the land was open around the site, which would make sense against the expansion of sites in the Late Bronze Age of the Langadas (Wardle et al. 1980: 265-267). What becomes clear from the archaeozoological evidence is that the site dwellers had access to an outback where they could hunt, have access to diverse meats and had transport animals – they were not only agriculturalists. Their role was perhaps that of "poolers" of produce rather than full time farmers (Heaton et al. 2009: 2213), but they also had access to metallurgy and pot production, foreign contacts and a local network. The nature of the agricultural regimen at Assiros has been described as intensive horticultural (Wardle et al. 1980; Heaton et al. 2009).

Shells indicate a local network as these must have been taken from the sea either by the bay of Kastanas, the Lower Gallikos or by the Thermaic gulf (Wardle et al. 1980: 266). Means of communication included horse and donkey (Wardle et al. 1980: 265-267). Shells may not have been the only reason to maintain contact with the maritime areas. Tin, Mycenaean luxury liquids stored in amphoriskoi and "refined manners" of the world may have become accessible for the larger population of the Langadas in exchange for agricultural produce, perhaps especially for the dwellers at the monumental terraced site of Perivolaki (see Heurtley 1939; Heurtley and Radford 1928). The faunal assemblage could provide interesting ideas of how the local network which needed to collect produce from afar could have been enacted: donkeys could have provided transport for goods from satellite sites to storage sites, while horse riders could be able to control large areas from sites like Perivolaki, Toumba Thessaloniki or Axiochori. This explains why travelers would come to Central Macedonia in the first place.

The potential large scale storage at Assiros in phase 9-8 indicates a focus on inter-tell systems and a level of inter-household organization at a greater level than in phase 7. This corresponds well with evidence of the intense agricultural regimen at Late Bronze Age Kastanas. Margomenou (2008: 202; 2005: 441) proposes an alternative interpretation of the "storage phase" at Assiros (phase 9-8). The storage rooms may belong to one family unit living in adjacent rooms, equivalent to the dwellers of one of the compounds at Toumba Thessaloniki or possibly the entire tell of Kastanas. Judging by the evidence from phase 9-8, there seems to have been storage bins in the smaller rooms surrounding the larger ones (Wardle 1989: 459-462). Not only is the architecture quite different, but there is little evidence of dwellings of the types observed at Kastanas and Toumba Thessaloniki before phase 8. I thus favor the older interpretation of Assiros as a storage site before 1200 BC (e.g. Wardle 1983) in a three tier settlement system. Smaller outlier sites like Kastanas, Tsautsitsa and Kilindir may have supplied storage sites controlled by centers like (Toumba Thessaloniki or Axiochori) with part of their produce, keeping the rest for subsistence. This model fits the landscape data best: in the Lower Axios, Axiochori and Xorygi had visual command of large tracts of land and more sites under their gaze than their neighbors. Axiochori outgrew nearby sites with immediate access to agricultural lands like Antophytos A and B, which remained small – perhaps because their surplus financed trade and building projects at Axiochori. From Assiros' phase 7 and onwards (after 1200 BC), much indicates that the use of the settlement got a more "domestic" character with a settlement plan resembling that of Kastanas layer 12, perhaps as the result of a "system breakdown" simultaneous with the tendencies of decline in Southern Greece (N. Wardle 2005: 358).

7.5.0 Discussion

The material from Kastanas, Toumba Thessaloniki, Assiros, Limntopos, Axiochori, Kilindir and Tsautsitsa imply that the decorated pots co-present in different regions were most likely used together. This was evidently the case at small sites like Kastanas, Hagios Mamas in Chalcidice (a big site), and in burial contexts in, for example Aiani (see Horejs 2007). A brief survey of the material from Toumba Thessaloniki as the one pursued in this monograph cannot give any definite answers, but shows that in all probability re-combination was also pursued there – the dwellers of the big compounds in the period had access to matt-painted, Mycenaean and encrusted pottery, and somewhat later fluted ware. A look at the material from Tsautsitsa, Kilindir, Limnotopos and Axiochori shows the same pattern, although the poor contextual information precludes any definite conclusions. This may not be unexpected at Axiochori and Limnotopos, large and tall central sites or at the maritime sites like Kastanas, but perhaps less so at Tsautsitsa and Kilindir which are considered as outliers.

Access to different types of decorated pots does not mean by necessity that they were used together, but if we recall #51067 an encrusted jug and a Mycenaean skyphos were uncovered (see fig.62). Possible contents of the jug could have been fine oils or other liquids to be consumed at a feast. The one-roomed building at Kastanas is most frequently encountered here. In layer 14b, a Mycenaean amphoriskos (Jung 2002: cat. 90), a bowl (Jung 2002: cat.77) and skyphoi (Jung 2002: cat. 71 and 73) with an Aegean co-presence were found in the *Antenhaus* which also contained matt-painted bowls (Hochstetter 1984: pl. 39.4-5), an encrusted jug (Hochstetter 1984: pl. 40.1), encrusted amphora (Hochstetter 1984: pl.39.8 and 40.3) and encrusted bowls (Hochstetter 1984: pl.39.6). These could have been used on different occasions – but must at least have been encountered together. The same could then be said for the Mycenaean amphora, the encrusted kantharos and rope decorated pithos found in layer IX 21 at Axiochori (ch.7.2.2). From a contextual perspective, the display of these pots would show connections to the Bronze Age World and provided the opportunity of:

- serving different long distance travelers with pots resembling what was found at home.
- serving local contacts with specific pots for particular occasions.
- serving local guests with a range of pots co-present in the Bronze Age World.
- storing goods, perhaps of particular kinds in kantharoi, pithoi, amphoriskoi and amphora to be given away, consumed or traded as branded merchandizes.

The mix of pots enabled the owners to connect locally and with the larger Bronze Age World as well as to generate flows of goods. The plurality of different wheel made wares (see Jung 2002) at a small site like Kastanas is evidence of such flows. A constricted network of sites has been theorized (see Andreou 2001), yet what would its size be if transferred to the Lower Axios Area? A possible polity could consist of the Lower Axios Area bounded north in the hills behind Kilindir and Tsautsitsa, west by the foothills of Mount Paikon, south by the sea and east by the Gallikos in which the following sites could function as outliers, centers and storage sites:

Outliers: Admittedly Kilindir and Tsautsitsa had little Mycenaean pottery, but their dwellers did possess encrusted kantharoi in which precious oils could be stored as well as matt-painted drinking bowls and beak spouted jugs. Mycenaean amphoriskoi may have reached these sites through area wide networks in the Bronze Age. Produce could have been brought to a specialized storage site while gifts, in this case oils or perfume stored in "branded" Mycenaean containers may have secured loyalties. Copper and tin imported from the larger Bronze Age World may have spread from the center to outliers through spectacular feasts. At a lower scale such events may have been emulated at smaller sites like Antophytos A and B where skyphoi and amphora have been found during surveys. Commensality (see Halstead 2011) may have been a manner to mobilize dwellers at farmsteads or other flat sites to work the fields, or the tell dwellers to be able to exchange with the centers.

Center: The nature of the center in the Late Bronze Age is curious, and I suggest that central sites like Axiochori had a sizeable spillover to its immediate neighbors. Fairly large sites cluster in the Lower Gallikos during the Late Bronze Age (ch.6.3.1-6.3.2), but it is rare that people pursued synoikism until the very end of the Late Bronze Age. The tendency that large and tall sites clustered rather than joining into new larger sites (e.g. Aspros and Limnotopos) strengthens the linage theory of Andreou (2002). Entire groups, for example all the inhabitants of a tell, did not join together, but intermarriage must have been practiced not least because sites with 300 inhabitants (at most) needed to in order to survive. Marriage ties could have generated interaction between sites. Thus, when Axiochori thrived and expanded at the end of the Late Bronze Age, Limnotopos and Aspros also experienced growth to the extent that table settlements grew up both by Axiochori and Aspros as the Early Iron Age closed in. "Center" must thus refer to a cluster (above, ch.6.5.0). In the period 1400-1200 BC terraced sites and storage sites came into existence as increased economic integration with the Mycenaeans and the Bronze Age World provided the growth necessary for some societies to dominate others. Axiochori's commanding location may have initially given its dwellers an advantage in the Lower Axios Area as the key agricultural lands of the Pikrolimni Plateau was under the visual command of this site. Importantly, this may again have given the dwellers of this site an upper hand against the large clusters adjacent to the Gallikos and Kouphalia as the dwellers of the sites in these areas would have access to less agricultural produce to trade and consume in their immediate hinterland.

Storage/site function sites: For the Langadas the storage site was most likely Assiros in the period 1400-1200 BC (ch.7.4.2). A similar site has not been uncovered in the Lower Axios Area, but one site in particular stands out as a potential candidate. Assiros was centrally located and defended. Xorygi is easily defended (6.4.2) and could together with Axiochori command nearly the entire region of the Lower Axios. Cooperation between Xorygi and Axiochori could give

considerable political power and control of key resources.

The extent of these may have been at the size of a typical chiefdom, ca. 1300km^2 (Renfrew 1975: 13-14), constituted by a central cluster, a group of productive outliers and at least one storage site. This theory is not new (see ch.6.0.1), but its detailed application can reveal a polity that may have included all of the Lower Axios Area. The political cohesion can be shed light upon by looking at pottery and architecture. The refined decorated pottery did not serve to distinguish the tell dwellers from each other, but rather to cloak differences as probably most them could use the same fine dining kit. The avoidance of conspicuous burials could have kept goods in circulation, but also served to further cloak differences with those dwelling in at the most successful tells. The connectivity exhibited in the pottery material is also possible to deduce from the architecture. By the Late Bronze Age, mud brick was widely adopted. In the period 1400-1200 BC terracing, fortifications and planning, as exhibited at Assiros, become known at the same time as Mycenaean pottery was introduced at a larger scale, especially after 1200 BC.

In sum one could say that there are three types of building masses:

- Multi-room compounds.
- Blocks laid out according to a settlement plan. Regular blocks go back to the Middle Bronze Age at Hagios Mamas where square blocks seems to prevail, indicating planning (see Hänsel 2010: 280), but appear further west in the Late Bronze Age at Assiros.
- Mixed composition smaller houses – apsidal and square. Apsidal house shapes in the Late Bronze Age were encountered at Toumba Thessaloniki, Kastanas, Limnotopos and later at Assiros. Before that, in the last phases of Sitagroi (IV-V, Early Bronze Age) apsidal long-houses and intramural burials were excavated (Renfrew 1986: 190). The mix of apsidal and square houses must have made it difficult to plan the sites.

After 1200 BC, at Kastanas (layer 12) and Assiros (layer 7), the multi-room block was adopted. These insula provide the opportunity to use the space on the tell more efficiently. Layer 12 at Kastanas represents a peak of popularity for the Late Helladic IIIC pottery. Koukos (Carrington-Smith and Vokotopoulou 1992: 496; see also Carrington-Smith 1991) and the Philadelphia Table (see Whittle 2002) had square multi-room blocks. This represents a homogenization of the built environment. At Assiros this meant that the site became an outlier settlement similar to Kastanas in the transition to the Iron Age (see ch.7.4.2). The square building components could have enabled a more planned use of space. Planning and diversity in the pottery assemblage, however, must have come about through contact with other regions.

A brief interlude at Kastanas in layer 13 saw the re-introduction of wattle and daub as a building material. These were possibly also encountered at Axiochori as reed huts were reported in two settlements (see ch.7.2.1). Apsidal and round buildings of mud brick had a long history in Central Macedonia. As far north as at Skopje Kale these buildings have been found (Arhaeological Exavations Skopsko Kale 2007 [Online]), although there are no tells between Central Macedonia and Vojvodina. Hänsel (2002) argued that an invasion from the North had led to the change to wattle and daub architecture in the Early Iron Age. This material was in use in the Southern Serbian Morava Basin which was shared by the Parćin and Brnjica groups at the onset of the Iron Age (Bulatović 2008: 243-244). The globular kantharos and four handled amphora were amongst the pottery shapes shared with the Brnjica Culture, which according to Bulatović (2011) already indicates an influx of people from the 15th century.

Changes in architecture represent major investments, organization of labor, knowledge and skills. The introduction of both mud brick and however briefly wattle and daub in the Late Bronze Age represent breaks in societies that reproduced social structures for centuries (see Kotsakis 1999; Kotsakis 2007). Knowledge requires the movement of people to be transmitted, whether the new knowledge was brought by invaders or traders.

The inclusive manner in which pottery was received, for example the fact that pots with co-presence in different regions could be placed next to each other in storage areas (e.g. Axiochori see ch.7.2.2), could have eased integration of foreigners. In layer 16 at Kastanas the buildings were organized around enclosed courts, reflecting a degree of privacy also encountered at Toumba Thessaloniki in the compound. Family groups could reside in these as well as traders like in the Old Assyrian karum (Larsen 1976). Mycenaean pottery first arrived as imports, and was then adapted by local potters to the extent that by the Late Helladic IIIC period, the regional Mycenaean pottery far outnumbered the imports. Before 1200 BC there was a Mycenaean expansion followed by a recession. Late Helladic IIIC pottery had a long range distribution perhaps because the potters moved as an outcome of fewer jobs at the palatial centers in the south (Yasur-Landau 2010: 101). An influx of potters from Southern Greece (see Kiriatzi et al. 1997) may have spurred the transfer of techniques and technology required to produce Mycenaean pottery in larger quantities and increased the number of workshops. Mycenaean pottery had already been integrated together with the first merchants who brought them along. Minyan, encrusted and matt-painted pottery could similarly indicate integration in the assemblage after initial import, presumably together with the people who brought them as they remained relevant in Central Macedonia.

The reason why the Mycenaeans arrived in the first place may have been to trade with the various communities in Central Macedonia which possessed a rich landscape. The inclusion of foreign shapes began with the copied Minyan pottery, and the diversity of imports reached its apex by the period 1400-1200 BC. This is the case across Central Macedonia and must count as a homogenizing factor in the same way as the mud brick architecture. Slight differences in the encrusted pottery fabrics, the mouth shape of cut-away-neck jugs and a preference for red incrustation paste indicates accordingly different clay sources and production sites (Hochstetter 1984: 292-293; Psaraki 2004). Later, at the onset of the Iron Age, wheel made pottery declined in the Langadas but went on at Kastanas by the Axios (Jung 2002: 233). Wardle (et al. 1980:

264) noted that the wave of destruction in the Lower Axios did not spread to the Langadas, and the answer may lie in the "looseness" of the networks that characterized Central Macedonia (Andreou 2002: 222; N. Wardle 2004: 149). This bares reminiscence of the Etruscans who constituted one group, divided in several polities which functioned independently (and in competition) or in loose federations to an extent that they did not sufficiently rally under Roman pressure (Ward et al. 2003 10 and 27). There may thus have been a level above the small networks dominated by Axiochori, which enabled mobilization of goods to be traded; the fall of the center in the "federation", however, had little effect beyond the valley.

The lack of immediate impact in the Langadas and by the Bay of Thessaloniki could reflect, as Andreou suggests (2001), tells organized in loose formation – kept together with alliances, possibly designed in part with decorated pottery used at feasts. Yet, these were large enough to participate in the networks of the Bronze Age World. Federations may have included ca.30-40 tells which had different functions (center, storage or outlier/satellite). This may for example have allowed the dwellers of the Langadas to acquire seashells from both the Bay of Thessaloniki and the Lower Axios Bay. Slight differences in the pottery assemblage could be an indicator of a subset of identities that were tied to competing Central Macedonian political entities. This can be addressed by a detailed study of decorated pottery within the Lower Axios and with connected regions (see ch.8.-12.).

8.0.0 An Introduction to Decorated Pottery in Central Macedonia

In the following chapters the links between different types of decorated pottery co-present in the regions north and south of Central Macedonia are approached along with how these were employed in identification strategies at different levels. In many cases these were found in the same contexts as discussed in chapter 7. The production technologies and techniques behind these pots were so different that they could only have been made by different crafters (Kiriatzi et al. 1997). This is highly interesting since the tells' small size could not have given much room for groups to seclude themselves completely. Regardless of whether the potter wheel-turned the pots or produced them by hand with the impasto technique or coiling, in most cases the technologies and decoration techniques did not hybridize (with a few exceptions, see ch.10.5.0 and 11.2.1) (Psaraki 2004: 277). In regards to motifs, there are interesting overlaps which I discuss in detail in the following chapters with focus on the slight differences which could have served to distinguish groups at different levels (following Hodder 1982). It is argued that the designs of pots could have played a role in complex strategies of identification and power (see Earle 1990: 81; Kletter 1999).

Pots and people, and therefore also identities are not in a one-to-one relation (Kletter 1999: 19). Material culture may be mobilized in strategy in a variety of different ways to denote differences between larger groups (e.g. ethnic). Within groups, objects can serve to mark elites (Daloz 2007), or to hide social differences as the case is in Scandinavian countries where political elites practice a "conspicuous modesty" to blend in with the common man in terms of, for example dress (Daloz 2006; Daloz 2009). Alternatively, performances (with displays of wealth and prestige objects) like ceremonies, banquets and feasts may be orchestrated to manifest or create division (Cannadine 1987: 10-11; Halstead 2011). Amongst the tell dwellers the use of a complex dining kit or storage vases with co-presence in the Balkans and the Aegean brought the world into Central Macedonia and simultaneously connected the dwellers of this region with its neighbors, cloaking differences of power and ethnicity (ch.7.5.0). Between groups, there are examples of how material culture can be used to structure difference. Kletter (1999: 43) shows how in some cases Levantine polities had political borders within which a core had a uniform material culture. Borders could also block material culture, as is the example between the neighboring Iron Age cities of Ekron and Lachish, conforming to data from Hodder's (1982) analysis (above, ch.3.2.0). In regards to ethnicity, culture can be mobilized to signal difference, and the persistence of such symbols could thus indicate continuous meetings between groups (see Barth 1969: 16; see ch.3.). This notion is applicable to the Central Macedonian case.

The regions with which Macedonia was connected through shared pottery have been mapped out extensively. From the Neolithic and Early Bronze Age, pottery co-present in other regions has been identified. Dhimini pottery (Sherrat 1986; see Bintliff 2012) was found in the Neolithic, while Trojan face urns and depas cups attest to long distance relations in the Early Bronze Age (see Andreou et al. 1996: 585). Until the excavation of Hagios Mamas little was known of the Middle Bronze Age, mostly only distinguishable by the occurrence of Minyan pottery roughly simultaneous with the appearance of mud brick (in Chalcidice ca. 2010-1910 cal.BC, layer 17-16 Hagios Mamas; Aslanis 2009; Hänsel and Aslanis 2010: 277). The encrusted pottery appeared at Hagios Mamas in the Late Bronze Age (layer 13, ca. 1810-1775 cal.BC). It is also known at Archondiko by Giannitsa from the beginning of the Late Bronze Age and has been connected to a Balkan-Central European koiné of shapes and decoration techniques, not least technology (see Horejs 2007: 80; Pilali-Papasteriou and Papaefthymiou-Papanthimou 2002: 142). On the other hand, the matt-painted pottery at Archondiko emerges in the second half of the 2nd millennium BC, a bit later than at Hagios Mamas (layer 8, 1580/1540 cal.BC; Horejs 2007: 249). Mycenaean pottery was first encountered at Torone in Chalcidice in the Late Helladic I period, but reaches the Lower Axios Area by the Late Helladic IIIA period, with a local production starting in the Late Helladic IIIB period and flourishing in the Late Helladic IIIC period (Jung 2002: 244). Post 1200, a wheel made grey ware and fluted pottery was introduced and localized (see Jung 2002; Hochstetter 1984).

In this study, I focus on encrusted pottery, matt-painted pottery, the fluted ware or the so-called Lausitz pottery and Minyan pottery. The pots were both part of long distance- and local networks (ch.9-12.; see Garrigós et al. 2003; Hochstetter 1984: 194; Kiriatzi et al. 1997) which in turn led to the transfer of technological knowledge, technical production skills, pottery forms, decoration techniques and motifs, as well as taste both within and beyond regions. Potters practiced their craft in manners co-present in different regions, thus helping to create and re-create a culturally complex society which they were part of (Latour 2005: 253; for a review see also Pfaffenberger 1992). Decoration, the manner and details with which it is executed connects different pots, but also other objects (Gosselain 1999: 214; Sofaer 2006). When an object's shape mimics another in a different material, it is referred to as skeuomorphism (Knappett 2002). The shape and décor of pottery, the design of the pot, reveals links between regions and different pot types within Central Macedonia; the study of these links can highlight relations between people of different ethnic origins and/or of a different political affiliation.

The sum of designs in all the types of decorated pottery constituted an "aesthetic universe" or "world" (as a collection of all related motifs) of which the modern archaeologist knows but a small proportion. While different techniques and technologies could even have implied that the pots where made by different groups of potters (Kiriatzi et al. 1997), these would have worked within small settlements where they could not have been oblivious of each other. Similarities in motifs, or the lack thereof, and the techniques with which they were painted or incised onto pot surfaces are indicators of contact between people of diverse backgrounds. To study these differences, an approach inspired by the attribution studies of Classical archaeology was pursued (see C. Morris 1993).

A selection of decorated pottery was photographed, complimenting the published pottery from Kastanas, and included decorated pottery from Axiochori, Limnotopos, Kilindir and Tsautsitsa. While these sites together with Kastanas and the material from the French collection gave a good overview of techniques and choices of motifs in the Lower Axios Area, the material from Toumba Thessaloniki provided comparanda from a neighboring area. With a Nikon digital single-lens reflex camera, pictures with a high resolution could be obtained, and by zooming in on incised sherds, the order and particular manner in which the lines were combined could in some instances be studied in a similar way as one can study scribal hands in the field of paleography (Palaima 2008).

Attentiveness to details – how the motif is put together by various elements is a well-known approach in Classical archaeology (Boardman 1975; see ch.1.2.0). Beazley compared vases of a similar date stressing for example the rendering and the anatomical knowledge behind a representation of a body, paying heed to how small details like ears or ankles were depicted. In this way, individual painters could be identified (Snodgrass 2007: 22), for example "The white female flesh, as usual in the C Painter, is laid not direct on the clay ground but on a black or brown undercoat: the details, except the cornea of the eye, are incised" (Beazley 1986: 22). Another example could be provided by Amyx and Lawrence "…its feline lines lack a belly stripe, and its filling includes, besides large, double-centered rosettes, fillers of all kinds and sizes in a dense chaotic carpet. …looks like the early work of the Anaploga Painter…" (Amyx and Lawrence 1975: 88). The attribution of vases to individual painters has also been pursued in Mycenaean pottery (see Benson 1961). Attribution studies have been criticized for being highly subjective, resting on elusive connoisseurship. The notion of an individual artist is also derived from later periods. Yet, personal tweaks reside in motor habits of the body. Close analysis could thus reveal not only a workshop, but an individual artist (C. Morris 1993). Inspired by this method, it is sought…

1) …to identify the particularities of crafter communities which transmitted particular ways of performing techniques to individual crafters (above, ch.3.4.0; see Budden and Sofaer 2009) within areas and regions as well as sites,

2) …focusing on the order in which motif elements and entire motifs were built in addition to discussing choice of motifs by crafters within an area.

3)…this could reflect craft traditions as well as "consumer" taste, and unravel the slight differences that could be used in identification strategies for the pre-historic users.

4) …identifying links through motifs or motif elements, skeuomorphism, hybrids, and exact counterparts (homogenization), or the absence of these, enables discussions on identities and the role of influences from the outside.

A qualitative discursive approach based on the abovementioned points (ch.9.-12.) can deepen the understanding of connections between potters situated at the same tells working with different technologies linked to other parts of the Bronze Age World as well as neighboring tell communities (ch.7.5.0).

8.1.0 Quantitative Approaches

A quantitative approach was initially pursued, addressing a sample which included 1179 matt-painted, Mycenaean and encrusted sherds, crossing off motifs on a form with motif elements and types of decorated pottery (see fig.76). The sample included published material from Kastanas, the Heurtley material in the Archaeological Museum of Thessaloniki and the excavated material from Toumba Thessaloniki. However, it was soon realized that matt-painted, Mycenaean and encrusted pottery share most of the motif elements, and that the slight differences encountered were fluid: by altering definitions, nearly any type of decorated pottery could include all types of decorative elements in the motifs. That led me to approach decoration qualitatively by looking at how the different elements of motifs were combined and re-combined through a series of specific cases and focusing on the manner in which the decoration was executed (ch.10.1.0-10.5.0 and ch.11.3.0-11.3.8).

Defining categories for a quantitative analysis proved a more difficult task than anticipated, and applying the definitions was a venture which was fraught with difficulties. As the random assemblage for the combination analysis was derived from:

- …the selection of the archaeologists based on their notion of what was important enough to keep and their luck. Most of the finds are the product of often crude methods by today's standards.

- …what has been published and what was accessible.

The assemblage was in no way total (thousands of pots made in the Bronze Age will never be recovered), and gives only a glimpse into the aesthetics of the past. The categories I eventually came up with were based on my own experience of documenting the material and my previous knowledge. These were compared with Furumark numbers where appropriate (M-numbers used to classify Mycenaean pottery; Furumark 1972). Despite difficulties, some initial results were obtained which later formed a vantage point for discussion on motif elements executed in different techniques (see ch.11.3.0).

Motifs Elements

a horizontal line – refers to lines that are more or less straight, both painted, incised/encrusted, but also broad painted bands. In the Mycenaean, Sub-Mycenaean and Proto-Geometric pottery, parallel thick and thin horizontal bands and lines are frequently part of motifs (e.g. object 302). Skyphoi can have interior line decoration, but could also be coated. A large space can be left as a panel between lines near the rim or further up on the vessel. Within panels (two parallel lines framing an element), elements such as spirals

Figure 70 Skyphos (Object 1233, French collection) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen)

can be painted. Incised/encrusted pottery could also have panels most often framing dots (see fig.71). Rope decoration can also belong to the category. Both the finest and the most humble pot can carry horizontal lines. In Mycenaean pottery, deep bowls (krater and skyphos) with horizontal line motifs have a wide distribution.

b curved line –Object 1233 (fig.70)- a line with significant curving, yet with ends that do not conjoin into a circle or spin into a spiral, is classified as curved.

c vertical line – this refers to a straight line dropping vertically down. Common in Mycenaean, matt-painted and incised/encrusted pottery the element can form panels with zigzag lines, lozenges and wavy bands. In encrusted pottery vertical lines can outline frames (below, element f).

d dotted line –(fig.71)- both painted and stylus impressed dots fall into this category as well as vertical and horizontal lines; in many cases a dotted line could follow another line. A variety of styli were used to create impressed dots that in some instances were filled with encrustation paste. While the impressed dots were often angular or triangular, dots that were encrusted often had a round shape.

e curved dotted line –Object 161 (fig.102)- much like the curved line; the curved dotted line, whether impressed or painted, could be parallel with a spiral, a circle or a "solid" curved line. Much like the dotted line, it could be found between two solid lines.

f rectangular or quadratic frame –Object 533 (fig.71)- while found on incised and encrusted pots in the Late Bronze Age, frame elements were found on Proto-Geometric pots. The panel seems more common with Mycenaean pottery, although the frames do occur on, for example Late Helladic IIIC pictorial vases, of which only one has been found in Central Macedonia. The frame is a 'structuring' element. It encloses other elements at a fixed spot on the pot surface. A frame, unlike a panel, restricts the other elements in every direction and tightens the motif. Frames typically enclose spirals or hanging triangles, or a combination of, for example triangles and a 'cloud' of dots.

g vertical hanging triangle –Object 311 (fig.75)- a basic variation of the triangle, the vertical triangle can point up and down, hanging or rising from a line or a frame. It can complement spirals and dots. Vertical triangles occur in several types of decoration, and can often be filled with other elements such as hatching, a cloud of dots or a lattice, especially within matt-painted motifs. Triangular shapes can also be filled with a series of smaller triangles. Triangular shapes occur in Mycenaean pottery in many forms, but some motifs are exclusive to matt-painted and encrusted pottery. Framed triangles surrounded by 'clouds' of dots occur on encrusted pottery (on both spindle whorls and handmade bowls) across Central Macedonia, and a similar matt-painted version is found particularly to the east of the Gallikos.

h horizontal triangle –Object 608 (fig.139)- another variation of the triangle, it can be filled with a series of other triangles (angle fill), especially within matt-painted motifs where they often hang or rise from lines. Less common than the vertical triangle, it does provide an important motif in the Mycenaean pottery. The motif of bivalve shells (M 25) is one such, and was found on Kastaniote pots (Jung 2002: cat. no. 42)

i horizontal facing triangles –Object 647 (fig.71) - a horizontal triangle touching or being aligned against the tip of another triangle, facing each other.

j hourglass (vertical facing triangles) –this element consists of two vertical triangles touching each other's tip, forming an "hourglass"-like shape. Often hanging from lines or framed, the vertical facing triangle is found in encrusted and matt-painted motifs (see object 468, fig.137). Vertical facing triangles can have a lattice infill.

k angular geometric shapes –Object 1060 (fig.107)- rhombs, quadrats, rectangles and other shapes with angular corners.

l elongated vertical triangle –Object 510 (fig.71)- Long vertical triangles refer to elongated versions of the vertical triangle. Found in incised/encrusted and matt-painted versions, it can have a monochrome infill. It is not registered amongst the Mycenaean pots.

m diagonal line right-left - diagonal lines traversing to the left.

n diagonal line left-right – diagonal lines traversing right. Type m and n were used to identify the direction of grooves and fluting (see object 639, fig.71).

o lattice –Object 394 (fig.131)- a common infill in squares and particular triangles, the lattice is found in several shapes like triangles and rhombs. The infill was produced by lines crossing each other, and was found in Mycenaean, matt-painted and encrusted motifs.

Figure 71 Fluted handle (Object 639) (Toumba Thessaloniki), variations of lines (Object 533, 617, 907. 917, 1026, 1116), elongated triangle (Object 510) and meander (Object 647) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

p tassel band –Object 37 (fig.140)- this motif element is frequently found in matt-painted motifs, but also in the incised/encrusted part of the assemblage. The tassel band is a line with several attached short vertices projecting from the line, an element that could be produced with a stylus as well as a pencil. In the case of the former, it could be produced by first incising a line and then impressing a series of parallel dots.

q checkers and grids –Object 118 (fig.121)- a basic part of the assemblage, especially within matt-painted and incised/ encrusted pottery. The element is produced by incising or painting a series of crossing lines. Occasionally the squares could be filled. Another type of square pattern is that of a series of rectangles above each other, often found on matt-painted handles. This motif element is made by painting two parallel vertical lines, often along the handle, before painting a series of traversing horizontal lines.

r long vertical facing triangles – Object 1073 (fig.140)- unlike the triangle in element j, the long vertical triangles proved to not be facing other long triangles.

s successive circular or "round" figures –Object 1032 (fig.111)- especially known in the Sub-Mycenaean and Proto-Geometric pottery, the element was found in both incised and Mycenaean pottery. In some cases these circles could have been impressed before a dot was impressed within the circle. This element is known on other types of material, including the bone horse bit from Toumba Thessaloniki (fig.153), a pin from Kastanas and a metal armlet from Tsautsitsa (fig.72). Even if the idea of placing several circles or semicircles within each other can often be associated with Late Helladic III C pottery (see object 1032, fig.111), the element also occurred in matt-painted and encrusted pottery (fig.142 and fig145). The circles could have been painted with a multiple brush compass in the case of the Sub-Mycenaean and Proto-Geometric specimen (Papadopoulos et al. 1998). In some Early Iron Age cases the impressed circles with interior impressed dots were conjoined by diagonal lines to appear as spirals (object 1098, fig.73). The pseudo-spiral was also well known in the Babadag Culture of Iron Age Romania, where the Danube meets the Black Sea (the Dobruja Region) see Ailincăi 2011: fig. 119).

Figure 72 Decorated stopper, Early Iron Age (Object 1098) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

t "square" motif elements, meanders –Object 1060 (fig.107)- the square motif element is related to k and to q. The element covers meandering square shapes and is known from the incised/encrusted motifs. It can be framed, and resemble later motifs from the Geometric pottery (for examples, see Kleiner and Mamiya 2005: fig.51; Gimatzidis and Tiverios 2010: pl.24.204.a). The meander is also found in Late Bronze Age Tei pottery (fig.79) and other encrusted ware cultures along the Danube, for example in the Verbicioara C©ulture (Nica 1996: fig.11).

u spiral –Object 792 (fig.135)- a spiral is an element that includes any shape that resembles a curved band or line moving towards a point, constantly receding or revolving. Spirals are known in various forms in incised/encrusted, matt-painted and Mycenaean pottery. In the wider Bronze Age world this element was also well known on metals. The spiral covers much variation, and can be found hanging or in frames. Pot hooks and S-spirals are variations of the spirals and there are known examples of the curved line of a pot hook revolving in towards a central point.

v spiral lined with dots –Object 1158 (fig.131)- proved superfluous as element e (curved dotted line) tended to follow other solid lines.

Figure 73 Circular designs on different object types: armband and pin (Object 1128 and 1090) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

w zigzag or wavy lines – (see Hochstetter 1984:pl.1.9) - any shape which represents a line that moves up and down either in an angular or curved manner. In mathematics, the zig refers to a line element that moves diagonally to the left while the zag moves to the right in a constant motion. While the degree of angularity differed, it could be contended that both angular and curved versions could have expressed the same idea.

x cross –Object 158 (fig.144)- refers to shapes that resemble two lines, one horizontal and one vertical, crossing each other. While a certain degree of straightness of the lines would be required for something to be a cross rather than an X, some leeway was given as elements with a "cross-like" nature were grouped into this category. The cross could appear in encrusted motifs as well as Mycenaean ones, sometimes framed by a circle; matt-painted variations also occur.

y X motif element -715 (fig.118)- the X-motif element refers to two diagonal lines crossing each other. This element has many variations, and is occasionally found within Mycenaean and incised/encrusted variations. It could be repeated several times in a row forming a band, or it could cover a base, as with object 715, perhaps created by imprints of a mat onto which it was placed when it was made. The motif element extended across the surface of the pot and thus transferred heat faster (see Edens 1999: 109), yet there are no signs of soot on the preserved fragment. It could thus be a remnant from the production process, which even if unintentionally made, left a mark.

Figure 74 Top: Star motif with triangle, line and impressed dots (Object 851 – Toumba Thessaloniki) Bottom: Double Axe motif Hagios Kosmas, after Mylonas (1959: fig.72) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

z single dot -1060 (fig.107)- refers to a singular dot, whether impressed or painted, square or round. This element could complement a hanging triangle or a spiral, and in some instances seem to be painted or impressed by mistake. It can also serve as an infill for a k element.

aa curved tassel band -296 (fig.135)- similar to element p, but curved. It is most common in encrusted variations.

bb anemone -294 (fig.94)- as described above, the rosette refers to a specific element known from both the Mycenaean and matt-painted assemblage: a central dot encircled by several other dots.

cc circular -787 (fig.94)- refers to a circle or an oval shape; a basic geometric feature. Semicircles were also added to this category. Circles can also be impressed.

dd dots –Object 851 (fig.74)- a 'cloud' of impressed or painted dots, often surrounding another element.

ee pothook –Object 1015 (fig.139)- the pothook is a curved line arching from a line and similar in appearance to a fishhook. It appears in many combinations on matt-painted, Mycenaean and incised/encrusted pottery. It can project from a triangle or a square, and is one of the most common categories of decoration. An interesting example of a rope decoration pothook was retrieved from Late Bronze Age Axiochori (object 1109, fig.128).

ff S-spiral –Object 940 (fig.127)- is composed of two spirals forming an S. This motif is common in matt-painted, Mycenaean and incised/encrusted motifs, standing or laying, framed or in panel. The S-spiral can be found in conjunction with other elements like triangles. It was present in graphite motifs in Central Macedonia since the Late Neolithic.

gg star fish –Object 21 (fig.145)- The star fish motif element, well known in matt-painted and Mycenaean motifs, consists of two or more crossing s-spirals or a dot from which pot hooks project.

hh coat – a painted cover known especially from the Mycenaean assemblage.

ii star –Object 851 (fig.74)- The star motif element is a combination of triangles or curved zigzag lines that forms what seems like a star. This is a motif that is found chiefly amongst encrusted pots.

jj spilled paint - mostly found in the matt-painted motifs, executed with less stringency than Mycenaean pottery.

kk double axe – an axe with two blades was a well-known Mycenaean motif (M 35) (fig.74) as well as the sign for the a sound in Linear B. Exceedingly rare in the realm of decorated pottery, it was however recurrent as an object especially in the form of pendants from the Iron Age at places like Vergina (Andronikos 1969: fig.87) and in the Balkans (e.g. Sandanski, Bulgaria, see Alexandrov et al. 2007: fig.2).

ll right-left hatches –Object 467 (fig.75)- is a basic infill for triangles in all types of decoration, whether incised or painted, consisting of a series of parallel diagonal lines being drawn from right to left.

mm left to right hatches –Object 467- similar to element ll, but the parallel lines in this instance would be drawn or painted from the left to the right.

nn - deleted

oo angle fill (successive triangles) –Object 311 (fig.75)- a fill which consists of several triangles placed successively inside one another. It is known from most painted and incised types of decoration as it is one of the most common infills.

ia inapplicable – objects with no decoration

spd special description – an element or shape that needs a further detailed description.

Figure 75 Triangles with hatches and angle fill (Object 467 and 311) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

8.1.1 Preliminary Remarks

Some interesting remarks can be made in regards to which decorative elements occur on the different types of decorated pottery (see fig.76):

- Matt-painted, Mycenaean and encrusted pottery appear to share most of the decorative elements. Yet, the elongated triangle l does not appear in Mycenaean pottery.
- The encrusted and the matt-painted pottery had much in common when it came to combinations of certain elements, and these types may have been connected to a different kind of aesthetic logic based on what consumers and crafters deemed suitable.
- Frames are used in encrusted pottery, but not Mycenaean, where the panel is used to organize the other elements into motifs. The anemone motif element is shared in Mycenaean and encrusted pottery, but not matt-painted.
- Between matt-painted and Mycenaean pottery, the star fish is shared, but this motif element was only incised in the Early Iron Age and the Early Bronze Age (see Heurtley 1939: cat.278, after Rey 1919: fig.29), not the Late Bronze Age.
- While the types of decorated pottery had motifs built up by different elements indicating connectivity, there was also disjuncture.
- Regionally matt-painted dot filled triangles are encountered at Toumba Thessaloniki but not in the Lower Axios Area, conforming to Horejs' (2007C) micro-regions (mainly defined by preferential use of motifs).

This shows that even if the pots were made with different technologies and had different shapes, the elements with which motifs were built resembled each other. The design of the motifs were inspired by the same "aesthetic universe". The nature of the links between the types of decorated pottery and the manner in which the motifs were executed is the subject of more detailed studies below (ch.10. and 11.).

Elements	Encrusted	Mycenaean	Matt-painted	Sum
a horizontal line	1	1	1	3
n diagonal line left-right	1	1	1	3
b curved line	1	1	1	3
m diagonal line right-left	1	1	1	3
c vertical line	1	1	1	3
u spiral	1	1	1	3
cc circular	1	1	1	3
g vertical hanging triangle	1	1	1	3
e curved dotted line	1	1	0	2
p tassel band	1	0	1	2
s successive circular or "round" figures	1	1	0	2
w zigzag or wavy lines	1	1	1	3
z single dot	1	1	1	3
dd dots	1	1	1	3
ee pothook	1	1	1	3
oo angle fill	1	1	1	3
d dotted line	1	0	0	1
f rectangular or quadratic frame	1	1	1	3
k angular geometric shapes	1	1	1	3
o lattice	1	1	1	3
q checkers and grids	1	1	1	3
x cross	1	1	1	3
aa curved tassel band	1	1	0	2
ff S-spiral	1	1	1	3
h horizontal triangle	1	1	1	3
t "square" motif elements, meanders	1	0	0	1
y X motif element	1	1	0	2
bb anemone	1	0	0	1
hh coat	0	1	0	1
ll right-left hatches	1	0	1	2
mm left to right hatches	1	0	1	2
i horizontal facing triangles	1	0	0	1
j hourglass (vertical facing triangles)	1	0	1	2
l elongated vertical triangle	1	0	1	2
jj spilled paint	0	1	0	1
v spiral lined with dots	0	1	0	1
gg star fish	1	1	1	3
ii star	1	0	0	1
kk double axe	0	0	0	0
r long vertical facing triangles	0	0	0	0
Sum	**35**	**28**	**26**	

Figure 76 Occurence of motif elements on encrusted, Mycenaean and matt-painted pottery and a summary of how often the motifs are utilized in various types of decorated pottery (Sum – right column). The amount of motifs are also summarized (Sum – bottom row).

9.0.0 Minyan Pottery and Southern Contacts

An early Middle Bronze Age Aegean impulse that reached Central Macedonia, Minyan pottery (fig.77) is a good place to start a survey of "international" types of decorated pottery – even if the morphology and production is more conspicuous than the decoration when it comes to Minyan pottery with its smooth surfaces. While there is evidence of earlier pottery connections, the Minyan pottery represents the entry of Central Macedonia into a larger sphere of interaction. Trade and subsequent appropriation of worldly dining habits also meant that the Bronze Age world was included in the worlds of Central Macedonia's dwellers. Increased trade could be one factor behind the explosion of settlements in the Late Bronze Age. Minyan pottery and its localization may represent a prelude to this rise, and Andreou and Psaraki (2010: 1000-1001) suggest that the introduction of Minyan and Minyan-style pottery (e.g. s profile bowls) was the beginning of diacritic feasting practices.

In the Middle Bronze Age (ca.2010-1700 cal.BC, Hagios Mamas layer 17-10), innovations like wheel made Minyan pottery and mud brick architecture were introduced at Hagios Mamas (layer 17 and 16 – 2010-1960 cal.BC and 1960-1910 cal.BC), coexisting with a local pottery. The Minyan pottery reached a peak in layer 13-12 (1860-1775 cal.BC) before declining and disappearing (layer 10) (Aslanis 2009: 40; Horejs 2007B: 189; Hänsel and Aslanis 2010: 280). The Middle Bronze Age yielded little architecture at Torone, but the kiln and the potter's wheel were adopted – as well as Minyan pottery (Papadopoulos 2001: 279-280). This connection was less apparent in the Lower Axios Area. Until the German excavations at Hagios Mamas, Minyan pottery was the only criteria for defining a Middle Bronze Age in Central Macedonia, and for this reason the period is scarcely known west of the Thermaic gulf. This was already pointed out by Heurtley (1939: 89), who noted that only a few Minyan sherds were identified at Limnotopos and Axiochori. French (1967) collected Minyan sherds from Dourmousli, Toumba Livadhi and Toumba Kouphalia. Minyan pottery have also been found at Kastanas (Horejs 2007; Horejs 2007b; Hochstetter 1984: pl. 2.10).

The Minyan pottery was well-known in the Aegean, and has also been found in the Shaft Graves and Troy. Previously it was associated with an invading horde (Sarri 2010: 604). The Middle Helladic society in Southern Greece with which the Minyan pottery is most often associated was often believed to have been stagnant, but is now increasingly seen as a precursor to the emergent Mycenaeans (see Voutsaki 2010). Voutsaki (2010: 107-108) proposes that the expansion of the international networks in the first half of the 2nd millennium was exploited by clever elites who then began expanding their power. Thus, the formation of elites was not an outcome of slow accumulation, but of the exploitation of networks opened by the Minoans (Voutsaki 2010: 107). These reached across the Eastern Mediterranean, even to the North Aegean reaches of Troy, Samothrace and Thracian Drama (indicated by finds like Linear A inscriptions at the mentioned sites and Minoan roundels at Samothrace; Woudhuizen 2009: 6;

See printed book for this image.

Figure 77 Minyan pottery from Kastanas

Weingarten and Hallager 1993: 1), Egypt (where the Cretans were known as Keftiu; Panagiotopoulos 2001) and the Levant. This is evident in new isotopic studies of metal objects from graves near Sidon in the Levant, the composition of which had some unexpected overlaps with ores from Crete (Véron et al. 2011: 73).

Variations of Minyan pottery include Yellow Minyan, which is an oxidized version of Gray Minyan, and Black Minyan, often referred to as Argive Minyan. Minyan pottery does not represent one tradition, but several regional ones (for an overview, see Pavúk 2007; Pavúk 2007B). Kilian (1976) identified local imitations in the Morava Valley, although it should be mentioned that Minyan pottery remained largely a coastal phenomenon. Shapes like stemmed goblets and kantharoi were also employed by, for example potters making matt-painted vessels. Distinctive features include high swung handles on goblets. Grey Minyan pottery was introduced in what could seem a bourgeoning potting milieu in Southern Greece as one of many competing decoration types. Opposed to this, decorated pottery was relatively speaking scarcer at, for example Kastanas in Central Macedonia (the Middle Bronze Age at Kastanas was largely a hiatus, see Hänsel 1989). The import of pots, and subsequently pot shapes (but not production techniques) indicates a connection which specifically directed itself to the Mycenaean mainland. Seals with Linear A inscriptions have been found at Samothrace and in Bulgaria (Chrysanthaki and Papadopoulos 2009: 9), but not Central Macedonia and the Lower Axios Area or Chalcidice. Thus, Minyan rather than Minoan pottery reached this part of Northern Greece, even if the Minoans

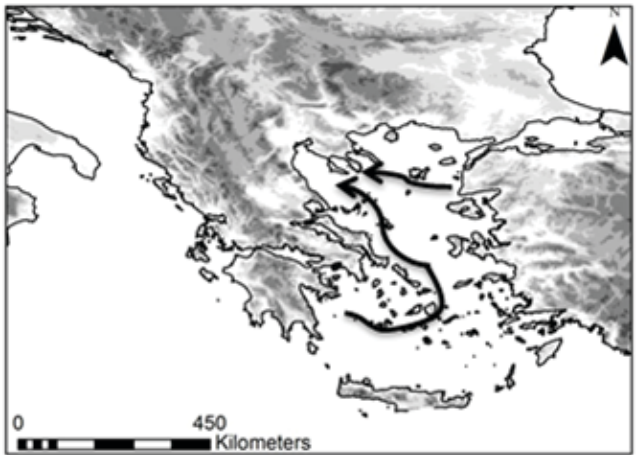


Figure 78 Minyan pottery, an Aegean type copied in Central Macedonia, mainly in Chalchidice (VMAP 5 and SRTM).

may have engaged with people from the North Aegean (see Woudhuizen 2009).

The short supply of Minyan pottery in the Lower Axios Area, and the stronger appearance at Chalcidice is an expression of division within Central Macedonia (see Heurtley 1939: 89). While there is a Middle Bronze Age hiatus at Kastanas, Angelochori, a site in Giannitsa, shows the continuity of early potting traditions until ca.1900 BC defined by the production of, for example two handled cups and jars, amphora and pithoi with rope decoration (Papadopoulou et al. 2010: 977-978). Koukouli-Chrysanthaki (1978) could show relatively early on that the transition from the Early to Late Bronze Age was blurred and questioned the division of the Greek Macedonian Bronze Age. Some subtle changes in the transition from the Early Bronze Age include the disappearance of the incurved rim bowl and an increased use bowls with the S-profile (Aslanis 1985: 193; see also Andreou and Psaraki 2010). The Aegean connection evident at Chalcidice is largely lacking in the Lower Axios Area.

At Hagios Mamas, the "rötliche keramik" signifies the Middle Bronze Age (Horejs 2007B: 186) and co-existed with wheel made Minyan pottery (Aslanis 2009). This site yielded substantial finds dating to the Middle Bronze Age. Minyan pottery was imitated here and made without the help of the potter's wheel at a greater scale in layer 13, outcompeting the Gray Minyan pottery (Horejs 2007: 204). Minyanizing pottery is found at Toumba Thessaloniki although the imports are almost non-existent. According to Andreou and Psaraki (2010) the former category includes s-curved bowls with two handles and represents a shape shared with Minyan pottery made with local techniques. Horejs noted that some Minyan pottery had clay bosses imitating metal rivets, and thus exhibiting skeuomorphism (Horejs 2007: 207). Imitation not only connected the Minyan pots with metal, but also inspired the production of a local imitated handmade variant (Horejs 2007: 211). Andreou and Psaraki (2010: 1000-1001) suggest that the introduction of Minyan pottery at a few sites may have spurred the conspicuous Late Bronze Age habits of dining with fine pottery linked to other regions at diacritic feasts.

In that sense the introduction of Minyan pottery was a significant stride: it is seemingly a move towards the Aegean rather than the Balkans. While the transfer of objects and shapes could come through trade and travels as illustrated by the Uluburun ship (see ch. 4.1.5), the transfer of decorative techniques depended on a teacher-student relationship and receptivity towards foreign taste (above, ch.3.5.0). The Minyan pottery may mark the start of the practice of including foreign objects in local assemblages, most notably through imitation of looks rather than techniques – the potter's wheel was not yet widely adopted. The reason for the appearance of the Minyan pottery (imported and copied) and the skeuomorphism (Horejs 2007: 207) may be related to trade: a lead isotope analysis of the silver objects in the Mycenaean Shaft Graves indicated a match with ores in Chalcidice (Cambitoglou and Papadopoulos 2001: 63-64). The Minyan pottery reflects a link to Thessaly and possibly Argolis (Horejs 2007: 211), and could have enabled metal-seeking southerners to serve Central Macedonian suppliers in a manner that directed attention towards emergent Mainland elites (see S. Morris 2009: 265). During the period 2000-1700 BC, silver was the currency in major networks like the Old Assyrian Anatolian merchant empire (Larsen 1976: 104). Another possible commodity is fine textiles, indicated by early production of purple dye at both Toumba Thessaloniki and Hagios Mamas (Andreou and Psaraki 2010; Becker and Kroll 2008: 157).

Some parallels to the Macedonian case could be found in Thessaly. Like in Central Macedonia, the connections (pottery production and use of "foreign" types of decorated pottery) were restricted to certain coastal areas (resembling the relationship between the Lower Axios and Chalcidice). Maran (2007: 174) posited that Minyan pottery had a strong position from the Middle Helladic I period which it retained in the Middle Helladic II period, now in combination with newly introduced Aeginetan matt-painted pottery. In part, this transfer was related to the trade of goods carried in "international" pots, but this connection led to a more profound cultural change as aspiring groups within society emulated the manner in which people across the Aegean prepared and consumed food. Maran (2007: 175), like Andreou and Psaraki (2007), suggests that the feast is about more than satiating hunger and thirst. It is an arena of social boundary making, of exclusion and inclusion of group members and signaling a particular status through selection of certain pots ("diacritical feasts"; Maran 2007: 175; Dietler 2001: 88; Andreou and Psaraki 2007). In the Thessalian case, the desirability of the "foreign" pots was linked to their co-presence in political centers in the Middle Bronze Age, for example Aegina (Maran 2007: 176).

Expanding southern centers did not only leave a mark south of Olympos in Thessaly, but also connected Chalcidice to their networks (see S. Morris 2009). The implementation of new mud brick architecture could indicate that traders may have stayed for a period as the Late Bronze Age dawned. Thus, the roots of a multi-ethnic community may be found in the Middle Bronze Age. Pavúk (2007B: 305) notes that the technological difference between the local Minyan pottery and the grey ware was so great that the existence of the latter may indicate the presence of other people; a parallel to the later transfer of Mycenaean potting (Garrigós et al. 2003; Kiriatzi et al. 1997). Its persistence may be indicated by the continued use of Minyan pottery in Central Macedonia, where this type

"lagged on" (Horejs 2007) while Grey Minyan died out in the Late Helladic I-II period in Southern Greece. Notably, parallel to the Macedonian developments, the Anatolian Minyan version also continued to be produced (Pavúk 2007B: 296) while the imported ware also died out. It is likely that the first makers of the Grey Minyan pottery brought pots and taste to Chalcidice to get silver for their trading network; this gave rise to the re-combination practices discussed in chapter 7 which allowed for integration of "foreign" types of decorated pottery in an assemblage which also (mainly) included existing local types rooted persistent traditions. For the Mycenaean traders, who may have been representatives of a system which rose from a Middle Helladic context of elite culture, Central Macedonia was not *terra incognita*. The Late Bronze Age increase of settlements may be related to a growing prosperity which came with trade. Initial metal trade could have spurred other types of trade, for example dyed textiles.

10.0.0 Encrusted Pottery

A technique often associated with the Balkans, encrusted ware pottery precedes matt-painted and Mycenaean pottery in the Lower Axios Area. Encrusted pottery is defined by its incised lines filled with white or pink paste, the white being predominant in earlier layers at Kastanas (Hochstetter 1984: 65). Typical encrusted pot shapes include the globular kantharos, wishbone handled bowls and four-handled amphora, the latter two typically brown burnished shapes. Juglets and bowls, as well as rare shapes such as tripod stands (Pilali-Papasteriou and Papaefthymiou-Papanthimou 2002: fig.7) and other clay objects such as whorls can be encrusted. While Early Bronze Age pots could be decorated with encrusted motifs (e.g. Cambitoglou and Papadopoulos 1991: pl.24.2), I focus on Late Bronze Age encrusted pottery, which has been connected to Balkan and Central European cultures (Wardle 1975; Hochstetter 1982; Hochstetter 1984; Horejs 2007; Bulatović 2011), confirming older hypotheses (Traeger 1902; Casson 1968: 132). The motifs have been carefully mapped and a common encrusted koiné has been defined between the North Aegean shores and the Danube by Koukouli-Chrysanthaki (1992: 820). In this chapter I will go through the characteristics of the encrusted pottery and its distribution in time and space (ch.10.0.1-10.0.2) and pursue five cases which highlight mobility aspects at a detailed level and discuss what kind of movements these similarities rested on (ch.10.1.0-10.1.5):

10.1.0 – The connection between encrusted spindle whorls across Central Macedonia, and their ties to matt-painted, Mycenaean and encrusted pottery. This weaves together these types, along with the activity of spinning.

10.2.0-10.3.0 – The manner in which incisions are made show how similar techniques were used at different sites 1) in the Lower Axios Area, and 2) farther afield in the Balkans. Recent surveys of encrusted pottery from Hungary show that encrusted pottery rarely moved (ch. 10.0.1). It can then be assumed that people moved with skills to produce the incisions to be filled with encrustation paste. People also brought pots with them, as is evident at the Zimnicea burial site (Dimitrescu 1973). In Central Macedonia, pots could have carried goods for a feast brought by guests from near and afar. The technique may have moved via intermarriage within the region.

10.1.4 – The spiral with dotted outline motif is common in Central Macedonian encrusted pottery and in the Gîrla Mare Culture. Slight differences in the execution show that even if the pot design was co-present the pots travelled within regions primarily, but may have inspired people from different regions and spurred imitation. In Central Macedonia such inspiration also flowed to potters working with other types of decoration. Traders from the North may also have brought with them goods, and members of trading bands could have stayed for a while in Central Macedonia transmitting knowledge.

10.1.5 – In this case I look at a single object, a globular kantharos, and how different decorative elements and techniques bridge the different types of decorated pottery and thus collect the Bronze Age World onto a single vessel surface.

These cases complement each other, and allow for an exploration of key aspects related to the encrusted pottery in regards to long- and short distance mobility.

10.0.1 Encrusted Pottery in the Balkans

Encrusted pottery is little known in the Mycenaean realm of Southern Greece in the Late Bronze Age, but is a key decoration technique in Central Europe and the Balkans. Encrusted pottery shapes in the Late Bronze Age in Bulgaria include the globular kantharos which became well-known across the Balkans (Krauß 2006). The kantharos, with high-swung handles, is found in both open and closed globular shapes (see Horejs 2007), providing an opportunity to consume and store liquids. Some had imitated rivets on the handles (Horejs 2007: 120), and like Minyan pots displayed a skeuomorph connection to metal (ch.9). The open version was known in the late Monteoru Culture of the eastern Romanian reaches of the Danube in the period 1700-1500 BC (Palincas 2010B: fig.7.3a). In these northern areas, both mud brick architecture and Minyan or Mycenaean pottery are exceedingly sparse although Mycenaean swords appear in the Carpathian Basin (Kristiansen and Larsson 2005). Minyan, Mycenaean and encrusted pots are found in Central Macedonia as well as mud brick architecture, indicating differences between encrusted ware-using societies.

The encrusted pottery of Central Macedonia was part of a larger phenomenon, to which it was mainly connected through techniques and pot shapes (Wardle 1975: 211-212). Hochstetter (1982: 108) found parallels to the Bronze Age cultures of Bulgaria and Romania (Čerkovna, Tei (fig.79), Verbicioara, Coslogeni and Wietenberg) as well as the Iron Age cultures (Cepina, Pšeničevo, Čatalka, Rabiša, Babadag and Ostrov) with Kastanas as a vantage point. Hochstetter (1982: 116) connected Kastanas to areas as far north as Romania through encrusted pottery in the Bronze Age. Fluted pottery is later found all the way up to Slovakia, largely along the same path as the encrusted pottery (see Bulatović 2009). Horejs (2007: 80) emphasized the Axios route north, with Klučka Skopje as an intersection point between Central Macedonia and the Paraćin group, and in extension the Danubian cultures of the Central and Northern Balkans, which thus must have been in use in the international period.

Beyond techniques, pot shapes are also largely shared along this northern trajectory. The co-presence of amphora has been mapped by Hochstetter (1984: fig.60) and more recently Horejs (2007: 158 and fig. 102); it shows a distribution which reaches all the way up to the Lower Danube in Bulgaria and the Serbian Morava Basin which connects with Bulgaria to the east and north with the Central European plains and the Carpathian Basin. Horejs (2007: fig.53 and fig.66) also shows that a similar range is obtained by the globular kantharos and the wishbone handle bowl. In Serbia, the Paraćin group, which formed in the 15th century BC, included four-handled

amphora and kantharoi with encrusted motifs similar to those from Macedonia (Stojić 1997: 61). Bulatović (2011: fig.1 and fig.2) mapped encrusted globular kantharos as far north as the Southern Carpathians, and draws a line from the Morava Basin to Central Macedonia where he proposes that migrants may have spread from the North in the 15th century BC.

While not encrusted, the pyranous exhibits a similarly large distribution (Horejs 2007: 153; Horejs 2005) even reaching as far north as Slovakia (Hochstetter 1984: 147). In the Carpathian Basin, the pyranous had its roots in the Middle Bronze Age (ca.2000-1500 BC). In the Encrusted Ware-using Vatin Culture (1700-1400 BC; Stojić 1996: 254), Gîrla Mare Culture (ca.1550-1350 BC; Palincas 2012: 13), and the later Serbian Belegiš Culture (contemporary with Žuto-Brdo-Gîrla Mare) the pyranous was also used as a grave good (Fischl et al. 2001: 128-129). This shape was produced from layer 13-4 (Middle Helladic III-Late Helladic IIIB), peaking in period 7-5 (Late Helladic IIA-Late Helladic IIIA) at Hagios Mamas (Horejs 2007: 150); it was also in use throughout the Late Bronze Age and Iron Age at Kastanas (Hochstetter 1984: 157). Late Bronze Age encrusted pottery shows a strong Balkan connection, which can be tied to consumption, transport and storage of both prized produce (globular kantharos) and staples (four handled amphora) (see Wardle 1975; Hochstetter 1984; Horejs 2007). It should, however, be emphasized that the households in Central Macedonia, unlike their northern peers, also used matt-painted and Mycenaean pottery and lived in mud brick houses. The spread of encrusted pottery did not lead to a homogenization of burial customs and settlement forms, but impacted most evidently on storage and consumption practices through its integration.

Encrustation techniques are especially connected with the Wietenberg Culture in Romania (ca.1800-1200; Boroffka 1994), although much of the pottery does not have the encrustation paste preserved. Many of the motifs of the Wietenberg Culture have Aegean parallels, for example spiral decorated hearth plates known in both the Wietenberg Culture and the Palace of Nestor (Hänsel 1982: 24; see Blegen 1957: fig.7). Although the dates may not match, and exact details differ between the two plates, they are nevertheless very much alike. Between Central Macedonia and the Carpathian Wietenberg Culture, diverse Balkan complexes of Dubovac, Žuto-Brdo in Serbia; Cîrna and Gîrla Mare in the Romanian Banat; or Orsoja and Balej in Bulgaria existed along the Danube (Tasić 2005: 11; see also Bolohan 2003: 100-102) (see fig.80). Encrusted pottery and kantharoi were prolific amongst these, but as in the Carpathian Basin, these groups did not live on terraced tells in mud brick houses. Bankoff and Stefanovic (1998), along with their team, discovered a large square building at Kamenska Čuka in Southern Bulgaria with some quantities of encrusted pottery from the Late Bronze Age and Early Iron Age with close similarities to that found in Central Macedonia (triangle motifs, cutaway neck jugs, four handled amphora and

Figure 79 Tei encrusted techniques and motifs (after Leahu 1966: fig. 8 and 10).

globular kantharoi). This community did use mud bricks as a building material for their small stronghold, but there are no indications suggesting that Mycenaean pottery had a role at Kamenska Čuka. A kylix has a shape with resemblance to a Minyan goblet (Bankoff and Stefanovic 1998: fig.28), but apart from that and the mud brick architecture, few finds direct attention south beyond the Macedonian shores. Because of its strategic position and contact with Central Macedonia (evident in the encrusted pottery), the excavators suggested that the site played a role on a northern route from the Aegean (Bankoff and Stefanovic 1998: 279). The question then remains how encrusted pottery spread – was it through migratory movements (Bulatović 2011), everyday contact in a communication room (Horejs 2007: 80), or through trade?

In regards to trade as a catalyst for the spread of encrusted pottery, the Hungarian case may be enlightening. The encrusted pottery of more northern locations such as Hungary has given the name to the Encrusted Ware Culture of the Hungarian Middle Bronze Age (ca.2000-1500BC; Stig Sørensen and Rebay 2008). Centered near Lake Balaton in a hilly region of Hungary, the Encrusted Ware Culture thrived in the Middle Bronze Age, ca. 2000-1500BC. This culture was traditionally believed to be nomadic, but the discovery of the large settlement of Kaposvár-Toponár contradicts this theory (Sørensen and Rebay 2008: 53; Kiss 2003; see also Kiss and Kulcsár 2007: 110-111). The encrusted pottery is found in both graves and at the settlement; it is proposed to have been exported to the neighboring Vatya Culture. Often thought to have been a commodity in itself, encrusted pottery was recently approached with science based methods. The paste turned out to include bone, and much of the encrusted pottery was likely to have been produced locally (Roberts et al. 2008).

If the Encrusted Ware Culture pottery was largely locally produced, but the motifs, production and decoration techniques and shapes were shared in a relatively large region, it must mean that people moved, transmitting skills and knowledge. In Central Macedonia some pots can be defined as imports (most notably the Vatin Jug from Hagios Mamas; Horejs 2007: 287), perhaps carrying prized produce, while skills and knowledge moved with the transporters. The peoples using encrusted wares also had the same type of cooking pot, the pyranous (see Fischl et al. 2001), indicating an everyday contact (see Horejs 2005). A dual movement which included trade and more local interaction, for example intermarriage, could be the factor behind the spread of techniques and shapes including amphora for storage and transport of staples; kantharos for possibly finer liquids; wishbone handled bowls for consuming and pyranous for cooking – the two former related to trade, the latter to consumption and perhaps short distance movement. Trade, as evident in the case of the Uluburun ship (see ch.4.1.5), led to the movement of diverse groups which could include warriors, crafters, traders and envoys (see ch.4.1.5) possibly also amongst them people with some skills and knowledge of potting. Marriage could be a way of sealing a deal or an alliance, and could lead to the movement of people, possibly skilled potters. Dual movements of this kind (long distance trade and intermarriage) could explain the wide distribution of pottery in different cultures. Below I look at how encrusted pottery can shed light on short and long distance contact, and the relation between these modes in case studies (ch. 10.1.0-10.1.5).

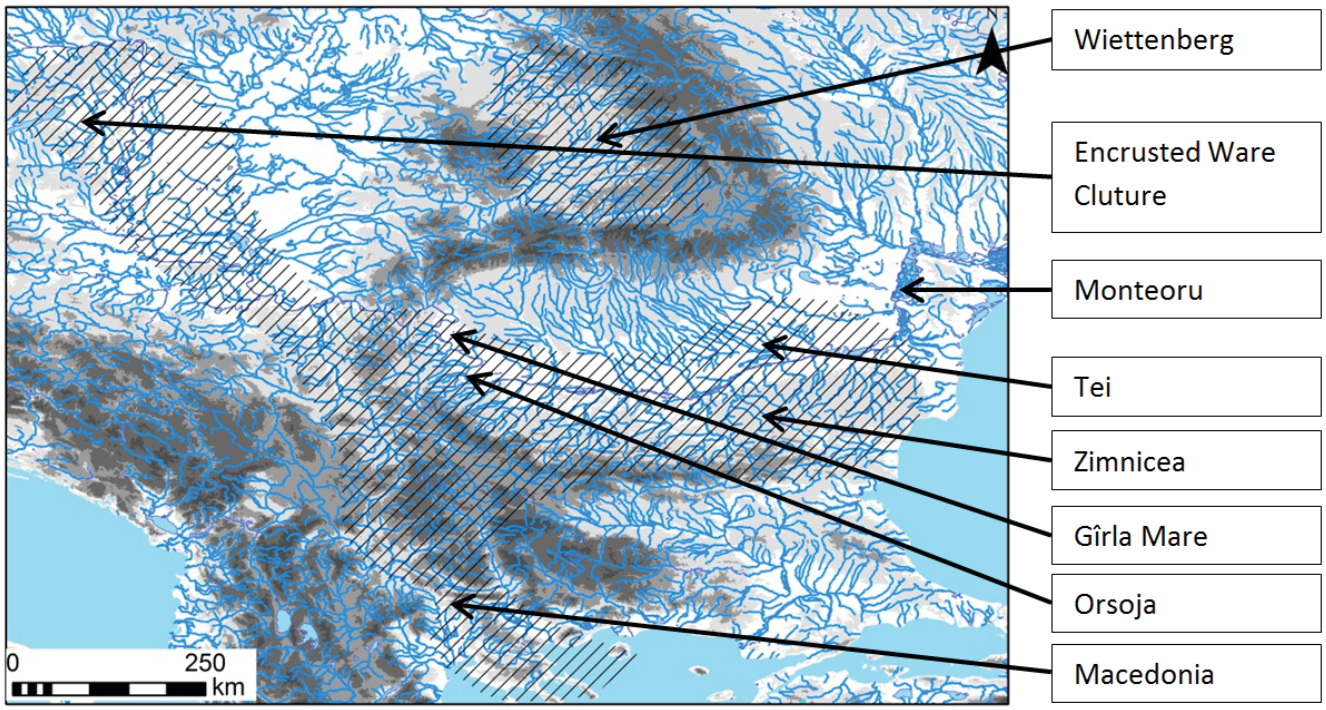


Figure 80 Some Middle and Late Bronze Age encrusted ware using cultures (hatched area) in Hungary and along the Danube, Transylvania and along the Axios (VMAP 5 and SRTM). Figure 80 Some Middle and Late Bronze Age encrusted ware using cultures (hatched area) in Hungary and along the Danube, Transylvania and along the Axios (VMAP 5 and SRTM).

10.0.2 Encrusted Pottery in Central Macedonia: Origins and Distribution

The Macedonian encrusted pottery included a variety of shapes: the archetypical kantharos (fig.102), the wishbone handled bowl (fig.81), four handled amphora, cups, cut away neck jugs (fig.86) and juglets along with less common forms such as the three footed stand from Archondiko (Pilali-Papasteriou and Papaefthymiou-Papanthimou 2002: fig.7; Stefani and Meroussis 1997: pl.149.b). Shapes like the wishbone handle bowls and juglets also appear as undecorated. The handmade burnished wishbone handled bowl is an emblematic shape of the Late Bronze Age of the Greek Macedonian provinces, with a distribution as far north as the Danube (Horejs 2007).

Figure 81 Encrusted wishbone handle bowl (Object 845) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

At Hagios Mamas the encrusted pottery is scarce and appears only sporadically in the beginning (layer 13), and subsequently more frequently throughout the rest of the settlement history (layer 10-) (Horejs 2007: 71). Off the Eastern Macedonian coast at Thasos, an encrusted pottery assemblage contemporary and comparable to that of Kastanas was found (see Koukouli-Chrysanthaki 1980; Koukouli-Chrysanthaki 1992). The first encrusted pottery at Toumba Thessaloniki was introduced at the dawn of the Late Bronze Age (Andreou and Psaraki 2007: 138). In Western Macedonia, the dwellers of Archondiko produced encrusted pottery before matt-painted pottery in the first half of the 2nd millennium, while the transfer happened almost simultaneously with the introduction of matt-painted pottery at Angelochori, which therefore dates to the second half. In general it seems as if the encrusted pottery emerges earlier than the matt-painted pottery (Meroussis and Stefani 1997: 356). Encrusted pottery is also known from Angista (see Koukouli-Chrysanthaki 1982: 237) and Dikili Tash in Eastern Macedonia (Séfériadès 1983: 671-672), a distribution connected to rivers (the Strymon and the Axios). At the latter site, a clay altar decorated with circular designs and with traces of burning has Carpathian parallels (Séfériadès 1983: 672) in addition to encrusted pottery (see Darcque and Tsirtsoni 2012). In the Balkans and Central Europe the encrustation technique was produced in the 2nd millennium BC. The continuity of northern contact implied by the encrusted pottery could perhaps indicate that people from this region stayed or came regularly to Central Macedonia. Ethnographic examples from the Trobriand Islands show that trade agreements could be sealed with intermarriage (Malinowski 2013: loc.1585). Along the routes of the Kula trade, decorative motifs also spread (Malinowski 2013: loc.2283), perhaps exhibiting a similar process as observed in the Southern Balkans. Metal, salt and agricultural produce could have been key merchandizes.

10.1.0 Encrusted Whorls and Pottery

A range of different objects other than pots were decorated with encrustation too. Encrusted figurines are known in the Danubian Encrusted Ware Culture (e.g. the Dupljaja Wagon; Vasić 2010: 49), but in Central Macedonia the few figurines found so far were painted (for an example of a Mycenaean bovine figurine, see Becker and Kroll 2008: fig. 77). Kiss (2007: 129-128) places the Danubian encrusted figurines in the period 1600/1500-1200/1100 BC. In the North Aegean, spindle whorls could also be encrusted. These were found at Kastanas (Hochstetter 1987; Mauel 2009), Limnotopos (fig.57), Toumba Thessaloniki (Hatziyannaki 2004), Assiros (Wardle et al. 1980: pl.22.e), Toumba Thermi and Perivolaki (see Rey 1919: pl.21) tying together the Lower Axios, the Langadas and the Bay of Thessaloniki (fig.82) and Troy which was farther east (fig.83). In the latter case the technique was the same but the motifs differed as the Central Macedonian whorls do not have any swastika motif elements (see Völling 2008: fig.21.10). The spool, known in the Late Helladic IIIC period from Kastanas and Toumba Thessaloniki is yet another textile production tool connecting Central Macedonia to the Bronze Age world and to the Aegean where it spread fast in the Late Helladic IIIC period (Hochstetter 1987; Mauel 2009; Hatziyannaki 2004; Rahmstorf 2011).

Encrusted pots and spindle whorls were not only connected through decoration techniques but also the choice of motifs which were further connected to other types of decorated pottery. The framed triangle surrounded by impressed dots is recurrent in the assemblage along the Axios and in the wider region and is also present on spindle whorls (fig.83). The combination of these elements on a particular set of artifacts reflects not only shared techniques of the producers but also what the users found appropriate (norms). This scheme is also known from matt-painted pottery at Toumba Thessaloniki (object 957, fig.63), but not in the Lower Axios Area. It is a very basic motif, yet for that particular reason it might be interesting as it connects people and disparate activities such as spinning, weaving, consumption and storage together with sites like Toumba Thessaloniki, Kastanas and Tsautsitsa (fig.84). On the other side of FYRO Macedonian border the motif appeared on whorls during the Late Bronze Age Vardarski Rid (Mitrevski 2005: pl. 4.5).

This inter-object connectivity represents a form hybridism (fig.83). Encrusted ware connected different realms and activities: the technique and pot shapes derive from Central

Europe (red dotted line). The motifs on encrusted whorls (fig.84) are present on matt-painted, Mycenaean and encrusted pots. Encrusted whorls are also found in Troy but with different motifs. Textile tools (see Mauel 2009) co-present in the Aegean were also found in Central Macedonia. It could thus be argued that the whorl draws together 1) textile working, storing and dining, 2) different types of decorated pottery and 3) the Aegean and the Balkans. The use of dotted triangles in matt-painted pottery east of the Gallikos may be reckoned as an expression of slight difference from the encrusted counterparts in the Lower Axios (fig.85) and matt-painted micro-regionalism (below, ch.11; Horejs 2007C). Thus, slight differences of motifs and their expression on similar objects, produced with similar techniques could express affinity within larger groups and simultaneously intra-group differences. A notion explored further below is if there was a larger ethnicity-like structure which could include several polities or tribes (ch.13).

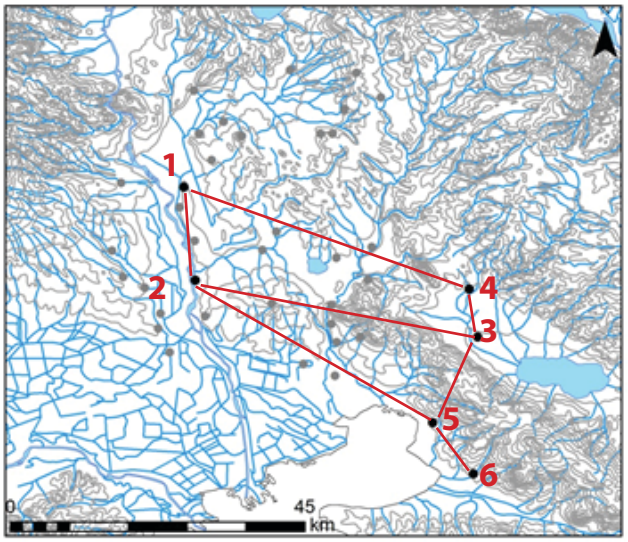


Figure 82 Encrusted whorls found at Limnotopos (1), Kastanas (2), Perivolaki (3), Assiros (4), Toumba Thessaloniki (5) and Toumba Thermi (6) (Eastview vector map, KHM).

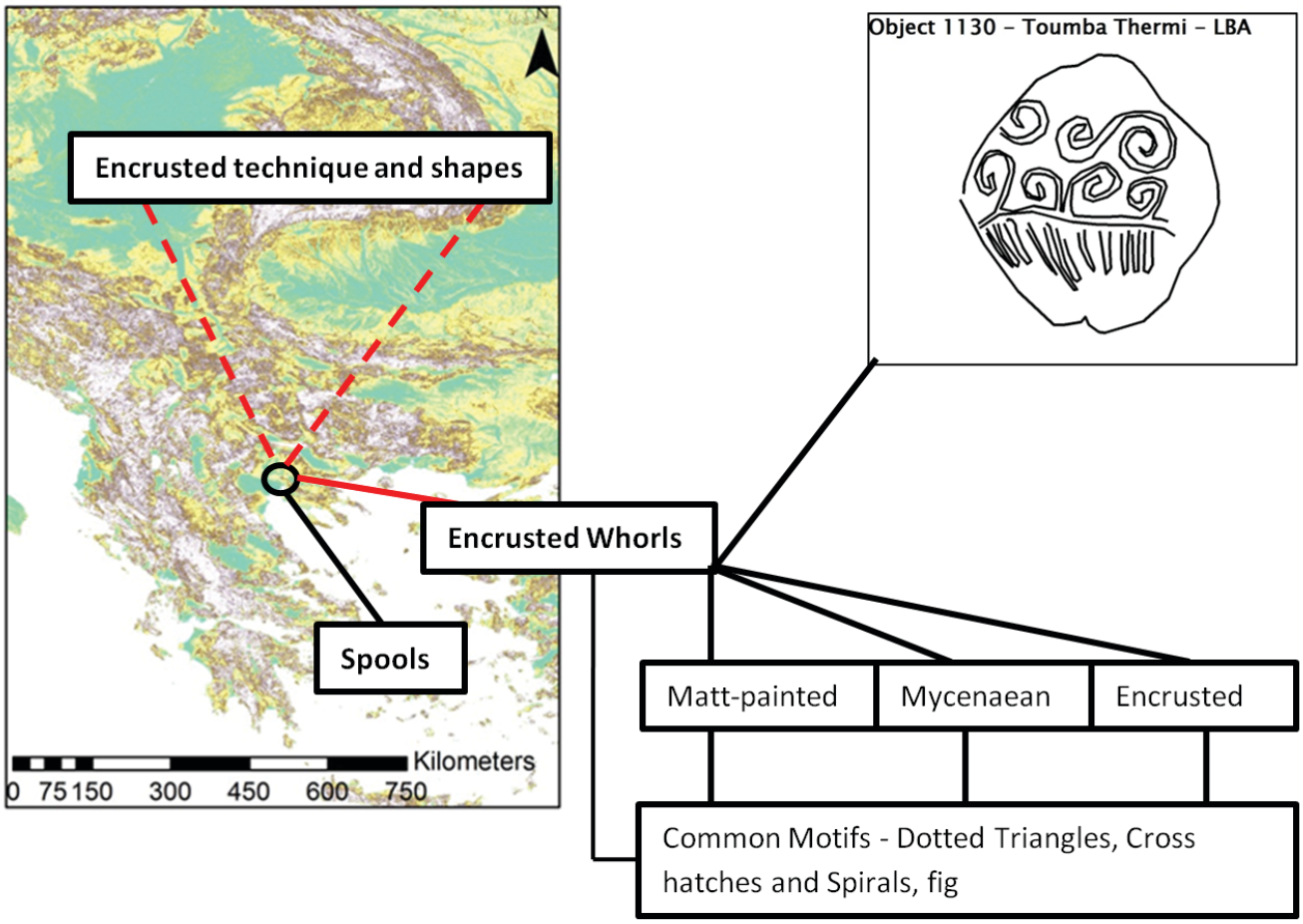


Figure 83 Encrusted techniques connect different types of decorated pottery, regions and activities (e.g. textile working, Object 1130) - Troy and the Balkans, and the Aegean (SRTM) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

Figure 84 A comparison between motifs on encrusted spindle whorls (from top, object 1116, 1120, 1121, 1122 and 1123) and decorated pottery (from top, object 150 - encrusted, 467 – matt-painted, 940 - Mycenaean and 767 matt-painted pottery) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Figure 85 Dotted triangles were normally encrusted, but could be matt-painted east of the Gallikos (object 823, 778, 957 and 947, and jug from Perivolaki; after Heurtley 1939) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Figure 86 Encrusted cut away neck jug (object 1005) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

10.2.0 Motifs and Techniques: Incising Lines in Central Macedonia

A sophisticated type of pottery, there are two main operations involved in creating an encrusted decoration. The encrustation technique involves incising lines on an unfired surface which is filled with a white or pink paste after firing (Wardle et al. 1980: 247). While the paste was either laid neatly into impressed dots or lines, or smeared across wider bands, there are several ways of incising. Narrow round or angular headed styli, possibly of bone, wood, sharp flint, obsidian or thin metal sheet and comb-like tools are examples of what was used (Stefani and Meroussis 1997: 354-355; Becker and Kroll 2008: 162). Incisions could be shallow or deep, and produce narrow lines or wide bands. Heurtley and Hutchison (1926: 16-23) previously defined several styles based on incrustation techniques:

1) Very fine thin encrusted lines drawn with a sharp tool. The lines can be parallel, and the motifs are simple.

2) Encrusted even parallel straight and curved lines and rectangular motifs, partially produced with a comb like instrument. The lines sometimes appear dotted, and according to Heurtley could be drawn by a series of short strokes. Wavy lines and spirals are common as well as lattice triangles and pot hooks. Rectangular bands are also common and can enclose another motif. The clay is coarse while the surface is often smoothed and burnished.

Figure 87 Encrustation techniques (Object 435 A traversing line and 441 C grid) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

3) Lines drawn with a more flexible tool creating more uneven lines. The main difference from the 2nd style was the better levigated clay. Short lines sometimes traverse the bands. A zigzag line could be produced by incised triangles filled with white or pink paste contrasting the smooth surface. Biconical urns and kantharoi are the most common shapes, while the motif elements include meander motif elements, enclosing frames and impressed dots in circles and rows.

Hochstetter (1984: 280) notes that all these could belong in the Late Bronze Age. The Iron Age is distinguishable by shallow non-encrusted incised motifs at Kastanas (Hochstetter 1982: 105). This would mean that in a relatively small area within one period the potting traditions could include several ways of wielding the tools of a varied kit. If the tools were made of flint, metal sheet, bone or wood (Stefani and Meroussis 1997: 354), it would suggest that the potter was a highly networked person as only perhaps wood would be immediately accessible on site. Metal, flint and bone required a connection to local traders and hunters or people from the outside bringing in these goods, and the potters were most likely also in concert with their neighbors.

The vast array of opportunities meant that small differences regarding the manner in which incisions are made reflect tacit choices by the crafter, working within a crafter community and tradition (see ch.8.0.0). Encrusted Pottery decoration techniques provide an excellent case for studying the short distance movement of potters if the difference in how the incisions were made is small. If it is assumed that most of the production was local, and that trade and exchange only led to a lower degree of encrusted pot movement, one must assume that techniques moved with potters (above, ch.10.0.1-10.0.2). Goods transported over land could have travelled in containers of organic material, a scenario which has been proposed to explain the lack of Mycenaean pottery inland in Anatolia (Greaves 2002). By looking at technical execution of incisions in encrusted pottery, networks and the movement of potters can be fleshed out.

The encrusted lines could be relatively thin, but thick bands were not uncommon with both curved and linear motifs as the potter could use a broad tool (below) and traverse this band with different kinds of line segments to make the paste stick. These choices however, would not be visible on the surface immediately after the pot was produced, but would gradually come to light as the pot was used and the white or pink paste in the incised lines or combed bands would loosen and fall off. Until then, the paste would hide the crafter's choices as far as incision technique was concerned in many cases. Underneath the encrustation paste several different techniques could lie hidden. The co-presence of techniques may reflect trade and exchange or the movement of potters, but most likely a combination of both. As a consequence, the traditions at several sites may have merged due to a high degree of crafter mobility in particular areas.

(A: *traversing lines*) A main method of making the paste stick in the broadly incised bands at Kilindir was to incise a band with a comb-like tool, and then incise a series of evenly spaced angular *traversing lines* with a narrow headed stylus or metal sheet (object 435, fig.87). This was the case at the site of Tsautsitsa (object 298, fig.94), and even at Kastanas (layer 17, Late Helladic IIIA; Hochstetter 1984: pl. 258.3 and 268.2).

(**B: *diagonal lines***) Densely spaced *diagonal lines* could also be incised with a comb-like tool (object 448, fig.88). Arouond the Theramaic Gulf this method was in use at Toumba Thessaloniki (object 881, 906 and 935; fig.96), and even further afield at Hagios Mamas (Horejs 2007: pl.144 "*Warengruppe*" 35). This technique may seem quite incidental, but in both cases the potter had to make several choices. These choices, which were similar at different sites, including decisions regarding the use of two tools, a stylus and a comb-like tool, the latter for the band and the former to create slightly diagonal evenly spaced traversing lines.

Figure 88 Encrustation techniques on an encrusted amphora (Object 448 B diagonal lines)(accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

(C: ***grid***) A different choice could have been made even at the same sites, for example to incise the lines straight with more (object 441, fig.87 and 509, fig.93) or less space (object 543 and 545, fig.93) creating a *grid*. This could also be done with the comb-like tool (object 494, fig.93). Outside the Lower Axios environs, this technique was also used at Toumba Thessaloniki (object 835, fig.95). Further afield, the technique of incising grids was in use in the Tei Culture (for direct counterparts, see Leahu 1966: fig.10.8) – which could indicate import of pots or potters.

(D: *traversing band*) Another shared technique is to use a comb-like tool to incise a series of *traversing band* segments, known at Axiochori (object 1059, fig.91), Kilindir (object 427, fig.89 and 433, fig.94), Tsautsitsa (object 292, 297 and 787, fig.94) as well as at Toumba Thessaloniki (object 1003, fig.95).

Figure 89 Encrustation techniques (Object 427 D traversing band).

The cited material represents slightly different ways of performing the same set of operations at different sites within the Lower Axios environs and the neighboring areas. These are also found in Assiros (D. Wardle 2010: communication). In the region, technique D may have been the most common, while technique A, was most common in the cited material in the Lower Axios Area (fig.90).

The manner in which this single operation is performed can be quite similar from site to site (fig.90). Object 756 (fig.57) from Limnotopos and object 395 (fig.91) from Toumba Kouphalia exemplify this as the tool has been used to make shallow rather than deep grooves. Once again parallels can be found nearby at Toumba Thessaloniki (fig.91, object DSC 512). The slight space between the lines of the latter specimen reveal that the decoration was not made with one and the same tool, although a similar comb-like tool was used in all cases meaning that the potters shared the same methods of expressing themselves. This is also the case with object 754 (fig.91), a bowl fragment from Limnotopos, and object 876 (fig. 95) a handle from Toumba Thessaloniki. In both cases a slightly rounded stylus was used to create a series of shallow incisions. This technique is similar to what is found on object 640 (fig.96), a fluted bowl handle. Against the stringency of these techniques the potters could also use the comb to incise a series of overlapping segments to fill bands, rather than to use one movement. This technique could prove useful when the band tapers, for example at the end of a spiral (see fig.106)

These examples illustrate the transfer of techniques in a local area, but could also be wired to regions afar. Such examples could be regarded as imports, or attributed to long distance

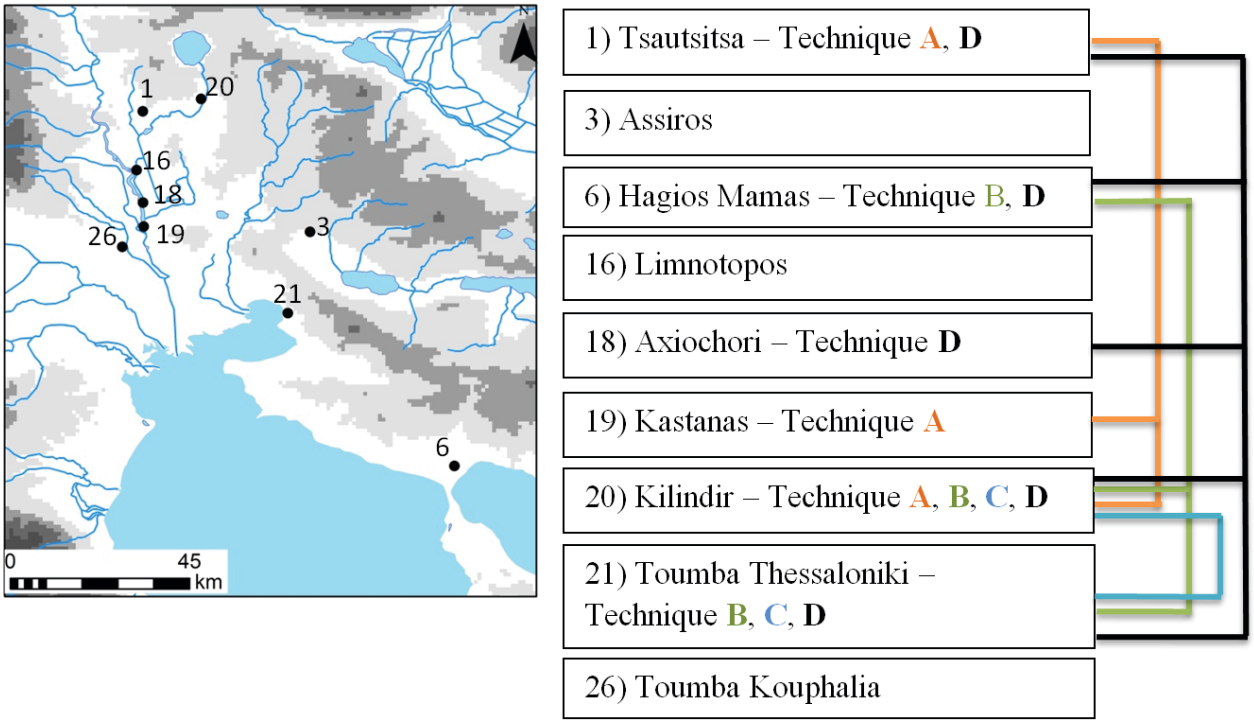


Figure 90 Distribution of techniques co-present in the Lower Axios, the Langadas, Chalcidice and the Bay of Thessaloniki (SRTM and Eastview vector map, KHM).

movement of people. The method of impressing a series of dots forming lines with the stylus is well known in the Early Iron Age from Kastanas and Toumba Thessaloniki, although scarce at the other sites of Central Macedonia. One could also use alternating incised line segments and dotted line segments. The former technique could be exemplified with object 833 (fig.95), a bowl decorated with lozenges on the body and impressed dots on the rim, and object 840 (fig.95), a stopper decorated with an s-spiral and triangle motif. While both these objects may have connections to the Central Balkan Tei Culture (fig.79, above; see Hochstetter 1984: 370), the technique is also used on object 422 (fig.93) from Kilindir. Dotted running spirals with "solid" stems (a monochrome stem) have been identified at Toumba Thessaloniki (fig.96, object DSC 306) and Kastanas, from where a wishbone handle and a bowl from the earlier part of the Late Bronze Age were found (layer 19; Hochstetter 1984: pl. 1.5 and 1.7). A direct counterpart to the sherd in figure 96 (fig.96, DSC 306) was published from Kastanas (layer 17; Hochstetter 1984: pl. 5.7). This technique was also known at Early Iron Age Kastanas (Hochstetter 1984: pl.169.5) as well as Axiochori ("context" VII-9; Heurtley 1926: pl.14.18).

Hochstetter (1982: 110) connects encrustation motifs like the running spiral with incised stem and dotted spiral (an example from Toumba Thessaloniki, fig. 96, DSC 306) to the Bronze Age Verbicioara Group and the Early Iron Age groups of Cepina and Rabiša in Romania. This connection was evident at small sites like Kastanas and big sites like Toumba Thessaloniki. It is evident that the pots functioned in relation to a regional network as this particular type of decoration is also found at Late Bronze Age Saratsé (Heurtley 1939: fig.93). Parallels are once again found in the Tei Culture (fig.79). In terms of motif and the manner in which it is made, the lozenge of object 833 (fig.95) has a close connection to the Tei material published by Leahu (1966: fig 8.3 and 8.9) (fig.79).

Figure 91 Top: object 1059, Axiochori, and object 754, Limnotopos. Middle: spiral-triangle decoration (object 1123 and 840). Bottom, object 395 (left) and 997 (right) display triangular designs incised with a comb-like tool (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

For long distance movement of goods, both donkey caravans and boats were a possibility. River transporters would likely mostly bring storage vessels and caravans in lighter containers of organic materials. In light of Bronze Age ships, a variety of people and pot types could travel by boat (above, ch.4.1.5). If a skilled potter or a pot stayed, skills or, as in the case of Minyan style pottery, taste for a certain aesthetics, could also be transferred (above, ch.9.0.0). Contacts were maintained between regions afar and could possibly be cemented with intermarriage, semi-permanent envoys or a small group of resident traders. People with potting skills may have moved with caravans. Yet, why would their pot styles be welcomed in Central Macedonia and remain relevant?

Firstly, it enabled several communities to serve visitors from the Carpathian Basin and Bulgaria with pots they knew, and thus cement relations with pots atypical in the Central Macedonian assemblage. The assemblages from the houses at Kastanas can be described as mixed, containing pots decorated with techniques from both the Aegean and the Balkans (ch.7.1.5). Since the far flung connections were also reproduced at several sites of different sizes in Central Macedonia, it could well be that contact endured and was re-combined into a mixed dining kit which also allowed participation in local feasting networks. In figure 91 spiral triangle variations are shown on a Central Macedonian spindle whorl and a stopper. The motif is the same, but the stopper is decorated with a technique associated with the Danubian cultures and the Tei Culture (embroidery). In the Danubian tributaries, the motif was also used on encrusted figurines (above, ch.10.1.0). Influxes could travel in local networks evident in the use of comb like tools which were shared at sites in Central Macedonia. Thus, objects could be tangled to long and short distance networks simultaneously.
Pots travel with people, and can serve as inspiration for potters. An interesting case highlights the problems surrounding "alien" objects on the move which can be drawn from the Danubian Zimnicea cemetery. While most of the pottery assemblage consisted of plain undecorated kantharoi, jugs and cups, an individual was buried with a stemmed encrusted cup classified as a Gîrla Mare import (Dimitrescu 1973: pl.10.5). Without strontium analysis one cannot ascertain if this was a "foreigner" who had brought a cup or a local who had returned from a voyage with a conspicuously decorated pot and a new taste. Was the cup brought by a "Zimnicean" traveler who appropriated the cup abroad and valued it to the extent that it followed the person to the grave? In the case of the other pots, the kantharos shape definitely hinted to connections with other areas but still remains in contrast to the other cups with its' encrusted motif. While possibly utilized to express difference, its carrier could still be buried together with the rest of the Zimnicean population despite having a different group identity. The traveler was thus integrated rather than assimilated (Barth 1969: 33; see Ch.3.2.0).
In Central Macedonia the connectivity between local and more distant sites has been discussed. Although found in a settlement context, an imported goblet from the Middle Bronze Age Vatin Culture (preceding the Gîrla Mare and Paraćin groups) was found at Hagios Mamas (layer 13, Horejs 2007: 287-289), likewise being carried by a traveler. The traveler may have moved in the same environment as traders bringing Minyan pottery.

In the Central Macedonian Late Bronze Age, local and "alien" objects were decorated with the same techniques as the local pots, although the details differed. Differences were hidden under the encrustation paste. While entire motifs rarely travelled, it seems as if the elements, as well as techniques, were in common. Object 840 (fig.95) is either imported from the Central Balkans, possibly the Tei Culture, or made with techniques derived from this area. The s spiral-triangle motif is, as shown above, woven into the larger pottery assemblage (also used in Mycenaean pottery, fig.91; see also Horejs 2007: pl. 53.10379).

Techniques may have been come with travelers venturing to Central Macedonia while motif elements may have come through inspiration from imported objects or objects encountered on travels by Central Macedonians. Few actual imports have been identified as most of the objects were made of local clay, yet their numbers may not necessarily have had to be large for them to be inspiring. Since the techniques and motif elements were integrated in local traditions, these contacts may have been persistent. At sites in different areas and regions, the techniques were executed slightly differently, representing slightly different traditions. As a middle ground, Central Macedonia may have been where Mycenaeans and people from the Central Balkans and Central Europe could trade. Thus a multicultural environment may have arisen – and the "ways of the world" were integrated into local communities seeking to reap the benefits of expanding networks. This may have been the *res causa* behind the local receptivity of "foreign potting".

Figure 92 Incision techniques from Axiochori (object 679, 689, 694, 670, 671, 713, 688, 687, 680, 709, 717, 695, DSC0366, 361 and 708) (1) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

Figure 93 Incision techniques from Kilindir (object 420, 419 432, 422, 436, 494, 543, 441, 509, 543, 545, 605, 448, 439 and 435) (2) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

Figure 94 Incision techniques Kilindir (top, object 445, 440 and 433), and Tsautsitsa (object 292, 293, 294, 298, 297, 787, DSC260, 649 and 654) (3) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

Figure 95 Incision techniques from Toumba Thessaloniki (object 909, 833, 840, 794, 806, 827, 876 793, 826, 803, 848, 512, 835, 923 and 1003) (4) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

Figure 96 Incision techniques from Toumba Thessaloniki (object 881, 906, DSC 400, 878, 806, 640, DSC306, 637, 935, 810, 308, 850) (5) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

10.3.0 Motifs and Techniques II: Incising Lines Trans-Regionally

As discussed in the chapter above, there is much evidence that could tie pot shapes, decoration techniques and to a lesser extent also motifs or elements of them to the Central Balkans. This could be coincidence, separate developments from older antecedents or an indication of movement of potters and objects. Pots and motif elements were produced at sites both near and far from each other, and were part of persistent intra-regional and extra-regional networks. While I looked at this from a perspective of Central Macedonian intra-regional networks above, in the following two cases I look at long distance aspects and similarities:

1) A bowl sherd with a spiral motif element from Viile Maieri in Romania (see Boroffka 1994: 15) presents a case where a Central European motif is similar to what is encountered in Central Macedonia (fig.97), while the technique with which it was executed is in close resemblance with one specimen, a jar or bowl from Toumba Thessaloniki; the latter object could have had a spiral motif. In both cases the motif was executed by incising a broad line and then impressing a stylus repeatedly into the incised lines. This stylus had a triangular head at Toumba Thessaloniki while a circular one was used at Viile Maieri. Both specimen had a finely smoothed grey surface, and while the motifs differs the Viile Maieri specimen had clear counterparts in both the Central Balkans and Central Macedonia, in the latter case even in Mycenaean pottery (Jung 2002: cat.19). What particularly connects is the method with which the stylus was used. The decoration technique does not preclude that this could be an import but the incrustation paste would cover this.

The *embroidery style* "dotted line method" was also known in the Wietenberg Culture in Transylvania (Boroffka 1994: "Typentafel" 28-29) and the Gîrla Mare Culture (Palincas 2010: 80). In the case below (fig.97) this was performed in an already incised line to make the paste stick (for different methods see ch.10.2.0). Whether these objects were imported objects or the work of travelers is difficult to say – there is a significant variability of incision techniques used at the same sites in Central Macedonia (see fi.92-96). A technique which seems to be very common in the Late Bronze Age Central Macedonian encrusted ware is to use traversing lines or bands (see ch.10.2.0), a technique which is much different from dotting lines in "embroidery style" pottery. This method seems not to be used in the Wietenberg Culture, at least not to the same extent even if the Wietenberg Culture potters used a diverse set of incision methods (fig.101). Boroffka (1994: "Typentafel" 10) defined several ways of incising lines in the Wietenberg Culture (see fig.101). Regular lines, bands of multiple lines drawn with a comb-like tool, various kinds of dotting including the use of round-tipped or angular styli, finger nail impressions, crisscrossing single lines or the use of a flat stylus with a rounded head to create "stair-like" impressions forming lines (see Boroffka 1994: typentafel 10.3). Fluting also occurs in the Wietenberg Culture, and motifs include running spirals, s-spirals, circles, crosses, triangles and meandering elements (fig.101).

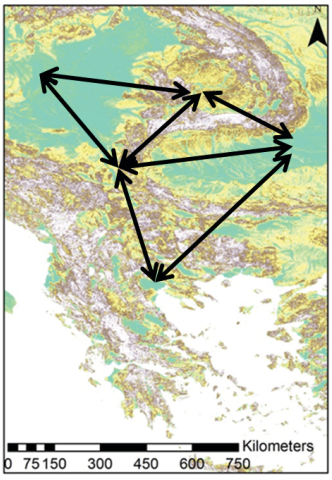
According to Boroffka (1994: 2) the area in which the Wietenberg Culture was located possesses a great mineral wealth, while Harding (2012; Harding and Kavruk 2010) published evidence of extensive Bronze Age salt extraction. Ciugudean (et al. 2006: 59) could show that there is a spatial relationship between hoards, salt mining facilities and salt springs: the Pănade hoard was found near the Ocnişoara salt spring, the Uioara de Sus and Şpălnaca hoards near Ocna Mureş, and the Dipşa hoard was buried in the vicinity of the Băile Figa salt mine.

Both metal and salt could have spurred trade. The pottery and metal finds show connections to neighboring cultures, as well as the Aegean (see Boroffka 1994: 6). While a Mycenaean connection has often been cited as an inspiration for Carpathian styles, an Aegean transfer of motifs has been criticized by several archaeologists (e.g. Harding 1984, Hoddinott 1989; L. Dietrich and O. Dietrich 2011) as a possible antecedent to the motifs of the preceding Neolithic and Chalcolithic cultures. This is because the motifs were expressed in different media in Mycenaean Greece and Wietenberg Romania (Boroffka 1994: 6; Harding 1984: 10-11; Hoddinott 1989: 54). Yet, this motif connection could have been mediated through Danubian cultures using encrusted pottery, for example the Tei Culture (fig.98). A parallel situation could be the transfer of motifs between different types of painted pottery and spindle whorls in Central Macedonia, which exemplifies the movement of motifs between different types of objects (ch.10.1.0).

The Danubian distribution of oxhide ingots ties Bulgaria to the Aegean World (Doncheva 2012: 691); as far north as in the Wietenberg area the presence of Mycenaean swords indicates that South-Eastern Europe was connected to the Bronze Age World (Kristiansen and Larsson 2005: fig.99) due to the great mobility of warriors and metal traders (see Bolohan 2003). This strengthens mobility as a res causa for the distribution of pottery motifs and select decoration techniques if traders from both north and south met in Central Macedonia and formed diaspora trading communities where ideas and objects could be traded.

If we look at the Tei Culture, both the spiral motif (Leahu 1966: 10.6) and the decoration technique (Leahu 1966: 10.4) are apparent in addition to meander motifs (Leahu 1966: 10.5) also found in Central Macedonia (object 1060, fig.107). A similar s-spiral is made with the very similar 'embroidery style' of the Gîrla Mare Culture (Palincas 2010: fig 8.8). Both the technique and motifs of object 833 and 840 (above, fig.95) have parallels in the Gîrla Mare Culture. This connection was mediated between Central Macedonia (e.g. Toumba Thessaloniki), Tei, Gîrla Mare and the Wietenberg Culture in clay (fig.98). The Tei Culture and the Wietenberg Culture likewise also used meander motifs, yet a straight line is hard to draw (see fig.79 and fig.101). One could perhaps assume that the regions within which the materials are found participated in the same flows of people travelling and becoming exposed to decorated pots abroad, carrying with them select objects and not least techniques, either home or to where they would settle – merging co-present skills and motif elements with local motifs. Rivers could have been highways for boats, while the Bulgarian, Serbian and Central European plains were easily traversable with horses or donkeys for trading parties

Figure 97 Similar manners of incision at Toumba Thessaloniki (Object 909) and Viile Maieri ("embroidery" technique) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the Muzeul National al Unirii Alba Iulia, photo Aslaksen).



Pottery techniques like (C) Grid, use of comb-like tools, "embroidery style" and motifs like s-spirals, hooks and dotted spirals follow similar trajectories as prestige objects, indicating a diverse group of travelling people and objects. Co-present objects, motif elements and objects could have travelled through the Danubian zone farther to/from, e.g. the Wietenberg Culture

Figure 98 Objects, techniques and motif travels in the Balkans (SRTM).

See printed book for this image.

Figure 99 Use of comb-like tool to incise spirals, sherd from Viile Maieri, Romania (accessed with the courtesy of the Muzeul National al Unirii Alba Iulia, photo Aslaksen).

of the kind on board the Uluburun. An interpretation which emphasize the role of such parties is consistent with the great variability in techniques (as there would be diverse incoming groups), and the low number of imported pots (since only select table ware and containers would be brought).

2) The last objects to be discussed in this chapter are from Middle Bronze Age Százhalombatta (fig.100), Viile Maieri (fig.99) and Toumba Thessaloniki and feature the use of a multi-toothed comb-like tool. The tools were used to incise geometric motifs in these cases. At Toumba Thessaloniki and Viile Maieri this tool was also also used to make curved motifs (fig.99 and fig.100), including the encrusted spiral motifs. On the object from Toumba Thessaloniki a large triangular stylus was used to impress a band of triangular imprints around the neck of what could have been a storage jar. In Romania, Hungary and Central Macedonia the methods of incising and the use of particularly broad comb like tools were used to produce motifs of similar kinds despite that the regions were geographically and culturally seemingly far apart. There are no published ^{14}C dates for Viile Maieri, and the specimen from Százhalombatta remains unpublished while the pot from Toumba Thessaloniki dates to layer 6, ca.1440-1320 BC (Margomenou 2005: 291) making it just barely parallel with the latest part of the Middle Bronze Age to which the Vatya Culture belong (ca.2200-1400, see Uhnér 2010: 2). While Százhalombatta and Toumba Thessaloniki are prominent tells, the settlements of the Wietenberg Culture are scarcely known (see Boroffka 1994; fig.101). Toumba Thessaloniki (unlike the two other sites) lies by the sea. How is it that these three regions with overall quite distinctive types of decorated pottery had a tool, which in no way can be characterized as random, in common?

At the current stage it is difficult to connect the three pots chronologically, although the decoration of the sherds from Toumba Thessaloniki and Szazhalombatta resemble each other closely. The latter, however, is most likely from the earlier part of the Vatya period thereby leaving a chronological gap unless the method was transmitted to Central Macedonia as it expired in Hungary. The links between warriors in the Aegean and in the Carpathian Basin has been laid out by Kristiansen and Larsson (2005: 125), who note that this coalesced with a metallurgic leap in the Carpathian Basin around 1700 BC. A transfer between the Wietenberg Culture and the Vatya Culture is not impossible. In a recent study of decorated bone objects (wavy band decorated discs, horse bits, and cylinders), parallels are drawn between Hungary, Peloponnesus, Anatolia, the Carpathians and as far east as the North Pontic zone (see David 2001). In this case the curved Wietenberg motif (fig.99) would serve to distinguish the users of the pot from the Vatya Culture, who in this case used a rectilinear motif coupled with a row of impressions (fig.100). Similar cases are also known from the Classical Otomani Culture (Gimbutas 1965: fig.138B.2).

A further transfer to Central Macedonia at the twilight of the Vatya period would provide a parallel to the appropriation of matt painted pottery in Central Macedonia when this type was replaced in the south by Mycenaen pottery (see ch.11.1.0). These, and other "lagging" types of decorated pottery (e.g. Minyan, see ch.9), could be examples of the production of crafts by small diaspora groups, continuing to produce pottery that had gone out of use at home.

These examples illustrate the movement of techniques and motifs. I argued that pots follow similar trajectories as, for example metal artifacts, and that motifs can therefore also follow. Imports could cement the use of a decoration type, for example encrustation, but at the same time produce differences as the technique underneath the paste did not necessarily reverberate (even if there are some instances, e.g. object 422, fig.93 above). The co-presence of fundamental decoration techniques in areas connected through the movement of pots and prestige artifacts also indicates that other techniques followed this trajectory too. The motifs could have spread through a combination of trade and various types of short distance movement as the objects upon which they were depicted traveled with goods carried by people. The Uluburun ship and the Cape of Iria Wreck demonstrate that long distance trade expeditions could have also led to the distribution of pottery (ch.4.1.5). Some of the

travelers in a trading party may have settled abroad as a result of their role in the trade, intermarrying with locals as the Old Assyrian traders had (see Larsen 1974; ch.4). On a Balkan voyage, objects carried by crafty travelers could have been copied at one or more spots by the local potters, sometimes with shared techniques as learnt by peers traveling with the caravan or inspired by the select objects they brought. A dual movement of short (e.g. intermarriage, barter and local exchange) and long distance journeys (e.g. trade) could have distributed select objects, aesthetic taste, and knowledge.

Figure 100 Use of comb-like tools at Toumba Thessaloniki (top, object 848) and Százhalombatta (bottom) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the Szazhalombatta Excavation Team, photo Aslaksen).

Figure 101 Incision and impression in the Wietenberg Culture (accessed with the courtesy of the Muzeul National al Unirii Alba Iulia, photo Aslaksen).

10.4.0 Motifs, Incisions and Pots: Spirals with Dotted Outlines

Although the motif was known in previous periods, the encrusted spirals lined with dots are emblematic in the Central Macedonian Late Bronze Age in the style shown in figure 102, 103 and 106. In this case I argue that the motif unites the Aegean and Balkans *within* Central Macedonia. An illustrating example of this motif is found at Akubunar (fig. 103; see Heurtley 1939: cat.no. 449 and pl. XVIII.449), a site in the plain of Thessaloniki. This kantharos has an incised s- spiral flanked by dots, placed within a frame. In its midst, where the stem moves diagonally down from left to right, the lower part of the frame juts in towards a triangle hanging from the top line of the frame. The outline, which tapers at the ends of the spiral, was incised with a stylus before the interiors were filled with parallel lines incised with a two toothed stylus to create parallel lines, or a single headed stylus used to make roughly parallel lines with a steady repetitive motion. The dots must have been impressed after the lines as they follow them, and since the radius of the round dots greatly exceeds the width of the lines, they were likely created with a different round tipped tool. Lastly, the lines and dots were filled, and thus highlighted with encrustation paste. Conceptualizing this spiral element could be regarded as a complex process of several operations and requiring different tools (for a discussion of spirals and geometry, see Papaodysseus et al. 2006). This composition is found at the nearby Toumba Thessaloniki (object 1011, fig.106), but also at Kastanas in several instances on kantharoi (object 161, fig.102). Further north at Kilindir, the same composition is found again (object 419, fig.106), giving the decorative scheme a wide distribution in Central Macedonia.

See printed book for this image.

Figure 102 Encrusted kantharos from Kastanas (Object 161), after Hochstetter 1984 pl.47.1.

In some cases the dotted line ends in a circle element consisting of five or six dots (fig.102), resembling Furumark's anemone motif (M 27.14-32) (Hochstetter 1984: pl. 35.1 and pl. 47.1). The dotted spiral was also used in the Iron Age, as is evident from a bowl rim found at Kastanas where the round dots are replaced by impressed triangles (Hochstetter 1984: pl.208.7).

See printed book for this image.

Figure 103 Encrusted Kantharos from Akubunar (after Heurtley 1939 pl. 18)

The spiral type most often consists of a broad band rather than a single line; first outlined and then filled with combed lines, tapering into pointed ends (e.g. object 523, fig.106). In some cases the impressed dots that resemble the anemone motif are present without a dotted stem line, placed in the corner of the frames above the spirals (object 292, 294 and 297, fig.94). The manner in which the spiral of object 523 and 298 (fig. 94) are executed illustrates two main techniques of executing this decorative element of motives; in both cases an outline was incised first. In the case of object 523, a comb like tool was used to incise a series of overlapping straight segments which then were covered with encrustation paste. In the case of object 298, a comb like tool could also have been used but with a smoother movement that followed the spiral's revolving motion which then was traversed by a series of vertical line segments to create a pattern that would bind the paste. In both cases the aim was to create one broad band rather than a set of lines as with the specimen from Akubunar (fig.102; see also Heurtley 1939: cat.no.449). An interesting detail is that both object 298 and 523 are from Kilindir (fig.94): were they both made at the tell? Or was one an import? Another alternative could be that motifs and techniques from different sites flowed between the tells with travelers moving goods.

Encrusted s-spirals without dotted outlines are found at Klučka near Skopje (Mitrevski 1995: fig 13), a specimen which differs in many respects to its counterparts in Central Macedonia in terms of how the motif was executed. Unlike the kantharoi of Central Macedonia, this kantharos had a base like its counterparts from the Žuto-Brdo Gîrla Mare complex (Palincas 2010: fig. 8.4). In the Lower Danubian Encrusted Ware Cultures, s-spirals with intersecting triangles are encountered (Shalganova 1995: fig. 3.56), showing a

connection to Central Macedonia. On the specimen from Skopje the lower corners of the frame revolve into spirals at each side (thus the motif element is constituted by two hooks rather than a spiral) (see Mitrevski 1995: fig. 13). These two spirals touch each other, resembling an s-spiral executed in a manner unknown in Central Macedonia. The shape itself may have counterparts northwards in the Middle Bronze Age. Kantharoi both with and without stems are found in the earlier Verbicioara Culture (Nica 1996: pl.12). It is worth noting that the Verbicioara pots can have encrusted meander motif elements (see Nica 1996: pl.11.7) like the specimen from Kastanas, and the even later Boubousti matt-painted pottery (see ch.11.3.6).

There are several parallels to this spiral from the Aegean with both parallel (e.g. Mountjoy 1999: fig.139.96, fig.364.20 and fig.461.190) and adjacent dots. Similar motifs are known in the Wietenberg Culture (Horedt 1960: fig.7.3, 7.5) and the Tei Culture (fig.79). In Central Macedonia there are also matt-painted variations of this element (object 995, fig.104), which means that the dotted spiral was shared in the Aegean and the Southern Balkans, and that in Central Macedonia it could be depicted on matt-painted, Mycenaean and encrusted pots. While the specimens above have dots parallel to the spiral, there is also a second variation of this spiral. Found at sites across Central Macedonia, these are multi-stemmed spiral forms outlined by dots. In figure 135 there are a series of incised spirals flanked with impressed dots. This motif was also found in Northern Greece on Mycenaean pots from Kastanas (fig.131), but it is rather rare.

Interestingly it seems that shapes, techniques and motif elements travel farther than exact motifs. This could on the one hand be an indicator of movement intensity (decreasing with distance), but on the other hand it is also a more complex situation in which pottery decoration was mobilized to express group differences in a milieu of frequent mobility spurred by trade. Metals have a trans-Mediterranean, and even trans-European distribution, as do weapon types, for example Mycenaean rapiers and socketed spears (see Kristiansen and Larsson 2005: 212-213). Encrusted kantharoi and cut away neck jugs may have carried valued liquids (gold-of-pleasure oil; see Kroll 1983: 58), but their movement was mostly confined to regions. Yet motif elements and shapes were copied, which means that people from other regions may have regularly travelled in between, occasionally settling to trade and transferring techniques and bringing with them a few inspiring pots. The travelers became linked to local networks of exchange, trade and intermarriage, becoming a mediator between long- and short distance networks (see Kopytoff 2000). The milieu which Balkan travelers entered was most likely multi-cultural consisting of Mycenaean traders, mainly keeping to the littoral zone, meeting bands of warriors, traders and other members of trading parties seeking out commodities such as tin or gold, valuable liquids and possibly even employment as mercenaries (e.g. the Uluburun spearmen; see ch.4.1.5).

10.5.0 The Case of a Kantharos with a "Hybrid" Motif

In this case I address how the flows discussed above could materialize on one object; a globular kantharos (object 787, fig.104) from Tsautsitsa (Casson 1925B: fig.2). As previously mentioned this shape was known in many places across the Balkans (Horejs 2007: 66), but decorated with an incision technique which could be considered largely regional. In Macedonia, this could be the traversing band technique (technique D; see ch.10.2.0). Two motif elements, a four-spoked wheel and a pothook with a stem consisting of several incised lines, were incised in two different panels (fig.104 and fig.105). Below, the elements are approached separately to disentangle the different connections re-combined into the motif. This kantharos is decorated in a manner that draws together the aesthetics of the different communities of Central Macedonia, with roots in the Balkans and the Aegean.

For Central Macedonian encrusted pottery the four-spoked wheel is uncommon. While the globular kantharos from Kilindir is a rare specimen, and the only encrusted kantharos to be decorated with this motif element, the element is also found on a later Late Helladic IIIC Mycenaen pottery from Kastanas (Jung 2002: cat.no.185). The four-spoked wheel is known in Furumark as part of chariot depictions (Late Helladic IIIA, M39.1-21 and Late Helladic IIIC M39.22) or alone (Late Helladic IIIA-B M41.21). A wheel depiction was also encountered in Thessaly on stelai (Andronikos 1962: fig.85). A close parallel is also found in the Tei Culture (fig.79.c). The frame of the Tei specimen was incised with the grid technique. Its Central Macedonian counterpart had a frame which was incised with the traversing band technique. The design idea of the wheel is identical however.

The four spoked wheel's large distribution in different media was shown by Pare (1987) who collected extensive data on four-spoked wheels in the Bronze Age. In both the Aegean and the Balkans four spoked wheels were known in painting, Linear B writing, wagon models and bronze sheet belts as well as on an amphora with chariot motifs from Thasos (Koukouli-Chrysanthaki 1992: fig. 147.E) and on stelai from Thessaly (Andronikos 1962: fig.85). From the Danubian region, the Dupljaja wagon dated to the 15th century BC has three four spoked wheels, drawn by a team of ducks (Vasić 2002: 4). Four spoked wheels in Tiryns were impressed on coarse pottery with molds that have counterparts in the Iron Age layers of Kastanas (Hochstetter 1987: 32-34). An earlier example could be found at Kastanas at the head of a wishbone handle which has an incised cross motif resembling a wheel, executed with a dotting technique which had close parallels in the Tei Culture (Hochstetter 1984: pl. 1.10; see fig.9). This cross is even found in the Wietenberg Culture (Boroffka 1994: Typentafel 18.21-26 and 19.1-3), while an excellent painted version from Hagios Mamas (layer 7, Late Helladic IIA-IIB, a foot, or possibly a base) has been published by Horejs (2007: pl.53.9518). These are also similar to the Mycenaean M 58.26.

Figure 104 A hybrid motif on a kantharos from Tsautsitsa (object 787), with comparanda (object 605, 995, 1137 and 1181) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Pare (1987) concludes that the Central European depictions were derived from the transfer of the chariot which Kristiansen and Larsson (2005) relate the spread of warrior ideologies from Mycenaean Greece as far north as Scandinavia in the second half of the 2nd millennium BC. The chariot was thus likely the vehicle of this motif in Central Europe - and provides an example of how motifs may move from one medium to another (from chariot to pot). Pare (1987: fig.7) notes that it is also found in Linear B (Ka). A clay tablet with what may be a Ka sign was found at Assiros and was proposed to have been copied by a Central Macedonian returning from a journey having understood that this symbol was meaningful (N. Wardle 2004: 368 and fig. 3.48). This motif element was already known across the Bronze Age World

The left frame contains a pothook, the stem of which consists of four parallel lines (fig.105). Close parallels are found in the Mycenaean pottery of Kastanas (Jung 2002: cat. 61). In Furumark's (1972) compilation of Mycenaean motifs, such hooks have the number M46.39 and date to the Late Helladic IIIA, a date that could be contemporary with the kantharos from Kilindir. Similar pot hooks are known from the matt-painted assemblage too, both from Late Bronze Age Vardarski Rid (Videski 2005: pl. VI.2) and Assiros (fig.133). An encrusted hook consisting of several lines is not in itself unique in encrusted pottery, but it is still interesting that the element could be expressed in different decoration techniques even if the closest parallels are found in Mycenaean pottery. In the Lower Danubian Encrusted Ware Culture it is also present, although as part of highly different motifs executed with different techniques. Encrusted, matt-painted and Mycenaean pottery, are not found together outside Macedonia (see Harding 2003). A hybrid pot motif as the one here discussed could be regarded as a "bridging device" or the disparate types of decorated pottery. It is also an expression of how the motif elements from the Aegean and Balkans constituted a single "aesthetic universe" from which potters could draw motif elements.

Figure 105 Close up of the kantharos motif (object 787) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

10.6.0 Summary

In sum, it may seem that encrusted techniques could bring together various activities, for example storing (amphora and kantharos), consuming (wishbone handle bowls), and spinning (encrusted whorls). Encrusted objects were routinely found together with matt-painted and Mycenaean pottery, which indicates that the decorated pots were accessible for nearly everyone at the tells. Although the decorated pots kept their separate technological identities, the decoration was derived from the sum of decorated pottery, perhaps as a result of their contextual link they must have been encountered as a diverse assemblage. Inspiration from different types could be brought together on one particular pot (10.5.0) or a whorl (10.1.0).

The encrusted pots in Central Europe rarely moved, and a regional character has been suggested for the handmade wares of Central Macedonia. Yet, similar techniques and pot shapes are encountered at different sites in Central Macedonia. Making the incisions included several operations which were hidden under the paste. Therefore we could assume that people and pots moved, perhaps through intermarriage (see Andreou 2001: 170). In Mycenaean Greece, strontium evidence indicates that women could possibly have been more mobile than men. This could again be related to intermarriage to secure alliances (see Naphlioti 2009). Albeit at a different scale, similar strategies may have been pursued in Central Macedonia.

To some extent techniques, pot shapes and motif elements were co-present as far north as the Slovakian border in some cases. As a gateway to the Balkans, Central Macedonia could have been a stopover on the way north or south for warriors and traders engaged in metal trade. They could thus also come to Macedonia regularly to acquire the riches of this region, and along the way exchange knowledge as well as

goods. In trade and exchange the answer lies in why these types of decorated pottery were acquired – they enabled locals and travelers to ally, dine and do business. Within the region, the re-combination of these types may have created a kit with which to feast, and at other times hinted of the household's connections as the decorated pots would stand out against the (more plentiful) undecorated ones. Thus the "international" assemblage became a cornerstone in local networks of exchange and trade, which served to hide differences between high and low since seemingly nearly all could appropriate the needed pots (see ch.7.5.0).

In this chapter on encrusted pottery I have focused on connectivity. There is however a great variability in the assemblages between the Tisza in Slovakia and the Thermaic gulf even if these areas were persistently tied together through trade. The persistence may be expressed in the lack of hybridization of styles and types of pottery – an expression of a structured differentiation (see ch.3.2.0). Combined into one kit, the boundaries between people may have been traversed in a cosmopolitan spectacle which brought together several corners of the Bronze Age World. The feast thus became an integration mechanism of people from different polities, and perhaps larger ethnic groups, rather than a mechanism created to divide them.

Figure 106 Encrusted spiral motifs (object 1011, 523 and 419) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Object 1060 - Axiochori - LBA

Figure 107 An encrusted pot with meander motif (object 1060)(accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

11.0.0 Matt-Painted and Mycenaean Pottery

There were two main types of painted pottery in Central Macedonia in the Late Bronze Age: handmade matt-painted pottery and Mycenaean wheel made pottery. The encrusted pottery could have moved over long distances through trading networks, yet the degree of similarity waned the farther away one got from its origin. Matt-painted and Mycenaean pottery are the two other main types of decorated pottery in the Late Bronze Age, and were brought in from the Aegean. These two types of decorated pottery each have a unique trajectory and formed important components in the pottery assemblage of Central Macedonia where they were used simultaneously for a while, in the international period also with encrusted pottery. Mycenaean and matt–painted pottery have been tied to identity- (see Andreou and Psaraki 2007) and mobility discourses (Horejs 2007B). Recent studies have revealed much on the character of painted pottery in Central Macedonia in the Late Bronze Age (see Horejs 2007; Horejs 2007C; Iordanis et al. 2007). Particular pots and their motifs are compared in this study to further shed light on their roles in regards to identity and mobility. Chapter 11.1.0-11.3.0 are dedicated to a review of matt-painted and Mycenaean pottery. With a comparative look at motif elements, the following seven cases highlight connections and the lack thereof between potters of various origins, different types of decorated pottery and regions:

11.3.1 and 11.3.2 - lattice and checker motif elements.

11.3.3 – the triangle motifs.

11.3.4 – spirals, circles and curved motifs.

11.3.5 – linear elements.

11.3.6 – the site of Boubousti with its particular style.

11.3.7 – direct counterparts at sites in different parts of Central Macedonia.

11.1.0 Matt-Painted Pottery – Characteristics

Late Bronze Age matt-painted pottery is a distinctive handmade painted ware. The matt-painted kantharos bowl, an open bowl with high-swung handles, was noted to have had a wide distribution (Heurtley 1939: 94). According to Andreou and Psaraki (2007: 411) the large number of examples of this bowl at Toumba Thessaloniki could be due to its potential association with feasting events and therefore defined particular powerful social groups of tell dwellers. The role of matt-painted pottery in Central Macedonia is thus crucial to the understanding of the dynamics within the region.

Figure 108 Matt-painted (Object 1029 Toumba Thessaloniki) and encrusted (Object 646 Limnotopos) Late Bronze Age Amphora (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Matt-painted pottery has a wide distribution exceeding the borders of Greece. There was a Middle Helladic production in Southern Greece, and the matt-painted pottery also had counterparts in Anatolia (e.g. Kanesh III-IV; see Emre 1989) although these were of different traditions (Buck 1964: 300). In Epirus, Albania and Southern Italy there is Late Bronze Age/Iron Age matt-painted pottery, (see Bouzek 1994; Horejs 2007c; Korkuti 1993: 715; Yntema 1990): it is also present in Phrygian Anatolia in the Iron Age (De Vries 2005: 42). Phrygian pottery has been associated with the Balkan matt-painted pottery, as it has been posited to have been brought by migrants heading for Anatolia (Petrova 1997: 98; Petrova 1995: 112). To the north in FYRO Macedonia, Bronze Age matt-painted pottery was also produced (see Mitrevski 1997; Mitrevski 2005).

The surface of the matt-painted pottery is often beige, yellow or greyish, the former two colors are sometimes similar to the color of Mycenaean pottery. In difference from the lustrous Mycenaean wheel made pottery it is handmade and painted (as the name indicates) with a matt- brown, red-brown, violet, black, red-violet or red paint (see Horejs 2007C; Hochstetter 1984: 181; Stefani and Meroussis 1997: 356). Both thick (lower band at object 990, fig.140) and thin (pot hooks on object 970, fig.140) brushes could be used, notably to paint lines rather than to dot (e.g. anemone motif, Furumark M 26). Certain exceptional cases can be found, such as a beak spouted jug from Kilindir (Heurtley 1939: cat. 424) which differs somewhat from the shorter spouted cut away neck jugs known in the Late Bronze Age and Early Iron Age at sites like Pateli (Hagios Panteleimon) and Vergina (see Heurtley 1939: pl.18; Andronikos 1969: pl.30). Common shapes include kantharoi, amphora (fig.108), cut away neck jugs and bowls and cover activities such as storage, transport and consumption. The cut away neck jug and the amphora

are shapes utilized by potters making both matt-painted (Heurtley 1939: cat.463-464) and encrusted pottery (fig.86). The matt-painted pottery emerges in the Late Bronze Age (layer 8-2, ca. 1520/1610-1100/1080 BC) at Hagios Mamas. Early imports and a stylistic similarity to Thessalian matt-painted wares indicate that the transfer was in two stages: firstly through the movement of objects and then subsequently imitation. An Aegean connection was already evident in the now localized Minyan pottery. From Chalcidice, this ware may have spread further (Horejs 2007: 281 and 292), and became more popular than the Minyan pottery had been. This theory is consistent with the data on the transfer of Mycenaean and possibly even the fluted pottery (below, ch.11.2.0-11.2.1): after a period of import, local copies were produced. Older theories on the genesis of matt-painted pottery emphasize migration (Vokotopoulou 1986) and imitation of Mycenaean pottery (Hochstetter 1982). Horejs (2007C) emphasizes that constant contact with Southern Greece, in specific the Thessalian gulf of Volos' shores, lies behind the transfer of matt-painted pottery, the decoration of which was imitated on existing pot shapes (Horejs 2007: 251-253). It must be noted that this would have also required the movement of people, perhaps arriving in small groups to trade, staying on either for a season or in as members of small diaspora communities. This would be consistent with Andreou and Psaraki's (2007: 411) observation that the matt-painted pottery was produced by a small number of skilled potters.

She (2007: 254) sees a decline of consumption related matt-painted shapes (e.g. bowls) when the Mycenaean pottery enters Hagios Mamas in layer 4; she postulates that the matt-painted pots were used together with Mycenaean pottery as the latter does not replace the former completely. Further to the west at Kastanas the most persistent shapes are the skyphos and amphora. The first matt-painted pottery at Kastanas could not predate Mycenaean pottery by much since both seem to emerge in layer 18, although the matt-painted pottery exists in great quantities and in a production sense was localized earlier. By layer 12, the wheel made Mycenaean pottery seems by far to out-compete matt-painted pottery numerically. At this point, fluted and grooved pottery had also been introduced appearing in increasing numbers in layer 12 (Hochstetter 1984: 182 and 229). As matt-painted pottery persisted until this point, and continued to linger as handfuls of shards are encountered even later, its disappearance may be related to a gradual squeezing by several types rather than replacement by a single new type of decorated pottery.

The matt-painted pottery was very scarce at Assiros, and according to Wardle (2009) it diminished with the introduction of Mycenaean pottery; yet Mycenaean pottery never became the sole type of decorated pottery. The matt-painted pottery at Angelochori remained a strong influence (constituting 40% of the pottery assemblage) and was found in layers dating to ca.1420-1134 cal.BC (Stefani and Meroussis 1997: 357). Matt-painted pottery was continuously produced in Central Macedonia in a period when its popularity had declined in Southern Greece. In the period ca.1400-1100 BC it was contemporary with Mycenaean and encrusted pottery. The relative proportions of these types of decorated pottery and the duration of their production differed from valley to valley. This could be an expression of a strong localism (see Horejs 2007C) and an emphasis on local identities as rivers and seaboard could efficiently connect these communities.
The first motif survey was conducted by Hochstetter (1982: 211) who defined several elements in common with Mycenaean pottery (fig. 109-110):

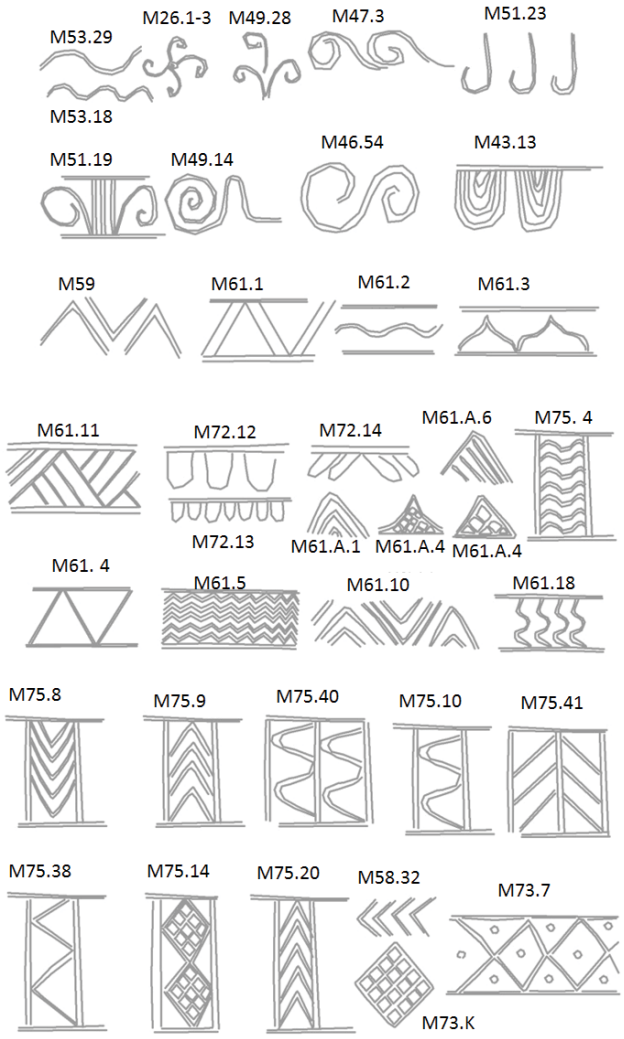


Figure 109 Sketch of Furumark's (1972) motifs, mentioned by Hochstetter (1982: 211).

Horejs (2007: 223-226) defined 55 motif elements in an extensive survey and comments that the motifs Hochstetter compared with Mycenaean counterparts also have Middle Helladic antecedents (e.g. Lianokladhi pottery; see Wace and Thompson 1912: 180) (Horejs 2007: 279-281). In her extensive survey of matt-painted pottery in Northern Greece she suggests that the decorations followed a loose scheme (Horejs 2007: 248). It has also been noticed that each pot has an almost individual motif (Psaraki 2004). If one looks at the entire assemblage it could seem as if one element could be combined with any other. However Horejs (2007C) argues convincingly that by looking at the preferential use of certain motifs, 8 micro-regions can be defined. Horejs compared the matt-painted pottery of Kastanas with that of Hagios Mamas and pointed out several differences. Firstly, in regards to fabric, the pots from Kastanas had more silver mica than the specimen from Hagios Mamas, which were also coarser. Secondly there are different preferences in regards to ornaments. This could be an expression of localized

Starfish M26.1-3	Triangle M61.A, 1, 4-7 (in addition the filled triangle M61.3 should be added)
Isolated semicircle M43.13	Paneled pattern M75. 4, 8-10, 14, 20, 38, 40, 41
Running spiral M46.54	Lozenge M73.k, 7
Double spiral M47.13	Tassel pattern M72.12-14
Curved stemmed spiral M51.19, 23	Zigzag M61.1-5, 10, 11, 18
Wavy line M53.18, 29	V-pattern M59
Parallel chevrons M58.32	

Figure 110 Elements shared in Mycenaean and matt-painted pottery after Hochstetter (1982: 211).

production (Horejs 2007: 264). Local clays were also used at Toumba Thessaloniki (Kiriatzi et al. 1997). It should however be noted that the motif elements used to express micro-regional differences were largely the same.

The method Horejs (2007C) used to define micro-regions is similar to the one used by Mountjoy (1999) to define Late Helladic IIIC micro-regions: regional preferences are configured from a common scope of motif elements. In addition, Horejs paid heed to fabrics (see Horejs 2007). While this method is not statistically robust due to the divergences in the amounts of excavated pottery, it does provide a way to utilize the accessible material which can highlight trends. Micro-regional preferences are observable for example, in motif element combination like a circle with a dot, which is encountered at Toumba Thessaloniki but not at the sites along the Axios (object 1011, fig.111). It should be noted that there are also great similarities in the matt-painted pottery. Object 990 and 37 (fig.140) have similar motifs, but upon a closer inspection the hooks run in opposite directions on each of the respective pots. More or less subtle differences in preferences do not necessarily indicate a lack of contact (see Mountjoy 1990). Core motifs and shapes are the same in Macedonian matt-painted pottery, and the micro-regionalism may have formed in a subtle manner to express a structured difference of identity, or as the outcome of traditions in touch but not merging (like clustered tells, which did not pursue synoikism, see ch.6.5.0): pots from other regions were encountered often enough, but the manner in which the motifs were executed differed. In areas where different pots carry different motifs built up of the same elements, it could be compared to dialects or accents of a language.

It is an important point that the same elements are put together differently in matt-painted and Mycenaean motifs (Hochstetter 1982: 211). This may reflect a set of choices made to differentiate the types clearly by the potters. Most Mycenaean pottery in Macedonia is by comparison decorated with simple horizontal bands (below, ch.11.2.1). Despite differences, the two types of decorated pottery are frequently found in association with each other. North of the FYRO Macedonian border, matt-painted pottery and handmade copies of Mycenaean amphoriskoi and alabastra at Ulanci were uncovered in the graves (Horejs 2007: 266). Such shapes are also found at Klučka Skopje. In a similar fashion, matt-painted and Mycenaean pottery were combined in the graves of Aiani and Ano Komi (Horejs 2007: fig.170 and fig.171) which lends credit to claims of their use together in other regions as well, for example in Chalcidice (Horejs 2007: 253) and the Lower Axios Area (ch.7.5.0).

Both in the case of the Minyan and matt-painted pottery designs travelled; the people who brought them were the first southern traders. In a series of cases (ch.10.3.0-10.3.8) I will study specific decorative links matt-painted pottery had to other decoration types by looking into skeuomorphism, links between specific matt-painted pots and other types of decorated pottery as well as other artifacts by looking at how motifs are composed of what seems to be a shared set of decorative elements. This approach may shed shed light upon the production of identity borders between groups at different levels.

11.2.0 Mycenaean Pottery

In this section, a review of the Mycenaean pottery in general and its stylistic relations to the other types of decorated pottery is presented. The characteristics of Mycenaean pottery are that it is kiln fired or wheel made and has a lustrous black, brown, red, or orange paint on a white, yellow, greenish or buff surface (see Mountjoy 1993). Dickinson (1994: 123) noticed that the pots were sometimes painted while still spinning on the wheel (in the case of horizontal linear motifs), an Early Bronze Age innovation in Southern Greece. Slips are known, and some pots were fully coated (Mountjoy 1986: 9). Typical Mycenaean shapes include amphora, stirrup jars, amphoriskoi, alabastra, pyxis, krater and skyphos (deep bowls; fig.112), and kylikes. The deep bowls were an invention of the Late Helladic IIIA period (Mountjoy 1993), a period of expansion for Mycenaean pottery in Southern Greece while in Greek Macedonia it never gained the same exclusive prominence. Little is written about potting, but pots like amphora have their own sign in Linear B (Palaima 2010: 364; Morpurgo-Davis 2011; see Hruby 2010: 200). Wine, *woinos*, could have been consumed in deep bowls and kylikes at feasts, but would also accompany voyaging warriors, as indicated by the finds on the Uluburun ship (ch.4.1.5).

It was one of many types of decorated pottery in the Late Helladic I period, like Minyan and matt-painted which it eventually outcompeted in Southern Greece in the Late Helladic III A period. By the Late Helladic IIIB period the pottery was extremely homogenous even if produced in

different places (Mountjoy 1999). This was also the case with Linear B, highly stable throughout its existence – and thus homogenic in the sense that it was reproduced rather than altered through its existence. Slight differences and small quirks did however sometimes occur, for example in regards to the order in which lines were combined into signs (Morpurgo-Davis 2011; Palaima 2008: 116). This was different from Hittite cuneiform tablets, written with a palimpsest of Luwian, Sumerian and Hurrian in addition to Hittite. The homogenization in potting traditions could have been driven forth by production in large series with simple motifs that could be imitated (Dickinson 1994: 122 and 127), while that of Linear B could derive from conservative ways of teaching, from an elderly teacher to an apprenticed son or daughter (Palaima 2008: 114, 121 and 125). While Mycenaean Greece may also have been multi-ethnic (see ch.4.), and "Mycenaeans" should thus refer to people inhabiting Southern Greece rather than a specific group, the homogenous pottery could have streamlined the diverse users, whether by the designs of the ruling elites or as an outcome of intensified interaction.

The Late Helladic IIIC period in Southern Greece was one of stylistic decline and fragmentation except for the Late Helladic IIIC Middle (known for advanced pictorial motifs, for a specimen, see ch. 11.2.1). Geographic distribution remained great as the pottery reached the Levant, possibly tied to an Aegean migration at the twilight of the Mycenaean palatial system (see Yasser-Landau 2012: 4; Leriou 2011 263). The kilns of Miletus continued to produce Mycenaean pots in this period (Greaves 2002: 59, see also Gorman 2001: 26). The fall of the palaces did not then lead to an immediate demise of the Mycenaean pottery.
A reason why the style fragmented could be the dissolution of centralized palatial workshops rather than the demise of networks; a possible cause for the Mycenaean fall may be an attack by invaders (e.g. Biers 1996: 65). In the Late Helladic IIIC period the "Barbarian Ware", most often referred to as Handmade Burnished Ware, appears and is distinguished by finely washed clay and burnished surfaces along with the fact that it is handmade. Specimens from Crete, which differ from that of the Mainland are found to have counterparts in Italy, while NAA samples show that Handmade Burnished Ware was made with raw materials from Peloponnesian clay sources (French 1989: 49). At the dawn of the Iron Age in the 11th century the Late Helladic IIIC pottery evolved into the Sub-Mycenaean pottery, signified by compass drawn circles (Biers 1996: 105). For the purpose of this study the development of the homogenic Late Helladic IIIA and B style and the stylistically fragmented, but widely (geographically) distributed, Late Helladic IIIC style is of importance as Mycenaean pottery is a key type of technologically distinct decorated pottery in Macedonia.

Figure 111 Deep bowl, Toumba Thessaloniki (Object 1032) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

Figure 112 Mycenaean pottery (deep bowls) from Limnotopos (top Object 1080 and bottom Object 1078) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

11.2.1 Mycenaean Pottery in Macedonia

Pottery is the primary evidence of contact with Southern Greece. There is no mention of the Central Macedonian geography in written sources from the Bronze Age, but there is a linguistic link: from a linguistic point of view the name 'Olynthos' may derive from the Bronze Age as the "-nth-" root could be a relict form picked up later by the Greeks (Hänsel and Aslanis 2010: 265). Mycenaean pottery do not represent the first Aegean imports into Macedonia, but indicate an influence in manners of consumption (krater and skyphos), storage and transport (amphora, possibly for wine or oils) and also that of attire (amphoriskoi with prized liquids). Kastanas has the only extensively published Mycenaean pottery assemblage from Central Macedonia (Jung 2002) although it possible to get an overview of Mycenaean pottery from Toumba Thessaloniki (Andreou 2009) and Assiros (Wardle 2009). Mycenaean pottery entered the Central Macedonian assemblage in a period when it was expanding in the Aegean at pace with the Mycenaean palace-building (Late Helladic IIIA) and Central Macedonian workshops (Late Helladic IIIB). It accelerated in the period of Mycenaean palatial decline and geographic expansion of the Late Helladic IIIC (Jung 2002: 244). The Mycenaean pottery never accounted for more than ca. 5% (at the most) of the total pottery assemblage at Toumba Thessaloniki (Andreou et al. 1996: 582). At the dawn of the Early Iron Age there was an increase in the quantity of wheel made pottery at both Kastanas and Toumba Thessaloniki (layer 12 and phase 2) (Andreou 2009: 20). Decorated pottery in Central Macedonia in general never accounted for a much higher percentage with the exception of the matt-painted pottery of Angelochori (above ch.11.1.0). While deep bowls constitute the lion's share of the Mycenaean pottery, it could seem as if a large spectrum of Mycenaean pots were adopted. Chronologically significant décor is the internal monochrome coat of the skyphos B, unlike the older skyphos A (Jung 2002: 76-77). Typical shapes include a high number of deep bowls (skyphos and krater) which had a wide distribution, and kylix, amphora and amphoriskos as well as a few sparse stirrup jars, cups, stemmed bowls (not known in Toumba Thessaloniki, but encountered at Kastanas) and various jugs and alabastron (Jung 2002).

If we recall the distribution map for Mycenaean pottery (ch.5., fig.9), it had a particularly wide distribution. While the majority of sites with Mycenaean pottery lie in the southern half of the Lower Axios Area, Mycenaean pottery also found its way to the Langadas. In the surface material most of the pots were decorated with simple horizontal bands (fig.112 and 113). These accord well with the notion that simple motifs spread fast, as all the potter had to do was to let the pot spin while painting the band, in itself a fast technique (Dickinson 1994: 123). This may be a product of localized production patterns. The shapes, the feel and the particular production could have been the coveted aspects of Mycenaean pottery above elaborate motifs already provided by the matt-painted pottery. The simple line may perhaps have been what people connected with "Mycenaean" (D. Wardle 2010B) or the focus may have been on the act of drinking. It has been noted that in the Mycenaean feast, the vessels employed were also used for everyday purposes (Dabney et al. 2004: 202). A simple motif could also have sped up the distribution of decoration techniques, but also helped to contrast complex and unique matt-painted motifs (see Psaraki 2004: 274).

A high number of sites had their own workshops, including small sites like Kastanas, big sites like Toumba Thessaloniki and storage sites like Assiros. The Mycenaean pottery was made with different clays (Jones 1986; Jung 2002; Andreou et al. 2001; Kiriatzi et al. 1997), and most of it was considered to have come from regional workshops (see Wardle 2009B). The simple linear decoration, which could have made the pots look homogenous although the production was non-centralized. The workshops used techniques close to the Mycenaean when firing the pots and they were acquainted with the potter's wheel. Upon completing a series of scientific analyses, Garrigós (et al. 2003) remains cautious about drawing conclusions on the nature of the technological transfer, yet the cultural transfer of Mycenaean pottery included an adaption of Aegean aesthetic taste, cosmetics

Figure 113. Mycenaean pottery with homogenous linear motifs (Object 1110 Axiochori, 1106 and 1075 both from Limnotopos) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

and dining kit (Jung 2002: 245; see Wardle et al. 2001). This must have required encounters with Mycenaeans, some who could have transmitted "the ways of the world", and others who possessed the basic skills needed to make Mycenaean pots. The potters would most likely be members of a trading party with some potting skills rather than specialists who were part of a colonial party seeking to found a permanent settlement like Miletus.

Some of the pots have been subject to NAA analyses, including a stirrup jar from layer 16 which may have been an import from Argolis (Jung 2002: 54 and 159); amphora were also uncovered in this layer (Jung 2002: 219). These pots may have carried prized liquids which found their way to Kastanas, presumably through trade with an expansive Late Helladic IIIA-B palatial culture in Southern Greece. Belly-handled amphora and hydria have been found at Toumba Thessaloniki in phase 4A, comparable to what was found in layer 15 at Kastanas. After a decline in phase 13, the Mycenaen pottery peaked in layer 12, post 1200 BC. In particular, the skyphos B dominated the assemblage. M72 (tassel pattern) and M53 (wavy band) represent popular painted motifs (Jung 2002: 226; Andreou 2009: 188). The skyphos was more popular than the kylix across Central Macedonia (Wardle 2009). Wheel made grey ware skyphoi were also found in the late period. Imported Sub-Mycenaean pottery was found at Torone (Papadopoulos 2005: 485), while Proto-Geometric pottery was produced at Kastanas from layer 12 (Jung 2002: 226).

Although there are few hybrids or local variations, which may perhaps have been expected in a multi-cultural middle ground, some can nevertheless be defined. These could be imitations of shapes from other types of decorated pottery. The Olynthian bowl, with basked-handles, resembles handmade brown burnished counterparts (see Jung 2003: 224). Painted globular kantharoi have also been uncovered at Hagios Mamas. The globular kantharoi thus existed in three types of decorated pottery: encrusted, matt-painted and imitated Mycenaean (Horejs 2007: 244; Jung 2003; 2002B). These are very much regionally confined, as they only have handmade counterparts in, for example the Lower Axios (Jung 2003: pl.13).

Figure 114 Hochstetter (1984: fig.29) type 5 bowls, from left C (layer 19-14b), A (layer 12-9) and B (layer 4-1)

Handmade pot shapes, for example the type 5 bowl (with a traversing handle and an everted rim; fig.114) found at Kastanas, could resemble Mycenaean deep bowls (type 5, Hochstetter 1984: fig. 29) (Jung 2002: 214). A handmade kylix has also been identified at Kastanas, although in an insecure context (Hochstetter 1984: 178). Late Helladic IIIC kylix-footed amphoriskos gained some popularity in Central Macedonia, a shape which also is well known in Thessaly. Further north, handmade imitations of such amphoriskoi and alabastra are found in South-Eastern Bulgaria and in FYRO Macedonia. These imitations are often unpainted (Jung 2002: 215). At Kastanas in layer 19 a deep bowl painted in a Mycenaean manner was found (Jung 2002: 216). In layer 12-11, there was a high degree of innovation in the potting tradition as many new shapes were introduced. Jung points out that a deep bowl from layer 11 has a similar profile as handmade jars. In layer 12 a cut away neck jug was found: a shape mostly utilized in Central Macedonia for encrusted and matt-painted pottery. In regards to clay receipts, in a few instances these could be shared between handmade and wheel made pottery (Jung 2002: 53, 183 and 217).

Figure 115 Spouted krater from Iron Age context at Koukos, Sikya (Chalchidice) (after Carington-Smith 1991 fig. 5-6)

Late Helladic IIIC spouted krater have been found in 8th century graves in Koukos (see Carrington-Smith 2003). Belly handle amphora, a kylix stem and skyphos shards are amongst the other Mycenaean remains. On one amphora an incised mark could be a Mycenaen character (Carrington-Smith 2003: 244). A certain level of conservatism could be observed in the production of Mycenaean pottery as, for example the skyphos B, has a relatively long production (Jung 2002: 87). As discussed above, this applies to both matt-painted and Minyan ware too. This "lag" could be an outcome of the local use of the pots in the feasting system (see Andreou 2001: 166) where they gained significance in combination with other "international" types of pottery (ch.7.). The "lag" could however also be explained in part as the work of diaspora communities, moving abroad as part of trading operations. Producing and using older shapes, the Central Macedonian potters were not out of touch with trends. A pictorial vase, a ship krater, according to NAA analyses was made in Central Macedonia (Jung 2002: cat.no.406). Pictorial vases were produced in the Late Helladic IIIC period. In Asia Minor the motifs include duck headed ships with spear fighters (see Mountjoy 2011).

The role of the Mycenaean pottery in the feast (Andreou and Psaraki 2007), and its possible use together with other types of decorated pottery is further strengthened by the fact that it is found together with matt-painted pottery in graves. These are warrior graves located north (e.g. Ulanci) and south west (e.g. Aiani and Sphates) of Central Macedonia (Horejs 2007: 265-272; Eder 2008 see also ch.7.5.0). However, an amphoriskos and handmade pottery were found in a shallow burial pit at Toumba Thessaloniki without warrior gear or stone cists (Mulliez 2010: 137). No graves have been found in the Axios Area or in Chalcidice dating to the Late Bronze Age, but in the Serres basin east of the Langadas, a burial site was located at Faia Petra on the Bulgarian border. Encrusted pottery mostly followed the dead, but here, Mycenaean pots were also sent with the deceased to the afterlife (Valla et

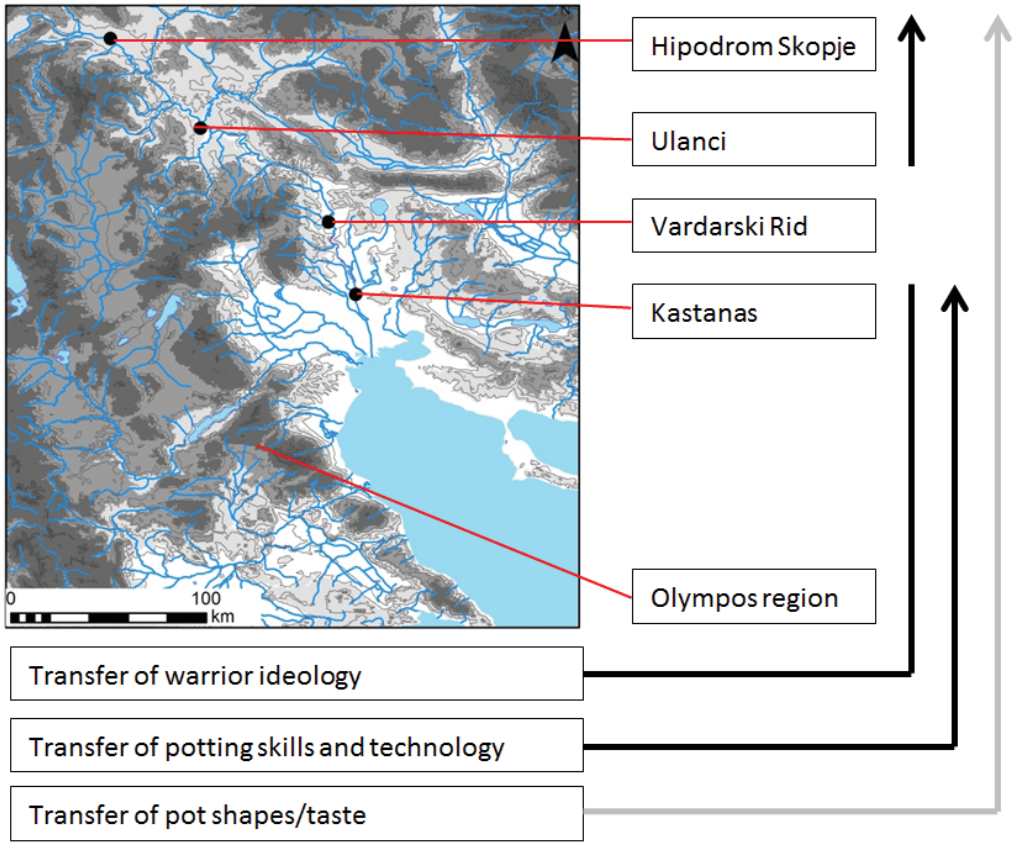


Figure 116 Transmission of warrior ideology, potting and taste from the Aegean to the Balkans and in extension Central Europe (Eastview vector map, KHM and SRTM).

al. 2013: 239; see also Valla 2007). These examples indicate that the same objects combined differently could enable an emergence of contrasting identities: near Olympos warriors could use these to enhance their identity, while at Toumba Thessaloniki this was evidently not the case (see also ch.3.3.0)

Amphoriskoi could have carried prized liquids, and their presence in Greek Macedonia indicates a transfer of ideas about the treatment of the body. This was part of a warrior package which included handmade copies and boar tusk helmets (Hipodrom Skopje; see Mitrevski 1997). Warriors transferring parts of this "package" must have either travelled through the Lower Axios Area from the Aegean, or have come from the North to meet peers either at Axiochori or at a destination in the Bronze Age World reached by ship. North of the Rhodopians, rapiers are more common than Mycenaean sherds (see Harding 2003: 24), one of the main types of decorated pottery in Central Macedonia. A few shards of deep bowls and amphora of a Late Helladic IIIB date from Koprivlen (Bulgaria) contradict this (Alexandrov 2005: 49). It is imaginable that this group represents traded wine and drinking kits with which to consume it. The Danubian distribution of oxhide ingots indicates metal trade (Doncheva 2012), but other merchandizes could have followed this trade. Other evidence of Mycenaean contact in Bulgaria is the Razlog stele which contained imagery of boar tusk helmeted warriors, duck-headed ships as well as spirals similar to those carved by the Mycenaean (fig.2) (Ganeva 2005: 148) and the earlier Vulchitron hoard (although the date is not certain; Sherrat and Taylor 1989: 130). As leaders or guards on trading expeditions, warriors may have transferred some of their taste and bodily ideals (amphoriskoi with perfume) to Central Macedonia, but elements of their ideology only moved north and in the southern borderlands of Olympos (for a discussion of the Mycenaean border in Thessaly, see Eder 2008).

Like pot shapes (the amphoriskos), ideas regarding warriors travelled further than pots and the technology and techniques to make them (fig.116). The answer to why this is could be found in the particular manner in which the feast could have been conducted enabling local exchange and trade with foreigners as they consumed meals and drink in part with "homely" pots. The tell dwellers did not emphasize the individual warrior (see ch.11.3.1), rather they displayed cosmopolitanism perhaps tied to the importance of trade. Maintaining the technological identity of the pots (see Kiriatzi et al.1997) could reflect a persistent situation of multi-ethnicity. Following Eder (2008), Olympos to the south and Ulanci to the north could be the true regional borders if we look at the lack of a warrior ideology between in Central Macedonia, and further the diverse assemblage of decorated pottery and the mud brick architecture which becomes increasingly rare north of the modern FYRO Macedonian border. To seasonally resident merchants, foreigners and the tell dwellers, a range of different types of pottery were produced. Within this larger area sub-groups can be identified in the slight differences; the definition of these are considered below (ch.11.3.1-11.3.7).

11.3.0 Persistent Connections

Bands of traders, warriors and crafters may have come to Central Macedonia from both the Aegean and the Balkans. Not long before the first Mycenaean pottery came, matt-painted pottery was imitated as the previous Minyan pottery had been before. By the Late Helladic IIIA period Mycenaean pottery was introduced in a wider area. In the Late Helladic IIIB period, a regional industry arose with the adaptation of the potter's wheel and new firing techniques which resembled the Mycenaean ones (Garrigos et al. 2003; Jung 2002: 244). This process differed from valley to valley. In Torone this type had already arrived by the Late Helladic I period, while in Angelochori the Mycenaean pottery first arrived in the 12th-11th century BC (Papadopoulos 2001: 279; Stefani and Meroussis 2003: 233). Differences in adaptation of "foreign" types of decorated pottery may reflect how different polities dealt with traders and neighbors.

From the discussion above, it is clear that the Minyan and matt-painted pottery was transferred through imitation of decoration and to some extent shapes. Thus by comparison the Mycenaean pottery transfer was not only more extensive, but also deeper. The Late Helladic IIIA and IIIB periods were expansive; as far north as the gulf of Volos palatial societies had arisen. Warriors and traders penetrated the Balkans, and it has been stressed that they could have reached Central Europe (e.g. Majnarić-Pandžić 2003: 45). Networks expanded as far north as Scandinavia (Kristiansen and Larsson 2005) and westwards to the Iberian Peninsula (Madeiras 2012; Wijngaarden 2002: 3).

The trend behind the imitation of techniques and types in Central Macedonia could be that traders coming to or traveling through Central Macedonia arrived in increasing numbers from an expansive Mycenaean south. The nature of Bronze Age trading operations was such that some stayed behind for a while, possibly even settling if not even colonizing (see ch.4.). They could have been seasonal residents or small diaspora groups. To cater for the tastes of a cosmopolitan group of tell dwellers and their foreign partners the potters produced a mixed assemblage with links to the North and the South (Gijanto 2011: 40). The potters included a number of skilled crafters with ties to the homelands of the traders (see Kiriatzi et al. 1997). This group consisted of not only southerners, but also northerners from the Balkans who transferred encrusted pottery decoration techniques at the dawn of the Late Bronze Age. It is interesting to note that the production of Mycenaean pottery accelerated with the Late Helladic IIIC demise of the palatial societies in Southern Greece and was localized at a grand scale simultaneous to the introduction of the Lausitz ware (ch.12; see Jung 2002: 244). Hänsel's (2002) scenario of a takeover of warriors from the North attacking a weakened Kastanas, and presumably also the other Lower Axios sites, is a plausible explanation for the great changes at Kastanas and the lack of similar transitions in the neighboring valleys. These may have been integrated in the long run, a point to which I return below where the nature of the invaders are also discussed (see ch.12).

Both pottery and small finds reflect contact with people from the North and the South. Contact entails the movement of people, whether in the form of plant remains, ornaments and weapons, pots, production techniques or architecture. The presence of people from different cultural areas, primarily the Balkans south of the Danube (but also beyond) and the Mycenaean south mixed together in one narrow region imply multi-ethnicity. By studying how borders are mediated in decoration in (more or less) subtle manners, the nature of differences and similarities between groups can be discussed. In the cases below, stylistic elements and skeuomorphs in matt-painted, Mycenaean and encrusted pottery are approached to understand how they "tangle".

11.3.1 Grid Motifs

Objects of different types can mimic each other in skeuomorph manners. Relations between different types of pots can be mediated by a different object type, as discussed above in regards to the encrusted whorls (ch.10.1.0). An instance of this is shown in figure 118 which depicts the base of a flat bottomed jar from Toumba Thessaloniki (see Hochstetter 1984: fig.48). Horejs (2007: 246) notes that at Hagios Mamas there are three types of matt-painted bases. It is consistent with type I which can be decorated with painted grid motifs (Horejs 2007: pl. 89.9513). These are found at Gona (Rey 1919: pl. XXV.5) and Hagios Mamas (Horejs 2007: pl.89.9513). This base could possibly belong to a transport or storage vessel, of which the painted base décor was mostly known east of the Gallikos. Object 715, a specimen from Axiochori, has what seem to be incised areas resembling an imprint from a mat (fig.118). A connection between textiles and matt-painted pottery has been suggested (Hochstetter 1982: 203), and fits the matt-painted base well as the motif may be of a mat or wickerwork (in both instances a twined surface). A textile-wrapped jug and piriform jar from Pylona, Rhodes (De Wild 2001: 114), shows that pottery and textiles were used together. An association between textiles and clay is thus highly imaginable (fig.117).

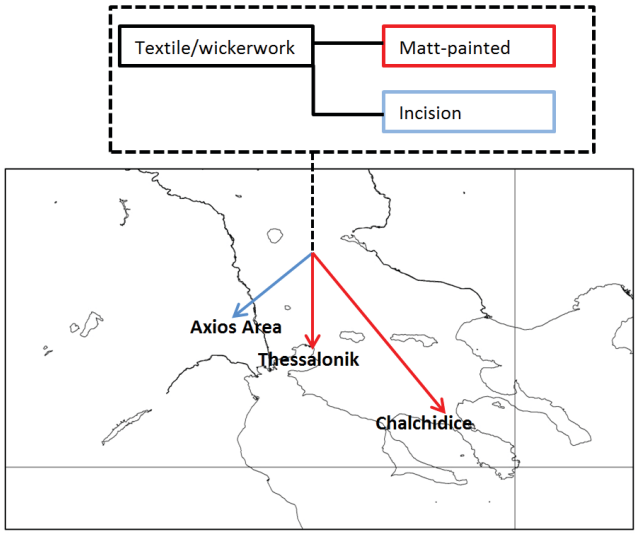


Figure 117 skeuomorph connections between textile working, matt-painted and incision (Eastview vector map, KHM).

The matt-painted pot may have stood on a mat or piece of wickerwork when made, but the pattern it could have left on the clay base was smoothed away. Object 715 (fig.118) has what could actually have been such an imprint, impressed when the pot was in a semidry condition and had been placed on a surface with the particular pattern left on the base (a twined surface of, for example wickerwork). To keep an imprint underneath a clay vessel enhances capabilities of heat transfer as it extends the surface area (see Edens 1999: 109). The fine smooth matt-painted surface would in no likelihood belong to a vessel used for cooking, but rather storage. In all instances matt-painted specimen seems to have had no use in cooking: there are no indications (e.g. charcoal patches) which suggest otherwise.

Figure 118 Skeuomorph relations between matt-painted and Incised pots (object Dsc0151 and object 715) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Both objects in fig.118 carried decoration alluding to use and/or their crafting (if the pot was placed on a coarse piece of cloth or wickerwork). On object 715 this could have been unintentional, or possibly kept for reasons of heat transfer (see Edens 1999: 109). With the matt-painted specimen the motif was painted upon the base by first laying out the vertical lines, and then the horizontal. The grid motif on the bottom of the matt-painted vessel was an intentional move to connect a matt-painted vessel to wickerwork mats by painting a stylized grid. The textile/wickerwork allusion connects incised motif elements known in other areas (the Lower Axios) to matt-painted bases east of the Gallikos, but at the same time it creates a slight difference as the painted version of the element has not been encountered west. It is also worth noting that Mycenaean pottery was left out of this particular connection in Central Macedonia.

Figure 119 Mycenaean LH IIIC Middle (ca. 1150 BC) sherd from Thessaly with a hunter, or possibly a warrior, and a checker element (Mountjoy 1999: pl.325.28).

11.3.2 Checkers and Lattice Motifs

The grid (ch. 11.3.1) could have been used to allude to the crafting of the pot; it connected matt-painted and encrusted pottery through textile inspired motifs, leaving out the Mycenaean. Similar to the grid, the checkers and lattice elements are found in matt-painted, encrusted and Mycenaean (M 56). The matt-painted version of the checker motif is known particularly from Boubousti (Heurtley 1927) but also from various sites in Central Macedonia, although found in different compositions (below, ch.11.3.6) (fig.121).
The checker motif element is not frequent in the Mycenaean assemblage of Central Macedonia, although identified in Southern Greece (M75). Yet one could expect a traveler from the Mycenaean sphere to be familiar with the decoration if encountering it in Northern Greece on a matt-painted or encrusted bowl (fig.121). Encrusted and matt-painted pottery had checkers at a delimited section of the surface. In the case of the pot displayed in figure 121 (upper section) the checkers were divided from the upper section of the pot by a horizontal incised line with a parallel row of evenly spaced impressed dots. The squares in the checker motif were incised in the following order (see fig.122):

1) The vertical lines were incised, as these seem to lie above the others.

2) Either the lower line of upper horizontal band (consisting of a line and a parallel row of impressed dots) or the horizontal lines of the checker motif were incised (the line of the horizontal line of the band cuts the vertical ones, indicating that they were laid on top of them).

3) The dots were most likely impressed either before or after the short vertical lines were incised inside every second square of the motif. Painting this motif would logically include painting a grid and then filling every second square.
Several operations were in play, and in particular the encrusted variant had some complexity to it. Yet the basic scheme was also the same in matt-painted pottery, and further south in Mycenaean pottery.

Figure 120 Amphoriskos decorated with lattice work (Object 302) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

Lattice (fig.120) (M57.2 "diaper net") was often used as a fill in lozenges and triangles. Lattice is made the same way as the grid motif but has smaller spaces between the diagonally crossing lines. The framing element (e.g. triangle) would have been painted first (fig.124), and then the lattice was filled in. Unlike the grid element which was used on the bottoms of rather large vessels, the lattice could be found on the body and neck of vessels together with triangles. This is also the case in Mycenaean pottery, including that from Central Macedonia (see fig.120).

In figure 120 (object 302), an amphoriskos from Limnotopos has a lattice just by the handle, flanked by horizontal bands. The lattice resembles the texture of textile which could be wrapped around the pots (above, ch.11.3.1). Lattice could be a skeuomorph connecting a Mycenaean amphoriskos to textile wrappings while similarly connecting it to matt-painted (see fig.124), Mycenaean and encrusted pottery (see fig.126). The connection between the matt-painted and encrusted pottery was strong as indicated by the very similar use of motifs exemplified in figure 126. Lattice could function as a fill at the end of spirals in Mycenaean pottery (fig.127). This was not the case in Central Macedonian matt-painted pottery or encrusted pottery. In figure 126 the similarity can be seen on object 658, an encrusted vessel, and object 570, a matt-painted skyphos where lattice is used as triangle fill in a common manner. An association between textiles and pottery could perhaps be said to represent trans-culture in a similar vein as metal skeuomorph ceramic vessels (Horejs 2007: 120; see also Sofaer 2006).

Figure 121 Checker motifs, matt-painted and encrusted (from upper right, object 796, 921, 515, 129, 270, 118) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Figure 122 Object 921 (top; encrusted bowl from Toumba Thessaloniki) and 515 (encrusted sherd from Kilindir), close up photo (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

11.3.3 Triangles

Triangles are common geometric figures which occur in matt-painted, encrusted/incised and Mycenaean pottery. Since it is a highly common element, how it is combined into motifs yields the most information. Particular combinations represent a notion of what is appropriate, and its co-presence at different sites or in different types of pottery decoration indicates shared ideas of how to paint or incise a "proper" motif. The category 'triangle' includes v shaped triangles (object 26 and 1028), like-sided triangles and elongated triangles (fig.123).

Figure 123 Common variations of triangles and infill

While triangles with lattice (fig.124), hatches, angle fill (M61.1-2) or a full coat (Furumark M 61.3) are common on matt-painted, encrusted and Mycenaean pottery, elongated triangles and triangles with dotted fill are not commonly found in Mycenaean motifs of Central Macedonia to the authors knowledge.

Dotted infill is most often found in encrusted triangles (e.g. object 314, fig. 139), but is also known from Toumba Thessaloniki's matt-painted assemblage (object 957, fig.63). Triangles can face each other in hour glass motifs (e.g. object 649– encrusted, fig.94 and object 468– matt-painted, fig.137) or away from each other (object 658 and object 570, fig.126) resembling a lozenge (object 180, fig.138). Facing sideways, they can sometimes form the parallel chevron motif (M58.32, object 608, fig.139). It is common that triangles are flanked by hooks, or end in one or two hooks.

On a rare example from Toumba Thessaloniki, an angle filled triangle flanked by two hooks and ending in one, has tassel band sides (object 1073, fig.140). Triangles facing away from each other can end in hooks both on the top and bottom, an unfamiliar combination in Mycenaean and encrusted pottery. However, in the case of encrusted pottery, it is not uncommon that triangles can either terminate with (Hochstetter 1984: pl.1.7) or be flanked by hooks (Hochstetter 1984: pl.1.12). A way of putting together triangle elements that should also be mentioned, and which is also known from encrusted pottery, is that of alternating facing triangles, which is evident on object 394 from Toumba Livadhi (fig.138).

Elongated triangles can have a coat or lattice fill. These are found on both amphora and skyphos, meaning that it was appropriate to decorate a storage jar as well as a drinking vessel with this type of decoration. The elongated triangle is also found in encrusted specimen as seen in figure 144. The elongated triangle seems to occur in combination with few other decorative elements (e.g. object 607, fig.124), but

See printed book for this image.

Figure 124 A Matt-painted juglet with lattice triangle motif (Object 607) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

if of object 990 and 37 (fig.140) are accounted for, some of the most complex motifs have elongated triangles in them. Something that should be kept in mind is that the elongated triangle requires a large surface area on the body. In encrusted pottery, such a space could also be a handle (e.g. Hochstetter 1984: pl.1.13). In the case of object 607 (fig.124) elongated hatched triangles stretch up along the elongated body of the small jug, following the shape of the pot itself.

The dotted triangle is found in combination with several other elements. In matt-painted decoration the dotted fill is not common, although it is known from Toumba Thessaloniki (object 957, fig. 85). This matt-painted specimen connects to encrusted counterparts known across Central Macedonia (fig.85). The scarcity of such specimen along the Axios could indicate localism. On the other hand triangles with dotted fills were known in encrusted variants along the Axios, at Toumba Thessaloniki and in the Langadas at Perivolaki (fig. 85). The motif was also used north of the border at Vardarski Rid (Mitrevski 2005: pl.4.5), and to the north east at Koprivlen (Alexandrov 2002: fig.13.8). Object 1116 shows that this element could also occur on encrusted spindle whorls (fig.84). The dotted triangle and the matt-painted hourglass motifs such as at object 468 (fig.137) thus connect with encrusted pottery (object 649, fig.94) and whorls (fig.85).

Several connections can be seen from this brief survey of triangles, exemplified in figure 125 with the dotted triangle. The encrusted variant ties together Toumba Thessaloniki

with Perivolaki, Kilindir and Kastanas, and then farther away Vardarski Rid and Koprivlen: at these sites, and probably several more, people executed the same operations to create dotted triangles in similar compositions (fig.125).

Triangles were a versatile motif element and could be combined in various ways with other elements like spirals. This case study also showed that matt-painted and encrusted pottery are closer to each other when it comes to choice of motifs. The elongated triangle occurs more often alone, but there are examples where it is also combined with hooks in matt-painted pottery. Elongated triangles do not occur in Mycenaean pottery, and thus serve to connect matt-painted and encrusted pottery together. The reason for these small differences in how common motifs were executed reside in separate, but connected communities of potters making either matt-painted, Mycenaean or encrusted pottery spread out in different areas. The case with the dotted triangles confirms Horejs (2007C) micro-regionality: dotted triangles divide matt-painted and encrusted pottery at the sites of the Lower Axios, but at Toumba Thessaloniki they connect them – a slight divergence in how potters within areas interacted. This example displays a slight difference of taste in the Lower Axios and by the Bay of Thessaloniki. In the former area dotted triangles were reserved for encrusted motifs, but not in the latter. While inspiration flowed between the areas to an extent that key motifs were shared, norms were not adapted in an exact manner. Small divergences could be a way for groups to signal difference (see ch.3.2.0). This could have been an outcome of continuous contact between different groups within a larger entity seeking differentiation. It seems that the potters, although working with different techniques, produced technologically distinct types of decorated pottery with motifs derived from a common "aesthetic universe", catering for local cosmopolites, incoming trading bands and other diasporas.

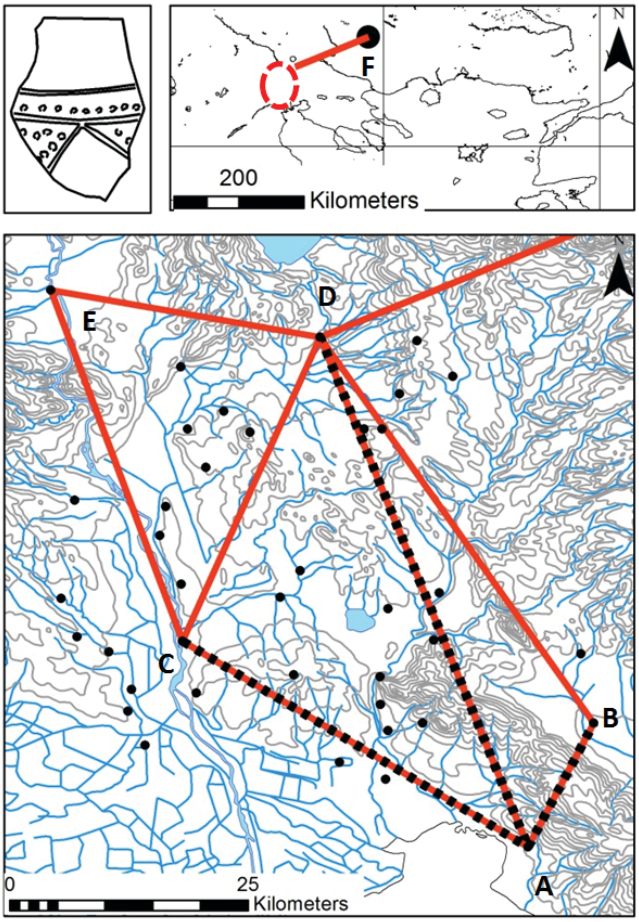


Figure 125 Dotted triangles (like Object 150) were known from several sites. These include Toumba Thessaloniki (A), which is located near to Assiros (B), Kastanas (C) and Kilindir (D) (dotted lines), which in extension are close to each other, Vardarski Rid (E) and Koprivlen (F) (Eastview vector map, KHM).

Figure 126 Examples of matt-painted and encrusted motifs with similar hatched triangles (object 658 and 570) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen)

11.3.4 Spirals, Hooks and Other Curved motifs

A spiral is a line revolving towards its center and a hook is a bent line. While semi-circles are found in the Lower Axios Area (object 137, fig.141), circles, sometimes with a dot in the middle as known from Hagios Mamas (Horejs 2007: fig.164.6), remain unknown until the Early Iron Age in the Lower Axios Area when it becomes a lead motif in both painted and incised pottery as well as bone objects. The spiral is geometrically an advanced figure (see Papaodysseus et al. 2006 for a discussion of advanced spirals in Akrotiri), but appears in several variations in matt-painted, Mycenaean and encrusted pottery. For that reason it is interesting to study in regards to the movement of ideas.

Spirals and hooks are well documented in matt-painted pottery, and are found on storage as well as consumption vessels. The star fish motif could have transferred earlier than in the Late Helladic III period as it did also exist in matt-painted pottery from grave circle Γ at Mycenae dated to the Late Helladic II period (ca. 1600/1500-1430/1390 BC; Horejs 2007: 280). Spiral and hook elements include simple hooks (object 61, object 77 - fig.139, object 276 – fig.141, object 608 - 139, object 957 – fig.63, object 977 - fig.141 and object 1073 – fig.140;) and elements consisting of several hooks combined into a starfish motif element (M26) or curved stemmed spirals (especially M49.28), s-spirals, spirals revolving several times (object 969, fig.142) and running spirals (object 309, fig.). They are sometimes placed in frames alone (e.g. object 92 and 160), while other times are combined with triangles (object 1043), lines (object 104 – straight horizontal line, object 229 – wavy lines), lancets (object 61 and object 990) or in repetition (object 463, 970 and 1015). To the authors knowledge pseudo-spirals are not known in the matt-painted pottery of the Lower Axios although they do appear in incised pottery, sometimes in ornate compositions in the Early Iron Age (object 1098, fig.85).

Narrow spirals

A key element in encrusted pottery is spirals revolving several times, often combined with bands consisting of several narrow lines; similar matt-painted elements are also found. Object 969 and 159 (fig.142) is decorated with matt-painted spirals of this kind, comparable to object 108 (fig.142) which represents an encrusted specimen (see also object 296, fig. 135). This connection was shared at sites in the Lower Axios and Toumba Thessaloniki.

Starfish motif elements

The starfish motif has Mycenaean antecedents (Hochstetter 1982) as well as earlier matt-painted parallels (Horejs 2007: 279) (fig.143). At Kastanas, motifs similar to star fish elements seem to first occur in layer 10 on wheel made pots in the Early Iron Age (Jung 2002: cat. 502). This specimen looks more like the matt-painted variants of Macedonia than what is found in Mycenaean Southern Greece, and could be inspired from Central Macedonian workshops. A good example of this is object 104 (fig.141), which has a four armed star fish and bears resemblance to the star fish-like motif on the wheel made object 1207 (fig.143). A six-armed star fish was painted on the handle of a skyphos from the site of Aivate in Langadas. The skyphoi handles were sometimes pierced, and the hole could be the utilized as part of the motif as well as for fastening strings (Sofaer 2011: fig.3). On the handle of object 570 (fig.126) a faint outline of a circular tassel band encircled a hole. This arrangement is also known from Angelochori (Stefani and Meroussis 1997: pl.152.a). On matt-painted pots from Kastanas a placement at the lower end of the handle seems preferred for star fish motifs or similar stemmed spirals (variant of M49.28), unlike the wheel made specimen which had the ornament placed on the body.

While little remains of object 25 (fig.143, after Hochstetter 1984: 6.3), the other specimen with this decoration from Kastanas published by Hochstetter (1984), are framed on all four sides. In the case of object 87, 92, 96 and 160 the field underneath (in all cases the inner rim) are decorated with hatched triangles flanked by spirals, while in the field above we find either s-spirals (object 92 and 96), hooks connected to a vertical wavy line (object 160), or just a wavy line (object 87) (fig.143). Why were the different elements of the motif organized in this particular manner? The amount of space available at the rim, the lower and the upper handle seems to be the determining factor. While broader than tall, the hatched triangles flanked by hooks are often found on rims of bowls (e.g. object 402, fig.139 and 1043, fig.142).

Spiral-triangle motif elements

A combination of running spirals and triangles are found on matt-painted amphora or jugs (object 309, fig.85). The motif consists of four panels. From the top, there are a series of vertical triangles with a solid fill pointing up. There is then a second panel with lattice filled triangles the top of which touches the line dividing the two panels. The lattice triangles are larger than the filled triangles, which are also comparatively narrow. The next panel consists of a series of running spirals painted from right to left. Strictly speaking these are not spirals: the lines that would normally move in towards a central point are instead covered with a solid fill. The lowest panel consists of a series of hanging lattice triangles. Each panel is divided from the next one by a horizontal line, which merges with the sides of the triangles. The multiple panels are not common in Mycenaean pottery which tends to have only one (fig.127). While rare even in Central Macedonia, a multi-panel layout was found, for example on the skyphos handles of object 92 and object 160 (fig.143).

See printed book for this image.

Figure 127 Object 940, Toumba Thessaloniki, LBA (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

In the Mycenaean pottery assemblage, object 940 (fig.127) from Toumba Thessaloniki illustrates a well-known combination of spirals with intersecting triangles. This layout is unknown in matt-painted pottery, but is found on spindle whorls in the encrusted assemblage. An imported conical cup from Hagios Mamas also carries this motif. The shape belongs to Late Helladic I, while the motif is dated to the Late Helladic IIA period (Hochstetter 2007: 293, cat. 53.10379). Object 134 (fig.142) from Kastanas is a matt-painted sherd with what could be a spiral with an intersecting lattice triangle. While executed differently, object 940 and 134 express the same idea. Putting the elements together would have been done in the same order too; first by laying out the spiral and then adding the triangle. This is particularly evident with object 940, where one can see the paint of the triangle being layered over the spiral line.

The compositions in which spirals, hooks and circles were included share some similarities in the different areas, and also earlier periods. The manner in which the skyphos handles were decorated seems to follow a particular scheme with frames (fig.143). Frames, defined as a delimited space on a jug body within which other elements are placed, were also found in encrusted pottery motifs but not Mycenaean. The matt-painted skyphos handles were not only for holding the bowl with two hands, but also enabled the owner to hang

it on the wall. This represents a turn: in the Early Bronze Age coarse storage vessels could have been hung on the walls (string-holes a common feature, see e.g. Aslanis 1985: pl.7.7; see also Sofaer 2011) while in the Late Bronze Age normally only matt-painted skyphoi could have had this placement, making it conspicuously visible. With string-holes, it could also conveniently be transported, perhaps to a venue at a different tell.

Spiral triangle combinations connected matt-painted and encrusted pottery, while panels with running spirals connected encrusted and Mycenaean pottery. Spirals with intersecting triangles particularly connect matt-painted, Mycenaean (fig.127) and encrusted pottery as well as spindle whorls, thus generating connectivity between technologically different types of decorated pottery. While curved motifs in general are shared, painted circles do not appear in the Lower Axios Area until the dawn of the Iron Age despite occurring earlier in, for example Chalcidice. In general there seems to have been few hybrids. These differences become bridged by the skyphoi handles which exhibit a close similarity across area borders. I discuss near-exact counterparts in Central Macedonia in more detail below (ch.11.3.7).

11.3.5 Line Variations: Lancets, Tassel Band, Zigzag, Straight and Wavy Lines

Linear elements form an important part of motifs. As it is very common, differences may be small at a first glance, but not necessarily insignificant. Hochstetter (1984: 184) emphasizes band decoration, in the form of tassel bands and wavy bands, as an important group of elements in matt-painted pottery. In this category I have included lancets (which are tall spikes), tassel bands (a line traversed by more or less parallel vertices), zigzags, straight lines, and wavy lines (a series of curves following one direction).

Horejs (2007: 248) proposed the existence of an Olynthian style in which the use of Horizontal motif elements was crucial. The tassel band and the "*Sagblatt*" elements were very common on, for example amphora. Known in combination with triangles (object 1073, fig.140) and placed around the pierced holes of skyphoi (object 570, fig.138), the tassel band is relatively versatile. On object 570, the tassel band also runs along the edge of the handle creating a panel. Illustrated by object 301 (fig.138), the tassel band can consist of diagonal as well as straight vertices (object 464, fig. 137), and can be laid in a curved (object 570), horizontal (object 37, fig.140), vertical (object 37) and diagonal (object 1073) manner. While less frequently found on the bodies of drinking vessels, tassel bands are often found on rims (object 464) in addition to amphora bodies and necks.

The use of wavy bands and zigzag motifs in matt-painted pottery is known in Chalcidice, the Thermaic gulf and the Lower Axios. It can adorn matt-painted pottery as segments running parallel to straight lines as is evident from object 122 (fig.138), a scheme also known at Toumba Thessaloniki in both matt-painted (object 956, fig.128) and encrusted pottery (object 922, fig.128). On object 37 and 990 (fig.140) a similar use of wavy band traversing lancets was evident at both Toumba Thessaloniki and Kastanas. On a late specimen from Kastanas, four parallel wavy bands adjoin to a spiral in a way so far not encountered in other type of decoration (object 229, fig.142).

The possibility of painting lancets was dependent on the tallness of the surface on to which they were placed they therefore tend to adorn amphora bodies or necks (Horejs [2007: 248-249] includes placement in her treatment of matt-painted motifs). Lancets do not occur in the Mycenaean or encrusted assemblage of Central Macedonia, although the lancets can be combined with motif elements like hooks for example (which were also used in these types; see ch.11.3.4). The distinction between wavy lines and zigzags may not always be as straight forward in matt-painted pottery as in encrusted pottery. Matt-painted decoration could be painted with both narrow and thick brushes, and in the latter case the meeting point between the zig (/) and the zag (\) may have been rounded rather than angular forming a wavy band rather than a zigzag (e.g. object 990, fig.140). Zigzags occur alone, as on the amphora neck of object 1029 (fig.108), or as parallels (object 989, fig.139): Hochstetter (1982: 211) defined no less than 8 Furumark variations that resemble a matt-painted zigzag line (fig.109). Matt-painted zigzag elements are scantly found along the lower Axios, but are known from Molyvopyrgo (Horejs 2007: fig.162), Angelochori (Horejs 2007: fig. 169.6), Episkopi (Horejs 2007: fig.169.10), Boubousti (Heurtley 1927: fig.25.2), and not least Kastanas (Hochstetter 1984: pl.51.6; object 71).

Wavy bands are rarely encountered in the encrusted pottery (for an exception, see fig.128). While wavy bands are common in the Mycenaean assemblage of Central Macedonia, zigzags are less common (judging by the published material from Kastanas) although object 1139 (fig.136) carries such a motif. This is an anomaly since so many matt-painted motifs from all of Greek Macedonia have Mycenaean counterparts. It also appears in various forms in encrusted motifs (fig.136) or in applied coarse pottery (object 1109, fig.128). Object 72 (fig.136) is a sherd decorated with a panel in which a zigzag line was made by excising triangles. This motif element is also found on the horse bit from Toumba Thessaloniki (fig.153), and is frequently encountered in Central Europe (for the Wietenberg Culture, see Boroffka 1994: pl.38.22).

The use of lines is interesting in matt-painted pottery as they serve to structure other elements in some cases. Decorative elements can either be enclosed by lines on all four sides in a frame, designating a limited surface space, or they can be organized into panels which consist of a long rectangular space defined by two parallel lines which can run across an entire side of a pot, or even circumvent it. Square frames are found on wheel made drinking cups. Such specimen are found in layer 14 at Kastanas (Jung 2002: cat. 58), but the frame is empty. On encrusted pots, frames can enclose a variety of elements, including spirals lined with dots, s spirals and triangles in different variations (e.g. fig.102 and fig.103).

Figure 128 Wavy bands with parallel straight lines in matt-painted (object 956) and encrusted pottery (object 922). Object 1109 has a zigzag line terminating in hooks placed in a panel (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

In matt-painted pottery, panels seem more popular although frames frequently appear on kantharos bowl handles. Object 970 (fig.140) is a curved handle from Toumba Thessaloniki, uncommon along the lower Axios, but also known from, for example Perivolaki (with s spirals; Horejs 2007: fig.164). While handles in the Lower Axios region seem to be divided with frames, arrangements with panels are found less regularly (object 570, fig.126) and are most frequently encountered on bodies (object 107, fig. 141 and object 303, fig.138). Wavy bands may be laid parallel to the lines in panels (object 107, fig. 141), but also tightly enclosed by two lines (object 956 and object 122, fig.126). In the latter case, the combination of lines becomes the focus rather than a supplement to other elements in a motif, as when the lines function as part of frames or panels. As mentioned above, panels can be layered upon each other several times in a fashion unknown in Mycenaean pottery (e.g. object 309, fig.85).

Frame arrangements found in matt-painted and encrusted pottery are not found in Mycenaean pottery. This reveals a different approach to how surfaces were organized in the handmade assemblage. Some decorative elements like tassel bands connect all types of decorated pottery. Yet, the lancet motif element divides matt-painted and encrusted pottery from Mycenaean. On the other hand wavy bands connect Mycenaean and matt-painted pottery, but not encrusted. This could have been a limitation set by the tools. The lack of lancets in Mycenaean pottery could be tied to the frequent use of horizontal bands, preventing the placement of lancet motif elements which are also not found on the low matt-painted skyphos. This could also be an expression of norms in use in the Lower Axios Area, the Thermaic gulf and in Chalcidice alike as proposed by Horejs (2007c) in the micro-region theory. These shared the repertoire of decorative elements and were employed in slightly different ways to create subtle differences. On the other hand, within these regions, the selective use of, for example frames indicate that not only technology, but the manner in which surface space was organized for motifs and the surface design differed in handmade and wheel made pottery.

11.3.6 Borders: Boubousti Pottery

Having dealt with connections and the lack of such between different types of decorated pottery and other objects, I now turn to the case of Boubousti in Western Macedonia, known for its distinct matt-painted motifs (Heurtley 1927). Boubousti represents a community which used matt-painted pottery, but utilized its decoration to distinguish themselves from other communities (fig.129). Object 304 (fig.137) belongs to the Boubousti assemblage, and has a cross-like motif on the handle which most likely belongs to an amphora. More ornate crosses were remarked upon by Heurtley (1927: 183) to constitute an important part of the element repertoire. While this element is not as common in Central Macedonia, other elements, including lozenges, elongated triangles and checkers, occur even though the Boubousti matt-painted pottery can immediately be distinguished as different from the matt-painted pottery found by the Thermaic Gulf and the Lower Axios. In this case I look at how distance could be mediated within the same type of decoration with a significant amount of similar elements composed in unique motifs.

Figure 129 Boubousti (black dot) (SRTM and Eastview vector map, KHM). Below: matt-painted pottery from Boubousti, with a composition of motif elements different from that of the Lower Axios (after Heurtley 1927: fig. 28).

The valley in which the Boubousti were located lies just south of Lake Kastoria, the only viable travel options are either to the north or the south (for a thorough description of the landscape, see Heurtley 1927: 161). While there are Mycenaean swords and pottery from the cemeteries in the vicinity of Grevena and Kozani (Iordanis et al. 2007: 1798; Karamitrou-Mentessidi 2011: 100; Heurtley 1939: fig.104. ee), Heurtley (1927: 177) only retrieved one Mycenaean sherd and a bone pommel with two holes from the tell site of Boubousti. The site is oval in shape, and measures 8x20m (Heurtley 1927: 163, 177) placing it amongst the smaller if located in the Lower Axios region with a maximum area of roughly 125.6 m2. The site is dated to the Late Bronze Age/ Early Iron Age transition, with the excavator commenting that habitation could not have continued for long in the Iron Age due to the absence of wheel made pottery (Heurtley 1927: 179). Houses built of mud brick laid on stone foundations, and a dome shaped oven were located on what was most likely the outside, as at Kastanas (layer 13-11), while hearths were also located on the inside. Heurtley's (1927: 177) initial dating of the site, 1300-900 BC, the Late Bronze Age-Early Iron Age, could be fairly accurate.

A small site, it could well have had the capacity to produce matt-painted pottery decorated in a fashion distinctly different from that of the Lower Axios or Chalcidice, but rather close to some specimen from Aiani (Hochstetter 1982: fig. 8.12) and in extension the Geometric pottery of Western Greece and Albania (Hochstetter 1982: 214). The site could have been a place for shepherds (Heurtley 1927: 165), but they would not likely carry with them such a large assemblage of pottery, including pithoi. A settled small scale community could however have exploited the riverine lands beneath the escarpment at which the site was located, as well as the hills behind. It could have been a Late Bronze Age/Early Iron Age satellite site, as encountered in Thasos (Koukouli-Chrysanthaki and S. Papadopoulos 2009: 11).

The shapes include cut away neck jugs, which are also known in Central Macedonia. This represents a link in respect to the shape of pouring vessels, although the necks were decorated with motifs of densely spaced checkers (fig.130), lozenges and triangles. The same *horror vacui*, in Horejs words (2007), is also reflected on handles, although the bodies were less densely decorated with for example triangles. Textiles could well have been an inspiration (above, ch.11.3.2), but this connection was mediated differently at Boubousti and

Figure 130 Matt-painted pot from Boubousti (Heurtley 1927: fig.18).

the Axios sites. Single elements, like checkers, are identical to what are found in Central Macedonia although they are organized into motifs in a radically different manner (see for example 394 and Heurtley 1927: fig.25).

The use of several frames is evident (Heurtley 1939: cat. 464), but the motif elements are densely spaced within them. Such arrangements are known from skyphos handles (object 976, object 87), but not on jug necks. The manner of how to place what are largely the same elements together separates Boubousti from the sites further east. The matt-painted pottery's style functioned as one device for distinguishing the dwellers of Boubousti from their north eastern neighbors, even if the pot shapes were largely the same. Curiously, the meanders of the matt-painted pottery of Boubousti correspond well with encrusted pottery from Axiochori (object 1060, fig.107), as do the pierced triangular lug handles (compare object 1060 and Heurtley 1927: fig 18). Elements in the motif design were the same, although the layout of these elements differed. That the dwellers of Boubousti and the Lower Axios environs shared much is clear, but it seems as if they used the elements to express subtle differences.

The cause behind the stylistic differentiation could be that the people in the Boubousti area sought to contrast their group identity to that of the dwellers of the Lower Axios. Boubousti could be said to geographically belong to the border of the Mycenaean fringe, in which some people buried their dead in warrior graves (see Eder 2008). The dwellers in this area largely preferred the matt-painted type rather than the encrusted pottery, although utilizing some Mycenaen goods (see Heurtley 1927; Eder 2008; Feuer 2003: 18-20; Feuer 2011: 521). The graves of Kozani and Olympos display a different view on death and status than the people inhabiting the area between the Strymon and the Aliakmon, which together with the combination of certain types of decorated pottery could indicate of a regional ethnic border, a topic I return to below.

11.3.7 Counterparts

The case of the Boubousti pottery illustrates how certain aspects of objects can connect, while at the same time be used to communicate small but crucial differences: the same decorative elements could be organized into very different motifs on pot shapes co-present in Central Macedonia (fig.132). While this example illustrates what was suggested to have been an ethnic border, the borders between polities in Central Macedonia may have been of a more fluid character and can be discussed in light of highly similar pots found at different sites within and outside polities.

Assiros has plenty of shapes which could be decorated with matt-painted techniques, like cut away neck jugs and kantharoi, but as Wardle (1980: 249) remarks, matt-painted pottery is more common in the Axios region. Cut away neck jugs were decorated rather with encrusted motifs.

Of the few matt-painted pots from Assiros, a bowl has two panels with running spirals painted upon its body (fig.133.1). A horizontal band decorates the rim. The stem of the spirals in the lower panel consists of five fine diagonal lines running up from left to right and revolves into a circle, while the stem in the upper panel consists of four lines. A highly similar counterpart to this object is found at Vardarski Rid across the border to FYRO Macedonia. This deep bowl is decorated with two painted panels, both of which have running spirals. The stem consist of six parallel diagonal lines running down from left to right before the upper line revolves into a circle (Horejs 2007: fig. 165.4; see also Mitrevski 2005: pl. IV.2). While the direction of the stem differs, the degree of similarity could suggest that the potter(s) who made the bowls shared knowledge of shapes and methods of decoration as they conceived the decoration in an almost identical manner. If one takes into regard object 650 (fig.131) from Kilindir, it could seem as if the multiple stem spiral could be conceptualized in encrusted pottery too.

The layout and shape of the triangles a matt-painted skyphos from Assiros also showed in figure 133.2 are almost identical to specimen from Livadhi (object 394, fig.131), Limnotopos (Horejs 2007C: fig.6), Angelochori (Horejs 2007C: fig.9.2) and Chadsinota (Horejs 2007C: fig.9). In figure 133.3 another case is illustrated: a combination of lattice triangles and spirals similar to object 134 (fig.142) from Kastanas, Angelochori and Chadsinota (Horejs 2007B: Online fig. 9). Such similarities can be characterized as homogenizing connectivity of the horizontal linear bands of the Mycenaean pottery or even the matt-painted. The stylistic homogenization could be derived from two processes:

1) Migratory movement of potters, for example through intermarriage (Hodder 1982: 101; see also Graham 1995: 12) or trade diasporas (see Knapp and Van Dommelen 2010; Curtin 1984).

1 …although much of the matt-painted pottery from the Royal Cemetery at Aiani seems to be decorated with polychrome motifs, without the horror vacui which hallmarks the pottery from Boubousti (see Karamitrou-Mentessidi 2007: Online).

2 Horejs (2007: 262-263) provides an insightful comment regarding the matt-painted pottery in regards to horror vacui in motifs. An unfortunate mistake was however made in fig. 165, as sherd 1-3 in fact do not come Axiochori, but Boubousti and are parallel to the pottery depicted by Heurtley (1927: pl. 13) in his publication of Boubousti.

See printed book for this image.

Figure 131 Matt-painted skyphos with lattice triangles (Object 394) and Object 1158, a Mycenaean pot from Kastanas with a motif typical for Encrusted pottery. Object 650, encrusted running spirals in frame (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen)

2) Mobility of locals, perhaps bringing their own drinking kits to feasts. In Mycenaean Greece the palaces provided venues and for most guests mass produced kylikes, while the participants may have brought provisions (see Halstead 2011: 35-36). In Central Macedonia, it may have been that guests brought fine produce in fine pots to feasts.

The first explanation is supported by the close, but not exact, counterparts found at different sites. A fluctuation of people may have served to distribute inspiration, while intermarriage could have steadily moved potters from site to site, merging traditions. The second explanation may be parallel to these movements and spread pots, explaining why there is such great diversity of regional wares in the Late Bronze Age in addition to local wares and some imports (see Wardle 2009; Jung 2002: 56). Such movements could explain variability of techniques and wares.

This dynamic could also be found in the encrusted assemblage as well. Objects 714, 296, 322, 342, and 792 (fig.134 and fig.135) carry the same motif, an s-spiral lined with a tassel band, executed in a highly similar fashion, whilst object 768 (fig.135) represents a variation on the theme. The distribution of these objects connects the Lower Axios and neighboring area of the Bay of Thessaloniki. In a rare case, this design could be projected in Mycenaean pottery (object 1158, fig.131). The motif is complex, and requires several different operations. Its distribution could be a reflection of potters moving between sites within and beyond micro-regions.

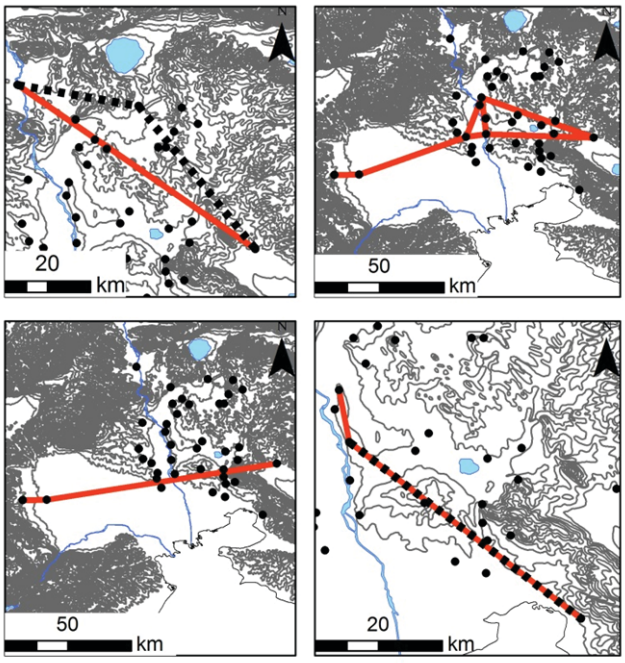


Figure 132 Objects decorated in a highly similar fashion. Upper left shows the running spirals, nearly the same at Assiros (fig.133) and Vardarski and expressed with the encrusted technique at Kilindir. Upper right shows the distribution of hatched matt-painted triangles. Lower left shows the distribution of spiral and lattice triangle combinations, and lower right shows the distribution of encrusted spirals outlined with tassel bands created by impressing dots (fig.134-135) (Eastview vector map, KHM).

The existence of micro-regions is most strongly reflected in the proportions of matt-painted, Mycenaean and encrusted pottery which differed in Chalcidice and the Lower Axios Area in regards to, for example encrusted pottery (much more popular in the Lower Axios Area). Horejs (2007C) has convincingly shown this in regards to matt-painted pottery decoration by demonstrating preferential use of motifs in 8 different areas. These micro-regions were however not intraversable. The relative homogeneity could reflect denser movements of people rather than the existence of fixed

borders. If the polities were kept together by alliance-making through feasting, people from, for example the fringes of the different polities could benefit from cross-border alliances. Dwellers in more central parts could also maintain ties with tells from other alliances as a security measure against dominant neighbors (see ch.6.5.0, the Pashtun example). The dense distribution of sites in the Lower Gallikos (see appendix 4) could reflect a bountiful situation as the dwellers could derive trade from the sea, a connection with the sites of Axiochori, the Vathi-Gerakari highland, and Toumba Thessaloniki as well as placer gold from the Gallikos. It must however be noted that Axiochori had better command over the nearby agricultural lands of the Pikrolimni Plateau which the sites of the Lower Gallikos may have depended on to some extent. This pattern is consistent with the confederation model in which the members gave up some, but not all power (see ch.4.1.2). In Central Macedonia, these confederations could be kept together by soft power in the Bronze Age.

Figure 133 Matt-painted pottery from Assiros with spiral and triangle decoration.

Figure 134 Object 714 from Axiochori, encrusted spiral tassel band motif (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

Figure 135 Similar encrusted specimen with spiral tassel band motifs (object 792, 768, 342, 322 and 296) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

11.3.8 Mobility and Boundaries

The different types of decorated pottery had different origins and were rarely found together in the same contexts in the Balkans and Aegean (see Harding 2003). Their combination in Central Macedonia derives from their use in local feasting networks and facilitated contact with foreigners who came as part of trading bands. The cosmopolitan mercantile communities of Central Macedonia were in contrast to their neighbors both to the north and south as they did not profess to a warrior ideology exhibited in lavish burials, largely lacking in Central Macedonia (see Andreou 2010: 651). While sharing the matt-painted technique with the dwellers of Boubousti, a small community to the west, the use of motif elements differed in their combinations (ch.11.3.6). As discussed in chapter 11.3.1-11.3.5, a similar strategy was pursued within the region, and defined polities such as the Lower Axios Area. Motif element combinations could serve to produce slight differences, but the polity borders were not completely closed: relatively similar objects ended up in different areas, which also shared technology, pot shapes and motif repertoire. While Axiochori had a grasp over the neighbors in the Lower Axios Area, ties were maintained outside the polity. The surrendering of power in local communities was only partial, and it can be posited that the sites, which formed clusters, were in a mini-federation-like structure. Above the toparchy level (see Kotsakis 2007), an intermediary polity level which included several clusters with Axiochori in its center – the level at which resources in large enough quantities were mobilized to participate in trade. The clusters may have been kept together by soft power in confederation-like structures.

Each of these polities was also most likely multi-ethnic. Traders, warriors and crafters came from the Balkans, Central Europe and the Aegean area and may have stayed on for a while transmitting knowledge and ideas (for example potters, see Kiriatzi et al. 1997; see also ch.5). Between 1400-1200BC the region was marked by cosmopolitanism which enabled local networks and connectivity with travelers. The combination of matt-painted, Mycenaean and encrusted pottery did not lead to extensive hybridization. Although some hybrids existed, the use of similar motif elements only tied the pots together at a very basic level. This very much suggests salient contact, perhaps through the existence of small groups of diasporas at the tells. A method of dealing with these differences was to combine the pots decorated in different manners into one set, as suggested by the discussion on contexts in chapter 7.

Motif-wise the matt-painted and encrusted pottery were more closely connected and also shared a particular link with textiles through encrusted whorls with motifs compatible to matt-painted counterparts (see chapter 10.1.0 and 11.3.2). At a cognitive level, the surface was divided in a different manner (frames versus panels, ch.8.1.0 and 11.3.5), an indication of the likely possibility that they were made by different groups, as suggested by Kiriatzi (et al. 1997). Within the region intermarriage, trade, exchange and feasting may have moved people and pots, thus generating a common ground in regards to the "alphabet" of motifs, but the "letters" were utilized to tell different stories. As discussed in chapter 8.1.0 and 11.30-11.3.7, these were often the same. While much of the trade may have been under the auspices of Axiochori and other key sites, trampling (see ch.3.1.0) and trade with local produce not yielded to storage sites could have served to distribute for example Mycenaean pottery widely at coastal sites (see fig.9), but through the encounter with foreigners knowledge of the world and its ways (cosmopolitanism) may have been obtained for many rather than few of the tell dwellers.

Figure 136 Encrusted/incised and matt-painted pottery (object 33, 1139, 71, 651, 44, 930, 72 and 68) (1).

Figure 137 Encrusted/incised and matt-painted pottery (object 464, 471, 468, 304, 158, 7 and 10) (2) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Figure 138 Matt-painted pottery (object 180, 658, 570, 303, 394, 122 and 301) (3) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

Figure 139 Matt-painted pottery (object 1028, 402, 77, 957, 608, 989, 61 and 1015) (4) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Figure 140 Encrusted/incised and matt-painted pottery (object 990, 37, 1073, 970 and 463) (5) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Figure 141 Matt-painted pottery (object 107, 977, 965, 137, 276, 976, 104 and 26) (6) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

Figure 142 Matt-painted pottery (object 966, 229, 1043, 108, 969, 159, 134 and 963) (7) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

Figure 143 Matt-painted pottery (object 1207, 92, 87, 25, 160, Heurtley 1939: fig.90.c and 96) (8).

Figure 144 Encrusted/incised and matt-painted pottery (object 158, 519, 481, 500, 312 and 46) (9) (accessed with the courtesy of the the University of Thessaloniki, photo Aslaksen).

Figure 145 Impressed circular motifs, from the Bronze Age (object 459, 844 (with close-up), 21 and 873) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

12.0.0 Heurtley's Lausitz Ware

In the excavations before the Second World War (see Heurtley 1939), the fluted ware pottery that was found along the Axios was sometimes referred to as *channeled* and includes *fluted*, *facetted* or *grooved* pottery decoration (Heurtley 1939: fig.87; Bulatović 2007; 2009). The introduction of this pottery has been connected to the arrival of the Lausitz people who were held responsible for the destruction of sites like Axiochori in the transition phase to the Early Iron Age (Heurtley 1939: 129). While the term "Lausitz pottery" may have gone out of fashion, the label nevertheless captures an important group of pottery co-present north in the Danubian reaches even if it was used by several people rather than just the hypothetical "Lausitz invaders". The pottery can open up discussions which illuminate the formation of group identities; how the pots were received, their distribution, context and relations to other objects are discussed, as well as their users. A crucial point should be why the "Danubian" pottery was found in Central Macedonia and the designs of locals who adapted it (see Heurtley and Hutchison 1926: fig.12).

12.1.0 Fluted, Facetted and Grooved Pottery in Central Macedonia

A series of techniques could be associated with the "Danubian" "Lausitz" pottery although it tends to share an often well burnished brown, grey or dark surface and a dark core. Faceting can be identified, especially on handles (see Heurtley 1939; Hochstetter 1984). Karavanić (2009: 39) described two popular techniques, fluting and grooving decoration methods, in the following manner: fluting could be produced by drawing a finger through the clay, creating wide rounded furrows, sometimes referred to as channels, while grooving refers to the carving of narrow deep furrows with a blunt stylus. Faceting was produced by cutting narrow straight strips. Handles are amongst the most frequently fluted or faceted pot parts, the former with a more twisted appearance. A division is made in the Balkans between pseudo-turban rims distinguished by fluted channels so shallow that they do not become visible to the eye in pot profiles (Kovačević 2009: 56).

In Central Macedonia we find fluted and faceted handles, grooved and fluted pot rims and bodies. Shapes with fluted handles include traditional cutaway neck jugs, which could also be incised or knobbed (see Hochstetter 1984: 56 and 191). Fluted and grooved pottery seems to be more frequently found along the Axios and to a lesser extent along the southern reaches of the Gallikos. In the neighboring areas of the Langadas there are few fluted rims but some fluted or faceted handles. This is also the case at Chalcidice (observed in the French Collection; French 1967). In the hinterland of the Gallikos there are only a few examples of faceted handles

See printed book for this image.

Figure 146 Turban rimmed bowl (Object 279) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

and fluting (observed in the French collection; French 1967). In the vicinity of Thessaloniki a few specimen have been found, discussed above. A concentration along the Axios should bring the gaze north; a key route examined by researchers such as Heurtley (1939) and Hänsel (2002).

The first occurrence of fluted and faceted pottery at Kastanas is in layer 13, after ca.1200 BC. This layer is the first in the period K V and represents the beginning of a transition from Bronze- to Early Iron Age. Hochstetter argued that due to the small proportion of channeled pottery in layer 13, it may have been imported from the North on the Axios route. As shown in chapter 7 it was, like other types of "foreign" decorated pottery sometimes, found in the same house as the Lausitz pottery (see appendix 1). Upon inspection of the Lausitz pottery Heurtley excavated, Wardle (et al.1980: 230 and 232) concluded that the fabric did not diverge from other types of Central Macedonian pottery. This does not accord well with older theories that suggest the transfer of fluted and grooved pottery to have been connected with larger invasions (e.g. Heurtley 1939).

A possible scenario for the introduction of the channeled ware furthered by Hänsel (2002) emphasizes that a warrior elite could have fallen upon the weakened inhabitants of Kastanas, killing off some but keeping others, perhaps the women. A limited attack in the Lower Axios Area explains the continuity of handmade pot shapes, but also the sudden changes in architecture and the addition of fluted ware to the assemblage of decorated pottery. A peculiarity, the fluted pottery increases at the same time as the wheel made pottery (with which it was used together, ch.7.5.0; see Jung 2002: 225-226, fig.73; Hochstetter 1984: fig.1 and fig.50) and the re-introduction of mud brick architecture in layer 12. Its introduction is even similar to that of the Mycenaean pottery – first imported and then locally produced (see Hochstetter 1984: 194). At Thasos, fluted ware was also found in graves (Koukouli-Chrysanthaki 1992: 821). This could indicate that the newcomers and the impulses they brought were quickly integrated into North Aegean societies (see Hänsel 2002: 26).

Cups and urns are the first forms to enter the assemblage of Kastanas in layer 13 while bowls, which represent the most common form, were produced locally from layer 12. The bowls were most frequently decorated on their rims, which was a common shape across the Balkans (object 279, fig.146)

(Hochstetter 1984). It is again possible to see a link to the role of Mycenaean pottery: drinking vessels (e.g. skyphoi, kylix and krater) were of key importance (see Jung 2002: fig.73). It could be that the northern invaders were subsumed quickly into the cosmopolitan feasting practices which were open for inclusion of both new types of decorated pottery and people. Below, I argue that the combination of fluted handles onto traditional pot shapes like cut away jugs, sometimes incised, in areas not struck directly by the invaders (e.g. the Langadas; see Wardle 2009) represents this immersion into the regional networks. New extramural burial customs emphasizing warrior ideologies and individualism may have spread from valley to valley, although these new influences were received slightly differently (below, ch.12.3.1).

12.1.1 Lausitz Pottery – Connectivity

From the presentation above, it is evident that the Lausitz pottery was intertwined in the local assemblages at the tells of Central Macedonia rather than imposing a new order. These links include both motifs and shapes. The motifs spread across the borders to places which were not struck by the events in the Lower Axios Area, reflecting the continuity of old networks.

The first channeled pottery was found at Axiochori in layer 10 (2) of section IV on top of the tell. Object 287 (fig.147) from layer 10 (2) IV is a fluted handle of what could have been an amphora or a jug. The surface is micacious brown smoothed but not burnished. The fluting was made by drawing a finger in diagonal movements down along the handle. The fabric is coarse and has rather large inclusions of quartz and sand. From the same layer, although from an unknown trench, an open jar with rope decoration had a handle with furrows running obliquely from the right to the left on the upper half (object 355, fig.147). The technique used was drawing with a finger or a broad round tipped stylus. In both instances the tool could have been a fingertip and the movement of the hand diagonal (from left to right). The design idea was the same although executed differently as the furrows of the amphora (object 287, fig.147) are smoother, deeper and more plastic than the uneven shallow furrows of object 355. Object 355 (fig.147) could be looked at as a hybrid in regards to its motif: an old shape and rope decoration on one hand and new types of fluted decoration on the other mixed together on one pot denoting a transfer of ideas from one potter to another, or inspiration from a fluted pot (e.g. object 287, fig.147) to a potter (the maker of object 355, fig.147).

A number of interesting examples of fluting can be found from Toumba Thessaloniki. These include the fluted handle of what could have been a kantharos (object 642 - phase 3, fig.148), a fluted traversing bowl handle (object 641 – phase

Figure 147 Examples of fluted (Object 287, 642, 641 and 638) and a local grooved imitation (Object 355) (accessed with the courtesy of the Archaeological Museum of Thessaloniki and the University of Thessaloniki, photo Aslaksen).

Figure 148 Fluted kantharos jug (Wardle 1996), cup with fluted handle (Hochstetter 1984: pl.114.2) and a jug with fluted handle (Object 221). These specimen all have incised motif elements as well as fluting

3-4, fig.148) and a coarse cup on which there is a horizontal row of stylus impressed dots that divide the upper body from the lower squat body which is decorated with fluting (object 638, fig.147). It is interesting to note that object 638 and object 642 combine different types of decoration (fig.147).
A jug (Hochstetter 1984: pl. 82.6) from layer 12 at Kastanas, contemporaneous with phase 3 at Toumba Thessaloniki, is an example of how fluting and incision could be combined (fig.148). A horizontal incised line divides the upper and lower body of this pot. From layer 10 a jug handle of a similar type as that of object 642 (fig.147) was found, but with two parallel incised lines framing a row of impressed dots below the rim (Hochstetter 1984: pl. 117.13), while an earlier example from layer 12 could be regarded as a starting point for this combination of techniques (Hochstetter 1984: pl.75.4). An even more elaborate scheme is represented by a cup from the same layer on which the motif includes hanging triangles framed by incised lines and parallel rows of dots (fig.148; Hochstetter 1984: pl. 114.2). Such motifs were also co-present at other sites in Central Macedonia. A cut away neck jug from Assiros (phase 1; Wardle et al. 1980: fig.19.52) represents an example where two parallel incised lines follow the rim and end near a fluted handle. This constellation is also found on small one handled jugs with parallel incised lines framing a row of impressed dots which also circle the lower end of the handle (phase 1; Wardle et al. 1980: fig.19.52). It seems that in the advanced Iron Age the two incised lines framing a row of impressed dots were a commonly combined motif on jugs of various sizes and Kantharoi. The introduction of fluting may have been eased as it was combined with the known incision technique (fig.148 and fig.149).

At Assiros, in the neighboring Langadas Basin, the channeled handles are found on various jugs as well as a small proportion of turban rimmed bowls (Wardle 2009). There are also channeled trigger handles for storage Kantharoi (phase 4) (fig.148). Throughout the Iron Age, channeling persists until phase 1 on storage jars, cut away neck jugs, kantharoi on urns and bowls. Channels also occur together with incised decoration and on animal head handles in Assiros (Wardle 2009; Wardle et al. 1980: pl.21.f).

A Kantharos (fig.148; Wardle 1989: pl.68.e) with fluted trigger handles from phase 3 represents an interesting case. The dotted lines framed by incised lines are found by the handles, the neck and the rim, while the incised triangles resemble

Figure 149 Cut away neck jug with incised and impressed decoration (Object 176).

those found at Kastanas (fig.148) (Hochstetter 1984: pl.114.2 and pl.117.13), thereby showing interrelations between geographic areas, decoration types and shapes – perhaps in what could be designated as a case of hybridization. There is also a temporal dimension to the cases above; while the fluting belongs to the period after 1200 BC, horizontal dotted lines framed by parallel lines appear earlier. An example of this is found in Kastanas' layer 14b, where this motif decorated the rim of a cutaway neck jug (fig.149) (Hochstetter 1984: pl.51.13). The cutaway neck jug was again a common shape in matt-painted and encrusted pottery, just as the kantharos.

These examples show how new incoming design ideas could merge with older traditions, even across borders. This means that ideas could flow into areas not struck by the possible northern invasion; the newcomers were evidently able to use existing local networks. One level of interaction could be intermarriage, which could spread the new techniques and motifs from the Lower Axios to the Langadas. Intermarriage could also explain why the possible newcomers were quickly integrated in the North Aegean societies (see Hänsel 2002). At another level, they could have also utilized older trading networks, since the fluted and grooved pottery were used in the same way as other types of decorated pottery in ensembles (see ch.7.1.3; see also appendix 1). In chapter 12.1.2, I explore how a central design idea connected with the new pottery may have moved.

12.1.2 Skeuomorphism - A Twisted Appearance

The design idea behind fluting is related to metallurgy and represents a new skeuomorph in Central Macedonia. The fluted handle looks to have been twisted but this effect was gained by drawing fingers or styli through clay traversing diagonally or horizontally, just as with rims or bodies. Cups and bowls were most frequently fluted, grooved or facetted and largely belong in Early to Late Iron Age contexts although they can also appear at the end of the Late Bronze Age. The bowls with fluted rims are referred to as turban rimmed bowls (fig.146) and are found throughout the Balkans (Bulatović 2009). Another type of object which is found from Southern Greece to Sweden throughout the Iron Age is the twisted neckring, as well as pins with twisted necks. Unlike the handles, the bronze metal allowed the neckrings and pins to actually be twisted. Torque is derived from Latin (*torques*) and literally means twisted (fig.150). These could also have been used as ingots (Eluère 1987: 22-24). Torques appeared together with other dress ornaments which point north towards Central Europe. Another ornament found in Northern Greece which points to connections in this direction is the iconic spectacle brooch (Pabst 2008).

The neckring from Kastanas is relatively late (layer 3), but the shape is encountered at Vergina in the 10th century and Glasinac (Bosnia) in the 9th century (Hochstetter 1987: 37). Of other objects with a twisted appearance about 10 fragments of rolled bronze wire (hair rings) were found in the Iron Age slab grave, a smaller version of armlets from the same site (Casson 1921: 12). These were bent, but the shape of the spirals would depend on the material quality of bronze to be twisted, bent and rolled when hot just as with torques. Similar objects are also found in Albania and Olympia, and according to Papadopoulos (2010) these were popular as hair ring ornaments for women in the Early Iron Age. These metal artifacts tie Central Macedonia together with both the Balkans and Southern Greece; it is particularly interesting that they could follow people in their grave mounds at Vergina (see Rhomiopoulou et al. 1989; Andronikos 1969: pl.89) and in Mojsinje (Čačak) in Serbia alike (Vasić 2010: cat.141). We could thus perhaps speak of a twisted design applied to different objects to different degrees.

In layer 13 at Kastanas, just after 1200 BC, a bow fibula already indicates a connection northwards (Hochstetter 1987: 34). Neckrings, pins and fibula are worn, and Kristiansen (1998: 386) and Pabst (2008) argue that such personalized objects would have followed an individual. Historically, waves of northern migrants have been a model used for explaining change since the age of the classical authors, for example Thucydides (Thuc.1.12; see below, ch.12.3.2). Kotsakis argues that the migrations suggested by these could have been rooted in their own time, an age of migrations and colonization, rather than the past they sought to explain (Kotsakis 2007: 15). Yet, it could be that there was an influx of new people in the area between the Aliakmon and the Axios in light of the evidence from Kastanas which indicates a sudden change: the emergence of new burial customs at, for example Vergina (see Andreou 2010: 653; Andronikos 1969), accelerating in the 8th century BC (Morris 1996: 155).

Figure 150 Torque and fluted handle.

See printed book for this image.

Figure 151 Spectacle brooch, Tsautsitsa (after Casson 1968: fig.51) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

The Kastaniote fibula (Hochstetter 1987: pl.3.1) could have been traded or worn by a traveler who came to Kastanas, or perhaps even produced locally. Regardless of the scenario, however, it would include mobility of people to bring the fibula or its design. At the time fluted and faceted pottery was introduced, fashion was shared with the areas in Central Europe and the Balkans where these types of pot decoration were introduced later in the Early Iron Age. Twisted neck rings without smoothed ends appear in the Carpathian Basin in the BzD period (roughly parallel to the Late Helladic IIIB period), and in Serbia in the Ha A1 (roughly parallel to the Late Helladic IIIC period) (Bulatović 2009). The bronze specimen has counterparts in gold. Twisted neckrings with smoothed ends are dated to the Ha A2 in Serbia, and are also found in Gevgeli, FYRO Macedonia (Vasić 2010: 34-38). In the parallel encrusted ware using Žuto-Brdo – Dubovac culture and Gîrla Mare-Cîrna groups of Southern Romania, the clay figurines may seem to wear what must be smooth neckrings in the Middle Bronze Age of Serbia (Late Helladic I-Late Helladic IIIB) attesting their use of neckrings (Vasić 2010: 54). If imported from the North or brought along by incoming warriors and traders, it would mean that fluted pottery influenced or perhaps more accurately *conditioned* the Central Macedonians towards the torques: the pots came before the metal, and most interestingly the torques especially resemble the handles (fig.150).

As discussed above, the twisted neckring was introduced when fluted ware is frequently encountered across the Balkans, together with other objects with a trans-European character like the spectacle brooch (fig.151; see Alexander 1965), found at Iron Age Tsautsitsa and Vergina (see Casson 1925: 2.2; Andronikos 1969: 89). This is a period when the pseudo-spiral is dominant in potting, whilst the spectacle brooch is in fact close to the type of spirals found on Late Bronze Age pottery (see fig.127). A trajectory where a design idea, twisting or spiral, moves from one medium to another, in this case clay to metal, could be proposed even if the metal objects belonged to migrants: they would have come from an area which had fluted pottery and arrived at a place where the same types could have enabled their ornaments to fit into a context. The newcomers may not necessarily have been many, but their ideas were compelling and introduced an entirely new way of thinking about spirals. As in the Bronze Age, contact with the North was continuous, and after the initial attack in the Lower Axios Area trade could have resumed.

12.2.0 Inter-Regional Perspectives

The design idea of twisting is prevalent in Northern Greece from the very end of the Late Bronze Age (ca.1200, parallel to the Late Helladic IIIC period), first in the pottery assemblage but later in metal artifact assemblage. The Lausitz pottery remained prevalent throughout the Iron Age, and it could be assumed that soon after its initial import it became integrated –users, some from abroad, stopped noticing the twisted appearance; this in turn may have eased the transfer of other objects with a twisted design later. It is instructive to follow this type of decorated pottery in the neighboring regions, both in regards to techniques and design ideas.

The fluted ware is found widely across the Balkans and beyond from Italy, Hungary, Romania, throughout Serbia, in Bulgaria and Thrace (see Bulatović 2009). Heurtley believed the channeled pottery to be of Lausitz origin, yet it now seems to be integrated in the repertoire in many of the Late Bronze Age and Early Iron Age cultures; an often used term is "channeled" ("kanniliert keramik"; see Hochstetter 1984). In Troy VII b grooved handles are found that resemble those of the Lower Axios Area (Blegen et al. 1958: pl.272.21). While these are not direct counterparts to the Trojan handles, the appearance is that of twisting which ties it to the object 356. The technique behind the grooving does however closely resemble what is found in Late Helladic IIIC Southern Greece where these handles are sometimes encountered (see Mountjoy 1983: 67, fig 25.65). The fluted handle in fig.152 (object 356) closely resembles the handles of the Mediana (II) Culture of Serbia (Garašanin 1973: pl.20B). Both had taps which could have penetrated the pot wall like a metal handle (see Sofaer 2006: 135) – which could either indicate a transfer of not just techniques but also skeuomorph ideas. Imitation of skeuomorphs shows that these transfers does not necessarily have to be shallow, but could include a deeper understanding of the objects and their role. A cross-cultural encounter in an area in-between could well serve as a framework for such a transfer.

The technique of twisting could be found in Mycenaean Scimitari in the Late Helladic IIIC period on an amphora with antithetic streamers running along the oblong depressions created by twisting (Mountjoy 1983: 67, fig 25.65 and pl.16.b). This way of creating a twisted look is also found on a jug in Achaia from the Early Helladic period. The handle is described as rolled, a feature reproduced in Achaia in the Late Helladic IIIC period on Mycenaean stirrup jars, four handled jars and amphora, often also painted as the example from Scimitari. Four handled jars with rolled handles have also been found in Cyprus (Vermule 1960: 6). Vermule (1960) sees the rope twisted handle as a Western Greek phenomenon and part of four handled jars. In Achaia they also appear on smaller vessels like the alabastron. The rope handles of object 8a (Vermule 1960: pl.2.9) look as if the stripes running from right to left have been carved with a narrow stylus. This could be an example of a grooving technique, giving an appearance of a more stylized twisted design. In the Late Helladic IIIC period we find increasing amounts of weaponry with Central

European antecedents (see Harding 1984); the bringers of these may have transferred the idea of twisted designs.

At other places in the Balkans twisting appears as a "package" which includes various pots and metal objects. At the Croatian Urnfield burial site of Velika Gorica (HA B) spiral hair ornaments were discovered, an artifact type also popular in both Northern and Southern Greece (grave F; Karavanić 2009: pl.58). Torques were found in grave three together with a fluted bead with vertical furrows (Karavanić 2009: pl.65 and pl. 68). Beads of this type are also found in Troy VIIB (but not along the Axios) (Blegen et al. 1958: fig.152), giving them a North Aegean co-presence. Fluted cups, turban rim bowls and the facetted rim bowls appear in Trans-Danubia between the Br C and Ha C periods, displaying a long survival. The turban rim appears in Ha A in Croatia and Bosnia. The settlement of Kalnik-Igrišće I is dated to the Late Bronze Age and the late Urnfield phase (Karavanić 2009: 17). A pin appears to have a twisted head section, between two knobs with a dividing flat piece in the middle, but may in fact be carved (Karavanić 2009: fig.25.12), unlike the head of a pin from Mačkovac-Crišnjevi, which was actually twisted (Karavanić 2009: 15). Kalnik-Igrišće II is a settlement dated to Ha B which consisted of wooden buildings and contained a series of fluted ware cups and bowls. The settlement has provided some encrusted pottery, facetted- and turban rims (Karavanić 2009: 32).

It could be assumed that even if the dwellers of Urnfield Croatia wore similar ornaments and could dine with similar bowls, even if fluted jug handles were not found at Kalnik-Igrišće (see Karavanić 2009: 37-38). There are of course major differences between Croatia and Central Macedonia – the settlement milieus in which they were used differed. Flat settlements with wattle and daub architecture dominate between Gevgeli and Vojvodina (Bankoff and Winter 1979; Teržan 2013: 846; for an example, see also Bulatović 2008) while on each side there are tell communities, the Central European buildings in wattle and daub and the Central Macedonian buildings in mud brick. A notable exception however, is in layer 13 at Kastanas where wattle and daub architecture was introduced for a brief period (Hänsel 1989: 147). A further distinction could also be made in how the fluted ware was combined into the local assemblages: while Central Macedonian potters turned pots on the wheel and decorated them in the Late Helladic IIIC and later in a Proto-Geometric fashion, the potter's wheel was not introduced at this time in Central Europe. In this perspective, trans-culture may capture the Lausitz pottery as it was employed different but interconnected milieus. How were these societies connected?

Bulatović (2009: 108) suggests a two stage population movement of northerners remembered as the Dorian and Aegean migration spreading turban rim bowls. In a later article Bulatović (2011) moves the migration date backwards to the 15th century BC and connects it with the movement of encrusted pottery. Alternatively, it could be suggested that the warriors who could have sacked Kastanas were aligned with the traders as these would travel with armed guards (see ch.4.1.5). This explanation fits with the continued use of older networks, the transmission of concepts in addition to shapes (e.g. skeumorphism), the limited impact area, that

Figure 152 A fluted handle from Axiochori (Object 356) and a counterpart from Troy (Blegen et al. 1958: pl. 272.21) (accessed with the courtesy of the Archaeological Museum of Thessaloniki, photo Aslaksen).

it that could represent a continuation of contact displayed by the encrusted ware, and that it was included in a varied assemblage in the same way as other types of decorated pottery.

Trade links north could have existed throughout the Late Bronze Age, and a ceremonial scepter and socketed spears from the Uluburun suggest that warriors and leaders with ritual knowledge from these areas travelled in the Aegean even before 1200 BC (see ch.4.1.5). Central Macedonia functioned as a destination in itself and a port to the world for traders, in a weakened state this area could well have been a feasible pick. The idea of twisting could have spread with southern traders encountering fluted handles in the North Aegean.

12.3.0 Case Studies of Macedonia in the Written Sources and Burial Customs

Starting in the Late Helladic IIIC period, several developments took place which altered the face of Central Macedonia in the Early Iron Age (see Andreou 2009: 16): the emergence of the table settlement, the introduction of new burial customs and the introduction of new elements in the material culture (e.g. fibula, torques, Lausitz pottery, and a somewhat earlier Central European horse bit from Toumba Thessaloniki; fig.153). In the Archaic and Classical times we meet various tribes which Garašanin (1973: 124) already proposed in the 1970's were groups that formed in the transition to the Early Iron Age. Even if some had a continuation in material culture from the Bronze Age, the "migration period" propelled the formation of ethnic groups. Going through weapons, including flange hilted swords, ornaments and pottery, Bouzek (1973: 173) was able to write a narrative related to the migration period: in the 13th century, Balkan tribes attacked Mycenae, returning later to a barren land to deal the final blow in the late 12th century. According to Bouzek, flange hilted swords found in Greece showed that arms were adapted by the Mycenaeans. These swords also appeared in Central Macedonia, for example at Vergina (see Harding 1995: 55). While the exact nature of the attackers cannot be ascertained, it could also be suggested that the attackers may also have been the same as the traders, which when dealing with weakened societies could take what they wanted. Could these have introduced the changes that led to an emergent Iron Age society? Recent interpretations by Andreou (2001: 171) connect the increase of extramural burials with formation of new social identities. In chapter 12.3.1 the content of these are discussed in light of burials, while in chapter 12.3.2 Iron Age peoples known in the written sources are approached.

See printed book for this image.

Figure 153 Horse bit with Central European counterparts (after Andreou et al. 1991 pl.14)

12.3.1 Case Study I: Early Iron Age Graves

The first Iron Age cemetery to be discovered in the Lower Axios Area was at Tsautsitsa. Casson discovered several graves which contained weapons like an antenna sword (Casson 1968: 146, fig.50), associated by Kristiansen (1999: 245) with the East Hallstatt C and Italian warriors. While the Iron Age is not in focus in this monograph, Hänsel (1989: 340) remarks that a newly reorganized and comparatively well-ordered settlement of Kastanas in phase K VII (ca. 900/800-700 BC; Wilkomm 1989: fig.1; Hochstetter 1987: fig.17) could have been an outpost in King Pyrachmes' Paionian realm with Axiochori as its center. It is however impossible to say if the burials of, for example Tsautsitsa belonged to them. The Iron Age burials have recently been mapped (Chavela 2012), and represent a major change in Central Macedonia (Andreou 2010: 653). These have been theorized to have originated from the experiments of social groups seeking to enhance their status as emergent elites at Faia Petra (Valla et al. 2013). Other scholars suggest that the grave goods were brought by invaders, whom may also have delivered input to locals experimenting in regards to customs (see Alexander 1965: 7). In this chapter emergent ideologies and their content are discussed in light of graves, and a combination of the two abovementioned hypotheses is introduced as a possible explanation to emergence of new burial customs.

In the Lower Axios Area, extramural burial customs were entirely new in the Early Iron Age, and often exhibit differences even within small areas: the Tsautsitsa burials were located under cairns and differ in form from nearby cemeteries like Palaio Gynaikokastro with urn burials, some of which are richly furnished (Savopoulou 1987:530). Torone had predominantly poor urn burials of which some located at spots conspicuously more visible than others and in it must also be considered that not all were afforded a burial (Papadopoulos 2005: 355-356). Vergina stands out with rich tumulus graves containing several cremation and inhumation burials (Andronikos 1969). The Vergina burials may have belonged to family groups buried together in Tumuli (Rhomiopoulou et al. 1989) in contrast to the Tsautsitsa burials. Iron Age tumuli have also been discovered other places in Greek Macedonia (see Catling 1988: 53-54). Pateli is a site which could have yielded as much information as Vergina which was excavated by a Russian team in 1898-1899. According to Hammond (1982: 645-646) it was a series of graves which may have counted tumuli, including 9 swords, 25 spearheads, 4 arrowheads and 72 knives in addition to hundreds of pots; it was unfortunately never published. While Iron Age burials are an important topic in their own right, it is evident even from a brief overview to conclude that the variety from valley to valley is the most conspicuous feature, indicating a great diversity of rites. Some object types, for example bird pendants which were part of the Macedonian Bronzes (Bouzek 1989) but also found sites including Tegea in Arcadia (see Dirlmeier 1979), could flow between different peoples using different rites.

The burials near Tsautsitsa were inhumations in slab cists or on the ground, some characteristically found under a cairn. A similar type of grave was later discovered by Karathodoreika dating to the 7th-4th century BC (Savopoulou 1994). Some graves in Central Macedonia could contain gold plaques (Casson 1925: 23; see also Cason and Gardner 1919: 20), but also arm coils and hair coils co-present both in Southern Greece (for example Olympia) and in the Balkans (see Papadopoulos 2010: 46). In the later archaic period at Archondiko, Sindos and Trebenishte we find gold masks (Theodossiev 2000; Whitley 2004: 44). Together with tholos graves in Thrace, such finds are sometimes interpreted as remnants of the Mycenaean Age as interpreted by Iron Age elites (Stakenborg 1989: 189), although this connection may in fact be difficult to draw. Golden masks in the 1st millennium BC were part of an elite cultural phenomenon in the Balkans, but counterparts have been found in Etruscan Italy, Boetia and even Luristan (of bronze). The examples are much later than the possible Mycenaean predecessors, and their origins may be sought in 6th century cultural contact rather than a resurgence of ca.900 year old practices (Theodossiev 1998).

Casson classified the pottery into three types, coarse ware, wheel-made painted pottery and grey wheel made pottery. However they were often found in the same graves (grave no. 4, 8, 9, 12 and 15, Casson 1925: 21), which ruled out the idea that different social classes used different types of pottery (e.g. that the poor only had access to coarse pots while the rich dined with Mycenaean pottery). This is similar to the observation for the Bronze Age in regards to how pottery from different regions was re-combined into a local setting at both imposing and small settlements alike (ch.7).

The practice of mixing survived into the Iron Age, which is evident in the majority of graves, not only grave 4, 8, 9 12 and 15. For example, the following was found in grave 3 (Casson 1925: 6): a) a gold plaque that connects to local traditions as well as the Aegean sphere (see below), b) an iron knife (which according to Casson resembled the Greek *macheira*), c) a pair of bronze tweezers, also known from the Hallstatt Culture, d) bronze ringlets, e) an iron pin and f) a wheel made skyphos. The variation of this wheel made skyphos has a low base ring, but the shape in general can be connected to the Aegean (horizontally, in space) and (vertically, in time) to the Mycenaean past. The bronze in itself would connect the objects to several neighboring regions as both copper and tin would have been needed. While tin is not prevalent in the region gold is and could serve as a means of exchange (see ch.5), in the case of the gold plaque, however, this local material was curiously melted and molded into an object co-present in the Aegean (see Vavelidis and Andreou: 2008; Hochstetter 1987: 17). The re-combination of these artifacts, with diverse parallels in several other regions, resulted in a unique - yet inclusive - local identity. This could truly be an example of a *mixed praxis* as much as *a practice of mixed origins* (Van Dommelen 2005: 118).

This praxis is even more apparent in grave 4 which contained (Casson 1925: 7): a) a handmade cut away neck jug filled with b) an amber bead, c) a paste bead and d) three bronze beads, e) a wheel made jar, f) coarse *kothon*, g) a lidded poppy seed container amulet, h) the lid of another, i) a bronze bird pendant, j) two hair coils, k) a clay whorl, l) a round paste bead, m) a bronze bead, n) a cylinder bronze bead and o) a piece of bronze wire. The burial goods of the deceased in grave 4 were all co-present in other regions, and included valuables such as amber. In addition to being a local, this grave goods show that the deceased had access to a rich assemblage of objects rooted in local traditions (e.g. a cut away neck jug), valuables from afar (e.g. amber), female hair ornaments (hair coils) known in Albania, Southern Greece and in the Balkans (see Papadopoulos 2010). Objects such as the bronze bird pendant are iconic amongst the Macedonian Bronzes, and have a distribution as far afield as Italy (see Bouzek 2000) in addition to being known at other sites in Greek Macedonia (see Whitley 2003: 64). While it is impossible to assign the deceased one to a specific ethnic group (Ignatitadou 2012: 117), the person buried in this grave could potentially have travelled and had a taste of attire and pottery which transcended political, geographic and ethnic boundaries in a similar vein as the cosmopolite Late Bronze Age population.

Earlier, in the Late Bronze Age of the Lower Axios Area there are few known burials, despite that several are known from the Iron Age mostly from after the 10th century (see Chavela 2012). A brief review may help to contextualize the Tsautsitsa burials. Burial customs in the Early and Middle Bronze Age had extramural and intramural burials in Chalcidice and Eastern Macedonia. An extramural Early Bronze Age cemetery was discovered near Hagios Mamas with pithos burials. The grave gifts do not parallel those of the Early Iron Age about 1500 years later, but nevertheless contained some gold jewelry and faience pearls known from Anatolia (Pappa 2010: 409). In the Middle Bronze Age, the burials of children were intramural at Hagios Mamas (layer 16 and 11; see Hänsel and Aslanis 2010). Middle Bronze Age tumuli also existed in Central Macedonia at Valtos, south of Katerini (Archibald 2011: 86). While wealth and weapons followed individuals in the Early Iron Age, this was not the case in the Late Bronze Age of Central Macedonia, signified by a conspicuous absence of such practices.

Late Bronze Age burials have been found near Sidrokastro at the site of Faia Petra. Amongst the interesting finds, half burnt skeletons were uncovered in enclosures (Valla et al. 2013). Stone cists were used at Thasos and in North Thessaly near Olympos. A Mycenaean spearhead was found at Thasos as well as amber and glass of a 13th-12th century date which matches the composition of Frattesina in Italy, witnessing an interesting link. Fluted ware later also became integrated in the burials at Kastri. An interesting social tendency was a gradual decrease in the number of individuals in each grave, possibly indicating smaller family units in the Early Iron Age (Henderson 1992: 805; Koukouli-Chrysanthaki 1992: 819-821).

On the land across from Thasos at the plains of Eastern Macedonia there are burial mounds dated to the Early Iron Age at Exochi, Potami, Amphipolis and Mesmebria; the two former contained encrusted shapes reminiscent of the Late Bronze Age such as the four handled amphora (Hochstetter 1984: 314-319). The burials from the foothills of Olympos (e.g. Sphates) have been recognized as similar to the Mycenaean graves and contained weapons. Mycenaean swords and pottery were also found in graves at the burial sites of Aiani and in Kozani in Western Macedonia (Eder

2008; Karamitrou-Mentessidi 2011; 2006: 890-891; 1990:83; Poulaki-Pantermali 1987: 522). These were in stark contrast to the poor shallow pit graves in the compounds of Toumba Thessaloniki which contained coarse pottery and tools along with Mycenaean pottery like Amphoriskos, possibly filled with unguents, oils, perfume (see Mulliez 2010). North at Ulanci, the cemeteries have more in common with what was found at Olympos than in the Lower Axios about 80km south: the cist burials (inhumation) included matt-painted and handmade imitation Mycenaean pottery (Mitrevski 2003: 49-50). An important trait, the Late Bronze Age societies between the Nestos and the Aliakmon seems in general to have focused on circulation rather than deposition of riches – their main investments counts mud brick terraces and walls.

After 1300 BC experiments with extramural burials were conducted in Faia Petra, Sidrokastro, which according to Valla (2013: 244) represent emergent elites seeking to distinguish themselves. With the possible decent a group of northern warriors on the Lower Axios Area, new ideas may have accelerated these experiments. While these were assimilated quickly, they could have brought with them an alluring warrior ideology as well as a taste for fluted pottery, both of which spread into local networks to areas untouched by the invaders. Following the same trajectory as fluted ware, slight divergences in burial customs may be a result of different interpretations in different polities, also those not directly affected by the newcomers in the Lower Axios Area. The fast immersion of the warriors in Central Macedonian networks could, as noted above, indicate that the warriors may have been aligned with traders, who had ventured to Central Macedonia throughout the Bronze Age. In the Iron Age, written sources become accessible, and it is now time to look at how communities in Central Macedonia was described by contemporary outsiders.

12.3.2 Case Study II: Peoples of the Iron Age

Several peoples (e.g. Macedonians and Paionians) known from historic sources have been connected and were previously sought after by archaeologists (see e.g. Heurtley 1927). These are hard to connect to particular materials and the ancient sources may be notoriously inaccurate, written by authors who may never have seen the shores of Northern Greece and who harbored other ambitions than to produce sober accurate descriptions. A source-critical point may in fact be taken from some of the most famous amongst the ancient writers. Herodotus (5.16) curiously observes that some of the Paionians lived in pole houses on Lake Prasias or close to Mount Pangaion. The Paionians, according to other sources had a capital near the Axios (Hom. Il.2.840). In the environs of the Axios the tells have been connected to the Paionians earlier by archaeologists (see Casson 1967: 46). This heterogeneity does not harmonize with the homogeneity presupposed by the culture concept of earlier archaeologists, which could hardly accommodate for the diversity suggested by these sources (that one group could have both lake dwellings and tells). Another example, Herodotus (4.33) notes "I can say of my own knowledge that there is a custom like these offerings; namely, that when the Thracian and Paionian women sacrifice to the Royal Artemis, they have straw with them while they sacrifice". If the remnants of these sacrifices would be excavated, one may wonder if they would be attributed to one or two cultures. There is no one-to-one relation between the labels given in the ancient written sources and the archaeological assemblages. However, a point that could be stressed is that the region was regarded as inherently heterogeneous, at least from the outside by contemporary southern authors. Below, this is explored further, and the various invasion theories are also mentioned.

Amongst the most well-known Iron Age peoples connected to Northern Greece are the Dorians and the Phrygians. Hammond (1973: 194) suggested that the Lausitz invasion of Heurtley was known as the Dorian Invasion in classical sources. A route through Pelagonia down to Southern Greece is indicated by the co-presence of the bow fibula. The Phrygians have been theorized to have come via Macedonia to Anatolia since the Classical period (Hammond 1982: 649; Joukowsky 1996: 368). The most substantial knowledge comes from the Assyrians who fought a force of Mushki led by 5 kings in the 12th century, and later by Mita (possibly Midas in Greek) in the 8th century BC (from Hittite stem 'mit-' used in connection with wool, e.g. twisted thread; Burke 2011: 259). The Mushki appearance was suggested to post-date the fall of the Hittite (Muscarella 1995: 92). The handmade pottery of the Iron Age at Gordion signifies a transition, and indicates a 12th century BC date. This pottery is best known from ca.700 BC, but an early dating could, according to Muscarella (1995: 94), fit well with the evidence of an early Phrygian appearance in Anatolia. Hammond (1976: 143) proposed this to have happened after the Dorian invasion. While the connections between these two invasions are interesting, there are some evident difficulties: the bow fibula is quite wide spread and was probably used by several peoples – thus attesting mobility, but not necessarily by a

specific named people from the written sources.

Another well-known people, the Paionians were said to have been attacked by the Thracian Briges (or Bryges), believed to be the same as Phrygians (Hdt.7.73).

The Paionians were noted to have dwelt in Macedonia in the vicinity of the Axios (Hom. Il.2.840; Hdt.7.123-124). Apollo, himself a northerner, had the epitaph Παιηων, and in Linear B sources we meet the pa-ja-wo-ne (Theodossiev 2000: 185). Although little more than the name is known about these, the Iron Age poet

Homer (Il.2.800) remarked that the Trojan army spoke so many tongues that they could hardly understand each other; amongst the allies were the Paionians:

> "Akamas and the warrior Peirous commanded the Thracians and those that came from beyond the mighty stream of the Hellespont. Euphemos, son of Troizenos, the son of Ceos, was leader of the Ciconian spearmen. Pyrachmes led the Paionian archers from distant Amydon, by the broad waters of the river Axios, the fairest that flow upon the earth. The Paphlagonians were commanded by stout-hearted Pylaimenes from Enetae, where the mules run wild in herds."
>
> (Hom. Il.2.840)

According to Homer, two other European allies joined Priam. The Axios, upon which the Paionian capital of Amydon was located, was later considered the border between the Paionians and the Macedonians, who were said to have driven away the Edonians (Thuc. 2.99). Traditionally, many Greeks were of the opinion that the Macedonians were semi-barbaric, although early Macedonian names were Greek (Chilidis 2012: 19).

Central Macedonia was settled by Greek colonists from the 8th century BC, chiefly in Chalcidice. The Greek colonization may be pushed forward to the 12th century as the site of Poseidi had remnants of an ash alter underneath a 10th century temple (an apsidal structure) with dedications to Poseidon (Tiverios 2008: 14; Vokotopoulou and Tsigarida 1993). These structures may also have been the remnants of far smaller diaspora groups present in the Late Bronze Age. Yet, by the 8th century BC a two-way contact with Euboea had been established as imitated North Greek pottery is found here, and Euboean imports are found north (Papadopoulos 2005: 576; Tiverios 2008: 9; Lemos 2012: 181; Gimatzidis and Tiverios 2010: 316), suggesting a two-way contact in addition to the first well-attested colonial establishments.

What is evident so far is that the region known today as Central Macedonia was described as inhabited by diverse peoples in written sources from the Iron Age and onwards. The Paionian horsemen, which were mentioned by Homer, fought for Alexander (whose father Philip II had subdued) and had a fierce reputation (Plut. Alex. 39). Diodorus Sieculus also mentions them (17.17) "…and nine hundred Thracian and Paionian scouts with Cassander in command, making a total of forty-five hundred cavalry". What is interesting here is that the groups did not assimilate, but integrated. Earlier, in the Olynthiac, Demosthenes (1.23) proclaims "But surely we must assume that your Paionian or Illyrian or any other of these tribes would prefer freedom and independence to slavery. They are not accustomed to acknowledge a master, and Philip is by all accounts a particularly harsh one. And indeed that is not surprising. Undeserved success engenders folly in unbalanced minds, and therefore it often proves harder to keep than to win prosperity." While the anti-Macedonian Demosthenes must have wanted to ridicule the Macedon king, he was mistaken regarding his predictions of animosity by the conquered: the Paionians ended up fighting for the Macedonians (Rzepka 2008: 51-52), integrating into the kingdom of their new rulers.

While the content of labels like "Paionian" or "Macedonian" are hard to define, it is interesting to note that rather than merging, these identities persevered in a diverse environment, regardless if they represented an ethnic or political identity. It is should also be noted that the heterogeneous Iron Age described above could have emerged from what was likely also a diverse Late Bronze Age. While it is impossible identify the Iron Age groups from the written sources with the dead buried in the new Iron Age graves or the possible warriors responsible for the havoc wrecked along the Axios around 1200 BC, it could nevertheless be stated that the region is described as diverse – which is the impression projected by the Iron Age burial sites, and that they were considered to be fierce warriors by outsiders.

12.4.0 Mobility, People and Pots

The Lausitz pottery is one of many factors which indicate incoming warriors who integrated fast and in the process spread taste and ideology. Above it was suggested that these may have been aligned with traders. The slight differences in the adaptation of Lausitz pottery may have been strategies to mark identities tied to political allegiance to formations also known in the Bronze Age (e.g. the Lower Axios Area).

Since the Bronze Age, it was suggested that different groups of people from both the North and South lived side by side within tell communities. Both pots and people may have been brought together at the feast which generated trade and exchange along with the integration of new groups and tell populations scattered across the landscape. It was suggested that the transfer of fluted ware can be understood within this framework. Life continued largely uninterrupted, and the "invaders" accessed old networks through which new types of pottery and ideas spread.

Methods of fluting, faceting and grooving, however, were shared from Greek Macedonia to Slovakia even if the societies using these pots differed greatly. Small mobile population segments could have moved between the areas wreaking havoc, trading or intermarrying (see ch.4.1.5).

Influences were transmitted through trade to different areas where new pot types and metal objects were included in existing networks – indicating trans-culture. Not only form, but also content may have been transferred and inspired a limited hybridization. Twisted handles and neck rings represent an interesting case of skeuomorphism in Central Macedonia, which reflects a link between clay and a property of metal (that it can be twisted and bent). Certain combinations of motif elements were found across Central Macedonia (e.g. a row of dots framed by incised lines on the rim), and fluted handles were attached to shapes which had been used in the Bronze Age for both encrusted and matt-painted pottery (e.g. the cut away neck jugs and the kantharos). The simple form of the turban rimmed bowl ensured that people from Central Europe and the Balkans could dine with Central Macedonians. Guest and host could also both have worn twisted torques. A slight difference however could be that liquids in Central Macedonia were poured from wheel made painted vessels decorated in Aegean manners. Fluted ware was introduced when the production of wheel made pottery peaked (Kastanas layer 13-11, see Hochstetter 1984: 189; Jung 2002: 224). This combination may have allowed the Central Macedonians to continue to carve out their own cosmopolite identity. This could befit a cosmopolitan mercantile society as in the Bronze Age; the major realignment at the dawn of the Iron Age was a shift of focus towards individuals like the warrior.

Bronze, scarce in the Bronze Age, was frequently encountered in the Iron Age perhaps because it was now deposited in graves to accommodate new ideologies (see Morris 1989: 505-506). As shown in chapter 12.3.1 the burial customs varied from valley to valley in Macedonia, which indicate that the shared ideology was interpreted slightly differently from place to place, a development which could have been rooted in Late Bronze Age polity divisions (below, ch.13.). The Early Iron Age was a period of increased settlement spaces and greater investment in fortifications. Margomenou (2005) argued convincingly for a transition to fragmented, private storage practices. In the period after 1200-1000 BC, an age of incipient fragmentation, hard power may have become increasingly relevant with the new emphasis on the individual warrior – an outcome of incoming warriors in small bands who provided inspiration to incipient Central Macedonian elite groups experimenting with similar ideas (see Valla et al. 2013).

Part III - Reflections

13.0.0 Conclusion: Political Economy, Mobility and Identity.

In this chapter the threads are drawn together in a discussion that address the formation of a political economy; a successful response to a global situation of increased connectivity is discussed. The impact new impulses, an outcome of increased mobility (see ch.4.), had on the formation of identities and how these two "local" entities (identity and political economy) were entirely dependent on communication with the outside world mediated by travelers is addressed. I will however start out with presenting what became the overarching theme – multi-ethnicity and trade, which are tightly connected to Bronze Age mobility.

We have the opportunity in Central Macedonia to outline Bronze Age material multi-culture (represented by a mixed assemblage) arising from the higher frequency of travel that followed trans-regional dependencies. The dwellers of Central Macedonia had access to goods from both the North and the South throughout the Late Bronze Age and the Iron Age reflecting the presence of technologically competent Balkan and Aegean travelers, most evidently potters. If ethnicity-like structures existed (see e.g. Kristiansen and Larsson 2005: 106), then Central Macedonia's material multi-culture could be an expression of multi-ethnicity produced by increased mobility. This was the case at big and small tells alike in the 600 year period from 1700 BC to 1100 BC, and probably also later (see ch.12.).

Today ethnicity is often connected to nation states of Europe in which dominant groups envisage a myth of common descent (Smith 2000: 20; see also Kotsakis 2003). Yet, ethnicity has been the subject of recent studies by, for example Fernández-Götz (2013) and Feuer (2011), in which it is stressed that ethnicity can be mobilized as one of several other identities. Identification strategies in the past could include burial customs, dress and prestige objects which could be selectively mobilized to express group difference, a scheme that also includes conspicuous absences of these traits (see Fernández-Götz 2013).

Descent groups have been suggested to have been a key social group in Central Macedonia. Their existence is expressed in the continuity of the tell societies and handmade shapes (Andreou 2001; Kotsakis 2007). That there is a lack of synoichisms and a persistence of clusters throughout the Late Bronze Age and Iron Age shows that these groups were durable and did not assimilate. The networks between them were also persistent as influxes spread quickly between them such as technology, techniques and design ideas in addition to new ideologies evident in Iron Age burial customs. In Early Iron Age texts such as the Iliad and later texts from the Roman period, groups like the Paionians likewise persisted (ch.12.3.2). The perseverance of identity markers, whether pottery or the tell-way of life indicates that local groups could have had ethnic-like characteristics. A likewise salient feature of Central Macedonian tell communities is that they incorporated decorated pottery from their neighbors from both north and south during the period 1700-1100 BC. The transfer of taste, techniques and to some extent technology was a response to influxes brought along by travelers engaged in long distance trade. Festive spaces (e.g. the *Megaronhaus*; see ch.7.1.2) could have served as a place of exchange (for parallels, see Powdermaker 1932: 237), tying together peers and partners over meals consumed with a cosmopolitan assemblage of dishes – integrating people of different origins in multi-ethnic communities. The feast of ancient Central Macedonia, as here described, served to keep people together rather than separating out specific groups at tells. An open question is how people residing outside tells related to those that literally lived above them, and whether they had the same opportunity to join the feast; answering this would require the excavation of such sites (e.g. the site next to Kastanas; see Hänsel 1989: fig.140). The continued production, and hence relevance, of technologically and aesthetically distinct types of decorated pottery represents the continuous presence of Aegean and Balkan peoples. Why would they be there – and why did they not "take over"? I argue that they were diaspora traders, similar to the Assyrians in Kanesh (see Larsen 1976), which integrated.

Without doubt the Mycenaeans, Hittites, Egyptians, Carpathian tell cultures and Scandinavian chiefdoms set their mark on the world by joining together in a long distance Bronze economy. It was deeper than any previous networks to the extent that it resembled a globalization process, even if not entirely global, for it certainly included a "widening, deepening and speeding up of world-wide interconnectedness" (Held and McGraw 2000: 2). Modern globalization is also locational as it centers around a few interconnected financial and cultural central spots like London, Tokyo, Moscow, Sidney, New York, Rio De Janeiro and Istanbul (Sassen 2007). This version is highly similar to the nodal pre-historic world system of Beaujard (2011) (see ch.4.1.2). The warriors shared taste and weapons and advanced skills of chariotry, the latter of which was popular from China to Greece from 1700 BC and onwards (Anthony 2007: loc.466). Bronze requires tin and copper, and merchandize to trade in return for one or both of these. Particular objects could be identified with particular areas and be desirable in a manner that could resemble branding. In the Eastern Mediterranean, the rulers formed something akin to a modern global class as they shared taste, values and intermarriage (ch.4). The Bronze Age World was a period of intense interaction, and the people who brought objects and ideas form one center to another most likely travelled in bands as indicated by the Uluburun ship. Thus it can be inferred that warriors, crafters and traders of different origins travelled regularly through the large areas in-between, for example Central Macedonia (fig.154). Trade, probably seasonal, could explain both the continuity at the settlements and the influx and adaptation of "foreign" decorated pottery.

North of Central Macedonia we find oxhide ingots and Mycenaean swords, and a small group of Central European or Balkan spearmen fought side by side with Mediterranean swordsmen on the Uluburun ship (ch.4). At Klučka Skopje, a warrior brought a boar tusk helmet with him into the grave (Mitrevski 1997), while at the Razlog stele in Bulgaria, a possible recollection of a raid by the Sea People was depicted (fig.2), an Eastern Mediterranean theme. Pinched between

Traveler	Skill/Knowledge	Materiality	Co-presence
Warrior	Sword fighting	Pommel	Aegean
Warrior	Spear fighting	Socketed spear	Balkan
Traders	Cosmopolitanism, taste	Re-combined objects	Balkan/Aegean
Potter	Potting/pyrotechniques Decoration techniques	New types of decorated pottery	Balkan/Aegean
Smith	Weapon shapes and smithing	Molds, slag, and weapons	Mainly Balkans

Figure 154 Travelers and transfers from the Balkans and Aegean in the Late Bronze Age.

Mycenaean Greece, Anatolia and Central Europe, we find Central Macedonia, not only a thoroughfare, but at the same time a destination rich in tradable resources. The society that emerges is one of mercantilism, geared towards interaction. To understand the character of the impact of mobility in the Late Bronze Age in Central Macedonia, it is most illuminating to start in the Early Iron Age, which contrasts the Late Bronze Age. Against the tribal warrior societies from which the Macedonian kingdom arose, the Bronze Age represents a cosmopolite multi-cultural mercantilist antecedent. I commence to discuss:

1) Iron Age formations

2) Bronze Age political economies and mobility

3) Identities

Analyzing the Bronze Age in light of the Iron Age

In a discussion of mobility, political economy and identity in Late Bronze Age Central Macedonia, the Iron Age might be a good place to start. It seems that each valley has its own burial custom even though they share some key types of pottery: fluted pottery is more popular in the Lower Axios than in, for example Chalcidice and the Langadas (see ch.12.). This was similar to the situation in the Late Bronze Age, when the time of introduction and the popularity of particular types of decorated pottery differed as communities in Chalcidice were always one step ahead when it came to adopting Minyan and Mycenaean Late Helladic pottery (see ch.9 and ch.11). In the Iron Age, Greek colonies were established next to tribal lands dotted with tells which had been inhabited for a thousand years or more. Slightly earlier the new table settlements grew more numerous and burial customs became more ostentatious (see ch.12.3.1). This could have been triggered by a movement of warriors from the Balkans, Urnfield Central Europe or possibly even the Terra Mare Culture but perhaps most likely a combination: the travelers of the Uluburun included people from several cultures and the Sea People were diverse (ch.4). Who were the invaders?

Northerners had been in contact with the dwellers of Central Macedonia through trade for centuries, and the most convincing explanation for the adaptation of fluted ware may have been a resumption of pre-invasion trade. Turban rim bowls were re-combined into the local assemblage as northern traders brought new impulses. The inclusion of fluting as motif elements in areas which were not struck by the invasion is indicative of the survival of Bronze Age networks and perhaps also a low number of invaders. The persistence of boundaries between valleys in Central Macedonia is expressed by the very local interpretations of burial customs with riches not provided for the dead in the Bronze Age (see ch.12.4.0). One may wonder if the Iron Age also represented a metallurgic boom, but this makes little sense (see Morris 1989). Invaders would not seek out Central Macedonia if there was nothing to be gained, even if Macedonia's littorals were not their final destination (see Hammond 1982).

The invaders may in fact have been in the same group as the traders: the traders would most likely travel with retinues (exemplified by the finds from the Uluburun ship; ch.4.1.5). As discussed above (ch.4.1.5), the Vikings were both warriors and traders. Following their innovations in ship building, the Vikings, who were originally traders, exploited a weak Europe becoming feared conquerors and colonizers in the second half of the 9th century BC (Graham-Campell et al. 1994: 38-39; Sheehan 2013). A prime example of a trader-pirate is the 10th century Icelandic poet Eigil Skallagrimson. On a trading voyage to Kurland, Eigil and his companions took to pillaging up river after having finished their peaceful business (Eigils Soga 46). This was not unique. Other Vikings were also known to be trader-pirates including the sons of Bjørn, a great farmer in Sogn, who would pillage and trade alike (Eigils Soga 32). The possibility of pirate-traders of Bronze Age Scandinavia was recently discussed by Horn (2012), and the weapons onboard the Bronze Age ships witness a capacity for violence (ch.4.1.5). In the Bronze Age, gold and other metals were mined, and could have been a more attractive aim than an impoverished Kastanas alone. The metal dearth in the Late Bronze Age may be related to the lack of deposition practices (see Vavelidis and Andreou 2008). The metal was traded with Mycenaeans and northerners alike, and circulated locally, perhaps from riverine sites to Axiochori and further to traders or "clients".

A Bronze Age Political Economy Geared Towards Mobility

In the Iron Age material we can see a faint outline of a Bronze Age with several polities. In the Iron Age, surplus went to finance grave goods in a manner which could fit the definition of wealth finance (see Earle 1991: 4). It could be argued that the Bronze Age was not poorer or less connected, but organized differently along other ideological lines, emphasizing other values than the individual warrior (see ch.12.).

With its strategic location, the Lower Axios Area controlled access to the Balkans, and Axiochori towered above what was a bay in the Bronze Age. Not only did this site control the point where the Axios met the Aegean, but also the key agricultural area of the Pikrolimni Plateau. While sites probably interacted and traded between themselves, this interaction would have taken place under the gaze of Axiochori. Area wide power thus overrides the local networks. It is however within smaller networks that the production which supported the "power center" took place. This proposed scalar model accommodates for both small scale networks, but also structures large enough to connect to the Bronze Age networks and draw in a share from each site of produce made locally, perhaps returning metal allotments (e.g. tin). Thus, the "Assiros model" and the newer network model can be united in a manner which explains localized production and large scale storage, and 600 years of interaction and entanglement to the Bronze Age World.

As discussed in chapter 6, the extent of organization could have been larger than what is often thought. Rather than assuming that the polities consisted of 3-4 tells I suggest they typically consisted of 30-40 tells and that the ca.1300 km^2 Lower Axios Area was one such (although not yet a chiefdom). The biggest sites tend to cluster by the sea, by the Gallikos and in the vicinity of Kouphalia, a pattern which persists in the Early Iron Age. There is also a cluster of sites by the Xorygi. The two coastal clusters had access to the Aegean, and the Lower Gallikos even had river gold, but the main food sources were commanded by Axiochori.

With a strong visual connection, both Axiochori and Xorygi had some features in common, although one was a terraced tell and the other was the closest we get to a fortified site in the Lower Axios, with a location near a volcanic crag: they both had (unlike the other sites) little access to smaller waterways and therefore also reduced local communication and agricultural soils, but rather a strong command of the landscape. Although not possible to prove without excavation, I suggested that the role of Xorygi could have been that of a fortified collection point for resources from the northern fringe of the Lower Axios Area – game, woods, plants and possibly even wine could be derived from peripheral foothill sites like Tsautsitsa and Kilindir, and possibly metals (e.g. lead and silver) from Metalliko (near a Galena ore, OXALID 2011: TG37).

While production was scattered and several sites could undertake metallurgy, access to at least tin and possibly also copper depended on a foreign connection, most likely Aegean. Through the feast, enabled with resources from the periphery, staples (most likely from the Pikrolimni Plateau) could be mobilized together with gold, silver and lead, and possibly also wood to acquire bulk cargoes to be circulated to sites across Central Macedonia together with foreign prestige goods like perfumes or other precious liquids. Imported products could have been canalized through the costal clusters and peripheral resources through the Xorygi cluster, but in the midst, Axiochori had command of the main agricultural areas east and west in the Lower Axios Area. The intense agricultural production witnessed in the Late Bronze Age at Kastanas and the centralized storage facilities at Assiros shows the magnitude of staple production, which could thus also have been the main export, while additional products like textiles, metals, woods and perhaps exotic wine complemented this resource base. Command of agriculture was the key source of power in the region in which the political economy was geared towards trade (fig.155): control of staples meant control of foreign trade with tin and in extension also local trade and exchange, possibly through allotments at feasts.

The feast may have been an event at all tells, and it is imaginable that it could serve to bind alliances with neighbors or flat-site dwellers. At the area-wide level, Axiochori could bind together the northern periphery, from where the additional products were derived, and the two southern coastal clusters, from where outside contact was mediated. The sites closest to Axiochori (Aspros and Limnotopos) probably grew tall because of their affinity to Axiochori as "spillovers" which could affect the sites within the clusters just north including Aspros and Limnotopos. If power was manifest in the ability to mobilize resources at feasts in the Bronze Age (Andreou 2001; Halstead 2011), this was a soft power built on trade. While no market place has yet been discovered, a festive space was defined in layer 16 at Kastanas, the *Megaronhaus*. This was only slightly bigger than $21m^2$ (see fig.50 and appendix 1) and could only accommodate a small group of people reclining on benches and consuming wine, meat and possibly even to consume plants with hallucinogenic effects (see Tsamis 2010). The complexes of layer 16 at Kastanas were irregular and spaced around courts. The seclusive form of the compounds at Toumba Thessaloniki was thus reproduced at Kastanas. Open spaces does not become normal until later periods (and local while exchange and trade could thus be conducted amongst leaders of trading expeditions or other tell societies. Intermarriage could seal deals and cement relations between tell communities, it is reasonable to think that such transactions took place at all tells even if the scale of the events may have been bigger at Axiochori as the dwellers of this site had the ability to raise terraces. This perhaps because they may have built strong inter-cluster alliances

Exports	Imports
Gold	Tin
Silver (?)	Copper (?)
Textiles	Finished products – arms and ornaments
Staples/food	Exotic foods – melons and poppies
Wine	
Lead	

Figure 155 Possible key imports and exports.

through superior command of the landscape, a successful connection to passing trade routes and efficient soft power strategies.

Feasting was an important motor of the economy of Central Macedonia (see Andreou 2002). An interesting detail is the fact that the tell dwellers at large and small tells had access to decorated pottery from both the north and the south (see ch.7.5.0). In the period 1700-1400 BC elites formed in mainland Greece as they accessed Eastern Mediterranean culture through the Minoans (see Parkinson and Galaty 2007). In search of tradable assets some mainlanders could have arrived in Chalcidice to acquire silver, introducing the first Minyan pottery and mud brick in this area and thus triggering what became the Late Bronze Age tradition of feasting with a cosmopolite dining kit and tell building with mud brick rather than wattle and daub. It is conceivable that some of the members of the trading party stayed for a while, like the old Assyrians in Anatolia, but they did not settle in as large numbers. There was no Miletus in Central Macedonia. While wine had been consumed in Northern Greece since the Neolithic (Papadopulos 2005: 571-572), the form of its consumption changed with the introduction of localized Minyan pottery (see ch.9; Andreou and Psaraki 2010: 1000). Lifestyle, in addition to tin and possibly copper, may have been the key import in the first incipient trade while precious materials were the exports.

With the introduction of matt-painted pottery, most of the lands between the Aliakmon and the Nestos become integrated in a southern interest sphere. Chalcidice, which received the first Minyan and Late Helladic I-II pottery, represents a contact zone from where other areas were later approached including the Lower Axios Area. Horejs (2007) proposed that the matt-painted pottery arrived in Chalcidice from Thessaly. The spread of matt-painted pottery could reflect an expansion of external traders in Central Macedonia. Central Balkan encrusted kantharoi appear a century earlier, perhaps imitated: these were made with techniques and technology similar to that of Southern Serbia and the Danubian regions (see Bulatović 2011). Techniques, shapes and motif elements like spirals moved, but not entire motifs. This means that entire populations probably did not move as the entire motifs used at "home" were not transferred. More likely, smaller groups left and integrated "abroad". Cooking pottery (pyranous) and large wishbone handle bowls connect the kitchen northwards to the Danube (Horejs 2005). The encrustation technique was also used on whorls to produce motifs with connections to both the Balkans and the Aegean. If the encrusted pottery represents a northern invasion (see Bulatović 2011) it is odd that burial customs as we know them from, for example Orsoja, or South-Serbian flat settlements with wattle and daub architecture, encrusted figurines and other cultural expressions known in the North did not spread to Central Macedonia (see Bonev 2002: fig.1; Stojić 2000; Bankoff and Winter 1979). Traders may have brought kin with them to Central Macedonia and established themselves to trade with the rising southern elites who had Central Europe, the Balkans and Greek Macedonia in their orbit. Gold, silver and lead may also have been attractive for northerners. The nature of the contact between the Shaft Grave elites and the Balkans could have included metal trade, and one path this interaction may have taken was through Central Macedonia. With the Late Helladic III A-B period, southern contact intensifies as the Mycenaeans established their palatial societies in Southern Greece, as far north as Thessaly. A broad contact surface could signify a broader demand for bulk commodities in the period 1400-1200 BC, for example wood and agricultural produce.

Adaptation rather than adoption of "foreign potting" could reflect trade (leading to integration) rather than invasion; in the period 1400-1200 BC, Mycenaean, matt-painted and encrusted pottery co-existed in Central Macedonia. Members of trading parties and women married away to cement deals could have transferred knowledge. While motif elements were transcultural, and motifs sometimes hybridized, there are few examples of technological hybridization south of the FYRO Macedonian border. A tool used to make threads, for exportable textiles, the spindle whorls' encrusted motifs tied together Mycenaean, matt-painted and encrusted motif styles (see ch.10.1.0). The persistent "technological identity" of the pottery could reflect distinct groups of potters (Kiriatzi et al. 1997), who supplied merchants and an increasingly cosmopolite group of local traders and diasporas. Even if only a few traders stayed, those that travelled on to the inner Balkans and Central Europe would still stop by in Central Macedonia to change from seaborne to inland modes of transportation. Since the encrusted pottery included several typical Macedonian shapes, and that food preparation was undertaken in the "Balkan" pyranous, the northern presence was more enduring and could have included full time residence at a greater scale than amongst southerners. In regards to the latter group, an important question then becomes why both the matt-painted pottery and Mycenaean pottery survive side by side, when the latter replaced the former in the core areas of mainland Greece, with which Central Macedonia was connected. The answer to this question lies in the feast, which could have been a mechanism to manipulate foreign influxes and integrate foreigners in a Central Macedonian trans-cultural setting, making different groups nearly indistinguishable without assimilating them.

Nearly every house unit had access to several types of decorated pottery (ch.7.), and when engaging in big and small events at a high or low tell, in single room houses or large compounds, Mycenaen skyphoi and krater could be mobilized together with matt-painted cutaway neck jugs and encrusted globular kantharoi. The particular spiral or meander decoration of the kantharos would draw to mind the Balkans but could contain oils from particular sites, perhaps "branded". The Mycenaean deep bowls would draw to attention the Mediterranean, and liquids in amphoriskos would bring the smell of the world to the tell which would otherwise have felt foreign for northern and southern guests alike. While the pots did not hybridize beyond motifs in general, the practice they were part of did. Consumption of food, and the use of foreign looking vessels could have served to connect foreigners and locals while hiding differences in power between dwellers at Kastanas and Axiochori. Matt-painted pottery survived in Central Macedonia as the rich cosmopolitanism was desired. The transfer of potting knowledge from the Balkans and Aegean represents the movement of people, perhaps not experts working in palaces, but potters with a reasonable command of their craft. The perseverance of distinctive types resembles something akin

to the maintenance of cultural, and possibly ethnic borders, *within* the tell communities. Like the elites in the shaft graves, Central Macedonian tell dwellers re-combined foreign influxes from both the North and the South, but unlike the elites of the shaft graves the foreign influxes were mobilized to hide rather than accentuate hierarchies. This type of hybridization is a *re-combination* of distinct elements into a new mix, a multi-material culture indicating multi-ethnicity. Hochstetter (1987: 101) remarks that amongst the small finds, the Aegean were most frequently produced before 1200 while Central European and Balkan ornaments appear later. This harmonizes with the developments in the Aegean, yet it is after 1200 BC that the Mycenaen pottery becomes most widely produced within the region. Melons were introduced to the diet in Kastanas, and the architecture revolves back to mud brick houses from a brief interlude of wattle and daub (see Hänsel 1989) which most likely came with the invaders that struck at Kastanas and helped transform the ideological landscape of Central Macedonia. The introduction of spools may indicate that a larger number of Aegean travelers than before came (see Rahmstorf 2011), influencing the domestic sphere. The widespread adaptation of the potter's wheel could have been connected with the arrival of immigrants skilled in potting. This increase may have been connected to the Aegean migrations post-1200 (Hänsel 1989: 337). Neither northern incursions nor an increased presence of southerners altered the practice of cosmopolite dining, but did lead to a "release" for elites suppressed by the previous Bronze Age cosmology emphasizing integration.

It has been proposed that in the tell societies, the lineage was in focus, and that the tallness of the tell showed the world the prestige of the dwellers at particular tells (Kotsakis 2007; 1999; see also Kotsakis 1989). Labor was vested in terracing to enhance the appearance of the tell. I previously showed the importance of the location both in regards to visibility, but also in regards to command (ch.6.). The difference in power visible in the landscape at all times were eradicated in the feasting event, when the world and people of various origins and from different levels in the social hierarchy could be included; even if the staples produced at Antophytos A and B could finance the terraces of Axiochori and trade with the Aegean and Balkan partners in which the dwellers of Axiochori got the largest cut. The importance of agricultural produce should not be underestimated – before the fall of the Hittites, they suffered a famine (ch.4). While the Iron Age warriors mobilized their goods to show their status in death, projecting a warrior ideology, the tells and their organization in the landscape, and the Bronze Age merchantile communities highlighted stability (tells) and integration (feasts). This fits the Bronze Age trader well, for in a Bronze Age World of regional interdependence, thrust was vital. Thrust and regularity are the hallmarks of the Bronze Age networks (see ch.4). Bronze Age goods were kept in circulation, while in the Iron Age they were buried. This is why the Iron Age is the period richest in bronze in Central Macedonia.

Regional identities

Defining multi-cultural societies is about finding the points were people connect; the re-combined pottery assemblage could dynamically integrate pots and incoming travelers of different origins. Made possible by imitation, the feast was about including those brought into the small festive space (dwellers from neighboring tells, diasporas or incoming foreign traders), for example the *Megaronhaus*. The increase of tells, and the subsequent aggrandizement with terraces of some witness the successful integration of people into the Bronze Age World, incipiently in the period 1700-1400 BC and at an accelerated rate from the period 1400 BC. The first period was one of homogenization while in the second period hybrid practices formed. From ca.1200 BC there was a fragmentation away from the mercantile attitudes of the Bronze Age towards a fragmentation: surplus was directed towards investments in individual warrior identities after the introduction of new ideologies.

This development may however have already been triggered in the period 1400-1200BC as the "international" pottery assemblage came to be utilized in strategies of identification at a regional scale (opposite to how it served within areas where it connected) (ch.12.4.0). Identities are layered, and broadly speaking, the plains between the Aliakmon and Nestos shared a number of features. These included the "international" pottery assemblage, a lack of individualizing burial customs found in the surrounding areas (Thasos, Olympos and Demir Kapija in FYRO Macedonia) and mud brick architecture tells. The homogeneity of these factors is a matter of the scale they are viewed in. If we "zoom in", there are different proportions of the three main types of decorated pottery, for example the preference of matt-painted pottery and Minyan pottery at the expense of encrusted pottery in Chalcidice, where the latter type is less frequent. The opposite holds true for the Lower Axios Valley, where later fluted pottery was more popular than in the surrounding areas of the Langadas, the Bay of Thessaloniki and Chalcidice (ch.9.-12.). These proportional differences are parallel to the development of micro-regions in matt-painted pottery, and a series of slight differences in the combination of motif elements which were largely shared. These slight differences in the largely similar material cultures are more visible in the Early Iron Age when each valley seems to have their own burial custom, although these often included the same types of decorated pottery. It seems that differences are expressed in how material culture is combined between the Aliakmon and the Nestos, and can be likened to dialects of the same language. If one should liken the material from Central Macedonia to a language, it was pidgin – as the elements within it, types of decorated pottery, were derived from both the north and the south.

At the highest level the strategies of identification could resemble that of ethnic identities. A common history was made material with the reproductive social rhythms of life at the tells. Within this we find the polities. Axiochori's borders were approximately one days march away from the tell from where the productive landscape and the main routes into the Balkans from the Aegean could be surveilled. Despite a lack of small streams to water surrounding prime lands, Axiochori could mobilize resources to a larger extent than the minuscule tell of Antophytos A (located on the rich

Pikrolimni Plateau by a stream) - which could have produced the surplus the clustered big sites by the Lower Gallikos could trade, but not much command of the surrounding tracts of land. Command of staples was a key to power, but affairs in the Bronze Age were regulated with soft power (e.g. distribution of tin and foreign prized anointing oils) rather than hard military force. The Bronze Age system was thus dependent on participation in the Bronze Age World (fig.156) which spurred local interaction and the formation of mercantilist polities.

Studies of Mycenaean wares show that as the production became localized (e.g. Jung 2002; Kiriatzi et al.1997), regional wares remained a larger group than local in some places (e.g. Assiros; see Wardle 2009); this shows that pots moved within the regions. Trade and exchange moved goods stored in pots, while if we recall the Mycenaean feast, the guests could be responsible for bringing what was feasted on (Halstead 2011). It could be that deep bowls and wine were brought by guests to the tell rather than being provided by the host. These interactions could bind people who lived in the clustered tells together, as well as neighboring clusters and regulate potential strife over resources made sparse by people who chose to live in close proximity – keeping their lineage - and tell community identity rather than synoichizing. On several of these tells we meet people of different ethnicities. People from the inner Balkans and Central Europe could have established diaspora trading communities in Central Macedonia. These integrated at the tells perhaps in a similar fashion as the Old Assyrians in Anatolia rather than the Mycenaeans at Miletus. These sought out contact with the Mycenaean traders, who may have established a similar presence after 1200 BC, now driven north by turmoil in the Aegean.

The palimpsest material culture of Central Macedonia and the Lower Axios can be described as a multi-material-culture, defined by points of convergence, for example an integrative feast for people from different regions; this was an impact of Bronze Age mobility. Multi-culture and multi-ethnicity may have been the outcome of the places in-between, epitomized by the Uluburun and Central Macedonia. In the Lower Axios Area, an assemblage was designed to accommodate this. A multi-ethnic Bronze Age can be uncovered in future studies by breaking down contact to travelers and cultures in-between into layers of identity. It should not however be ignored as people in the past may also have had group identities the concept of ethnicity can help us to understand. Not least, in areas in-between like Central Macedonia, a multi-ethnic situation may have arisen within settlements. This reveals an important side of the Bronze Age – namely its multi-ethnicity.

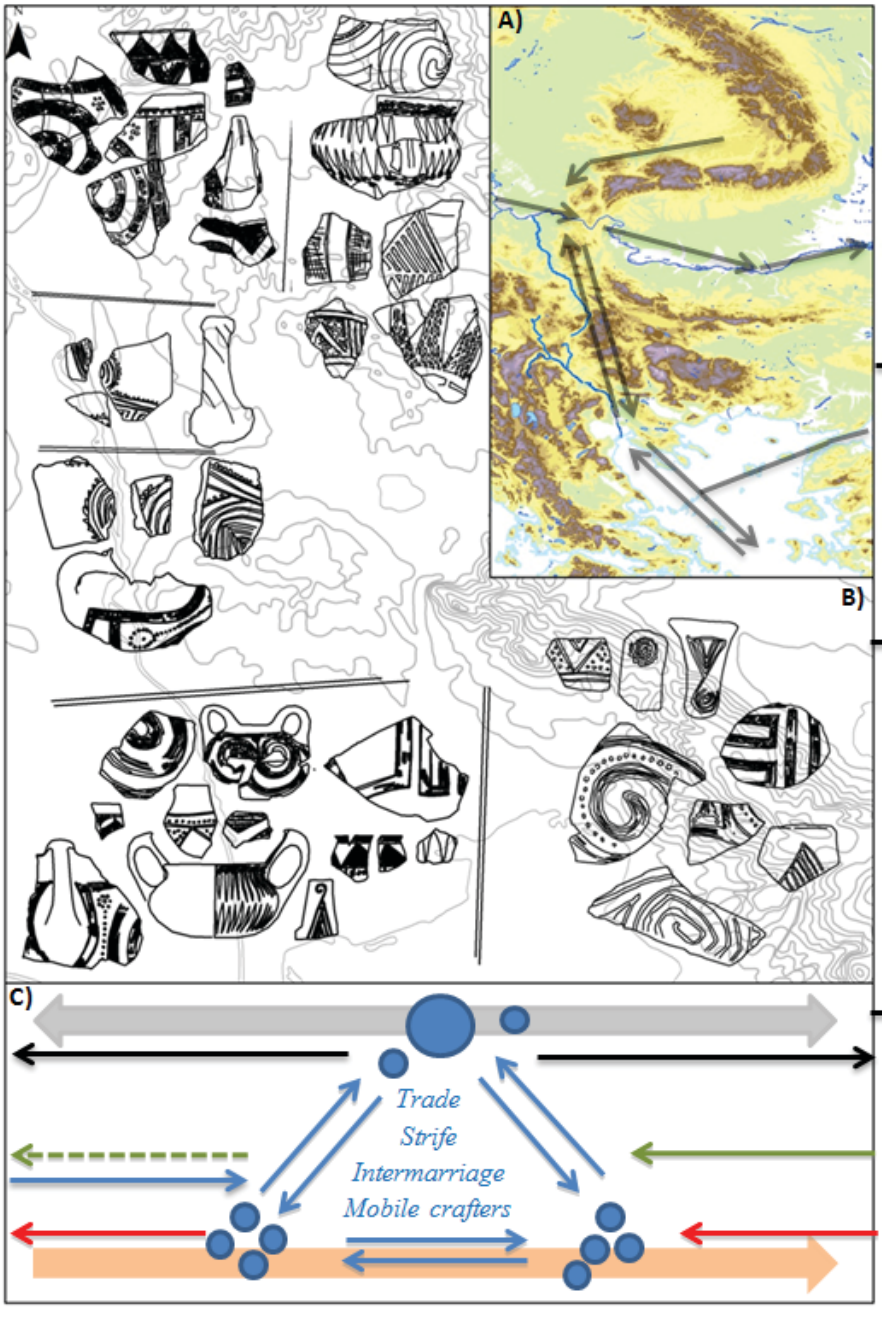
Figure 156 (Overleaf): A) Central Macedonia lies at the crossroads of the Balkans, and in extension Central Europe. B) Within Central Macedonia "international" Mycenaean, matt-painted and encrusted pottery could have been recombined in cosmopolitan manners, enabling exchange and trade in an multi-ethnic mercantile environment. Meander, spiral and triangle motifs, also known in both the North and the South, were executed with slight differences in different areas although decoration techniques and shapes were highly similar – defining at a regional level ethnic borders and polities within as well as settlements connecting resident groups from both the North and the South. C) Connecting to the Bronze Age World networks of trade (grey arrow) could have been enabled by the means of exports (bulk produce and precious metals and garments) (black arrow). Mycenaean pottery was localized in Central Macedonia (green arrow), the shapes travelling even farther (green dotted arrow). Balkan pottery was also localized, but rarely entered the Aegean (blue arrow). Warriors, perhaps as part of trading parties, travelled even farther into the Balkans (red arrow). Local interaction, mediated through feasting, led to distribution of goods and knowledge. On top, Axiochori (large blue dot) stood, connecting local systems to the Bronze Age World. From ca.1200 Balkan warriors travel south to a destabilized world of change (orange arrow) (SRTM and Eastview vector map KHM).

Travelers	"Luggage"	Transfer	1700-1400	1400-1200	1200-1100
			Seasonal	Diaspora	Diaspora
				Northern spearmen	Northern warriors
Warriors	Weapons, taste	Tactics, skills		Mycenaean sword fighters	
Traders	Commodities	News, ideas, taste	Metal trade	Metal trade/ commodities/ bulk agricultural produce	Textiles/metal/ commodities
Crafters	Techniques, skills	Technology/techniques		Potters from both north and south, and northern metal workers	Potters from both north and south, and northern metal workers

Formation of diaspora through trade

Cosmopolitanism

Mycenaean pottery could often carry simple linear motifs and connected sites across the region as well as linking Central Macedonia to the Aegean

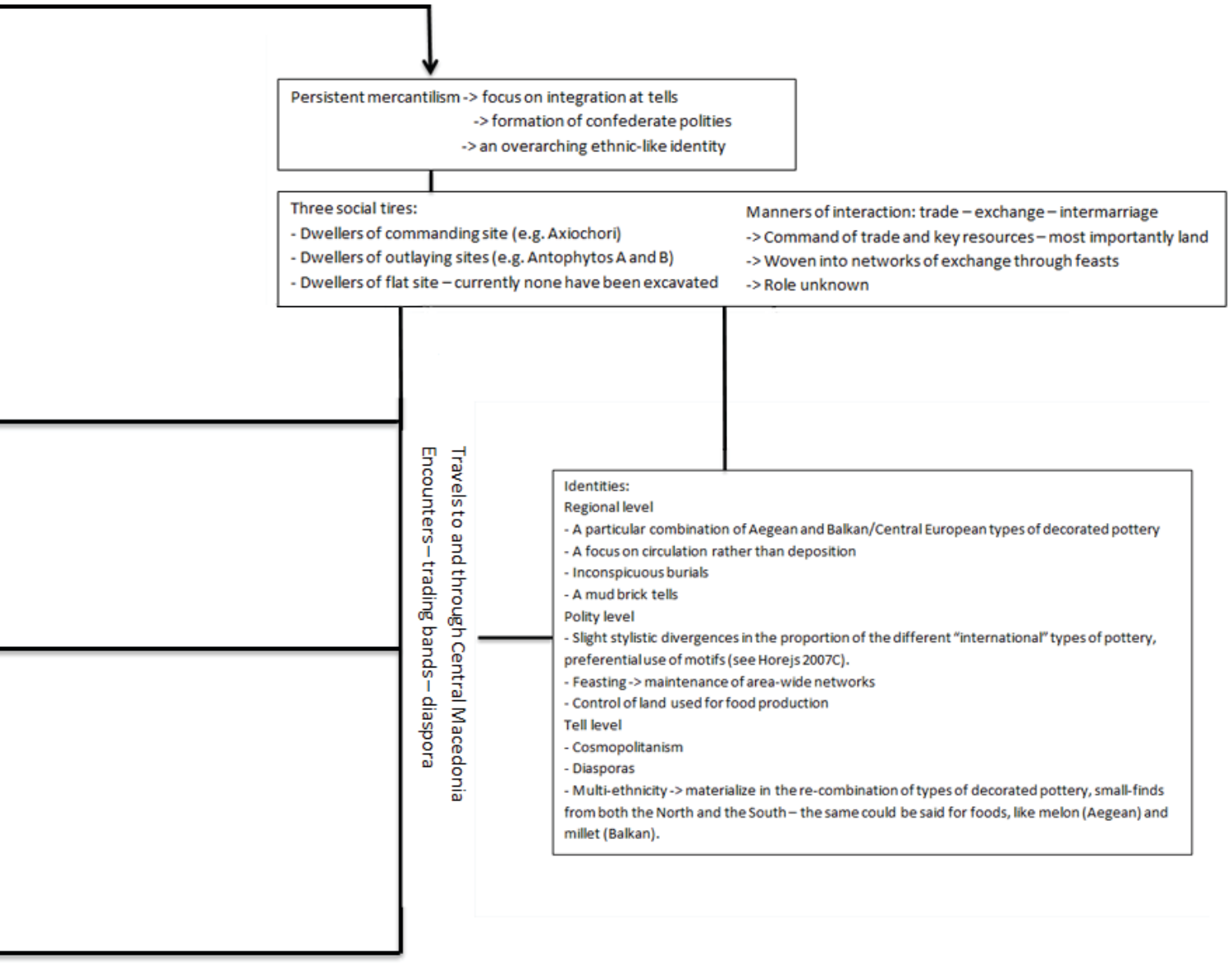


Long distance trade

Regional/area-wide trade and exchange

Interaction in clusters

Exports/Imports	Commodity Type	Reference
Timber (Highland)	Bulk export	Athanasiadis et al. 2000: 340
Gold (Lowland/Highland)	Precious export	Thomas 2010: 75
Silver (Highland)	Precious export	Thomas 2010: 75
Crops (Lowland)	Bulk export	Kroll 1983
Copper	Bulk import (?)	Stos-Gale and Gale 1992: 791
Textiles	Precious export	Mauel 2009
Lead (Highland)	Precious export	Tsirambides and Filippidis 2012: 643
Tin	Precious import	



Visited Collections

2009-2010 French Collection, University of Thessaloniki.

2010-2011 Heurtley Collection, Archaeological Museum of Thessaloniki.

2011 Toumba Thessaloniki, Excavation Storage.

Published images of key ceramic finds have been published by Hochstetter (1984), Jung (2002), Horejs (2007), Psaraki (2004) Heurtley and Hutchison (1925; 1926), Casson (1921; 1925; 1926), and Heurtley (1939) (see appendix 2).

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1 At the Dikili Tash webpage there are several hyperlink – 1) Late Bronze Age pottery and 2) Early Bronze Age architecture is described in the following pages:
1) http://www.dikili-tash.fr/content_en/chronologie/bronze/bronze_recent_recipients_decoration.htm
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2 The webpage of Wardle (2009) is extensive, and the following links (last visited 7.09.13) contain information about 1) Mycenaean pottery, 2) wall structures, and 3) site development:
1) http://artsweb.bham.ac.uk/aha/kaw/Assiros/assirosmycenaean.htm
2) http://artsweb.bham.ac.uk/aha/kaw/assiros/assiroswalls.htm
3) http://artsweb.bham.ac.uk/aha/kaw/Assiros/stratchron.htm

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Appendix 1

Kastanas

References to published data – JU= Jung (2002) – HÄ= Hänsel (1989) – HO= Hochstetter (1984)

Pl.=Plate – fig.=Figure. Maps and pottery illustrations after Hänsel (1989) and Hochstetter (1984), capital letter (e.g. A) Mittelbau) refers to rooms and buildings on map below.

Layer 17						
House/context	A)Mittelbau	B)Herdhaus	C)Hanghaus	Hof	Ostflache	Hangstraße
Mycenaean	JU.Pl.1.6			JU.Pl.5		
Matt Painted	HÄ.fig.24	HÄ.fig.24	HO.Pl.17.9	HO.Pl.11.1		HO.Pl.11.2
enc/inc	HO.Pl.13.2	HÄ.fig.24	HO.Pl. 13.4	HO.Pl.12.10	HO.Pl.12.1	HO.Pl.13.3

Layer 16					
House/context	A)Pithoshaus	B)Megaron	C)Fünfeckhaus	Hof	Straße/Gasse
Mycenaean	HÄ.fig.31	JU.Pl.75/ HÄ.fig.31	HÄ.fig.31	JU.Pl.1.9	JU.Pl.1.7
Matt Painted			H.Pl.22.10	HO.Pl.24.4	HO.Pl.27.1
enc/inc	HO.Pl.20.5	HO.Pl.20.1	HO.Pl.22.1	HO.Pl.24.3	HO.Pl.27.8

Layer 15						
House/context	A)Kantenhaus	B)Ellipsenhaus	C)Trapezhaus	D)Profilhaus	Hof	Straße
Mycenaean		JU.Pl.4.35			JU.Pl.2.21	JU.Pl.3.26
Matt Painted	HO.Pl.31.2	HO.Pl.31.8	HO.Pl.31.5		HO.Pl.33.1	HO.Pl.33.8
Enc/inc	HO.Pl.31.3	HO.Pl.31.10		HO.Pl.31.4	HO.Pl.32.3	HO.Pl.33.11

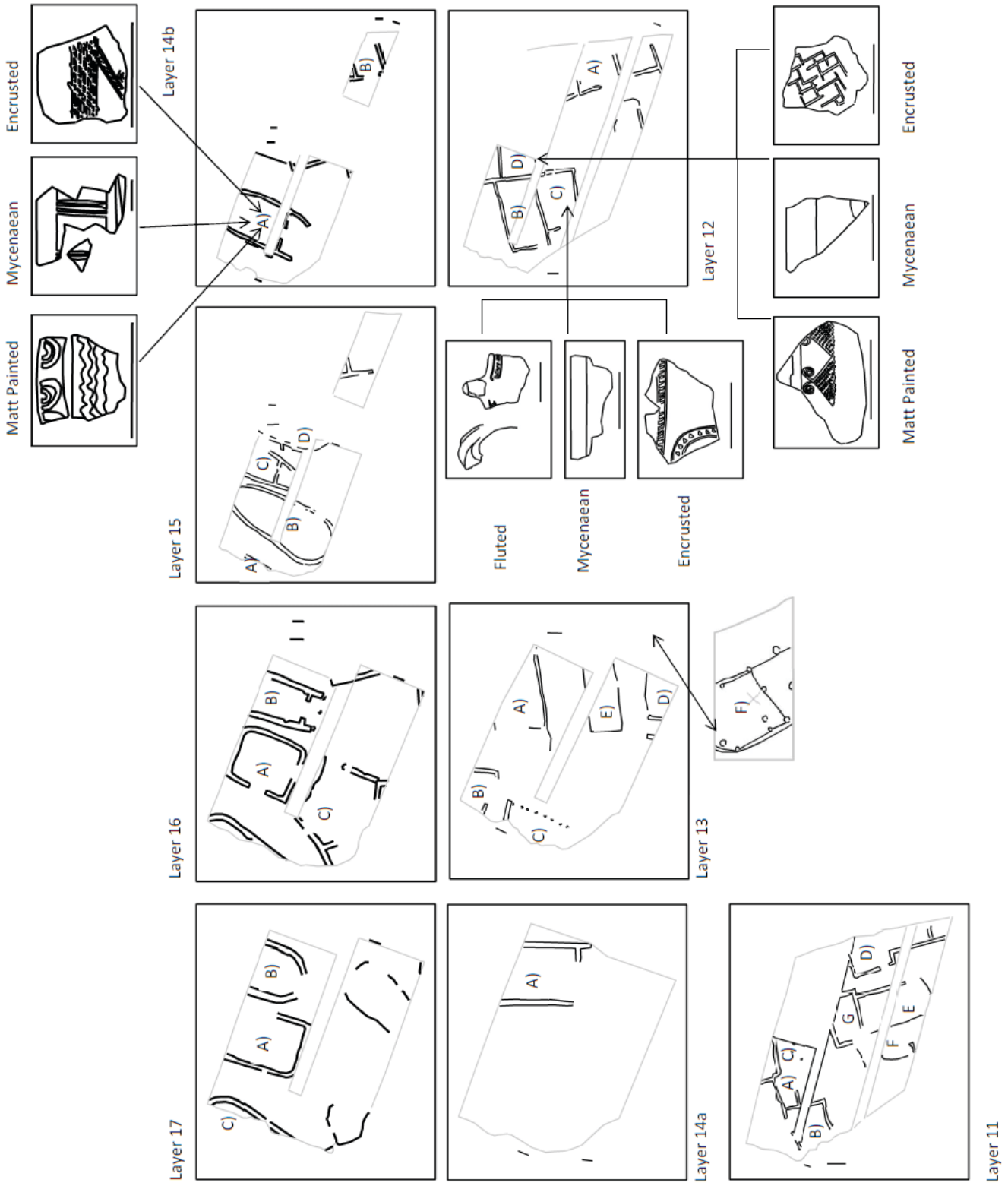
Layer 14b				
House/context	A)Antenhaus	Hofflachen	B)Doppelraumhaus	Osthof
Mycenaean	JU.Pl.6.58	JU.Pl.79	JU.Pl.81	JU.Pl.7.83
Matt Painted	HO.Pl.39.4	HO.Pl.51.1	HO.Pl.46.5	HO.Pl.46.3
Enc/inc	HO.Pl.39.7	HO.Pl.51.13	HO.Pl.47.1	HO.Pl.46.1

Layer 14a				
House/context	A)Einzelhaus	Hof	Osthaus	Freie Flache W Osthaus
Mycenaean	JU.Pl.82	JU.Pl.82		JU.Pl.84
Matt Painted	HO.Pl.58.4	HO.Pl.56.1		HO.Pl.56.6
Encrusted	HO.Pl.58.10			HO.Pl.56.9

Layer 13									
House/context	A)Flechtwandhaus	B)Winkelhaus	C)Ofenhalle	D)Webhaus	E)Leichtbau	Straße	Gasse	Hof	F)Pfostenhaus
Mycenaean	JU.Pl.85	JU.Pl.85	JU.Pl.85	JU.Pl.85	JU.Pl.85	JU.Pl.85	JU.Pl.85	JU.Pl.85	JU.Pl.88
Matt Painted	HO.Pl.71.4								
enc/inc			HO.Pl.70.5		HO.Pl.64.8		HO.Pl.64.6	HO.Pl.647	
Channeled	HO.Pl.71.2				HO.Pl.64.10	HO.Pl.64.5			

Layer 12								
House/context	Sudhof	Osthof	A)Loggia	Nordhof	B)Raum 1	C)Raum 2	D)Raum 3	Mauerschutt
Mycenaean	JU.Pl.92-93	JU.Pl.92-93	JU.Pl.92-93	JU.Pl.92-93	JU.Pl.92-93	JU.Pl.21.236	JU.Pl.24.268	
Matt Painted				HO.Pl.82.1			HO.Pl.75.8	
Encrusted	HO.Pl.93.3				HO.Pl.81.1	HO.Pl.75.5	HO.Pl.75.6	HO.Pl.93.9
Channeled	HO.Pl.88.4			HO.Pl.82.7		HO.Pl.75.4		HO.Pl.94.5

Layer 11		Folgebau								
House/context	Haupthof	A)Mittelraum	B)Westraum	C)Vorhalle 2	D)Seitenhaus	Straße	Winkelhof	E)Raum 1	F)Raum 2	G)Raum 3
Weelmade PG	JU.Pl.101-108	JU.Pl.47.420	JU.Pl.101-108	JU.Pl.101-108	JU.Pl.101-108	JU.Pl.101-108	JU.Pl.101-108	JU.Pl.101-108	JU.Pl.101-108	JU.Pl.101-108
Matt Painted										
enc/inc	HO.Pl.110.4	HO.Pl.99.2				HO.Pl.110.1	HO.Pl.105.1			
channeled	HO.Pl.101.8		HO.Pl.99.7	HO.Pl.102.1				HO.Pl.99.3	HO.Pl.99.4	HO.Pl.109.2


Encrusted
Mycenaean
Matt Painted
Layer 14b
Layer 15
Layer 16
Layer 17
Fluted
Mycenaean
Encrusted
Layer 12
Layer 13
Layer 14a
Layer 11
Encrusted
Mycenaean
Matt Painted

Appendix 2 – Index:

Appendix 2

1) Sites Mentioned in the Text and Maps
The site number ("no.") refers to the tag the site has at the maps. A reference is also included, as well as the number the site has in the site index ("index no.") of the relevant publications ("reference"). Site-sizes are in m^2 and estimates are derived from a comparison of numbers from the online tools Google Earth and ArcGis Online, and those given in French' site catalogue (1967), Rey's survey (1919) and recent works (Besios et al. 1997). Google Earth size estimates were obtained by simply measuring the site in the software. In ArcGis Online, area sizes may be measured directly from satellite imagery. Besios' (et al.1997) site index provided updated coordinates. The rough estimates of French (1967) were in fact often close to those obtained from Google Earth.

Tells and tables could be identified from sattelite imagery, and then controlled up against Besios' (et. al. 1997) coordinates. Some of the sites, like Rakhona (fig.1.1), have only been surveyed and not studied in a comprehensive manner. About Rakhona, French suggest the following "…mound, ? double;" (French 1967:36) – and it certainly seems that the tell (red circle) is situated uopn a table (blue circle) (fig.1), in the same manner as Pentalophos B. The shapes differ from round (e.g. Neochoruda; fig.1.2) to angular (e.g. Gallikos). Coordinates were projected as points in ArcGis 10. The ArcGis toolbox provided analytical opportunites for meassuring distances, viewsheds and Thiessen polygons. Background maps included Landsat 4-5 Sattelite Imagery obtained from USGS.gov, David Hill at the Museum of Cultural History (University of Oslo) and the School of History and Archaeology (University of Thessaloniki). The Museum of Cultural History provided Soviet maps with 50m contors while the School of History and Archaeology provided maps with 10m contors, both were vectorized, and could be used to construct DEM's.

no.	Site name	Reference	Index no.	Size – tell m²	Size – table m²	Reference - size
1	Tsautsitsa	Heurtley 1939	A2	1968,73		Google Earth
2	Xorygi	Besios et al. 1997	31			
3	Assiros	Wardle et al. 1980				See fig.1
4	Valtokhori	Besios et al. 1997	22	5400		Rey 1919: 53
5	Torone	Cambitoglu and Papadopoulos 2001				
6	Hagios Mamas	Hänsel and Aslanis 2010				See fig.1
7	Xylokeratia	Besios et al. 1997	25	5 024		French 1967: 40
8	Gallikos	Besios et al. 1997	11	5 583		Google Earth, see fig.1
9	Philadelphia	Besios et al. 1997	113	5 016		Google Earth, see fig.1
10	Pentalophos B	Besios et al. 1997	89	5 625	30000	French 1967: 27, see fig.1
11	Pentalophos A	Besios et al. 1997	88	9375		French 1967: 27, see fig. 1
12	Neochoruda	Besios et al. 1997	78	6 358		French 1967: 25, see fig.1
13	Kouphalia A	Besios et al. 1997	47		117462	Rey 1919: 49
14	Livadhi	Besios et al. 1997	59	3 603		Google Earth
15	Rakhona	French 1967	A12	5887		ArcGis Online, see fig.1
16	Limnotopos	Heurtley 1939	A3	4 069		Google Earth
17	Aspros	Besios et al. 1997	5	6 815		Google Earth
18	Axiochori	Heurtley 1939	A4	7850	25 464	Google Earth, see fig.1
19	Kastanas	Hänsel 1989		5000		Hänsel 1989: 28, see fig.1
20	Kilindir	Heurtley 1939	A1	4 350		Google Earth

21	Tomba Thessaloniki	Andreou et al. 2001		15000		See fig.1
22	Dourmousli	Besios et al. 1997	29	5000		French 1967: 10
23	Toumba Paionias	Besios et al. 1997	26	4945		French 1967: 35
24	Antophytos A	Besios et al. 1997	1	2 826		French 1967: 5
25	Antophytos B	Besios et al. 1997	2			
26	Kouphalia Toumba	Besios et al. 1997	49	6358		French 1967 : 36
27	Xirochori Toumba	Besios et al. 1997	83	4 600		Rey 1919: 62
28	Dytiko – near Agrosykia	Kokkinidou and Trantalidou 1991	22			
29	Nea Anchialos	Gimatzidis and Tiverios 2010		1961		Google Earth, see fig.1
30	Lakhanokipos	Besios et al. 1997	52	4415		French 1967: 17
31	Petroto	Besios et al. 1997	94			
32	Vapheiochori B	Besios et al. 1997	9			
33	Vapheiochori A	Besios et al. 1997	8			
34	Eucharpia	Besios et al. 1997	15			
35	Kotyle	Besios et al. 1997	18			
36	Metalliko G	Besios et al. 1997	22			
37	Metalliko D	Besios et al. 1997	23			
38	Metalliko E	Besios et al. 1997	24			
39	Plagia Kilkis	Besios et al. 1997	28			
40	Nea Mesimvria	Besios et al. 1997	73	1500		Besios et al.1997: 29

41	Gavra	Besios et al. 1997	10			
42	Eptalofos	Besios et al. 1997	14			
43	Gerakario	Besios et al. 1997	12			
44	Polykastro	Touchais 1998: 861				
45	Pedino	Besios et al. 1997	27			
46	Ano Apostoloi	Besios et al. 1997	3			
47	Vathylakkos	Besios et al. 1997	21			
48	Philadelphia table	Besios et al. 1997	114			See fig.1
49	Xirochori	Besios et al. 1997	82			
50	Asperos Table	Besios et al. 1997				
51	Prochoma	Besios et al. 1997				
52	Gefyra	Besios et al. 1997	27			
53	Metalliko	Besios et al. 1997				See fig.1
54	Gynaikastro	Besios et al. 1997				
55	Evropos	Besios et al. 1997	16			
56	Bouboustí	Heurtley 1939	H2			
57	Angelochori	Stefani and Meroussis 2003				
58	Archontiko	Pilali-Papasteriou and Papaefthymiou-Papanthimou 2002				
59	Viile Maieri	Boroffka 1994: site 20	20			
60	Cetea	Boroffka 1994: site 107	107			

61	Szazhalombatta	Kristiansen and Earl 2010				
62	Chadsinota	Allamani 1983: 304				
63	Perivolaki	Heurtley 1939				
64	Toumba Thermi	Besios et al. 1997	41			
65	Vergina	Andronikos 1969				
66	Faia Petra	Valla et al. 2013				
67	Kanes	Larsen 1976				
68	Miletos	Greaves 2002				
69	Koukos	Carrington-Smith 1991				
70	Lembet	Besios et al. 1997	53			
71	Ourda	Besios et al. 1997	109			

Figure 1: 1) Rakhona, 2) Neochoruda, 3) Pentalophos B, 4) Pentalophos A, 5) Philadelphia table, 6) Philadelphia toumba, 7) Gallikos, 8) Kastanas, 9) Axiochori, 10) Xorygi, 11) Sindos, 12) Metalliko, 13) Assiros, 14) Hagios Mamas, 15)Toumba Thessaloniki (ArcGis World Imagery).

2) Index (ch.5) of Bronze Age Metal Objects and Small Finds Mentioned in the Text

The finds and types mentioned in the text is listed below with reference, layer and brief notes derived from the cited publication. In the monograph the artifacts listed above are discussed (in particular) in chapter 5, and it is evident that tools were made of stone and bronze, while lead could also be used for clamps to repair broken pots. Ornaments are made of bone, bronze and gold. Curved knife blades and socketed spears were produced – connecting the metallurgic tradition, through choice of shapes, to the Balkans. A few ingots have also been uncovered, attesting metal trade.

No.	Type	Amount	Material	Site	Layer	Period	Notes	Reference
1	Gold wire	1	Gold	Kastanas	19	LBA	Good parallels in the Mycenaean Shaft Graves	Hochstetter 1987 pl.1.6
2	Tutuli	3	Gold	Kastanas		LBA	Also found at Limnotopos, layer IIa, but with Earlier Aegean counterparts	Hochstetter 1987 pl.1.4
3	Gold plates	2	Gold	Kastanas	14a	LBA	Few parallels beyond those of Tsautsitsa	Hochstetter 1987 pl.1.2-1.3
4	Gold plates	1	Gold	Kastanas	14b	LBA	Op.cit.	Hochstetter 1987 pl.1.1
5	Ring	1	Gold	Kastanas	13	LBA	See also finds from Perivolaki (Heurtley 1930: fig.31)	Hochstetter 1987 pl.1.5
6	Socketed spear mold	1	Stone	Kastanas	16	LBA	Attesting a local production of a "northern" weapons type – the particular shape associated with N.W. Greece pre-1200 BC	Hochstetter 1987 pl.5.3
7	Curved blade	1	Bronze	Kastanas	16	LBA	Northern, Central European type	Hochstetter 1987 pl.2.8
8	Straight blade	1	Bronze	Kastanas	11	LBA	Aetolian parallels, also rare parallels in Central Europe	Hochstetter 1987 pl.2.6
9	Spatula shaped blade	1	Bronze	Kastanas	14b	LBA	Parallels in Dodona	Hochstetter 1987 pl.2.11
10	Tanged dagger	1	Bronze	Kastanas	13	LBA	Peschiera dagger, known in Central Europe and Italy, according to Harding (1984: 173) with a shape resembling the Naue II Sword	Hochstetter 1987 pl.2.10
11	Arrowhead	1	Bronze	Kastanas	14b	LBA	Parallels in the Shaft Graves, sockted arrowheads – also parallels in the North	Hochstetter 1987 pl.2.1
12	Arrowhead	1	Bronze	Kastanas	15	LBA	Op.cit.	Hochstetter 1987 pl.2.2
13	Arrowhead	1	Bronze	Kastanas	13	LBA	Op.cit.	Hochstetter 1987 pl.2.4
14	Arrowhead	1	Bronze	Kastanas	14a	LBA	Split sockted arrowhead – according to Hochstetter (1987) the arrowheads in general draws on Aegean proto-types	Hochstetter 1987 pl.2.5
15	Fish hook	1	Bronze	Kastanas	17	LBA	Mycenaean parallels, but also known in parallels in Croatia	Hochstetter 1987 pl.3.21

16	Fish hook	1	Bronze	Kastanas	13	LBA	Op.cit.	Hochstetter 1987 pl.3.22
17	Fish hook	1	Bronze	Kastanas	12	LBA	Op.cit	Hochstetter 1987 pl.3.23
18	Chisel	1	Bronze	Kastanas	14a	LBA	Aegean crafter's tool	Hochstetter 1987 pl.3.4
19	Flat headed nail	1	Bronze	Kastanas	12	LBA		Hochstetter 1987 pl.3.7
20	Nail	1	Bronze	Kastanas	13	LBA	North Aegean tool, attached to bone shaft	Hochstetter 1987 pl.33.18
21	Needle (w. loop)	1	Bronze	Kastanas	12	LBA	Textile tool, with Aegean counterparts	Hochstetter 1987 pl.4.20
22	Needle (flattened ball head)	2	Bronze	Kastanas	15	LBA	Most counterparts in N. Italy	Hochstetter 1987 pl.4.23-4.24
23	Rollennadel	1	Bronze	Kastanas	14b	LBA	Frequent Southern counterparts	Hochstetter 1987 pl.4.26
24	Violin bow fibula	1	Bronze	Kastanas	13	LBA	The fibula, like other ornaments, were carried on the dress of travellers, and appear in greater numbers in Greece in the LH IIIC period an onwards together with other northern attire-related objects	Hochstetter 1987 pl.3.1
25	Ring	1	Bronze	Kastanas	12	LBA		Hochstetter 1987 pl.4.4
26	Ring	1	Bronze	Kastanas	11	LBA		Hochstetter 1987 pl.4.5
27	Armring	1	Bronze	Kastanas	14a	LBA	Central European counterparts	Hochstetter 1987 pl.4.9
28	Armring	1	Bronze	Kastanas	16	LBA	Op.cit	Hochstetter 1987 pl.4.11
29	Bronze pearl	1	Bronze	Kastanas	12	LBA	Mycenaean counterparts	Hochstetter 1987 pl.23.14
30	Bronze pearl	2	Bronze	Kastanas	14a	LBA	Op.cit.	Hochstetter 1987 pl 23.12-23.13
31	Rivet	1	Bronze	Kastanas	17	LBA		Hochstetter 1987 pl.3.9
32	Rivet	1	Bronze	Kastanas	14b	LBA		Hochstetter 1987 pl.3.10
33	Band	1	Bronze	Kastanas	13	LBA	Part of buckel or coffin fittings	Hochstetter 1987 pl.3.17

34	Band	1	Bronze	Kastanas	15	LBA	Hookshaped, possibly part of boot, wagon fitting or horse harness	Hochstetter 1987 pl.4.14
35	Mold	1	Bronze	Kastanas	16	LBA	Pointed object	Hochstetter 1987 pl.5.1
36	Mold	1	Bronze	Kastanas	16	LBA	Fragement – a mold for multiple objects	Hochstetter 1987 pl.5.6
37	Mold	1	Bronze	Kastanas	14a	LBA	A fragement – possibly for a flat axe	Hochstetter 1987 pl.6.11
38	Mold	1	Bronze	Kastanas	11	LBA	A rod to be hammered or traded	Hochstetter 1987 pl.6.10
39	Mold	1	Bronze	Kastanas	15	LBA	Molds, primarily from Bronze Age layers indicates metallurgy at even small settlements	Hochstetter 1987 pl.5.7
40	Clamp	1	Lead	Kastanas	15	LBA		Hochstetter 1987 pl.18.4
41	Clamp	1	Lead	Kastanas	14b	LBA		Hochstetter 1987 pl.18.2
42	Pierced rounded stone	1	Stone	Kastanas	17	LBA	Tool	Hochstetter 1987 pl.12.1
43	Pierced rounded stone	1	Stone	Kastanas	13	LBA	Tool	Hochstetter 1987 pl.12.2
44	Tanged arrowhead	2	Bone	Kastanas	16	LBA	Also found in the Mediana culture of Serbia	Hochstetter 1987 pl.14.16-14.17
45	Pin	1	Bone	Kastanas	12	LBA	”Keulenförmigen kopfend” - Aegean	Hochstetter 1987 pl.14.1
46	Pin	1	Bone	Kastanas	16	LBA	”Keulenförmigen kopfend”	Hochstetter 1987 pl.14.3
47	Pin	1	Bone	Kastanas	11	LBA	”Keulenförmigen kopfend”	Hochstetter 1987 pl.14.7
48	Pin	1	Bone	Kastanas	12	LBA	“mit kleinem, abgesetztem kopf”, incised	Hochstetter 1987 pl.15.16
49	Pin	1	Bone	Kastanas	14a	LBA	“mit kleinem, abgesetztem kopf”	Hochstetter 1987 pl.15.15
50	Pin	1	Bone	Kastanas	13	LBA	“mit kleinem, abgesetztem kopf”	Hochstetter 1987 pl.15.14
51	Pin	1	Bone	Assiros		LBA	Similar hear as object no.50, above - “mit kleinem, abgesetztem kopf”	Wardle et al.1980 pl.22
52	Pin	1	Bone	Limnotopos	IIB	LBA	“abgesetztem kopf”	Heurtley 1926 pl.19.11

53	Pin	1	Bone	Limnotopos	IIB	LBA	”Keulenförmigen kopfend”	Heurtley 1926 pl.19.10
54	Pin	1	Bone	Kastanas	12	LBA	”Nagelkopf”	Hochstetter 1987 pl.15.21
55	”Wart” pin	1	Bone	Kastanas	13	LBA	“Warzenhalsnadel” several personal objects were connected with the Noua culture,	Hochstetter 1987 pl.15.13
56	Pin	1	Bone	Kastanas	13	LBA	“…mit eiförmigem Kopf und profiliertem Hals”.	Hochstetter 1987 pl.15.12
57	Needle	1	Bone	Kastanas	16	LBA	Noua parallels, pierced head.	Hochstetter 1987 pl.15.23
58	Needle	1	Bone	Kastanas	12	LBA	Op.cit.	Hochstetter 1987 pl.15.24
59	Cylinder	1	Bone	Kastanas	16	LBA	Noua parallels	Hochstetter 1987 pl.14.14
60	Cylinder	1	Bone	Kastanas	surface	LBA	Noua parallels, incised	Hochstetter 1987 pl.14.15
61	Beads	2	Glass	Kastanas	12	LBA	Glass and faience beads are ornaments associated with Mycenaean Greece	Hochstetter 1987 pl.23.4-23.5
62	Bead	1	Fayance	Kastanas	14a	LBA	Op.cit.	Hochstetter 1987 pl.23.8
63	Bead	1	Fayance	Kastanas	14b	LBA	Op. cit.	Hochstetter 1987 pl.23.10
64	Socketed spear	1	Bronze	Limnotopos	IIa	LBA	In the Bronze Age, mostly found in north of the Aegean, but were encountered on board the Uluburun (see ch.4.1.5)	Heurtley 1939; Heurtley 1925 pl.19.2
65	Bow fibula	1	Bronze	Limnotopos	IIb	LBA	See no.24 (above).	Heurtley 1925 pl.19.12b
66	Knife	1	Bronze	Toumba Thessaloniki	4	LBA	Grave goods in intramural graves at Toumba Thessaloniki	Morgan 2009: 63
67	Chisel	1	Bronze	Hagios Mamas	10	LBA	A Central European type, often found in hoards (unknown in Central Macedonia).	Schalk 2005
68	Silver core	1	Silver	Kilindir	IIa	LBA	A tradable commodity, seen at the Museum of Thessaloniki	Heurtley collection
69	Sword pommel	1	Stone	Assiros	7	LBA	Marble pommels are commonly associated with Mycenaean swords	D. Wardle and K. Wardle 1999: 31
70	Mace head	1	Stone	Pentalophos A		EBA	Tool	Rey 1917-1919 pl.42.2; Heurtley 1939 pl.64.l
71	Disc	1	Gold	Kilindir	IIa	LBA	Ornament	Heurtley 1939 pl.83.z

72	Sieckle	1	Bronze	Kilindir	IIc	LBA	Like the socketed chisle both a tool and an object worth deposing	Casson 1926 pl.17.2.2
73	Collared double axe	1	Bronze	Kilindir	IIc	LBA	Tool with Balkan (Serbian) counterparts	Casson 1926 pl.17.2.1
74	Straight blade	1	Bronze	Kilindir	IIa	LBA	Tool	Casson 1926 pl.8.3
75	Disc	1	Bronze	Kilindir	IIb	LBA	Ornament	Casson 1926 pl.8.3
76	Bead	1	Bronze	Kilindir	IIc	LBA	Ornament	Casson 1926: 67
77	Mace head	1	Stone	Axiochori		EIA	Tool	Heurtley 1939 pl.114.a
78	Animal figurines	2	Clay	Hagios Mamas		LBA	Unlike Encrsuted Balkan types, these were painted of a Mycenaean type, retrived at tells rather than temples	Heurtley 1939 pl.112.a
79	Lead core	1	Lead	Kilindir	IIc	LBA	A tradable commodity	Heurtley collection
80	Knife, curved with rib	1	Bronze	Assiros	7	LBA	”Balkan type” tool	Wardle 1980 pl.22
81	Rapier	1	Bronze	Grevena		LBA	A Mycenaean weapon also encounetred throughout in Central Europe (see Kristiansen and Larsson 2005: fig.94)	Heurtley 1939 pl.104.ee
82	Lead ingot	1	Lead	Kastanas		LBA	A tradable commodity	Hochsetter 1987 pl.18.5
83	Mold	1	Stone	Assiros	5	LBA	For tapering rod – possibly an ingot or an object to be hammered into a tool	K.Wardle and D.Wardle 1999 pl.2.2
84	Mold	1	Stone	Assiros	6	LBA	For a socketed chisel	K.Wardle and D.Wardle 1999 pl.2.3
85	Mold	1	Stone	Assiros	2	LBA	For a collared axe, known in the Balkans	K.Wardle and D.Wardle 1999 pl.3.3
86	Mold	1	Stone	Assiros	6	LBA	For multiple chisels	K.Wardle and D.Wardle 1999 pl.3.1
87	Mold	1	Stone	Assiros	6	LBA	For a trunnion axe, also encounteren in the Aegean	K.Wardle and D.Wardle 1999 pl.3.2
88	Mold	1	Stone	Kastanas	14a	LBA	K.Wardle and D.Wardle (1999: 39) suggests this to be for a flat axe, a likely interpretation	Hochstetter 1987 pl.6.11
89	Mold	1	Stone	Assiros		LBA	For multiple curved blades, known in the Balkans	D.Wardle and K.Wardle 1999 pl.4.1
90	Mold	1	Stone	Kastanas	9	EIA	K.Wardle and D.Wardle (1999: 39) draws attention to a similar specimen in Argolis dating to the LH IIIC period. For wheel-like ornaments	Hochstetter 1987 pl.5.4
91	Mold	1	Stone	Assiros	5	LBA	For flat ornament with zigzag motif	D.Wardle and K.Wardle 1999 pl.3.5

92	Collared double axe	1	Bronze	Toumba Thessaloniki	4	LBA	Tool, Balkan counterparts	Andreou et al. 1991 pl.12
93	Horse bit	1	Bone	Toumba Thessaloniki	4	LBA	A Central European prestige object, incised – with similar pattern as the bone cylinder, object 60.	Andreou et al. 1991 pl.14
94	Double axe	1	Iron	Assiros	2 or 3	EIA	Tool	Wardle 1987 pl.51.b
95	Mold	1	Stone	Saratse			For a flat ornament with zigzag motif	Heurtley 1939 pl.112.b

3) Index of Depicted Objects

A list of depicted objects from the text, with reference. The objects in the "Heurtley Collection" were accessed in the Archaeological Museum of Thessaloniki, but are depicted in "Pre-Historic Macedonia" (Heurtley 1939) or articles (Davis et al. 1926; Heurtley and Hutchison 1925; Hanschmann and Milojčić 1976). While the material from the French Collection remains un-published, it is accessible at The University of Thessaloniki's study collection. The material from the Toumba Thessaloniki storage was studied with the permission of prof. Andreou, but is accessible through the writings of Psaraki (2004), Kiriatzi (2000), Andreou and Psaraki (2007; 2010), and Andreou (2009). A full publication of the pottery of Toumba Thessaloniki still awaits, but stratigraphic information was supplied by the Toumba Thessaloniki excavation team. The images of Mycenaean pottery from this dissertation is found in recent publications (Andreou 2003; 2009), while the same is the case of the matt-painted and encrusted pottery (Psaraki 2004; Andreou and Psaraki 2007).

Some of the depicted objects have an object number (autonumber in ArcGIS given when imgaes were modified for the purpose of this dissertation). This was a device to keep track of the pots I studied regardless if in a collection or a publication. Some objects were photographed several times, and but as they could only have one object number. These were indexed with a photonumber. This was also the case with objects that were added after the indexing.

ID	Figure	Site	Part	Shape	Type of decoration	Source	Layer	Date
7	137	Kastanas	Handle	Bowl	Encrusted	Hochstetter 1984 pl.264.14	19	MBA/LBA
10	137	Kastanas	Handle	Handle	Encrusted	Hochstetter 1984 pl.1.10	19	MBA/LBA
21	145	Kastanas	Body	?	Impressed	Hochstetter 1984 pl.5.4	19-20	MBA/LBA
25	143	Kastanas	Handle	Kantharos bowl	Matt-painted	Hochstetter 1984 pl.6.3	18	MBA/LBA
26	141	Kastanas	Handle	Kantharos bowl	Matt-painted	Hochstetter 1984 pl.6.4	18	MBA/LBA
33	136	Kastanas	Rim handle	Kantharos	Graphite painted	Hochstetter 1984 pl.8.7	18	MBA/LBA
37	140	Kastanas	Body	Amphora	Matt-painted	Hochstetter 1984 pl.11.6	17	LBA
44	136	Kastanas	Body	Kantharos	Encrusted	Hochstetter 1984 pl.12.7	17	LBA
46	144	Kastanas	Body	Kantharos	Encrusted	Hochstetter 1984 pl.12.9	17	LBA
61	139	Kastanas	Body	Amphora	Matt-painted	Hochstetter 1984 17.8	(16)-17	LBA
68	136	Kastanas	Handle	Pithos	Applied and incised	Hochstetter 1984 pl.19.4	16	LBA

71	136	Kastanas	Body	Bowl	Encrusted	Hochstetter 1984 pl.20.4	16	LBA
72	136	Kastanas	Body	?	Incised and Excised	Hochstetter 1984 pl.20.5	16	LBA
77	139	Kastanas	Rim	Bowl	Matt-painted	Hochstetter 1984 pl.22.5	16	LBA
87	143	Kastanas	Handle	Kantharos bowl	Matt-painted	Hochstetter 1984 pl.24.4	0	LBA
92	143	Kastanas	Handle rim	Kantharos bowl	Matt-painted	Hochstetter 1984 pl.27.4	16	LBA
96	143	Kastanas	Tim handle	Kantharos bowl	Matt-painted	Hochstetter 1984 pl.27.5	16	LBA
104	141	Kastanas	Handle	Amphora	Matt-painted	Hochstetter 1984 pl.29.9	16-(17)	LBA
107	141	Kastanas	Rim handle	Bowl	Matt-painted	Hochstetter 1984 pl.29.12	16-17	LBA
108	142	Kastanas	Body	?	Encrusted	Hochstetter 1984 pl.259.6	15	LBA
118	121	Kastanas	Body	?	Matt-painted	Hochstetter 1984 pl.33.1	15	LBA
122	138	Kastanas	Body	?	Matt-painted	Hochstetter 1984 pl.33.7	15	LBA
129	121	Kastanas	Body	?	Matt-painted	Hochstetter 1984 pl.37.2	15-(16)	LBA
134	142	Kastanas	Body	?	Matt-painted	Hochstetter 1984 pl.39.1	14b	LBA
137	141	Kastanas	Rim	Bowl	Matt-painted	Hochstetter 1984 pl.39.4	14b	LBA
150	125	Kastanas	Rim	Kantharos	Encrusted	Hochstetter 1984 pl.40.9	14b	LBA
158	137	Kastanas	Rim	Kantharos bowl	Matt-painted	Hochstetter 1984 pl.46.5	14b	LBA
158	137	Kastanas	Rim	Kantharos bowl	Matt-painted	Hochstetter 1984 pl.46.5	14b	LBA
159	142	Kastanas	Body	?	Matt-painted	Hochstetter 1984 pl.46.6	14b	LBA
160	143	Kastanas	Rim handle	Kantharos bowl	Matt-painted	Hochstetter 1984 pl.46.7	14b	LBA
161	102	Kastanas	Rim handle	Kantharos	Encrsuted	Hochstetter 1984 pl.47.1	14b	LBA
176	149	Kastanas	Rim	Cut away neck jug	Encrusted	Hochstetter 1984 pl.51.13	0	LBA
180	138	Kastanas	Body	Cup	Matt-painted	Hochstetter 1984 pl.54.3	14b-(15)	LBA
221	148	Kastanas	Rim handle	Kantharos	Fluted and incised	Hochstetter 1984 pl.75.4	12	LBA
229	142	Kastanas	Rim	Kantharos bowl	Matt-painted	Hochstetter 1984 pl.82.1	12	LBA
270	121	Kastanas	Body	?	Incised	Hochstetter 1984 pl.110.13	11-12	LBA
276	141	Kastanas	Rim	Amphora	Matt-painted	Hochstetter 1984 pl.11.4	17	LBA
279	146	Limnotopos	Rim	Bowl - turban rim	Fluted	Heurtley Collection	G3	EIA
287	150	Axiochori	Handle	Handle	Fluted	Heurtley Collection	IV 10 (2)	LBA
292	94	Tsautsitsa	Body	Kantharos	Encrusted	Heurtley Collection	0	LBA
293	94	Tsautsitsa	Body handle	Kantharos	Encrusted	Heurtley Collection	0	LBA
294	94	Tsautsitsa	Body	Kantharos	Encrusted	Heurtley Collection	0	LBA
296	135	Limnotopos	Body	Closed bowl	Encrusted	Heurtley 1925: pl. XII	A2b	LBA

297	94	Kilindir	Body	Kantharos	Encruted	Heurtley Collection	?	LBA
298	94	Kilindir	Body	Amphora	Encrusted	Heurtley Collection	0	LBA
301	138	Gona	Body handle	Amphora	Matt-painted	Heurtley Collection	0	LBA
302	57	Limnotopos	Body handle	Amporiskos	Mycenaean	Heurtley Collection	B2a	LBA
302	57	Limnotopos	Body handle	Amporiskos	Mycenaean	Heurtley Collection	B2a	LBA
303	138	Tsautsitsa	Rim	Kantharos bowl	Matt-painted	Heurtley Collection	0	LBA
304	137	Bouboustí	Handle	Amphora	Matt-painted	Heurtley 1939: fig.100	?	LBA
308	96	Kilindir	Body	Jug	Encrusted	Heurtley Collection	2	LBA
311	75	Kilindir	Body	Kantharos	Matt-painted	Heurtley Collection	2	LBA
312	144	Kilindir	Body	Amphora	Matt-painted	Heurtley Collection	2	LBA
322	135	Axiochori	Handle	Handle	Channeled	Heurtley Collection	I 7 (2)	EIA
342	135	Axiochori	Body	Bowl	Encrusted	Heurtley Collection	C wall level clearing	LBA
355	147	Axiochori	Rim handle	Jar	Grooved and applied	Heurtley Collection	10 (2)	LBA
361	92	Axiochori	Rim handle	Cup	Grooved	Heurtley Collection	IV 1	EIA
364	57	Limnotopos	Handle	?	Fluted	Heurtley Collection	A2a	LBA
394	131	Toumba Livadhi	Rim	Kantharos bowl	Matt-painted	French collection	Survey	LBA
394	131	Toumba Livadhi	Rim	Kantharos bowl	Matt-painted	French collection	Survey	LBA
395	91	Toumba Livadhi	Body	Goblet or amphoriskos	Mycenaean	French collection	Survey	LBA
402	139	Dourmousli	Body	Kantharos bowls	Matt-painted	Heurtley Collection	Survey	LBA
419	93	Kilindir	Body	Kantharos	Encrusted	Heurtley Collection	II a	LBA
419	93	Kilindir	Body	Kantharos	Encrusted	Heurtley Collection	II a	LBA
420	93	Kilindir	Body	Bowl	Encrusted	Heurtley Collection	II a	LBA
422	93	Kilindir	Body	Bowl	Incised	Heurtley Collection	II a	LBA
427	89	Kilindir	Body	Bowl	Encrusted	Heurtley Collection	II a	LBA
432	93	Kilindir	Bottom	Jug	Encrusted	Heurtley Collection	II a	LBA
433	94	Kilindir	Body	Bowl	Encrusted	Heurtley Collection	II a	LBA
435	87	Kilindir	Body	?	Encrusted	Heurtley Collection	II a	LBA
435	87	Kilindir	Body	?	Encrusted	Heurtley Collection	II a	LBA
436	93	Kilindir	Body	?	Encrusted	Heurtley Collection	II a	LBA
439	93	Kilindir	Body	Jar	Encrusted	Heurtley Collection	II a	LBA
440	94	Kilindir	?	?	Encrusted	Heurtley Collection	II a	LBA

441	87	Kilindir	Body	?	Encrusted	Heurtley Collection	II a	LBA
441	87	Kilindir	Body	?	Encrusted	Heurtley Collection	II a	LBA
445	94	Kilindir	Body	?	Encrusted	Heurtley Collection	II a	LBA
448	88	Kilindir	Handle body	Amphora	Encrsuted	Heurtley Collection	II b	LBA
448	88	Kilindir	Handle body	Amphora	Encrsuted	Heurtley Collection	II b	LBA
451	152	Axiochori	Handle	?	Fluted	Heurtley Collection	II a	LBA
459	145	Kilindir	Rim	Shallow bowl	Impressed	Casson 1926: pl.IX	I	EB
463	140	Kilindir	Body	?	Matt-painted	Heurtley Collection	II c	LBA
464	137	Kilindir	Rim	Jug	Matt-painted	Heurtley Collection	II c	LBA
467	75	Tsautsitsa	Rim	Bowl	Matt-painted	Hochstetter 1982: fig.1.24	II c	LBA
468	137	Kilindir	Body	Amphora?	Matt-painted	Heurtley Collection	II c	LBA
471	137	Kilindir	Body handle	Jar	Matt-painted	Heurtley Collection	II c	LBA
481	144	Kilindir	Body	Jug	Matt-painted	Heurtley 1939: fig.89	II c	LBA
494	93	Kilindir	Body	?	Encrusted	Heurtley Collection	II c	LBA
500	144	Kilindir	Body	?	Encrusted	Heurtley Collection	II c	LBA
503	62	Kilindir	Body	?	Encrusted	Heurtley Collection	II c	LBA
509	93	Kilindir	Body	?	Encrusted	Heurtley Collection	II c	LBA
510	71	Kilindir	Body	Amphora	Encrusted	Heurtley Collection	II c	LBA
512	95	Kilindir	Body	?	Encrusted	Heurtley Collection	II c	LBA
515	121	Kilindir	Body	?	Encrusted	Heurtley Collection	II c	LBA
515	121	Kilindir	Body	?	Encrusted	Heurtley Collection	II c	LBA
519	144	Kilindir	Body	Jar - kantharos?	Encrsuted	Heurtley Collection	II c	LBA
523	106	Kilindir	Body	Jar - kantharos?	Encrusted	Heurtley Collection	II c	LBA
533	71	Kilindir	Body	Jar - kantharos?	Encrusted	Heurtley Collection	II c	LBA
543	93	Kilindir	Body	?	Encrusted	Heurtley Collection	II c	LBA
545	93	Kilindir	Body	?	Encrusted	Heurtley Collection	II c	LBA
570	126	Kilindir	Body	?	Encrusted	Casson 1925B: pl.XXVII	II c	LBA
570	126	Kilindir	Body	?	Encrusted	Casson 1925B: pl.XXVII	II c	LBA
605	93	Kilindir	Complete	Bowl	Incised	Heurtley Collection	D1	MB?
605	93	Kilindir	Complete	Bowl	Incised	Heurtley Collection	D1	MB?
607	124	Kilindir	Rim handle	Jug	Matt-painted	Casson 1926: pl.XV	II c?	LB
608	139	Kilindir	Rim	Bowl - kantharoid	Matt-painted	Casson 1926: pl.XVI	II b/c?	LB

617	71	Tsautsitsa	Body handle	Closed bowl	Incised	Heurtley Collection	0	LBA
623	138	Bouboustí	Rim	Jar	Matt-painted	Heurtley 1927: fig.27.4	0	LBA
637	96	Toumba Thessaloniki	Handle	Wishbone handle – bowl?	Grooved	Toumba Thessaloniki Storage KA2323 #761465	0	EIA?
638	147	Toumba Thessaloniki	Rim	Cup	Fluted	Toumba Thessaloniki Storage KA2198 #21266	0	EIA?
639	71	Toumba Thessaloniki	Handle	Jug	Fluted and incised	Toumba Thessaloniki Storage KA2194 #21213	C2	EIA
640	96	Toumba THessaloniki	Rim handle	Deep bowl	Fluted and grooved	Toumba Thessaloniki Storage KA503 #51067	1 disturbance	EIA
641	147	Toumba THessaloniki	Handle body	Closed bowl	Fluted	Toumba Thessaloniki Storage KA473 #221059	3B - 4A	EIA
642	147	Toumba THessaloniki	Rim handle	Kantharos	Fluted	Toumba Thessaloniki Storage KA860 #244031	3	EIA
646	108	Kilindir	Rim	Amphora	Encrusted	Heurtley Collection	0	LBA
647	71	Kilindir	Body	Amphora?	Encrusted	Casson 1926: pl.XII	0	LBA
649	94	Kilindir	Body	Kantharos?	Encrusted	Heurtley Collection	0	LBA
650	131	Kilindir	Rim	Bowl	Encrusted	Casson 1926: pl.XI	0	LBA
651	136	Kilindir	Body	Kantharos?	Encrusted	Casson 1926: pl.XI	0	LBA
654	94	Kilindir	Rim	Amphora?	Encrusted	Heurtley Collection	0	LBA
658	126	Kilindir	Body	?	Encrusted	Heurtley 1939: fig.70	0	LBA
658	126	Kilindir	Body	?	Encrusted	Heurtley Collection	0	LBA
670	92	Axiochori	Body	?	Encrusted	Heurtley Collection	S 27(1) S	LBA
671	92	Axiochori	Rim	Closed bowl	Encrusted	Heurtley Collection	S 34 (2) N	LBA
679	92	Axiochori	Body	Closed jar	Encrusted	Heurtley Collection	V 5	LBA
680	92	Axiochori	Body	?	Encrusted	Heurtley Collection	IX 20 (21)	LBA
687	92	Axiochori	Body	?	Encrusted	Heurtley Collection	?	LBA
688	92	Axiochori	Body	?	Encrusted	Heurtley Collection	V 20 (2)	LBA
689	92	Axiochori	Body	?	Encrusted	Heurtley Collection	IX 19 (2) W	LBA

694	92	Axiochori	Body	?	Encrusted	Heurtley Collection	23 (1 + 2) 24 (1+2)	LBA
695	92	Axiochori	Body	?	Grooved	Heurtley Collection	IX 23 (1+2)	LBA
708	92	Axiochori	Rim	Bowl	Impressed	Heurtley Collection	C 0-1	EIA
709	92	Axiochori	Rim	Deep bowl	Incised	Heurtley Collection	C 0-1	EIA
713	92	Axiochori	Body	Bowl	Encrusted	Heurtley Collection	C 1-2	LBA
714	134	Axiochori	Body	?	Encrusted	Heurtley Collection	C 1-2	LBA
715	118	Axiochori	Bottom	?	Incised	Heurtley Collection	C 1-2	LBA
717	92	Axiochori	Handle	?	Incised	Heurtley Collection	C 0-1	LBA
724	57	Limnotopos	Rim	Skyphos	Mycenaean	Heurtley 1925: pl.XII	A2a	LBA
756	57	Limnotopos	Body	?	Encrusted	Heurtley Collection	B2a	LBA
757	57	Limnotopos	Body	?	Encrusted	Heurtley Collection	B2a	LBA
760	57	Limnotopos	Body	?	Encrusted	Heurtley Collection	B2a	LBA
768	135	Limnotopos	Body	?	Encrusted	Heurtley Collection	B2a	LBA
769	57	Limnotopos	Body	Cup	Encrusted	Heurtley Collection	A2b	LBA
778	85	Limnotopos	Body	?	Encrusted	Heurtley Collection	G3	EIA
787	94	Tsautsitsa	Body	Kantharos	Incised	Casson 1925B: pl.XXVI	0	LBA
787	94	Tsautsitsa	Body	Kantharos	Incised	Casson 1925B: pl.XXVI	0	LBA
787	94	Tsautsitsa	Body	Kantharos	Incised	Casson 1925B: pl.XXVI	0	LBA
792	135	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261279	4	LBA
793	95	Toumba Thessaloniki	Body	?	Grooved	Toumba Thessaloniki Storage #261284	4	LBA
794	95	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261287	4	LBA
796	121	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261299	4	LBA
802	62	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261299	4	LBA

803	95	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261299	4	LBA
805	62	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261276	4	LBA
806	95	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261306	4	LBA
806	95	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261306	4	LBA
810	96	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261311	4	LBA
823	85	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage #261317	4	LBA
826	95	Toumba Thessaloniki	Handle	Jug	Grooved	Toumba Thessaloniki Storage #261231	4A	LBA
827	95	Toumba Thessaloniki	Boss	?	Grooved	Toumba Thessaloniki Storage KA 2884 #261304	4	LBA
828	62	Toumba Thessaloniki	Body	?	Matt-painted	Toumba Thessaloniki Storage #261299	4	LBA
830	62	Toumba Thessaloniki	Body	?	Matt-painted	Toumba Thessaloniki Storage #261276	4	LBA
831	62	Toumba Thessaloniki	Handle	Ampora	Matt-painted	Toumba Thessaloniki Storage #261287	4	LBA
833	95	Toumba Thessaloniki	Rim	Bowl	Encrusted	Toumba Thessaloniki Storage #53268	7, 9	LBA
835	95	Toumba Thessaloniki	Rim	Bowl	Encrusted - embroi-dery	Psaraki 2004: pl.6.5 #53111	5A disturbance	LBA

840	91	Toumba Thessaloniki	Rim	Lid	Encrusted - embroidery	Toumba Thessaloniki Storage #54130	5a-5 disturbance	LBA
840	91	Toumba Thessaloniki	Rim	Lid	Encrusted - embroidery	Toumba Thessaloniki Storage #54130	5a-5 disturbance	LBA
844	145	Toumba Thessaloniki	Handle	Cup or closed bowl	Incised	Toumba Thessaloniki Storage #72048	4A	LBA
845	81	Toumba Thessaloniki	Rim	Wishbone handle bowl	Encrusted	Psaraki 2004: pl.6.5 #54137	5a-5b	LBA
848	95	Toumba Thessaloniki	Body	Closed jar	Incised	Psaraki 2004: pl.6.2 KA1704 #54175	6a	LBA
848	100	Toumba Thessaloniki	Body	Closed jar	Incised	Psaraki 2004: pl.6.2 KA1704 #54175	6a	LBA
850	96	Toumba Thessaloniki	Bottom	Jar	Incised	Toumba Thessaloniki Storage #54175	6a	LBA
851	74	Toumba Thessaloniki	Body	?	Incised	Psaraki 2004: pl.6.10 #53304	0	LBA
867	62	Toumba Thessaloniki	Body	?	Incised	Psaraki 2004: pl.6.6, KA 495 #51067	4C, 4D	LBA
871	63	Toumba Thessaloniki	Body	Jar	Fluted	Toumba Thessaloniki Storage #71083	3?	EIA
873	145	Toumba Thessaloniki	Body	?	Impressed	Psaraki 2004: eik.6 KA714 #53118	5A	LBA
876	95	Toumba Thessaloniki	Handle	?	Grooved	Toumba Thessaloniki Storage #53041	Surface	LBA
878	96	Toumba Thessaloniki	Rim	Bowl	Incised	Toumba Thessaloniki Storage #761387	D (8-13)	LBA

879	63	Toumba Thessaloniki	Rim	Jar	Encrusted	Psaraki 2004: pl.6.10 KA1809 #32285	0	LBA
881	96	Toumba Thessaloniki	rim	?	Incised	Toumba Thessaloniki Storage #243132	5	LBA
894	62	Toumba Thessaloniki	Rim	Bowl	Encrusted	Toumba Thessaloniki Storage #51097	4D	LBA
895	62	Toumba Thessaloniki	Rim	Cut away neck jug	Encrusted	Toumba Thessaloniki Storage #51097	4D	LBA
906	96	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage KA752 #772011	F	LBA
907	71	Toumba Thessaloniki	Body	Bowl	Encrusted	Toumba Thessaloniki Storage KA1399 #223056	0	LBA
909	95	Toumba Thessaloniki	Body	Bowl	Incised	Toumba Thessaloniki Storage ?	0	LBA
909	95	Toumba Thessaloniki	Body	Bowl	Incised	Toumba Thessaloniki Storage ?	0	LBA
912	63	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage KA713 #53118	5A	LBA
917	71	Toumba Thessaloniki	Rim	Cut away neck jug	Encrusted	Toumba Thessaloniki Storage KA1958 #243060	4 floor, I-II	LBA
921	121	Toumba Thessaloniki	Body	Bowl	Encrusted	Toumba Thessaloniki Storage KA1529 # 12151	0	LBA
922	128	Toumba Thessaloniki	Body	Bowl	Encrusted	Psaraki 2004: eik.3 KA715 #53108	5A	LBA
923	95	Toumba Thessaloniki	Rim	Jar	Encrusted	Toumba Thessaloniki Storage KA1526 #21152	0	LBA

930	136	Toumba Thessaloniki	Body	Jar	Incised	Psaraki 2004: pl.6.9 KA1700 #53294	0	LBA
930	136	Toumba Thessaloniki	Body	Jar	Incised	Psaraki 2004: pl.6.9 KA1700 #53294	0	LBA
935	96	Toumba Thessaloniki	Body	Bowl	Incised	Toumba Thessaloniki Storage KA2704 KA761258	D (8-13)	LBA
940	127/62	Toumba Thessaloniki	Rim	Skyphos	Mycenaean	Andreou 2009: fig.7 KA503 #51067	4C - 4D	LBA
947	62	Toumba Thessaloniki	Body	Closed bowl	Encrusted	Toumba Thessaloniki Storage KA733 #54052	4	LBA
947	62	Toumba Thessaloniki	Body	Closed bowl	Encrusted	Toumba Thessaloniki Storage KA733 #54052	4	LBA
957	63	Toumba Thessaloniki	Body	Amphora	Matt-painted	Toumba Thessaloniki Storage KA1961 #53086	0	LBA
957	63	Toumba Thessaloniki	Body	Amphora	Matt-painted	Toumba Thessaloniki Storage KA1961 #53086	0	LBA
957	63	Toumba Thessaloniki	Body	Amphora	Matt-painted	Toumba Thessaloniki Storage KA1961 #53086	0	LBA
960	63	Toumba Thessaloniki	Rim	Jar	Matt-painted	Toumba Thessaloniki Storage KA1341 #233134	3B, 4A	LBA
963	142	Toumba Thessaloniki	Rim	Bowl	Matt-painted	Toumba Thessaloniki Storage KA2201 #23201	0	LBA
965	128	Toumba Thessaloniki	Body	?	Matt-painted	Toumba Thessaloniki Storage KA1288 #221149	0	LBA
965	128	Toumba Thessaloniki	Body	?	Matt-painted	Toumba Thessaloniki Storage KA1288 #221149	0	LBA

966	142	Toumba Thessaloniki	Body	?	Matt-painted	Toumba Thessaloniki Storage KA1329 #241090	3A, 3B	LBA
969	142	Toumba Thessaloniki	Body	Closed	Matt-painted	Toumba Thessaloniki Storage KA1281 #291134	0	LBA
970	140	Toumba Thessaloniki	Handle	Bowl	Matt-painted	Psaraki 2004: pl. 6.11 KA1873 #54196	0	LBA
974	62	Toumba Thessaloniki	Body	Bowl	Matt-painted	Toumba Thessaloniki Storage KA3167 #244082	4 debris	LBA
976	141	Toumba Thessaloniki	Rim handle	Jug	Matt-painted	Toumba Thessaloniki Storage #23138	0	LBA
977	141	Toumba Thessaloniki	Body	Jar	Matt-painted	Toumba Thessaloniki Storage KA1324 #241023	2B, 3A	EIA
989	139	Toumba Thessaloniki	Body	Amphora	Matt-painted	Toumba Thessaloniki Storage KA1533 #12169	0	LBA
995	63	Toumba Thessaloniki	Body	Jar	Mycenaean	Psaraki 2004: pl.6.17 KA729 #53057	5A	LBA
995	63	Toumba Thessaloniki	Body	Jar	Mycenaean	Psaraki 2004: pl.6.17 KA729 #53057	5A	LBA
1003	95	Toumba Thessaloniki	Body	Jar - kantharos?	Encrusted	Psaraki 2004: pl.6.10 KA762 #54564	IV	LBA
1005	86	Toumba Thessaloniki	Rim handle	Cut away neck jug	Encrusted	Psaraki 2004: pl.6.5 KA101 #244079	3B-4A distur-bance	LBA
1011	106	Toumba Thessaloniki	Body	Jar - kantharos?	Encrusted	Toumba Thessaloniki Storage	0	LBA
1015	139	Toumba Thessaloniki	Body	Jug	Matt-painted	Psaraki 2004: pl.6.18 KA966 #243092	4	LBA
1026	71	Toumba Thessaloniki	Body	?	Encrusted	Toumba Thessaloniki Storage KA968 #243091	4 floor,III-IV	LBA

1028	139	Toumba Thessaloniki	Body	Amphora	Matt-painted	Toumba Thessaloniki Storage KA243092	4	LBA
1029	108	Toumba Thessaloniki	Rim	Amphora	Matt-painted	Andreou 2010: fig.48.1 KA991 #243125	4 OR 5	LBA
1032	111	Toumba Thessaloniki	Rim handle	Skyphos	Mycenaean	Toumba Thessaloniki Storage KA2500 #252064	2	EIA
1043	142	Kastanas	Rim	Kantharos bowl	Matt-painted	Hochstetter 1984 fig.58.4	14a	LBA
1058	55	Tsautsitsa	Body	Amphoriskos	Mycenaean	Casson 1925B: pl.XXVII	0	LBA
1060	107	Axiochori	Rim handle	Jar	Encrusted	Heurtley and Hutchison 1926: pl.XII	0	LBA
1065	57	Limnotopos	Rim	Kantharos bowl	Matt-painted	Heurtley and Hutchison 1925: pl.XII	A2a	LBA
1068	57	Limnotopos	Complete	Spindle whorle	Encrsuted	Heurtley Collection	D2a	LBA
1073	140	Toumba Thessaloniki	Body	Jar	Matt-painted	Toumba Thessaloniki Storage KA1907 #233248	5	LBA
1075	113	Limnotopos	Rim	Cup	Mycenaean	Heurtley Collection	D3	LBA
1078	57	Limnotopos	Rim handle	Skyphos	Mycenaean	Heurtley Collection	D2a	LBA
1078	57	Limnotopos	Rim handle	Skyphos	Mycenaean	Heurtley Collection	D2a	LBA
1080	112	Limnotopos	Rim handle	Skyphos	Mycenaean	Heurtley Collection	0	LBA
1090	72	Tsautsitsa	Complete	Bronze armlet	Impressed	Heurtley Collection	0	EIA
1098	73	Limnotopos	Complete	Stopper	Incised	Heurtley and Hutchison 1925: pl.XVIII	0	EIA
1106	113	Limnotopos	Body	?	Mycenaean	Heurtley Collection	AIII	LBA
1109	128	Axiochori	Rim	Pithos	Applied	Heurtley and Hutchison 1926: pl.16	IX 21	LBA
1110	113	Axiochori	Body	Jug	Mycenaean	Heurtley Collection	IX 19	LBA
1116	71	Kastanas	Complete	Whorl	Encrusted	Hochstetter 1987 fig.14.4	18	LBA
1123	91	Kastanas	Complete	Whorl	Encrusted	Hochstetter 1987 fig.18.11	11	LBA
1128	72	Kastanas	Top	Bone needle	Incised	Hochstetter 1987 fig.14.10	13	LBA
1134	52	Axiochori	Rim	Amphora	Mycenaean	Heurtley Collection	0	LBA
1137	104	Kastanas	Rim	Cup	Mycenaean	Jung 2002 no 185	13	LBA
1139	136	Kastanas	Body	Cup?	Mycenaean	Jung 2002 no 191	13	LBA
1158	131	Kastanas	Complete	Amphoriskos	Mycenaean	Jung 2002 91	14b	LBA
1181	104	Kastanas	Rim	Skyphos	Mycenaean	Jung 2002 61	14b	LBA

1207	143	Kastanas	Rim	Amphora	Mycenaean	Jung 2002 no 502	11	LBA
1233	70	Antophytos A	Handle	Skyphos	Mycenaean	French collection	Survey	LBA
1130	83	Toumba Thermi	Complete	Whorl	Encrusted	Rey 1917-1919 pl.21.2		LBA
767	84	Kilindir	Neck	Jug	Matt-painted	Heurtley 1939: fig.89		LBA
1120	84	Kastanas	Complete	Whorl	Encrusted	Hochstetter 1987 fig.18.9		LBA
1121	84	Kastanas	Complete	Whorl	Encrusted	Hochstetter 1987 fig.18.10		LBA
1122	84	Kastanas	Complete	Whorl	Encrusted	Hochstetter 1987 fig.18.6		LBA
	1	Razlog Stele				Ganeva 2005 fig.1		LBA
	1	Tragana Ship			Mycenaean	Mountjoy 2012: fig.3		LBA
	1	Scene from Medinet Habu Frieze				Wachsman 2008 29-32		LBA
	79	Tei pottery			Encrusted	Leahu 1966 fig.8 and 10.		LBA
997	91	Toumba Thessaloniki	Body	?	Incised	Toumba Thessaloniki Storage KA776 #32288		LBA
DSC0366	92	Axiochori	Rim	?	Incised	Heurtley Collection		IA
DSC260	94	Kilindir	Body	?	Incised	Heurtley Collection		LBA
DSC306	96	Toumba Thessaloniki	Rim	Bowl	Incised	Toumba Thessaloniki Storage KA1346 #52145		LBA
	97	Viile Maieri	Rim	Bowl	Incised	National Museum of Alba Iulia		Wietenberg
	99	Viile Maieri	Body	?	Incised	National Museum of Alba Iulia		Wietenberg
	100	Szazhalombatta	Body	?	Incised	Szazhalombatta Archaeological Museum		S8527-5417
	101	Cetea	Rims	Various	Incised	National Museum of Alba Iulia		Wietenberg
	114	Kastanas	Illustration	Type 5 bowls		Hochstetter 1984 fig.29		LBA

	115	Koukos	Complete	Spouted krater	Mycenaean	Carington-Smith 1991 fig. 5-6		LBA
DSC_0151	118	Toumba Thessaloniki	Base	Jar	Matt-painted	Psaraki 2004: 6.17 #52103 KA1816	IV/V	LBA
	119	LH IIIC sherd with hunter/warrior			Mycenaean	Mountjoy 1999: pl.325.28		LBA
	129	Boubousti	Various sherds		Matt-painted	Heurtley 1926-1927: fig. 28		LBA/EIA
	130	Boubousti	Complete	Jar	Matt-painted	Heurtley 1926-1927: fig. 18		LBA/EIA
	133	Assiros	Various sherds	Bowls	Matt-painted	Photography: Wardle		LBA
	143	Aivate	Handle	Kantharos bowl	Matt-painted	Heurtley 1939 fig,90.c		LBA
	148	Assiros		Kantharos	Fluted and incised	Drawing: Wardle, see Wardle 1996: fig.3		EIA
	148	Kastanas	Rim and handle	Cup	Fluted and incised	Hochstetter 1984 pl.114.2		LBA/EIA
	150	Tsautsitsa	Complete	Torque	Twisted	Heurtley Collection		EIA
287	150	Axiochori	Handle	?	Fluted	Heurtley Collection		LBA/EIA
	151	Tsautsitsa	Complete	Spectacle brooch		Heurtley Collection		EIA
	142	Troy	Handle	Jug	Grooved	Blegen et al. 1958: pl. 272.21		LBA/EIA
	153	Toumba Thessaloniki		Horse bit	Incised	Andreou et al. 1991 pl.14		LBA/EIA
1059	91	Axiochori	Rim and handle	Kantharos	Encrusted	Heurtley and Hutchison 1926: pl.13.	S.24	LBA
754	91	Limnotopos	Rim and handle	?	Incised	Heurtley Collection	B2b	LBA

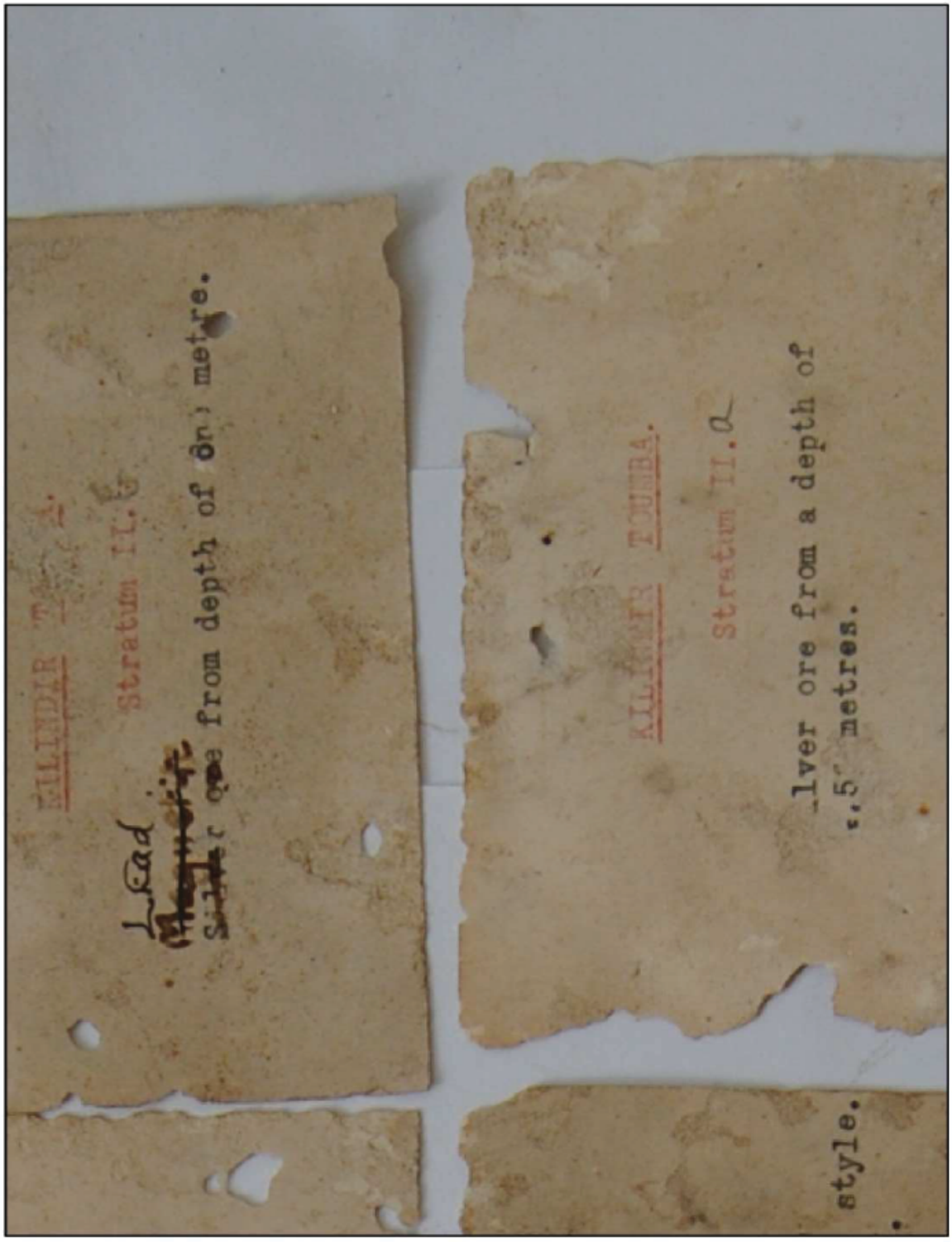


Figure 2: Tags from the Heurtley collection, courtesy of the Archaeological Museum of Thessaloniki (silver and lead from Kilindir).

Appendix 3

Viewshed analyses were conducted on a number of sites dated to the Late Bronze Age and the Early Iron Age. The results from the Bronze Age sites are discussed in chapter 6 (Vector map University of Thessaloniki).

Site no.	Site name	Page no.
11	Pentalophos A	280A
10	Pentalophos B	280B
12	Neochoruda	280C
30	Lakanokipos	280D
29	Anchilaos	280E
9	Philadelphia Toumba	281A
48	Philadelphia Table	281B
8	Gallikos	281C
7	Xylokeratia	281D
31	Petroto	281E
45	Pedino	281F
24	Antophytos A	282A
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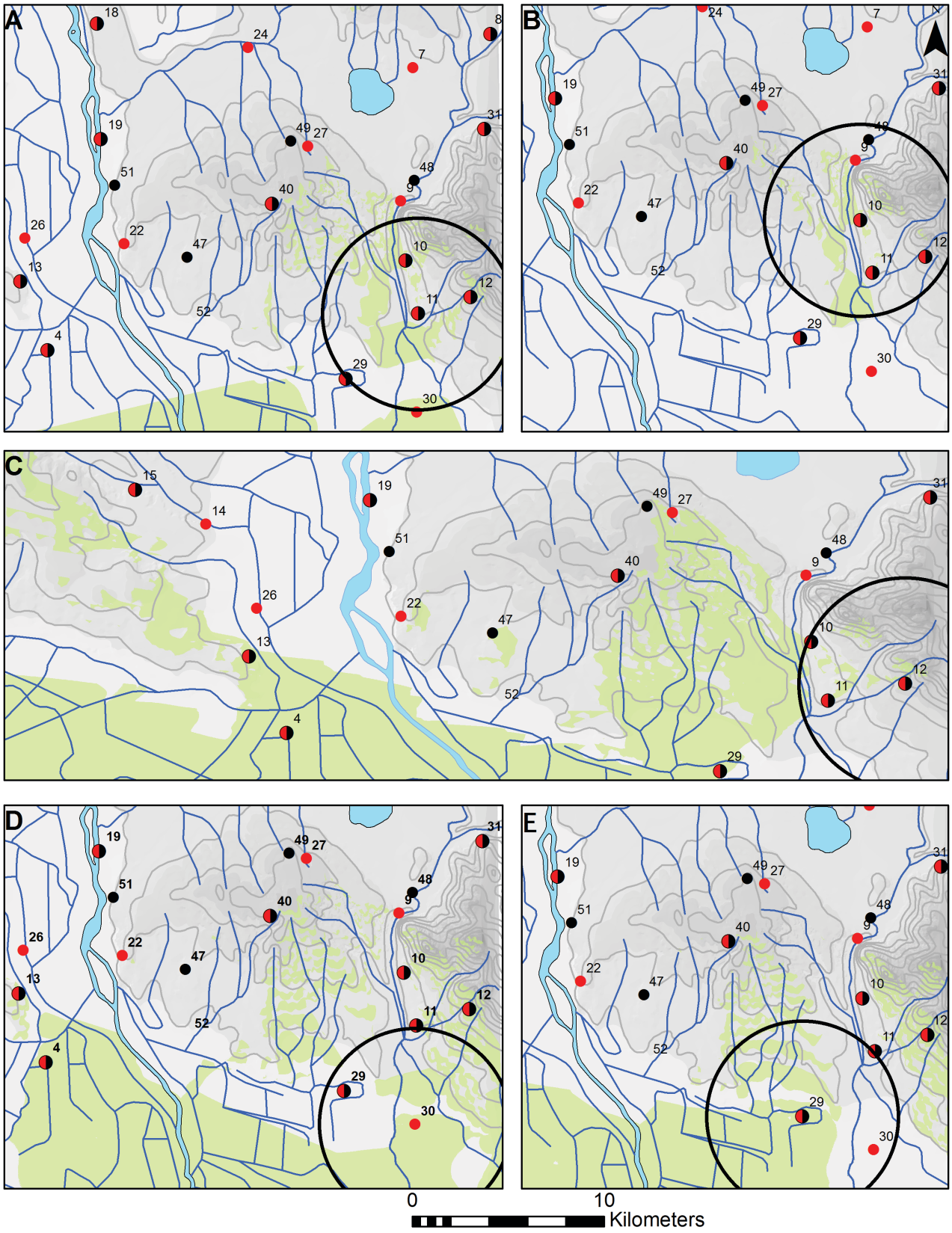
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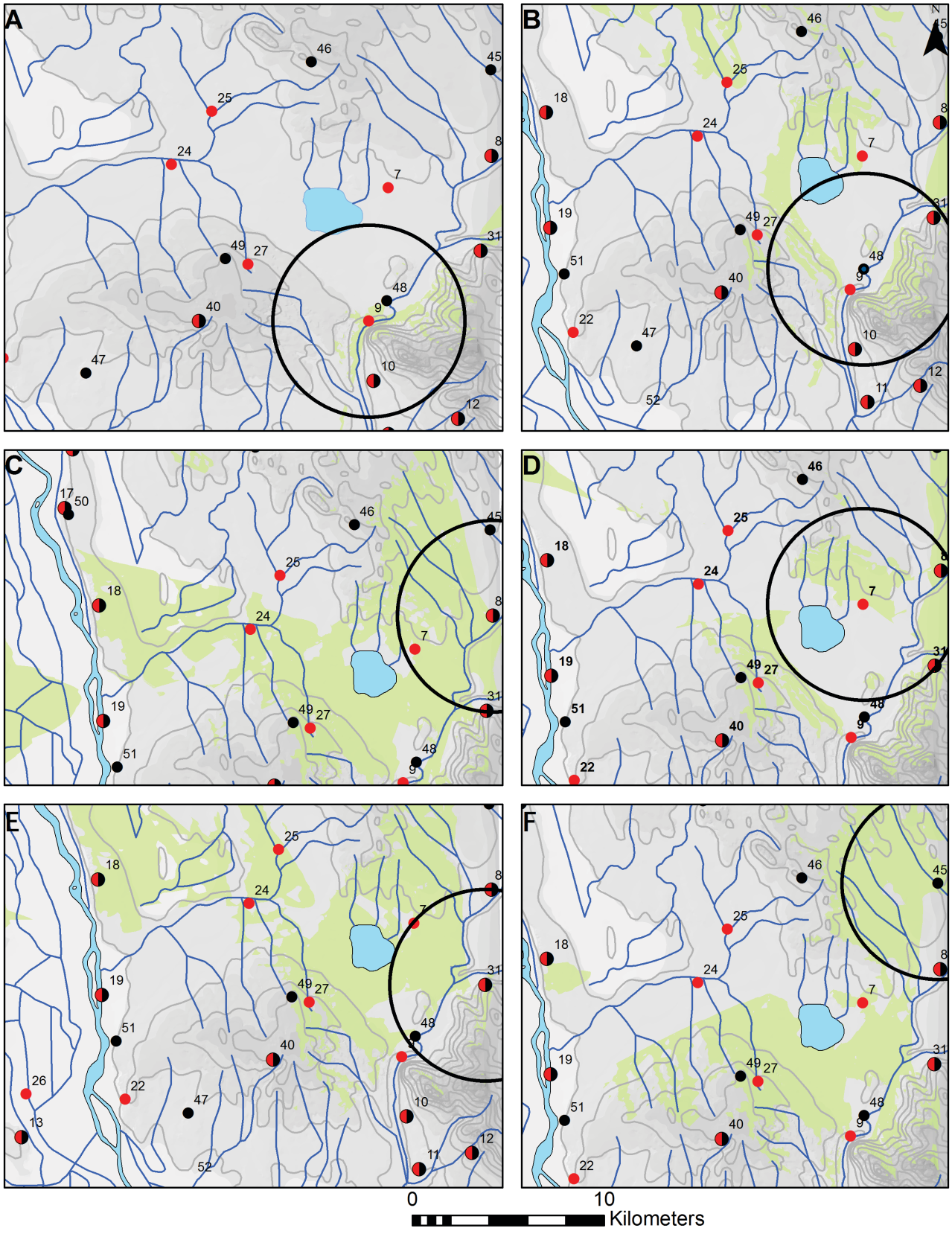
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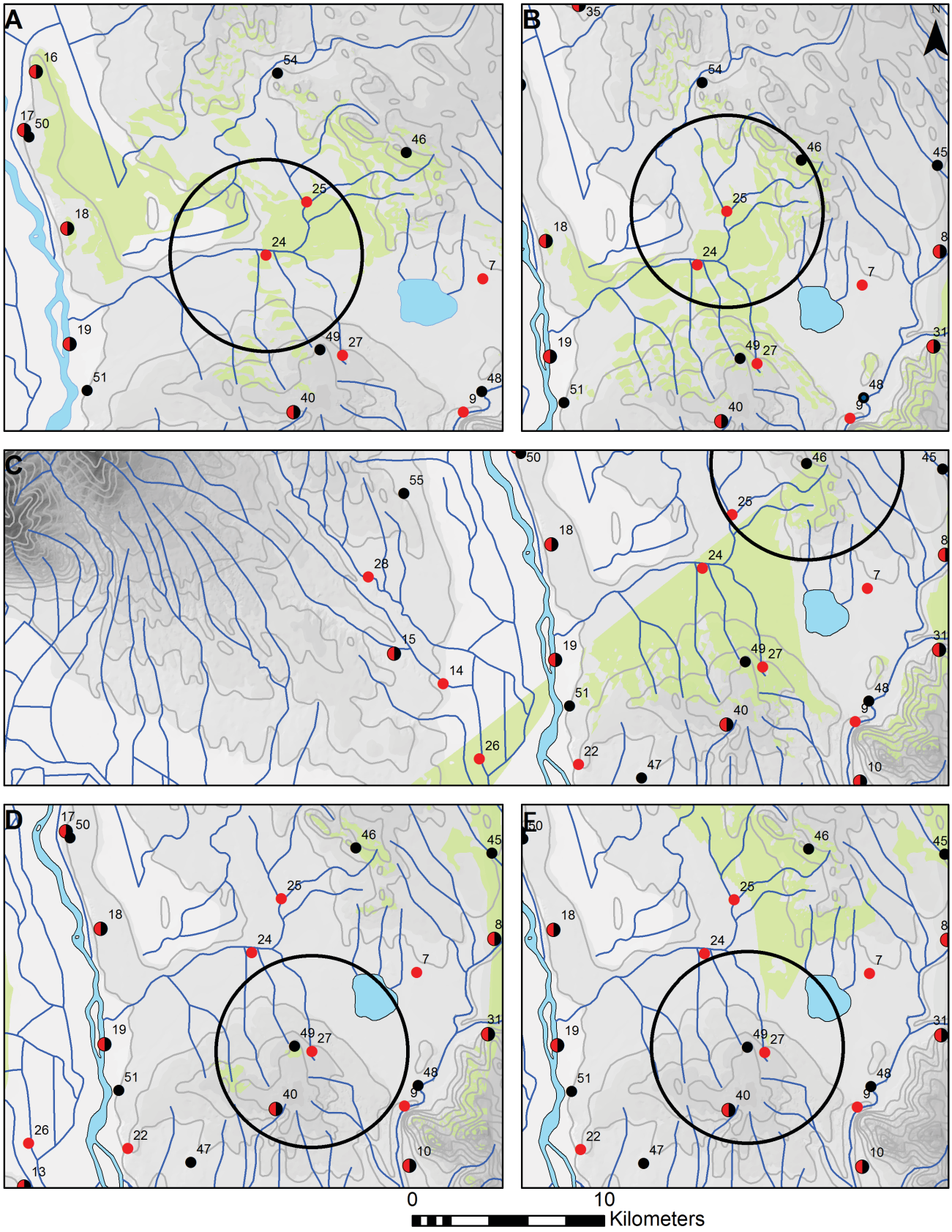
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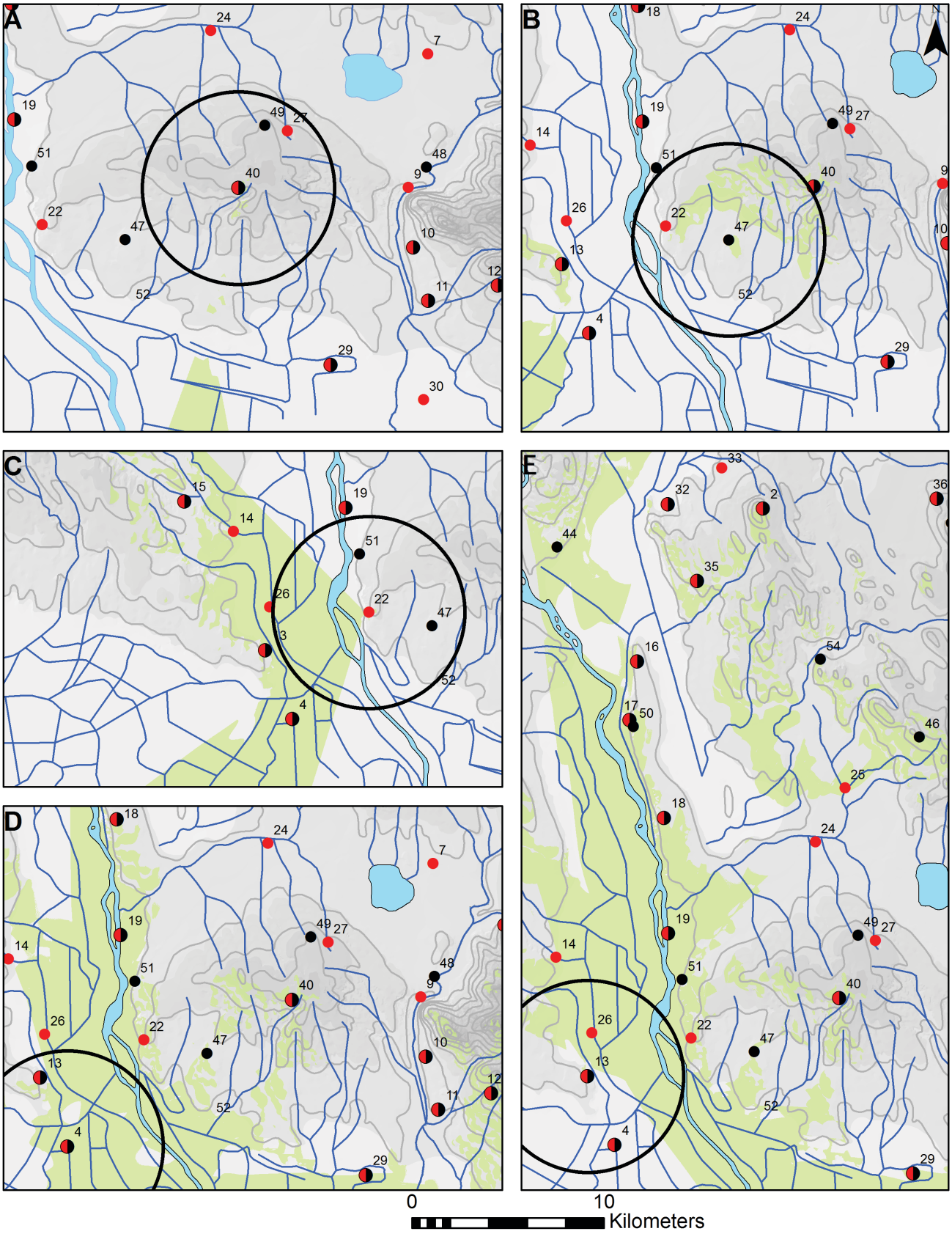
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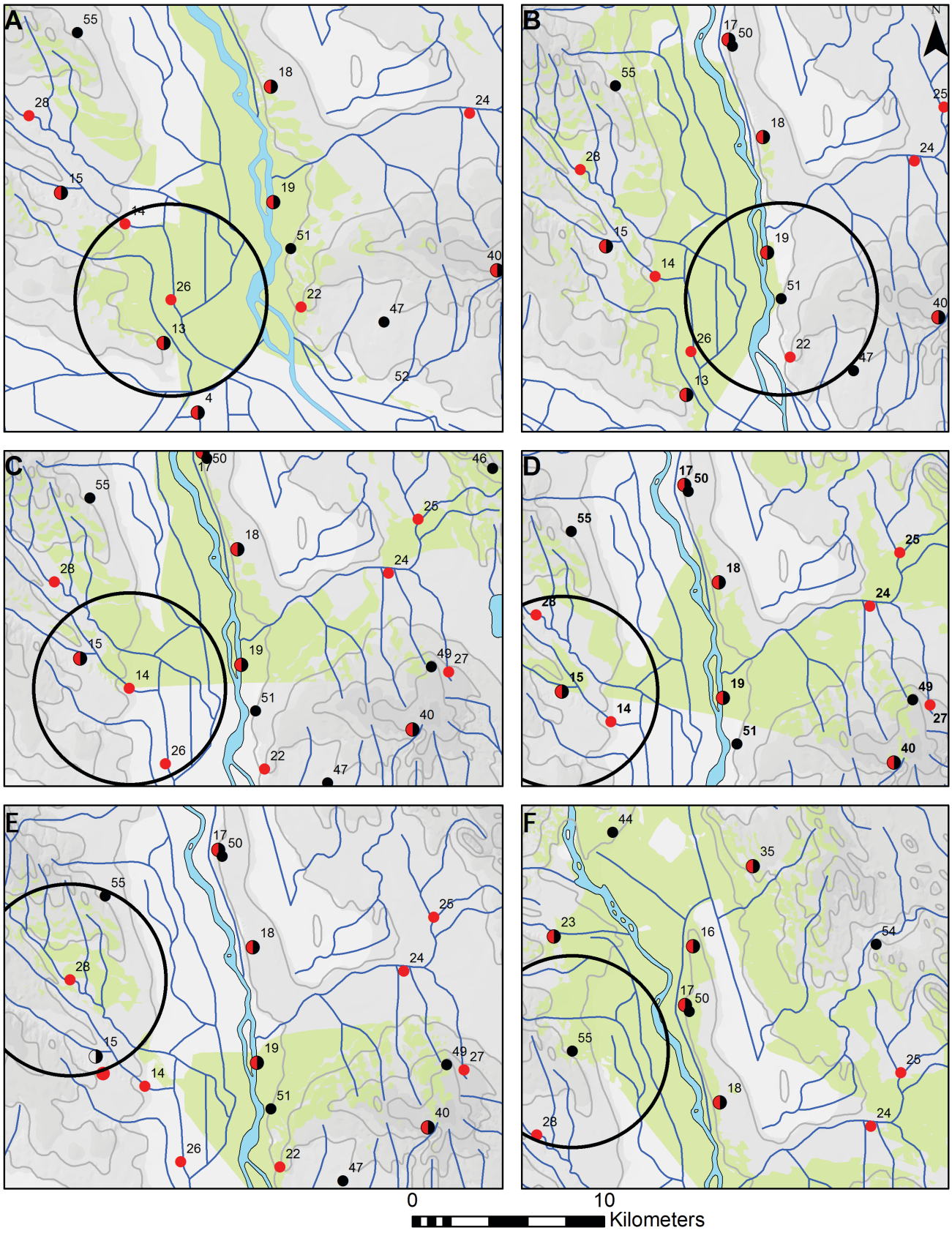
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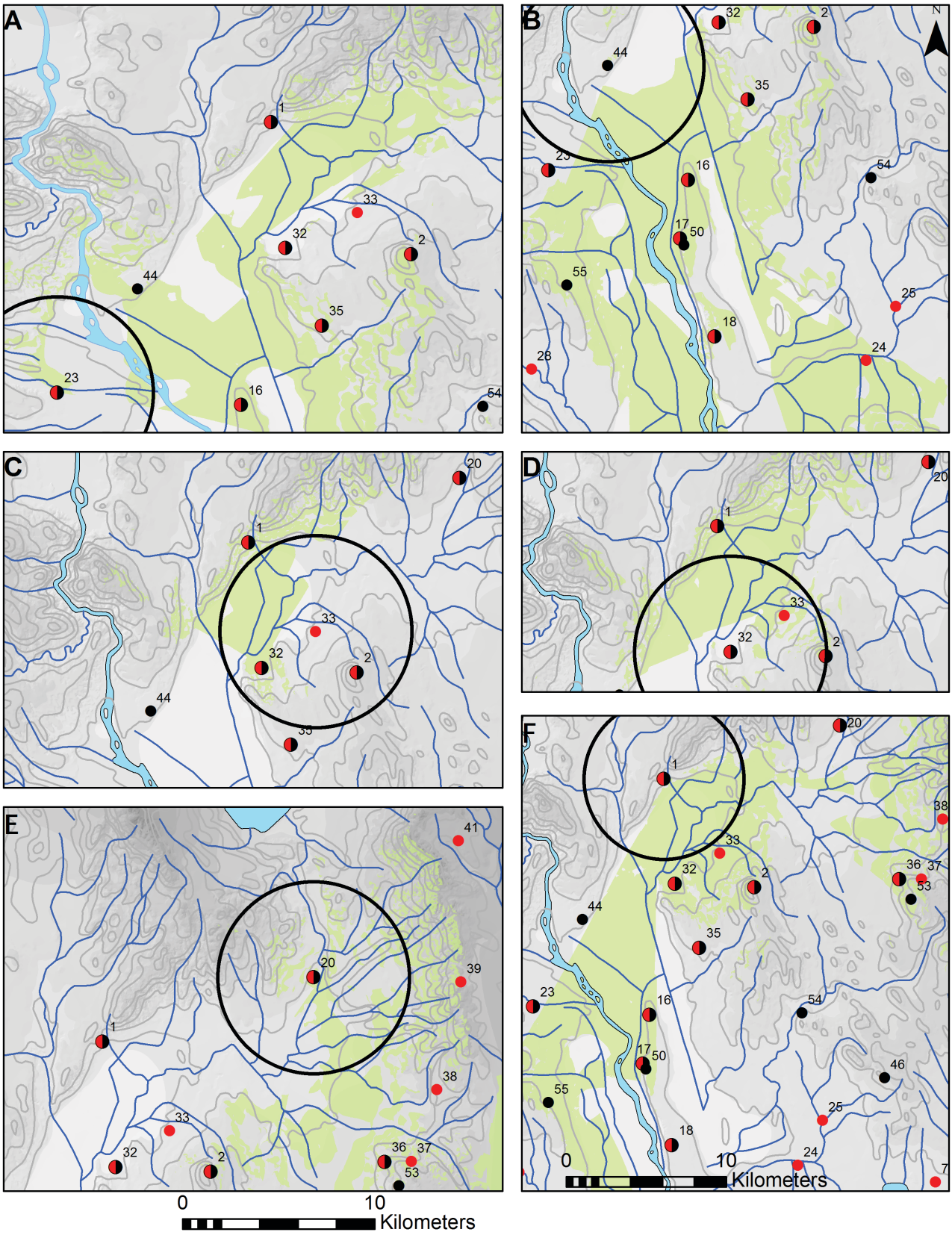
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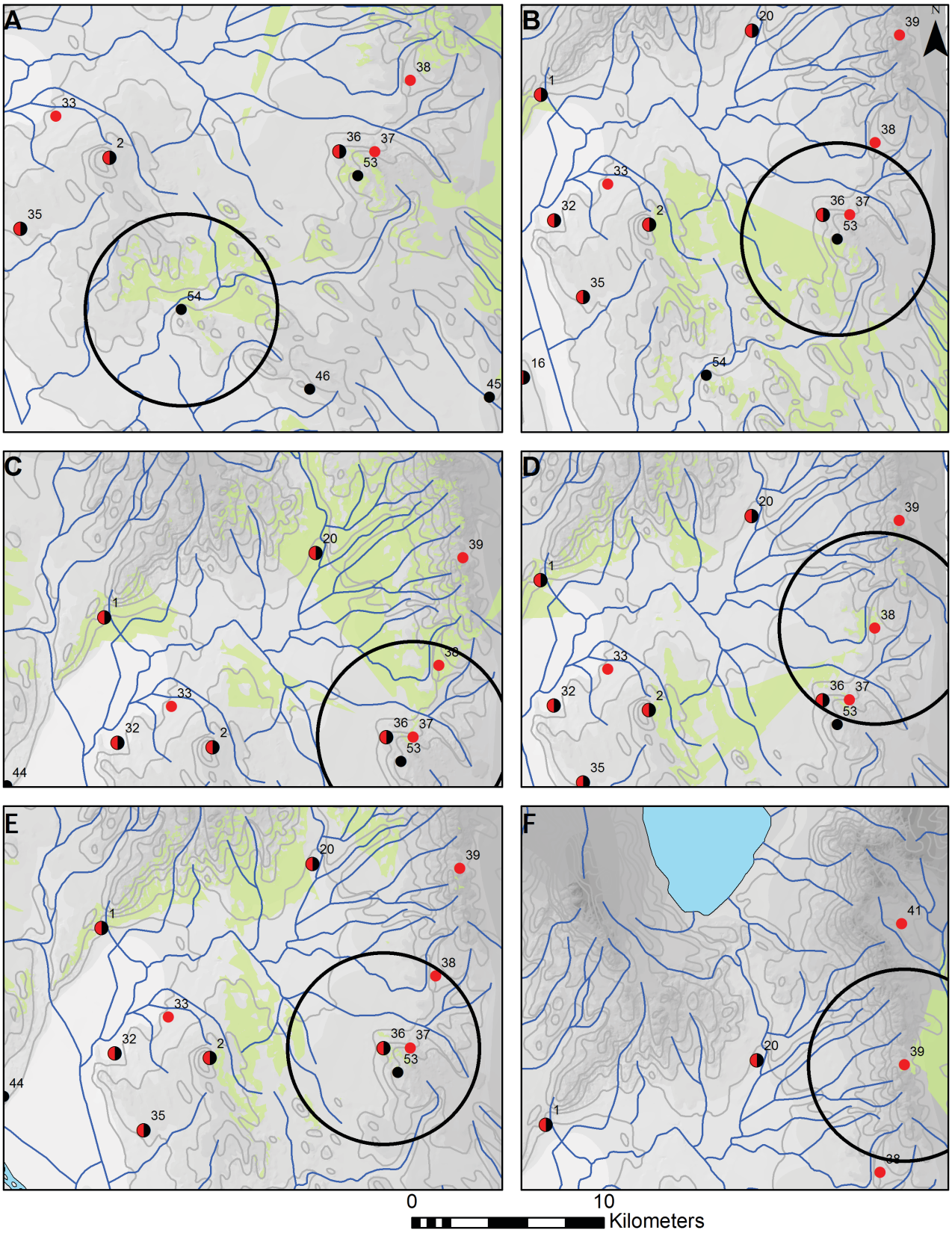
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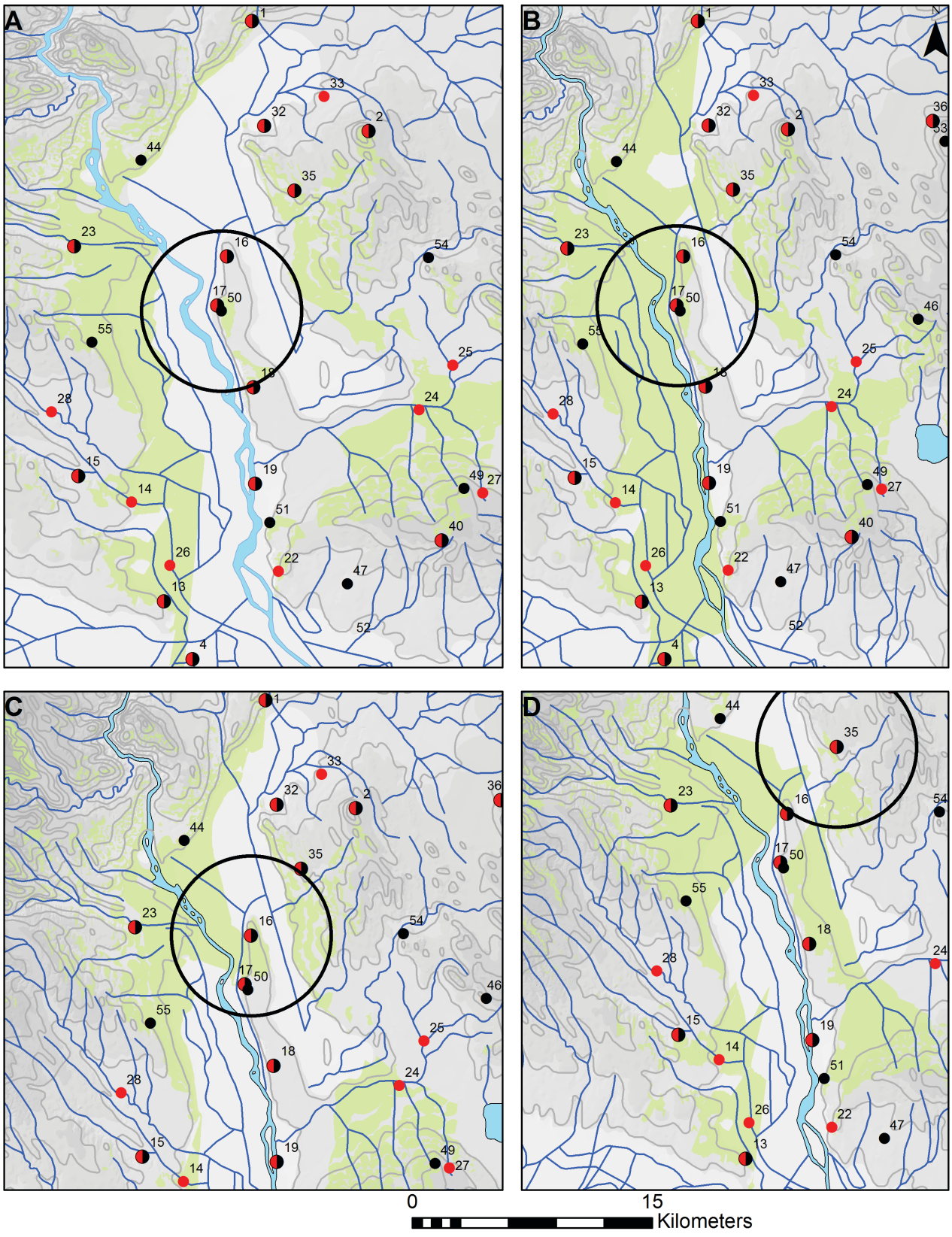
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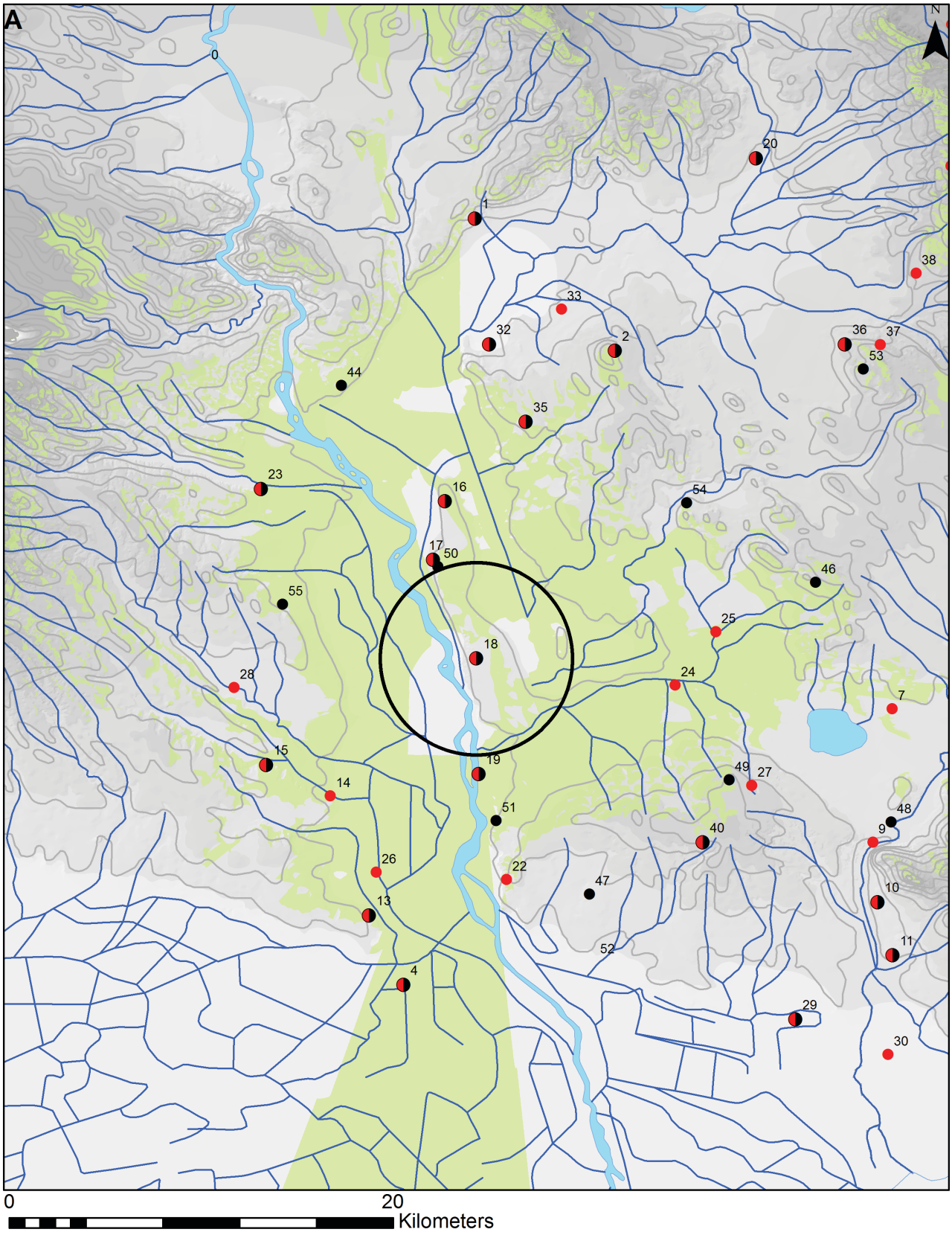
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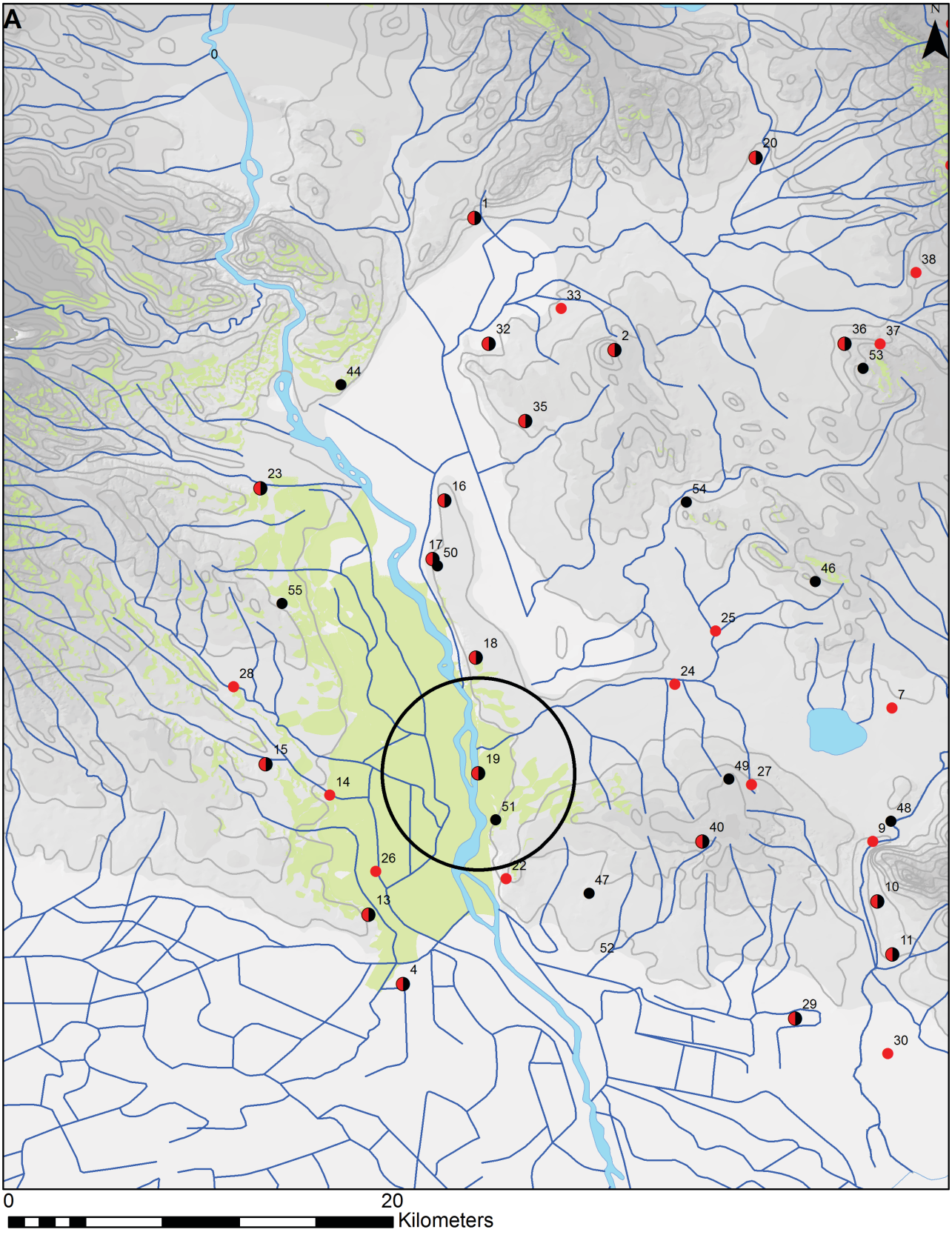
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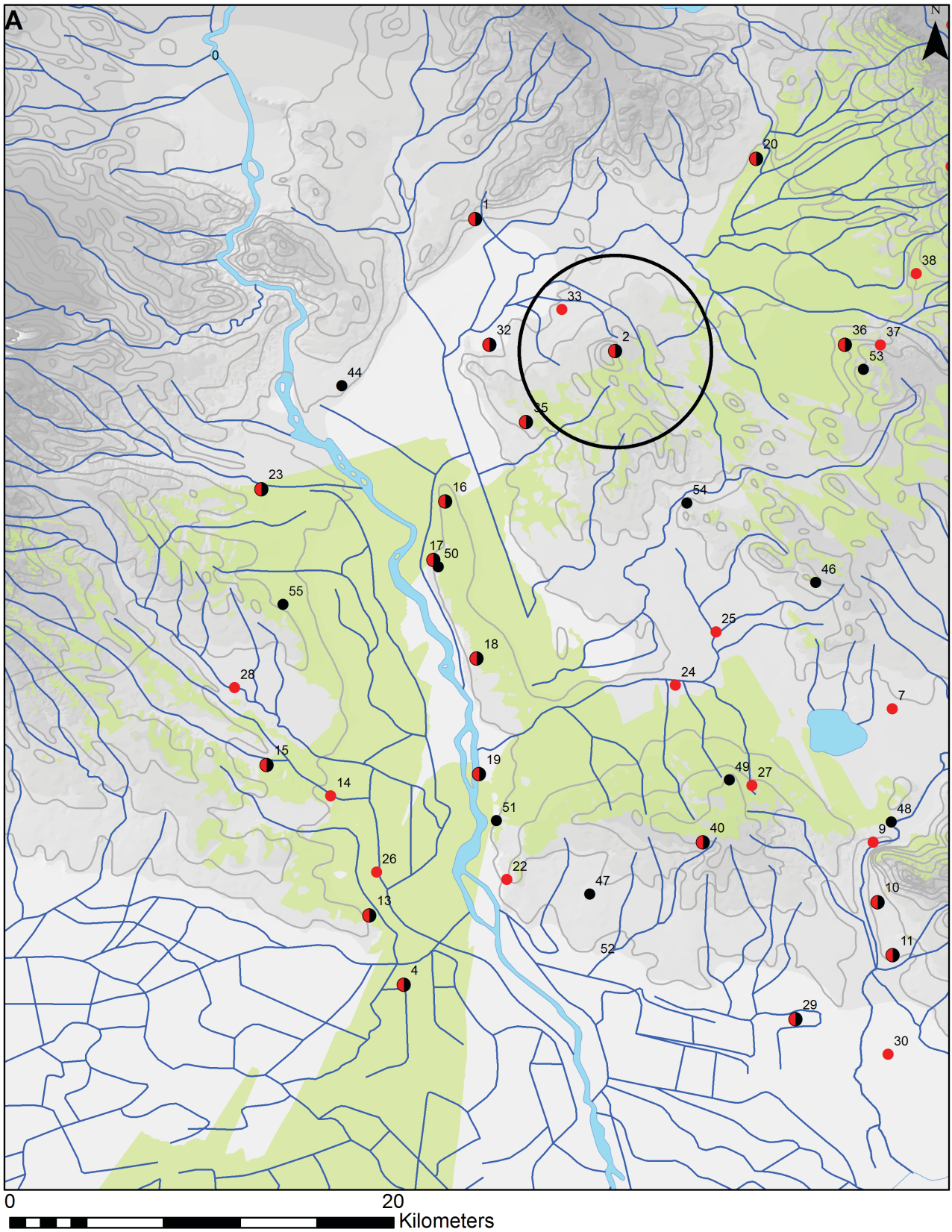
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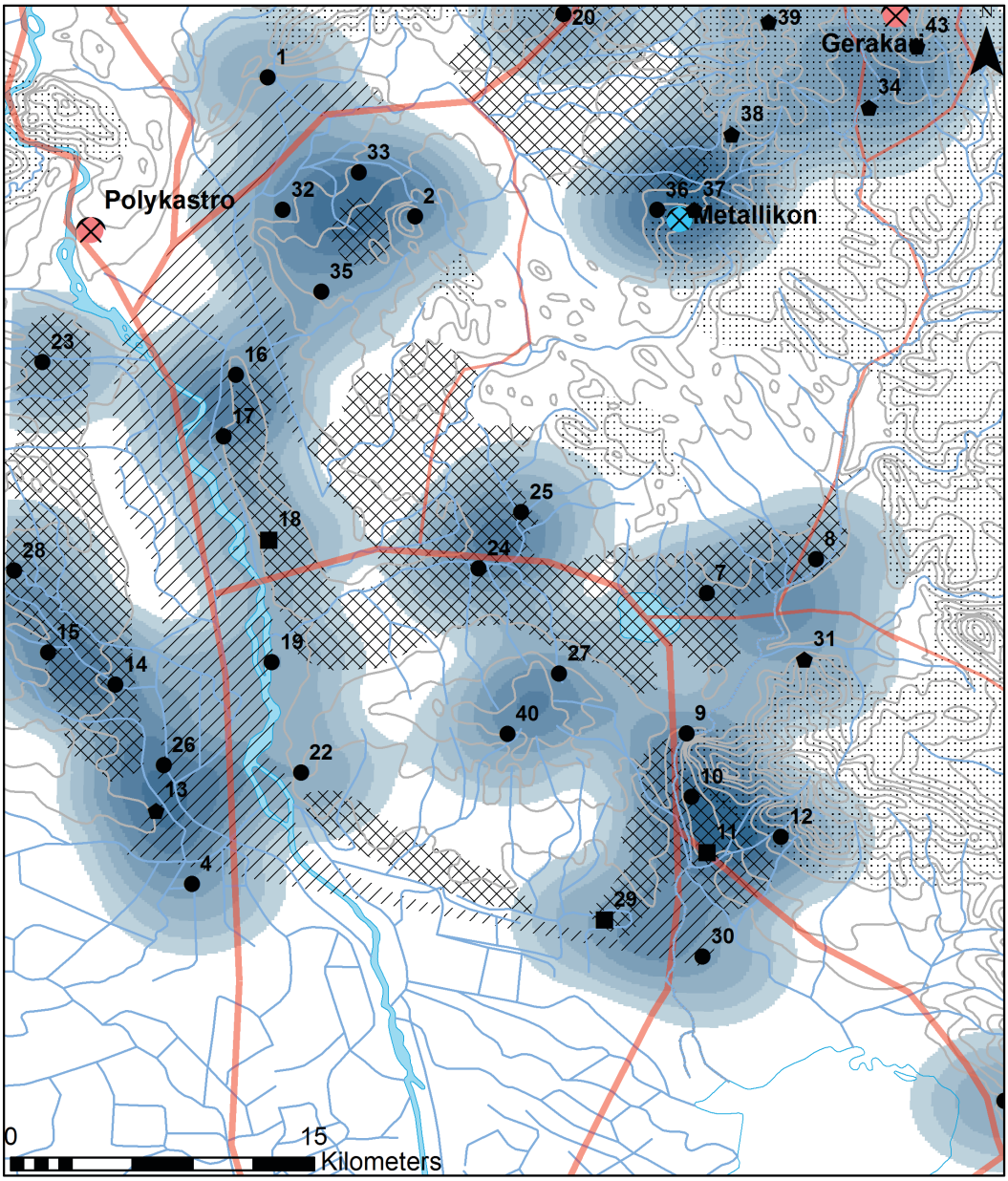
Appendix 4

Kernel density analyses

1) Bronze Age
2) Iron Age



Bronze Age

Legend

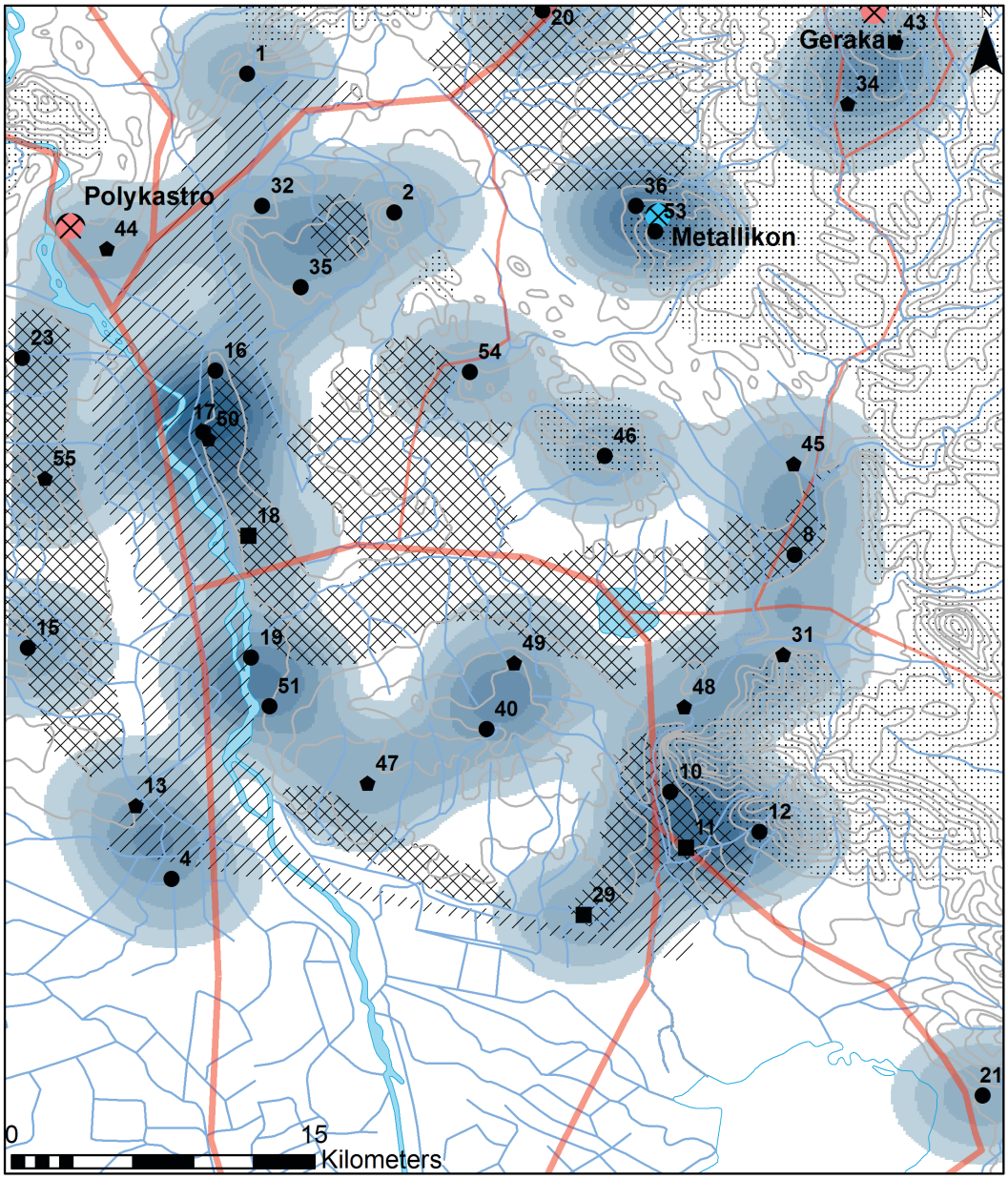
- Mines
- Traces of ancient mining
- Local routes
- Main routes
- Riverine plain
- Lowland
- Highland
- Tell
- Table
- Tell on Table

Kernel Density Values

Low

Medium

High



Iron Age