

ANCIENT CYPRUS, AN UNEXPECTED JOURNEY

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ANCIENT CYPRUS, AN UNEXPECTED JOURNEY

COMMUNITIES IN CONTINUITY AND TRANSITION

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Introduction

Luca Bombardieri, Marialucia Amadio, Francesca Dolcetti

Postgraduate Cypriot Archaeology in Continuity and Transition: 10 years later

The first Postgraduate Cypriot Archaeology (PoCA) conference took place in Cambridge in 2001, thanks to an initiative by Kirsi Lorentz. Since then, the PoCA meetings have been held annually in various cities throughout Europe, in the UK initially, then in Ireland, Cyprus, Germany, France and Italy. While the original idea of informal meetings addressed to postgraduate students has been maintained through time, PoCA was gradually transformed to a wider international gathering of young scholars involved in the study of all aspects of Cypriot archaeology, history, anthropology, ethnography and folk studies, architecture and art history, from the Prehistory to the modern era. Since 2005, proceedings volumes of Annual PoCA Meetings were quite regularly published, thus providing the youngest researchers with an established arena for the discussion of their ongoing research initiatives, a stimulating chance to share their ideas and a possibility to publish their results, either preliminary or in a more definite form.

For that reason, PoCA meetings always involved a long-term diachronic view on Cypriot Archaeology and promoted original approaches. Likewise the more recent *Young Researchers' Conference in Aegean Archaeology* – with an analogous inspiration – or the established *International Conference in the Archaeology of Ancient Near East* or *International Cretological Congress*, PoCA meetings benefit from a large array of diverse papers mostly data-driven and focused on a single site or class of objects. In this perspective, while PoCA conferences and volumes never turned into thematic issues and rarely engaged with wider theoretical diversions (Knapp 2016: 240), they still offer a real gaze to the practice of Cypriot archaeology today, with an updated repertoire of ongoing research projects and interpretative trends.

The 15th Annual PoCA Meeting took place in Torino and the conferences were hosted in the Aula Magna of the University between November 25th-27th 2015. The meeting was open by a successful and well attended keynote lecture delivered by Lindy Crewe, entitled “*Community, continuity and change at the transition to the Late Cypriot Bronze Age: Brewing and building at Kissonerga-Skalia*”.

The conference encompassed 24 presentations, chronologically organized in seven sessions, by postgraduate students and young researchers from various research institutions in Cyprus, UK, Austria, Poland, Belgium, France, Germany,

Italy and the United States. An interesting discussion followed most of the papers and during the lively morning and afternoon breaks. The following submission and peer-review processes benefited from several scholars, leading experts in their field, who kindly acted as anonymous referees for the submitted papers.

Before presenting a brief synopsis of the three themes and thirteen papers included in the 15th PoCA Proceedings, we like to explain the choice and significance of the main topic of this volume, by briefly examining the specific meaning of ‘Continuity and Transition’ in ancient Cypriot society.

A Cypriot affair. Continuity and Transition in socio-cultural forms, practices and identities

Island communities generally exhibit special socio-cultural and economic features that set them apart from continental ones. Among the Mediterranean islands, Cyprus has always been at the centre of intense cultural and social relationships. Its position on major routes of interaction and commerce fostered both intense cultural exchanges with the surrounding regions and, at the same time, promoted a local enterprise, which impacted on the islanders’ social identity, ideology and economy (Knapp 2008: 3-10).

This particular geo-cultural condition furthered a dual attitude in Cypriot ancient communities: the continuity in preserving original cultural forms and social identities, and the transition to new practices and ideas, accepting and integrating external input.

To understand this characteristic phenomenon of adopting/adapting exogenous elements and thus to set the basis for presenting the duality of Cypriot society it is important to examine the concept of insularity (Knapp 2008: 16; 2013: 34-35) and islandscape (Broodbank 2000: 21). The former has been specifically analysed by scholars mostly interested in island archaeology (see Cherry 2004: 235; Broodbank 2000: 16-18 with references) and described as the attitude of “*being somewhat detached in outlook and experiences*” (Knapp 2013: 34; 2008: 18). The concept of islandscape, instead, has been efficaciously defined by Broodbank (2000: 21) as “*the condition that enables people to define their surroundings in ways that were meaningful to them*”.

The condition of insularity in Cyprus contributed to create a polarity between isolation and interaction (Renfrew 2004: 276; Knapp 2008: 19-22). Whilst the isolation supported the flourishing of singular cultural traits and local traditions, the opening to wide networks promoted the exchange of ideas and the integration of new forms and practices in the local substratum. This polarity is peculiar of the Cypriot social identity, which is formed and fostered within the island rather than imposed from the outside (Parker Pearson 2004: 129; see also Knapp 2008: 110-130; Voskos and Knapp 2008; Frankel and Webb 1998; Webb and Frankel 1999; Peltenburg *et al.* 1998).

In this framework, the unquestionable signs of development relevant to this polarity were interpreted following a flexible hybridization model (Van Dommen and Knapp 2010: 4). This model provided with an alternative interpretation that differs from the traditional diffusionist and migrationist models, according to which “*the world has been represented as inhabited by homogenous, isolated, well-delimited and discontinuous peoples and groups, whose history, expansion and movements could be traced through the analysis of a distinctive culture and material culture, whilst cultural changes found an explanation in the movement or in the expansion of said groups*” (Cuozzo and Guidi 2013: 73).

In selecting this main topic, we have imagined the development of Cypriot society and the dichotomy between conservatism and transformation as a *long journey*. This journey, from the deepest Prehistory onward, has always produced unexpected yet fascinating results; some of these are presented and analysed in this volume.

An Unexpected Journey. Cypriot ancient communities in Continuity and Transition

The 13 essays included in this volume cover a variety of themes, involving a large chronological horizon from the Bronze Age to the Byzantine, Late Antique and Medieval periods. Different approaches to aspects of art history and history of collections are discussed, along with technological and social aspects related to specific productions, as well as wider approaches to the use of landscape, the economy and social organization of Cypriot communities. They have been grouped according to particular issues they address. Papers of Part 1 examine cultural forms and social practices of Prehistoric and Protohistoric Cypriot communities, by taking in consideration productive, economic and ritual aspects. Papers in Part 2 investigate the rituality and materiality in Archaic Cyprus and analyse aspects of social transformations in Hellenistic and Late Antique Cyprus. Papers in the final section, Part 3, deal with methodological issues concerning conservation and valorisation strategies and geo-archaeological methods applied to the analysis of ancient landscapes.

Part 1: Cultural forms and practices in Prehistoric and Protohistoric Cyprus

In the opening chapter, Giulia Muti explores economic, social and symbolic aspects of textile dyeing in Bronze Age Cyprus. Muti investigates the value of dyed textiles as prestige goods and the social importance of dyeing as a working activity to Middle and Late Cypriot communities. Archaeological evidence from Pyrgos-Mavroraki, Erimi-Laonin tou Porakou, Hala Sultan Tekke, Enkomi and Kition are thoroughly analysed in this chapter in order to identify which raw materials and techniques were used for dyeing as well as which pigments and colours were obtained. In addition, two funerary contexts from

Erimi *Laonin tou Porakou* and Hala Sultan Tekke are examined to highlight the socio-economic implications and the possible symbolic aspects of textile dyeing and dyed textiles.

Mari Yamasaki's chapter focuses on the relationship between Cypriot prehistoric communities and the marine environment and resources. More specifically, her study aims at analyzing whether the rise and fall in transmarine contacts mirrors that of the higher or lower incidence of locally procured sea-related goods in the archaeological record of coastal settlements. Quantitative and qualitative analysis of data pertaining to maritime resources in coastal sites, including food remains, tools, ornament and symbols, were conducted in order to ascertain the occurrence of economic activities related the sea, to evaluate possible changes in dietary habits, and to identify evidence of interregional exchanges. According to Yamasaki's argument "the two aspects of the sea, as means of contact with the mainland and as economic resource, are intimately connected as the exploitation of one, also implies to some extent the use of the other and the different approaches to the sea contributed to the construction of the Cypriot identity".

Alessandra Saggio's chapter emphasizes the ritual function connected with the practice of gaming in Bronze Age Cyprus, focusing upon the two well-known types of gaming boards of Egyptian origin (Senet and Mehen). Saggio explores the peculiar relevance of gaming in the funerary sphere, successfully discussing the association between specific game activities and the mortuary ritual either in Egypt and Cyprus. The wider evidence of figurative representations from Egyptian tombs paintings, with scenes of game boards and *post-mortem* table games, is compared with fewer evidence of gaming stones and gaming activities in Cypriote Bronze Age funerary context. Finally, the additional case-study of the EC-MC cemetery at Dhenia-*Kafkalla* is analyzed, re-contextualizing the presence of bedrock game-stones, on the basis of a new survey of the funerary area.

The chapter by Peter Cosyns examines the glass production and consumption in the Late Bronze Age, in a wider Mediterranean perspective. A starting point for the discussion is the apparent contrast between the potential relevance of Cyprus in the international glass trade market and its striking absence in the traditional scholarly debate. After providing us with a complete overview of the available LBA core-formed glass vessels repertoire, Cosyns discusses some aspects more directly connected with the contexts of use and consumption of glass in Cyprus during the 15th-13th centuries BC.

An additional joint chapter by Elena Scarsella and Stefano Ruzza is devoted to Cypriote Late Bronze Age, with a focus upon the largely debated topic of social interactions in the LC IIC-LC IIIB period. Mortuary data coming from selected major urban Cypriote centres, namely at Paleopaphos, Kition and Enkomi were discussed in this chapter, in order to investigate regional features and general trends in the development of interaction networks.

Part 2: Materiality, rituality and social identities from the Archaic period to Hellenistic and Late Antique Cyprus

Anna Paule's chapter presents a detailed study of major aspects connected with jewellery in the transition between Late Bronze Age and the Cypro-Geometric and Cypro-Archaic periods. Selected objects of parure from both the Cypriote collections in the Louvre Museum at Paris and in the Museum of Cycladic Art at Athens are extensively discussed in this chapter. Paule explores stylistic and technical aspects to distinguish Cypriot productions from imported objects, proposing newly assessed dates for some specific objects.

Alicia Dissinger's chapter explores the significance of waterfowl iconography in Cypro-Archaic art and its relation to mortuary beliefs. Dissinger analyses painted and sculpted representations of waterfowl in CA funerary contexts and compares the Cypriot evidence to avian imagery and symbolism from contemporary cultures in eastern Mediterranean. Finally, she discusses the connection between the use of waterfowl depictions in funerary rituals and the concepts of death and afterlife during the CA period.

Anaïs Michel's chapter examines a selected corpus of inscriptions dated back to the Hellenistic period, proposing some reinterpretation of the nature of Ptolemaic rule and its impact upon Cypriot society. Michel's proposes a different approach to the study of Hellenistic Cyprus, emphasizing the reciprocal nature of the relationship between the Ptolemies and the cities of Cyprus. The epigraphical evidence is analysed and contextualised, focusing on questions related to social transformation and adaptation during the Ptolemaic rule.

In his contribute Richard Maguire analyses the evidence for Constantinopolitan influence in Cyprus during the Late Antique period. By examining three apse mosaics at Lythrankomi, Kiti and Livadia in Cyprus, he raises objections to a model of empire dominated by a single, all-powerful centre and argue in favour of a polycentric empire. Maguire argues that the very survival of figurative mosaics on Cyprus suggests a doctrinal divergence between island iconodules and metropolitan iconoclasts.

Stavros Panayiotou's chapter presents a new examination of sources concerning two Arab expeditions in Cyprus during the 7th century AD, focusing on the political status of Cyprus established by the Muslims, the Byzantines and the local government. On the basis of Arab sources reporting an agreement of neutrality, the hypothesis of an Arabic-Byzantine condominium on the island is refused. Lastly, Panayiotou contests sources depicting the Muslims' behaviour as merciless, suggesting that they opted instead for a negotiation with Cypriot authorities.

Part 3: Conservation strategies and geoarchaeological methods to the analysis of is-landscapes

Valentina Vassallo's chapter focuses on the development of a 3D digital approach to the study, analysis and interpretation of archaeological collections, in particular a group of small terracotta figurines from Ayia Irini. Vassallo presents the preliminary results of her research aimed to deepen the understanding of stylistic, typological and technological aspects of the Ayia Irini collection. Currently, a group of fifty-two statuettes conserved at the Historical Museum of Lund University and at the Cyprus Museum in Nicosia have been digitally acquired in order to obtain 3D digital replicas and conduct metric analysis and geometrical comparison of the 3D models.

Moving to geoarchaeological contributes, Marialaura Di Giovanni and Chiara Santarelli's chapter presents the preliminary results of an archaeological survey conducted in the area of Pyrgos-*Agia Marina*, within the Moni-Pentakomo-Monagrouli (MPM) project (Chieti University, Italy). The methodological approach applied to this study included intensive field surveys, geomorphological analyses and geophysical surveys. The collected data, as well as the chronological distribution of diagnostic pottery, suggest a occupation of the area from the Hellenistic period to the Roman and Post-Roman period. Furthermore, some architectural elements belonging to an Early Christian church, could be considered as hints of an unknown early ecclesiastical building in the area of Pyrgos-*Agia Marina*.

The final chapter of this volume includes a methodological paper by Veronica Petraccia and Clara Tamburrino which is focused on the use of non-invasive investigations in the reconstruction of ancient Cypriot landscape. Intensive surveys and geo-morphological analyses have been integrated with trench excavations and archaeometric analyses on selected artefacts in order to examine the Moni Valley area. Although the analyses are still ongoing and further data and interpretations are needed to accomplish a definitive reconstruction of the surveyed territory, the methodological approach adopted, permitted to acquire new and interesting evidence about changes in landscape organization.

Annual PoCA meetings 2005-2015

Annual PoCA Meeting 2005

held at: Dublin, Ireland (Department of Classics, Trinity College)

Proceedings published as:

G. Papantoniou (ed.), 2008. *PoCA 2005: Postgraduate Cypriot Archaeology*, Oxford: Archaeopress

Annual PoCA Meeting 2006

held at: Edinburgh, Scotland (University of Edinburgh)

Unpublished.

Annual PoCA Meeting 2007

held at: Nicosia, Cyprus (University of Cyprus, Department of History and Archaeology)

Proceedings published as:

S. Christodoulou & A. Satraki (eds.), 2010. *PoCA 2007: Postgraduate Cypriot Archaeology Conference*. Newcastle upon Tyne: Cambridge Scholars Publishing.

Annual PoCA Meeting 2008

held at: Brussel, Belgium (Vrije Universiteit)

Proceedings published as:

A. Jacobs & P. Cosyns (eds.), 2015. *Cypriot Material Culture Studies from Picorile Carving to Proskynitaria Analysis. Proceedings of the 8th Annual Postgraduate Cypriote Archaeology Conference held in Honour of the Memory of Paul Åström*, Brussel: VUB Press.

Annual PoCA Meeting 2009

held at: Oxford, United Kingdom (Ioannou Centre for Classical and Byzantine studies)

Proceedings published as:

A. Georgiou (ed.), 2012. *Cyprus: an Island Culture. Society and Social Relations from the Chalcolithic to the Venetian Periods*. Oxford: Oxbow Books.

Annual PoCA Meeting 2010

held at: Venice, Italy (Università Ca' Foscari)

Proceedings published as:

Iosif Hadjikyriako & Mia Gaia Trentin (eds.), 2015. *Cypriot Cultural Details*. Oxford: Oxbow Books.

Annual PoCA Meeting 2011

held at: Lyon, France (Maison de l'Orient et de la Méditerranée)

Proceedings published as:

A. Cannavò & A. Carbillet (eds.), 2011. *Actes du colloque Postgraduate Cypriot Archaeology 2011* [Cahier du Centre d'Études Chypriotes 41].

Annual PoCA Meeting 2012

held at: Erlangen, Germany (Friedrich-Alexander University of Erlangen-Nuremberg)

Proceedings published as:

H. Matthäus, B. Morstadt & C. Vonhoff (eds.), 2015. *POCA (Postgraduate Cypriot Archaeology) 2012*. Newcastle upon Tyne: Cambridge Scholars Publishing.

Annual PoCA Meeting 2013

held at: Norwich, United Kingdom (University of East Anglia)

Proceedings published as:

R. Maguire & J. Chick (eds.), 2016. *Approaching Cyprus: proceedings of the*

Post-Graduate Conference of Cypriot Archaeology (PoCA). Newcastle upon Tyne: Cambridge Scholars Publishing.

Annual PoCA Meeting 2014

held at: Bochum, Germany (Institute of Archaeology, Ruhr-Universität)

Unpublished.

Annual PoCA Meeting 2015

held at: Turin, Italy (Dipartimento Studi Umanistici, Università di Torino)

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Following the *fil rouge*. Productive, economic, and social aspects of textile dyeing in Middle and Late Cypriot communities

Giulia Muti

ABSTRACT

This paper aims to investigate the productive, economic, and social aspects of textile dyeing in Bronze Age Cyprus. Archaeological evidence for this activity is discussed through the analysis of the most informative case studies of different periods (i.e. Pyrgos Mavroraki; Erimi Laonin tou Porakou; Hala Sultan Tekke; Enkomi; Kition), with the purpose of detecting which raw materials and techniques were employed, and which colours were obtained. The focus then passes to the investigation of the possible high value of dyed textiles as prestige and/or exchanging goods. In addition, the social importance of textile dyeing as working activity to Middle and Late Cypriot communities will be highlighted.

1. Introduction

Dyeing is not a mandatory step in the textile *chaîne opératoire*, and the natural colours of fibres can be kept for final textile products without undergoing any deliberate modification. In the Mediterranean area, wool and bast fibers were the main textile raw materials used by prehistoric and protohistoric communities (Barber 1991: 34 fig. 1.8; 250 fig.11.1; Smith and Tzachili 2012: 141-143). Whilst plant fibres have grey or white shades, wool shows a wider range of natural colours (i.e. different hues of black/dark brown, grey, and, sometimes, reddish), and fibres of the same colour can be preliminarily sorted and spun separately as to obtain different coloured threads (Barber 1991: 20; Andersson Strand 2014: 48). However, it has been proven that colour is an important and valued characteristic for many classes of artefacts, including textiles, since it can be a vehicle for symbolic meaning and/or increase the economic value and prestige of items (see, for example, Gillis 2004: 56-57; Whittaker 2012). Thus, early in prehistory, textiles began to be dyed to increase the range of colours already available, and different methods were perfected (Barber 1991: 223-226). The additional aim of this paper is to look for evidence of dyeing activities through an investigation of technological aspects, i.e. raw materials and techniques, and to evaluate the social aspects of dyeing as a working activity and dyed textiles as valuable products.

2. *Pre-industrial or 'traditional' textile dyeing*

Dyeing does not have a fixed place in the textile *chaîne opératoire* – indeed, coloured textiles can be obtained by dyeing fibres, threads, or fabrics – and may be considered a sort of ‘operative process inside an operative process’. Normally, textile dyeing involves five sequential steps: selection of raw materials, preparation of dyes and, if needed, mordants (i.e. substances used to fix the colour on fibres), actual dyeing operations, washing and drying. The core step is that of immersing textile fibres into the so-called ‘dye bath’, a solution of colouring matter produced by soaking and/or boiling parts of certain plants, or by extracting colouring substances from shells, insects, or minerals (Cardon 2007: 6-19).

In pre-industrial processing, dyeing operations normally occur through three different methods (Hofenk de Graaff 2004: 15-17; Cardon 2007: 4-6; Andersson Strand 2010: 20):

- 1) Direct dyeing concerns the use of dyes soluble in water and applicable directly to textile fibres.
- 2) Mordant dyeing concerns the use of dyes soluble in water which require an additive to form stable bonds with the fibres. This process is the same as direct dyeing, but with the addition of metallic salts, the so-called mordants, to create or increase affinity between fibres and dyes.
- 3) Vat dyeing concerns the use of dyes not soluble in water. Thus, before they are used to impregnate fibres, different techniques to change their chemical structures into soluble substances are used. The soluble substance is normally a reduced form of that original and turns back to the former structure once the drenched fibres are exposed to oxygen, revealing the colour.

It should be noted that the type of dye selected deeply affects the choice of the method (Wild and Walton Rogers 2003: 28). Also, the nature of textile fibres plays an important role: animal-derived fibres, such as wool and silk, are more suitable for dyeing than linen and cotton. In fact, cellulose fibres are more difficult to dye with both direct or mordants dyeing methods (Hofenk de Graaff 2004: 15).

3. *Archaeology of textile dyeing: what evidence?*

As is often the case in archaeology, some types of evidence are more informative than others. Coloured textiles and the chemical residues of dyes or mordants are the primary evidence for textile dyeing, representing a direct proof of this activity (Alberti 2008a: 26-27). However, this evidence is often scarce or not identifiable, but a series of possible markers, or secondary evidence, such as macro- and micro- traces or debris of possible raw materials (e.g. pollen, plant or animal remains), installations and tools can be recognized (Andersson Strand 2010: 20).

Installations often used in textile dyeing are those for water processing (e.g. basins, drainage systems), because of the large use of water required while dye-

ing, and for heating (i.e. ovens or kilns), meant for the dye bath's preparation (Barber 1991: 239-240; Alberti 2007: 60). In addition, cooking pots, vessels for liquids (e.g. jug, pouring and spouted vessels), or large vessels (e.g. large bowls) can sometimes be considered as markers of this activity (Alberti 2008b: 75 tab. 1). Also, grinding tools are normally connected to the preparation of dyes or additives (Barber 1991: 239; Alberti 2008a: 27-28).

These installations and tools are common items in domestic contexts, since they are related to a wide range of daily activities. Therefore, when primary evidence is lacking and no microscopic analysis is undertaken, textile dyeing can be correctly identified only for those contexts in which a series of secondary markers is found in occurrence, and their quantities exceed if compared to the domestic assemblage.

4. *Dyeing textiles in Bronze Age Cyprus*

Traces of wild plants belonging to the families of Boraginaceae, such as *Buglossoides arvensis* (corn gromwell) and Rubiaceae, such as *Galium* spp. (bedstraw) have been identified in different Neolithic and Chalcolithic sites, such as Kalavastos *Tenta*, Kissonerga *Mosphilia*, Kissonerga *Mylouthkia* and Lemba *Lakkous* (Colledge 2003: 243, 240 tab. 21.1; Murray 1998: 222; 2003: 61 tab. 7.2; 69 tab. 7.5). These plants may have been used to extract red colouring substances, which are particularly useful for textile dyeing (Murray 1998: 222). Nonetheless, evidence for textile activities is extremely scarce in Cyprus before the Bronze Age, since textile tools are invisible or problematic to identify, and the existence of textile dyeing cannot be traced. However, it is worth noticing that the use of red slips and red paints on Chalcolithic pottery indicates a sophisticated understanding of the properties of colours, and this might be taken as indirect evidence that coloured textiles were produced as well (see, for example, Bolger *et al.* 1998).

In the Philia and EC-early MC record, textile tools (spindle whorls and loom weights) are visible and well distinguishable objects (see, for example, Frankel 2000: 172-173; Smith 2002: 295-299; Webb 2002), but no markers of textile dyeing can be identified. Contexts where textile dyeing related activities can be traced belong to MC-LC I or LC II-III¹, and are part of productive areas with some specialization in textiles². These contexts belong to five key sites which will be discussed below chronologically (Figure 1).

¹ No traces of colour have been detected on the few textile remains from Bronze Age contexts in Cyprus (Åström 1964; Pieridou 1967). Recently, a reddish coloured substance was identified on the textile fragments from Palaeoskoutella Tomb 7 (MC III), but further analyses (i.e. liquid chromatography and element analysis with EDX) allowed to characterize the substance as not organic and containing iron oxides, which can be found either applied deliberately or more likely due to soil contamination (Landenius Enegren and Vanden Berghe 2016).

² It is not the aim of this paper to define what types and degree of productive specialization occurred in the sites analysed. Moreover, it may result problematic to try a more specific classification of the production in the case studies in relation to the parameters proposed by Costin

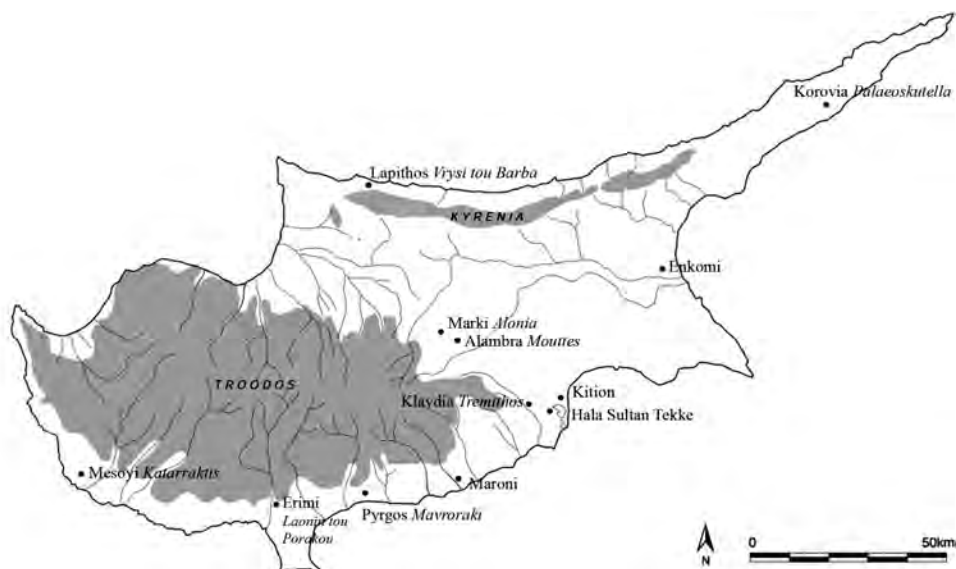


Figure 1. Map of Cyprus showing the Bronze Age sites mentioned in the text.

4.1. Pyrgos *Mavroraki*

With an occupational sequence ranging from early EC to MC II, Pyrgos *Mavroraki* (Limassol district) is the earliest site which has produced potential evidence for textile dyeing (Belgiorno 2009a: 36-40; 2009b). According to the excavators, the site is characterized by the presence of a workshop complex mainly designed for metallurgy, although different productive activities, such as perfume, oil and textile production were performed in addition (Belgiorno 1995; 2007; 2009a; 2009b). The complex interpretation of the site and the identification of the activities as the excavators have given them are not sufficiently proven by stratigraphy and material evidence, which are roughly published and interpreted (Kassianidou 2008: 254-255; Knapp 2013: 23, 28). The site, however, shows some potentialities related to the textile production, including dyeing, which are worth to being briefly re-examined, although with prudence.

According to the description provided by the excavators, most of the textile tools have been found concentrated in two rooms, G6 and G7, interpreted as a 'textile sector' (Belgiorno 2009a; 2009b; Gonzato 2015: 5). Two rectangular

(1991), i.e. context, concentration, scale, and intensity, because fundamental evidence of the number of workers involved, working time (part time or full time activities), and the nature of control over production and distribution are lacking or hardly visible. Thus, in this paper, the sites showing reserved spaces for working activities are generally grouped as sites with a degree of specialization beyond household.

basins made by stone blocks and plaster were found on a bench leaning on the eastern wall of room G6 in association with the textile tools and a conspicuous number ceramic vessels (Belgiorno 2009a: 66, 66-67 fig. 21; Gonzato 2015: 9-10)³. Given the context, these basins could be connected to textile dyeing.

While the structures in the 'textile sector' may be reconnected to dyeing, the archaeometric evidence provided is not reliable. In fact, Belgiorno and Lentini claim to have identified traces of colouring substances into two pits, on the surface of different vessels, and among the organic elements detected into the soil extracted from whorls' perforations (Belgiorno *et al.* 2005; Lentini 2009: 165-171; Lentini and Belgiorno 2011). The results obtained, though, appear as problematic within the research field of Mediterranean and Near Eastern textile archaeology: for example, the blue has been identified as indigo (Lentini 2009: 169), but this is not reported from the eastern Mediterranean and Europe before the 1st millennium BC (Barber 1991: 233-235; Cardon 2007: 235).

Murex shells have been put in relation to the production of colouring substances in Pyrgos, and as further proof for textile dyeing (Lentini 2009: 165). The use of murex snails to produce purple seems attested in Crete since prepalatial and protopalatial periods, i.e. in sites contemporary to Pyrgos (see, for example, Burke 2010: 26-37; Reese 2017b; 2017c). However, the results of Pyrgos remain uncertain because of conflicting data and divergent interpretation of the murex have been provided. In fact, Lentini (2009: 165) asserts that 280 complete shells of *Hexaplex* were found in US G7L5, whilst Carannante (2009: 109-110; 2010) reports a total number of 13 murex shells of four different genera from Pyrgos, and hypothesizes that they were used as pendants instead of being a source of pigment.

4.2. Erimi *Laonin tou Porakou*

Erimi *Laonin tou Porakou* is located on a plateau situated at mid-valley height on the eastern bank of the Kouris River (Limassol district). Three main areas of the site have been under investigation: Area A, located on the hilltop and characterized by the presence of a workshop complex; Area B, on the first lower terrace, interpreted as a domestic quarter; and Area E, on the lower terrace, which is one of the three cemetery clusters associated to the settlement (Bombardieri 2012a: 141-146; 2012b: 48-50; 2013: 95-96; 2014a: 4-5; Bombardieri *et al.* 2012; Scirè Calabrisotto *et al.* 2012: 477-478)⁴. Radiocarbon analyses on evidence from Area A and Area E have established that the occupational sequence ranges between EC III and LC IA (Scirè Calabrisotto *et al.* 2012: 477-478).

³ The vessel types are not provided.

⁴ Two more clusters are located on the terrace immediately north to Area E, and at Vounaros, to the east of the site (Christofi *et al.* 2015).

Substantial evidence for textile production, including dyeing, comes from Area A. The production complex in Area A comprises a series of open spaces (WA I-VI) and roofed units (SA I-III, IV, VI), three of which have been fully excavated (Bombardieri 2013: 96). At the current stage of investigation, 16 spindle-whorls have been found in Area A, suggesting that spinning was an activity carried out in the workshop (Bombardieri 2013: 96). Although spinning is a portable activity and spindle whorls occur in a variety of deposits, this concentration is significant. At Marki, for example, a large number of whorls (154 examples) were recovered in different spaces and phases of the settlement, but their concentration is low: in fact, where found in association with each other, the groups were of two, three or four objects only (Frankel and Webb 2006: 159-160). Differently, the whorls from Erimi were found concentrated in a relatively small area characterized by two occupational phases, where only three rooms have been fully investigated.

With regards to dyeing, significant evidence has been found within the workshop complex (Figure 2). Archaeobotanic analyses were conducted on soil samples drawn from different closed vessels found in SA I and dated to phase A, and from a basin carved in the floor of the same room, but belonging to the earlier phase B (Carra 2010; Bombardieri 2013: 96; Scirè Calabrisotto *et al.* 2012: 477; Vassio and Bombardieri 2014: 294)⁵. The basin (feature 43) revealed a large amount of botanical remains concentrated in its sediment filling, which are identified as two species belonging to two genera, *Echium* spp. (viper's bugloss) and *Buglossoides* spp. (corn gromwell), *Lithospermae* tribe, Boraginaceae family (Vassio and Bombardieri 2014: 294). Considering their high concentration, it can be argued that these wild species or weeds were intentionally gathered and processed. *Echium* and *Buglossoides* are edible for animals and humans and can be used for their medical properties and to produce red/purple dye (Murray 1998: 222; Vassio and Bombardieri 2014: 294).

Seeds and achenes of *Echium plantagineum* (Paterson's curse) are identified as the most plant remains detected in the soil samples from *pithoi* and jugs, while minor quantities of other species are detected (i.e. one seeds of *Galium* sp. [bedstraw], Rubiaceae family; two microremains of *Quercus* sp. [oak], Fagaceae family; and one achene of *Ajuga chamaepitys* Schreber [yellow bugle], Labiatae family) (Carra 2010)⁶. Although *Echinum plantagineum* is mainly known for

⁵ Phase A is the most recent of the two main occupational phases recognized at the workshop complex, while phase B is the earliest.

⁶ Although minimal traces of Rubiaceae plants were found at Erimi, and it is uncertain if they were effectively used to produce dyes in the Bronze Age, it should be briefly remained the importance of madder (*Rubia tinctorum*) as a traditional dyeing plant in Cyprus (Ionas 2001: 524). Evidence of the use of madder as a colourant was found on Iron Age White Slip ware pottery (Knapp 1991: 27). Cypriot madder was considered of very fine quality also in more recent times: according to the Florentine tradesman Giovanni Mariti, who wrote the essay 'Della Robbia, sua

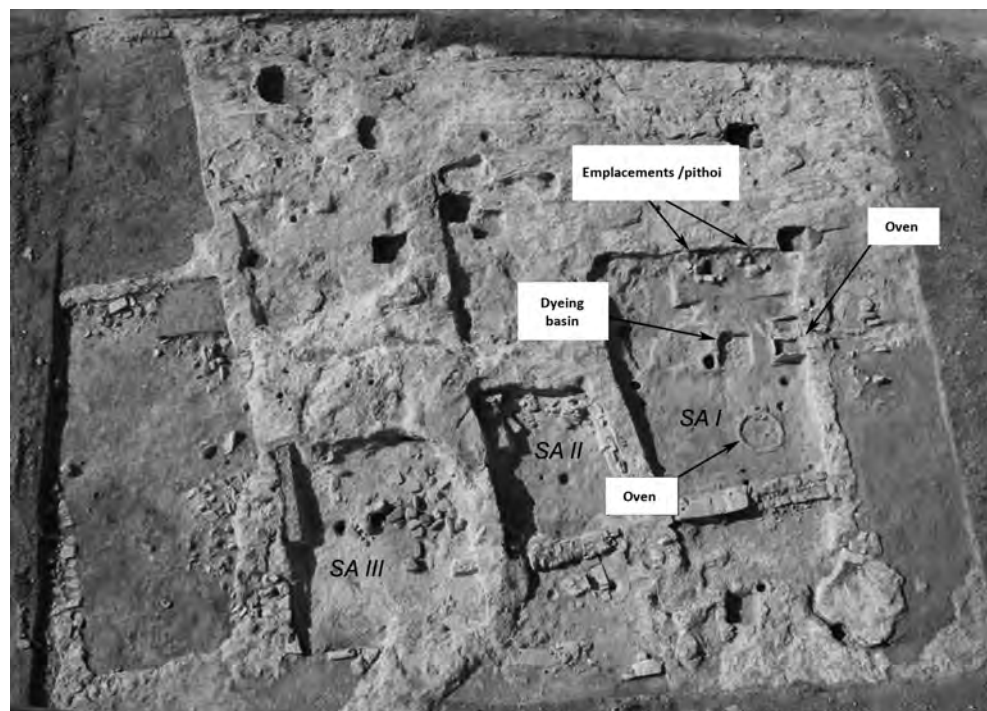


Figure 2. Erimi *Laonin tou Porakou*. The ‘workshop complex’ (Area A) and room SA I with Phase A and Phase B structures (Archivio della Missione Archeologica a Erimi, courtesy of Luca Bombardieri; re-adapted by Giulia Muti).

its medical properties, it may be suggested that, in such a context, it was used as a dye plant. Similarly, all the other species recognized could have been used to produce dyes (Bombardieri *et al.* 2015: 135; Cardon 2007: 201, 410-421; Hofenk de Graaff 2004: 124-129, 189-195; see also Karadağ 2016). However, the quantity of micro-traces detected is too small to prove that these remains are not results from contamination. Not only has room SAI provided archaeobotanical evidence for dyeing, but also several archaeological markers for this activity. The form of feature 43 is particularly appropriate for it to function as a dye basin. Its structure is composed of two interconnected parts: a rectangular basin measuring 1.08 x 0.9 m. and 0.16 m deep and a circular basin with a diameter of 0.42 m and a depth of 0.54 m. The rectangular basin has a capacity of 250 l, and the circular one of 290 l. A circular oven (feature 42) was found close to feature 43, and it seems reasonable that these two installations were involved in the same productive activity, since boiling is crucial for textile dyeing (see above).

coltivazione e suoi usi’ (1776), the madder imported from Cyprus was ‘the best and most effective’ in the eastern Mediterranean (Bombardieri 2012c: 762).

However, it remains unsure whether the dye was first prepared and boiled, and then put into the basin with textile fibers, or, conversely, the basin was used to prepare the dye (e.g. macerating the plants or part of them), then boiled together with the fibers.

A change of use into a storage room monumentalized by a monolithic stone threshold is evident for SA I during phase A (Bombardieri 2013: 98). Although the high concentration of *pithoi* (eight examples) justifies this interpretation, it can be noticed that an oven made of stone slabs (feature 4) belongs to the same phase, leading to the possibility that at least one other activity was performed inside the room. Moreover, in phase A, SA I appears to have been divided into three sub-units, and three emplacements supporting two Red Polished and a Drab Polished *pithoi* were excavated in the same sub-unit where the kiln is located (sub-unit 3) (Bombardieri 2012b: 54, 57; 2013: 98). Therefore, it can be proposed that this area of SA I could have been reserved for dyeing by suggesting the use of the *pithoi* A.SAI.354.1 and A.SAI.354.3 as dye-vats stabilized within their emplacements instead of serving as storage vessels. These *pithoi* have a large capacity, allowing work involving a considerable amount of liquids, and, at the same time, could contain voluminous materials, such as textile fibers⁷. In addition, it is noteworthy to mention a type of traditional dye-vat in the village of Kornos, in Larnaca district, called *pitharin*, which is a terracotta cylindrical large container with round or pointed base comparable to a Bronze Age *pithos* (Ionas 1998: 40-41, 40 fig. 27; 2001: 529). The material assemblage from the two occupational levels of SA I, characterized by pouring and drawing vessels, such as bowls, spouted bowls, jug and juglets, spouted juglets, basins, and a cut away rimmed *askos* (Bombardieri *et al.* 2015: 127), supports the presence of textile dyeing related activities. The presence of cooking pots in such a context is also meaningful (Webb 2017: 168-172)⁸.

SA I is not the only context in Area A where textile dyeing can be identified. Indeed, evidence for this activity is attested within most of the open and closed spaces investigated in the workshop complex. Grinding and pounding activities are attested by a large number of ground stone tools coming from different part of Area A. It is noticeable that a concentration of them was found in SA II and SA III, two rooms adjacent to SA I (Bombardieri 2013: 97), perhaps indicating storage.

The open working spaces investigated are characterized by a series of different types of basins (squared, elliptic, circular, and irregular) correlating with the importance of water processing activities, which are crucial for textile dyeing (Bombardieri *et al.* 2015). Workshops for textile dyeing are often characterized by the

⁷ The capacity of *pithos* A.SAI.354.1 is of 27, 78 l (Bombardieri *et al.* 2015: 134 tab. 3).

⁸ For example, a complete cooking pot (A.SAI.362.7) comes from sub-unit 3. Fragmentary cooking pots are from room SA II, phase A (A.423.6; A.423.14, A.423.16), and phase B (A.448.8) (Webb 2017).

presence of wooden structures, such as racks or platforms used to dry the dyed materials (Barber 1991: 240). Erimi's workshop complex has large open spaces suitable as drying areas, no evidence of structure shown but a series of postholes, which may be indicative of wooden structures, although not preserved. The windy plateau on which the complex is situated is the perfect location for a textile dyeing workshop.

4.3. Hala Sultan Tekke

Moving forward in time slightly, in the following sections three key sites dated back to Late Cypriot I- III will be analysed, starting from Dromolaxia *Vizatzial*/ Hala Sultan Tekke, one of the main harbour towns of the period (Åström 1976-2007, 1986).

Excavations at Hala Sultan Tekke were directed by P. Åström since the 1970's, and different areas were investigated (Area 8, Area 22, Area 23, and Area 6) (Åström 1976-2007). Field research on site has been resumed in Area 6 by the New Swedish Cyprus Expedition, under the supervision of P. Fischer (Fischer 2011, 2012; Fischer and Bürge 2013, 2014, 2015). Important evidence of textile production can be detected in different areas (see, for example, Åström 1986; Fischer 2012: 89-90). With regards to textile dyeing, markers can be identified in two areas, Area 6 and Area 8, discussed further below.

Area 8, interpreted as a residential quarter, produced thousands of murex shell fragments (Reese 2010: 125; 2017a). Almost all the crushed murex found at Hala Sultan Tekke are *Hexaplex*, with a few samples also containing some *Bolinus*, and were recovered in Building A, Building C and Building D or in their proximity (Reese 2017a)⁹. Since the quantity recovered, and the fact that *Hexaplex* snails are known to be used for purple dye production in antiquity, the finds from Hala Sultan Tekke have been related to textile dyeing (Åström 1986; Reese 2010: 125; 2017a)¹⁰. However, this interpretation may be problematic in relation to the contexts where shells were recovered. Thus, it is worth briefly reevaluating the archaeological data in order to investigate whether the snails were effectively exploited for textile dyeing or different purposes (e.g. as food resource).

⁹ *Hexaplex trunculus* and *Bolinus brandaris* are common in the Mediterranean, including Cypriot waters (Reese 1987: 203).

¹⁰ The use of *Hexaplex* to produce purple dyes is also known from the Cypriot Iron Age (Reese 2010: 125). The excavation of a *bothros* in the Peristeries sanctuary at Polis - Marion (7th century BC) produced a large quantity of crushed *Hexaplex* shells, related to the production of dyed textiles (Reese 2010: 125). The mention of a *porphureus* (i.e. a person who prepared purple dye or a shell collector) in an epitaph from the same site (late 4th – beginning 3rd century BC) supports the hypothesis that this activity continued to be performed through time (Masson 1985: 87; Smith 2002: 285; Karageorghis 2006: 231-232).

The over 2000 fragments from Area 8 were found in depositional layers or within floors, used as a building material. A great quantity of crushed shells is also attested in the upper layers (e.g. in Building A) (Strandberg Olofsson 1977: 65; Hult 1977: 75; Reese 2017a). No primary evidence of textile dyeing was found in Area 8¹¹. Some possible markers, such as structures (i.e. an oven, basins), tools (i.e. pestles, mortars) and building materials (i.e. impermeable plaster) were found in the buildings, but they are more likely to be considered part of the household assemblage than specifically related to textile dyeing (Hult 1977: 73-79; 1978: 2-5; Åström 1986: 11)¹².

If the shell fragments from Area 8 are residues of dye's preparation, it is likely that the industry, including textile dyeing, had taken place elsewhere, and the resultant debris were relocated; most plausibly to be reused as building material (Alberti 2008b: 78-80). Alternatively, it can be hypothesized that shells were crushed and dye prepared in Area 8, but textile dyeing was performed elsewhere. Another possibility is that textile dyeing was performed in Area 8 at a household industry level and is scarcely visible through the tools¹³. More specific evidence of textile dyeing, such as traces of colouring substances, textile tools and structures for water processing, comes from Area 6W (Fischer and Bürge 2013: 65; Svensson 2011; Miltiadous Johansson 2014)¹⁴. Purple spots were found scattered on the floor of R. 22, Stratum 1, around a collapsed structure interpreted as a possible basin for textile dyeing (Fischer and Bürge 2014: 65; Reese 2017a)¹⁵. It is noticeable that several fragments and complete individuals of *Hexaplex* were found in the neighboring rooms (e.g. over rooms 22 and 23, south of rooms 40

¹¹ Traces or small amount of red and yellow ochre were found in Area 8 and related to textile dyeing. Ochre, however, is not an ideal colouring substance for organic materials (Barber 1991: 223; *contra* Smith and Tzachili 2012: 143), and, as Barber (1991: 223) observes for Minoan Crete, it was mainly used for paint decorations on walls.

¹² Textiles tools were found in all Area 8 excavations (mainly spindle whorls and loom weights), but always in quantity suitable to domestic production (see, for example, Strandberg Olofsson 1977: 65).

¹³ The 'household industry' is a productive model which implies a production larger than that which normally satisfy family needs, but taking place in a non-specialized or domestic context (Smith 2002: 284-285, 288, 285 fig. 1).

¹⁴ Area 6 and Area 6W correspond to the two trenches excavated by the Swedish Cyprus Expedition. The names of the areas will be changed in 'City Quarter 1' and 'City Quarter 2' in the forthcoming publication on the New Swedish Cyprus Expedition's excavations at Hala Sultan Tekke (D. Reese, personal communication, 19th December 2016; see Reese 2017a for the forthcoming volume). In this study, I maintain the names used in the preliminary reports (i.e. Area 6 and 6W), to which I refer mainly.

¹⁵ An alternative interpretation of the context given by Fischer and Bürge (2013: 65) is that the structure could have destroyed a container for dye and spread its contents while collapsing. No information on the size of the purple spots is provided, and no samples have been saved for further analyses (D. Reese, personal communication, 19th December 2016).

and 41) and in pits (Fischer and Bürge 2013: 69; Reese 2017a)¹⁶. Also, a yellow pigment was retrieved from within a terracotta container, but its nature and possible use for textile dyeing are not specified (Fischer 2011: 74).

The presence of other markers, such as water processing related structures and grinding tools, support the hypothesis that textile dyeing was performed in Area 6 and 6W. For example, pestles were found in direct association with the crushed shells (Fischer and Bürge 2014: 65). Another structure connected to textile dyeing was found in R. 21. It is a rectangular basin measuring 3x3 m covered with water-proof plaster, which was found filled with several elliptic terracotta sling bullets (Fischer and Bürge 2013: 52, 53, fig. 7). Fischer and Bürge (2013: 52) interpret the structure as a basin for textile dyeing which was re-used later for bullet production. The structure, reconstructed as covered with a twigs and straw roof on four posts, is situated in an open space, which is, according to the excavators, appropriate for an activity producing unpleasant smells (Fischer and Bürge 2013: 52). Even though dyeing in many cases produce unpleasant smells (see, for example, Barber 1991: 239), the location of the basin in a courtyard might be also interpreted as an attempt to separate textile dyeing from other activities, i.e. from metallurgy.

The quantity of textile tools found in several of the rooms and open spaces investigated supports the idea that textile manufacture was performed at a specialized workshop level (Svensson 2011; Miltiados Johansson 2014). Moreover, it is worth mentioning that the workshop under excavation is also characterized by metalworking activities (Fischer 2010: 69; 2011: 90; Fischer and Bürge 2014: 61; Mehofer 2014: 75).

Despite the complex of Areas 6 and 6W is earlier than the evidence in Area 8, dating back to LC II-IIIa (Fischer 2011: 84; Fischer and Bürge 2014: 45-46), it proves that the proto-industrial textile manufacture, which included purple dyeing, was an important part of economy of the town since its earliest and, most probably, until the latest phases.

4.4. Enkomi

Possible evidence of textile dyeing can be detected at Enkomi, the most extensively investigated and well known Late Cypriot urban settlement (Dikaios 1969-1971; Schaeffer 1952; Crewe 2007).

Barber (1991: 242) hypothesizes that textile tools – in particular, loom weights – from Court Θ-I 22-24 east and in Rooms 25-26, and 32B in Area III can be related to ‘some dyeing’ which ‘was accompanying the weaving’, since they were found in association or proximity to installations for water processing (a well and a tub), hearths, and grinding tools.

¹⁶ Murex found in Area 6W belong to two genera, i.e. *Hexaplex* and *Bolinus*, with the former much more common (Reese 2017a).

Sector A, also in Area III, shows evidence of textile activities in levels IB, IIIA, IIIB (13th-11th centuries BC) (Smith and Tzachili 2012: 148-149). In level IIIA a set of loom weights and several spindle whorls were found in association with a tub, a trough, a hearth, and some grinding tools, which characterize the complex as a working area for textile making and – likely – dyeing (Smith and Tzachili 2012: 148-149).

It is worth mentioning that a small quantity of *Hexaplex* and *Bolinus* was recovered at Enkomi during the 1940s-50s excavations, although never specifically correlated with purple dyeing because they are too few shells to be used as source of dye (D. Reese, personal communication, 19th December 2016).

4.5. Kition

Kition was a town of primary relevance in final Late Bronze Age and Iron Age Cyprus. The Late Cypriot settlement is best represented in two areas named Chrysopolytissa (Area I) and Kathari (Area II) (Karageorghis and Demas 1985; Smith 2009). Textile activities have been investigated in both areas, and different levels of production have been detected (Smith 2002: 299-304; Smith *et al.* 2015).

At Kathari, the Western Workshop was identified as a specialized textile production area, as more than the 80% of the textile tools recovered in the area came from there (Smith 2002: 299; Smith *et al.* 2015: 343). The workshop consists of several roofed and open spaces located along the western limit of Area II running in a north-south direction, and separated by passages from Temple I and the metallurgical Northern Workshop (Karageorghis and Demas 1985: pls. III-VII; Smith 2009: 36-45 figs. II.1-5).

A large part of the production in the Western Workshop was related to dyed textiles. Although no traces of dyes were detected¹⁷, several relevant markers support the presence of textile dyeing in most of the levels.

A series of water processing and heating installations are concentrated in the southern spaces of the workshop and numbers of these increased through time, and, in some cases, became more articulated structures (Karageorghis and Demas 1985: 77-78, 112-113, 115, 133; Smith 2009: 35). More specifically, the installations related to textile dyeing are pits directly cut into floors, basins, drainage channels, and ovens or hearths (Karageorghis and Demas 1985: 77-78, 112-113, 115, 133). Some of these pits are interpreted as installations for washing textiles because their fills were characterized by the presence of ash, a possible residual from detergents used to wash textiles (Karageorghis and Demas 1985: 78; Smith

¹⁷ No traces of colouring substances or raw materials for producing dye were found in the Western Workshop. Only two murex shells were found in Area I (Reese 1985: 343). This quantity is too small to hypothesize that they were used to extract purple. Moreover, several are noted as being collected dead or water-worn, meaning they could not have been used for shell purple-dye.

2002: 302). Similarly, other organic substances (i.e. crushed animal bones, bone ashes) and grey clay deposits found in pits, channels, and containers from all the phases of the complex have been connected to the presence of soaps or detergents (Smith 2002: 302-303). Some other pits, however, were probably used as dyeing vats. For example, a shallow circular basin called 'feature A' in room 118 (floor III, ca. 1190-1125/1100 BC) contained copper slags (Karageorghis and Demas 1985: 113) and the presence of copper in such a context can be related to textile dyeing, since metals are frequently used as mordants (Smith 2002: 303; Cardon 2007: 48). Crushed *havara* and lime plasters were also found in the pits and interpreted as possible mordants (Karageorghis and Demas 1985: 113, 134; Smith 2002: 303). One other marker of textile dyeing is the remarkable quantity of ground stone tools from all the levels of the Western Workshop (Elliott 1985; Smith 2002: tab. 14). 51.5% of ground stone tools in both Area I and II were recovered in the Western Workshop, including querns, grinders, rubbers, and pounders (Smith 2002: 303 fig. 14), and this attests that pounding activities were extensively practiced in the Western Workshop. As observed above, such activities in a context specialized in textile production are normally related to the preparation of dyes.

5. *Economic and social aspects of dyeing in Bronze Age Cyprus*

As Costin (1991: 2-3) notes, 'production systems should not be studied in isolation from their complementary economic systems, distribution and consumption'. Therefore, in the second part of this paper, an attempt to re-trace the socio-economic and possible symbolic aspects of textile dyeing and dyed textiles will be made.

5.1. Mortuary evidence

In this section, two burial contexts from Erimi *Laonin tou Porakou* and Hala Sultan Tekke containing possible references to textile dyeing and dyed textiles will be analyzed in detail to cast some light on the meaning of this activity and its products for two Middle and Late Cypriot communities which produced and, most probably, distributed and consumed dyed textiles.

Tomb 231 is a rock cut chamber tomb without *dromos* located in the Erimi southern funerary cluster (Area E) (Bombardieri 2012a: 147-149; 2013 o 2014: 48-50) (Figure 3). Within the tomb, the burial space is organized into two distinct areas, separated by a stone slab: the area north of the slab was for the grave goods, and that south of the slab was seemingly reserved for one deceased¹⁸.

¹⁸ Tomb 231 was found intact and excavated during the fieldwork campaign of 2009. Even though no human remains were found, it has been hypothesized that it was a single inhumation because the space without grave goods is not large enough to contain more than one body (Bombardieri 2012a: 147; 2014: 48).

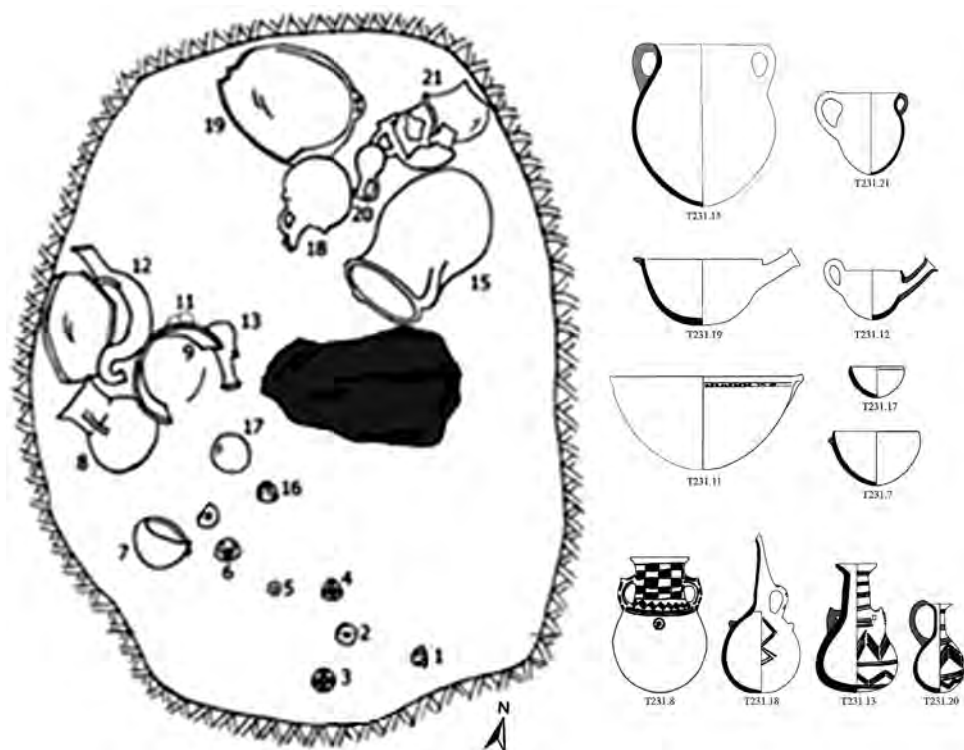


Figure 3. Erimi *Laonin tou Porakou*. Tomb 231. Plan and ceramic assemblage (Archivio della Missione Archeologica a Erimi, courtesy of Luca Bombardieri; re-adapted by Giulia Muti after Bombardieri 2014: 49 fig.4 and Webb 2017).

Indeed, even though no human remains were found, only small finds and two bowls come from this area, while most of the grave goods were found concentrated in a reserved space (Bombardieri 2012a: 147; 2014: 48). However, independently of the possible number of individuals or body treatments which the absence of human remain might indicate, a reference to textiles seems evident within the objects found in the tomb.

Overall, 21 artefacts were recovered (Bombardieri 2014: 48). Among the burials excavated at Erimi, tomb 231 shows a high concentration of spindle whorls: seven decorated whorls were found there, while the average number per tomb is four¹⁹. Also, the location of the whorls in tomb 231 is particularly remarkable, since they were found as a group, in the space possibly reserved for the deceased. Only one whorl (T231.14) of a very uncommon type, i.e. a biconical whorl

¹⁹ At Erimi, only T.35 in the Vounaros cluster has the same number of whorls (Christofi *et al.* 2015).

duplicate along its vertical axis, was found in the offering deposit (Bombardieri 2012a: 155 fig. 17; 2014: 50 fig. 5)²⁰. The number and location of spindle whorls and the presence of a very peculiar shaped whorl clearly refer to the textile activities performed in the reserved working spaces of Area A (see above), reflecting the crucial role played for the Erimi community and its economy.

The ceramic assemblage within the grave offering deposit may be interpreted in the same way, as a reference to textile dyeing. Two main ware types were recovered in tomb 231: eight vessels are in locally produced Red Polished ware, and four are in Red Polished III ware, imported from the North coast (Webb 2017) (Figure 3). The local Red Polished vessels mainly consist of pouring vessels or cooking pots, which are characteristic of the workshop's assemblage. As noticed above, pouring and drawing vessels, and cooking pots were found in SA I in association with structures related to textile dyeing (see above), and this allows for a possible interpretation of the ceramic assemblage of tomb 231 as a set for dyeing. It should be specified, however, that the two Red Polished bowls found in the area reserved to the deceased might have had a different significance. For example, they could have been used as containers for food offerings to be placed close to the body. As far as the imported vessels in Red Polished III are concerned, it can be noticed that the overall assemblage is not particularly indicative of dyeing, except for the jug. Comparable to tomb 231 is tomb 322 B in Lapithos *Vrysi tou Barba*, which produced a group of 15 spindle whorls of different weights clearly associated to one individual (Gjerstad *et al.* 1934: 143; Crewe 1998: 52, 53 tabs. 7.1-2). Crewe (1998: 52-54) interprets them as an actual spinning set or offering made to signify the spinning skill of the deceased.

Tomb 23 is a shaft grave with a single male inhumation discovered intact in Area 8 (N-E corner of trench FGf-k 490-3) at Hala Sultan Tekke, and dated to LC IIIA 1/ A 2 (c. 1175 BC) (Niklasson 1983: 169, 183, fig. 419). The burial architecture appears to be of a standard type for the period, located intramurally, probably in a small courtyard (Niklasson 1983: 169-170, 184). Oppositely, the grave good assemblage is remarkable for quantity and quality, making it one of the richest LC III burial ever found (Niklasson 1983: 184). A range of different artifact types were found in tomb 23, including a considerable amount of luxury objects, such as 30 pieces of jewellery, ivory objects and personal ornaments, metal weapons, and vessels (Niklasson 1983: 172-180; Keswani 2004: 241 tab. 5.11).

Several stains of purple matter were found on the soil floor and on some

²⁰ Few comparisons can be found for this artefact. The only stratified parallel come from a MC III tomb in Mesoyi (Herscher and Fox 1993, 70 fig. 7; Crewe 1998, 188, fig. A 2.34), another possible comparison is unstratified, from Alambra *Mouttes'* Buildings V-VII (Mogelonsky and Bregstein 1996, 217 n. E80; Crewe 1998, 99, fig. A.2.18). In addition, four 'double' whorls are unprovenanced and currently conserved in the Tsirides and Morris Collections in Nicosia and Oxford (Morris 1985, 259, pl.285; Karageorghis and Webb 2011, 69-70, nn. 81-83).

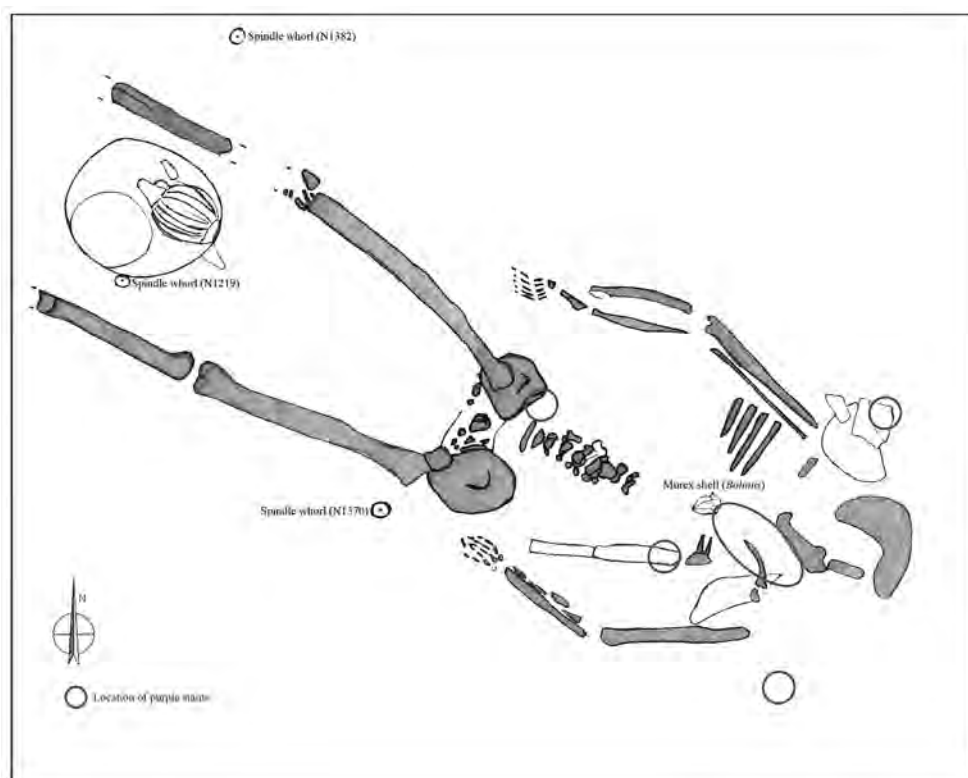


Figure 4. Hala Sultan Tekke. Tomb 23. Sketch of the body and the locations of the purple strains, the ivory spindle whorls, and the murex shell (re-drawn by Giulia Muti after Niklasson 1983: 191 fig. 419; 196 fig. 432; not in scale).

objects in contact with or around the body (Niklasson 1983: 184; 196 fig. 432) (Figure 4). These traces have been interpreted as residues of some purple garments worn by the man or a shroud placed over the corpse (Niklasson 1983: 184; Åström 1986: 16-17; 2009: 19-20)²¹. Two bronze pins found in proximity to the body were probably used to fasten clothes, although ‘not that they held any clothes together at the moment of internment’ (Niklasson 1983: 184). Niklasson (1983: 184) suggests also that three hemispherical ivory objects were possibly used as buttons of a cloth or garment (Figure 5). However, these objects are previously described as ‘spindle whorls or buttons’ in the catalogue of finds, and their positioning in the burial is ambiguous, since they were found not far from the body, but neither were they among or in association with the bones, as if they

²¹ An alternative, albeit less probable hypothesis, is that the stains could have been residuals of a ritual sprinkling of purple matter over the deceased (Niklasson 1983: 184). Nonetheless, a symbolic reference to purple colouring substances would remain unchanged.

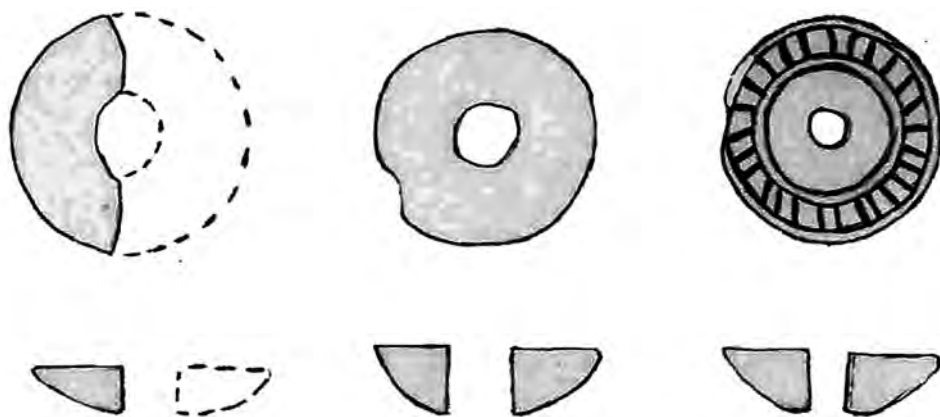


Figure 5. Hala Sultan Tekke. Tomb 23. Ivory spindle whorls (re-drawn by Giulia Muti after Niklasson 1983: 207 figs. 504-506; not in scale).

were effectively used as buttons (Niklasson 1983: 175-176, 184; fig. 419). Ivory artifacts of this type are not univocally considered as working spindle whorls (see, for example, Smith 2002: 284, 292). However, most of them – including the examples from tomb 23 – do not seem to have problematic characteristics (e.g. clockwise perforation) which prevented them to be used as whorls²². Examples of possible ivory or bone whorls from Late Cypriot II/III tombs excavated at Enkomi (Crewe 2009: 1.20, U.199-207, U.236, 24.32), Hala Sultan Tekke (Kiely 2011a: U.39-40), Maroni (Kiely 2011b: 1.12), and Klavdia (Kiely 2011c: U.42, U.46) are conserved at the British Museum. In addition, it is worth mentioning that ivory spindles (often associated with ivory whorls or discs) are items with a wide diffusion in Late Bronze Age Mediterranean, ranging from Levantine to Aegean sites, including Cyprus (Sauvage 2014).

If the three ivory objects from tomb 23 were whorls, they would be of a great symbolic meaning within this context. In fact, not only spindle whorls are quite rare object in Late Cypriot burials – even including the ivory examples (Smith 2002: 283-284; Graziadio and Pezzi 2010: 23) – but they would be also in a context with several references to the production of purple textiles²³.

²² Weight is a fundamental parameter for the operation of whorls: in fact, tools lighter than 4g cannot properly work (Olofsson *et al.* 2015). Unfortunately, this parameter is rarely reported in the old publications.

²³ Whorls are usually thought to be gendered artifacts, since spinning is considered a female activity, which, in this case, are referred to a male burial. Other grave goods in tomb 23, such as jewelry, are normally attributed to women. For an analysis of tomb 23 under a gender perspective see Bolger 2003: 175-178; Åström 2009: 18-20.

Another unusual object in the burial is represented by a murex shell found on the chest of the deceased (Niklasson 1983: 172, 184, 196 fig. 432) (Figure 4)²⁴. The shell and the traces of purple, found in close association with the body and, most probably, worn by the dead, might emphasize the role of this resource as raw material to produce purple dye, and the importance of purple for the local economy. Åström (2009: 20) suggests that the shell can be related to the occupation of the deceased, who could have been involved in purple extraction or collection of shells. For this reason, a bronze trident found within the grave goods is related to octopus catching, an activity which can be practiced meanwhile collecting shells (Åström 2009: 20). This interpretation, however, goes against the fact that a great quantity of precious objects (some of which imported) differentiate this burial from the others. Thus, more logically, the grave goods are to be put into correlation with the presence of a prominent person, probably a member of the local élite (Keswani 2004: 129, 142-144, 189). The shell and the metal trident, which seems to be more a prestige object than an actual tool, may symbolize the control over the marine resources, and their importance as source of wealth to those who managed and exploited them²⁵.

A connection between the marine resources and their employment in textile manufacture is evident in this tomb, and the production of luxury fabrics is likely to have been a prerogative of the local élite, perhaps also ideological.

6. Discussion and conclusions

Textile dyeing is a largely invisible activity which can only be identified with certainty at a few Cypriot Bronze Age sites. These sites are characterized by the presence of workshops or specialized productive areas, and date to the MC/LC

²⁴ David Reese has recently identified the shell as a *Bolinus* (personal communication, 19th December 2016). The shell (F 1375) is conserved in the terra umbra store room 11 of the Larnaca Museum together with a label on which is written: 'found close to Skull F 1379' (D. Reese, personal communication, 19th December 2016). This label allowed the identification of the shell as the murex described by Niklasson (1983: 187). The *Bolinus* has a preserved length of ca. 48 mm and preserved width of ca. 33 mm, and shows a hole near the lip and in the upper spire (D. Reese, personal communication, 19th December 2016). Therefore, Reese assumes that it was used as a pendant, like another murex shell of genus *Stramonita* found in Tomb 20, Area 23 (personal communication, 19th December 2016). This hypothesis seems supported also by the presence of several beads and two pendants (N1234-1250 and N1351-1354) found 'in the chest along the left side of the neck', immediately above the shell (Niklasson 1983: 171-172; 196 fig. 431). The fact that the murex shell was modified to be worn as pendant may be interpreted as cumulative evidence of the importance of murex shell at Hala Sultan Tekke.

²⁵ It should be noted that remains of marine fishes were found in tomb 23 (Niklasson 1983: 171, 180; Reese 2007: 51). These might contribute to emphasize the importance of marine resources at Hala Sultan Tekke. However, the *Lates niloticus* (Nile perch), also found in tomb 23, cannot be related to the exploitation of the local marine resources because it was imported from Egypt, but may be considered as a prestige good intended to élite consumers.

I and LC II-III periods. It is reasonable to think that dyeing was practiced also in the previous periods and/or at household level, but this cannot be proven because of the lack of primary evidence for textile dyeing and the coincidence between the archaeological markers of dyeing, identified as heating and water processing installations and vessels, and grinding tools, and the typical equipment of domestic contexts.

The MC workshop complex at Erimi *Laonin tou Porakou*, and, potentially, the 'textile sector' at Pyrgos *Mavroraki*, show working spaces specifically reserved to textile dyeing. Similarly, reserved areas in multi-specialized complex are visible in LC urban towns such as Hala Sultan Tekke, and, possibly, Enkomi, while, at Kition, textile dyeing seems to be the core of the Western Workshop, entirely specialized in textile production. It is remarkable that all the contexts examined show the same characteristic installations and tool assemblages, although intra-site (e.g. difference in shape, building materials and techniques of water processing installations) and inter-site variability (e.g. substantial changing of the dyeing basins and heating structures through phases A and B at Erimi) is visible.

An association between textile and metallurgical workshops has been noticed (Smith 2009: 38; Smith and Tzachili 2012: 148). These results seem verified for all the case studies discussed here, with the exception of Erimi. The connection between metallurgy and dyed textiles seems far from accidental, since metallurgical byproducts or waste products can be used as mordants (Smith 2002: 303). The case of the Western Workshop at Kition, where metallic slags were found into the dyeing basins, and its proximity to the metallurgic Northern Workshop is particularly indicative.

Only a few sites have provided secure evidence of dye. These are identified as organic vegetal or animal colouring substances obtained from specific plant species, mainly belonging to the family of Boraginaceae, and *Hexaplex*, which both give shades of purple and purplish red. Similarly, plants found in minor traces at Erimi (e.g. Rubiaceae) could have been used for textile dyeing. It is remarkable to notice that two dyeing plants individuated at Erimi, i.e. the *Buglossoides arvensis* and the *Galium* spp., belong to the same species identified in Neolithic and Chalcolithic sites as wild plant collected for special uses. Therefore, it is possible to recognize a sense of a long continuity in the way in which the natural resources were approached, i.e. by knowing, gathering, and using (possibly for different purposes) the same wild plants, despite the changings in technologies and material culture introduced in the Philia period. Similarly, continuity in the use of *Hexaplex* to produce purple is visible through the Iron Age (see n. 10).

The use of *Hexaplex* for purple dye production and the evidence of mordants allow to assert that in Bronze Age Cyprus mordant dyeing and vat dyeing were practiced. Also, both colour-fast (shell dye) and not colour-fast (plant dyes) dyes were used.

The importance of textile dyeing as an activity with economic and social implications, and related to symbolic aspects has been highlighted through the analysis of specific funerary contexts and supplementary sources.

A reference to dyeing is evident in tomb 231 at Erimi, where the set of local Red Polished vessel types found within the burial have a direct comparison to the workshop's ceramic assemblage. By applying the model of the 'community of practice', Bombardieri (2013; 2014) observes that Erimi's community elaborated a complex horizon of symbols based on the working activities performed at a communitarian level. The ceramic assemblage of tomb 231 seems to participate in this symbolic language by inserting actual working pots into the funerary space. Another study case is that of tomb 23 at Hala Sultan Tekke. The allusion to purple textiles is made, again, through the grave goods deposited by members of local élite, as a way to mark the importance of controlling their producing process as their prerogative and source of enrichment and prestige.

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