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LATE BRONZE AGE TEXTILE TOOLS FROM MAYDOS KİLİSETEPE IN GALLIPOLI (TURKEY) AND THEIR AEGEAN CONNECTIONS

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ABSTRACT: As one of the largest mounds of the Gallipoli Peninsula, Maydos Kilisetepe is situated on the European side of the Çanakkale Strait in the town of Eceabat in the Northern part of the Aegean Sea (Turkey) (Figure 1). Some important data regarding the Dark Ages and Late Bronze Age has been gathered in the excavations started in 2010. The paper presents preliminary analysis of the investigation of textile tools excavated in the context of the Late Bronze Age (LBA) in Maydos Kilisetepe. In the northern part of the Aegean, spindle whorls and loom weights have been the most remarkable findings associated with textile activities during the Bronze Age. The aim of this paper is to focus on spindle whorls and loom weights discovered at the site and to expand upon their Aegean Connections. The above-mentioned textile tools have some similarities that indicate contact with the Aegean, Western Anatolia and the Balkans. The presence of the loom weights indicates that the warp-weighted loom was used in textile production. The whorls from the Late Bronze Age settlement, which were used to get the desired yarn thickness and quality, have several shapes, types and weights. It is possible that the weaving production at the site was carried out for domestic purposes as a daily activity on a small scale during the Late Bronze Age.

Keywords: Late Bronze Age, Spindle Whorl, Loom Weight, Maydos Kilisetepe, Troad, Textile Production.

GELİBOLU (TÜRKİYE) MAYDOS KİLİSETEPE HÖYÜĞÜ GEÇ TUNÇ ÇAĞI TEKSTİL ALETLERİ VE EGE DÜNYASI İLE BAĞLANTILARI

ÖZ: Gelibolu Yarımadası'nın en büyük höyüklerinden birisi olan Maydos Kilisetepe, Çanakkale İli'nin Avrupa yakasında, Kuzey Ege'de, Eceabat İlçesi'nde bulunmaktadır. 2010 Yılı'nda başlayan kazı çalışmaları Geç Tunç Çağı ve Karanlık Çağ hakkında bazı önemli veriler sunmuştur. Bu çalışma, Maydos Kilisetepe Geç Tunç Çağı yerleşiminde ele geçen tekstil aletlerinin ilk analizlerini içermektedir. Kuzey Ege'de Tunç Çağı boyunca ağırşaklar ve tezgâh

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ağırlıkları, dokumacılıkla bağlantılı en önemli buluntular arasındadır. Bu çalışmanın amacı, höyükte bulunan ağırşaklar ve tezgâh ağırlıklarını değerlendirerek Ege Dünyası ile bağlantılarının ortaya konmasıdır. Batı Anadolu, Balkanlar ve Ege Dünyası ile bazı benzerliklere sahip söz konusu tekstil aletleri bu bölgelerlerle bağlantıları da göstermektedir. Dokuma ağırlıklarının varlığı, çözgü ağırlıklı dokuma tezgâhlarının tekstil üretiminde kullanıldığını götermektedir. Geç Tunç Çağı yerleşimi ağırşakları, istenilen kalitede ve kalınlıkta ip eğirebilmek için çeşitli formlara ve ağırlıklara sahiptir. Geç Tunç Çağı boyunca yerleşimde küçük ölçekli yapılan dokuma üretimi, evle bağlantılı günlük işlerden birisi olmalıdır.

Anahtar Kelimeler: Geç Tunç Çağı, Ağırşak, Tezgâh Ağırlığı, Maydos-Kilisetepe, Troad, Tekstil Üretimi.

Introduction

Maydos Kilisetepe is a mound in the middle of the town of Eceabat and named after the church that was placed over it previously (Figure 2). A team directed by Göksel Sazcı from Çanakkale Onsekiz Mart University started the excavations in 2010. The mound is on the west side of The Dardanelles Strait.[1] The mound in Kilisetepe was actually discovered many years earlier, however the first scientific research carried out was in 1982 by M. Özdoğan who conducted survey research.[2] The west part of the mound was dug into to get soil samples by modern settlers in Eceabat and undisturbed stratigraphy was discovered starting from Kumtepe IB to the end Troy VI.[3] Maydos Kilisetepe is one of the largest mounds on the Gallipoli Peninsula, and due to its natural coastal settlement position, it was a harbour city that served Aegean merchants during the Bronze Age. It is located opposite to Troy; on the asian shore of the Dardanelles Strait and this arrangement suggests that it may be a collaborating settlement that helped Troy control the strait during the Bronze Age.[4] Findings discovered on the surface during the 2010 excavation season, date back all the way from prehistoric times up through the Ottoman period.[5] The excavation has

[1] Göksel Sazcı, "Tarihöncesi Dönemlerden Antik Çağ Sonuna Kadar Eceabat/ Maydos", *Eceabat Değerleri Sempozyumu*, Çanakkale Onsekiz Mart Üniversitesi Yayını, 1. Baskı, Çanakkale, 2008, 3.

[2] Mehmet Özdoğan, "Doğu Marmara ve Trakya Araştırmaları, 1982", *I. Araştırma Sonuçları Toplantısı*, Kültür Bakanlığı Yayını, Ankara, 1984, 64-65.

[3] Mehmet Özdoğan, "Prehistoric Sites in Gelibolu Peninsula", *Anadolu Araştırmaları*, C. X, 1986, 5.

[4] Göksel Sazcı, "Maydos Kilisetepe Höyüğü", *Arkeoloji ve Sanat Dergisi*, S. 140 Mayıs-Ağustos, 2012b, 14.

[5] Göksel Sazcı, "Maydos Kilisetepe Höyüğü 2010 Yılı Kazıları", *33. Kazı Sonuçları Toplantısı*, C. 1, Kültür Bakanlığı Yayını, Ankara, 2012a, 391.

unearthed Byzantine, Hellenistic, Classical, Archaic, Geometric periods and the contemporary levels with Troy VIIb, VIIa and early VI.

Archaeological Context of LBA Textile Tools

Three adjacent megaron buildings in have been identified near the city walls which date back to the Late Bronze Age and contemporary Troy VIIa (Figure 3). Some parts of the central structures have been uncovered; they stood on stone foundations and had mudbrick walls. Part of the walls were decorated with reliefs of geometric motifs such as concentric circles, spirals or hands on hips and were painted mainly cream and red colours.[6]

Most of the textile tools examined in this study were found inside or in the front yard of the megaron, and only few were found near the Bronze Age fortification wall (Figure 3). A large unbaked clay loom weight and some pottery fragments were recovered inside the kiln at the entrance of the megaron (Figure 7.1).

No fabric remnants were found in the excavations of Late Bronze Age settlement. The spinning rods were usually made from wood, tusk or baked clay, rarely from metals, and unfortunately none were discovered during the excavations. On the other hand, it is known that an ivory spinning rod had been discovered at the Troy settlement VIIa.[7] The spindle whorls and loom weights are the only evidence of the existence of weaving in the settlement. However, the excavations of the Late Bronze Age level will continue and it is expected that new textile tools of weaving may be uncovered in the future excavation seasons. In this study, the eleven spindle whorls and five loom weights that were found at Maydos Kilisetepe date back to the Late Bronze Age level and appeared to be textile tools (Figures 5, 7). In addition, three objects with holes in their centers seemed to be spindle whorls due to their dimensions (Figure 5,12-14).

Spindle Whorls

Spindle whorls were used together with the spindle to perform the spinning activity. All of the eleven spindle whorls examined in this study were made of baked clay and some had slipped surface treatment (Figures 4, 5). Only two of the spindle whorls were decorated; the first one is composed of triple strings in groups of four, incised over its body (Figure 4.8). Spindle whorls with similar decorations had also been found in Troy during the

[6] G. Sazcı, 2012b, *Idem*, 19, Figs.7-10.
[7] Kathrin Balfanz, "Eine Spätbronzezeitliche Elfenbeinspindel aus Troia VIIA", *Studia Troica* vol.5, 1995b.

Bronze Age.[8] The other one was decorated with rows of dots which appear to be a nine-pointed star when viewed from above (Figure 4, 6). Two of the spindle whorls have a symmetric double-conical form, two of the forms are asymmetric double-conical and one of them is conical. Two of them are spherical and the last two are conical but flat on the upper surface. Body diameters of the spindle whorls range from 2 to 3.5cm and hole diameters are between 3 to 7mm. The weights of the spindle whorls range from 20.5 to 28g.The spindle whorls were coloured light red, brown, camel and grey and were clay tempered with grits, mica and sand. Similar type spindle whorls were recovered from the Western Anatolia settlements of Troy and Beycesultan Levels III-II, and also in the Aegean settlements of Keos Ayia Irini LMIB, Lefkandi LH IIIC, Asine MH-LH period.[9]

In addition, three objects with a hole in the center are considered to be spindle whorls due to their dimensions (Figure 4,12-14). All of them have a hole in the middle but two of them were made from baked clay and one was made from white stone. The white stone spindle whorl is disc-shaped and tapered towards the ends (Figure 5.12); similar one was also found at Troy VIIa.[10] A Similar type baked clay spindle whorls in the form of round shaped discs with holes in their centers were also unearthed at Aphrodisias Phase II, Lefkandi LHIIIC.[11] Their body diameters range from 4.5 to 5.5cm, hole diameters range from 6 to 8mm and their thicknesses range from 1.2 to 2cm. Their weights range from 45.2 to 65.4g.

The different sizes and shapes of the spindle whorls indicate that the production of yarn varied in both quality and thickness. Consequently, it is also evidence of the production of various types of fabric from within the

[8] Kathrin Balfanz, "Bronzezeitliche Spinnwirtel aus Troia", *Studia Troica*, vol. 5, 1995a.

[9] Carl W. Blegen et al., *Troy Settlements VIIa, VIIb and VIII*. Vol. IV, 2, Princeton University press, Princeton, 1958, Fig. 213; James Mellaart and Ann Murray, *Beycesultan Late Bronze Age and Phrygian Pottery and Middle and Late Bronze Age Small Objects*, The British Institute of Archaeology at Ankara, London, 1995, Figs. O15-17; W. Willson Cummer and Elizabeth Schofield, *Keos III Ayia Irini: House A*, Verlag Philipp von Zabern, Mainz on Rhine, 1984, Pl. 31; Don Evely, "The Small finds", *LEFKANDI IV The Bronze Age The Late Helladic IIIC Settlement at Xeropolis*, British School at Athens, Oxford, 2006, Pls.1-6; Gullög C. Nordquist, *A Middle Helladic Village Asine in the Argolid*, Academia Upsaliensis, Uppsala, 1987, 59, Fig. 61.

[10] K. Balfanz, 1995b, *Idem*, Abb.3.

[11] Martha Sharp Joukowsky, *Prehistoric Aphrodisias*, Volume II, Imprimerie É Oleffe, Belgium, 1986, Fig. 490.47-49; D. Evely, 2006, *Idem*, Pls. 8-9.

settlement itself. Experimental studies reveal that heavier spindle whorls produce longer yarns in shorter time.[12]

Loom Weights

Five loom weights were recovered at the Late Bronze Age level; three of them were in a disc-shaped form (Figure 6, 3-5), one pyramidal (Figure 6.2) and one flat rectangular prism with rounded edges (Figure 6.1). One is made of stone, one is made of unbaked clay, and others are made of baked clay. Their clay shows local characteristics, it is coloured brick, red and brown, and is tempered with sand, mica, grit. One of the disc-shaped loom weights is grooved and has a hole at the top; the other is flattened and has double-hole. The loom weights such as these demonstrate an Aegean connection as it is acknowledged that this type had been used widely throughout the Aegean from the Neolithic Age through the Bronze Age. A sign resembling the number '1' was drawn on the double-holed disc-shaped baked clay loom weight and there is a second section containing rows of dots at the top that had been added horizontally. Diameters of the disc-shaped 'Aegean Type' loom weights range from 5-9cm, their thickness is between 1.3- 2cm, hole diameters are between 4-8 mm and their weights range from 48.9 to 172g. Similar disc-shaped loom weights, with double and single-holes were also recovered in Southwest Anatolia at Iasos from the LM IA levels, at Miletus LM I period, at Liman Tepe MBA level, at Çeşme Bağlararası LM IA level, Panaztepe LBA level, Troy settlements Late VI and VIIa[13]; in the Aegean at Palio Mitato in Karpathos LM I period, Rhodes

[12] Eva Andersson et al., "New Research on Bronze Age Textile Production", *Bulletin of the Institute of Classical Studies*, vol.51 (1), 2008, 171-174.

[13] Nicoletta Momigliano, "Minoans at Iasos ?", *The Minoans in the central, eastern and northern Aegean- new evidence*, the Danish Institute at Athens and the German Archaeological Institute at Athens, 2009, Fig.7; Barbara Niemeier and Wolf-Dietrich Niemeier, "Minoans of Miletus", *MELETEMATA Studies in Aegean Archaeology Presented to Malcolm H. Wiener As He Enters His 65th Year, Aegaeum* 20, Université de Liége, Belgium, 1999, Pl.CXVIII,d.; Margarita Gleba and Joanne Cutler, "Textile Production in Bronze Age Miletos: First Observations", *KOSMOS: Jewellery, Adornment and Textiles in the Aegean Bronze Age, Aegaeum* 33, Université de Liége, Belgium, 2012, Pl. XXXII,b; Hayat Erkanal and Levent Keskin, "Relations between the Urla peninsula and the Minoan World", *The Minoans in the central, eastern and northern Aegean- new evidence*, the Danish Institute at Athens and the German Archaeological Institute at Athens, 2009, 106; Armağan Erkanal, "1988 Panaztepe Kazısı Sonuçları", *XI. Kazı Sonuçları Toplantısı*, C. I, Kültür Bakanlığı, Ankara, 1990, 256; Marta Guzowska and Ralf Becks, "Who was Weaving at Troia? On the Aegean Style Loomweights in Troia VI and VIIa", *EMPORIO Aegeans in the Central and Eastern Mediterranean, Aegaeum* 25, Université de Liége, Belgium, 2005, Pl. LXVII; Peter Pavúk, "Off Spools and Discoid Loom-Weights: Aegean-Type Weaving at

Island LH IIIa/b, at Ialysos LB I level, at Phylakopi, at Kythera, at Keos Ayia Irini LM IB level[14]; at Crete LM I Period, at Mallia, and Gournia, at Kommos LM IIIA period, at Asine MH-LH periods, at Knossos LM II, at Palaikastro LM II-IIIA.[15] The samples found at Liman Tepe prove that Minoan type loom weights were used in Western Anatolia during the Middle Bronze Age.[16] Loom weights show that warp-weighted looms were used in settlements throughout the Mediterranean starting from the Neolithic Period up through the Bronze Age.[17] Unless preserved under exceptional conditions and unburned, the warp-weighted looms were made of wood and are therefore are difficult to find.[18] However, depictions of loom weights were seen in the Late Bronze Age throughout the Mediterranean.[19]

Aegean-type loom weights discovered at Maydos Kilisetepe are important because they show the influence of Aegean culture on the craft of weaving (Figure 7, 3-5). Disk-shaped loom weights were used in the coastal settlements of Western Anatolia during the Late Bronze Age. Miletus is

Troy Revisited", *KOSMOS: Jewellery, Adornment and Textiles in the Aegean Bronze Age, Aegaeum* 33, Université de Liége, Belgium, 2012, 122.

[14] Emmanouēl M. Melas, *The Islands of Karpathos, Saros and Kasos in the Neolithic and Bronze Age*, Paul Åströms Förlag, Göteborg, 1985, Fig. 33.572; Hans-Günter Buchholz and Vassos Karageorghis, *Prehistoric Greece and Cyprus An Archaeological Handbook*, Verlag Ernst Wasmuth, Tübingen, 1973, no. 431; Toula Marketou, "Ialysos and its neighbouring areas in the MBA and LBI periods: a chance for peace", *The Minoans in the central, eastern and northern Aegean- new evidence*, the Danish Institute at Athens and the German Archaeological Institute at Athens, 2009, 74; John F. Cherry, J. F. and Jack L. Davis, "The Other Finds", *Excavations at Phylakopi in Melos 1974-1977*, The British School at Athens, Athens, 2007, 404; Yannis Sakellarakis, "Minoan Religious Influences in The Aegean: The Case of Kythera", *The Annual of the British School at Athens*, vol.91, Pl.23d; W. W. Cummer and E. Schofield, *Idem*, Pl. 31.

[15] R. Don G. Evely, *Minoan Crafts: Tools and Techniques An Introduction*, Paul Åströms Förlag Jonsered, 2000, Fig. 1-4; Joseph W. Shaw, *Kommos A Minoan Harbor Town and Greek Sanctuary in Southern Crete*, Italy, American School of Classical Studies at Athens, Athens, 2006, Fig. 51; Gullög C. Nordquist, *Idem*, Fig. 62.2; Don Evely, "The Other Finds", *The Minoan Unexplored Mansion at Knossos,* Thames and Hudson, Oxford, 1984, Pl. 223,e; Don Evely, "The stone, terracotta finds and horn cores", *PALAIKASTRO: Two Late Minoan Wells*, The British School at Athens, Athens, 2007, Fig. 7.4, 601.

[16] H. Erkanal and L. Keskin, *Idem*, Fig. 15.

[17] Carole Cheval, "Protohistoric Weaving, The Minoan Loom-Weights: A First Approach", *Purpureae Vestes II Vestidos,* Universitat de València, València, 19.

[18] R. D. G. Evely 2000, *Idem*, 489.

[19] Elizabeth J. W. Barber, *Prehistoric Textiles The Development of Cloth in the Neolithic and Bronze Ages*, Princeton University press, Princeton, 1991, Figs. 3.11-12; Brendan Burke, "The Organization of Textile Production on Bronze Age Crete", *TEXNH Craftsmen, Craftswomen and Craftsmanship in the Aegean Bronze Age, Aegaeum* 16, Université de Liége, Belgium, 1997, Pl. CLXc-e.

known as the centre of the Minoan type textile tools and textile production and the Aegean influence can be observed starting at the beginning of the Late Bronze Age.[20]

The use of similar loom weights in the area starting from Iasos in the south to the Maydos Kilisetepe in the north proves that similar weaving techniques were implemented. The Aegean-type loom weights that uncovered in Troy VIIa indicate intensive Aegean influence at the Troad region.[21]

Dimension of the pyramidal loom weight are 8,4cm in length, 3,3-3,6cm thick, with a 6 mm hole diameter, with a weight of 190,6g (Figure 7.2). Typologically similar pyramidal loom weights were found at Aphrodisias Phase II, Beycesultan levels I-III, Çine Tepecik LBA levels, Eutresis in Boeotia LH levels, Rhodes Island LHIIIA-B, Lefkandi LHIIIC, Palaikastro LMII-IIIA.[22]

The large unbaked loom weight shows that the weaving of thick garments, probably from wool, were carried out in the settlement (Figure 7.1). Its dimensions are: 14cm in length, 4,8cm thick, with a hole diameter 2cm and a weight of 758g. Similar type loom weights were recovered at Troy VIIa; Macedonia Kastanas at the Late Bronze Age level.[23]

The experimental work carried on the loom weights demonstrates that weight and thickness of looms weights correlates to the thickness and size of the fabric produced.[24] Thus, even if no remains of the textile were found, the thickness and the weight of the loom weights can provide information about the fabrics in the settlement. Accordingly, the loom weights uncovered at Maydos Kilisetepe were probably used in the production of fine and medium-thick textiles. Moreover, a single sample of unbaked loom weight

[20] M. Gleba and J. Cutler, *Idem*.
[21] Ralf Becks and Marta Guzowska, "On The Aegean-Type Weaving at Troia", *Studia Troica*, vol.14, 2004, 104.
[22] M. S. Joukowsky, *Idem*, Fig. 490.34; J. Mellaart and A. Murray, *Idem*, Fig.O17.197; Pl.XIVb; Hetty Goldman, *Excavations at Eutresis in Boeotia*, Harvard University press, Cambridge, Fig. 266.1; H.-G. Buchholz and V. Karageorghis, *Idem*, no.433; D. Evely 2006, *Idem*, Fig.5.17 0.2 -3; Don Evely, "The stone, terracotta finds and horn cores", *PALAIKASTRO: Two Late Minoan Wells*, British School at Athens, London, 2007, Fig.7.5.
[23] C. W. Blegen et al., *Idem*, Fig.221, 37-289; Sascha Mauel, "Summarizing Results of a New Analysis of the Textile Tools from the Bronze Age Settlement of Kastanas, Central Macedonia", *KOSMOS: Jewellery, Adornment and Textiles in the Aegean Bronze Age, Aegaeum* 33, Université de Liége, Belgium, 2012, 142, Pl. XXXVIb.
[24] Mårtensson *et al.*, *Idem*, 393.

with one hole at the top, in rectangular shape with rounded corners indicates thick material weaving, such as carpets and rugs, was performed.

Textile Production at Maydos Kilisetepe

What kind of textile was produced by the Maydos Kilisetepe residents? They were most likely producing flax, cotton, and wool fabrics according to the dimensions of textile tools as their contemporaries in the Late Bronze Age settlements. It is known that the flax was used in Mediterranean weaving throughout the duration of the Palaeolithic Period.[25] The evidence also suggests that the cultivation of flax in Macedonia in the Northern Aegean started in Early Neolithic Period.[26] The use of wool in weaving dates back to the Late Neolithic Period in the Troad. Negative wool prints were identified at the bottom of some baked clay pots recovered from Gülpınar.[27] According to Linear B tablets, various types of flax and wool garments were produced.[28] The wool was the main material for weaving and therefore played a significant role in the Minoan economy during the Late Bronze Age.[29] The weaving was an indispensable part of everyday life due to need for the production of clothing and home textiles. Women must have been involved in this production as a part of their daily household chores at Maydos Kilisetepe. Aegean Linear B tablets state that women workers in particular performed the weaving task in the industrial textile production.[30] Furthermore, Homer's Iliad and the Odyssey emphasized that women were weaving and spinning in the houses or in the courtyards.[31] The weaving has remained alive in Anatolia for thousands of years, and even today it is considered a woman's task. On the other hand,

[25] Elizabeth W. Barber, *Women's Work: The first 20.000 years Women, Cloth, and Society in Early Times*, W. W. Norton and Company, London, 1994, p. 103.

[26] Richard N. L. Hubbard,"Appendix 2: Ancient Agriculture and Ecology at Servia", In Mies Wijnen *et al.*, "Rescue Excavations at Servia 1971-1973: A Preliminary Report", *The Annual of the British School at Athens*, vol. 74, 1979, p. 227.

[27] Turan Takaoğlu, "The Late Neolithic in The Eastern Aegean Excavations at Gülpınar in the Troad", *Hesperia*, vol.75, 2006, p. 307.

[28] D. Evely 2000, *Idem*, p. 504.

[29] John T. Killen, "The Wool Industry of Crete in the Late Bronze Age", *American Journal of Archaeology*, vol. 59, 1964.

[30] Marie-Louise Bech Gregersen, "Pylian Craftsmen: Payment in Kind / Rations or Land ?", *TEXNH Craftsmen, Craftswomen and Craftsmanship in the Aegean Bronze Age, Aegaeum* 16, Université de Liége, Belgium, 1997, 400; Marie-Louise Bech Nosch, "Acquisition and Distribution: ta-ra-si-ja in the Mycenaean Textile Industry", *Trade and Production in Premonetary Greece*, Paul Åströms Förlag, Jonsered, 2000.

[31] Homeros, *İlyada*, Can Yayınları, 25. Baskı, İstanbul, 2009, 121.125; Homeros, *Odysseia*, Can Yayınları, 24. Baskı, İstanbul, 2010, p. 88-130.

Linear B tablets indicates that there were also some men working in weaving trade, even if they were in smaller in number compared to women.[32] Still in Anatolia and the Aegean, the task of shearing, washing, dyeing, spinning and weaving was generally done by the women.[33] However Linear B tablets show that men also helped women in the some processes of wool production.[34] It is known from, Hittite texts that women were weaving at home. However, the texts also state that weaving was regarded asa Man's job. There was a title for 'the Head of the Weaving', generally occupied by men, called 'UGULA LÚ UŠBAR'. Furthermore, it is also known that there was a women weaver called 'SALUŠ.BAR' and a dress maker (tailor) called 'SALTÚG' among the palace staff. In Hittite society, the men were more involved in the production of fabric and garments than the women.[35]

In Maydos Kilisetepe, at the level contemporary to Troy VIIa, sheep and goat bones were uncovered that point out the production of wool yarns and fabrics. The wool weaving mentioned in Hittite texts was to produce important fabrics for the use of palace élite. The shepherds of the palace were also responsible for preparing wool yards.[36]

In addition, several pits containing murex snails were found at Maydos Kilisetepe which is located by the sea (Figure 8). Murex snails are associated with use of textile dyes and were traditionally used to obtain the purple colour in weaving.[37] The dye was extracted from the salivary glands of these creatures; they are naturally pale yellow but it turns to yellow-green, green, light red, dark red, and purple when influenced by the sun's rays as a result of a photo-chemical reaction. Murex snails were used as a natural

[32] Don Evely and R. Jones, *Fresco: A Passport Into the Past Minoan Crete Through the Eyes of Mark Cameron*, British School at Athens, London, 1999, p. 85.

[33] Jak Yakar, *Anadolu'nun Etnoarkeolojisi*, Homer Yayınları, İstanbul, 2007, Fig. 67; Elizabeth J. W. Barber, "Minoan Women and The Challenges of Weaving for Home, Trade, and Shrine", *TEXNH Craftsmen, Craftswomen and Craftsmanship in the Aegean Bronze Age, Aegaeum* 16, Université de Liége Belgium, 1997, p. 515.

[34] Lucia Nixon, "Women, children, and Weaving", *MELETEMATA Studies in Aegean Archaeology Presented to Malcolm H. Wiener As He Enters His 65th Year, Aegaeum* 20, Université de Liége, Belgium, 1999, p. 564-565.

[35] Muhibbe Darga, *Anadolu'da Kadın, On Bin Yıldır Eş, Anne, Tüccar, Kraliçe*, Yapı ve Kredi Yayınları, İstanbul, 2013, p. 193-194.

[36] *Ibid,* p. 194-196.

[37] Brendan Burke, "The Organization of Textile Production on Bronze Age Crete", *TEXNH Craftsmen, Craftswomen and Craftsmanship in the Aegean Bronze Age, Aegaeum* 16, Université de Liége, Belgium, 1999, 79; D. Evely 2000, *Idem*, p. 504.

colouring agent at the Troy VIIa and throughout the entire Bronze Age.[38] The presence of murex snails indicates that Minoan weaving techniques were used in the North Aegean.[39] There is no evidence to show what the woven fabrics actually looked like, However, the reliefs displayed on the megaron buildings of Maydos Kilisetepe from the Late Bronze Age[40], may suggest that geometric patterns of red and cream, or similar decorations might have been used on the textiles, as they were in other settlements in the Aegean.[41]

Conclusions

Maydos Kilisetepe, in Western Anatolia, was connected to the Aegean by way of sea, therefore weaving tools were influenced by those cultures. Disk-shaped loom weights appear to be influenced by the Aegean in Western Anatolia during Late Bronze Age. However, the pyramidal form is unique to Anatolia. This influence displays the exchange of ideas and transfer of technology in the craft of weaving. It should not be ignored that, the culture of the Aegean may have influenced the material, colours and patterns of textile production as well as the textile tools. Since Maydos Kilisetepe was in the North Aegean region, it is thought that the cultural relations were built with the Aegean from the connection provided by the seaways. The pottery, imported from Aegean, uncovered together with the textile tools, proves the existence of cultural relations. Findings belonging to Minoan and Mycenaean cultures were discovered in northeastern Aegean settlements and production of their local imitations can reveal the dimension and depth of cultural relations.[42] Aegean type loom weights found in Maydos Kilisetepe indicate the connection with island of Crete via northwest Aegean and the Aegean islands.

Who used weaving tools at Maydos Kilisetepe during the Late Bronze Age? The people who used weaving tools to produce the textile were most likely women, similar to the Aegean and Anatolian settlements of the same period. When we look at the subject ethnographically, based on information

[38] Canan Çakırlar and Ralf Becks, " 'Murex' Dye Production at Troia: Assessment of Archaeomalacological Data from Old and New Excavations", *Studia Troica*, vol. 18, 2009, p. 95, Table 1.
[39] *Ibid*, p. 99.
[40] Göksel Sazcı, "Maydos Kilisetepe Höyüğü- Eine Bronzezeitliche Hafensiedlung an den Dardanellen", *Archäeologisches Korrespondenzblatt*, 43, Heft 1, 2013, Abb. p. 8-11.
[41] Elizabeth W. Barber 1994, *Idem*, Figs.4, p. 4-6.
[42] Marta Guzowska, "Traces of Minoan Behavioural Patterns in the North-East Aegean", *Mauer Schau Festschrift für Manfred Korfmann,* Band 2, Verlag Bernhard Albert Greiner, Remshalden, 2002.

recovered, we can say that the tools were used by the local peoples. This kind of weaving is a traditional craft that has survived up into the present and is used in Çanakkale today. This can be especially observed in the woollen carpet and rug weavings carried out in and around the town of Ayvacık. Moreover, evidence suggests that there used to be a rug and carpet weaving trade in the areas near the towns of Yenice and Bayramiç up until ten years ago. The production of cotton and wool fine fabrics remained alive until the 1990s. It is also acknowledged that some fabrics were produced from the high-quality cotton produced locally in Eceabat from the Ottoman Period to recent times. (Personal communication with C. Yanar and modern settlers in Eceabat). The industrial production of textile, by workers of different ethnic identities, as mentioned on Linear B tablets, has not been seen in this settlement.

What was the economic potential of the weaving in the Late Bronze Age? Only small numbers of the weaving tools were found inside and the front yard of the megaron buildings and near to the Bronze Age fortification walls indicating that the weaving was a local production to provide material for the needs of the local people.

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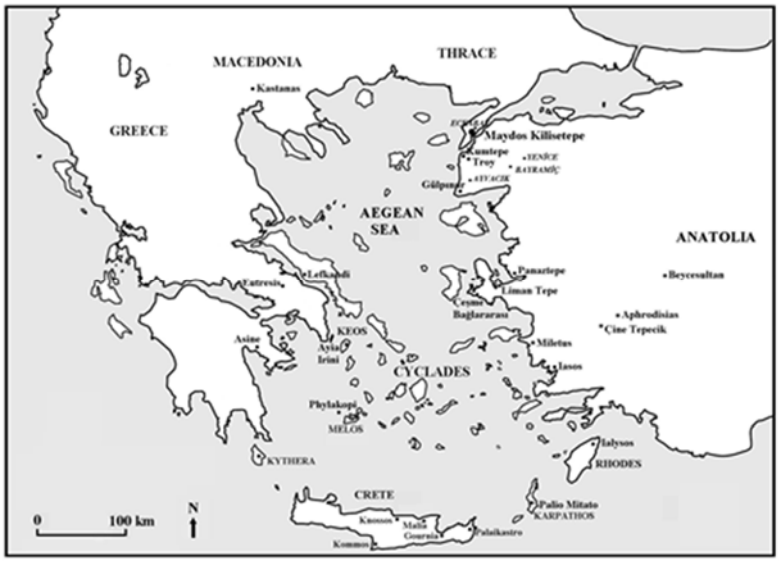

Figure 1. Map showing the settlements stated in the text (Drawing: D. Yılmaz).

Figure 2. A general view of the mound.

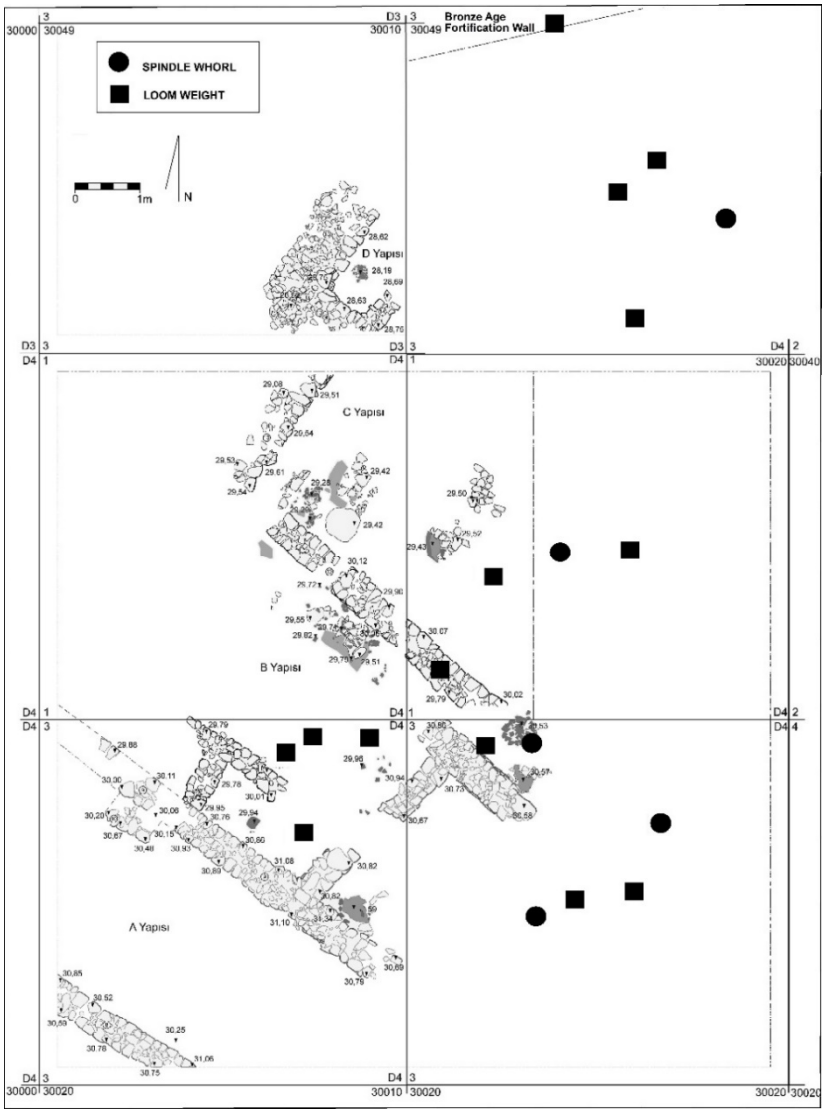

Figure 3. Findspots of the textile tools in the LBA settlement at Maydos Kilisetepe (Preparing: D. Yılmaz).

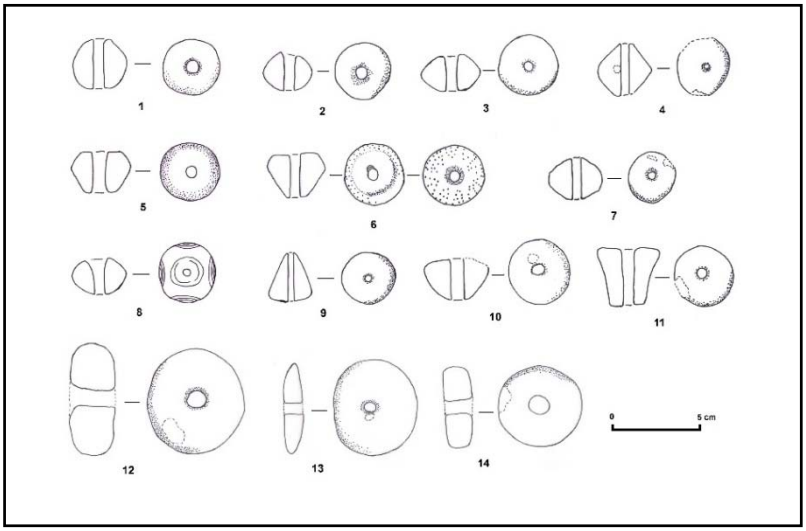

Figure 4. Drawings of the spindle whorls.

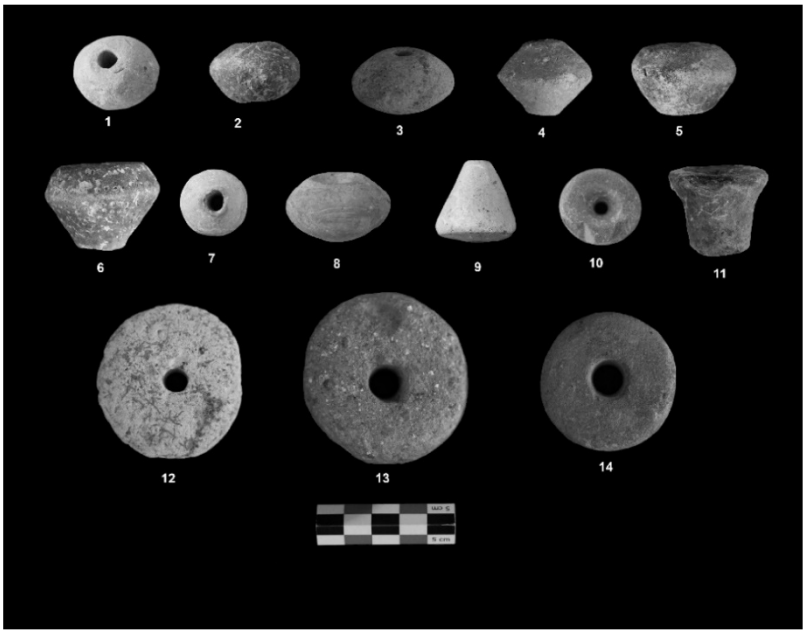

Figure 5. Pictures of the spindle whorls.

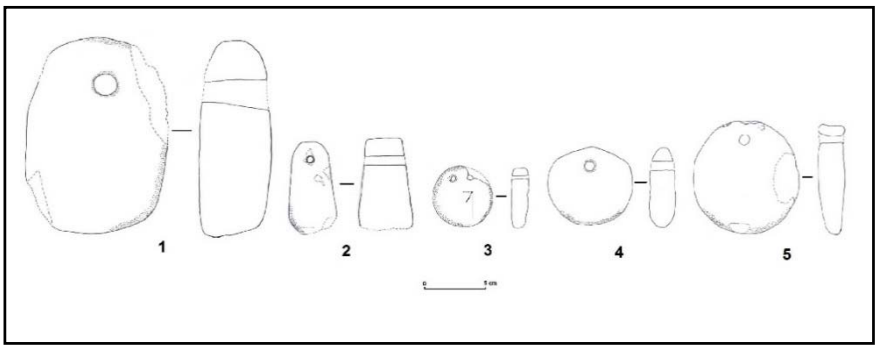

Figure 6. Drawings of the loom weights.

Figure 7. Pictures of the loom weights.

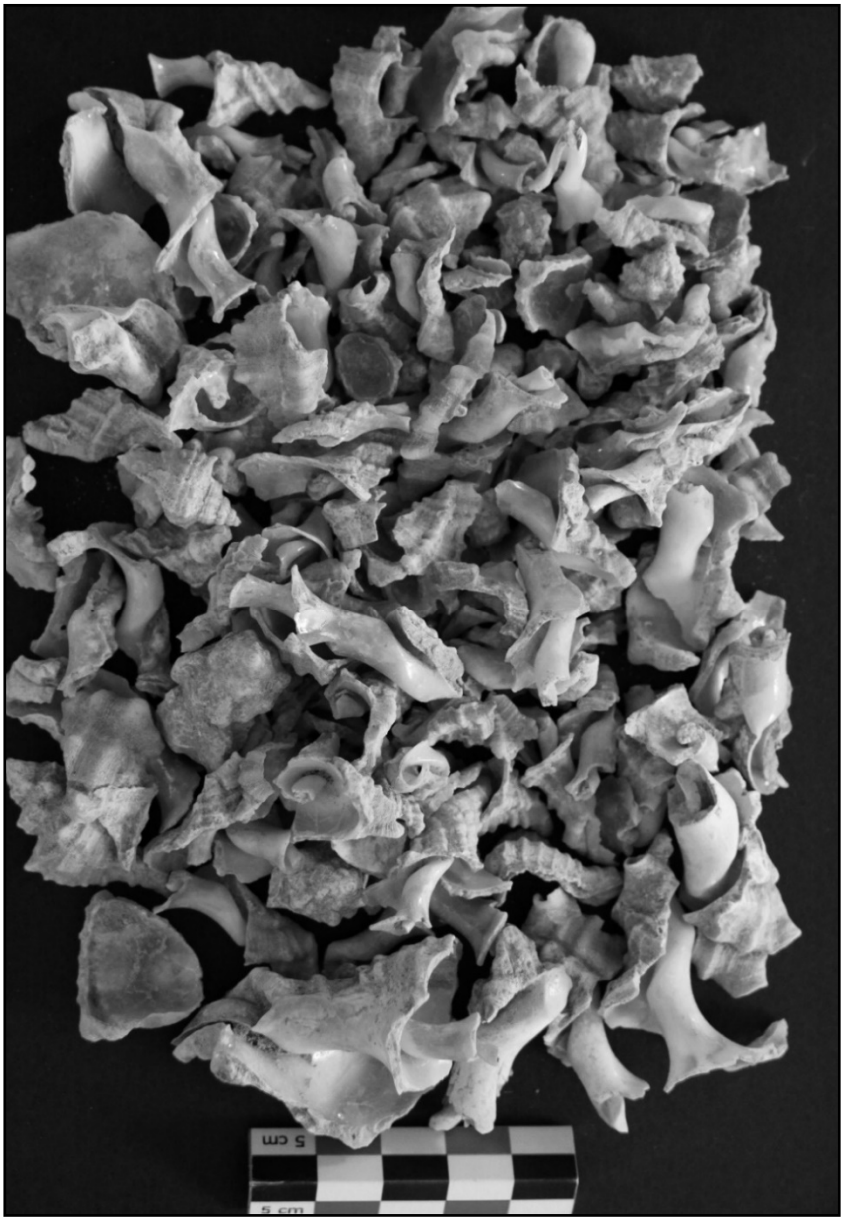

Figure 8. Murex snails.