Laura B. Mazow

A Weaving Sword at Miletus?
Combat or Weaving Sword and the Complexities of Gender Construction

Abstract
A sword from a Mycenaean-style chamber tomb at Miletus in Turkey was described as being of the Hittite type, but it is dissimilar to traditional combat swords in having a tang at both ends. A sword with a tanged tip is ineffective as a weapon as the tip could easily break off. A better comparison is found in the weaving swords from Iron Age European contexts. When used as a weaving sword, the blade functions to beat in the warp. This paper considers the possibility that the Miletus sword is a weaving sword, reviews ethnographic, ethnohistoric and literary evidence for weaving swords in the ancient east Mediterranean world, and discusses the difficulty in recognising weaving swords in the archaeological record.

Introduction
A collection of four swords from a necropolis near Miletus in Turkey was published by Niemeier (1998; 1999) (fig. 1). He identified three of them as Near Eastern in style, specifically of Hittite origin, and the fourth as an Aegean sword (1998, 39; 1999, 153-154). One of the Hittite swords is unusual. Instead of tapering to a point as is the more common form seen in the complete example, the blade tip appears pinched or constricted in profile, giving the appearance of a tanged tip. Presumably the unusual tip was assumed to be an artefact of preservation, but its rounded edges and interrupted blade-to-tip profile in comparison to the complete example suggest that the tanged tip was a reworking of the original sword form. The tanged-tip blade shape, however, is similar to tanged-tip weaving swords that have been found in graves in northern and central Europe (e. g. Hoffman 1964; Harrington 2008) (fig. 2). While acknowledging the chronological, geographical and cultural divide between Bronze-Age Turkey and Iron-Age Europe, the similarities in blade shape are striking enough that the possibility that the Miletus sword is a weaving sword should be considered.

No Bronze- or Iron-Age weaving sword has yet been identified in the archaeological record of the eastern Mediterranean, but most loom technologies would have necessitated a tool for beating together the weft threads. Cross-cultural studies document different types of beating tools – including some which are distinctly sword-shaped – and instances where weapon swords were recycled as weaving swords (McGregor 1985, 188; Harrington 2007; 2008, 29-51). That the Greek word *spáthē* (σπάθη) and the Latin loanword *spatha*, meaning blade, described both a combat sword and a weaving tool (e. g. Theophrastus, *Characters* 25.4; Parthenius, *Love Stories* 24; Pollux, *Onom.* 10.126; Seneca, *Ep.* 90.20) suggests that a sword-like object could be construed in different contexts. With this in mind, could there be archaeological evidence of weaving swords that has been overlooked?

That weaving and martial contexts are typically ascribed to different sexes may compound the difficulty in recognising weaving swords in the archaeological record. Burials are often assigned to gender based on associated grave goods and not on skeletal traits (Weglian 2001; Harrington 2007; 2008; McLeod 2011; Harrell 2014). Thus, a burial is identified as 'male' when a sword is found and 'female' when textile equipment or jewellery is present (eg. Rehak 1998, 230–231; Whitley 2002; Papazoglou-Manioudaki 2015, 321). Where swords have been found in graves with

Fig. 1. The four Miletus swords. The top sword is of Aegean type; the three others are of Hittite type with similar rod-tanged butts. Grips around the rod tangs are preserved on two of the examples. The tanged-tipped sword is the second from the bottom. Note the corrosive flaking and discoloration at the point of constriction (Compilation of individual photographs provided by and printed with permission of Antikensammlung Staatliche Museen zu Berlin, Preussischer Kulturbesitz).

positively identified females, the deceased have been described as 'warrior women' or the burial complex reinterpreted so as to disassociate biological sex from gender attributes (Rehak 1998, 230, n. 31; Doucette 2001; Harrington 2008, 29–30; Harrell 2014; Doumet-Serhal 2014, 32).

The identification of the Miletus sword as a weaving sword enables us to consider the possibility of weaving swords among the textile tools in use in the Bronze and Iron Age eastern Mediterranean world. Furthermore, acknowledging that some 'swords' were used as weaving tools suggests a need to be cautious when identifying biological sex based on our gendered conceptions of grave goods and that we may need to revisit some of our previous assessments of gender identities.

A Mycenaean-style necropolis at Miletus

A large necropolis of Mycenaean-style chamber tombs was excavated by a German team in the early part of the 20th century (Wiegand 1908, 3–9; Fimmen 1924, 15–16, 56, 105; Schachermeyr 1935, 100). The tombs cut into the Degirmentepe hillside, approximately 1.5 km southwest of the main settlement at Miletus and are generally associated with that site. The artefacts were brought to Berlin but presumed lost during World War II (Mee 1978, 133; Ersoy 1988, 81, n. 197). Some of the objects later resurfaced in the Antikenmuseum and the Pergamon Museum storerooms (Niemeier and Niemeier 1997, 191; Niemeier 1998, 36, n. 29).

The tombs are not fully published but Niemeier (1998, 36–37) included copies of an original plan and section drawing of tomb D 33 and a photograph of some of the finds. An additional photograph is published in the Antikenmuseum catalogue (Heilmeyer 1988, 24–25, obj. nos. 1–16) and a few original plans, drawings, and photographs appear as part of the Excavations in Miletus website (http://www.ruhr-uni-bochum.de/milet/in/nekropol.htm).

Artefact description

The description of the tanged-tip sword is based on the photographs (Heilmeyer 1988, 24–25, obj. nos. 1–16; Niemeier & Niemeier 1997, 204, fig. 2; Niemeier 1998, 37, photo 12; 1999, 15.c; 2003, 106, fig. 6) that display an assortment of objects from the tombs, including four swords. In most respects, the tanged-tip sword is similar to a complete sword also depicted. The two are comparable in size, measuring approximately 50 cm in length, with ribbing down the centre of the blade. An incomplete sword is also of similar type. These three swords have been identified as 'Hittite' in style due to the rod-like tang that extends from the base of the blade, which is considered to be characteristic of Near-Eastern swords (Sandars 1963, 141). Niemeier (1998, 39; 1999, 153-154) compared the swords to examples from Tell Atchana/Alalakh, Ras Shamra/Ugarit, Tell es-Sa'idiyeh and Egypt. These parallels, however, focus on the butt end of the sword – the rod-tang, hilt and grip – but ignore the distinction that is evident in the tanged tip.

The abnormality of the tanged tip most likely has been viewed as an artefact of post-depositional corrosion, a suggestion supported by the discoloration at the point of constriction (see figs 3 and 4). However, although we lack a detailed analysis of the original burial context, bronze corrosion rates are generally very low, especially in relatively dry environments (Scott 2002, 35-37). Furthermore, studies of bronze objects in different burial contexts have concluded that the original object shape is likely to be preserved, even in cases of advanced corrosive deterioration (Scott 2002, 39). The flaking that can be seen on the surface of the Miletus sword is typical of corrosion factors, but the constriction along both blade edges is not consistent with corrosive deterioration (pers. comm. S. Grieve, Director of Conservation, East Carolina University,

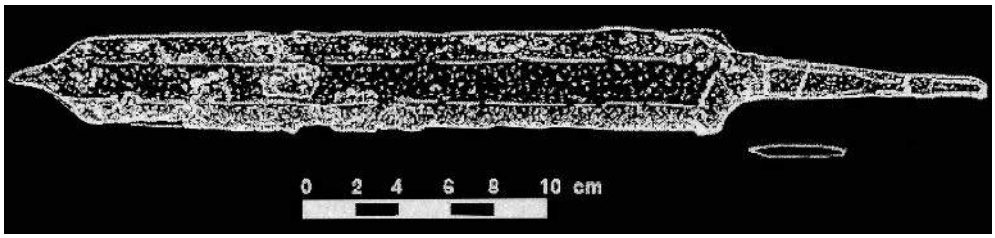

Fig. 2. An Anglo-Saxon weaving sword with tanged tip, from Schretzheim, 6th century AD (After Harrington 2008, fig. 6).

1 December 2015). Thus the constricted shape is not likely to have resulted from corrosion. This leaves open the possibility that the unusual tip stemmed from tool use or manufacture.

Although tanged-tip combat swords are uncommon, a thin tip that is sometimes described as a 'tang' is found on the Carp's Tongue Sword (Henderson 2008, 69; Cunliffe 2013, 271; Brandherm & Moskal-del Hoyo 2014; Clarke 2014, 197-198). Common to Western Europe during the 9th to 7th centuries BC, the Carp's Tongue is known for its elongated, narrow tip that can comprise up to one third of the blade length and seems to have been intended for thrusting – thus combining in one weapon the attributes of both a slashing and a thrusting sword. The elongated tip of the Carp's Tongue Sword, however, is distinctly different from the 'tang' on the Miletus example (fig. 5). In the former, the elongated tip is fashioned through multiple blade angle changes that were achieved through the manufacturing process (Brandherm & Moskal-del Hoyo 2014). The tip of the Miletus sword, however, follows a single blade-to-tip angle as can be seen in the complete example from Miletus but with the dual-sided edge constriction interrupting – but not changing – the tip's angled profile (figs 3 and 4). If it can be assumed that these two Miletus swords were originally of similar type, as suggested by Niemeier (1998, 39; 1999, 153-154), then the constriction and tanged tip reflect a reworking of the blade tip.

Artefact context

The Mycenaean-style chamber tombs from which these objects derive were used for multiple burials; the original drawings show some clustering of artefacts (Forbeck 2002; Benzi 2005, 23 n. 47) but it is not clear if the objects presented together in the photographs derive from one tomb or reflect finds from different locations. A few swords are visible in the drawing of tomb D33 (Niemeier 1998, 36 photo 11) but it is not possible to identify which illustration is of which sword. Currently, there is no clear context for the tang-tipped sword that can provide information about its function. What can be deduced is that it was found in a Mycenaean-style chamber tomb that has been dated by the

Fig. 3. Views of both sides of the tanged-tip sword (Compilation of individual photographs provided by and printed with permission of Antikensammlung Staatliche Museen zu Berlin, Preussischer Kulturbesitz).

associated pottery to the Late Bronze Age (Mountjoy 2004, 199-200).

Non-functional swords

The tanged tip is an unusual feature for a sword-like weapon: the narrowness of the blade at the base of the tip, which then appears to bulge outward, creates a weak point that could easily break upon impact at the blade tip (Mödlinger 2011, 164). This blade-to-tip shape is different than the 'tongue' of the Carp's Tongue swords where the manufacture of the elongated tip through blade-angle changes creates an even transition and not one weak point. Swords contemporary with the tanged-tip Miletus sword, such as the Aegean type F found with it, have relatively parallel cutting edges and broadly angled tips, which make them effective slashing and penetrating weapons (Molloy 2011). The elongated tip of the Carp's Tongue swords adds a thrusting attribute. The constricted tanged tip of the Miletus sword would be ineffective for slashing or thrusting.

Not all swords, however, were crafted for battle. The heavy ornamentation, including decorated blades and inlaid and gold covered hilts, and the often weak connection between hilt and blade, suggest that some swords were designed more for appearance than their ability to maim (Sandars 1963; Kilian-Dirlmeier 1990; Driessen 1999, Georganas 2010, 306; Molloy 2010, 412; 2013, 62-63). Miniature swords also evidence a symbolic function that did not require every example to be a functional weapon (Whittaker 2001; Molloy 2013). The Miletus sword in question, however, which lacks any embellishment and is full size, does not contain elements characteristic of purely symbolic weaponry.

***Spatha* as a weaving sword**

Literary evidence for a sword-shaped weaving tool comes from the Greek word *spáthē* (σπάθη; in Latin, *spatha*), meaning 'broad blade'. Its use-context includes, among other things, both combat and weaving activities and thus is similar to the Arabic *saif* (also *sef*, *seyf*) meaning 'sword' (Crowfoot 1941, 150-151). The verbal form *spathān* is used in weaving contexts to mean 'hit weft home, weave' (Liddell & Scott 1940). Although the Greek word *krekein* carries a similar meaning and is more commonly found in the literature on weaving, *krekein* is associated specifically with the *kerkis* – the small pin beater (Landercy 1933; Crowfoot

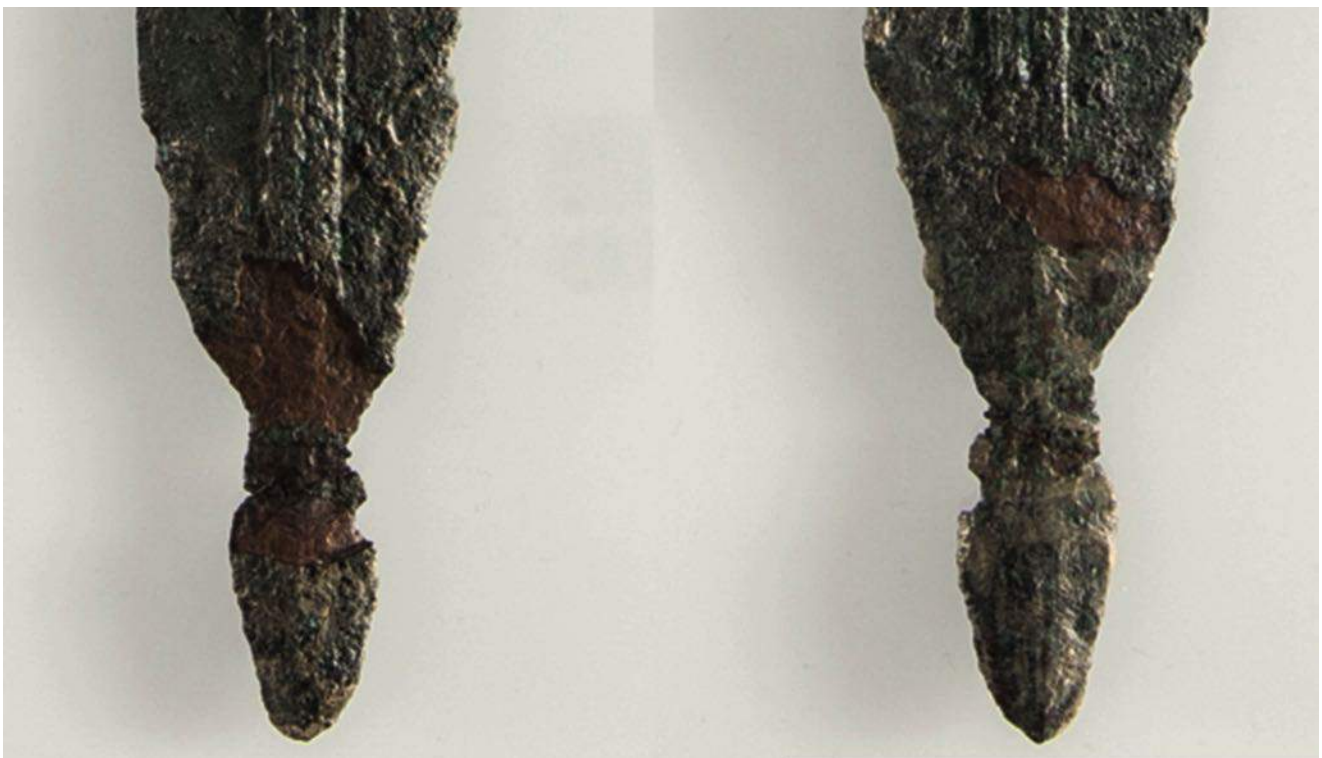

Fig. 4. Close-up of the tanged tip, photographs of both sides. Note the corrosive flaking that is typical of bronze corrosion but is distinct from the indenture factors that contributed to the tanged-tip shape (Compilation of individual photographs provided by and printed with permission of Antikensammlung Staatliche Museen zu Berlin, Preussischer Kulturbesitz).

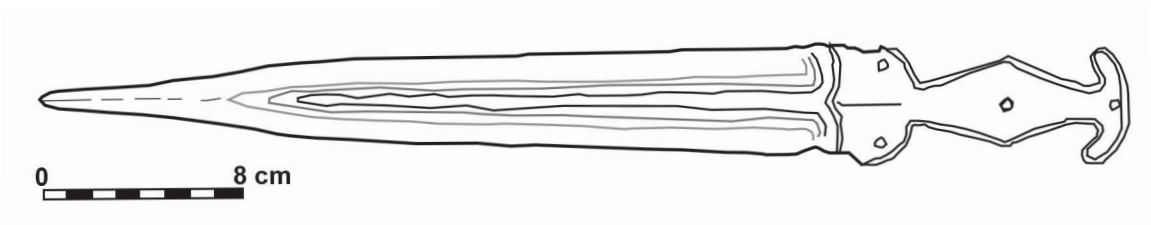

Fig. 5. Example of a Carp's Tongue Sword, from Veii, Vaccareccia, Tomb XVIII (After Hencken 1956, fig. 14B).

1936/37, 44-46). Literary references suggest that both *spáthē* and *kerkis* were used with the warp-weighted loom, but that Aristotle distinguished between them – *kerkisis* (use of the pin beater) and *spathēsis* (use of the sword) – may reflect that the two tools were not functionally interchangeable (Edmunds 2012). It has been suggested that *spathē*, then, refers to the larger weaving sword (Barber 1991, 274, 280).

Weaving swords of all shapes and sizes

A weaving sword is a long, flat, blade-shaped tool that compacts the weave by forcing together new lines of weft against the already woven edge. Referred to as 'beating in', weaving swords are also referred to as 'beaters' or 'battens'. These terms, however, cover a wide range of variously sized and shaped objects – such as pin beaters and combs, as well as sword-and spear-shaped implements – that are associated with different types of looms, size of textile being woven, and the nature of the weaving. The weaving sword is the longest of the beating tools (Wild 1970, 66-67; McGregor 1985, 188). Its size, ranging from 25 to 75 cm in length, enables the weaver with one movement to beat in a weft row spanning a wide width of weave. The long surface enables contact with a large number of threads.

Cross-culturally, in both the ethnographic and archaeological records, beaters are usually of wood or bone but can also be made of metal (McGregor 1985, 188; Broudy 1993; Harrington 2007; 2008). A heavy beater has certain advantages. The heavier the beater, the more force it can apply. A heavy beater would also rest more securely in the shed than a lighter one (Holmqvist 2013, 60). In experimental work, Andersson Strand demonstrated that metal sword beaters functioned more efficiently than wooden ones in the production of coarse wool fabrics (as cited in Olofsson 2015, 34). Resource limitations, however, probably impacted material availability. Furthermore, the disadvantage of a heavy beater is precisely that it is heavy – a problem that would be particularly acute when working on a warp-weighted loom where the direction of force is upward.

Weaving swords played a role in the main loom types that were in use in the eastern Mediterranean: horizontal ground, vertical two-beam and warp-weighted (Crowfoot 1936/37, 37, fig. 1). The weaving sword associated with the horizontal ground loom is more widely recognised (fig. 6). It survives in examples of Bedouin ground looms that have enabled researchers to recognise its reflection in Egyptian representations (e. g. Broudy 1993, 39 fig. 3.1). In the horizontal ground loom, the weaving sword is introduced to beat in the lines of weft thread and/or placed as a semi-permanent fixture between the heddle rod and the finished

Fig. 6. Using a weaving sword with the horizontal ground loom, in Bilbas, Egypt, in 1989 (Image: courtesy of Joy Totah Hilden).

weave (Crowfoot 1936/37, 37-39; Weir 1970, 18-23; Vogel 1989, 81, bottom image; Hilden 2010). In the latter placement, the weaving sword performs additional functions: in a flattened position, it beats in the weft; in a vertical position, it provides firm backing against which smaller groups of weft threads could be manipulated with a pin beater or beating hook. "Flattening or raising the weaving sword on end helps separate the warp threads when shifting from shed to counter shed and enlarges the opening – functions that are particularly helpful in looms with a fixed heddle" (Weir 1970, 18, 20–21). Additionally, keeping the previous shed propped open with the beater enables easy repair of mistakes (Holmqvist 2013, 60).

Less well-known is the weaving sword in use with the warp-weighted loom. No examples of the warp-weighted loom survive in the eastern Mediterranean as it was mostly replaced in that region by the vertical two-beam loom in the Roman or Byzantine period (Crowfoot 1936/37, 40; 1941, 148-149; Wild 2003, 143). Ethnographic examples, however, can be found in northern Europe that are similar enough to eastern Mediterranean iconography to be useful for comparative study (Hoffman 1964; Broudy 1993, 28). In Scandinavia, where there is an extensive history of warp-weighted looms in use until relatively recently, it has been possible to study the long-term association of weaving swords with that loom type, an association that dates to the Iron Age as reflected in the co-interment of weaving swords and loom weights (Hoffman 1964, 279–282, 379 n. 4).

The weaving sword in use with the warp-weighted loom differs in blade-shape in comparison to that with the horizontal ground loom (fig. 7). Ethno-historical sources describe sword- and spear-shaped weaving beaters with a differentiated handle or grip at one end and sometimes a tongue-like projection or tang at the tip (Hoffman 1964, 279; Harrington 2008, 29-51). Within this, a range of shapes and sizes is documented, with differences related to chronological or regional variation.

One of the key differences in shape of the weaving sword for the warp-weighted loom is this differentiation between blade and handle. Although a handled-tool could be used on a horizontal loom (e. g. Crowfoot 1936/1937, 37 fig. 1c; Broudy 1993: 39 fig. 3.1), most examples document a flat-sided, broad board or wooden plank that was gripped at both ends and pulled towards the edge of the weave (e. g. Vogel 1989, 81; Broudy 1993, 103 fig. 6.1). Images of vertical looms (e. g. Broudy 1993, 46 fig. 3.11) demonstrate a similar technique of seizing the beater with both hands along the blade length and pushing down towards the weave's edge. Using this technique with the warp-weighted loom, however, would require the beater to be lifted over-head and thrust upward towards the weave edge. This action would decrease the force that could be brought to bear on the weave and thus be an ineffective method for beating-in. Ethnographic observations of the warp-weighted loom depict a beating-in technique where the weaver stands to one side of the loom and grasps the handled-end of the beater with both hands (Hoffman 1964, 47 fig. 14). A similar position is suggested by the placement of the iron- and wood-handled weaving sword illustrated in Hoffman (1964, 35 fig. 5); by the size of an Icelandic whalebone beater whose handle is described as "sufficiently long for it to be held with both hands" (Hoffman 1964, 118); and further documented in experimental work (Hoffman 1964, 135). An alternative use-position is proposed by Harrington (2008, 46-47), who suggests that the well-balanced weight between handle and blade reflects an effective single-handed operation, a position demonstrated in experimental work by Grömer (fig. 8) and illustrated in Olofsson and Nosch (2015, 122 fig. 4.3.6). Both these techniques imply a handled tool.

A second difference in blade shape in comparison to the weaving sword in use with the horizontal ground

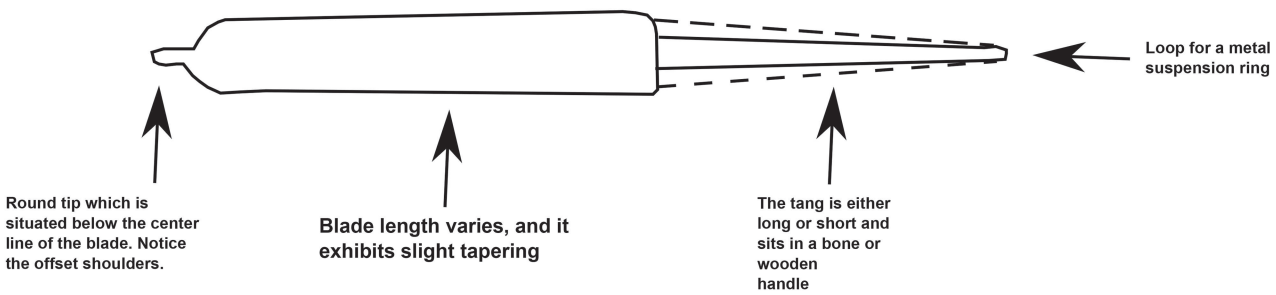

Fig. 7. The different parts of a weaving sword (After Harrington 2007, 341).

loom is the addition of a 'tongue-like projection' at the tip end on some weaving swords that are associated with warp-weighted loom technology (Hoffman 1964, 279 fig. 112; Wild & Walton Rogers 2003, 17 fig. 1.7c; Harrington 2007; 2008, 29-51). The function of this extended tip is not known, but Harrington (2007, 341-342; see also 2008, 47-48) proposed possible explanations for its development:

First, a specific tip length may have been a means of weaving through coarse warp threads, to produce manually the required shed for a simple plain weave or a simple twill. Second, it may have been a means of rapidly producing short widths of cloth using a manually picked shed, reducing the amount of time required to set up the loom. Once the threads had been picked using the elongated tip, the blade could be rotated through 90° to open up the warp threads for the insertion of the weft. Finally, a specific tip length may have been a means of introducing an additional thread pattern into the cloth, without changing the basic shed pattern.

In the horizontal ground loom, the weaving sword performs a secondary function as shed manipulator (above), but this would not have been useful with the warp-weighted loom where the warp tension is provided by the hanging weights on either side of a fixed shed bar and the shed is changed by moving the heddle bar. In the warp-weighted loom, the weaving sword is inserted into the warp on demand (Munro 2003, 192). The need to continually re-insert is implied in representations of the warp-weighted loom where the sword is depicted to the side in comparison with other loom types where it is held in place by warp thread tension (Crowfoot 1936/1937, 37 fig. 1; Hoffman 1964, 116-117, 138, 147 figs. 53, 54, 60, 66). A tanged tip would enable easy darning between the warp threads during repeated insertions, especially with woollen threads that have a tendency to cling to each other.

Finally, Harrington (2007, 341-342; see also 2008, 47-48) observed that the alignment of the extended tip, often below the centre line of the blade, and the offset shoulders on these swords provides a good finger grip that enhances control of a long, heavy blade: if sword-shaped beaters were effectively held with one hand on the handle, then the second hand could be used for control to prevent the heavy sword from swinging out.

The relationship between pin and sword

In the Bronze and Iron Ages, the pin beater is the better-known beating tool; more are found in archaeological contexts than other beater types (Wild 1970, 66; McGregor 1985, 188). It is also the only beating tool documented thus far in the archaeological record of the eastern Mediterranean in association with warp-weighted loom technology (Smith 2001; 2013, 166-168). The characteristics of pin beaters – smaller size, easier manufacture, and production from raw materials such as bone that preserve better in the archaeological record – probably contribute to their larger recorded numbers than weaving swords (McGregor 1985, 188). Pin beaters range in size from 8 to 23 cm with a sharpened or pointed tip (fig. 9). They are multi-functional tools but also developed specific functions that

Fig. 8. Experiment using a weaving sword with a warp-weighted loom. Note the position of the right hand with fingers balancing the tip (Image: courtesy of Karina Grömer, Natural History Museum Vienna, Prehistoric Department).

Fig. 9. Bone pin beater, from Enkomi, Cyprus, Late Bronze Age (After Smith 2001, 84, fig. 2, courtesy of Joanna Smith).

depended on loom type, material and weave complexity (Crowfoot 1936/1937, 44; Smith 2001; Edmunds 2012). Among other uses, pin beaters beat in the weft and are particularly useful when working a small area: limited sections of warp can be individually lifted to create temporary sheds (Barber 1991, 360 n.3; Smith 2001, 88; Edmunds 2012; 2013, 165-168). The pin beater is light and easy to lift over-head but it lacks the heavy weight necessary to provide sufficient impact to create a tight weave.

The working relationship between pin and sword beater – whether they were used singly or in concert – is not always clear and points to regional, technological and chronological differences. Ethno-historic descriptions suggest that the two tools were used together, performing complementary tasks (Crowfoot 1936/37, 44-45; Edmunds 2012), but modern ethnographic examples of weaving on the warp-weighted loom do not demonstrate this: pin beaters were no longer in use in 19th and 20th century warp-weighted loom technologies. Beating in was accomplished with weaving sword only (Hoffman 1964, 320-321). These developments suggest a shift in weaving styles and changes in the types of cloth woven. Where weaving was primarily "reduced to the specialized function of weaving coarse blankets", the smaller pin beater was not necessary (Hoffman 1964, 320-321); its functions could be taken up by the heavy weaving sword which was particularly useful for compacting relatively thick threads to produce coarse- to medium-quality cloth (Harrington 2007, 342; 2008, 48). Alternatively, "[W]here the pin beater occurs as a very important tool, it may be safe to assume that fairly close-set fabrics were woven" (Hoffman 1964, 320-321). This latter scenario fits the archaeological record of the eastern Mediterranean, where many more pin beaters than weaving swords are preserved.

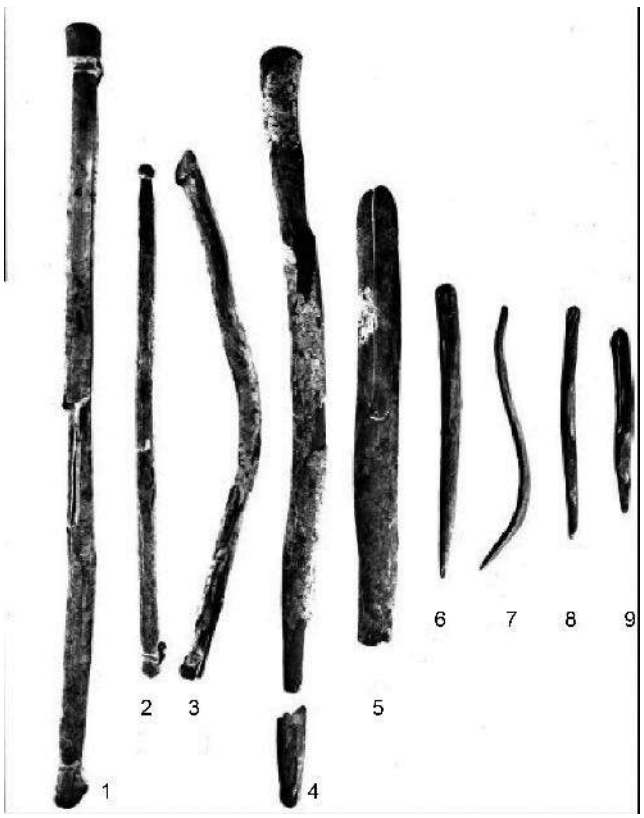

Fig. 10. Wooden pieces of a horizontal ground loom, from Nahal Mishmar, Israel, Chalcolithic period. Number 5 is a weaving sword (After Bar-Adon 1980, Ill. 55, with permission of the Israel Exploration Society).

In Late Bronze and Iron Age eastern Mediterranean and Levantine contexts, the pin beater appears concurrent with a decrease in the size and weight of loomweights and the introduction of clay spools (Smith 2001, 88; 2013, 165). Smith suggests that these changes reflect the introduction of tapestry weaving, where individual sections are worked on separately so that weaving progresses unevenly across the width of the shed. Thus, the long weaving sword would be used only intermittently to alleviate buckling or ribbing caused by uneven tension across the width of the weave. According to Barber (1991, 360 n. 3), in true tapestry "the large sword-beater would be useless and the small pin-beater would be the weapon of choice for hitting home the short stretches of different coloured wefts". In contexts of simple, coarse weaves, however, the tang-tipped weaving sword, unique to beaters in use with the warp-weighted loom, may have developed to better suit the needs of that loom type (Harrington 2008). Although some of Late Bronze and Iron Age weaving may have focused on producing complex patterns, when coarser weaves were desired that had no requirements of specialised sheds, a weaving sword with tanged tip could have been used.

Problems in identifying weaving swords in the archaeological record

The shape of the weaving sword should make it an easily-identifiable piece of loom technology (Hurcombe 2007, 133; Harrington 2008), yet weaving swords have not been found in the archaeological record of the eastern Mediterranean. It is possible that the absence of weaving swords reflects that they were not common, however the ethnographic and literary data strongly suggests they were used in conjunction with warp-weighted loom technology and were part of the weavers' toolkit. Their absence from the archaeological record, then, must be due to other causes.

Most weaving swords were probably made of organic

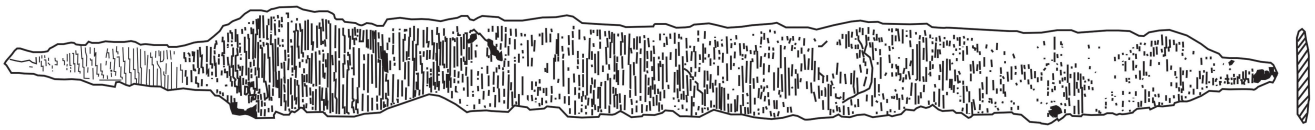

Fig. 11. Weaving sword made from reworked combat sword, from Finglesham, Kent, Anglo-Saxon (After Chadwick 1958, fig. 7e).

materials that do not preserve well (McGregor 1985, 188; Gleba & Mannering 2012, 16) and furthermore may not be easily recognised as weaving tools (Hurcombe 2007, 133). Examples from the Cave of the Treasure, Gurob and Amarna are exceptions (fig. 10), although even these have not been securely identified (Petrie 1917, 53-54 no. 136; Peet & Woolley 1923, 69; Bar-Adon 1980, Ill. 55.5). The fact that more metal than wood or bone weaving swords have generally been identified is probably an artefact of the better preservation of the former.

A compounding problem is terminological inconsistency that stems from lack of knowledge of specific technologies and tools used (Hurcombe 2007, 133; Michel & Nosch 2010, xiii–xiv). While there were distinct Greek terms for the pin beater (*kerkis*) and the weaving sword (*spathē*), these can be confused in translation. Preserved classical texts also suggest terminological confusion in textual transmission, most likely due to a lack of technical knowledge that is compounded by changes in technologies over time (Mazow 2014). There may also have been an editorial effort to update ancient texts with technologies that were more familiar, leaving us with the impression of more modern instruments in association with ancient scenes and images (Holmqvist 2013).

Re-use, recycle, repurpose

A further issue is the possible misidentification of metal weaving swords as combat swords (Harrington 2008). Although some weaving swords have a tanged tip that suggest they were purpose-made objects, others share all the characteristics of a weapon sword (McGregor 1985, 188; Harrington 2007; 2008). Cross-cultural examples demonstrate a strong resemblance between metal weaving and weapon swords, and document the re-use of weapon swords as weaving swords by blunting or grinding down the sharp edges or re-working the blade tip (Chadwick 1958, 34; Gilmour 1984; Harrington 2007, 337-338, 346; Wild 2012, 453). Chadwick (1958, 34 n. 64) describes a weapon sword that was "clearly" ground down and blunted to form a weaving sword, and a second example of a pattern-welded sword where the tip was produced post-forging by folding over a metal strip (fig. 11). Harrington (2007, 337-338; 346) describes examples of converted weaving swords, one where the weapon's sharp edges were rounded and an "elongated finger grip" was created at the blade tip, and Wild (2012, 453) notes evidence from Anglo-Saxon England of "modified iron swords," which were probably used as weaving swords. Harrington (2007) observed such close similarities between weaving and weapon swords that she postulated a common production system and manufacturing location for some of them.

The use of the term *spáthē*/*spatha* to describe both a weaving tool and a weapon makes possible the idea that these artefacts could move between contexts, perhaps because function was determined in post-production use or that recycled tools could be repurposed. Evidence that Bronze Age swords may have been mass-produced suggests that some aspects of function were defined only in post-production processing (Molloy 2011, 77-78). Examples of swords where the edges have not been sharpened, such as a hoard of metal objects from Ugarit (Schaeffer 1956, 256) or a sword cache found in Arkalochori cave on Crete (Molloy 2013, 62), swords with both edges rounded such as one from Sharif Khan (Curtis 2013, 37 pl. VIII, 97), swords described as "unserviceable" (Molloy 2010, 412), and swords lacking evidence of combat use (Molloy 2010) may reflect alternative functions for these objects.

Grave goods and gender identification

Most of the recovered swords are found as grave goods in burials that have been identified as male. Sexing of burials, however, is often determined on a gendered assessment of interred objects (Harrington 2007, 336-337; McLeod 2011; Harrell 2014; Papazoglou-Manioudaki 2015, 321). In a number of studies, osteological analyses have overturned initial artefact-based sex identifications (e. g. Angel 1973; Disi et al. 1983; McLeod 2011). More often than not, however, where positively identified females have been found in association with swords, they have been interpreted or re-interpreted as knives, or decoded for their symbolic or material value (e. g. Rehak 1998; Harrington 2008, 29). Furthermore, in multiple burials that include individuals of both sexes, swords are assumed

to belong to the male(s) (Rehak 1998, 230 n. 31; Gleba 2008, 158-159, 173; McLeod 2011, 343; Harrell 2014; Doumet-Serhal 2014, 38).

I am not suggesting that all swords should now be considered weaving swords, that the combination of sword, dagger and spear as a grave assemblage should not continue to reflect a warrior status or that women were never buried with combat swords. That there is a complicated relationship between presence/absence of swords and social identity reflection, however, is demonstrated by cemeteries where burials include unused swords, others with no sword yet the associated human bones display evidence of combat, and burials of juveniles with swords (Crass 2001; Whitley 2002; Molloy 2010; 2013; Focke 2013; Doumet-Serhal 2014, 29; Paradimitriou et al. 2015, 172). Depictions on seals, frescoes, wall engravings and ceramic vessels demonstrate swords in combat contexts but these figures are not restricted to males; seals and frescos of women brandishing swords, wielding bows and wearing armour reflect a combat role for females (see Harrell 2014, 101 for references: Kopaka 1999). However, when osteological analysis supports the identification of sex, a pattern of male warrior burials – a funerary kit including sword and spear – is positively supported as is a positive correlation of weaving equipment with females (Whitley 1996; Gleba 2008, 173).

Weaving swords that have been found in female burials fit a pattern of weaving tools associated with women but it is not a simple association (Harrington 2008). In the Anglo-Saxon sample, weaving swords and spindle whorls did not correlate with each other, possibly indicating that weaving and spinning were separate activities performed by different groups of women (Harrington 2007, 344). Alternatively, in the Scandinavian Iron Age graves there appeared to be a positive association between weaving swords and loomweights (Hoffman 1964, 279). Hoffman (1964, 282-282) also cited a study of graves in Norway where weaving swords were found in men's graves. These studies represent the complicated relationship between gender identity and its reflection in material culture.

Conclusion

The tanged-tip Miletus sword resembles the weaving swords found in Iron Age northern European contexts. A shape-based interpretation of this Late Bronze Age sword grounded only on similarities with these examples may be a geographic and chronological stretch, but the ethnographic and ethno-historic evidence supports the conclusion that a sword-shaped tool would have been part of a weaver's tool kit. The use of the word *spáthē*/*spatha* in classical literature for something sword-shaped, whether it be in martial or weaving contexts, recognises a strong similarity in shape between the two objects and possibly even that these sword-shaped tools moved between contexts, as exemplified by the reuse of re-worked combat swords as weaving swords.

The geographical and chronological distances may not be as significant a hindrance as supposed as new scientific methods demonstrate long-reaching trade connections between Europe and the eastern Mediterranean world (e. g. Kaulet et al. 2014). Combat swords tend to be conservative in shape (Kostoglou 2010, 176, 179) and examples such as the Naue II travelled the distance from Europe to the Mediterranean (Kristiansen & Larsson 2005, 128-129, 231-236; Peatfield 2008, 99; Georganas 2010, 306-307; Kostoglou 2010, 176 fig. 9.3; Molloy 2013). Furthermore, the ethnographic and ethno-historical record documents shape consistency in weaving swords and other beater types over a long time-span and great geographic distance (Broudy 1993). Weaving technologies, such as the warp-weighted loom, are also known to have diffused over large geographic areas (Barber 1991, 113; Rahmstorf 2015, 16). Rahmstorf (2015, 16) in particular notes that the early and well-documented trade in textiles likely also supported an exchange of textile tools and transfer of textile knowledge.

A greater discussion of the context in which swords are found might help determine whether a particular sword functioned as a combat or a weaving sword. Unfortunately, edges are rarely preserved on metal swords (Molloy 2010, 414 n. 102), which limits use-wear analysis as a viable option. Furthermore, while archaeological context is usually the best means of identifying tool function, it is not always insightful for metal artefacts that are often found in caches that may reflect their material or symbolic value rather than their use (e. g. Molloy 2013). A similar problem is seen with swords in burials where assumptions of gender and implicit martiality have led researchers to overlook other possible associations.

Although little information can be deduced from the context of the Miletus sword, archaeological and textual evidence documents that Miletus was a textile production centre, with a large established wool textile industry (Gleba & Cutler 2012; Benda-Weber 2013, 174-175, 178). Also an analysis of the loomweight assemblage points to "diversified manufacture of different products" that includes both fine and coarse fabrics (Gleba & Cutler 2012, 118-119). While acknowledging the need to be cautious in arguing analogous

function of objects that appear similar but are distant in time and space, the tanged tip that makes the Miletus sword so distinctive suggests that it was used on a warp-weighted loom for the production of coarse weaves, a scenario that fits well with the evidence for contemporary textile production in the main settlement at the site.

Acknowledgments
I gratefully acknowledge those whose helpful comments improved the quality of the article, in particular J. Ebeling, L. Hitchcock, S. Harrington, S. Harris and a number of anonymous reviewers.

Bibliography

Angel, J. L. (1973) Human skeletons from grave circles at Mycenae. In G. E. Mylonas (ed.), *O Tafikós kúklos B tôn Mukênôn*. Athens: Archaeological Society of Athens, 379-397.

Bar-Adon, P. (1980) *The Cave of the Treasure: The Finds from the Caves in Nahal Mishmar*. Jerusalem: Israel Exploration Society.

Barber. E. J. W. (1991) *Prehistoric Textiles: The Development of Cloth in the Neolithic and Bronze Ages with Special Reference to the Aegean*. Princeton: Princeton University Press.

Benda-Weber, I. (2013) Textile production centres, products and merchants in the Roman province of Asia. In M. Gleba and J. Pásztókai-Szeőke (eds), *Making Textiles in Pre-Roman and Roman Times: People, Places, Identities*. Ancient Textiles Series Vol. 13. Oxford: Oxbow, 171–191.

Benzi, M. (2005) A group of Mycenaean vases and bronzes from Pyli, Kos. In B. Adembri (ed.), *ΑΕΙΜΝΗΣΤΟΣ. Miscellanea di Studi per Mauro Cristofani*. Vol. 1. Firenze: Centro Di della Edifimi, 15–24.

Brandherm, D. and Moskal-del Hoyo, M. (2014) Both sides now: the Carp's Tongue Complex revisited. *The Antiquaries Journal* 94, 1–47.

Broudy, E. (1993) [1979]. *The Book of Looms: A History of the Handloom from Ancient Times to the Present*. Dartmouth: University Press of New England.

Chadwick, S. E. (1958) The Anglo-Saxon Cemetery at Finglesham, Kent: a Reconsideration. *Medieval Archaeology* 2, 1–71.

Clarke, D. L. (2014) *Analytical Archaeology*. New York: Routledge.

Crass, B. A. (2001) Gender and mortuary analysis: what can grave goods really tell us? In B. Arnold and N. L. Wicker (eds), *Gender and the Archaeology of Death*. New York: Altamira, 105–118.

Crowfoot, G. M. (1936/1937) Of the warp-weighted loom. *The Annual of the British School at Athens* 37, 36–47.

Crowfoot, G. M. (1941) The vertical loom in Palestine and Syria. *Palestine Exploration Quarterly* 1941, 141–151.

Cunliffe, B. (2013) *Britain Begins*. Oxford: Oxford University Press.

Curtis, J. (2013) *An Examination of Late Assyrian Metalwork: with Special Reference to Nimrud*. Oxford: Oxbow.

Disi, A. M., Henke, W. and Wahl, J. (1983) Study of the human skeletal remains. *Annual of the Department of Antiquities of Jordan* 27, 514–548.

Doucette, D. L. (2001) Decoding the gender bias: inferences of Atlatls in female mortuary contexts. In B. Arnold and N. L. Wicker (eds), *Gender and the Archaeology of Death*. New York: Altamira, 159–178.

Doumet-Serhal, C. (2014) Mortuary practices in Sidon in the Middle Bronze Age: a reflection on Sidonian society in the second millennium BC. In P. Pfälzner, H. Niehr, E. Pernicka, S. Lange and T. Köster (eds), *Contextualising Grave Inventories in the Ancient Near East*. Wiesbaden: Harrassowitz, 29–38.

Driessen, J. (1999) The archaeology of Aegean warfare. In R. Laffineur (ed.), *POLEMOS. Le contexte guerrier en Égée a l'Âge du Bronze. Actes de la 7è Rencontre égéenne international (Liège, 14–17 avril 1998)*. Aegaeum 19. Liège and Austin: Université de Liège and the Program in Aegean Scripts and Prehistory, University of Texas at Austin, 11–20.

Edmunds, S. T. (2012) Picturing Homeric weaving. In V. Bers, D. Elmer and L. Muellner (eds), *A Virtual Birthday Gift Presented to Gregory Nagy on Turning Seventy by his Students, Colleagues and Friends* [online]. Boston: Harvard University Center for Hellenic Studies. Retrieved 17 July 2014 from World Wide Web: <http://chs.harvard.edu/wa/pageR?tn=ArticleWrapper&bdc=12&mn=4365>

Ersoy, Y. E. (1988) Finds from Menemen/Panaztepe in the Manisa Museum. *The Annual of the British School at Athens* 83, 55–82.

Fimmen, D. (1924) *Die kretisch-mykenische Kultur*, Second edition [online]. Leipzig and Berlin, B. G. Teubner. Retrieved 2 February 2015 from Wold Wide Web: <http://babel.hathitrust.org/cgi/pt?id=wu.89096196209;view=1up;seq=5>

Focke, S. (2013) The development of warfare and society in Mycenaean Greece. In S. O'Brien and D. Boatright (eds), *Warfare and Society in the Ancient Eastern Mediterranean*. BAR International Series 2583. Oxford: Archaeopress, 5–18.

Forbeck, E. (2002) *Gräber des hellenistischen und kaiserzeitlichen Milet*. Leuven: Peeters.

Georganas, I. (2010) Weapons and warfare. In E. H. Cline (ed.), *The Oxford Handbook of the Bronze Age Aegean (ca. 3000–1000 BC)*. Oxford: Oxford University Press, 305–314.

Gilmour, B. (1984) X-radiographs of two objects. In C. Hills, K. Penn and R. Rickett (eds), *The Anglo-Saxon*

Cemetery at Song Hill, North Elmham, part IIII: Catalogue of Inhumations. East Anglian Archaeological Report 21. Norfolk Archaeological Unit, 160–161.
Gleba, M. (2008) *Textile Production in Pre-Roman Italy*. Ancient Textiles Series Vol. 4. Oxford: Oxbow.
Gleba, M. and Cutler, J. (2012) Textile production in Bronze Age Miletus: first observations. In M.-L. Nosch and R. Laffineur (eds), *KOSMOS: Jewellery, Adornment and Textiles in the Aegean Bronze Age*. Aegaeum 33. Leuven: Peeters, 113–120.
Gleba, M. and Mannering, U. (2012) Introduction: textile preservation, analysis and technology. In M. Gleba and U. Mannering (eds), *Textiles and Textile Production in Europe from Prehistory to AD 400*. Ancient Textiles Series, Oxford: Oxbow, 1–26.
Harrell, K. (2014) Man/woman, warrior/maiden: the Lefkandi Toumba female burial reconsidered. In D. Nakassis, J. Gulizio and S. A. James, (eds), *KE-RA-ME-JA: Studies Presented to Cynthia W. Shelmerdine*. Philadelphia: INSTAP Academic Press, 99–104.
Harrington, S. (2007) Stirring women, weapons and weaving: aspects of gender identity and symbols of power in Early Anglo-Saxon England. In S. Hamilton, R. D. Whitehouse and K. I. Wright (eds), *Archaeology and Women: Ancient and Modern Issues*. Walnut Creek: Left Coast Press, 335–352.
Harrington, S. (2008) *Aspects of Gender Identity and Craft Production in the European Migration Period: Iron Weaving Beaters and Associated Textile Making Tools from England, Norway and Alamannia*. BAR International Series, 1797. Oxford: John and Erica Hedges Ltd.
Heilmeyer, W.-D. (1988) *Antikenmuseum Berlin: Die Ausgestellten Werke*. Berlin: Staatliche Museen Preussicher Kulturbesitz.
Hencken, H. (1956) Carp's Tongue Swords in Spain, France and Italy. *Zephyrus* 7(2), 125–178.
Henderson, J. (2008) *The Atlantic Iron Age: Settlement and Identity in the First Millennium BC*. London: Routledge.
Hilden, J. T. (2010) *Bedouin Weaving of Saudi Arabia and its Neighbours*. London: Arabian Publishing.
Hoffman, M. (1964) The warp-weighted loom: studies in the history and technology of an ancient implement. *Studia Norvegica* 14, viii-425.
Holmqvist, V. (2013) The use of craft skills in historical textile research: some examples drawn from a study of Medieval tablet weaving. In H. Hopkins (ed.), *Ancient Textiles, Modern Science*. Oxford: Oxbow, 49–63.
Hurcombe, L. M. (2007) *Archaeological Artefacts as Material Culture*. London: Routledge.
Kaul, F., Varberg, J. and Gratuze, B. (2014) Arkæologisk sensation: Glasperlernes hemmelighed. *Videnskab.dk* 19 October, 2014. http://videnskab.dk/miljo-naturvidenskab/arkaeologisk-sensation-glasperlernes-hemmelighed.
Kilian-Dirlmeier, I. (1990) Remarks on the non-military functions of swords in the Mycenaean Argolid. In R. Hägg and G. C. Nordquist (eds) *Celebrations of Death and Divinity in the Bronze Age Argolid*. Göteborg: Paul Åströms forlag, 157–166.
Kristiansen, K. and Larsson, T. B. (2005) *The Rise of Bronze Age Society: Travels, Transmissions and Transformations*. Cambridge: Cambridge University Press.
Kostoglou, M. (2010) Iron, connectivity and local identities in the Iron Age to Classical Mediterranean. In P. van Dommelen and A. B. Knapp (eds), *Material Connections in the Ancient Mediterranean: Mobility, Materiality and Mediterranean Identities.* London: Routledge, 170–189.
Landercy, M. (1933) La destination de la kerkis dans le tissage en Grèce aux IV siècle. *L'Antiquité Classique* 2, 357–362.
Liddell, H. G. and Scott, R. (1940) *A Greek-English Lexicon*. Revised and augmented throughout by Sir Henry Stuart Jones, with the assistance of Roderick McKenzie [online]. Oxford: Clarendon Press. Retrieved 12 February 2015 from World Wide Web: http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.04.0057%3Aentry%3Dspa%2Fqhsis.
Mazow, L. (2014) The root of the problem: on the relationship between wool processing and lanolin production. *Journal of Mediterranean Archaeology* 27 (1), 33–50.
McGregor, A. (1985) *Bone, Antler, Ivory and Horn: The Technology of Skeletal Materials since the Roman Period*. London: Croom Helm.
McLeod, S. (2011) Warriors and women: the sex ratio of Norse migrants to eastern England up to 900 CE. *Early Medieval Europe* 19 (3), 332–353.
Mee, C. (1978) Aegean trade and settlement in Anatolia in the second millennium B.C. *Anatolian Studies* 28, 121–156.
Michel, C. and Nosch, M.-L. (2010) Textile terminologies. In C. Michel and M.-L. Nosch (eds), *Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC*. Oxford: Oxbow, ix–xix.
Mödlinger, M. (2011) Ritual object or powerful weapon – the usage of Central Europe Bronze Age swords. In M. Uckelmann and M. Mödlinger (eds), *Bronze Age Warfare: Manufacture and Use of Weaponry*. BAR International Series 2255. Oxford: Archaeopress, 153–166.
Molloy, B. (2010) Swords and swordsmanship in the Aegean Bronze Age. *American Journal of Archaeology* 114 (3), 403–428.
Molloy, B. (2011) Use-wear analysis and use-patterns of Bronze Age swords. In M. Uckelmann and M. Mödlinger (eds), *Bronze Age Warfare: Manufacture and Use of Weaponry*. BAR International Series 2255. Oxford: Archaeopress, 67–84.

Molloy, B. (2013) Malice in Wonderland: the role of warfare in 'Minoan' society. In S. O'Brien and D. Boatright (eds), *Warfare and Society in the Ancient Eastern Mediterranean*. BAR International Series 2583. Oxford: Archaeopress, 59–70.

Mountjoy, P. A. (2004) Miletos: A Note. *The Annual of the British School at Athens* 99, 189–200.

Munro, J. H. (2003) Medieval woollens: textiles, textile technology and industrial organisation, c. 800–1500. In D. Jenkins (ed.), *The Cambridge History of Western Textiles*. Vol. I, Cambridge: Cambridge University Press, pp. 181–227.

Niemeier, B. and Niemeier, W.-D. (1997) Milet 1994–1995: Project "Minoisch-Mykenisches bis Protogeometrisches Milet": Zielsetzung und Grabungen auf dem Stadionhügel und am Athenatempel. *Archäologischer Anzeiger* 1997, 189–248.

Niemeier, W.-D. (1998) The Mycenaeans in Western Anatolia and the problem of the origins of the Sea Peoples. In S. Gitin, A. Mazar and E. Stern (eds), *Mediterranean Peoples in Transition*. Jerusalem: Israel Exploration Society, 17–65.

Niemeier, W.-D. (1999) Mycenaeans and Hittites in aar in Western Asia Minor. In R. Laffineur (ed.), *POLEMOS. Le contexte guerrier en Égée a l'Âge du Bronze. Actes de la 7è Rencontre égéenne international (Liège, 14–17 avril 1998)*. Aegaeum 19. Liège: Université de Liège, 152–155.

Niemeier, W.-D. (2003) Greek territories and the Hittite Empire, Mycenaeans and Hittites in West Asia Minor. In Chr. Stampolidis (ed.), *Sea Routes… From Sidon to Huelva, Interconnections in the Mediterranean 16th-6th c. BC*. Athens: Museum of Cycladic Art, 103–107.

Olofsson, L. (2015) An introduction to experimental archaeology and textile research. In E. Andersson Strand and M-L. Nosch (eds), *Tools, Textiles and Contexts: Investigating Textile Production in the Aegean and eastern Mediterranean Bronze Age*. Ancient Textiles Series, Oxford: Oxbow, 25–38.

Olofsson, L. and Nosch, M-L. (2015) Test of loom weights and 2/2 twill weaving. In E. Andersson Strand and M-L. Nosch (eds), *Tools, Textiles and Contexts: Investigating Textile Production in the Aegean and eastern Mediterranean Bronze Age*. Ancient Textiles Series, Oxford: Oxbow, 75–100.

Papazoglou-Manioudaki, L. (2015) The Early Mycenaean settlement at Aigion in Achaea and the Western frontier of the North-east Peloponnese. In A-L Schallin and I. Tournavitou (eds), *Mycenaeans Up To Date: The Archaeology of the North-Eastern Peloponnese—Current Concepts and New Directions*. Stockholm: Swedisch Institute at Athens, 313–324.

Paradimitriou, N., Philippa-Touchais, A. and Touchais, G. (2015) Argos in the MBA and the LBA: a reassessment of the evidence. In A.-L. Schallin and I. Tournavitou (eds), *Mycenaeans Up To Date: The Archaeology of the North-Eastern Peloponnese—Current Concepts and New Directions*. Stockholm: Swedish Institute at Athens, 161–184.

Peatfield, A. (2008) Minoan and Mycenaean warfare. In P. de Souza (ed.), *The Ancient World at War*. London: Thames and Hudson, 87–100.

Peet, T. E. and Woolley, C. L. (1923) *The City of Akhenaten, Part I: Excavations of 1921 and 1922 at El-'Amarneh*. Boston: The Egypt Exploration Society.

Petrie, W. F. (1917) *Tools and Weapons*. London: British School of Archaeology in Egypt.

Rahmstorf, L. (2015) Research history of textile tools. In E. Andersson Strand and M-L. Nosch (eds), *Tools, Textiles and Contexts: Investigating Textile Production in the Aegean and eastern Mediterranean Bronze Age*. Ancient Textiles Series, Oxford: Oxbow, 267–278.

Rehak, P. (1998) The Mycenaean warrior goddess revisited. In R. Laffineur (ed.), *POLEMOS. Le contexte guerrier en Égée a l'Âge du Bronze. Actes de la 7è Rencontre égéenne international (Liège, 14–17 avril 1998)*. Aegaeum 19. Liège: Université de Liège, 227–239.

Sandars, N. K. (1963) Later Aegean bronze swords. *American Journal of Archaeology* 67, 177–153.

Schachermeyr, F. (1935) *Hethiter und Achäer*. Leipzig: Otto Harrassowitz.

Schaeffer, C. F. A. (1956) *Mission de Ras Shamra VIII.* Ugaritica III. Paris: Librairie Orientaliste Paul Geuthner.

Smith, J. S. (2001) Bone weaving tools of the Late Bronze Age. In P. M. Fischer (ed.), *Contributions to the Archaeology and History of the Bronze and Iron Ages in the Eastern Mediterranean, Studies in Honour of Paul Åström*. Vienna: Österreichisches Archäologisches Institut, 83–90.

Smith, J. S. (2013) Tapestries in the Bronze and Early Iron Ages of the Ancient Near East. In M.-L. Nosch, H. Koefoed and E. Andersson Strand (eds), *Textile Production and Consumption in the Ancient Near East*. Ancient Textile Series, Vol. 12. Oxford: Oxbow, 161-181.

Vogel, T. (1989) Village weaving in the Southern Hebron Hills. *Ariel* 75, 75–87.

Weglian, E. (2001) Grave goods do not a gender make: a case study from Singen am Hohentwiel, Germany. In B. Arnold and N. L. Wicker (eds), *Gender and the Archaeology of Death*. New York: Altamira, 137–155.

Weir, S. (1970) *Spinning and Weaving in Palestine*. London: The British Museum.

Whitley, J. (1996) Gender and hierarchy in early Athens (The Strange Case of the Disappearance of Rich Female Graves). *Mètis. Anthropologie des mondes grecs anciens* 11, 209–232.

Whitley, J. (2002) Objects with attitude: biographical facts and fallacies in the study of Late Bronze Age and Early Iron Age warrior graves. *Cambridge*

Archaeological Journal 12 (2), 217–232.
Whittaker, H. (2001) Reflections on the socio-political function of Mycenaean religion. In R. Laffineur and R. Hägg (eds), *POTNIA. Deities and Religion in the Aegean Bronze Age*. Aegaeum 22. Proceedings of the 8th International Aegean Conference Göteborg, Göteborg University, 12-15 April 2000. Liège: Université de Liège, 355–360.
Wiegand, T. (1908) *Sechster vorläufiger Bericht über die von den Königlichen Museen in Milet und Didyma unternommenen Ausgrabungen*. Berlin: Verlag der Königliche Akademie der Wissenschaften.
Wild, J. P. (1970) *Textile Manufacture in the Northern Roman Provinces*. Cambridge: Cambridge University Press.
Wild, J. P. (2003) The later Roman and early Byzantine East, AD 300-1000. In D. Jenkins (ed.), *The Cambridge History of Western Textiles*, vol. 1. Cambridge: Cambridge University Press, 140–153.
Wild, J. P. (2012) England: Roman period. In M. Gleba and U. Mannering (eds), *Textiles and Textile Production in Europe from Prehistory to AD 400*. Ancient Textiles Series, Vol. 11, Oxford: Oxbow, 451–456.
Wild, J. P. and Walton Rogers, P. (2003) Textile industries of the ancient world to AD 1000. Introduction. In D. Jenkins (ed.), *The Cambridge History of Western Textiles*, vol. 1. Cambridge: Cambridge University Press, 9–29.

Author: mazowl@ecu.edu