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Bone Tools from the EB IIIB "Palace of the Copper Axes" at Khirbat al-Batrāwī, Jordan

Introduction

Bone tools can provide useful information concerning manufacturing, daily life activities (*e.g.*, hunting), and craft production (*e.g.*, weaving; Cakirlar and Genz 2016). These objects have been primarily found during archaeological excavations, as shown at Tall es-Sultan/Jericho (Marshall 1982), Tall al-Mutasallim (Megiddo: Blockman and Sass 2013), Arad (Amiran 1978), Bāb edh-Dhrāʿ (Adovasio *et. al.* 2003), and Tall Abū al-Kharaz (Fisher 2008), but atelier or production places have yet to be discovered (Horwitz *et al.* 2007). The study of bone tools has always focused on items found in Neolithic contexts (Garfinkel and Horwitz 1988). Bone tools dating to the Bronze and Iron Ages have typically been published in appendices of excavation reports,[1] but recent research has focused on the analysis of this specific category of objects (Cakilar and Genz 2016).

The Palace of Khirbat al-Batrāwī (Fig. 1), known above all for the extraordinary discoveries of the copper axes (Nigro 2015), the ceremonial vase, the bearskin (Nigro 2014), and the necklace (Nigro 2012), provides a good overview of types of bone tools and their production techniques. This paper seeks to illustrate the bone tools uncovered in the "Palace of the Copper Axes" during the 2010–2012 seasons of excavation and to highlight their role in the craft activities centralized by the EBA palatial economy.

Bone Tool Production

The industry of bone tools is characterized by the same production technique from the Early Bronze Age up to the Iron Age (Moorey 1994). The production

[1] Except for some categories, such as ivory carvings (Loud 1939; Adler 1996; Gachet-Bizollon 2007), incised bone tubes (Zarzecki-Peleg 1993; Genz 2003), or bone and ivory bull's heads (Miroschedji 1993; Nigro 2010: 468).

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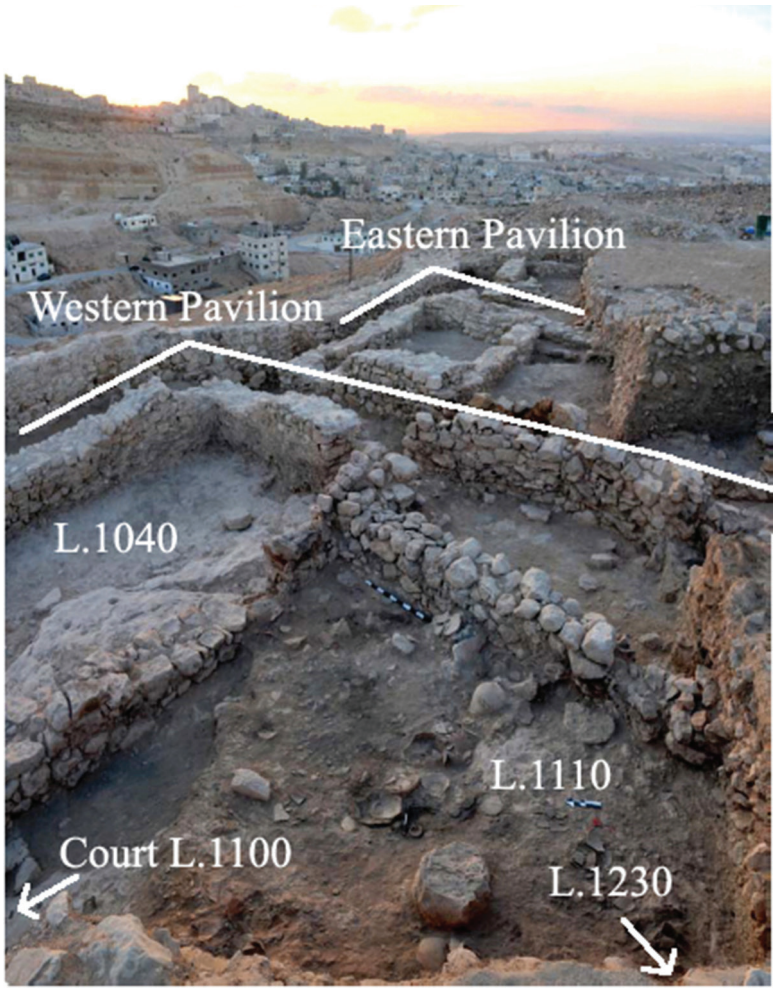


1. View of the Western Pavilion of the EBIII "Palace of the Copper Axes" at Khirbat al-Batrāwī, from the south-west.

of bone tools at Khirbat al-Batrāwī follows the same technique as at the other sites of the southern Levant and the rest of the Near East. Bones of mammals were used, probably from domesticated herbivores of medium to large size (Alhaique 2012). Long and flat bones were selected, especially ribs for spatulas and the epiphysis of femurs for spindle whorls.

The bone was processed as soon as it was extracted from the animal, before the drying and bleaching processes (Marshall 1982), although it was probably first subjected to a hot water immersion or an acid solution to soften it (Peyronel 2004). Before being worked, soft tissue and spongy bone were removed from the bone, and then it was sectioned and cut along the transverse and longitudinal axes, probably using the same tools used for joinery (saws, drills, etc.). Once a coarse shape was obtained, it passed through various finishing phases (such as smoothing, polishing, machining with a drill, engraving, or rotation) to create the specific tool.

Typologies of Bone Tools

Thirty-seven bone tools have been found in the EB IIIB "Palace of the Copper Axes" of Khirbat al-Batrāwī during the 2010–2012 seasons of excavations (Montanari 2012; Fig. 2): 39% is represented by tools with a flattened section (or spatulas), 23% by pointed tools, 18% by *varia*, and 10% by unfinished objects and waste products. Another small percentage (10%) is represented by indeterminable objects (KB.10.B.92, KB.10.B.99, KB.10.B.107, KB.12.B.96) that are very poorly preserved.

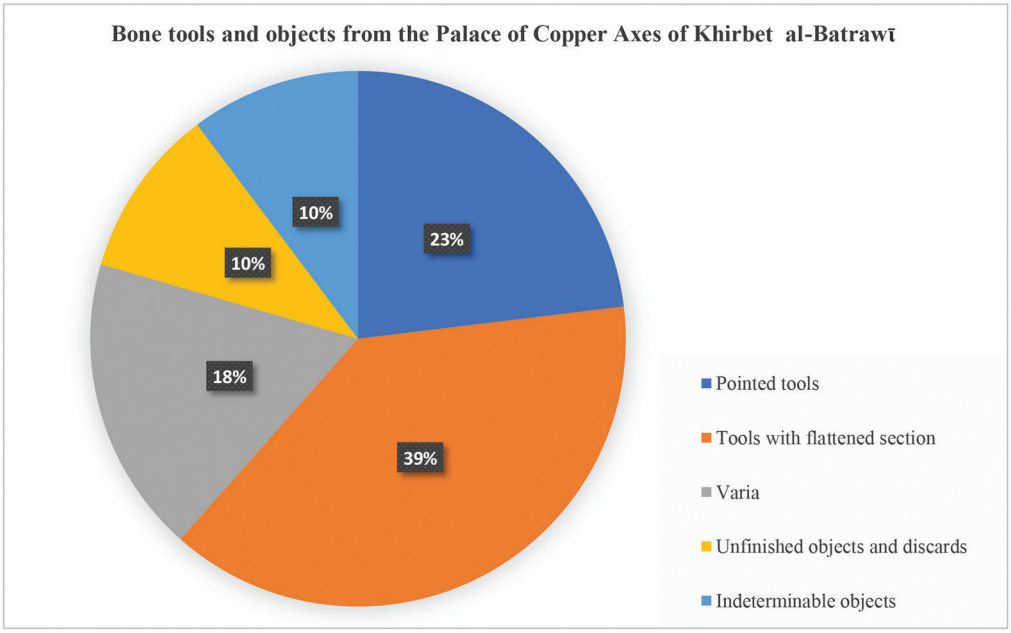
Bone tools almost always keep their own shapes over millennia, making their interpretation difficult. Some tools, such as spatulas or shuttles, can be called "multifunctional tools" (Morrey 1994; Peyronel 2004), as they can be used for different activities besides weaving. The classification of bone tools here presented is based on the type of bone used, as bones were likely chosen by shape and section most suitable for tools (Marshall 1982):

Pointed tools:
- Pointed tools
- Pins
- Needle
- Awls

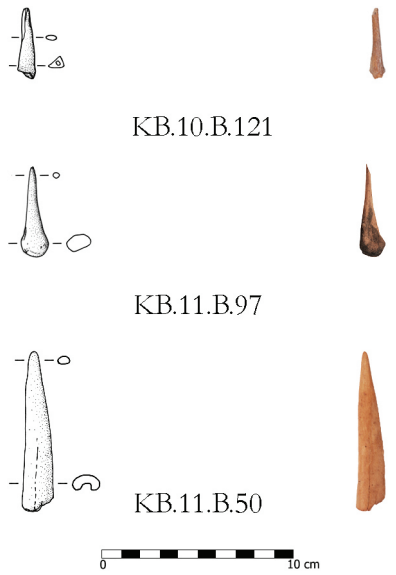
Tool with flattened section:
- Weaving swords
- Long narrow spatulas
- Short narrow spatulas
- Large spatulas

Pointed Tools

Pointed tools (Fig. 3) are characterized by a narrow concave section, hard sharp point, and elongated shape with a polished surface. They are made from medium-sized mammals' ribs or narrow long bones. Some tools can be classified just as pointed tools, while others are more specific, such as pins,



2. Percentage of EBA bone tools found in the Western Pavilion of the "Palace of the Copper Axes" at Khirbat al-Batrāwī.



3. Pointed bone tools found in the Western Pavilion of the "Palace of the Copper Axes" at Khirbat al-Batrāwī. From the top down: needle (KB.10.B.121), awl (KB.11.B.97), and pointed tool (KB.11.B.50).

needles, and awls.

Needles are very short, with a length of 3.3/3.6 cm and a base diameter of 0.2/0.6 cm. They have a carefully polished surface, narrow or triangular section, sharpened end, and sometimes a small hole.[2] This kind of tool can be used for many tasks, including sewing textiles and leather, incising pottery, and basketry (Mazar and Rotem 2012: 384–85). The needle shape is common in the southern Levant during the Early Bronze Age, as the comparisons at Tall al-Mutasallim (Megiddo: Bidmead 2013: fig. 23.5:8), Tall es-Sultan (Jericho: Marshall 1982: figs. 251:3–4), and Khirbat Kerak (Beth Yerah: Paz 2014: fig. 6.28:126) attest.

Awls are stronger and broader than needles, with a length of 4.4–7.2 cm and a base width of 0.9/1.2 cm. They have a rounded or flattened section, with a sharpened end, and polished surface.[3] This kind of tool would have been used for piercing leather, for threading thongs, or for pegging out skins. Also, some pierced awls could have been used as toggle pins (Adovasio *et al.* 2003: figs. 20.7–8). Awls found in the "Palace of the Copper Axes" can be divided into a simple shape or handle shape. The first type of awl is characterized by a triangular flattened body shape, very common in the Southern Levant during the Early Bronze Age, as confirmed by comparisons found at Tall Abū al-Kharaz (Fisher 2008: fig. 317:1), Bāb adh-Dhrā' (Adovasio *et al.* 2003: figs. 20.7–8), Tall al-Mutasallim (Megiddo: Blockman and Sass 2013: 887; Bidmead 2013: fig. 23.5:14–15), and Arad (Amiran 1978: pl. 75:8–9). The second type of awl is characterized by a handle made by the joint of the bone: metapodials were the bones mostly selected for this kind of tool, with no preference for the distal or proximal end. This shape, identified with the Type B of Peyronel's classification (2004: 136), is also very common in the southern Levant during the Early Bronze Age, as seen at Arad (Amiran 1978: pl. 75:3, 7), Tall al-Mutasallim (Megiddo: Sass and Cinamon 2006: fig. 18.27:606, 608), Tell Abu al-Kharaz (Fisher 2008: fig. 317:5), and Tall es-Sultan (Jericho: Marshall 1982: fig. 251:7–8, 12).

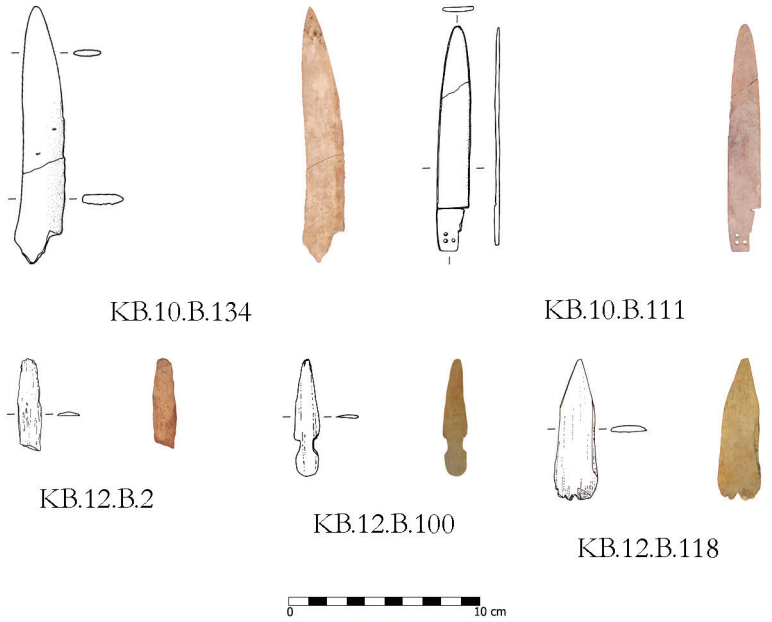
Tools with Flattened Section

This group includes tools characterized by a flattened section (Fig. 4), namely weaving swords and spatulas. They are usually made from ribs or large long bones from medium- or large-sized mammals.

Weaving swords are long looming

[2] Comparisons can be found at Arad (Amiran 1978: pl. 75) and Bāb adh-Dhrā' (Adovasio *et. al.* 2003: figs. 20–3).

[3] The earlier awls tend to be more carefully made and more highly polished than those from the later periods (Mazar-Rotem 2012).



4. Bone Tools with flattened sections found in the Western Pavilion of the "Palace of the Copper Axes" at Khirbat al-Batrāwī. Upper line, from left to right: weaving sword (KB.10.B.134) and long narrow spatula (KB.10B.111). Lower line, from left to right: short narrow spatula (KB.12.B.2), spearhead-shaped spatula (KB.12.B.100), and large elongated spatula (KB.12.B.118).

beaters, used with horizontal ground, vertical two-beam, and warp-weighted looms, to beat in a weft row spanning a wide width of weave (Crowfoot 1936–37; Mazow 2017). Made from wood, bone, or metal, they have been worked into a sword shape, with a length between 25 and 75 cm. In the "Palace of the Copper Axes" of Khirbat al-Batrāwī, two swords with missing lower parts have been found, testifying to the use of horizontal ground looms in this building. These tools have also been found at Tall es-Sultan (Jericho: Marshall 1982: fig. 250:8) and in ethnographic contexts from Egyptian and Syrian Bedouin populations (Dalman 1937: fig. 23; Peyronel 2004: pl. CXXV–CXXVI; Mazow 2017: 8 fig. 8).[4]

Spatulas (or shuttles in the opinion of some scholars; see Ariel 1990: 127–34; Fischer 2008: 352–4 fig. 317; Mazar and Rotem 2012: 384–6 fig. 9.16:1–8) are characterized by a narrow or wide flattened section, with a rounded point and a polished surface on both surfaces. They are usually interpreted as loom tools (Dalman 1937: fig. 24), but some bone items from Khirbat Kerak (Beth Yerah) were found in contexts related to the local ceramic industry, showing use-marks that hint at their use in pottery production (Paz 2014: 274; Greenberg and Iserlins 2014: 75). These "multifunction tools" (Moorey 1994; Peyronel 2004) are divided into long narrow spatulas, short narrow spatulas, and

[4] It is difficult to distinguish which kind of loom weaving swords were used for. However, ethnographic and experimental archaeological studies have shown that a handle appears frequently in weaving swords for vertical looms (Vogel 1989: 81; Broudy 1993: 39 fig. 3.1).

large spatulas on the basis of their shape and size.

Narrow spatulas can be divided into long spatulas (about 11.5/7 cm long[5] and 1.8/1.2 cm wide) and short spatulas (4.6/6.7 cm long and 1/1.5 cm wide). This shape is largely diffused throughout the southern Levant during the Early Bronze Age and parallels were found at Tall Abā al-Kharaz (Fisher 2008: fig. 317:2–3), Tall es-Sultan (Jericho: Marshall 1982: figs. 251:13–15), Arad (Amiran 1978: pl. 72:6–8), Tall al-Mutasallim (Megiddo: Sass and Cinamon 2006: figs. 18.29:633–648), and Khirbat Kerak (Beth Yerah: Paz 2014: figs. 6.28:115–116, 122). Alongside common shapes, some items are unique. One long narrow spatula (KB.10.B.111, Fig. 4) has a high quality manufacture, as its handle with three holes of rivets shows preexisting perishable decoration. Probably used to spread cosmetics on palettes, this shape is similar to narrow daggers of Type 2 on Philip's classification (1989: fig. 27:793, 695, 803), like the one found in Tomb F5 at Tall es-Sultan (Jericho: Kenyon 1960: fig. 66:3).

Another short narrow spatula (KB.12.B.100, Fig. 4) has a spearhead shape that is similar to tanged spearheads, similar to Type 6 of Philip's classification (1989: fig. 17:91, 80, 81). It was also probably used to spread cosmetics on palettes. Their similarity to weapons, as well as their excellent manufacture, indicate that they were probably status symbols used by the elite.

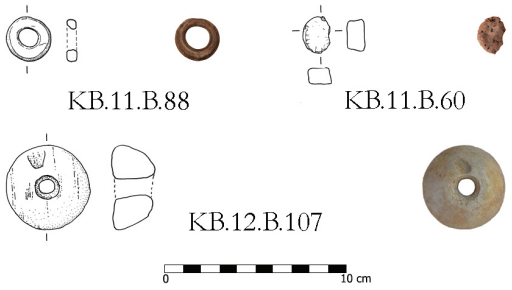
Large spatulas are 10/6.6 cm long and 3.1/1.3cm wide. They are characterized by an elongated (KB.12.B.118, Fig. 4) or fan shape. The first shape was found at Khirbat al-Batrāwī (Montanari 2012: fig. 17:1), and it is very common in the southern Levant, as attested by parallels from Tall es-Sultan (Jericho: Marshall 1982: figs. 251:16–18), Khirbat Kerak (Beth Yerah: Paz 2014: fig. 6.28:119–121), Tall al-Mutasallim (Sass and Cinamon 2006: fig. 18.29:648), Tall el-Husn (Beth Shean: Mazar-Rotem 2012: fig. 9.16:1–5), and Arad (Amiran 1978: pl. 73:1–4). The fan-shaped spatula is a less popular shape than the first one, although it has been used since the Mesolithic (Marshall 1982: fig. 230:8, 12) and found in contemporary contexts at Tall Fadous (Kfarabida: Genz *et al*. 2009: fig. 5:10).

Varia

Five bone spindle whorls, one bone tessera, and one bone ring have also been found (Fig. 5). Spindle whorls have a circular shape with a domed section, as they have all been made from femoral heads that sometimes show the *fovea cavitis*. This shape is similar to Type 6 of Peyronel's classification (2004: 112 pls. IV–V), and it has just been found at Khirbat al-Batrāwī in the room L.940, in Building B2[6] (Montanari 2012: fig. 17:4). Bone spindle whorls are quite common in the Syro-Palestinian area, for example, at Tall Fadous (Kfarabida: Genz 2016).

[5] It is not possible to determine the minimum length, as most of items have a fragmentary state of preservation.

[6] Area B South, east of the Eastern Pavilion.

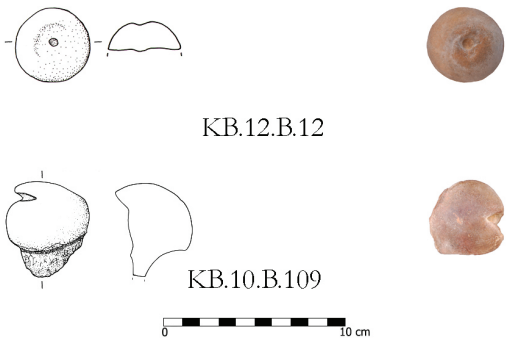


5. Bone ring (KB.11.B.88), bone tessera (KB.11.B.60), and spindle whorl (KB.12.B.107) found in the Western Pavilion of the "Palace of the Copper Axes" at Khirbat al-Batrāwī.

A bone ring, with a diameter of 2.1 cm and a thickness of 0.4 cm, was found, with comparisons at Tall al-Mutasallim (Megiddo: Sass 2000: fig. 12.29:13) and Tall el-Husn (Beth Shean: Mazar and Rotem 2012: fig. 9.17:5–9).[7] Bone rings were produced from the Pre-Neolithic period, as seen at Jarmo (Watson 1983: 356–8), as high-status ornaments, but there are rarely found in later strata (Moorey 1994: 114).

Among other objects, a bone tessera has been found in the "Palace of the Copper Axes", made by a polished vertebral body with a hole along the inner side. This can be interpreted as a gaming piece: bones and ivory have been used for gaming pieces since the Neolithic period in the ancient Near East and Egypt (Moorey 1994: 114; Albaz *et al.* 2017) and they were used by villagers and the Bedouin of Egypt, Sinai, and the Negev until recently (Sebbane 2001: figs. 8–9).

[7] Unfortunately, comparisons from both Tall al-Mutasallim (Megiddo) and Tall el-Husn (Beth Shean) came from undatable contexts.



6. Unfinished spindle whorl (KB.12.B.12) and bone discard (KB.10.B.109, head of a femur) found in the Western Pavilion of the "Palace of the Copper Axes" at Khirbat al-Batrāwī.

Table 1. Distribution of the bone objects and tools in the Western Pavilion of the "Palace of the Copper Axes".

Type	Pillared Hall L.1040	Hall L.1110	Hall L.1230
Pointed tools	1	3	-
Needles	2	-	-
Awls	1	2	-
Weaving swords	2	-	-
Spatulas	5	4	1
Spindle whorls	2	2 (one unfinished)	-
Tesserae	-	1	-
Rings	-	1	-
Indeterminate tools	6	1	-
Discards	5	1	-

Unfinished Tools

One unfinished spindle whorl and some worked bones have been found in the "Palace of the Copper Axes" (Fig. 6). The spindle whorl shows an unfinished hole and a roughly worked lower face.

Archaeological Context

All the bone tools have been found in destruction layers[8] inside the halls of the Western Pavilion of the "Palace of the Copper Axes". As shown in Table 1, bone tools were found in Pillared Hall L.1040 and Hall L.1110 (Nigro 2014), while only a large spatula was found in Hall L.1230, west of L.1110.

Tools such as awls, spatulas, and spindle whorls are equally distributed in Pillared Hall L.1040 and Hall L.1110. All the weaving swords, the needles, and many bone discards were found in Pillared Hall L.1040, while well manufactured tools such as KB.12.B.110 were found in Hall L.1110, together with an unfinished spindle whorl.

[8] F.1054, F.1128, F.1238, F.1244.

Conclusions

During the Early Bronze III, technical skills and craft activities were managed by centralized powers, such as palaces or temples. This is confirmed by the discovery of various technical tools in palatial complexes, such as the case of the potter's wheel recovered in the "Palace of the Copper Axes" (Fiaccavento 2013). Bone tools found in the Western Pavilion of the Palace of Khirbat al-Batrāwī suggest that other craft activities, directly linked to these kinds of tools such as weaving though horizontal looms or leather tanning, were connected to the palatial administration. Furthermore, the presence of bone discards allows to us assume that the production of bone tools was carried out just inside the "Palace of the Copper Axes" by specialized craftsmen.[9]

Bibliography

Adler, W. 1996. "Die spätbronzezeitlichenpyxiden in gestalt vonwasservögeln." In *Kamid el-Loz 16*, edited by R. Hachmann, 27–116. Bonn: Rudolph Habelt.

Adovasio, J.M., R.L. Andrews, and J.S. Illingworth. 2003. "Basketry Impressions and Weaving Accoutrements from the Bab edh-Dhra' Town Site." In *Bab edh-Dhra' Excavations at the Town Site (1975–1981)*, edited by W.E. Rast and R.T. Schaub, 599–621. University Park, PA: Eisenbrauns.

Alhaique, F. 2012. "Appendix A. Faunal Remains." In *Khirbet al-Batrawy III. The EB II-III Triple Fortification Line, and the EB IIIB Quarter inside the City-Wall. Preliminary Report of the Fourth (2008) and Fifth (2009) Seasons of Excavations*, edited by L. Nigro, 333–64. Rome: La Sapienza Expedition to Palestine and Jordan.

Amiran, R. 1978. *Early Arad: The Chalcolithic and Early Bronze IB Settlements and the Early Bronze II City: Architecture and Town Planning*, Jerusalem: The Israel Exploration Society.

Ariel, D. 1990. *Excavations at the City of David 1978–1985*. Vol. 2. *Qedem* 30. Jerusalem: Hebrew University.

Bidmead, J. 2013. "Textile Production." In *Megiddo V: The 2004–2008 Seasons*, edited by I. Finkelstein, D. Ussishkin, and E.H. Cline, 1094–105. University Park, PA: Eisenbrauns.

Blockman, N., and B. Sass. 2013. "The Small Finds." In *Megiddo V: The 2004–2008 Seasons*, edited by I. Finkelstein, D. Ussishkin, and E.H. Cline, 866–929. University Park, PA: Eisenbrauns.

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

Cakirlar, C., and H. Genz. 2016. "Artefacts Made out of Bone and Related Materials: Raw Material, Manufacture, Typology and Use." *Levant* 48:152–4.

Crowfoot, G. M. 1936/1937. "Of the Warp-Weighted Loom." *BSA* 37:36–47.

Dalman, G. 1937. *Arbeit un Sitte in Palästina*. Vol. 5. Tubingen: Webstoff, Spinnen, Weben, Kleidung.

C. Fiaccavento. 2013. "Potters' Wheels from Khirbet Al-Batrawy: A Reconsideration of Social Contexts." *Vicino Oriente* 17:75–103.

Fisher, P.M. 2008. *Tell Abu al-Kharaz in the Jordan Valley*. Vol. 1, *The Early Bronze Age. Contributions to the Chronology of the Eastern Mediterranean* 16. Vienna: Austrian Academy of Sciences Press.

Gachet-Bizollon, J. 2007. *Les Ivoires d'Ougarit et l'Art des Ivoiriers du Levant au Bronze Récent. Ras Shamra-Ougarit* 16. Paris: Éditions Recherche sur les Civilisations.

Garfinkel, Y., and L.K. Horwitz. 1988. "The Pre-Pottery Neolithic B Bone Industry

[9] Contrary to what was hypothesized by Zaccagnini 1993.

from Yiftahel, Israel." *Paléorient* 14:73–86.

Genz, H. 2003. *Ritzverzierte Knochenhülsen des dritten Jahrtausendsim Ostmittelmeerraum. Ein Beitragzu den frühen Kulturverbindungenzwischen Levante und* Ägäis. *Abhandlungen des DeutschenPalästina-Vereins* 31. Wiesbaden: Harrassowitz.

———. 2016. "Simple Bone Tools from Early Bronze Age Tell Fadous-Kfarabida (Lebanon): A Household Approach." *Levant* 48:155–68.

Genz, H., C. Çakırlar, A. Damick, E. Jastrze¸bska, S. Riehl, K. Deckers, and A. Donkin. 2009. "Excavations at Tell Fadous-Kfarabida: Preliminary Report on the 2009 Season of Excavations." *Bulletin d'Archéologie et d'Architecture Libanaises* 13:71–123.

Greenberg, R., and M. Iserlins. 2014. "The Early Bronze Age Pottery Industries." In *Bet Yerah: The Early Bronze Age Mound.* Vol. 2, *Urban Structure and Material Culture, 1933–1986. Israel Antiquity Authority Reports* 54, edited by R. Greenberg, 53–149. Jerusalem: Israel Antiquity Authority.

Horwitz, L.K., J. Lev-Tov, and A.M. Maeir. 2007. "Working Bones: A Unique Iron Age IIA Bone Workshop from Tell es-Safi/Gath." *NEA* 69:169–73.

Loud, G. 1939. *The Megiddo Ivories*. Chicago: University of Chicago Press.

Kenyon, K.M. 1960. *Excavations at Jericho.* Vol. 1, *The Tombs Excavated in 1952–4*. London: British School of Archaeology in Jerusalem.

Marshall, D. N. 1982. "Jericho Bone Tools and Objects." In *Excavations at Jericho.* Vol. 4, *The Pottery Type Series and Other Finds*, edited by K.M Kenyon and T.A. Holland, 570–622. London: British School of Archaeology in Jerusalem.

Mazar, A., and Y. Rotem. 2012. "The Small Finds from the Early Bronze and Intermediate Bronze Ages." In *Excavations at Tel Beth-Shean 1989–1996*. Vol. 4, edited by A. Mazar, 34–85. Jerusalem: Israel Explorations Society, Hebrew University.

Mazow, L. 2017. "A Weaving Sword at Miletus? Combat or Weaving Sword and the Complexities of Gender Construction." *Archaeological Textiles Review* 59:3–16.

de Miroschedji, P. 1993. "Note sur les têtes de taureaenos, ivoire et enpierre du Bronze ancien de Palestine." In *Studies in the Archaeology and History of Ancient Israel in Honour of Moshe Dothan*, edited by M. Heltzer, A. Segal, and D. Kaufman, 29–40. Haifa: Haifa University Press.

Montanari, D. 2012. "Appendix F. Small Finds from Khirbet al-Batrawy." In *Khirbet al-Batrawy III. The EB II–III Triple Fortification Line, and the EB IIIB Quarter Inside the City-Wall. Preliminary Report of the Fourth (2008) and Fifth (2009) Seasons of Excavations*, edited by L. Nigro, 395–424. Rome: La Sapienza Expedition to Palestine and Jordan.

Moorey, P.R.S. 1994. *Ancient Mesopotamian Materials and Industries. The Archaeological Evidence*. Oxford: Clarendon Press.

Nigro, L. 2010. "Tell es-Sultan/Jericho and the Origins of Urbanization in the Lower Jordan Valley: Results of Recent Archaeological Research." In *Proceedings of the 6th International Congress of the Archaeology.* Vol. 2, *Excavations, Surveys and Restorations: Reports on Recent Field Archaeology in the Near East*, edited by P. Matthiae, F. Pinnock, L. Nigro, and N. Marchetti, 459–82. Wiesbaden: Harrassowitz Verlag.

———. 2012. "An EB IIIB (2500–2300 BC) Gemstones Necklace from the Palace of the Copper Axes at Khirbet al-Batrawy, Jordan." *Vicino oriente* 16:227–44.

———. 2014. "The King's Cup and the Bear Skin: Royal Ostentation in the Early Bronze III 'Palace of the Copper Axes' at Khirbet al-Batrawy?" In *A Pioneer of Arabia. Studies in the Archaeology*

and Epigraphy of the Levant and the Arabian Peninsula in Honor of Moawiyah Ibrahim, edited by Z. Kafafiand and M. Maraqten, 261–70. Rome: La Sapienza Expedition to Palestine and Jordan.

———. 2015. "The Copper Axes Hoard in the Early Bronze IIIb Palace of Batrawy, Jordan." In *Copper and Trade in the South–Eastern Mediterranean. BAR-IS* 2753, edited by K. Rosińska-Balik, A. Ochał-Czarnowicz, M. Czarnowicz, and J. Dębowska-Ludwin, 77–153. Oxford: Archeopress.

Paz, S. 2014. "The Small Finds." In *Bet Yerah: The Early Bronze Age Mound.* Vol. 2, *Urban Structure and Material Culture, 1933–1986. Israel Antiquity Authority Reports* 54, edited by R. Greenberg, 235–98. Jerusalem: Israel Antiquity Authority.

Peyronel, L. 2004. *Gli strumenti di tessitura dall'Età del Bronzo all'Epoca Persiana. Materiali E Studi Archeologici Di Ebla* 4. Rome: Missione Archeologica Italiani in Siria.

Philip, G. 1989. *Metal Weapons of the Early and Middle Bronze Ages in Syria-Palestine. BAR-IS* 526. Oxford: Archeopress.

Sass, B. 2000. "The Small Finds." In *Megiddo III. The 1992–1996 Seasons*, edited by I. Finkelstein, D. Ussishkin, and B. Halpern, 349–423. University Park, PA: Eisenbrauns.

Sass, B., and G. Cinamon. 2006. "The Small Finds." In *Megiddo IV. The 1998–2002 Seasons*, edited by I. Finkelstein, D. Ussishkin, and B. Halpern, 353–425. University Park, PA: Eisenbrauns.

Sebbane, M. 2001. "Board Games from Canaan in the Early and Intermediate Bronze Ages and the Origin of the Egyptian Senet Game." *Tel Aviv* 28:213–30.

Vogel, T. 1989. "Village Weaving in the Southern Hebron Hills." *Ariel* 75:75–87.

Watson, P.J. 1983. "Jarmo Worked Bone." In *Prehistoric Archaeology along the Zagros Flanks*, L.S. Braidwood, R.J. Braidwood, B. Howe, C.A. Reed, and P.J. Watson, 347–68. Chicago: Oriental Institute of the University of Chicago.

Zaccagnini, C. 1993. "In margine all'emporion: modelli di scambio nelle economie del Vicino Oriente Antico." In *L'emporion*, edited by A. Bresson and P. Rouillard, 127–43. Paris: Boccard.

Zarzecki-Peleg, A. 1993. "Decorated Bones of the Third Millennium B.C.E. from Palestine and Syria: Stylistic Analysis." *IEJ* 43:1–22.