

OF NETWORKS AND KNIVES: A BRONZE KNIFE WITH HERRINGBONE DECORATION FROM THE CITADEL OF KAYMAKÇI (MANISA İLİ / TR)

During the first season of excavations in 2014 at the Late Bronze Age (LBA) citadel of Kaymakçı (Manisa İli/TR) in western Anatolia, a bronze knife with a decorated handle was recovered (fig. 1). It belongs to a small group of solid-hilted knives, known until recently only from Mycenae (Argolid/GR), Psychro Cave (Lasithi/GR), and a few other Aegean sites. Therefore, this item is especially important to scholarly debates on local western Anatolian identities and the role of Aegean and central Anatolian networks¹. Western Anatolian² cultures in the 2nd millennium BC remain relatively unexplored, particularly in comparison with the more established spheres of »Hittite« central Anatolia or the »Minoan« and »Mycenaean« Aegean. Excavations from Troy (Çanakkale İli/TR), Panaztepe (Izmir İli/TR), Limantepe (Izmir İli/TR), and Miletus (Aydın İli/TR) are helpful for understanding the Aegean coast³, and work at Aphrodisias (Aydın İli/TR), and Beycesultan (Denizli İli/TR) informs our understanding of the interior landscape (fig. 2)⁴. Excavations at the citadel of Kaymakçı afford an opportunity to examine more closely how these two spheres interacted, effectively providing further evidence of East-West networks during the Middle and Late Bronze Age. The style of the knife from Kaymakçı potentially points to a tradition specific to western Anatolia. In the text that follows, the knife is discussed in its local, regional, and inter-regional context with a specific attention to comparanda from western Anatolia and the eastern Aegean.

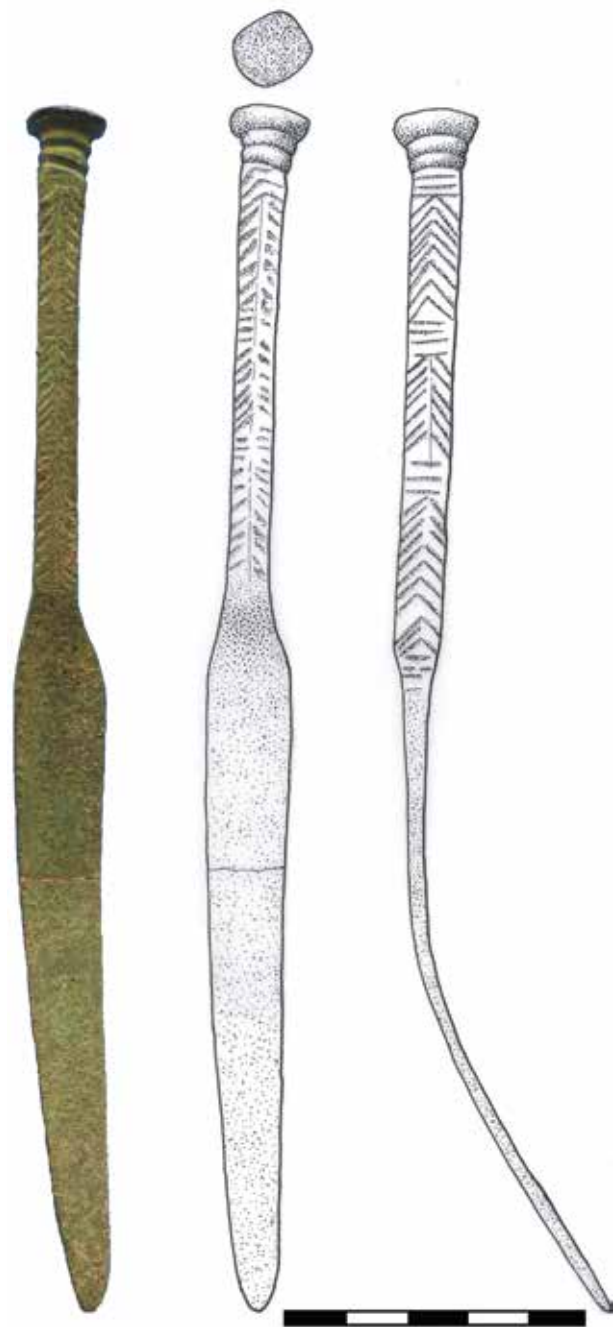


Fig. 1 The herringbone knife (inv. no. 81.551.34.7) from Kaymakçı (Manisa İli/TR). – (Photo M. Pieniżek; illustration M. Mück; © Gygaia Projects).

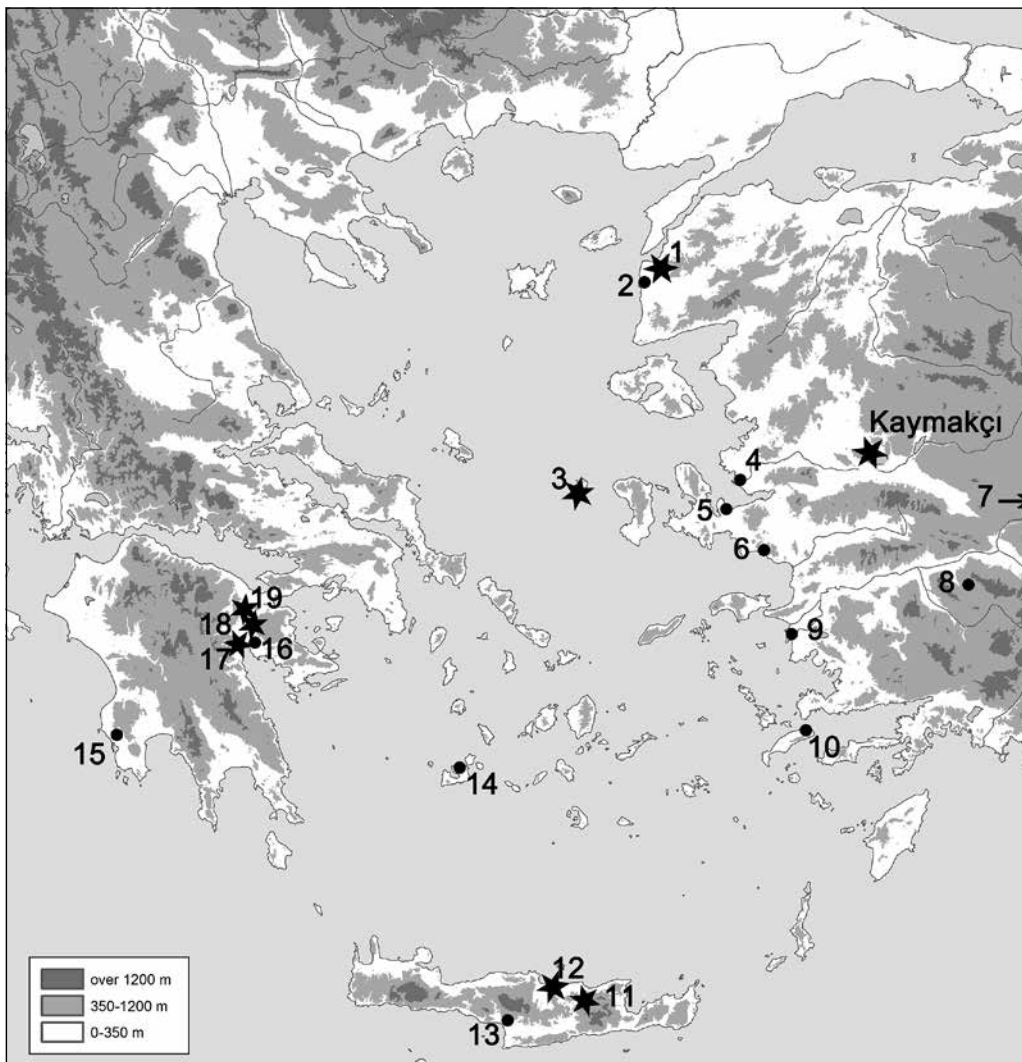


Fig. 2 The location of Kaymakçı (Manisa İli/TR) and other western Anatolian and Aegean sites mentioned in the text: **1** Troy. – **2** Beşik-Tepe. – **3** Archontiki (Psara). – **4** Panaztepe. – **5** Limantepe. – **6** Colophon. – **7** Beycesultan. – **8** Aphrodisias. – **9** Miletus. – **10** Seraglio and Langada (Cos). – **11** Psychro Cave. – **12** Knossos. – **13** Phaistos. – **14** Phylakopi (Melos). – **15** Pylos. – **16** Dendra. – **17** Argos-Deiras. – **18** Mycenae. – **19** Zygouries. – ★ the find spots of solid-hilted knives. – (Map P. Demján / M. Pieniżek).

WESTERN ANATOLIA IN THE 2ND MILLENNIUM BC AND KAYMAKÇI

Kaymakçı is situated above the western shore of Lake Marmara, located along the northern margin of the Gediz (Classical Hermos) River valley, around 20 km northwest of the ancient city of Sardis, 100 km east of the Aegean coast at Izmir in western Turkey (fig. 3). The site was discovered in 2001 and excavations began in 2014 under the auspices of the Kaymakçı Archaeological Project (KAP). Enclosing 8.6 ha, the citadel remains the largest known in 2nd-millennium western Anatolia, and non-invasive investigations, as well as excavations conducted in 2014-2016, reveal its internal spatial complexity. A dispersed lower settlement of low density and a cemetery have been located outside the currently defined fortified area⁵. The results of the first four field seasons at Kaymakçı speak to the site's significant position in the middle Gediz Valley⁶. The monumental architecture within the citadel alone suggests regional prominence. What is more, a variety of tools, such as bronze chisels, drills, and awls or punches, as well as loom weights and spindle whorls,

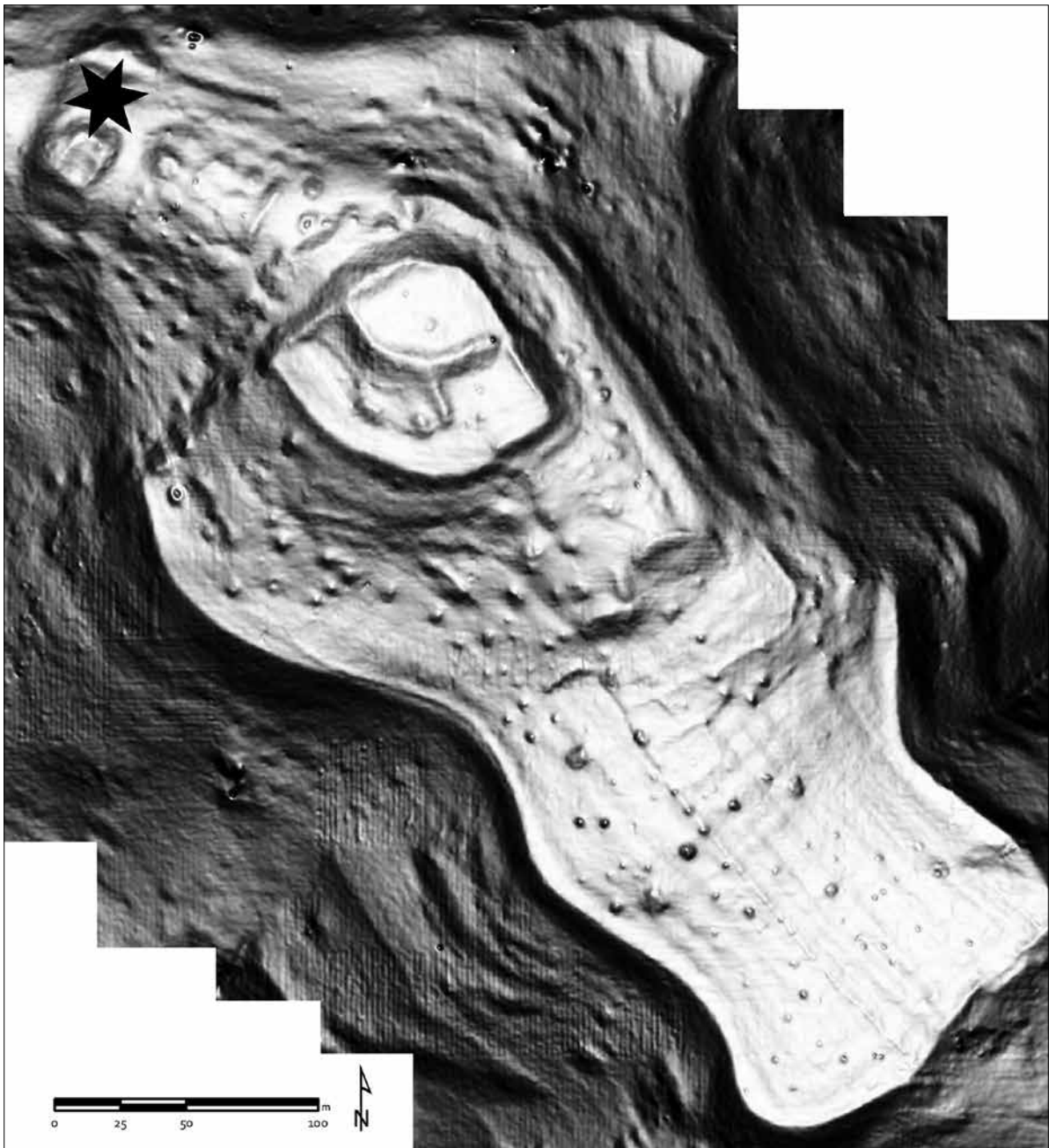


Fig. 3 The citadel of Kaymakçı (Manisa İli/TR) and the find spot (★) of the herringbone knife. – (© Gygaia Projects).

testify to the array of on-site production. In addition, many objects, such as faience beads and lead weights, as well as individual pottery fragments from Milesia and the Aegean, give a window into interregional connections.

BRONZE KNIVES FROM KAYMAKÇI

Two bronze knives have been excavated at Kaymakçı thus far, and they come from different contexts. An undecorated and almost complete example of a sickle-shaped, one-edged knife with a flangeless haft-plate



Fig. 4 Knife with a tanged blade (inv. no. 97.541.224.1) and two examples of whetstones from Kaymakçı (Manisa İli/TR). – (Photo N. Gail; © Gygaia Projects).

and a single rivet hole was recovered from a secondary fill deposit located just above the bedrock in excavation area 97.541 situated in the inner citadel (inv. no. 97.541.224.1; **fig. 4**). The stratigraphy and related ceramics suggest a date for the deposit late in the local Late Bronze (LB) 1 or early in the local LB 2 phase, thus perhaps in the late 15th century or early 14th century BC. The type is quite common, with examples known from the Aegean to central Anatolia (see below)⁷.

The decorated knife of focus in this article was recovered from the excavation of a tower-like structure attached to the exterior of the fortifications at the northwestern extent of the citadel in excavation area 81.551 (inv. no. 81.551.34.7; **fig. 5, 1**). It was discovered in an upper layer of stone debris (context 81.551.34) that appears to derive from the collapse of the superstructure of the tower and was deposited inside it (**fig. 5, 2**). The remainder of the stratigraphy excavated within the tower and beneath the layer of stone debris revealed no floors or other features and was represented only by fills containing ceramics dating primarily to the local LB 1B phase (c. 16th-15th century BC, roughly Late Helladic [LH] II in Aegean terms), yet with a number of clearly later

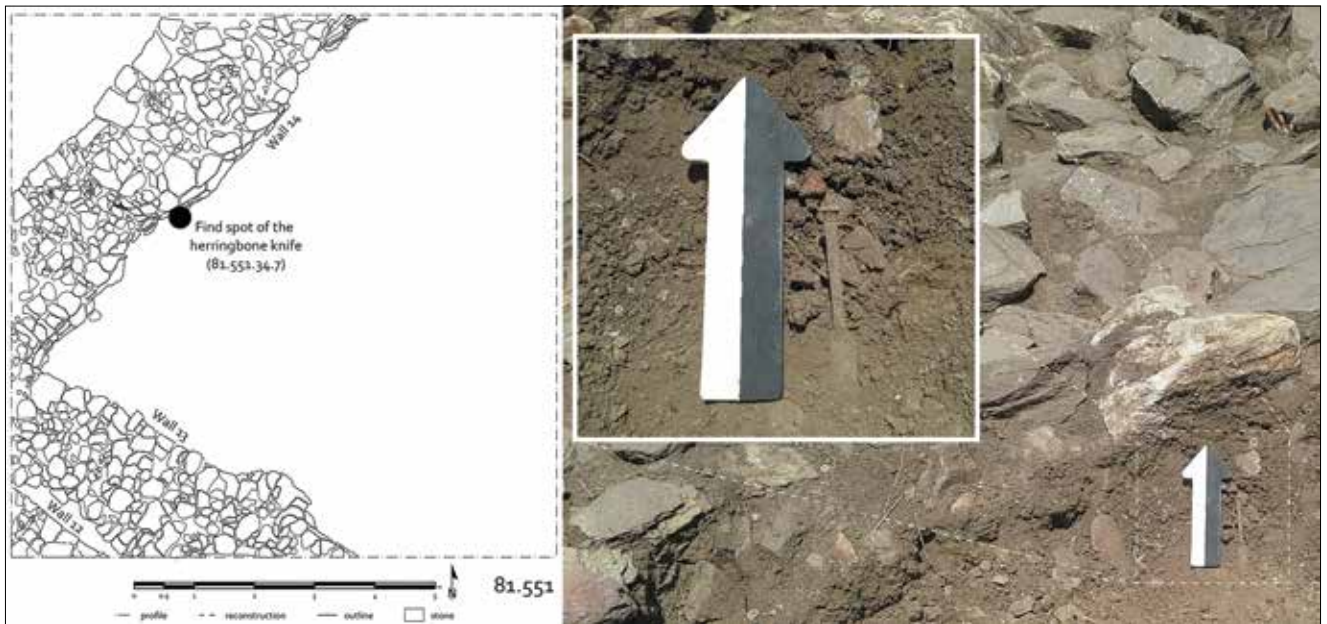


Fig. 5 The interior corner of the tower-like structure at Kaymakçı (Manisa İli/TR) (1) and photographs showing the find spot of the herringbone knife (2). – (© Gygaia Projects).



Fig. 6 Detail photo of the incised decoration on the handle of the herringbone knife from Kaymakçı (Manisa İli/TR). – (Photo M. Pieniżek; © Gygaia Projects).

pieces belonging to the LB 2B phase (c. 13th century BC, roughly LH IIIB in Aegean terms)⁸. Consequently, it is likely that the interior of the structure was filled during the LB 2B phase with material from earlier LB 1B deposits located elsewhere. The subsequent collapse of the superstructure, producing the rubble debris from which the knife was recovered, likely dates to the very end of the LB 2B phase, when the site appears to have been abandoned⁹.

The decorated knife is a solid-hilted one-edged knife with a solid rod terminating in a small knob (**fig. 1**)¹⁰. Along its long axis, the blade measures 11 cm and the handle 7.5 cm, for a total length of 18.5 cm. The maximum width of the blade is 1.4 cm; the maximum width of the rod is 0.7 cm; and the knob itself measures 1.2 cm × 1.1 cm. The knife is complete and perfectly preserved, the only damage being a lateral crack across the blade. The blade is asymmetrically leaf-shaped. The rod itself is squared and widens slightly towards the knob. The most exceptional feature of the handle is that the rod bears incised geometric decoration (**fig. 6**). Similar but not identical patterns embellish all four sides. In the central part of each side, there is a longitudinal line flanked with dense and short diagonal parallel lines that form a herringbone pattern that alternates three times with groups of transverse parallel lines. The section where the handle is connected to the blunt edge of the blade is also decorated with transverse lines. Between the rod and the small mushroom-shaped knob is a double decorative ribbing and the incised lines also appear directly below the ribs. The shape of the knob is rectangular with rounded corners, and it is slightly biconical in section.

The knife was cast in a double mold or using the lost-wax process; subsequently, its surface was most probably worked with a hammer and then polished. The incised decoration, added later, was applied with the help of a tracer (a punch with a chisel-shaped head), the head of which, when laid flat, was c. 0.5 cm wide. This succession of steps in the production process is indicated by the presence of small bulges at one side of the incised notches showing how the metal was deformed because of directly applied force (**fig. 6**). This evidence is also visible in the contour of the edge of the rod, which is slightly wavy and concave between the notches correlating to the bulges. The transverse notches of the herringbone pattern are often asymmetrically placed, sometimes crossing the central dividing line. The double decorative ribbing near the knob is asymmetrical, as well, and the edge between the rod and the ribbing is not lateral but oblique¹¹. These features place it firmly within the very small but prominent group of LBA Aegean knives that fit within Class 4 of Nancy Sandars' typology¹².

AEGEAN AND ANATOLIAN KNIVES

Anatolian Bronze Age knives have not been the topic of systematic research. The closest study is N. Sandars' 1955 typology for Aegean knives from the 2nd millennium BC¹³. A study of the decorated knife, hereafter referred to as the herringbone knife, from Kaymakçı and its closest comparanda in Anatolia and the Aegean, therefore, must draw not only from her work but also from that of more recent research. Generally speaking, relatively small objects can be classified as knives when they have a slim blade and one cutting edge¹⁴. Sandars' typology of knives, based mainly on various morphological features of the handle, still remains accurate in broad terms. Particular features such as flanges or rivet holes aside, however, Aegean and western Anatolian knives can now be divided into three main groups, and this grouping is presented here for the first time: (1) tanged knives, the handles of which were manufactured separately of perishable material and attached to blades with the help of rivets or a thorn-shaped protrusion; (2) knives with composite handles, including specimens with flat metal hilts that were combined with other elements made of organic material (with many variants); and (3) knives with solid handles, where the blade and the handle were made of bronze in one piece.

Knives with tanged blades

Knives with tanged blades fit roughly into Sandars' Classes 5 and 6a-b and are very widespread in assorted sub-variants in both the Aegean and Anatolia¹⁵. These types of handle attachments are found on various kinds of smaller knives, usually with short, riveted tangs, from western Anatolia¹⁶. Such knives were produced, for example, in a stone mold, as known from level III at Beycesultan¹⁷: They had short triangular tangs, possibly centrally perforated for rivet attachment after molding procedures. The undecorated knife from the inner citadel at Kaymakçı (inv. no. 97.541.224.1) mentioned above fits best into this category as well (fig. 4).

Knives with composite handles

Knives with composite handles are among the largest group known from the Aegean and are also well represented in Anatolia. The group includes knives with a riveted and unflanged, flat hilt (Sandars Class 1a) as well as riveted and flanged examples (Sandars Class 1b). The first type, Class 1a, is known from Middle Bronze Age (MM I) contexts on Crete and seems to have continued until LH IIIC. In fact, the most abundant examples are from LH III contexts¹⁸, and for this reason, this style has been broadly characterized as the most widespread »Mycenaean« knife. In addition, the same type is known from nearby, contemporary sites, such as Cyprus¹⁹, Miletus, and Beycesultan in western Anatolia²⁰, and Maşat Höyük (Tokat İli/TR) and Kuşaklı-Sarissa (Sivas İli/TR) in central Anatolia²¹. Class 1b appears no earlier than the Shaft Graves in Mycenae (MM III-LH IIA), and its distribution seems to concentrate in the Aegean²²; some examples, however, are also known from LBA central Anatolia²³.

Other variants of knives with composite handles evaluated by N. Sandars are probably true Aegean types. Sandars Class 2 knives have composite handles with flanged but rivet-less hilts²⁴. This type is known from the Shaft Graves and other (primarily) earlier Mycenaean contexts. One example with rich incised decoration on its back is known from western Anatolia. Its context, unfortunately, is not secure. According to Yasar E. Ersoy, it was most probably part of a robbed tholos tomb near Panaztepe (fig. 7, 1)²⁵. In addition, three knives in

this style, yet without decoration, were recovered from the Uluburun shipwreck (Antalya İli/TR) dating to the end of the 14th century BC²⁶.

Sandars Class 3 knives are characterized by the broadened flat top of the hilt, sometimes finished with crescent- or T-shaped ends²⁷; some are riveted (Class 3a), some rivet-less (Class 3b). The end of the hilt of these knives, therefore, reminds one of the pommel plates of cruciform daggers and swords²⁸. These kinds of knives date mainly to LH II-III. Yet another special kind of knife with a composite handle is known from Rhodes. It has a flanged and riveted grip terminating in a likewise flanged ring²⁹.

Finally, the so-called Siana-type knives constitute a variant of the LBA specimens with composite handles. Even though similar to Sandars Class 2 (with flanged rivet-less hilts), they also have a rod-like extension at the end of the hilt, most probably for the attachment of some kind of pommel. Their blades tend to be slightly curved, although this is not always the case. They are known mainly from the southeastern Aegean (the islands of Rhodes, Astypalaia, Psara, and Colophon on the western Anatolian coast)³⁰, and one was found by Heinrich Schliemann at Troy (fig. 7, 2)³¹. The examples from Troy and Colophon, and at least one from Psara (Chios/GR), had two covering plates of the semi-spherical section made of bone still preserved in place and attached to the flanged, rivet-less hilt. Based on the distribution pattern of »Siana-type« knives, it is possible that this form developed and was favored in the area of the southeastern Aegean islands, possibly also along the coast of western Anatolia.

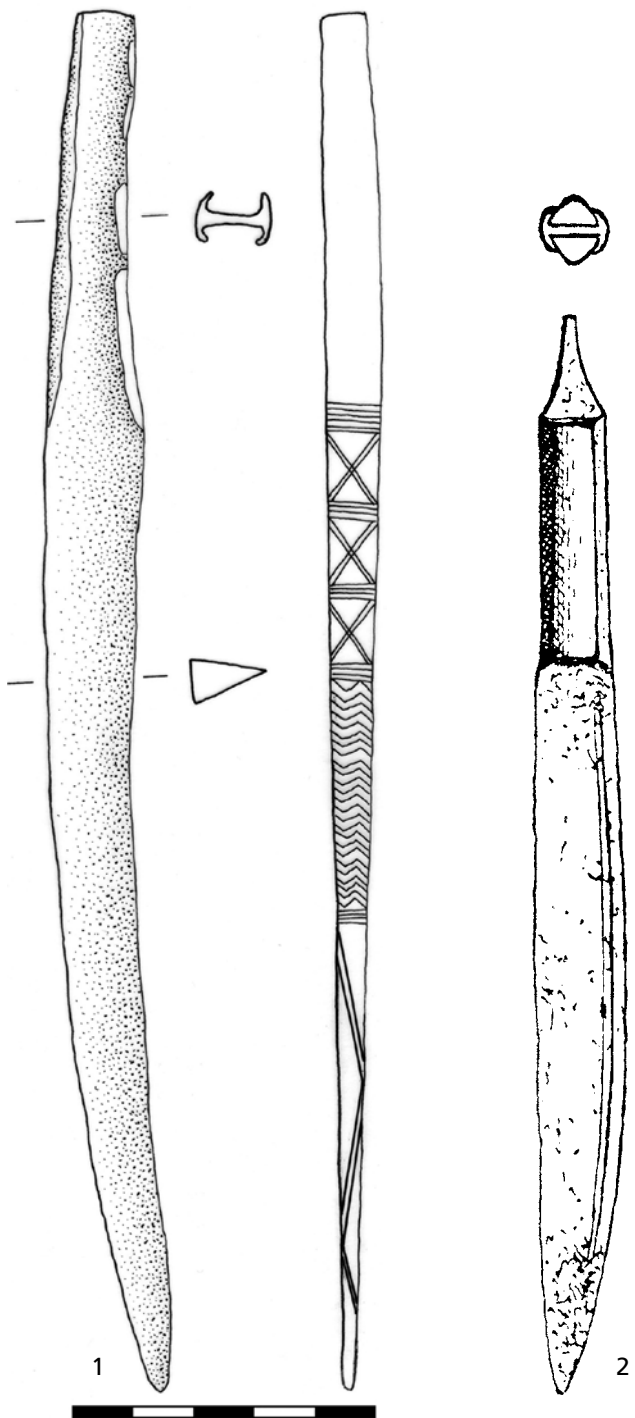


Fig. 7 1 knife with a composite handle and incised decoration on the rear edge from Panaztepe (Izmir İli/TR). – 2 »Siana-type« knife from Troy (Çanakkale İli/TR). – (1 after Pavúk/Pieniżek 2016, 544 fig. 17; adapted from Ersöy 1988, fig. 3 by M. Möck; 2 after Götze 1902, 396 fig. 384).

Knives with solid handles

The third group of knives includes those with one very characteristic feature: they are each made from a single piece of metal, their hilts formed by a solid rod, with no additional materials³². The group of knives with a solid handle conforms with Sandars Class 4 and includes those with rods of round, square, or faceted sections, which usually, but not always, terminate in mushroom-shaped pommels and decorative ribbing below, such as in the case of the herringbone knife from Kaymakçı.

Because the solid handle is the most important attribute of this class, we call attention to the well-known extremely big knives³³, sometimes called »one-edged swords« or »butchers' knives« (*Schlachtmesser*), known from elite graves in the Argolid³⁴ and Messenia³⁵. These big knives appear in two variants: one with a composite handle with a flanged grip, and one with a solid handle terminating in a kind of closed loop. At present, one can say that the latter examples are the oldest known knives with solid rods³⁶. To the same early period also belongs one small specimen from Shaft Grave IV at Mycenae with a square-sectioned rod, but with neither a knob nor ribbing³⁷. This example has dimensions typical of an average knife with a length of 21 cm. As will be demonstrated below, the exact dating of the other knives from this group is in many cases unclear, but the examples deriving from better contexts belong to the 14th-13th century BC. The latest is probably the knife from Troy (**fig. 8**) deposited late in local phase VIIa, during the LH IIIB Late period, around 1200 BC³⁸.



COMPARANDA FOR THE HERRINGBONE KNIFE FROM KAYMAKÇI

Shape

The herringbone knife from Kaymakçı belongs to the third group: knives with solid handles, most closely associated with Sandars Class 4. While all specimens with a solid handle show distinctive individual features, some share important morphological elements. The most convincing comparanda for the herringbone knife from Kaymakçı are two knives from Chamber Tombs around Mycenae excavated by Christos Tsountas at the end of the 19th century: one from tomb 5 in the Asprochoma cemetery³⁹ and one from tomb 103 in the Panaghia cemetery⁴⁰. Both of these knives have solid bronze handles ending in decorative ribbing and knobs. Their rods are almost square in section, but are, strictly speaking, hexagonal because their corners are faceted. The ribbing is situated at a distance from the knob and not directly abutting it, as in the case of the specimen from Kaymakçı. Yet, the herringbone knife from Kaymakçı differs from these two examples in its asymmetrical, leaf-shaped blade, its more massive rod, and its incised decoration. In fact, the incised decoration is important because nothing comparable is found on the Class 4 knives listed by N. Sandars. Unfortunately, the context of the knives from Mycenae cannot be dated precisely. From what is known, a deposition date in the LH IIIA-B period is likely⁴¹. Jean Deshayes published a knife belonging to this group from tomb XXIV in Argos-Deiras (LH IIIA; Argolid/GR)⁴². This example has a rod of round section and a button-shaped knob, but no ribbing; its context can be dated to LH IIIA.

Other examples are from the Aegean islands. Arthur Evans published a similar knife of LM (Late Minoan) IIIA date, but with a slightly thicker handle, from tomb 7 in Zapher Papura near Knossos (Heraklion/GR)⁴³. A comparable knife from Psychro Cave was illustrated by Vladimir Miložić⁴⁴. Its bronze rod, most probably square-sectioned, ter-

Fig. 8 Knife with a solid handle (inv. no. z/A07.2283) from the recent excavations at Troy (Çanakkale İli/TR). – (Photo G. Bieg, TRdigi19955; ©Troia Project).

minates in a knob directly abutted by ribbing, as in the case of the herringbone knife from Kaymakçı. Finally, a similar knife was also published from the LBA cemetery at Archontiki on the island of Psara⁴⁵.

Among knives from western Anatolia, only one belongs to Sandars Class 4 and can be directly compared with the specimen from Kaymakçı: a knife from Troy, mentioned above (fig. 8). It is from a cult deposit in one of the rear chambers (most probably a shrine) of the so-called Terrace House dating to LH IIIB Late⁴⁶. It has a square-sectioned rod and a knob, but no ribs. In the area where decorative ribbing usually appears on other examples, however, a lump of corroded bronze indicates that originally there could have been some kind of decoration.

Based on the discussion above, one can conclude that the group of knives with solid rods represents a discrete group. It is possible that at least in some cases, however, the appearance of knives with composite handles was not very different from that of knives with solid-hilted handles, based on published illustrations. Organic parts of composite handles tend not to be preserved, yet some exceptions show that bone or wooden plates may have terminated in a knob. Such a knob is visible at the end of the ivory handle of a small knife found in Shaft Grave II at Mycenae⁴⁷. Knives from Zygouries (Corinthia/GR) and Dendra (Argolid/GR) in the northwestern Peloponnese also provide good parallels. The example from Zygouries was found in a Late Helladic context. It has a flanged and rivet-less grip; the handle plates were made of no-longer surviving perishable material that must have originally been inlaid between the flanges. A small knob made of ivory, however, remained attached to the end of the grip, and this knob was decorated with ribbing at its base⁴⁸. It is difficult to see any detail in the old, published photo, but something like a small rivet hole is visible on the edge of the ribbing, giving information about how the knob was attached to the flanged grip. Similar is the case of the knife from Dendra Chamber Tomb II (LH IIIA-B; fig. 9); this one also has a flanged but riveted grip with inlaid wooden plates still preserved⁴⁹. The end of this wooden handle has the shape of a short rod decorated with ribbing and a knob. In this case, the decorative knob and the plates from the grip were manufactured from one piece of wood. The example from Routsis near Pylos (Tholos Tomb II; Messenia/GR) in Messenia, which is exhibited in the National Museum in Athens, is another example of a bronze knife with a riveted and flanged hilt with a well-preserved covering made of ivory. The ivory handle terminates in a knob, and there was probably once ribbing below, but this section of the knife is too damaged to be certain. Finally, one knife from Cyprus (Enkomi) belongs to this subtype. It has a flanged grip covered with plates terminating in a knob⁵⁰.



Fig. 9 Detail photo of the end of the composite handle of the knife from Dendra (Argolid/GR): knob, ribbing, and wooden plates attached to the bronze flanged grip. – (After Persson 1931, fig. 73 pl. 32).

Decoration

Given the discussion above, the most significant feature of the herringbone knife from Kaymakçı is its incised, geometric decoration. We therefore now turn to a more detailed discussion of this aspect. Knives

with incised decoration are unknown from central Anatolia and rare in the Aegean world. Many Aegean knives are embellished with grooves and longitudinal ribs along the rear edge⁵¹, but this feature is most likely technical rather than ornamental and would have served as a reinforcement of the blade. If knives are decorated, the ornamentation typically appears on the blade. As mentioned by N. Sandars, our ability to discern these patterns is often compromised by the poor preservation⁵²; even so, among over 125 Class 1 knives listed by her, the more sophisticated incised decoration was recorded on only four examples. It must be highlighted that the known examples of knives with solid handles have no decoration aside from knobs and ribs. The only exception other than the herringbone knife from Kaymakçı is an example from Psychro Cave of which the end terminates in a human head instead of a knob⁵³.

On a Class 1a knife of LM I-II date from the island of Pseira near Crete, the geometric decoration features in the form of dots and zigzagging lines located along the back of the blade; this knife also had rivets capped with gold⁵⁴. Another example of a knife from Psychro Cave⁵⁵ is decorated with longitudinal grooves and semi-circles. The dating of this object is unclear (see above) and the shape unusual. The blade is curved and the handle is flanged with a characteristic fishtail end. However, this last feature is strongly reminiscent of the handles of Naue IIA swords, as well as Peschiera daggers, also known from Crete⁵⁶. This knife, therefore, may date to the last phases of the LBA (late LH IIIB or LH IIIC). Simple geometric ornamentation can also be found on a knife from Seraglio on Cos/GR⁵⁷.

One knife from Rhodes has a flanged grip terminating in a ring (see above); it carries incised decoration on the blade in the form of lines and circles, as well as an octopus⁵⁸. The octopus motif also appears on a bronze blade from Phaistos (Heraklion/GR)⁵⁹. Another unusual example comes from the Cyclopean Tholos at Mycenae with an LH I-II date, where the grip was originally covered with gold foil adorned with incised curves and spirals⁶⁰. The incised decoration is found also on the back of a knife with a rivet-less flanged grip most probably from one of the robbed LBA tholoi at Panaztepe (**fig. 7, 1**; see above). It was acquired by the Manisa Müze Müdürlüğü from an antiquities dealer together with a spearhead and a fragment of a sword, as well as other metal objects and pottery⁶¹. The decoration includes dense zigzag decoration in addition to chevrons and vertical lines⁶². It is noteworthy that almost identical decoration appears on the spearhead found in the same context⁶³. An incised frieze also covers the sword blade, but this exhibits a different style: the double spiral and lotus motifs best known from Mycenaean and Minoan weapons⁶⁴. In addition, razors, too, were decorated. One of them from the LH IIIC tomb at Langada (Cos/GR) is a solid-hilted razor, the rod of which bears incised chevrons very similar to those on the knife from Panaztepe⁶⁵.

Various scholars have called attention to the fact that zigzags and other kinds of geometric motifs are more typical of ways of decorating weapons, tools, and other objects in central Europe or Italy than in the Aegean or Anatolia⁶⁶. In the light of the increasing evidence from western Anatolia, however, it seems likely that geometric decoration was also characteristic in this area⁶⁷. At Panaztepe, zigzag and chevron-motifs appear on several items, and zigzag and other geometric motifs cover molds for the production of metal jewelry found in Troy dating to the 13th century BC⁶⁸. The zigzag appears also as an ornament on the leaf-shaped bow of two violin-bow fibulae found at Troy⁶⁹, as well as on the cheek pieces and other incised bone objects from Troy⁷⁰, Beycesultan⁷¹, and Kaymakçı⁷². Such ornaments also conform to the decoration of Anatolian Grey Ware and other Anatolian ceramic wares, such as widespread wavy-line decorations.

It seems, therefore, that the incised herringbone pattern on the handle of the knife from Kaymakçı is evidence of an accepted and desired western Anatolian geometric stylistic convention, a point to be investigated in future research. Furthermore, in future discussions, western Anatolian origin or influence must be taken into consideration when concerning the provenance of geometrically decorated objects, such as the knives or razors from the Dodecanese and Crete.

CONTEXTUAL UNDERSTANDINGS: KNIVES IN EVERY DAY, MILITARY, AND CULTIC CONTEXTS

The role of Bronze Age Anatolian and Aegean knives in the society has never been a topic of a comprehensive study. Two primary functions were often suggested for this kind of object: use as a tool for cutting or sawing and use as a cutting or thrusting weapon for single combat or hunting⁷³. It is usually forgotten that knives can also be thrown and consequently may be employed as a kind of longer-range weapon. The ambivalent role of knives (tool and/or weapon) pertains throughout their history, from their first appearance in prehistory until modern times.

Larger knives are often found together with swords, daggers, and other weapons, and this evidence suggests that their owners may have been male, yet this conclusion lacks systematic research⁷⁴. The herringbone knife from Kaymakçı was discovered in a deposit that sheds no further light on who used it, where, and why.

Nevertheless, limited interpretations can be made about how such knives would have been deployed in daily life. As already explored by N. Sandars, the large variety of dimensions of Aegean knives suggests a range of possibilities⁷⁵. One can assume that smaller and simpler tanged examples were mainly tools used for various kinds of everyday activities. Some knives have blades with a tapered or concave shape that most probably results from sharpening via whetting, thus suggesting that they were indeed regularly used. The use of more elaborate knives with composite and solid handles may have been different. Unfortunately, they usually have no clear wear traces⁷⁶. To a certain extent, such knives were constructed in ways similar to daggers: both had blades, handles, and knobs/pommels. With the exception of the extra-large examples of »butchers' knives«, large knives are of comparable dimensions to small daggers (25-30 cm in length)⁷⁷, but they are too thin to have been regularly exploited as thrusting weapons. Their blades were unreinforced by central plates, even if the rib (or ribs) that appears frequently along the rear edge of the blade (mentioned above) could have had a reinforcing and technical function rather than being merely ornamental.

From the review of the material above, it is clear that knives with elaborate handles were found mainly in elite graves, including the Shaft Graves and Chamber Tombs at Mycenae, small tholoi at Panaztepe, and rich tombs near Knossos, where they were deposited together with weapons, jewelry made of gold, glass, and faience, and other valuable objects. Their pommels or grips, however, were seldom made of valuable material such as gold or ivory and were very rarely covered with incised decoration; generally speaking, they were relatively modest. At this time, it seems likely that the more elegant knives, such as the herringbone knife from Kaymakçı, were probably personal possessions. It is impossible to guess to what degree they might be used as media for the demonstration of social status or whether they served primarily as tools in daily life or even as weapons, yet their find contexts usually suggest they were used by the upper-echelons of the society. If they were deployed in combat, they may even have been deliberately hidden, perhaps serving as secret, emergency weapons.

Contrasting this pattern, swords and daggers were certainly primary prestige bearers in the LBA Aegean society. Around 20 Mycenaean swords were adorned with various decoration, pommels, and hilts made of semi-precious stones or ivory, sometimes even coated with gold⁷⁸. The blades of many daggers were lavishly decorated, as well⁷⁹. However, big and dangerous »butchers' knives« are surprisingly plain in comparison with swords and daggers from the same tombs. As mentioned above, »butchers' knives« were interpreted by Nancy Sandars and Barry Molloy as a kind of »one edged sword«⁸⁰. However, such items do not appear in artistic representations of combat scenes on daggers, seals, or frescos, whereas contemporary swords are frequently visible in the same. An exception includes the stele found above Shaft Grave V at Mycenae that shows a naked man fleeing before a warrior standing on a galloping chariot⁸¹. The warrior, surely a promi-

nant personality and perhaps the one buried in the same tomb, holds a horned sword with a big pommel. The fleeing man holds a »butchers' knife«. The scene proves that these big knives could indeed have been used as weapons, even if they were wielded only by defeated, hunted men with little prestige, as suggested by the stele. At least 30 Aegean seals show combat or ritual scenes where weapons are represented, as well, but almost all of them are definitely not knives per se⁸².

Another question is whether the knives with elaborate handles could have been used during cultic events, notably sacrifices. Two examples, one from Troy and the other from Kuşaklı-Sarissa, give us an insight into these aspects. The knife from Troy points to a cultic context, yet whether it was a ritual accessory or a personal possession converted into a votive gift remains unclear⁸³. The knife from Kuşaklı-Sarissa was found in a context beneath a wooden pillar in the area of the citadel gate, interpreted by Andreas Müller-Karpe as an offering belonging to the Hittite »building ritual«⁸⁴. Cultic interpretations are also possible in the case of the knife decorated with a human head from Psychro Cave, a rare exception compared to other Aegean weapons and tools⁸⁵, though as mentioned above, many other kinds of knives were deposited in the same cave. No bronze knives were found in the Temple Complex at Mycenae, however, nor in the temple at Phylakopi on Melos⁸⁶. Yet, »knives of stone« are recorded from ceremonial contexts at Beycesultan⁸⁷. While the find spot of the herringbone knife from Kaymakçı is not directly associated with ritual activities, sufficient evidence from the site and region demonstrates ritual aspects of daily life, notably sacrificial events and libation ceremonies, including those practiced in zones adjacent to the fortifications where the herringbone knife was discovered⁸⁸.

CONCLUSIONS

The knife from Kaymakçı belongs to an LBA group of knives with solid handles known from the Peloponnese, Crete, Psara, and Troy. It was found in the area of a tower-like structure attached to the fortifications of the site and dates most probably to the local LB 2B phase in the 13th century BC (c. LH IIIB in Aegean contexts).

The relatively low number of 2nd-millennium BC knives with elaborate handles (both composite and solid) that have been excavated in Anatolia and the Aegean speaks to their rarity. Yet, given their wide geographic distribution and relatively standard conventions, we can speak of a collective style and thus an accepted aesthetic quality for this type of object. The closest parallels for the herringbone knife from Kaymakçı come from the Chamber Tombs in Mycenae, the tomb at Argos-Deiras, Psychro Cave, and a cultic context at Troy, all dating to the 14th-13th century BC. The evidence from Panaztepe, Troy, and now Kaymakçı points additionally to a preference for incised, geometric decoration in western Anatolia, and thus suggests that artisans followed a known template, yet catered styles to local tastes. To be sure, this one object places Kaymakçı firmly within the known traditions of knives from a variety of contexts in the Aegean and Anatolian spheres and thus supports ongoing interpretations of the significance of the Marmara Lake basin in such networks.

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Notes

- 1) Stampolidis/Maner/Kopanias 2015. – Girella/Pavúk 2016. – Pieniżek 2016, 519-520. – Luke/Roosevelt 2017. – Roosevelt / Luke 2017. – Pieniżek/Pavúk/Kozal 2018.
- 2) In the text that follows, the term »western Anatolia« applies to sites in modern western Turkey, including those along the Aegean coast and interior valleys as far east as Beycesultan. The term »Aegean« stands for the Aegean islands, Crete, and Mainland Greece. The term »Anatolia« applies to the entire Anatolian peninsula.
- 3) Pernicka/Rose/Jablonka 2014. – Pavúk 2014. – Erkanal-Öktü/ Erkanal 2015. – Raymond et al. 2016.
- 4) Joukowsky 1986. – Lloyd 1972. – Mellaart/Murray 1995. – Dedeođlu/Abay 2014.
- 5) Luke/Roosevelt 2017. – Roosevelt/Luke 2017.
- 6) Roosevelt et al. 2015; 2017; 2018. – Roosevelt/Luke/Ünlüsoy 2016. – Roosevelt/Ünlüsoy/Luke 2017; in print.
- 7) Roosevelt et al. 2018, 673 fig. 22, 2.
- 8) For the western Anatolian periodization and chronology observed here, see Pavúk 2015.
- 9) Roosevelt et al. 2018, 649-650 figs 3-4.
- 10) The knife is currently curated by the Manisa Müze Müdürlüğü.
- 11) For production technology of Bronze Age metal tools and weapons see, for example, Evely 1993 and Armbruster 2000.
- 12) Sandars 1955, 181 fig. 3, 1.
- 13) The volumes by J. Deshayes (1960) contain a catalog of bronze finds, including tools, from a vast area between the »Indus and Danube« from the 4th to the 2nd millennium BC. His main types K-Q partly conform with the typology of N. Sandars but his sub-variants are elusive.
- 14) From Anatolia, two-edged small blades are known, including some examples from LBA contexts at Hattuşa (Çorum İli/TR) (e.g. nos 261 and 270; Boehmer 1972, 78-79 pl. 15). They are sometimes reminiscent of daggers but are much smaller, their blades thinner and unreinforced by central plates or ribs. They are classified by R. M. Boehmer as two-edged knives, whereas similar objects from the Aegean are defined as »two edged razors« (Weber 1996). The definition of this kind of object needs further study.
- 15) Aegean: Sandars 1955, 182. 195-196 fig. 4; Buchholz/Karageorghis 1971, 54 fig. 23, 639-645 (LM I-LH III). – Anatolia: Schmidt 1932, 268 fig. 356; von der Osten 1937, 253 figs 288-289 (stratum IV in Alişar Höyük); Goldman 1956, 281. 288 pl. 423, 5-7. 9 (Tarsus); Boehmer 1972, 78-79 pls 15-16; 1979, 10-11 pls 8-9 (Hattuşa).
- 16) Panaztepe: Erkanal-Öktü/Erkanal 2015, 197-198 fig. 28. – Troy VI-VII: Schmidt 1902, 256 nos 6454-6457; Blegen et al. 1958, 123 no. 38-095 fig. 219; 240 no. 36-398 fig. 254; Hänsel 2014, 133 pls 4. 13-15. – Aphrodisias: Joukowsky 1986, no. 693b.1 fig. 478, 23; no. 628.1 fig. 482, 33 (Middle Bronze Age contexts). – Beycesultan: Mellaart/Murray 1995, nos 103. 108 fig. O.3 (level II).
- 17) Mellaart/Murray 1995, fig. O.29 no. 276 right.
- 18) Sandars 1955, 175-179. 188-193 fig. 1, 1-5.
- 19) Catling 1964, 103 fig. 10, 13 pl. 11, d; Karageorghis 1974, 90 nos 49. 313 pls 86. 168 (Kition, Tomb 9, upper level, the end of the 13th century BC).
- 20) Erkanal-Öktü/Erkanal 2015, 197-198 fig. 28 (knife on the left). – Beycesultan: Mellaart/Murray 1995, nos 74-75 fig. O.6. nos 105-106 fig. O.8 (level III-II), however, their grip is quite short, with up to two rivets, so that they could be also classified as tanged blades. Also, the knife from Miletus (Niemeier/Niemeier 1997, 219 fig. 36) has only two rivets, but it is not clear from the photos if the grip is intact or if it was originally longer.
- 21) Boehmer 1972, 78-79 nos 258-259. 265-266 pls 15-16, periods IVc-III. – A nice example with a riveted handle was found in Maşat Höyük in a layer dating to the 13th century BC (Özğüç 1982, 114 pl. 55, 19 fig. 90) and recently in Kuşaklı-Sarissa (Müller-Karpe 2002, 179 fig. 7a).
- 22) Sandars 1955, 177-179. 191-193 fig. 2, 1-5. One specimen of this type was also found in Troy (Blegen/Caskey/Rawson 1953, 270 no. 37-780 fig. 297).
- 23) Boehmer 1972, 78-79 nos 259. 265 pl. 15, period IVb.
- 24) Sandars 1955, 179 fig. 3, 4. This is a small group (N. Sandars lists only 11 examples).
- 25) The example from Panaztepe is not a sub-variant of the »Siana type«, as suggested by Y. E. Ersoy (1988, 59 no. 3 fig. 3, 3 pl. 7a-b), because the »Siana type« (see below) is defined by a thorn-like extension at the end of the flanged grip, and that element is missing from the knife from Panaztepe (and the end-section of the grip is well preserved).
- 26) Yağın/Pulak/Slota 2005, 624 fig. 175.
- 27) Sandars 1955, 179-181. 194 figs 2-3.
- 28) Papadopoulou 1998, 18-27 pls 11. 14-21. – Kilian-Dirlmeier 1993.
- 29) Benzi 1992, 177-178 pl. 179h.
- 30) Sandars 1963, 140 pl. 27, 54. 56-57; Benzi 1992, 177-178 pl. 179f. m (there as »tipo 2«). – Two from Colophon were published already by Przeworski 1939, 47 pl. 5, 2-3 (from »Değirmendere«); four from Archontiki on Psara were published recently: Deligiorgi 2006, 149-150 (there as »variant of tipo 2«).
- 31) Götze 1902, 396 fig. 394; Hänsel 2014, 134 pl. 5, 3. – Additionally, the cemetery in Beşik-Tepe (located on the Aegean coast, 7-8 km west of Troy) yielded one knife with a decorative longitudinal rib and a flanged, rivet-less grip (Basedow 2000, 123 no. Yi28.7 pl. 96). The end of the grip of the knife from Beşik-Tepe is broken off, however, so it is unclear if it is a

- »Siana type« or Sandars Class 2. – Knives with composite handle and thorn-shaped protrusion are also reported from Fraktin (Cilicia; Deshayes 1960 no. 2582 pl. 93, 25.) and Alalakh (Woolley 1955, 278-279 pl. 122, Kn 6) but they differ considerably in details from Aegean and western Anatolian examples.
- 32) Sandars 1955, 181. 194-195 fig. 3, 1.
 - 33) Approximately 55-35 cm long, some can reach 70 cm (Molloy 2010, 404).
 - 34) e. g., from the Shaft Graves in Mycenae (e. g. in Shaft Grave IV: Karo 1930, 103-104. 209 nos 443-447. 450 pl. 97).
 - 35) Tombs in the vicinity of Pylos: Englianos, Tholos 5 and Myrsinochori-Routsis, Tholos 2: Zavadii 2013, 162.
 - 36) They were not considered to be knives by N. Sandars (1955, 181-182), who argued that their large dimensions precluded their use as such. G. Karo (1930, 209) argued they were a kind of assault weapon, and B. Molloy (2010, 404) interprets them as swords. Although it is indeed possible that their function was very specialized, in a technical sense they are no more than big knives.
 - 37) Karo 1930, 222 pl. 98 no. 439. – Sandars 1955, 181. 194.
 - 38) Pieniżek/Aslan 2016, 423-424 pl. 123b.
 - 39) Tsountas 1888, 173 pl. 9 no. 21. – Deshayes 1960, no. 2553 pl. 93, 5. – Xenake-Sakellariou 1985, 60 no. 2327 pls 4 and V.
 - 40) Xenake-Sakellariou 1985, 289 no. 4937 pl. 143 and V, where it is erroneously labeled as from tomb 105.
 - 41) This is very likely in case of the knife no. 4937 from Panagia and possible in case of no. 2553 from Asprochoma. The finds from the old excavations of Ch. Tsountas cannot be dated precisely, but the reevaluation of the material by A. Xenake-Sakellariou (1985) led to the conclusion that the Asprochoma cemetery was most probably used during LH IIIA-B, and Panaghia during LH I-III B (Xenake-Sakellariou 1985, 354). N. Sandars lists four knives from the Chamber Tombs in Mycenae, but this may be partly wrong, for example the knife with »no number«, faceted handle and »the end of the blade missing« is most probably the same as the knife no. 4937. Unclear is also the case of the knife with the square-sectioned handle and a knob from Tomb 2 in Dendra (Sandars 1955, 194), A. W. Persson (1931) did not publish any knife of this shape from Chamber Tomb 2, therefore it is possible that this is the same knife as the one with a composite handle and a knob made of wood, which is described in detail below.
 - 42) Deshayes 1960, no. 2553 pl. 92, 21; 1966, 67. 202 pl. 69, 6.
 - 43) Evans 1905, 415 fig. 19. – Evely 1993, 24.
 - 44) Miložić 1955, 165 fig. 1, 8. – V. Miložić briefly discussed and illustrated 13 knives from Crete; he does not include contextual information yet does suggest a date of 1250-950 BC.
 - 45) As far as one can judge from the photo, it is a knife made completely of bronze with a solid round- or square-sectioned grip, a relatively large bronze (?) mushroom-shaped pommel and one decorative rib below the pommel (Deligiorgi 2006, 150 [illustration below], there as a variant of »type 2«).
 - 46) Pieniżek/Aslan 2016.
 - 47) Karo 1930, 70 no. 216a pl. 72.
 - 48) Blegen 1928, 202-203 fig. 190, 1.
 - 49) Persson 1931, 100 no. 4 fig. 73 pl. 32 (below right). – N. Sandars (1955, 177) described the plates wrongly as made of ivory.
 - 50) Catling 1964, 103 pl. 11, e. – Unfortunately, H. Catling provides no information about the material of the knob; however, the photo suggests that it must have been a soft material, such as bone or ivory.
 - 51) Class 1a: from Zapher Papura near Knossos, tomb 64 (LM III; Sandars 1955, 175 fig. 1, 2) and tomb 4 (Sandars 1955, 189), from Chamber Tomb 518 in Mycenae (LH I-II; Wace 1932, 77 no. 70 pl. VII, not LH III as by Sandars). – Class 1b: from Zapher Papura, tomb 3 (LM 3) and from Gypsades by Knossos, tomb 1 (Sandars 1955, 192), from Seraglio on Cos (Sandars 1955, 193).
 - 52) Sandars 1955, 176.
 - 53) Deshayes 1960, no. 2597 pl. 93, 7. – Evely 1993, 20-24 fig. 8, 8.
 - 54) Sandars 1955, 175 fig. 1, 4; Deshayes 1960, no. 2486 pl. 92, 12. – Gold capped rivets are also present on the otherwise plain knife from the LM III »Tomb of the Double Axes« in Isopata near Knossos, and on one small knife from Shaft Grave II in Mycenae, which N. Sandars included in her Class 5 (Sandars 1955, 192 fig. 2, 1).
 - 55) Miložić 1955, 156 fig. 1, 7. – Sandars 1955, 192.
 - 56) Kilian-Dirlmeier 1993; Papadopoulos 1998, 29. – Similar features both in terms of shape and decoration – a strip of semi-circles along the back of the blade – are present on knives excavated in Italy from the Peschiera period, such as those classified by V. B. Peroni to the Scoglio del Tonno or Matrei types (Peroni 1976, 14-19 pls 2-4).
 - 57) »... incised line with semicircles on blade« (Sandars 1955, 192). Unfortunately, this one remained unpublished and neither illustrations nor more detailed informations are available.
 - 58) Benzi 1992, 177-178 pl. 179h; 2009, 57.
 - 59) Miložić 1955, 156 fig. 1, 13. The date is unclear, as is the case with the knives from Psychro Cave, see note 56.
 - 60) Wace et al. 1921/1922-1922/1923; Sandars 1955, 179. 193 fig. 3, 4. – At 42.5 cm long, this knife is one of the longest recorded. N. Sandars (1955, 195) also mentions another early example with decoration that comes from the lavishly equipped Chamber Tomb 529 at Mycenae. It was lying on the bench in the chamber and belonged to the earlier phase of the occupation (LH I-II) according to A. J. B. Wace (1932, 104-105 no. 25 pl. 7). Its blade was probably covered with incised spirals and/or circles, but the surface of the knife is very corroded, and it is not possible to learn any details of the decoration based on available illustrations. Its handle was covered with ivory plates.
 - 61) Ersoy 1988.
 - 62) Ibidem 59 no. 3 fig. 3, 3 pl. 7a-b.
 - 63) Ibidem 59 no. 2 fig. 3, 2 pl. 6.
 - 64) Ersoy 1988, 61-67; Pavúk/Pieniżek 2016, 545 fig. 17a. – As demonstrated by Y. E. Ersoy, the blade belongs most probably to a cruciform sword. Based on various examples, he came to the conclusion that the sword must have been produced no later than LH IIB/IIIA, most probably in Knossos.
 - 65) Weber 1996, 153 pl. 40 no. 344.
 - 66) e. g. Miložić 1955; Ersoy 1988, 68-69; Benzi 2009, 56-58.
 - 67) Pavúk/Pieniżek 2016, 544-545.
 - 68) Blegen et al. 1958, 124 fig. 220 no. 37-389. – Pavúk/Pieniżek 2016, fig. 15.

- 69) Pieniżek forthcoming.
- 70) Korfmann/Zidarov 2006.
- 71) Mellaart/Murray 1995, 147-149 nos 309-310. 323-325; 336 figs O.36-40.
- 72) Roosevelt et al. 2018, 671-672 fig. 21, 6.
- 73) See, e.g., Evely 1993, 20. History records various personal combat knives, the most famous including the Spanish Navaja, the Bowie-knife from Civil-War period America, various Persian and Arabic knives, and the Japanese tanto (Capwell 2010).
- 74) Nevertheless, in the case of better-preserved skeletons from the tombs in Grave Circle B at Mycenae, where the anthropological data are available, the knives were deposited with adult men: two knives with ivory handles with skeleton 1 in tomb D (Dietz 1991, 112-114), and one knife with a wood-hilted handle with skeleton 1 in tomb N (Dietz 1991, 126).
- 75) Sandars 1955, 175-177.
- 76) The specimen with incised decoration from Panaztepe is one of the exceptions. It has the cutting edge slightly convex and chipped in places indicating use, Ersoy 1988, 59.
- 77) Based on Sandars 1955 and Papadopoulos 1998.
- 78) Ersoy 1988. – Kilian-Dirlmeier 1993.
- 79) Papadopoulos 1998.
- 80) Moloy 2010, 404.
- 81) Karo 1930, 33 no. 1428 pl. 5.
- 82) Doubts can be expressed for two seals: IV, 233 and II, 2 287 (CMS/Arachne).
- 83) Pieniżek/Aslan 2016.
- 84) Müller-Karpe 2002, 178-179.
- 85) The only object from the Aegean that may be comparable is a dagger with a solid handle terminating in a bull figurine found in an Early Bronze Age context in Troy (Götze 1902, 345 fig. 264; Schmidt 1902, 248 no. 6151).
- 86) Moore/Taylor 1999. – Renfrew 1985.
- 87) These »knives of stone« are mentioned among the equipment of the East Shrine of level II (Lloyd 1972, 32). They are not published or discussed in Mellaart/Murray 1995.
- 88) For processions to and from the site and associated libations, see Luke/Roosevelt 2017.

References

- Armbruster 2000: B. Armbruster, *Goldschmiedekunst und Bronze-technik: Studien zum Metallhandwerk der Atlantischen Bronzezeit auf der Iberischen Halbinsel*. Monographies Instrumentum 15 (Montagnac 2000).
- Basedow 2000: M. Basedow, *Beşik-Tepe. Das spätbronzezeitliche Gräberfeld*. Studia Troica: Monographien 1 (Mainz 2000).
- Benzi 1992: M. Benzi, *Rodi e la civiltà micenea*. Incunabula Graeca 94 (Roma 1992).
- 2009: M. Benzi, *LB III Trade in the Dodecanese: an Overview*. In: E. Borgna/P. Cassola Guida (eds), *Dall'Egeo all'Adriatico: organizzazioni sociali, modi di scambio e interazione in età postpalaziale (XII-XI sec. a. C.)*. From the Aegean to the Adriatic: social organisations, modes of exchange and interaction in Postpalatial times (12th-11th B. C.). *Atti del Seminario internazionale (Udine, 1-2 dicembre 2006)*. Studi e Ricerche di Protostoria Mediterranea 8 (Roma 2009) 47-62.
- Blegen 1928: C. Blegen, *Zygouries: a prehistoric settlement in the valley of Cleonae* (Cambridge MA 1928).
- Blegen/Caskey/Rawson 1953: C. W. Blegen / J. L. Caskey / M. Rawson, *Troy. Excavations conducted by the University of Cincinnati 1932-1938. III: The Sixth Settlement* (Princeton NJ 1953).
- Blegen et al. 1958: C. W. Blegen / C. G. Boulter / J. L. Caskey / M. Rawson, *Troy. Excavations conducted by the University of Cincinnati 1932-1938. IV: Settlements VIIa, VIIb and VIII* (Princeton NJ 1958).
- Boehmer 1972: R. M. Boehmer, *Die Kleinfunde von Boğazköy aus den Grabungskampagnen 1931-1939 und 1952-1969*. *Boğazköy-Hattusa 7 = Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft* 87 (Berlin 1972).
- 1979: R. M. Boehmer, *Die Kleinfunde aus der Unterstadt von Boğazköy, Grabungskampagnen 1970-1978*. *Boğazköy-Hattusa 10* (Berlin 1979).
- Buchholz/Karageorghis 1971: H.-G. Buchholz / B. Karageorghis, *Altägäis und Altkypros*. Friedrich Matz zum 80. Geburtstag am 15. August 1970 (Tübingen 1971).
- Capwell 2010: T. Capwell, *Messer: von den Anfängen bis zur Gegenwart* (Fränkisch-Crumbach 2010).
- Catling 1964: H. Catling, *Cypriot bronzework in the Mycenaean world* (Oxford 1964).
- CMS/Arachne: *Corpus of Minoan and Mycenaean Seals in iDAI*. objects/Arachne. [http://arachne.uni-koeln.de/browser/index.php?view\[layout\]=siegel](http://arachne.uni-koeln.de/browser/index.php?view[layout]=siegel) (30.4.2019).
- Dedeoğlu/Abay 2014: F. Dedeoğlu / E. Abay, *Beycesultan Höyük Excavation Project: New Archaeological Evidence from Late Bronze Layers*. *Arkeoloji Dergisi* 19, 2014, 1-39.
- Deligiorgi 2006: G. Deligiorgi, *Ta chálkina*. In: A. Archontidou-Argiri (ed.), *Psara. Enas strathmós stin Perifereia tou Mikinaikou kósmou* (Psara 2006) 138-159.
- Deshayes 1960: J. Deshayes, *Les outils de bronze, de l'Indus au Danube (IV^e au II^e millénaire)*. Institut Français d'Archéologie de Beyrouth, *Bibliothèque Archéologique et Historique* 71 (Paris 1960).
- 1966: J. Deshayes, *Argos, les fouilles de la Deiras*. *Études Péloponnésiennes* 4 (Paris 1966).
- Dietz 1991: S. Dietz, *The Argolid at the transition to the Mycenaean Age: studies in the chronology and cultural development in the shaft grave period* (Copenhagen 1991).
- Erkanal-Öktü/Erkanal 2015: A. Erkanal-Öktü / H. Erkanal, *Neue Forschungen im vorgeschichtlichen Mittelwestanatolien*. *Bakla Tepe, Liman Tepe, Çeşme-Bağlararası und Panaztepe*. In: Ü. Yalçın / H.-D. Bienert (eds), *Anatolien – Brücke der Kulturen*. Aktuelle Forschungen und Perspektiven in den deutsch-türkischen Altertumswissenschaften. *Der Anschnitt* 27 = Veröffentlichungen aus dem Deutschen Bergbau-Museum Bochum 203 (Bochum 2015) 185-203.

- Ersoy 1988: Y. E. Ersoy, Finds from Menemen/Panaztepe in the Manisa Museum. *Annual of the British School at Athens* 83, 1988, 55-82.
- Evans 1905: A. Evans, The Prehistoric Tombs of Knossos. *Archaeologia* 59/2, 1905, 391-562.
- Evely 1993: R. D. V. Evely, Minoan Crafts. Tools and Techniques. An Introduction. *Studies in Mediterranean Archaeology* 92 (Jönköping 1993).
- Girella/Pavúk 2016: L. Girella / P. Pavúk, The Nature of Minoan and Mycenaean Involvement in the Northeastern Aegean. In: E. Gorogianni / P. Pavúk / L. Girella (eds), *Beyond Thalassocracies: Understanding Processes of Minoanisation and Mycenaeanisation in the Aegean* (Oxford, Philadelphia 2016) 15-42.
- Goldman 1956: H. Goldman, Excavations at Gözülü Kule, Tarsus. 2: From the Neolithic through the Bronze Age (Princeton NJ 1956).
- Götze 1902: A. Götze, Die Kleingeräte aus Metall, Stein, Knochen, Thon und ähnlichen Stoffen. In: W. Dörpfeld (ed.), *Troia und Ilion. Ergebnisse der Ausgrabungen in den vorhistorischen und historischen Schichten von Ilion 1870-1894*, vol. 1 (Athen 1902) 320-423.
- Hänsel 2014: A. Hänsel, Die Metallfunde aus den bronzezeitlichen Siedlungsschichten. In: M. Wemhoff / D. Hertel / A. Hänsel, *Heinrich Schliemanns Sammlung trojanischer Altertümer – Neuverlage. 2: Untersuchungen zu den Schatzfunden, den Silber- und Bronzeartefakten, der Gusstechnik, den Gefäßmarken und den Bleigewichten. Berliner Beiträge zur Vor- und Frühgeschichte N. F. 18* (Berlin 2014) 129-204.
- Joukowsky 1986: M. S. Joukowsky, Prehistoric Aphrodisias. An Account of the Excavations and Artifact Studies. *Archaeologia Transatlantica III = Publications d'Histoire de l'Art et d'Archéologie de l'Université Catholique de Louvain* 39 (Providence RI 1986).
- Karageorghis 1974: V. Karageorghis, Excavations at Kition. I: The Tombs (London 1974).
- Karo 1930: G. Karo, Die Schachtgräber von Mykenai (München 1930).
- Kilian-Dirlmeier 1993: I. Kilian-Dirlmeier, Die Schwerter in Griechenland (außerhalb der Peloponnes), Bulgarien und Albanien. *PBF IV*, 12 (Stuttgart 1993).
- Korfmann/Zidarov 2006: M. O. Korfmann / P. Zidarov, Tensenknebel in Troia. In: H.-P. Wotzka (ed.), *Grundlegungen. Beiträge zur europäischen und afrikanischen Archäologie für Manfred K. H. Eggert* (Tübingen 2006) 677-690.
- Lloyd 1972: S. Lloyd, Beycesultan. 3, 1: Late Bronze Age Architecture. *Occasional Publications of the British Institute of Archaeology in Ankara* 11 (London 1972).
- Luke/Roosevelt 2017: C. Luke / Ch. H. Roosevelt, Cup-marks and Citadels: Evidence for Libation in the Second-Millennium BCE Marmara Lake Basin, Western Anatolia. *Bulletin of the American Schools of Oriental Research* 378, 2017, 1-23.
- Mellaart/Murray 1995: J. Mellaart / A. Murray (eds), Beycesultan. 3, 2: Late Bronze Age and Phrygian Pottery and Middle and Late Bronze Age Small Objects. *Publications of the British Institute of Archaeology in Ankara* 12 (London 1995).
- Milojčić 1955: V. Milojčić, Einige »mitteleuropäische« Fremdlinge auf Kreta. *Jahrbuch des RGZM* 2, 1955, 153-169.
- Molloy 2010: B. Molloy, Swords and Swordsmanship in the Aegean Bronze Age. *American Journal of Archaeology* 114, 2010, 403-428.
- Moore/Taylor 1999: D. Moore / W. D. Taylor, The Temple Context. Well built Mycenae 10 (Oxford 1999).
- Müller-Karpe 2002: A. Müller-Karpe, Kuşaklı-Sarissa. Kultort im Oberen Land. In: T. Özgüç (ed.), *Die Hethiter und ihr Reich. Das Volk der 1000 Götter [exhibition catalogue Bonn]* (Stuttgart 2002) 176-189.
- Niemeier/Niemeier 1997: B. Niemeier / W.-D. Niemeier, Milet 1994-1995. Projekt »Minoisch-Mykenisches bis protogeometrisches Milet«. Zielsetzung und Grabungen auf dem Stadionhügel und am Athenatempel. *Archäologischer Anzeiger* 1997/1, 189-248.
- von der Osten 1937: H. H. von der Osten, The Alishar Hüyük Seasons of 1930-1932, vol. 2. *Researches in Anatolia 8-9 = The University of Chicago Oriental Institute Publications* 28-30 (Chicago 1937).
- Özgüç 1982: T. Özgüç, Maşat Höyük II. Boğazköy'ün kuzeydoğusunda bir hitit merkezi = A hittite center northeast of Boğazköy (Ankara 1982).
- Papadopoulou 1998: A. Papadopoulou, The Late Bronze Age daggers of the Aegean. I: The Greek Mainland. *PBF VI*, 11 (Stuttgart 1998).
- Pavúk 2014: P. Pavúk, Troia VI Früh und Mitte. Keramik, Stratigraphie, Chronologie. *Studia Troica: Monographien* 3 (Bonn 2014).
- 2015: P. Pavúk, Between the Aegean and the Hittites: The Western Anatolia in Second Millennium BC. In: Stampolidis/Maner/Kopanias 2015, 81-114.
- Pavúk/Pieniżek 2016: P. Pavúk / M. Pieniżek, Towards Understanding the Socio-political Structures and Social Inequalities in Western Anatolia during the Late Bronze Age. In: H. Meller / H. P. Hahn / R. Jung / R. Risch (eds), *Arm und Reich – Zur Ressourcenverteilung in prähistorischen Gesellschaften. 8. Mitteldeutscher Archäologentag vom 22. bis 24. Oktober 2015 in Halle (Saale). Tagungen des Landesmuseums für Vorgeschichte Halle* 14 (Halle/Saale 2016) 531-552.
- Pernicka/Rose/Jablonka 2014: E. Pernicka / Ch. B. Rose / P. Jablonka (eds), Troia 1987-2012: Grabungen und Forschungen. I: Forschungsgeschichte, Methoden und Landschaft, vols 1-2. *Studia Troica: Monographien* 5 (Bonn 2014).
- Peroni 1976: V. B. Peroni, Die Messer in Italien. *PBF VII*, 2 (Stuttgart 1976).
- Persson 1931: A. W. Persson, The royal tombs at Dendra near Midea. *Kungliga Humanistiska Vetenskapssamfundet: Skrifter* 15 (Lund 1931).
- Pieniżek 2016: M. Pieniżek, A Polity in Transition: Troy in the 2nd Millennium BC. In: M. Bartelheim / B. Horejs / R. Krauß (eds), *Von Baden bis Troia: Ressourcennutzung, Metallurgie und Wissenstransfer. Eine Jubiläumsschrift für Ernst Pernicka. Oriental and European Archaeology* 3 (Rahden/Westf. 2016) 513-534.
- forthcoming: M. Pieniżek, Kleinfunde aus Metall. In: E. Pernicka / P. Jablonka / P. Pavúk / M. Pieniżek / D. Thumm-Doğrayan (eds), Troia 1987-2012: Grabungen und Forschungen. III: Die spätbronzezeitlichen Schichten. *Studia Troica: Monographien* 7 (forthcoming).

- Pieniżek/Aslan 2016: M. Pieniżek / C. Aslan, Heroic past, memory and ritual at Troy. In: E. Alram-Stern / F. Blakolmer / S. Deger-Jalkotzy / R. Laffineur / J. Weilharter (eds), *Metaphysis. Ritual, Myth and Symbolism in the Aegean Bronze Age*. *Aegaeum* 39 (Leuven 2016) 423-432.
- Pieniżek/Pavúk/Kozal 2018: M. Pieniżek / P. Pavúk / E. Kozal, The Troad, South Aegean and the Eastern Mediterranean: Long-distance Connections during the Late Bronze Age. In: M. Bartelheim / B. Nessel / D. Neumann (eds), *Bronzezeitlicher Transport. Akteure, Mittel und Wege*. *RessourcenKulturen* 8 (Tübingen 2018) 375-410.
- Przeworski 1939: S. Przeworski, *Die Metallindustrie Anatoliens in der Zeit von 1500-700 vor Chr.: Rohstoffe, Technik, Produktion*. *Internationales Archiv für Ethnographie: Supplement* 36 (Leiden 1939).
- Raymond et al. 2016: A. Raymond / I. Kaiser / L.-C. Rizzotto / J. Zurbach, Discerning Acculturation at Miletus: Minoanisation and Mycenaeanisation. In: E. Gorogianni / P. Pavúk / L. Girella (eds), *Beyond Thalassocracies: Understanding Processes of Minoanisation and Mycenaeanisation in the Aegean* (Oxford, Philadelphia 2016) 58-74.
- Renfrew 1985: C. Renfrew, The archaeology of cult: The sanctuary at Phylakopi. *The Annual of the British School at Athens: Supplementary Volume* 18 (London 1985).
- Roosevelt/Luke 2017: Ch. H. Roosevelt / C. Luke, The Story of a Forgotten Kingdom? Survey Archaeology and the Historical Geography of Central Western Anatolia in the Second Millennium BC. *European Journal of Archaeology* 20/1, 2017, 120-147.
- Roosevelt/Luke/Ünlüsoy 2016: Ch. H. Roosevelt / C. Luke / S. Ünlüsoy, Kaymakçı Arkeoloji Projesi: 2014 Yılı Kazı Sonuçları. *Kazı Sonuçları Toplantısı* 37/2, 2016, 243-268.
- Roosevelt/Ünlüsoy/Luke 2017: Ch. H. Roosevelt / S. Ünlüsoy / C. Luke, Kaymakçı Arkeoloji Projesi: 2015 Yılı Kazı Sonuçları. *Kazı Sonuçları Toplantısı* 38/2, 2017, 563-586.
- in print: Ch. H. Roosevelt / S. Ünlüsoy / C. Luke, Kaymakçı Arkeoloji Projesi: 2016-2017 Yılı Kazı ve Araştırma Sonuçları. *Kazı Sonuçları Toplantısı* 40 (in print).
- Roosevelt et al. 2015: Ch. H. Roosevelt / P. Cobb / E. Moss / B. R. Olson / S. Ünlüsoy, Excavation is Destruction Digitization: Advances in Archaeological Practice. *Journal of Field Archaeology* 40/3, 2015, 325-346.
- Roosevelt et al. 2018: Ch. H. Roosevelt / C. Luke / S. Ünlüsoy / C. Çakırlar / J. Marston / C. O'Grady / P. Pavúk / M. Pieniżek / J. Mokrisova / C. Scott / N. Shin / F. Slim, Exploring Space, Economy, and Interregional Interaction at a Second-Millennium B.C.E. Citadel in Central Western Anatolia: 2014-2017 Research at Kaymakçı. *American Journal of Archaeology* 122/4, 2018, 645-688.
- Sandars 1955: N. Sandars, The Antiquity of the One-edged Bronze Knife in the Aegean. *Proceedings of the Prehistoric Society* 21, 1955, 174-197.
- 1963: N. Sandars, Later Aegean Bronze Swords. *American Journal of Archaeology* 67, 1963, 117-153.
- Schmidt 1932: E. Schmidt, The Alishar Hüyük Seasons of 1928 and 1929, vol. 1. *The University of Chicago Oriental Institute Publications* 19 (Chicago 1932).
- Schmidt 1902: H. Schmidt, Heinrich Schliemann's Sammlung trojanischer Altertümer (Berlin 1902).
- Stampolidis/Maner/Kopaniias 2015: N. Stampolidis / Ç. Maner / K. Kopaniias (eds), *NOSTOI. Indigenous Culture, Migration and Integration in the Aegean Islands and Western Anatolia during the Late Bronze and Early Iron Age*. Koç University Press 58 (Istanbul 2015).
- Tsountas 1888: Ch. Tsountas, Anaskafai táfou en Mikíniais. *Archaiologikē Ephēmeris* 1888, 119-179.
- Wace 1932: A. J. B. Wace, Chamber Tombs at Mycenae. *Archaiologia* 82, 1932, 1-146.
- Wace et al. 1921/1922-1922/1923: A. J. B. Wace / W. A. Heurtley / W. Lamb / L. B. Holland / C. A. Boethius, The Report of the School Excavations at Mycenae, 1921-1923. *Annual of the British School at Athens* 25, 1921/1922-1922/1923 (1923), 1-434.
- Weber 1996: C. Weber, *Die Rasiermesser in Südosteuropa*. PBF VIII, 5 (Stuttgart 1996).
- Woolley 1955: L. Woolley, Alalakh. An Account of the Excavations at Tell Atchana in the Hatay, 1937-1949. *Reports of the Research Committee of the Society of Antiquaries of London* 18 (Oxford 1955).
- Xenake-Sakellariou 1985: A. Xenake-Sakellariou, *Oi thalamotoi taphoi ton Mykenon Anaskaphes Chr. Tsounta (1887-1898)* (Athens 1985).
- Yalçın/Pulak/Slotta 2005: Ü. Yalçın / C. Pulak / R. Slotta, Das Schiff von Uluburun. Welthandel vor 3000 Jahren [exhibition catalogue]. *Veröffentlichungen aus dem Deutschen Bergbau-Museum Bochum* 138 (Bochum 2005).
- Zavadil 2013: M. Zavadil, Monumenta. Studien zu mittel- und spät-helladischen Gräbern in Messenien. *Österreichische Akademie der Wissenschaften, Philosophisch-Historische Klasse: Denkschriften* 450 = *Mykenische Studien* 33 (Wien 2013).

Zusammenfassung / Summary / Résumé

Über Netzwerke und Messer: ein Bronzemesser mit Fischgrätmuster aus der Zitadelle von Kaymakçı (Manisa İli/TR)

Während der ersten Grabungssaison im Jahr 2014 wurde in der spätbronzezeitlichen Siedlung Kaymakçı ein Bronzemesser mit einem ungewöhnlich verzierten Griff gefunden. Kaymakçı ist eine kürzlich entdeckte Zitadelle, die 100 km östlich der Ägäisküste im Gediz-Tal lokalisiert ist. Es ist eine der wenigen Fundstellen im Inneren Westanatoliens, die durch reguläre Grabungen erforscht wird. Das Messer kam in einem turmartigen Gebäude zutage, das sich an die Befestigungen im Nordwesten der Zitadelle anschloss. Es gehört zu einer kleinen Gruppe von Messern mit festem Griff

(Sandars-Klasse 4), die bis vor Kurzem nur von Elitegräbern und kultischen Kontexten auf der Peloponnes, Kreta, Psara und Troia bekannt waren. Diese Messer sind u. a. durch Rippenverzierung und einen massiven Bronzeknopf am Griffende charakterisiert. Das geometrische Fischgrätmuster an dem Messer aus Kaymakçı findet jedoch keine Parallelen in der minoischen und mykenischen Kunst, ist dagegen geometrischen Verzierungen ähnlich, die von anderen westanatolischen Funden bekannt sind. Daher ist das Fischgrätmesser aus Kaymakçı höchstwahrscheinlich das Eigentum eines Mitglieds der westanatolischen Elite, ein Ergebnis der Verschmelzung der ägäischen und westanatolischen Traditionen. Gleichzeitig ist es eines der ersten bekannten Beispiele lokaler Ornamentik, die aufgrund des Forschungsstandes im Inneren Westanatoliens bis jetzt noch wenig untersucht ist.

Of Networks and Knives: a Bronze Knife with Herringbone Decoration from the Citadel of Kaymakçı (Manisa İli/TR)

During the first season of excavations in 2014 at the Late Bronze Age site of Kaymakçı, a bronze knife with an unusually decorated handle was found. Kaymakçı is a recently discovered citadel located c. 100km east of the Aegean coast in the Gediz Valley and is one of the few excavated sites from interior western Anatolia. The knife was recovered in the tower-like structure attached to the fortifications at the northwestern extent of the citadel. It belongs to a small group of solid-hilted knives (Sandars Class 4) known until recently only from elite graves and ritual contexts in the Peloponnese, Crete, Psara, and Troy. The knife shares decorative ribbing, a solid bronze knob at the end of its handle, and some other features with its Aegean counterparts. However, the geometric style of its decoration, such as the central herringbone-pattern, is unparalleled among Minoan and Mycenaean art, corresponding instead with geometric designs known from other western Anatolian finds. Therefore, the herringbone knife from Kaymakçı, most probably the property of a member of the western Anatolian elite, is an outcome of the fusion of Aegean and western Anatolian traditions. Simultaneously, it is one of the first known examples of a local ornamental style, still poorly known due to the state of research in interior western Anatolia.

A propos des réseaux et des couteaux: un couteau en bronze à chevrons de la citadelle de Kaymakçı (Manisa İli/TR)

Lors de la première saison de fouilles en 2014, un couteau en bronze avec une poignée inhabituellement décorée a été trouvé dans le village de la fin de l'âge du Bronze de Kaymakçı. Kaymakçı est une citadelle récemment découverte située à 100 km à l'est de la côte égéenne dans la vallée du Gediz. C'est l'un des rares sites d'Anatolie occidentale intérieure explorés par des fouilles régulières. Le couteau a été découvert dans un bâtiment en forme de tour qui jouxte les fortifications au nord-ouest de la citadelle. Il appartient à un petit groupe de couteaux à manche fixe (Sandars classe 4) qui, jusqu'à récemment, n'étaient connus que des tombes d'élite et des contextes culturels du Péloponnèse, de Crète, de Psara et de Troie. Ces couteaux se caractérisent par un décor nervuré et un bouton en bronze massif à l'extrémité du manche. Cependant, le motif géométrique à chevrons sur le couteau de Kaymakçı ne trouve pas de parallèles dans l'art minoen et mycénien, mais est similaire aux décorations géométriques d'autres découvertes anatoliennes occidentales. Par conséquent, le couteau à chevrons de Kaymakçı est très probablement la propriété d'un membre de l'élite de l'Anatolie occidentale, un résultat de la fusion des traditions égéenne et anatolienne occidentale. En même temps, c'est l'un des premiers exemples connus de l'ornementation locale qui a été peu étudiée à ce jour en raison de l'état de la recherche en Anatolie occidentale intérieure.

Traduction: L. Bernard

Schlüsselwörter / Keywords / Mots clés

Türkei / Spätbronzezeit / Westanatolien / Ägäis / Bronzemesser / geometrischer Dekor
Turkey / Late Bronze Age / western Anatolia / Aegean / bronze knife / geometric design
Turquie / âge du Bronze final / Anatolie occidentale / Égée / couteau en bronze / décor géométrique

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