

Symbolism in action: Techno-typology, function, and human-artefact dynamics in figured/non-figured bone plaques from Pre-Pottery Neolithic Boncuklu Tarla, Turkey

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ABSTRACT

Among the artefacts of fundamental importance in the context of symbolism and iconography during the Neolithization process in northern Mesopotamia, there is much research about, and publication relating to, human figurines or statues, animal figurines or statues, figured stone objects, stone vessels, bone plaques, wall decoration (paint, relief, or incision) and stone pillars. While among these various research topics bone plaques have been noticeably less studied than other classes of small finds, they are gradually gaining importance. From the figurative and typological perspective, these objects carry importance for their visual characteristics and their regional variety, but it is notable that their typological differences and functions are still not well understood. This study opens a new debate about the techno-typological characteristics, regional distribution, and modes of use of these objects starting from a group of bone plaques recovered from burial contexts during the excavations of the Pre-Pottery Neolithic settlement of Boncuklu Tarla in southeast Turkey. Portable symbolic artefacts are found to show significant overlaps between materials, iconography and use as well as regional identities and temporal continuities in techniques and decoration.

1. Introduction

While studies relating to the concepts of symbolism and ritual of the Neolithic of southwest Asia continue to increase, the roots of these studies lie in the excavations in the 1950s of Jericho, the 1960s excavations of Çatalhöyük and the 1970s excavations of Mureybet as well as other similar settlements (Braidwood and Braidwood, 1982; Cauvin, 1994; Kenyon, 1981; Mellaart, 1967; Özdoğan and Erim-Özdoğan, 1990). This initial research, and the theories put forward, have an important place in studies of the sociocultural structures, belief systems, understanding of symbolism and rituals of southwest Asian Neolithic communities, including research being carried out today. Through the excavations carried out since the 1980s at Qermez Dere (Watkins, 1987; Watkins et al., 1989), Nemrik 9 (Kempisty, 1990) and Nevalı Çori (Hauptmann, 2011) and particularly since the 1990s at Göbekli Tepe and the restarted Çatalhöyük excavation, and also at Jerf el-Ahmar (Hodder, 1996; Schmidt, 2012; Stordeur, 2014), and during the 2000s

at Dja'de, Körtik Tepe, Gusir Höyük, Hasankeyf Höyük, Tell Qaramel, Tell Abr 3, Çemka Höyük, Boncuklu Tarla and Körtik Tepe (Coqueugniot, 2009; Karul, 2011; Kodaş, 2019a; Kodaş et al., 2020a; Mazurowski and Kanjou, 2012; Miyake et al., 2012; Özkaya and Coşkun, 2011; Yartah, 2004) a basis has been established for new perspectives and interpretations of the figurative art of the Neolithic of northern Mesopotamia (Benz and Bauer, 2013; Dietrich and Notroff, 2016; Kodaş, 2019b; Lichter, 2007; Schmidt, 2012). As a result of the archaeological excavations in northern Mesopotamia, new archaeological finds unearthed in Neolithic settlements, which are thought to be of symbolic/ritual significance and that give information about the figurative art of the period, are increasing in number every day, and new theories on the depiction, art and belief systems of the period are being put forward (Benz and Bauer, 2013; Goring-Morris and Belfer-Cohen, 2014; Kodaş, 2019b; Lichter, 2007; Verhoeven, 2001).

In this context, among the artefacts thought to have importance for the concepts of symbolism, iconography and ritual, stone vessels,

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figured stone plaques, bone plaques, pillars/stele, public buildings, some wall decorations, stone sticks and some burial customs dated to the early phases of the northern Mesopotamian Pre-Pottery Neolithic both provide information on the regional developments of the symbolism and iconographic art of the period and allow the examination of the interactions between regions (Benz and Bauer, 2013; Goring-Morris and Belfer-Cohen, 2014; Kodaş, 2019b; Verhoeven, 2001). In addition to the aforementioned finds, the figured bone plaques dated to the early phases of the northern Mesopotamian Pre-Pottery Neolithic Period and thought to be important for symbolic, ritual, and iconographic concepts have begun to be re-examined as an important group of finds (Dietrich and Notroff, 2016; Kodaş et al., 2019; Orrelle and Horwitz, 2016; Siddiq et al., 2021; Fig. 1). However, in these studies, the visibility of these objects is prominent and there is less research into their technological features, functions, and contexts. In addition, the objects in question were frequently recovered from contexts of the Pre-Pottery Neolithic A (PPNA), with fewer examples dated to the Pre-Pottery Neolithic B (PPNB). It is notable that there is no detailed research on the bone plaques dated to the late phases of the Pre-Pottery Neolithic.

Some examples of bone plaques uncovered from the PPNB levels at the settlement of Boncuklu Tarla evidence the various production methods of the objects in question, as well as providing important information about their functions depending on their in situ locations in the contexts from which they were recovered. Here we take this opportunity, in the light of these new finds, to reevaluate the nature of these artefacts in terms of symbolism, material, technology, use and distribution. We consider whether the way they have been categorized

does justice to the evidence for variety in their forms, materials and use, reassessing preconceptions about artefact categories and interpretations as well as regional and chronological distributions. It has already been highlighted (Pollock and Bernbeck, 2010) that the way we approach artefacts has a significant effect on their interpretation and that this largely relates to traditional classification systems. In some cases, this is exacerbated by lack of understanding of original function because of lack of contextual evidence resulting in speculative interpretation.

By looking not only at the complex symbolism but the relationship it had with form, material, and function we ask whether symbolism was necessary in certain types of artefacts, and the degree to which the way that artefacts have been categorised, by material, form, iconography, or lack thereof, has affected the way that they have been interpreted. This sets the symbolic practices within their material context and allows us to re-evaluate the materiality of Early Neolithic portable symbolism and in Upper Mesopotamia.

2. The Boncuklu Tarla excavation and bone plaques

Boncuklu Tarla was discovered in 2008 during a survey in the catchment area of the Ilisu Dam Hydroelectric Power Plant project in the region. Excavations were initiated at the site in 2012 (Ökse et al., 2014). It is located about 3 km to the south-west of the center of the Ilisu Dam, 2 km to the west of the Tigris River, and few meters to the south of the Nevala Maherk creek (Fig. 2). Archaeological excavations were conducted at the site during 2012, 2017, 2019, and 2020, revealing a continuous stratigraphy from the Late Epipalaeolithic Period to the end



Fig. 1. Location of Boncuklu Tarla and sites mentioned in the text.

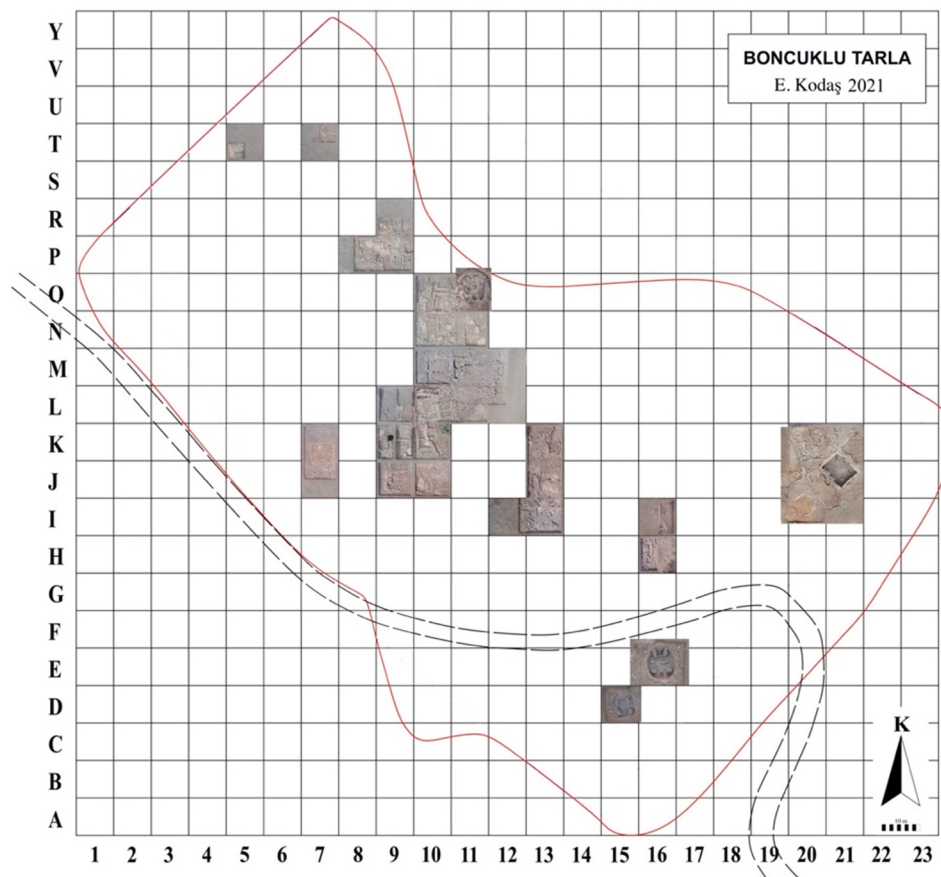


Fig. 2. The site of Boncuklu Tarla.

of the Late PPNB - Level 1: Late PPNB, Level 2: Middle PPNB, Level 3: Early PPNB, Level 4a-b: PPNA-PPNB transition, Levels 5a, 5b, and 6a: PPNA, Levels 6b and 7: Late Epi-Palaeolithic/Proto-Neolithic (Table 1; Kodaş, 2019b).

This makes it one of the rare sites in the Tigris region of northern Mesopotamia that spans the entire Neolithization process from settled hunter-gatherers to farming village and curvilinear to rectilinear architecture (Kodaş, 2019a). While this is important in itself, the site hosts an intensive symbolic activity ranging from monumental to portable in scale. Alongside domestic architecture of the PPNB, consisting of single and multi-room dwellings, is large-scale communal architecture, including the use of internal pillars and red and white terrazzo flooring (Kodaş, 2021). Small scale symbolic expression takes the form of incised stones, personal ornaments and the bone plaques that are the subject of this article.

A large number of excavated burials has given access to an exceptionally diverse range of grave goods with a particular focus on personal ornaments, allowing an unusually detailed understanding of the contexts of use of many items of ornamentation as well as their relationship

to one another. Among the ornaments in the Pre-Pottery Neolithic levels of Boncuklu Tarla stand out beads of serpentine, limestone, flint, chlorite, sandstone, bone, obsidian, copper, copper ore, malachite, and various river pebbles. In situ pendants in the form of animals and animal heads (bull, deer, leopard and wild goat heads, snake, bird, and scorpion forms) are common in the graves (Fig. 3). While beads and pendants are common, bracelets and belt buckles made of marble, labret-type earrings made of different rocks, grooved stone objects and bone plaques are of particular importance (Fig. 3, Kodaş et al., 2020b). Although more than 20 examples of bone plaques were found in the excavations at the Boncuklu Tarla settlement, most of them are in small pieces and/or incomplete and all are outside their context of original use. However, four bone plaques found in the settlement provide important information in terms of the forms, production techniques and areas of use of the objects in question. These examples, which show technical and typological diversity, give new information about the functions of the objects according to their forms and contexts.

2.1. Bone plaque 1

This rectangular bone plaque was unearthed in a multiple burial of adult individuals dating to the Middle PPNB Period (O10/0015/Q/06 Fig. 4). The artifact was in situ in an area close to the left forearm of an adult female. The bone plaque measures 13.5 cm long 7.5 cm wide and 0.9 cm thick. It has a total of six perforation holes, two on each of two corners and one on each of the other two corners, the holes vary slightly in size and are quite roughly made with significant beveling. The in situ position indicates that the plaque was attached to the wrist, using the holes to fix it in place. Looking at the technical features of the bone plaque in question, in its centre two repeated motifs made using an inlay technique stand out. The motifs consist of three straight lines across the

Table 1
Phasing and radiocarbon dates of the habitation levels of Boncuklu Tarla.

Phase	Level	Dates (cal BCE)
Late PPNB	I	–
Middle PPNB	II	8297–8235 7592–7522
Early PPNB	III	8546–8502 8495–8302
PPNA-PPNB transition	IVa – IVb	–
PPNA	Va – Vb – VIa	–
Late Epipalaeolithic/Neolithic	VIb – VII	10389 ± 41



Fig. 3. Beads, pendants, labrets and grooved stone objects from the Pre-Pottery Neolithic levels of Boncuklu Tarla.

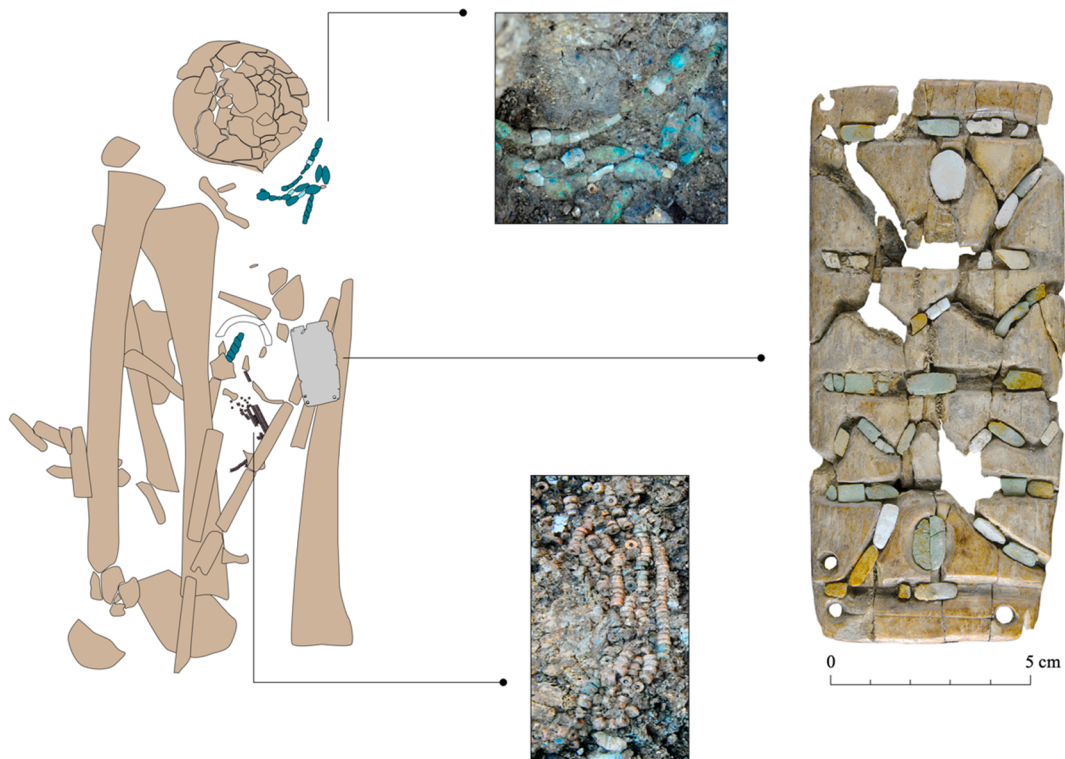


Fig. 4. Schematized drawing of the human remains found with Middle PPNB bone plaque 1 (O10/0015/Q/06) and associated bead groups, Boncuklu Tarla.

width of the plaque, and a series of straight, diagonal, and zigzag lines which might be interpreted as legs attached to two central oval body pieces creating two highly stylized six or eight-legged insects, spiders, or snakes. Channels to contain the motifs in question were first engraved on the bone plaque using sharp stone tools and then filled with many small pieces of green phosphate rocks of different shapes, chipped and ground into shape, using the inlay technique. 42 stone inlay pieces were recovered from the grave and despite wet sieving of all grave fill the

remaining pieces were not found, suggesting that they were already missing at the time of burial. The bone surface retains significant signs of working, scratches and scrapes and a long narrow groove along one of the short sides joins the perforations at two corners. There is no indication of the material used to fix the inlays in place although it is unlikely to have been bitumen as this preserves well in the archaeological record. While this is the oldest known example of the use of this technique for a bone plaque, the inlay technique is already known in stone

labret or plug type earrings found in PPNA layers in Boncuklu Tarla and 'button-belt buckles' at Gusir Höyük (Karul, 2018).

In the same burial were a necklace consisting of around 500 limestone disc beads, with a twisted-form phosphate bead at its centre, that had been placed on the individual's chest, in addition to which the individual was wearing a string of 14 copper, five phosphate, one turquoise, one serpentine and one bone bead at the centre of which was a long twisted-form phosphate bead. A broken marble annulet/bracelet and a single marine shell bead were also associated with the body.

2.2. Bone plaque 2

This bone plaque with rounded corners was found in situ in a child's grave (O10/0041/Q/02, Fig. 5). The context tells us that the plaque, measuring 4.7 cm long, 1.6 cm wide and 0.3 cm thick, was used as a pendant at the end of a necklace made of 15 serpentine and 197 limestone beads and a single *Tritia gibbosula* shell arranged in a double row and belonging to the individual in question. There are no motifs on the plaque and two holes at one end. A round notch that enlarged the edge of one of the perforation holes suggests that the object could have been tightly suspended and/or extensively used. In the grave where the individual was buried, a pendant in the form of a schematized bull's/rams head, a marble belt buckle and a fishing hook made of bone were also recovered. The plaque is dated to the Middle PPNB Period and is similar to bone plaques found in the Çayönü excavations (Lichter, 2007).

2.3. Bone plaque 3

This bone plaque was recovered from the Early PPNB layers during excavations in 2012 and has dimensions of 6.8 cm long 2 cm wide and 0.5 cm thick (K9/0002/Q/03, Fig. 6). The item was found in eight separate scattered pieces and could be partially recombined. On the rectangular plaque with rounded corners there is a snake motif along the rectangle's length, with a horizontal groove, engraved by scraping, located just above its head, above which is an unevenly shaped perforation. The snake is engraved using broad etched lines and the preserved portion of the snake has two sets of incised lines across its body creating double bands, its neck is thinner than the body with a broad triangular head and wide-set eyes. The presence and location of the hole and the dimensions of the item suggest that this bone plaque was also used as a

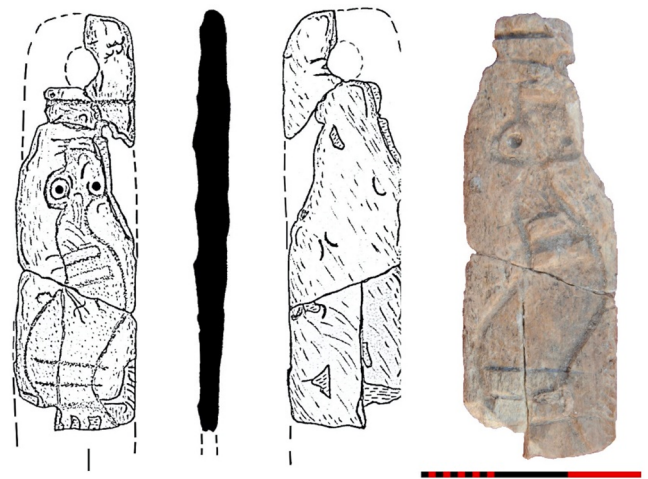


Fig. 6. Middle PPNB bone plaque 3 (K9/0002/Q/03), Boncuklu Tarla.

pendant. Snakes such as these, depicted as, '...thick, short animals with flattened triangular heads' (Peters and Schmidt, 2004: 183) have previously been likened to vipers of which various species are common in the region, particularly the Levantine viper, *Vipera lebetina* (Peters and Schmidt, 2004). This example is very similar to the snake motif on Göbekli D-P22 (Peters and Schmidt, 2004: Fig. 10).

2.4. Bone plaque 4

This rectangular bone plaque was also found in the Early PPNB Period layers during the 2012 excavations (K9/0027/Q/01, Fig. 7). The artefact was uncovered whole and measures 6 cm long 3.2 cm wide and 0.6 cm thick and is not perforated. The front surface hosts four snake motifs and several incised lines. The main surface is bounded by a double incised line along one short edge and single lines engraved parallel to the long edges of the plaque. A double diagonal line between these horizontal and vertical lines divides the plaque surface into two separate triangular sections and the snake motifs are engraved within this bounded area. Two snake motifs are parallel to the diagonal line, one on each side of it, and a further two follow the long edge lines so that

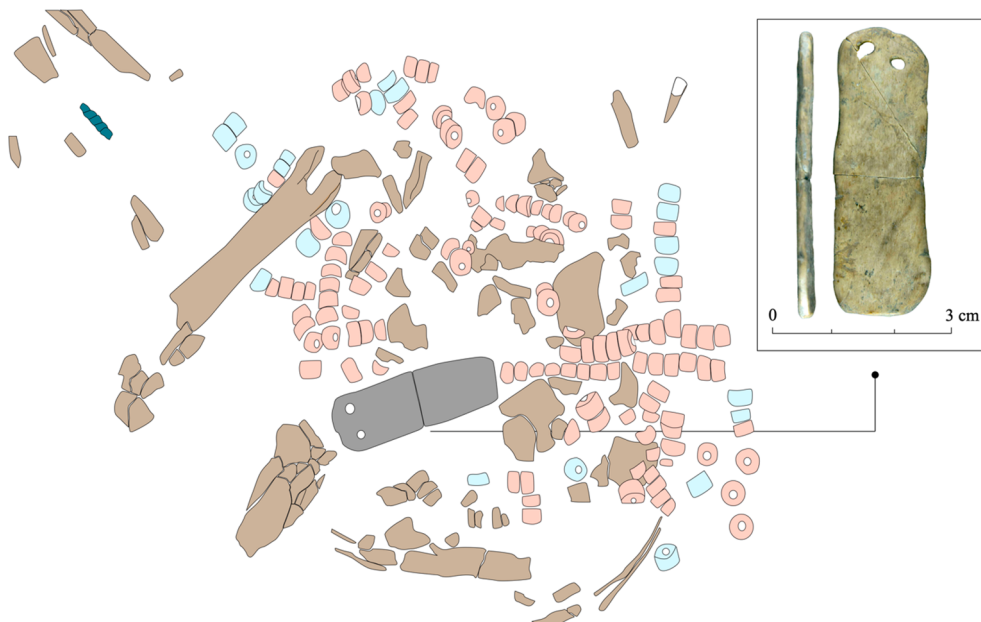


Fig. 5. Schematized drawing of the human remains found with Middle PPNB bone plaque 2 (O10/0041/Q/02) and associated bead group, Boncuklu Tarla.



Fig. 7. Middle PPNB bone plaque 4 (K9/0027/Q/01), Boncuklu Tarla.

each triangle contains two snakes. These are very simple stylized snake forms, consisting of a wavy line. A deep u-shaped groove was made on the back surface of this bone plaque, and this groove was polished. This strongly resembles the grooves in so-called ‘shaft straighteners’ or ‘grooved stones’ associated with Epipalaeolithic and Neolithic communities in the region and further afield (for example [Kozłowski and Aurenche, 2005: 160](#)). Considered in this context, the bone plaque in question shows similar characteristics with figured stone plaques and grooved stone objects both in terms of form and size and the motifs it carries.

3. Pushing boundaries: typology, function, and regionality

Portable symbolic objects, either associated directly with the body by being attached to it or being of a size that they could be moved around easily, take several different forms, expressed in a variety of materials from personal ornaments to decorated pebbles and grooved stones. Boncuklu Tarla’s in situ bone plaques, described above, span a range of techniques, and uses, drawing our attention because of their lack of uniformity and leading us to question how they could be classified meaningfully given the obvious formal and iconographic overlaps with other areas of material culture ranging from the monumental architecture of the Urfa region to decorated stones and bones. Plaque 1 is a technically exceptional example of bone use for ornamentation, that reveals an intersection between techniques known in different contexts and forms associated with other techniques. As well as employing inlays normally associated with stone working, it displays a level of detail in symbolism rarely seen in artefacts of this period, suggesting a cross-fertilization of skills and symbolic concepts. The extraordinary three-dimensional rendition of animal forms in ornaments at Boncuklu Tarla ([Fig. 3; Kodaş, 2019a](#)) has already demonstrated that the site was host to both technical skill and complex symbolism. As in the case of Göbekli Tepe, where there is a mixture of two-dimensional and three-dimensional renditions of subjects inspired by the local natural environment on a monumental scale, here we see both forms of expression on a portable scale.

Two of the three remaining examples are more familiar in their technology and expression but also raise questions about materials, techniques and depictions that challenge existing categorisations and lead us to ask what criteria we should use to categorise some of our artefacts. An apparently simple pendant, Plaque 2 was used as part of a necklace, fulfilling a role as a personal ornament, as does Plaque 1, but with less eye-catching technology and display. Plaque 3, also a pendant, reflects a combination of both 1 and 2, with both symbolism and

association with the body. Plaque 4, meanwhile, does more to challenge boundaries, ostensibly sharing characteristics with the decorated perforated plaques but without perforations and with the rear groove feature widely considered to be a tool. Taking each of these examples, which cross boundaries in different ways, we consider here how they fit into the wider picture of ornament/figurative/practical portable objects of broadly similar or overlapping form during the Pre-Pottery Neolithic.

Among the artefacts containing iconographic features produced during the northern Mesopotamian Pre-Pottery Neolithic, similar motifs were depicted on different objects in different regions ([Aurenche and Kozłowski, 2010; Benz and Bauer, 2013; Goring-Morris and Belfer-Cohen, 2014; Helmer et al., 2004; Lichter, 2007; Morenz, 2014; Schmidt, 2006, 2012](#)). Among the items that are thought to have been mostly produced through symbolic concerns, human figurines/sculptures, animal figurines/sculptures, figured stone objects, painted, or figured bone plaques, stone vases, wall decorations (painting, relief or engraving) and stone pillars ([Aurenche and Kozłowski, 2010; Lichter, 2007; Schmidt, 2006, 2012](#)) are of great importance with their visual and artistic aspects. However, bone plaques, which are frequently detected in Pre-Pottery Neolithic settlements in northern Mesopotamia, exhibit different characteristics in terms of raw materials and production techniques compared to other objects made from rocks such as limestone, chlorite, serpentine, sandstone, and marble.

When the bone plaques from settlements dating to the Neolithic Period in southwest Asia are examined in terms of their typological features, they can be grouped under four separate headings: paint decorated, incised-pierced decoration, snake-shaped and plain ([Fig. 8; Kodaş, 2019b](#)). However, the example decorated with the inlay technique from Boncuklu Tarla (Plaque 1) can now be added as a fifth group ([Table 2](#)). Examples in the first group were found only in layers dating to the PPNA Period in the settlements of Hasankeyf Höyük and Körtik Tepe located in the Upper Tigris Basin ([Miyake et al., 2012; Özkaya and Coşkun, 2011; Siddiq et al., 2021](#)). Animal motifs and geometric motifs are dominant on the objects in question and almost all of them were found in graves. All of these objects have a concave form and are thought to have been used as jewelry.

The second group, which can be defined as those decorated with the incision-perforation technique have been found at sites dating to both the PPNA and PPNB including Shanidar ([Solecki et al., 2004](#)), Gusir Höyük ([Karul, 2011](#)), Nemrik 9 ([Kozłowski, 1990](#)), Hasankeyf Höyük ([Miyake et al., 2012](#)), Nevalı Çori ([Hauptmann, 2011](#)), Dja’dé ([Coqueugnot, 2009](#)), Körtik Tepe ([Özkaya and Coşkun, 2011](#)), Boncuklu Tarla ([Kodaş, 2019a](#)), Göbekli Tepe ([Dietrich and Notroff, 2016; Schmidt, 2012](#)), Tell Qaramel ([Mazurowski and Kanjou, 2012](#)), and

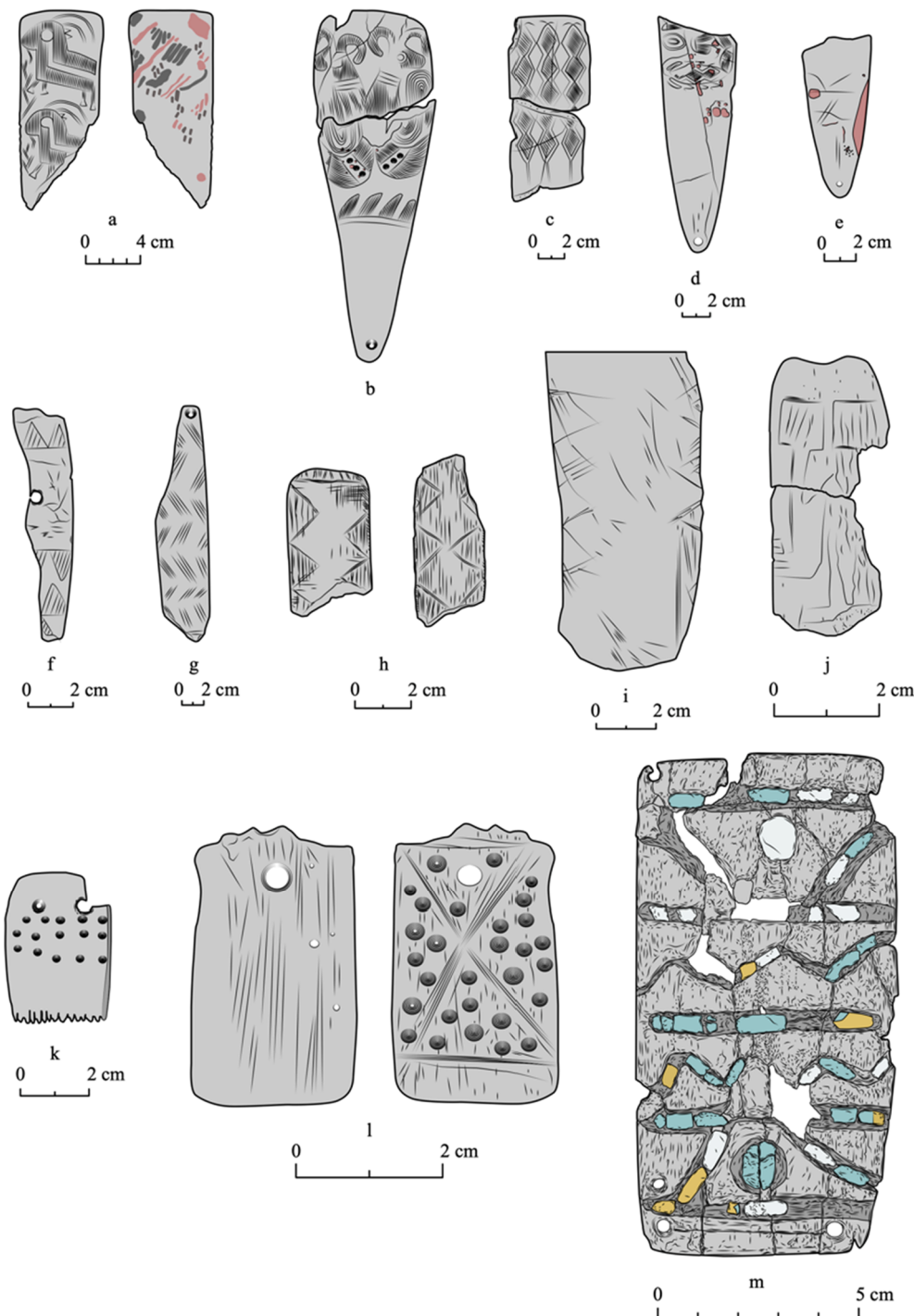


Fig. 8. Perforated and non-perforated bone plaques from Pre-Pottery Neolithic sites in northern Mesopotamia as portable symbolic objects with different functions, decoration techniques and iconography. Living beings: a) Körtik Tepe, PPNA, bone plaque with two incised mountain goats, plant motifs and ochre and bitumen painting (after Siddiq et al., 2021, Fig. 5), b) Hasankeyf Höyük, PPNA, perforated bone plaque with two 'hybrids'/goats? and geometric motifs (not scaled) (after Miyake, 2013: 45), c) Körtik Tepe, PPNA, bone plaque with snake motifs (after Siddiq et al., 2021, Fig. 7), d) Körtik Tepe, PPNA, perforated bone plaque with scorpion motif (after Siddiq et al., 2021, Fig. 9); plain/non-decorated: e) Körtik Tepe, PPNA, painted and perforated bone plaque (after Siddiq et al., 2021, Fig. 4); geometric motifs: f) Körtik Tepe, PPNA, perforated bone plaque with triangles (after Siddiq et al., 2021, Fig. 13a), g) Körtik Tepe, PPNA, perforated bone plaque with zigzags (after Siddiq et al., 2021, Fig. 13b), h) Göbekli Tepe, PPNA, two bone plaques with incised triangles and lines (after Dietrich and Notroff, 2016, Fig. 5), i) Dja'de el-Mughara, Late PPNA-Early PPNB, engraved animal bone with triangles and lines (after R. Christidou's original drawing at <https://whitelevy.fas.harvard.edu/dja%E2%80%9999de-el%E2%80%9090mughara-ninth-millennium-sequence-euphrates-valley-syria> Last Accessed : 25.06.2021); architectural representation (?): j) Göbekli Tepe, PPNA, bone plaque with two incised T-shaped forms (?) (after Dietrich and Notroff, 2016, Fig. 4); cup motifs: k) Mureybet, PPNB, dented bone plaque/pendant with two perforations and drilled cup motifs (after Stordeur, 1974: Fig. 1), l) Dja'de el-Mughara, PPNB, perforated bone plaque/pendant with incised geometric decoration and drilled cup motifs (after Alarashi, 2014, Fig. 9.4); inlay decoration: m) Boncuklu Tarla, PPNB, bone plaque/bracelet with inlay decoration.

Hallan Çemi (Rosenberg, 2011). Again, most of the objects included in this group were found in graves. Most of them have a flat profile and holes in their upper part that allow them to be affixed to something else. In addition, some of them have a concave form, as in the paint decorated examples. These examples have been identified at Körtik Tepe and Hasankeyf Höyük and have similar forms to the paint-decorated examples only found in those same settlements (Miyake et al., 2012; Özkaya and Coşkun, 2011; Siddiq et al., 2021).

The bone plaques in the third group are represented by examples that are given the form of a snake directly, without the addition of painting or incised decoration. Examples in this group, from settlements of both PPNA and PPNB date, are from Çayönü (Erim-Özdoğan, 2011; Lichter,

2007) and Hallan Çemi (Rosenberg, 2011) in the Upper Tigris Basin, Mureybet (Cauvin, 1994) and Dja'de in Northern Syria (Coqueugniot, 2009), Cafer Höyük (Cauvin, 1994) in the Upper Euphrates Basin, and Nemrik 9 in Northern Iraq (Kozłowski and Aurenche, 2005: 247, Plate 8.2).

Examples without any decoration elements uncovered at Shanidar in Northern Iraq and Boncuklu Tarla and Çayönü in the Upper Tigris Basin are grouped under a separate group (Erim-Özdoğan, 2011; Kodaş, 2019a; Lichter, 2007; Solecki et al., 2004). Although some of these examples have a concave form, they generally have a flat profile. In addition, almost all of them have one or more holes that allow them to be affixed as pendants.

Table 2

Characteristics of bone plaques from Pre-Pottery Neolithic sites in northern Mesopotamia.

Site	Form	Decoration Technique					Iconography				Context	Notes
		Plain	Pigment	Incision	Inlay	Drilling	Geometric	Cups	Living being	Perforation number		
Boncuklu Tarla (1)	Rectangle			x	x		x		?	6	Funerary (see above)	Stone inlays inside the grooves on the ventral face.
Boncuklu Tarla (2)	Rectangle	x								2	Funerary (see above)	Plain, flat pendant.
Boncuklu Tarla (3)	Rectangle?			x			x		x	1	Fill (see above)	Bone plaque (incised snake motif and horizontal lines).
Boncuklu Tarla (4)	Rectangle			x			x		x	0	Fill (see above)	Groove on the dorsal face. Engraved lines on the ventral face.
Cafer Höyük	Snake form	x								0	Unknown	Bone object carved into a 'snake' form.
Çayönü	Rectangle	x								2	Unknown	Flat bone pendant.
Dja'de (1)	Rectangle			x		x	x	x		1	Fill (building debris?)	Cup motifs inside four incised triangles.
Dja'de (2)	Rectangle			x			x			0	Unknown	Triangles on each side made with horizontal and vertical incisions.
Ganj Dareh	Rectangle	x								2	Unknown	Rectangular bone plaque.
Göbekli Tepe (1)	Sub-rectangular?			x			x			0	Fill (below the surface)	Two T-shaped (?) incisions.
Göbekli Tepe (2)	Rectangle			x			x			0	Fill (deep sounding)	Triangles, horizontal and cross-cutting lines.
Göbekli Tepe (3)	Rectangle			x			x			0	Fill (building debris)	Incised triangles and horizontal lines.
Gusir Höyük (1)	Rectangle			x			x		x	1	Unknown	Bone pendant (incised wavy lines, snakes?).
Gusir Höyük (2)	Conical			x			x		x	0	Unknown	Bone plaque (incised wavy lines, snakes?).
Gusir Höyük (3)	Conical			x			x		?	2	Unknown	Bone pendant (two vertical and one horizontal line).
Gusir Höyük (4)	Conical			x			x		?	2	Unknown	Bone pendant (two vertical and one horizontal line).
Gusir Höyük (5)	Rectangle			x					x	0	Unknown	Bone plaque (incised scorpion or crab (?) motif).
Hallan Çemi	Snake form			x			x			0	Unknown	Bone object carved into a 'snake' form.
Hasankeyf Höyük (1)	Conical		?	x		x	x	x	x	1	Funerary	Two 'hybrid' creatures, geometric motifs.
Hasankeyf Höyük (2)	Conical		?	x			x		x	1	Unknown	Scorpion, geometric motifs.
Körtik Tepe (1)	Conical	x	x							1	Funerary	Red + black pigments on the anterior surface.
Körtik Tepe (2)	Conical		x	x			x		x	0	Funerary	Two goat motifs on the ventral face filled with bitumen.
Körtik Tepe (3)	Conical		x	x					x	1	Funerary	Two goat motifs on the ventral face filled with bitumen.
Körtik Tepe (4)	Rectangle		x	x					x	0	Funerary	Three snake motifs on the ventral face filled with bitumen.
Körtik Tepe (5)	Rectangle		x	x					x	0	Funerary	Four scorpions, one snake, geometric motifs on the ventral face.

(continued on next page)

Table 2 (continued)

Site	Form	Decoration Technique					Iconography				Context	Notes
		Plain	Pigment	Incision	Inlay	Drilling	Geometric	Cups	Living being	Perforation number		
Körtik Tepe (6)	Conical		x	x			x		x	1	Funerary	Scorpion and geometric motifs on the ventral face.
Körtik Tepe (7)	Rectangle		x	x			x		x	0	Funerary	Two scorpions, geometric motifs on the ventral face.
Körtik Tepe (8)	Conical		x	x			x			1	Funerary	Geometric motifs on the ventral face.
Körtik Tepe (9)	Conical		x	x			x			1	Funerary	Triangular features with oblique lines inside each triangle.
Körtik Tepe (10)	Conical		x	x			x			1	Fill	Triangular features with oblique lines inside each triangle.
Körtik Tepe (11)	Rectangle		x	x			x			1	Fill	Oblique lines incised in parallel to give a zigzag motif.
M'lefaat	Conical	x								1	Unknown	Bi-pointed, conical bone plaque.
Mureybet (1)	Rectangle?					x		x		2	Unknown	Dented bone plaque. Drilled cup motifs.
Mureybet (2)	Snake form	x								0	Unknown	Bone object carved into a 'snake' form.
Nemrik 9 (1)	Rectangle			x			x			1	Unknown	Bone plaque. Circle and line decorated.
Nemrik 9 (2)	Conical	x								1	Unknown	Bi-pointed, conical bone plaque.
Nemrik 9 (3)	Conical	x								1	Unknown	Bi-pointed, conical bone plaque.
Nemrik 9 (4)	Snake form	x								0	Unknown	Bone object carved into a 'snake' form.
Shanidar (1)	Conical	x								1	Funerary	Conical, elongated, pointed bone plaque.
Shanidar (2)	Conical	x								1	Funerary	Conical, elongated, pointed bone plaque.
Tell Qaramel	Rectangle	x								2	Unknown	Flat bone pendant.

References: Körtik Tepe (Siddiq et al., 2021), Hasankeyf Höyük (Miyake, 2013, 2016), Hallan Çemi (Rosenberg, 2011), Mureybet (Kozłowski and Aurenche, 2005: 247, Plate 8.2; Stordeur, 1974), Dja'de el-Mughara (Alarashi, 2014), Cafer Höyük, Nemrik 9, M'lefaat and Ganj Dareh (Kozłowski and Aurenche, 2005, Plates 8.2, 8.4, 8.5), Shanidar (Solecki et al., 2004, Fig. 45a, Fig. 45c), Gusir Höyük (Karul, 2011, 2013, 2020), Göbekli Tepe (Dietrich and Notroff, 2016), Tell Qaramel (Mazurowski and Kanjou, 2012).

These techno-typological differences, or chronological and regional differences, also include functions that may differ from each other. For example, from a regional and chronological point of view, the paint decorated examples were found only in Körtik Tepe (Özkaya and Coşkun, 2011; Siddiq et al., 2021) and Hasankeyf Höyük (Miyake et al., 2012) in the Upper Tigris Basin. The inlay technique was found only in a grave belonging to the Middle PPNB Period at Boncuklu Tarla. Considered in this context, the presence of inlaid and paint decorated examples only in the Upper Tigris Basin can be interpreted as a local characteristic belonging to the region. However, while the paint decorations are dated to the PPNA Period, the Boncuklu Tarla example made with the inlaid technique belongs to the PPNB Period. Meanwhile, the incised decoration and other examples are spread throughout northern Mesopotamia.

Looking at the usage patterns of these objects, it can be said that they have a number of different usage areas. For example, at Boncuklu Tarla, the bone plaque (Plaque 1), which was decorated with the inlay technique, was used as a bracelet, as previously identified in Hasankeyf Höyük (Miyake et al., 2012) and those without decoration or with snake motifs on them are seen to have been used as pendants (Plate 2 and Plate 3). Boncuklu Tarla Plaque 4, whose front façade is divided into two

separate triangular sections and decorated with snake motifs (Plaque 4), shares similar features with figured stone objects in the way the channels and motifs on the back part are applied on the plaque.

4. Discussion

4.1. Technical and iconographic overlaps between materials and types

The perforated PPNA bone plaques from northern Mesopotamian sites share some techno-functional and iconographic similarities. Their functions may range from ornaments (e.g., at Boncuklu Tarla and Hasankeyf Höyük, cf. Miyake, 2016: 36) to portable symbolic items or items of utilitarian use (cf. Dietrich and Notroff, 2016). Similar perforated, conical bone plaques with incised geometric motifs are found towards the south of the region as well at the Nahal Hemar Cave dating to the PPNB (Goring-Morris and Belfer-Cohen, 2020: 11, Fig. 4.2), suggesting the continuing function of these objects. The presence of non-perforated and decorated bone plaques indicates the use of similar motifs in portable objects of different function. Some PPNA sites such as Körtik Tepe and Hasankeyf Höyük share almost identical motifs of

specific animals and 'hybrid' creatures on the conical and perforated bone plaques (Fig. 8a-g; Siddiq et al., 2021), as well as on stone objects. The geometric motifs, on the other hand, are more common across southwest Asia starting as early as the Natufian (e.g., at NEGII in Southern Levant, Shaham and Grosman, 2019: 139, Fig. 6) and throughout the Pre-Pottery Neolithic Period (Fig. 8f-i). There are also rarer and schematic examples of human depictions on small stone objects such as at NEGII during the Natufian (Shaham and Grosman, 2019) and at Tell 'Abr 3 and Jerf el-Ahmar during the PPNA and Early PPNB (Yartah, 2013), on chlorite vessels at PPNA Körtektepe and Hasankeyf Höyük (Benz and Bauer, 2015), or on large life-size sculptures at Göbekli Tepe (Schmidt, 2010). The interest in human iconography, especially an emphasis on faces, heads, and skulls becomes stronger during the PPNB (Ibáñez et al., 2014 and references therein). A bone 'wand' with two human face depictions from Tell Qarassa dating to the 9th millennium BCE (Ibáñez et al., 2014) is among such earliest examples.

These motifs are clearly not exclusive to bone objects. An iconography of animalistic and geometric symbols was incorporated into portable stone and bone objects of various techno-functional characteristics since the Late Epipalaeolithic and the PPNA. Indeed, animalistic features dominated the PPNA and Early PPNB iconography (Stordeur, 2010). These stone plaques and slabs, grooved stones, and bone plaques share a common iconography of animals and geometric motifs with possible local variations. Thus, one may question the iconographic differences and similarities between bone and stone plaques, and changes in iconography through time. Certain animals, and body parts (e.g., cranes, vultures or other birds, boars, felines (panthers), amphibians and bucrania motifs) that are depicted on portable stone objects, large stone slabs, and architectural features like pillars in several PPNA and PPNB sites (e.g., Tell 'Abr 3, Göbekli Tepe, Nevalı Çori, Jerf el-Ahmar and Tell Qaramel; cf. Helmer et al., 2004; Stordeur, 2010; Yartah, 2013) were not depicted on bone plaques. Snakes, scorpions, goats, and geometric patterns, on the other hand, are seen both on stone and bone objects. In terms of iconography and possibly function and use, the Boncuklu Tarla bone plaque with incised snake motif and engraved lines (Plaque 3), and the grooved bone with four snake motifs and two engraved diagonal lines (Plaque 4), both dating to the Early PPNB, are similar to the decorated stone plaques and 'shaft straighteners' from the PPNA and Early PPNB sites.

Large and flat bone objects that could be classified as plaques or ornaments with one, two or more perforations are known from PPNB sites in northern Mesopotamia, although represented by rare examples. These examples, including the inlay decorated bracelet from the Middle PPNB layers of Boncuklu Tarla (Plaque 1; Fig. 8m), clearly differ from the PPNA bone plaques and ornaments in terms of decoration techniques, iconography, and morphology. Another unique example comes from the PPNB layers (phase DjIII) of Dja'de el-Mughara in Syria dated to c. 8500–8300 cal BCE (Fig. 8l). The object was made from the flat long bone or rib of a large mammal and has 29 drilled cup/round-shaped motifs on its anterior surface. The cups are located inside four triangles created by large incisions forming an 'X' motif. Each cup has conical sections and were made by unipolar drilling. The 'X' motif was made with engraving/incision technique. The object has a bipolar perforation on the upper part (Alarashi, 2014: 369, Fig. 9.4). A comparable example is known also from the PPNB layers of Mureybet in Syria (Fig. 8k). A dented bone plaque/pendant from Phase IB dated to c. 8400 cal BCE provides another unique case for cup-shaped decoration on bone objects during the PPNB as what appears to be a newly emerged decoration technique and a possible cultural marker for these two sites. The Mureybet example is a rectangular plaque with curvilinear edges and two perforations. The cup decoration was made with the drilling technique, possibly by means of mechanical devices, and the use of abrasives as suggested by the fine, concentric, and dense lines. The perforation walls are conical, and the holes are not pierced all the way through the exterior surface (Stordeur, 1974: 439, Fig. 1.2). Due to their rarity, Stordeur (1974: 442) suggests that these objects could have been

transmitted through time.

The inlay decoration on the rectangular bone plaque with six perforations from Boncuklu Tarla (Plaque 1) is so far unique to this site. The inlay decoration technique is also known to have been used for some stone ornaments during the PPNB at the nearby site of Gusir Höyük (Karul, 2011: Fig. 22; 2018). It should also be noted that the two stone objects from the PPNA sites of Körtektepe and Hasankeyf Höyük with drilled circular decorations could have also had been decorated with inlays that were later removed (Miyake, 2016: 39; Özkaya, 2013: 39). The choice of different materials, as well as the use of small, broken disc beads and possibly bead discards as inlays (Karul, 2018: 483, Fig. 5), indicates recycling and reuse of different materials as well as the transference of techniques and even objects. Further elements of the inlay story can be traced through other items of ornamentation at Boncuklu Tarla, as well as Çayönü (Erim-Özdoğan, 2011: 269, Fig. 78) which make use of similar techniques although with different materials. Stone ornaments were made with very similar methods to those seen at Gusir Höyük, with green inlays in a cream-coloured stone background and further use of inlays at Çayönü is known from the presence of small, round and rectangular objects made from stone and malachite with traces of a black residue that could be a form of an adhesive material (Erim-Özdoğan, 2011: 222, 269; Fig. 77; Özdoğan, 1994: 145).

Throughout the Pre-Pottery Neolithic, there was a 'material turn' especially in items with symbolic value and items related to the human body. Indeed, the onset of sedentism and the gradual decline of hunting and gathering in favor of more investment on cultivation and management of animals witnessed changes in human-material interactions. While the earliest body adornment technologies of hunter-gatherer communities relied more heavily on natural forms and materials (i.e., shells, animal bones and teeth), stones and minerals gradually became dominant, culminating with the flourishing of highly skilled stone ornament technologies (e.g., Alarashi, 2016; Astruc et al., 2011; Bar-Yosef Mayer and Porat, 2008; Groman-Yaroslavski and Bar-Yosef Mayer, 2015). As "the properties of materials are what allow them to have symbolic value" (Sofaer, 2012: 67), material technologies were intrinsically bound to socio-symbolic factors. The greater investment towards the procurement of stones and minerals to produce symbolic items, as well as the evolution of increasingly more complex production technologies brought new material encounters relating to changing concepts in symbolism and identity. In this regard, while the Pre-Pottery Neolithic bone plaques share iconographic and functional similarities with the symbolically charged stone artefacts, their material values stemmed from a different mindset, possibly related to being produced from the body parts of non-human animals living in the 'wild'.

4.2. The relationship between symbolism and the human body

The decorated bone plaques in question were mainly found in graves in association with deceased individuals. Their techno-morphologies as well as the contextual evidence suggest their use as ornaments or objects that could have been attached to and carried on the body. Of course, these objects could have carried multiple functions throughout their life courses, and these functions could have overlapped between being items of utilitarian use and items of personal adornment. Their association with bodies in graves as 'personal' items may further hint at their role in creating and signifying individual identities. The local technological and symbolic choices on their production and embellishment (i.e., the inlay technique, the animal motifs, and coloring), on the other hand, could be related to group affiliations, while the temporally and inter-regionally shared techniques and motifs (i.e., the incision technique and the geometric motifs) suggest an interplay between individual and group identities and wider regional networks that were in motion as early as the Epipalaeolithic (Belfer-Cohen and Goring-Morris, 2017). The shared motifs that transcend material and scale may also link to a shared symbolism between individuals, sites, and regions, however, the transference of these motifs on objects that can be carried on the body adds

another layer of meaning to these objects.

At Boncuklu Tarla, contextual evidence further suggests that these items, although being personal ornaments, had different uses, hence, possibly signaled different meanings pertaining to the identities of the individuals they were interred with. Plaque 1, found near the forearm of an adult female burial, possibly had been used as a bracelet in the form of a single item of ornamentation. The use of bone plaques as bracelets/armbands, usually on the forearms, is also attested at PPNA Hasankeyf Höyük, where a decorated conical bone plaque was found on the right forearm of an individual (Miyake, 2016: 36). The case for the plain bone pendant (Plaque 2) is also intriguing despite the lack of any apparent symbolic elements inscribed onto the object itself. The pendant, as part of a larger group of a composite ornament with a child burial, echoes the common trend towards adorning sub-adult individuals with elaborate ornaments and high numbers of beads either in life or in death, or both, during the Pre-Pottery Neolithic in southwest Asia (Benz et al., 2020 and references therein). The high number of beads may provide a basis to argue that such ornaments could not have been carried and used by infants in daily life. As the Boncuklu Tarla example bears traces of extensive use, it is also plausible to suggest that the pendant, as well as the composite ornament it belonged to, could have had been offered as a burial gift to the child, and signify an intimate relationship between adults and children at the moment of death and burial.

When adorned, dressed, or modified, the human body becomes a venue for negotiating, displaying, and reproducing social relations and identities. Materials and metaphors play an active role in this relationship: they are formed and transformed within the boundaries of these relations and identities, as well as sustaining and transmitting them throughout the life course, and between individuals, generations, and communities (e.g., Alarashi and Dessi, 2020; Baysal, 2019; Borić and Robb, 2008; Sofaer, 2012; Wright, 2012). Contextual associations of the Boncuklu Tarla bone plaques have proved to reveal insights into this relationship. Different forms of bone plaques and pendants, differences in the ways they were used, and the iconographies, or lack thereof, were associated with individuals of different age categories. Such an emphasis on different stages and cycles of life that was signaled through adorned bodies and in burial rituals was in fact a prominent phenomenon of the Early Neolithic (e.g., the isolated skulls of infants were often buried with adults in the southern Levant during the PPNB, see Benz, 2010, 2012; or there was a tendency towards burying sub-adults with excessive adornment while adults were often buried with fewer items, see Benz et al., 2016, 2020).

4.3. Symbolism in action: Scale and materiality

The 'symbolic commonalities' among residents of different settled groups in northern Mesopotamia during the PPNA and PPNB have long since been noted (Benz and Bauer, 2013; Clare and Kinzel, 2020: 62; Dietrich et al., 2012: 684; Hodder and Meskell, 2011; Schmidt 2006; 2012; Stordeur, 2010). The large-scale symbolism of the 'Göbekli culture', which is now acknowledged to extend to a significant number of sites in the Urfa region of southeast Turkey, has somewhat taken the archaeological limelight (Banning, 2011; Borić, 2014; Busacca, 2017; Kuijt, 2005). The link between a florescence of symbolism and the Neolithic sits awkwardly in longer narratives of the Upper Palaeolithic (Watkins, 2017: 130) and particularly the story of portable art. This focus on the large-scale has also caused a tense relationship between monumental symbolism and portable items in the search for hunter-gatherer complexity in the incipient Neolithic. The latter receive less attention, probably because of their smaller scale (Verhoeven, 2002: 6). However, the diverse and complex symbolism involving the depiction of living things and geometric forms had a much greater influence in the wider region than this focus might suggest.

The choice of items and spaces around which to frame the discussion of symbolism and ritual in the Early Neolithic has had a significant impact on the way that interpretation has developed (Boyd, 2005). The

intense discussion in the early 2000s focussed on newly discovered large scale phenomena as well as subjects that had previously been a focus of interest including the possibility of deities depicted in figurines, and cults surrounding death (Cauvin, 2002; Hodder and Meskell, 2011; Mellaart, 1964; Verhoeven, 2002). Personal ornaments and many other small artefacts did not feature in these discussions, with the occasional exception such as Rollefson's (2008: 407) inclusion of two pendants from Basta in discussion of figurines (see also Hermansen, 1997).

Within studies of small-scale symbolism three dimensional renderings of life-like forms have been the focus of archaeologists' attention, despite the apparently important role given to both two-dimensional low relief images and their three-dimensional counterparts at Göbekli Tepe (Peters and Schmidt, 2004). This approach promotes interest in figurines rather than other portable items with potential symbolic significance, in some cases two-dimensional depictions have been explicitly excluded from discussion of symbolism (for example Rollefson, 2008: 388). There are of course exceptional studies that treat two- and three-dimensional depictions of different forms of symbols on small portable objects as well as monumental architecture with a comparative and holistic view (for example Stordeur, 2010).

The bone plaques of Boncuklu Tarla raise questions about the relationships between both scale and symbolism as well as the role of materials and technique in both. Displaying significant differences in terms of technique, typology, and function, they can be divided into several separate groups, depending on which parameters are chosen for comparison. According to the production techniques of the bone plaques found at the settlement, plaques 2, 3 and 4 show similarities with other bone plaques known in the region, while the example produced using the inlay technique (Plaque 1) is unique to this site, although the technique and skillset employed have regional significance. As a result, although the objects in question are produced from the same raw material and exhibit some similarities and differences among themselves, they are different objects in terms of their functions and in how they would have been experienced by those who were interacting with them both visually (passively) and practically (actively). They have at least three distinct functions at Boncuklu Tarla: a bracelet, a pendant, and a figured portable object that resembles a figured stone plaque or a grooved stone tool. This complex set of relationships between form, technology, iconography, and function have prompted us to question the intention of expression that lay behind them and the extent to which they might have been perceived as part of the same physical and symbolic world.

In this relationship, materiality is fundamental as it facilitates the interactions that happen, and the context of symbolism is carefully chosen and constructed by those who make the items and use them. Symbols might have been an encoded part of identities at regional and interregional scales (Benz, 2017: 143), however, their expression and agency, both in conjunction with the object on which they were depicted and of those who used or interacted with it, all form part of the materiality of symbolism. We refer here both to the obvious portability of these symbolic objects but also to the thought processes that lie behind their individual materialities and affects such that each is a different and actively constructed iteration of shared ideas. While symbolism is generally thought of as the depiction of shapes and forms intended to convey meaning to others in the Peircean sense (Chase and Dibble, 1992: 43), ideas can equally be expressed through the form or materiality of an object, which may have communally attributed meaning that can be understood by certain viewers, or those who interact with the item, in the sense of material metaphor described by Coward and Gamble (2010). The Boncuklu Tarla artefacts represent a possible combination of these conditions, including plain, geometrically and iconographically decorated items with more or less obvious symbolic intent. How can these be placed within the context of the Early Neolithic?

There is a general florescence of symbolism in the archaeological record of the Early Neolithic (Goring-Morris and Belfer-Cohen, 2002: 70; Verhoeven, 2002), previously characterised as a 'symbolic revolution'

(Cauvin, 2002). However, many of the symbols depicted in the Pre-Pottery Neolithic are of wild animals, birds and insects and do not suggest a direct connection to the human control of the environment normally associated with settled life. Instead, they fit better a world of hunter-gatherers, interacting with, and strongly attached to, the natural environment and may represent a physical manifestation of older thoughts and relationships in the face of significant change processes (Clare and Kinzel, 2020; Goring-Morris and Belfer-Cohen, 2002: 73; Helmer et al., 2004; Schmidt, 2006, 2012). Far from being supernatural or easily associated with the belief systems proposed by Cauvin (2002) or a 'spiritual world' of attributes or guardians (Peters and Schmidt, 2004: 179) the imagery is strongly grounded in local realities and in some cases very realistic depictions (see also Wengrow, 2011). Motifs consisting of the wildlife that would have been part of the daily lives of those living in the regions at the time, were at the heart of this symbolic world and the Boncuklu Tarla plaques, as well as some of the personal ornaments, reflect this situation. At Boncuklu Tarla, the highly schematic depictions of venomous animals (i.e., snakes, scorpions, or spiders) on the bone plaques fits into the symbolic world of this period as do other examples of bone objects (Table 2) also displaying 'wild' symbolism. Throughout prehistory, animals, or their body parts, acted as "universally key metaphors" (Russell, 2012: 11) with varied contextual meanings. Based on the ethnographic accounts of shamanistic beliefs and rituals, Benz and Bauer (2015) note the role of certain animals (snakes, spiders, and scorpions specifically) in rituals associated to death. The consistent depiction of these animals, especially snakes and scorpions, as well as goats and 'hybrid' creatures during the early Holocene, and their frequent occurrence on the bone plaques, usually found in graves as personal ornaments, further urge us to consider the role of these objects in communicating identities of individuals and communities through chosen animal metaphors.

5. Conclusion

These small objects, whether attached to the body or carried around, are Neolithic symbolism and communication in action, both physically and in terms of object agency through carefully negotiated materiality, not limited by architectural space or settlement location, and within the lived experience of many people in the Pre-Pottery Neolithic communities of northern Mesopotamia. Settlements or sub-regional groups had significant differences in approaches to symbolism, often centred on local skill sets as well as material and technical preferences. There are overlaps in symbolism, technique and function between bone and stone, and although stone has a more diverse symbolic repertoire, much is shared with bone artefacts. The Boncuklu Tarla assemblage displays a microcosm of this phenomenon. Some aspects of symbolism were shared over much wider areas and would consequently have been more widely recognised, and this appears also to apply to temporal continuities which are evident from the Epipalaeolithic in some items.

Bone plaques in their various shapes, uses and modes of expression defy classical categorization by material or form, instead borrowing and sharing elements between items and materials, and encompassing the different skills and ideas of those who made and used them to produce diverse materialities. These were structured within different regional experiences of symbolism or representation, monumental, small-scale, static, or portable, three or two dimensional, belonging to groups or individuals. Expressed not through monumentality as in the Urfa region but in personal, portable items, bone plaques are a meaningful expression of identities held close that would have been recognised and understood, in some respects, by groups across a wide region.

CRedit authorship contribution statement

Ergül Kodaş: Conceptualization, Investigation, Writing – original draft, Visualization, Project administration. **Sera Yelözer:** Writing – original draft, Writing – review & editing, Visualization. **Yunus Çiftçi:**

Investigation, Project administration. **Emma L. Baysal:** Conceptualization, Writing – original draft, Writing – review & editing, Visualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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