

LATE NEOLITHIC BONE SHUTTLES FROM BARCIN HÖYÜK

BARCIN HÖYÜK GEÇ NEOLİTİK DÖNEM KEMİK DOKUMA MEKİKLERİ

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ABSTRACT

The subject of this paper is the tools which were discovered at a striking rate at Layer VI of Barcın Höyük, dated to the Late Neolithic Period (circa cal. 6000-6600 BC); which were made from the ribs of such animals as goats and sheep; and which are thin and flat and taper from their perforated wide tip towards their other tip.

Use-induced traces such as wear, shine, cracking, and breaking were determined on the perforations and at the tips of these tools, which are identified with 43 pieces at Barcın Höyük and which are analogous typologically and technologically. Hence, it was supposed that these tools might have been used in weaving or a sort of knitting process by reeving a thread through their perforations and they were identified as shuttles. Likewise, the presence of no other tool likely to have been used with this function supports this idea.

At Barcın Höyük, the shuttles were discovered from different contexts such as above the floor, in burials, at various pits, and on surfaces. Displaying significant integrity within themselves, these tools were determined as of the first phase of the settlement (VIe) and they reached their standard form and their rate of use increased in the next phase (Vd1).

In the Near East, shuttles are known particularly from the Levantine settlements as of Pre-Pottery Neolithic A. In Anatolia, however, the definition of weaving shuttle was either not used at all or used for different types of tools. I propose that such tools discovered at Barcın Höyük were shuttles, particularly due to the use traces.

Keywords: Late Neolithic, Barcın Höyük, Bone tools, Bone Shuttles.

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ÖZET

Bu makalenin konusunu Barcın Höyük'ün Geç Neolitik Döneme (MÖ yak. cal. 6000-6600) tarihlenen VI. tabakasında dikkat çekici bir oranda ele geçen kaburga kemiğinden yapılmış ince ve yassı, delikli geniş ucundan diğerine doğru daralan bir kemik aletlerdir.

Barcın Höyük'te 43 adet ile tanımlanan tipolojik ve teknolojik benzerlik gösteren bu aletlerin deliklerinde ve uçlarında aşınma, parlama, çatlama ve kırılma gibi kullanıma bağlı olarak oluşan izler tespit edilmiştir. Söz konusu kullanım izleri, bu aletlerin deliğine ip takılarak dokumacılıkta veya örme işleminde kullanılmış olabileceğini akla getirmiştir. Bu kemik aletlerde gözlemlenen tüm bu özelliklerden ve dokumada kullanılabilecek başka bir tür aletin olmamasından dolayı söz konusu aletler dokuma mekiği olarak tanımlanmıştır.

Barcın Höyük'te dokuma mekikleri, taban üstünden, mezarlardan, çeşitli çukurlardan ve yüzeylerden bulunmuştur. Kendi içinde büyük oranda bir bütünlük gösteren bu aletler yerleşimin ilk evresinden (VIe) itibaren tespit edilmiştir. Sonraki evrede (Vd1) dokuma mekikleri standart bir biçimine kavuşmuş ve kullanım oranı artmıştır.

Yakınoğu'da dokuma mekikleri, Çanak Çömleksiz Neolitik A'dan itibaren özellikle Levant yerleşimlerinden bilinmektedir. Anadolu'da ise dokuma mekiği tanımı ya hiç kullanılmamış ya da farklı alet tipleri için kullanılmıştır. Barcın Höyük'de bulunan bu örneklerin özellikle aşınma ve parlamalarından yola çıkılarak bir dokuma ya da örme işleminde kullanıldığı düşünülerek dokuma mekiği tanımı önerilmiştir.

Anahtar Kelimeler: Barcın Höyük, Geç Neolitik, Kemik Dokuma Mekikleri, Kemik Aletler

INTRODUCTION

Bone tools were included in the toolboxes of prehistoric people as of the Paleolithic Age and reached a developed state that reflected a wide variety, both typologically and technologically, as of the Neolithic Period. Different factors played roles in the preference for the bone tools widely used by the Neolithic communities. When they are collected under two main titles in the technical sense, the first of the fundamental reasons is the ease of access to the raw material, whereas another reason is its durability, although it was relatively easy to work, as well as the possibility of shaping easily without requiring any expertise at least for some types of tools. The objects which were discovered at a striking rate at the Neolithic layer of Barcın Höyük, which underwent the same production stages, and which constituted a type of bone tool manufactured in a similar form will be addressed in this paper. This paper will aim to introduce the tools which are reminiscent of a drop with their form that tapers towards their oval tip from their perforated head, and which are identified as weaving shuttles as well as to explain the production and possible areas of use of such tools predominantly on the basis of macro-observations¹. Contributing to the understanding of the place of the assemblage concerned in the community and of what kind of practices a Neolithic village life had depending on all these technical and formal evaluations is also one of the main factors in writing this paper.

A NEOLITHIC VILLAGE: BARCIN HÖYÜK

Barcın Höyük is located on a plain with the same name at Yenişehir district in the east of Bursa province in the Marmara Region. Consisting of two interconnected hills with diameters of 90 and 50 m, the settlement is 4.5 m high. Barcın Höyük was excavated under the supervision of İznik Museum and under the scientific advisorship of J. Roodenberg between 2005 and 2006 and under the presidency of F. Gerritsen between 2007 and 2015. The excavations were carried on at the larger eastern cone of the mound and six phases were detected. Represented with the “Fikirtepe” and “Pre-Fikirtepe” cultures at Barcın Höyük, the Neolithic Period is known from Phase VI with five subphases (a-e) (circa cal. 6000-6600 BC).

A Neolithic village where side-by-side houses and open areas had been built on top of one another over and over again was determined at Barcın Höyük. The people here made a living from farming, animal husbandry, and hunting. According to the archaeobotanical data, the plants they cultivated include wheat, barley, and lentil. In addition, a small amount of flaxseed was also detected.

They raised such animals as cattle, sheep, and goats and also hunted such animals as pigs, red deer, roe deer, birds, and fish.

Like the case generally throughout the Late Neolithic settlements in the Marmara Region, there was a developed bone tool industry at Barcın Höyük as well. The shuttles constituting the subject of this paper are represented by 43 pieces among more than three thousand bone tools unearthed throughout the mound. Such bone tools are dated to Phase VI of Barcın Höyük, in other words, to the Late Neolithic Period, particularly to its early phases.

SHUTTLES AND THEIR PROCESS OF MANUFACTURE

The bone tools identified as shuttles at Barcın Höyük have a flat and thin shape which generally contains a perforation at its wide tip and gradually tapers towards the other tip (Figure 1). In addition to the use-wear and the resultant shine that are seen on the perforations of the tools and at their thin tips, which are understood to have been used functionally, the reuse of some tools after they had broken was evaluated as a sign of the fact that they had not merely been ornaments, as previously identified in some settlements. Likewise, as they had been manufactured to be durable in a long-term task by fastening a thread and to work by holding with two fingers, such tools were thought to have been used in weaving or knitting and they were identified as shuttles.



Fig. 1: Figure 1: A typical shuttle from Barcın Höyük, BH 3553 (Photo: M. Erdalkıran) / *Barcın Höyük'ten tipik bir dokuma mekiği, BH 3553 (Fotoğraf: M. Erdalkıran)*

The shuttles found at Barcın Höyük are adequate in quantity and quality to give sufficient information on the manufacturing technology and continuum of these tools. The overall evaluation of this continuum was completed by the help of experimental archaeology besides complete and preform pieces and technical observations. The

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manufacturing traces are observed in various parts of the tools, particularly in the form of straight lines on the head, diagonal lines on the reverse side, and spiral lines at the periphery of the perforation.

The shuttles are flat and thin; hence, the ribs of sheep and goats or young cattle were generally preferred as the raw materials, for they were bones which were more suitable for the manufacturing of the tools and relatively easy to work. Likewise, all tools concerned were made from ribs.



Figure 2: A preformed shuttle, BH 42616 (Photo: M. Erdalkıran) / *Yarı işlenmiş bir dokuma mekiği, BH 42616 (Fotoğraf: M. Erdalkıran)*

To understand the manufacturing continuum of the shuttles better, the rib of a young cattle member was shaped by employing the prehistoric techniques observed in the examples and a tool was made within the scope of experimental archaeology.

The first stage of the manufacturing continuum is firstly the clearing of flesh and fat from the rib selected as the raw material. At the next stage, a section with a length suitable for making a shuttle is cut from the rib. This fragment is generally preferred from the flatter and wider middle section of the bone; however, although rarely, it is seen that the caudal edge of the bone was also used. Cut in the desired dimension, the rib is used absolutely by splitting vertically into two in order to make a thinner tool. Following all this preparatory process, the raw fragment with which the tool will be shaped has been obtained and one proceeds with the final process. At this stage, it is roughly shaped into a drop by rubbing the edges of the

bone against sand or a stone with a rough surface (Figure 2). Horizontal cutting traces are also seen on the wider head section of some examples, particularly on the front side. Furthermore, the preform examples unearthed in the settlement also prove that the manufacturing continuum was in this order. Later on, the cancellous texture on the reverse side is worn away by rubbing it again against a rough surface and this process is observed in the form of dense diagonal lines on the reverse sides of the tools (Figure 3). A completely smooth tool is obtained as a result of wearing away, which is of extreme importance in order to prevent the tool from damaging the product and the thread during weaving. Moreover, it is supposed that the corrugated sandstones unearthed at a noteworthy rate in the settlement might have been used to manufacture the bone finds and in processes such as eliminating the roughness and retouching.

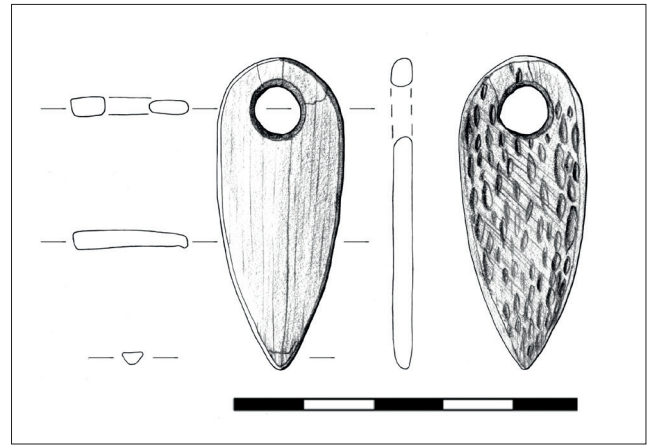


Figure 3: Manufacturing traces on the back side of the shuttle, BH 32517 (Drawing: M. Erdalkıran) / *Dokuma mekiğinin arkasındaki yapım izleri, BH 32517 (Çizim: M. Erdalkıran)*

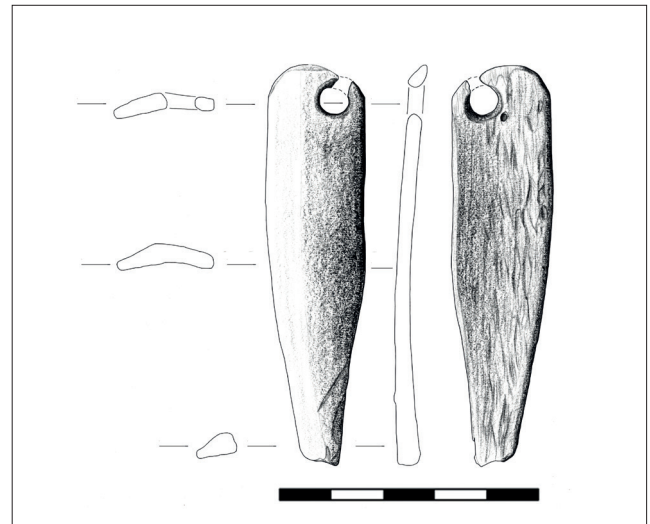


Figure 4: The sample with drilled before final shape, BH 40885 (Drawing: M. Erdalkıran) / *Son şekli verilmeden önce delinmiş örnek, BH 40885 (Çizim: M. Erdalkıran)*

At the next stage, the wider tip of the tool is perforated from both sides by the help of a lithic perforator. This results in the fact that the periphery of the perforation is narrower in the middle and hence that its profile is protruding (Figures 1, 3). Moreover, the traces the perforator left on the bone are observed in the form of thin spiral lines in some examples.

Even though it was supposed that the manufacturing continuum had generally progressed in this hierarchy, it was seen that the order of processes had changed in an uncompleted example and the tool had been perforated before the tool was finalized (Figure 4). In this context, a specific raw material and a specific technique were preferred when manufacturing the shuttles in the settlement. Additionally, different technical preferences were understood to have also played a role in the process of shaping again by using the same raw material. This might indicate individual preferences and differences.

TECHNOLOGICAL AND TYPOLOGICAL CHARACTERISTICS OF SHUTTLES

It was thought that the sizes of the shuttles might have affected the technique, thickness, and perhaps width of the woven piece for which they were used. Thus, the shuttles preserved in complete state were divided into three groups as large-sized, medium-sized, and small-sized according to their sizes. Some five examples with only the head sections remaining were excluded from

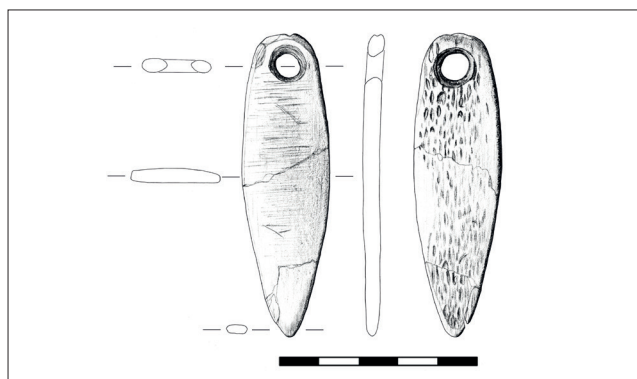


Figure 5: An example of large-sized shuttles, BH 39110 (Drawing: M. Erdalkıran) / *Büyük boy dokuma mekiklerine bir örnek, BH 39110* (Çizim: M. Erdalkıran)

these groups. The number of large-sized shuttles is 15 and their lengths range from 81 to 61 mm, their average body widths from 23 to 10 mm and thicknesses from 4 to 0.21 mm, their thread perforations from 9.3 to 2.2 mm, and their weights from 9 to 2.85 g (Figures 5-6). Represented by 18 pieces, the medium-sized shuttles have lengths between 59.8 and 45.5 mm, body widths between 21 and 9 mm and thicknesses between 4 and 0.41 mm, thread perforations between 7.6 and 4 mm in

diameter, and weights between 5.20 and 2.27 g (Figures 1, 3, 7-8). Known with five pieces, the small-sized shuttles have lengths ranging from 41.4 to 27.5 mm, body widths ranging from 14.8 to 11.8 mm and thicknesses ranging from 2.4 to 1.5 mm, thread perforations ranging from 5 to 3.6 mm, and weights ranging from 1.67 to 0.95 g (Figure 9).

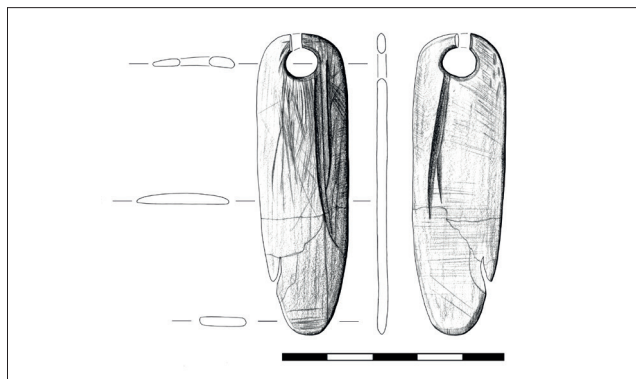


Figure 6: An example of large-sized shuttles, BH 32581 (Drawing: M. Erdalkıran) / *Büyük boy dokuma mekiklerine bir örnek, BH 32581* (Çizim: M. Erdalkıran)

Although the forms of the shuttles are generally drop-shaped, they vary within themselves. The shuttles in general are wider in the head section, which contains the perforation, and taper towards the tip; nevertheless, when the details are considered, the presence of different subtypes is realized.

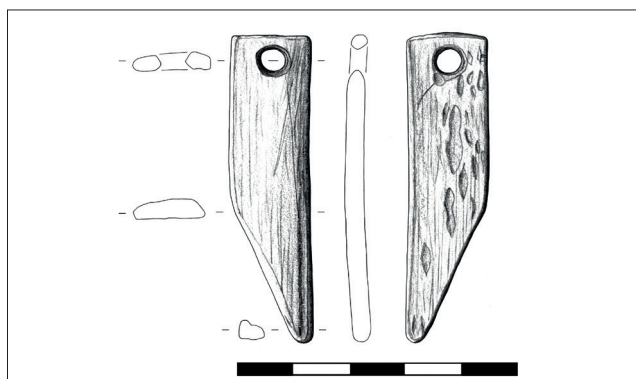


Figure 7: An example of medium-sized shuttles, BH 44080 (Drawing: M. Erdalkıran) / *Orta boy dokuma mekiklerine bir örnek, BH 44080* (Çizim: M. Erdalkıran)

The head sections of the tools are different in form. Finished in an oval form in the majority of them, the head was rounded in some examples (Figures 1, 9), but an oval-like smooth surface was obtained by retouching in some of them (Figures 3, 5, 6, 8). In some examples, however, it is observed that the head was shaped by cutting it in a flat form (Figure 7). From the cutting traces on the front sides of the tools, whose section concerned

was finished in a flat form, it is understood that the bone was mostly cut and broken from its front side at a certain rate in the process of shaping and that this part was sometimes retouched by rubbing it (Figure 7). The perforation on the head was made from both sides of the bone by the help of a perforator. Likewise, spiral traces are seen on some perforations (Figure 5). The tip of the tool was finished in two ways as oval-like (Figures 1, 6, 8) and pointed (Figures 3, 5, 7). Besides, as few examples with a relatively flat tip were thought to have been used again with the same function, they were also included in this group. The minor changes observed in the tool forms vary probably according to the preference of the person manufacturing it or according to the requirement of the task to be performed.

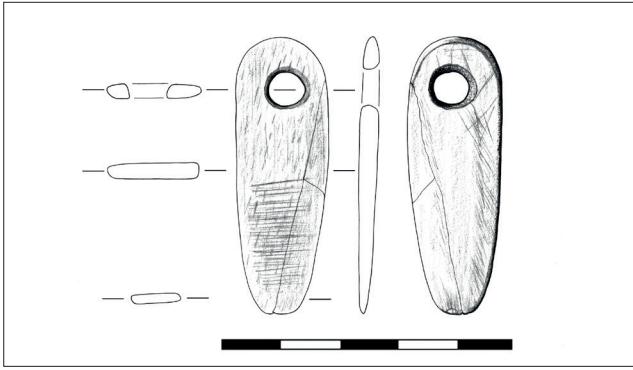


Figure 8: An example of medium-sized shuttles, BH 16656 (Drawing: M. Erdalkıran) / *Orta boy dokuma mekiklerine bir örnek, BH 16656 (Çizim: M. Erdalkıran)*

Besides all these analogous formal variations, there is also a single example whose head part is broken and which differs from the rest of the group. Its perforated part was left in the form of a ring at the top and the lateral edges made a shoulder and continued towards the main body of the tool (Figure 10). As far as preserved, numerous vertically-extending manufacturing traces, one of which is rather deep, are seen at the broken corner. The head of one of the shuttles in the main group which is likely to be associated with this single find is broken and it is probably analogous to the previous fragment. On the other hand, the tip of another different example that was tapered by cutting it diagonally (Figure 7) and its angular head have extremely sharp contours.

USE TRACES AND SECONDARY USES

Two essential pieces of evidence of the functionally active use of shuttles, i.e. use traces and secondary use, are observed. The use traces appear in the form of repetitive lines towards a specific direction, wear, and the resultant shine on the perforations, on the bodies, and at the tips of the tools.

Use-wear and shine are particularly seen in the upper part of the perforations of the shuttles. In such cases, the manufacturing traces at the perforation were wiped off and the perforation expanded, was rounded, and markedly shone probably due to the long-term rubbing of the natural fiber attached to the tool (Figures 1, 11).

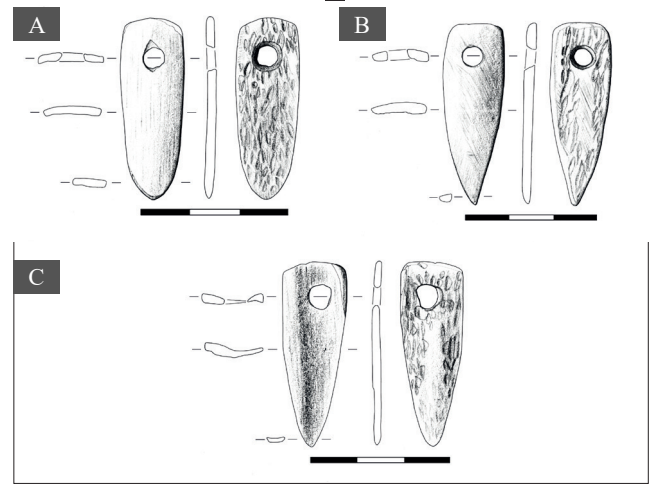


Figure 9: Examples of small-sized shuttles, BH 38031, 38032, 38033 (Drawing: M. Erdalkıran) / *Küçük boy dokuma mekiklerine örnekler, BH 38031, 38032, 38033 (Çizim: M. Erdalkıran)*

Furthermore, wear is seen in the area of the tool probably held by fingers on the body immediately below the perforation in some tools. This wear is important in that it shows the method of using the tool (Figures 5-8).

Although the tips of the shuttles were tapered at a specific rate and finished in a pointed form starting from the head, the tips lost their sharpness and were rounded due to use. Additionally, it is observed that both surfaces of the tip wore by tapering diagonally and hence that some examples shone. This wear at the tip is seen in almost all tools. There are also breaks and disconnections at some tips (Figure 12). Seen at the tip, these use traces must have resulted from the long-term and active use of the tool in weaving.

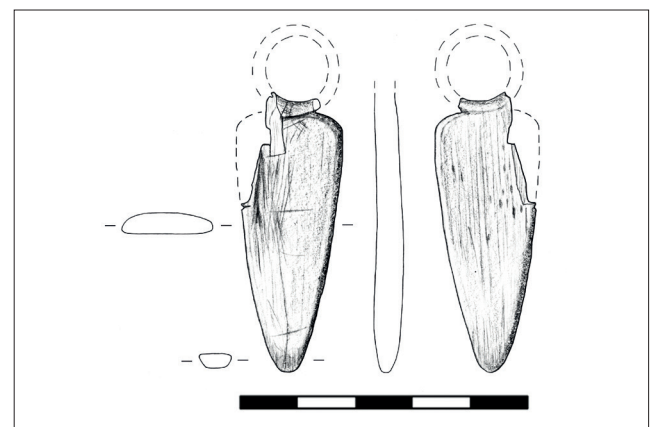


Figure 10: Shuttle with a ring hole, BH 41863 (Drawing: M. Erdalkıran) / *Deliği halka şeklinde olan dokuma mekiği, BH 41863 (Çizim: M. Erdalkıran)*

BARCIN HÖYÜK GEÇ NEOLİTİK DÖNEM KEMİK DOKUMA MEKİKLERİ

As a result of the macro- and micro-examinations, it was observed that there had occurred diagonal lines in some examples, horizontal lines in some of them, and vertical long lines in some others during the wearing of the bone texture on the lower surfaces of the tools. They disappeared in the worn part of the tip. Moreover, horizontal or diagonal use traces are seen on the front sides of the tools, with them being denser on some of them. They start next to or below the perforation and sometimes continue as far as the tip. These last traces probably occurred due to the rubbing of the shuttle against the vertical warp threads that formed the basis for weaving.

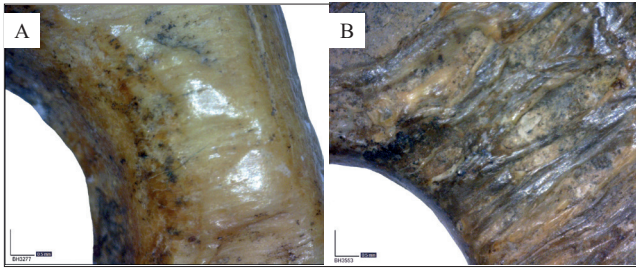


Figure 11: Microscopical images of the shuttles holes, BH 3277, BH 3553 (Photo: M. Erdalkıran) / *Dokuma mekiği deliklerinin mikroskopik görüntüleri, BH 3277, BH 3553 (Fotoğraf: M. Erdalkıran)*

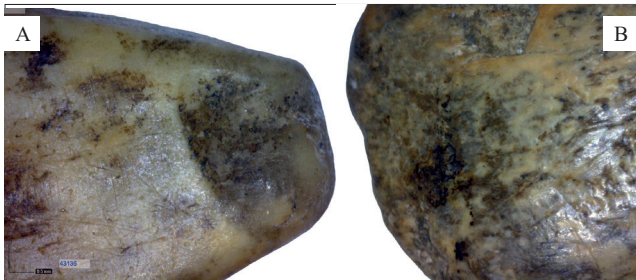


Figure 12: Microscopical images of the shuttles tips, BH 43136, BH 3553 (Photo: M. Erdalkıran) / *Dokuma mekiği uçlarının mikroskopik görüntüleri, BH 43136, BH 3553 (Fotoğraf: M. Erdalkıran)*

Even though it is relatively easy to manufacture the tools concerned, it is observed from the retouching and secondary uses in some examples that they were not abandoned easily in a wrong application or when they broke. In this context, it is understood that the most important element for the long-term use of the shuttles was the perforations. Likewise, in some examples, it is seen that the uncompleted perforations and the tools with a broken head were used by perforating them again.

One more uncompleted dead perforation was detected immediately near the perforation or on the body in some shuttles (Figures 1, 4). This might also be thought as realizing the fact that the perforation had not been made in the right place or as a trial of perforating. Although the perforations of the tools had been located and made

in such a way that prevented them from breaking easily, a significant rate of them, i.e. nine pieces, went out of use as their perforations broke (Figures 4, 6). Cracks are seen again in this section in some of the intact examples. This proves that the perforation concerned was exposed to intensive use and force. The three shuttles that had broken from their perforations continued to be used by making a new perforation below or next to the earlier one (Figures 13-14). An edge of one of these examples (Figure 13) broke, including the perforation as well, and a rather narrow part of it has been preserved. A new perforation had been made on the other more intact and narrower half of the tool and it had been used without any change in its function probably until its tip broke. Sometimes it is seen that the remaining of the perforation

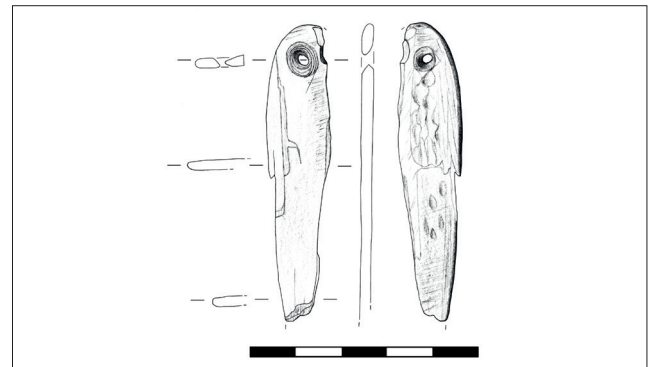


Figure 13: Reused shuttle with second hole, BH 40274 (Drawing: M. Erdalkıran) / *İkinci delik açılarak yeniden kullanılan dokuma mekiği, BH 40274 (Çizim: M. Erdalkıran)*

without any function did not affect use and that the inhabitants of the settlement maintained their tools in their toolboxes in some way for a long while. The best example of this is the fragment on which the second perforation made after the first one had broken broke too (Figure 14). The shuttle fragment concerned did not go out of use but was used for a long while even after the second perforation had broken and, accordingly, rounding and shine occurred on the broken edge. These examples prove that the most sensitive and fragile point

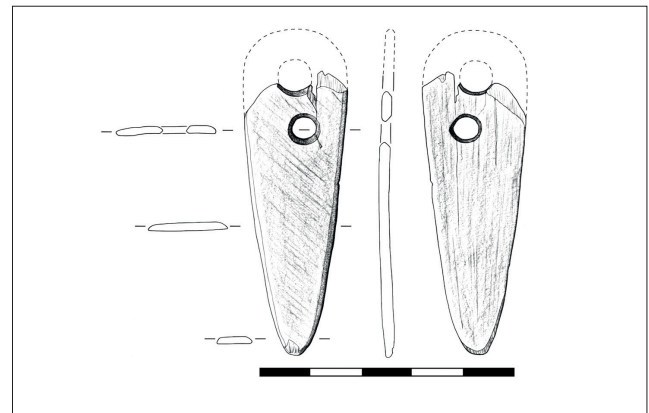


Figure 14: Reused shuttle with second hole, BH 41863 (Drawing: M. Erdalkıran) / *İkinci delik açılarak yeniden kullanılan dokuma mekiği, BH 41863 (Çizim: M. Erdalkıran)*

of the shuttles is their perforations. In addition, they went on using the same tool by making a new perforation even if they had broken from their perforations, which might indicate the importance they attached to functionality and their attachment to their tools.

CONTEXT OF THE SHUTTLES AND THEIR TYPOLOGICAL DIFFERENCES IN STRATIFICATION

At Barcın Höyük, the shuttles were generally unearthed from various surfaces, floors, pits, and, although few, burials. Mostly found singly, these tools were obtained in three groups, with two groups as being triple and the other one as being double.

When the distribution of the shuttles according to the layers of the settlement is examined, it is seen that they were concentrated in Phase VI_d with 26 pieces, particularly in VI_{d1} with 12 pieces. The shuttles were included in the toolboxes of the inhabitants as of the first settlement of Barcın Höyük. The prototypes, in other words, the two shuttles dated to Phase VI_e, are quite different typologically from the standard examples. One of them has a diagonally-shaped tip, is quadrilateral, and has an angular head (Figure 7). Although the other one resembles a general shuttle form, it has a wider body and tip as well as a narrower perforation than they normally do. Even though the shuttles differed within themselves, they reached their classical typology in Phase VI_{d1} (6500-6400 BC) and gradually turned into more standard tools. Likewise, this continued throughout Phase VI_d too. Moreover, it is possible to state that the shuttles were used more intensively in this phase and that their importance decreased in the following phases.

EVALUATION

Bone tools are not adequately available in publications, which complicates making an analogy. The closest analogues of the shuttles from Barcın Höyük are known from such Neolithic centers as Çatalhöyük and Ilıpınar. Nevertheless, they were typologically grouped under various names such as pendants and spatulas and it was suggested that they had been used for different purposes.

On the other hand, in his paper, where he identifies the textile tools of the Bronze Age in the Aegean and Eastern Mediterranean, L. Rahmstorf states that shuttles were used in knitting the weft yarn in weaving and indicates that these tools were rarely identified with this name.

Even though the naming of weaving shuttle was widely used as of the Bronze Age, very few data on the tool group concerned are available in the publications on

the Prehistoric Period. The flat bone finds one side of which was perforated were first identified as shuttles by D.N. Marshall, who studied the bone tools of Jericho. Marshall classified the nine items unearthed in the place concerned as shuttles. She states that a considerably long (25.5 cm) example made from the rib was a shuttle, whereas the two smaller fragments (4.8 cm and 7.3 cm) were short for weaving and might have therefore been used to knit the narrow bands of clothes. After this study, the analogous examples found particularly at the excavations in the Southern Levant were identified as shuttles. The most striking examples out of them come from Nahal Hemar Cave, which is dated to Pre-Pottery Neolithic B. Besides reed, mats, and baskets, woven items made from linen were also encountered at Layers 3 and 4 of the cave. Even though these woven items were made in various techniques, it is stated that weft and wrap thread weaving was the most common method, as all around the world. The bone tools obtained here include 12 shuttles with either large or small perforations, with one of them containing an incised decoration. Another findspot from this region is Nahal Mishmar, which is dated to the Chalcolithic Period. It is proposed that the two tools made from sheep/goat or gazelle rib here, one of which is perforated, were used as shuttles or spatulas. Especially the 11.4-centimeter-long perforated example was emphasized to have particularly resembled a weaving shuttle. We see that there was no material which was identified as a weaving shuttle in Çayönü in Anatolia in the same period. However, it was established that there were 11 marked pins and bodkins here. Furthermore, the bone tools from Çayönü also include examples which are analogous to the shuttles made from the rib, as in the Levant. Efe classified them as spatulas/knives with sharp edges. At least some of these tools might have also been used as shuttles when necessary.

Having carried out the excavations of the early period at Çatalhöyük, J. Mellaart provided overall information on bone tools. Nevertheless, a tool which was discovered from a female burial in "House IV.II", which was stated to have been an awl or a hairpin, which had a long and flat body, which contained a perforation on one side of it, and the tip of which is seen to have been worn and to have shone due to use is present in Plate 99. Owing to all these characteristics, this tool might have been used as a shuttle.

Although N. Russell, who examined the bone tools from Çatalhöyük, does not make any typological distinction as shuttles in her manuscripts, she identifies the flat and generally quite long tools with a round perforation and a flat tip as bodkins, shuttles or weaving tools in her paper entitled "Anatolian Neolithic Bone Tools". As a result of the microscopic use trace analyses on the specimens from

Çatalhöyük, she states that these tools were first of all used in basketry or, due to their sizes, in the production of mats. Additionally, she also expresses that the woven examples encountered at Çatalhöyük could not have been made by using such straight pins.

Russell also draws attention to a pendant group which was made from antlers and which makes up the most common subtype with four examples. An example is vertically corrugated in the middle and has a small perforation. The researcher states that they were probably not worn as pendants but were used for other purposes like weights. Even though the example concerned is slightly thick, it might have been used as a shuttle by wrapping a thread into the corrugated part. Examples which are very analogous to the shuttles from Barcın Höyük are seen among the finds that Russell identifies as pendants in her paper, where she evaluates the bone tools unearthed from the south of Çatalhöyük as well as from Area 4040. The researcher states that the most common form with five examples among the pendants is comprised of those which were made from antlers and which are long, narrow, and frequently perforated at one roughly split tip. She repeats her previous proposals by expressing that they were not decorative and suggests that they might have been used in chipping with the pressure method. In another paper of hers, she mentions that there are narrow and long pendants made from antlers of the type she had previously mentioned among the bone tools discovered from BACH Area and repeats her similar proposals.

Having studied the bone tools from Ilıpınar, M. Marinelli collected the analogues of the shuttles from Barcın Höyük under the sub-typology of perforated spatulas and subdivided them into three. Due to the wear on the perforations of the examples which are shorter than the others, she suggests that they might have been used as pendants. Especially the example in Fig. 4:3 herein is typologically analogous to the shuttles from Barcın Höyük.

M. Özdoğan defines the shuttles as relatively short tools with two pointed tips and also shows an example from Fikirtepe, which is dated to the Late Neolithic Period. However, these tools with two pointed tips and a curved body are not known from Barcın Höyük, although it is contemporary with Fikirtepe.

The tools which are perforated at one tip and which are quite rare in the Late Neolithic bone tool repertoire from Barcın Höyük are very long, whereas the pins are rather thin. Thus, such tools are unsuitable for a long-term task like weaving or for knitting. Moreover, weaving remains were also encountered at Barcın Höyük, although rarely, and the best-preserved example has an extremely simple

weaving technique. The finding of no clay spindle whorls at Barcın Höyük brings to mind the use of vegetal fiber rather than animal wool. The analyses to be made on the woven item concerned will enable us to acquire precise information on this matter.

CONCLUSION

The shuttles from Barcın Höyük are standard tools with a marked typology with their raw material selection, manufacturing technology, and subtypes. Although almost all tools concerned were unearthed in the same phase, differences in their forms are observed. When it is assumed that these tools were used for the same purpose, the typological differences might indicate that they were made in the same phase by different people. Furthermore, the finding of shuttles even in the earliest phase of Barcın Höyük might prove that the people who had set up this village brought them in their toolboxes along with them.

As a result of the macroanalyses carried out, it is possible to state depending on the wear at the tip and on the perforation that such tools were used by reeving a thread through their perforations. In addition, it is supposed that the wear and shine throughout the surface might have resulted from the contact with organic matter. Finally, it is concluded that such tools might have been used like the tools used in weaving and identified as shuttles.

Another possibility is that the individuals suspended the tools on their necks by means of the thread reeved through the perforation and that they used the object they personalized in various tasks. Likewise, when the examples discovered from the burials in phases VIc and VIId3 are included in the evaluation, they support the proposal that the tools were personalized during their lives of use.

In conclusion, I propose that the flat tools perforated on their wider part, tapering towards the tip, and found at Barcın Höyük might have been the tools used in weaving and called shuttles. On the other hand, I have intended to draw attention to the fact that it might be wrong to call every perforated bone tool a pendant or every tool with a pointed tip an awl, that they should be examined in more detail, and that they might have been tools with different functions.

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