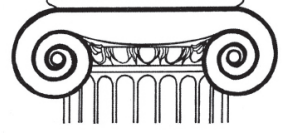




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Sorumlu Müdürü: E.Ü. Edebiyat Fakültesi Arkeoloji Bölümü adına Prof. Dr. Eşref Abay

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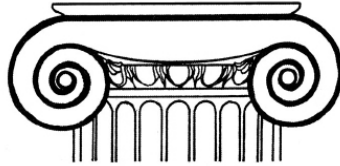
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# Reuse of Bone Finds in The Neolithic Period: The Case from Barcın Höyük

[NEOLİTİK DÖNEM KEMİK ALETLERİN YENİDEN KULLANIMI:  
BARCIN HÖYÜK ÖRNEĞİ]

Mücella ERDALKIRAN

## Keywords

*Bone Tools, Reuse, Late Neolithic, Barcın Höyük, Bone Spoons*

## Anahtar Kelimeler

*Kemik Aletler, İkincil Kullanım, Geç Neolitik, Barcın Höyük, Kemik Kaşıklar*

## ABSTRACT

*Located in the Yenişehir district of Bursa, Barcın Höyük is a 7th millennium BC settlement. Numerous bone tools and personal ornaments such as awls, spoons, spatulas, fishhooks, smoothers, pendants, and beads were found at Barcın Höyük. Reused tools and repairs make up a notable group within the bone industry. Among the tools with the most commonly reused group are typically spoon handles, which were converted into very different tools. Apart from this, it is seen that items such as awls, shuttles, and pendants were repaired and reused. All these practices give us the opportunity to gain insights into the lifestyles of prehistoric people.*

## ÖZET

*Bursa'nın Yenişehir İlçesi'nde yer alan Barcın Höyük, MÖ 7. binyıl yerleşimidir. Barcın Höyük'te, bız, kaşık, spatula, olta iğnesi, mablak, kolye ucu ve boncuk gibi çok sayıda kemik alet ve kişisel süs eşyası bulunmuştur. Kemik endüstrisi içinde dikkat çekici bir grubu, ikincil kullanım aletler ve onarımlar oluşturmaktadır. İkincil kullanımı en sık rastlanılan aletler arasında çok daha farklı aletlere dönüştürülen kaşıklar yer almaktadır. Bunun dışında bız, mekik ve kolye ucu gibi eşyaların onarılarak yeniden kullanıldığı görülmektedir. Tüm bu uygulamalar Prehistorik Dönem insanının yaşamını ve anlayışını kavramamız için bize fırsat vermektedir.*

## Introduction

Besides stone and wood, a prolific raw material that prehistoric people used readily and shaped are animal bones. The fact that they were shaped in a relatively short period of time, requiring no real skill must have encouraged the widespread use of these materials. In addition, those which had broken during manufacture or use were reused by reshaping and being converted into other types of tools. This is important in that it shows the value prehistoric people attached to their belongings, the bond between belongings and human beings, and the life practices.

The material discussed in this manuscript was obtained from Barcın Höyük – located in Yenişehir district to the east of Bursa. At Barcın Höyük,

consisting of two interconnected hills with a size of 1.7 hectares, the excavations were carried out in the larger settlement in the east. The excavations of the first session were conducted between 2005 and 2006, headed by İznik Museum and under the scientific advisership of Jacob Roodenberg<sup>1</sup>, and the research of the second session was conducted between 2007 and 2015, headed by Fokke Gerritsen<sup>2</sup>. A cultural deposit with six levels consisting of the Byzantine and Hellenistic/Roman Periods as well as the Iron, Bronze, Chalcolithic, and Neolithic Ages was discovered at Barcın Höyük.<sup>3</sup>

1 Roodenberg vd. 2008.

2 Gerritsen vd. 2013a: 93; Gerritsen vd. 2013b: 1-2.

3 Gerritsen vd. 2013a: 94; Gerritsen vd. 2013b: 3,

Characterized by the “Fikirtepe” and “Pre-Fikirtepe” cultures in the Marmara Region, the Neolithic Age was detected in the seven subphases of Level VI (VIe, VIId1-3, VIc, VIb, and VIa) at Barcın Höyük and it is dated at circa 6000-6600 BC according to the calibrated C14 results.<sup>4</sup>

For about 600 years, the early inhabitants of the Yenişehir Plain had lived in the rectangular structures opening into adjacent courtyard spaces. They built and rebuilt their homes using wood and mud on top of one another with minor changes across many generations. The subsistence economy of the people at Barcın Höyük relied substantially on farming and animal husbandry. The plant species cultivated included einkorn, emmer, bread wheat, barley, lentil, pea, chickpea, vetch, and flax. Animal husbandry was performed more with domestic cattle and sheep and less with goats. Furthermore, there was hunting, although at a low rate, and among the animals hunted were fallow deer, roe deer, wild boar, hares, foxes, birds, terrapins, small rodents, fish, and mollusks.<sup>5</sup> Over 3,000 bone finds with detailed typological and functional properties were unearthed and studied during the excavations of the second season at Barcın Höyük.<sup>6</sup> It has a considerably wide bone tool industry repertoire including awls, spoons, spatula-spoons, spatulas, smoothers, pickaxes, perforators, pins, crochet needles, weaving combs, shuttles, fishhooks, rings, beads, belt buckles, and belt hooks.<sup>7</sup> The bone tools and ornaments from Barcın Höyük were made from various bones of cattle, sheep/goats, and roe deer; fallow deer antlers and teeth; bird bones; pig molars; and any bones suitable for tool technology and typology like fishbones. Some finds with few examples or a single example such as the awls made from cattle teeth, fishbones, and bird bones not only show the search of this prehistoric society for different raw materials but also prove their use and conversion of the available material and the importance they attached to sustainability.

Gerritsen ve Özbal 2016: 200; Gerritsen ve Özbal 2019: 59.

4 Gerritsen vd. 2016: 199-200; Gerritsen vd. 2013a: 94-97; Gerritsen vd. 2013b: 3-5, 18.

5 Gerritsen ve Özbal 2019: 61.

6 This research was supported by Ege University. BAP-2014 EDB 009.

7 Dekker 2014; Erdalkıran 2017, 2016, 2015a-b.

## Reuse of bone finds

Besides the numerous and wide variety of bone tools and ornaments, as mentioned above, another group with a different technology and typology at Level VI of Barcın Höyük, dated to the Neolithic Age, is comprised of reused finds. Some bone finds which had broken during manufacture or use were reworked and recycled. At Barcın Höyük, about 70 finds were reused either in a different typology or, although in fewer cases, they were reconverted into the same type of tool through repair.

Many broken bone tools, mostly spoons, were reshaped for a different purpose. Spoons display delicate workmanship, are fragile, and have a long shaft and a bowl. Their typology makes them fragile and they typically brake at their shaft-bowl connections, their bowl tip, and their shaft, which was made to be longer and thinner than needed. However, they are the most suitable bone artefacts for conversion into different types of tools owing to their size and shape. Likewise, perforators from the shafts of spoons, spatulas from the shaft and the bowl, and awls, belt hooks, fishhooks, and both perforated and unperforated unidentifiable items from their bowls were determined as remanufacture. In addition, tool wastes resulting from conversion into these tools were encountered too.

With over 50 items, the perforators made from broken spoon shafts are among the most common converted tools. The sections of perforators are circular or oval, as those of spoons, and they were made without modifying the body but by rubbing only one tip of them and giving it a pointed form.<sup>8</sup> It is seen that the broken bowl of the spoon has been partly preserved in some examples (Fig. 1-2).

Another tool type into which broken spoons were converted into is the spatulas with or without a shaft. It is seen that especially the flat-bowl spoons with a broken bowl tip were converted into spatulas by preserving their shafts and reused (Fig. 3-4). The bowls of the spoons converted into spatulas were typically those in which a half or a quarter of the original implement were preserved. In only one example, the shaft was either not preserved or subsequently broke.<sup>9</sup> Use-

8 Erdalkıran 2016: 209-210, Çizim 4.

9 Erdalkıran 2015: 28, Fig. 13.

wear and shine are generally seen on both faces at the functional edges of the spatulas converted from spoons.<sup>10</sup> Nevertheless, it is observed that not all spoons with a broken bowl tip underwent this conversion and that the spoons with certain concavity were not recycled, even if they had broken, as they were unsuitable for the purpose of use of a spatula.<sup>11</sup>

In comparison with shafts, spoon bowls, with their relatively flat structure of almost the same thickness, were converted into different types of tools such as awls, fishhooks, and belt hooks.

Known with a single example, the awl was made from about a quarter of a spoon bowl. One corner of the triangular fragment with the preserved spoon curve was resharpened and given a pointed form (Fig. 5). In this way, a waste fragment was reused by converting it into a different tool type.

It is seen that of the broken spoon bowls, two were converted into fishhooks. In one of these tools, made from the spoons with a broken bowl section, it is observed that the bowl-shaft connection has been partly preserved (Fig. 6). In the example in question, which was in a better condition, this part was tapered and made suitable for winding thread. By piercing a perforation of about 10 mm in diameter on its tip, it was intended to obtain a pointed curve and tip. However, cut marks are seen on the tip; hence, it might be an uncompleted and unfinished example. On the other hand, an effort of notching to prevent the thread from slipping and manufacturing marks are seen on both faces of the tool. Another example was also treated similarly. The vertical cutting of the spoon bowl is much clearer in this item; furthermore, its curved section was made to be narrower and its tip was made to be thin. Still, this fishhook also appears to have been left unfinished and as a preform.

Another type of tool shaped from a broken spoon bowl and represented with one item is a possible belt hook (Fig. 7). The item with a preserved bowl-shaft connection is a crudely shaped and uncompleted tool with edges left unretouched. The reasons why this example cannot be identified as a fishhook are the facts that it is thicker walled in comparison with the other two examples and that its perforation was pierced in a

narrower form from both sides by employing a different technology. Thus, it resembles a belt hook more than a fishhook; nevertheless, it was uncompleted.

Some four items (three of which were perforated and one of which was unperforated) made from broken spoon bowls and with unidentifiable functions were detected. In the first examples, particularly in two items, it is clearly seen that the perforations were cut and pierced with a size of more than 10 mm, that the tools were shaped into a U-form, and that their tips were cut (Fig. 8). In the other example, the perforation located at the center displays a different technique as it was pierced from both sides and is rather narrow with its diameter of 5 mm (Fig. 9). In the last functionally unidentifiable example, one edge of the bowl was preserved and the other edges were rounded, thereby making an almost circular item. The shine seen on one side of it indicates that it was used.

One of the examples in which broken bone tools were converted into a different function is a perforator made from a smoother tip (Fig. 10). A smoother's partly preserved tip, which wore and shone due to use, turned into the head of a perforator. The horizontal manufacturing marks that occurred during the reshaping of the tool are seen on both faces. It is understood that the tip broke and was discarded after it had been used for a while.

In the second method, instead of being discarded, the broken bone items continued to be used without changing their function and by reshaping or piercing them. In this context, the most common tool group is comprised of awls, followed by shuttles. Furthermore, another find is a pendant with a single example.

Although the most common bone tools at Barcin Höyük are awls, the remnants of some items with a vertically broken tip were given a pointed form by retouching and reused (Fig. 11). Of the awls with or without an epiphysis that were made from the metapodial bone, 23 were determined to have been used by reshaping their broken tips. Their tips continued to be used until they broke or dulled.

Weaving shuttles make up another group of tools reused without changing their functions. These generally drop-shaped tools contain a perforation

<sup>10</sup> Erdalkıran 2015: 28, 31-32, Fig. 11, 13-14, 17.

<sup>11</sup> Erdalkıran 2015: 28, Fig. 2-3.



on their wide part and it is seen that most of them broke through their sensitive perforation and became unserviceable.<sup>12</sup> Nevertheless, it was found out that three examples which had broken so continued to be used by re-perforating them. Two of them were obtained in complete form.<sup>13</sup> It is seen that another partly preserved tool had broken through its perforation earlier; that the shuttle was provided with its function again by piercing a second perforation under the first one; that its edges, meanwhile, changed form by rounding due to use; but that later it broke again and became unserviceable (Fig. 12).

Finally, the find which continued to be reused by piercing a repair perforation is a pendant made from the upper canine tooth of a male fallow deer (Fig. 13). As the first perforation had broken, a new perforation was pierced from both sides immediately under the first one and the pendant continued to be used.

The bone finds displaying reuse are seen in all those phases of Barcın Höyük that represent the Neolithic Age. It has been established that these finds were obtained from domestic spaces, open areas, and various contexts.

### Conclusion

It has been determined that even though bone tools and finds were intensively used at Barcın Höyük, some of them were reused. Although they had enough raw materials, they preferred making what they had in hand reusable to making a new tool. A similar behavioral model was also detected at Çatalhöyük, about which we have more information as its bone finds have been examined in detail. In the Neolithic settlements in the Balkans, the bone tool industry displays a great analogy with that of Anatolia.

Spoons and spatula-spoons have a significant place in the bone tool industry of the Neolithic cultures in the Balkans, as at Barcın Höyük.<sup>14</sup> By stating that spoons were used most intensively and for the longest period of time and also repaired or reused at the highest rate among the finds in the bone industry of Starčevo, Selena Vitezović expresses that the broken spoon shafts in particular were converted into tools with a

pointed tip such as projectile points or awls.<sup>15</sup> There is no data on reuse except for spoon shafts in Starčevo. The only example concerning the reuse of spoon bowls appears to be from Barcın Höyük for now.

On the other hand, the reuse and repair of especially perforated belongings such as needles, beads, pendants, and necklaces were encountered in the bone tool industry of Çatalhöyük.<sup>16</sup> Nerissa Russell further focuses on the repair or sharpening of awls among these finds.<sup>17</sup> Even though the repair of awls is seen at Barcın Höyük, no heavy sharpening process is seen especially on the common awls made from the metapodial bone. It is possible to explain the reason why this is so with the availability of enough raw materials as well as with the fact that they easily made a new tool instead of a broken tool.

One of the important repairs seen at Barcın Höyük is the pendant made from the upper canine tooth of a fallow deer. Its importance comes from the fact that these teeth are available as two pieces, with no enamel, and in dull condition in male individuals only. These teeth were popular raw materials in making necklaces as of the Epipaleolithic Age. This was such that their bone imitations were made.<sup>18</sup> A similar case applies to the examples from Barcın Höyük as well. Along with the pendant from an original tooth, its bone imitation was also made here. Besides, the pendant made from an original fallow deer tooth was also encountered at Çatalhöyük,<sup>19</sup> Aşıklı Höyük,<sup>20</sup> and, although earlier, Gusir Höyük<sup>21</sup> and some examples of it were repaired and continued to be used.

It is seen that at Barcın Höyük, numerous bone finds ranging from the tools the manufacturing of which required expertise like spoons to the pendants with a rare raw material like the canine tooth of a fallow deer were repaired or converted into reused products for completely different purposes. With this practice, the prehistoric people of Barcın Höyük saved on time and the available

12 Erdalkıran Baskıda: Figure 6, 10.

13 Erdalkıran Baskıda: Figure 13-14.

14 Vitezović 2011, 2016. Sidéra 2005, 2013.

15 Vitezović 2016: 193; 2011: 20.

16 Russell 2016: 130.

17 Russell 2001.

18 Russell 2012: 355; Russell 2016: 130.

19 Russell 2012: 355, (Figure 15.11).

20 Yelözer 2018: 390-391, Figure 8.

21 Özdoğan 2016: 139, Fig. 4.

raw material, thereby also emphasizing the sustainability and value of the material. Like the other specialists<sup>22</sup> studying this subject, I also think that the reuses show the symbolic or emotional value attached to a tool or an item and that the people were therefore unable to abandon it easily and wanted to go on using it by converting it into another item. In this way, with reuse and repair practices, we also find an opportunity to understand the life practices and approaches of the people of the period in question.

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<sup>22</sup> Dekker 2014, Russell ve Griffiths 2013, Russell 2001, 2012, 2016, Vitezović 2016.

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Fig. 1. A perforator made from a broken spoon shaft, BH 5773.



Fig. 2. A perforator made from a broken spoon shaft, BH 16555



Fig. 3. A spatula made from a broken spoon, BH 8657.



Fig. 4. A spatula made from a broken spoon, BH 46138.



Fig. 5. An awl made from a broken spoon bowl, BH 10706.



Fig. 6. A fish hook made from a broken spoon bowl, BH 28811.



Fig. 7. A belt hook made from a broken spoon bowl, BH 35722.



Fig. 8. A perforated object made from a broken spoon bowl, BH 35569.



Fig. 9. A perforated object made from a broken spoon bowl, BH 6276.



Fig. 10. A perforator made from a smoother tip, BH 15882.



Fig. 11. The reuse of an awl after its broken tip had been repaired, BH 16309.



Fig. 12. The reuse of a shuttle after its broken perforation had been repaired, BH 44621.



Fig. 13. The repair of the pendant made from the canine tooth of a fallow deer, BH 30039.