

Ancient archaeological finds related to weaving in Azerbaijan

Key words: Azerbaijan, early production, grave monuments, cattle-breeding, ancient weaving, clothing, home crafts, spindle whorls.

Cuvinte-cheie: Azerbaidjan, producție timpurie, monumente funerare, creșterea vitelor, țesutul antic, îmbrăcămintea, meșteșugurile casnice, fusaiole.

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As a result of archaeological excavations conducted in Azerbaijan, numerous finds related to the weaving art have been discovered in monuments dating from the Neolithic to all subsequent periods. These are tools with piercing functions such as spindle whorls, needles, awls and pins made of clay and bone, and rarely from stone. In the Bronze Age, piercing tools were also made of metal. Traces of fabrics woven in various ways on ceramic products dating from the Neolithic, Chalcolithic and Bronze Ages are indicators of the widespread development of this art form in ancient Azerbaijan. Thus, the “bagging method” used in the production of pottery indicates that the bag, which is a woven product, was also applied in the field of pottery. At the same time, direct remains of fabric were also discovered during the excavations. Although the remains of fabric discovered in grave monuments are very poorly preserved, they indicate that weaving was one of the main craft forms in the region. Some examples of clothing found among the petroglyphs are also a certain source of information about ancient weaving.

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Descoperiri arheologice antice legate de țesut în Azerbaidjan

În urma săpăturilor arheologice efectuate în Azerbaidjan, au fost descoperite numeroase vestigii legate de arta țesutului în situri datând din neolitic și din toate perioadele ulterioare. Este vorba despre unelte ca fusaiole, ace, știfturi și ace de cusut realizate din lut și os, și mai rar din piatră. În epoca bronzului, străpungătoarele erau confecționate și din metal. Urmele de țesături amprentate, în diverse moduri pe obiecte ceramice datând din Neolitic, Chalcolithic și Epoca Bronzului, indică dezvoltarea pe scară largă a acestei forme de artă în Azerbaidjanul antic. Astfel, „metoda de împachetare” utilizată în producția de ceramică indică faptul că punga, care este un produs țesut, a fost aplicată și în domeniul ceramicii. În același timp, în timpul săpăturilor au fost descoperite și rămășițe directe de țesături. Deși rămășițele de țesături descoperite în monumentele funerare sunt foarte slab conservate, ele indică faptul că țesutul era una dintre principalele forme de artizanat din regiune. Unele exemple de îmbrăcăminte găsite pe petroglife reprezintă, de asemenea, o sursă sigură de informații despre țesutul antic.

Introduction

In the second half of the 7th millennium BC, the ceramic Neolithic Age appeared in the territory of Azerbaijan and the rapid development of the production economy began. The expansion of farming and cattle breeding gave impetus to the intensive development of a number of household crafts – stone working, bone working, pottery, weaving, etc. The tools of the trade, both in rock carvings discovered in the territory of Azerbaijan and unearthed as a result of archaeological excavations, indicate that the weaving craft was widely used in this region at all stages of ancient history.

People of that time primarily used wool and other natural materials to make clothes, headgear and footwear to meet their clothing needs. Besides, woven and knitted products were also widely used in everyday life, such as in the covering the floor of houses [Abibullaev 1982, 222-223; Narimanov 1987, 155].

In connection with the expansion of production, numerous finds related to the weaving craft have been discovered in both residential areas and graves of all subsequent periods, starting from the Neolithic period. These are tools with piercing functions such as spindle whorls made of clay

and bone, and rarely of stone, as well as needles, awls, pins. All these tools differ very little in typology across periods. Their functions remained unchanged for centuries. Both plant-based (flax, fiber, reed, etc.) and animal-based (wool) raw materials were used in weaving.

Materials and discussion

Neolithic Age

In the Gobustan petroglyphs dating back to the Mesolithic and Neolithic Ages, some of the human figures appear to have worn some kind of covering around their waists. These coverings were most likely made of animal skin or woven from wool or wood fiber [Dzhafarzade 1973, 14]. These paintings are the oldest visual evidence of the clothing of hunter-gatherer people in Azerbaijan.

The remains of both weaving tools and wickerwork products have been discovered in the monuments of the Industrial Neolithic – the first farming – cattle-breeding period. The oldest such examples are known from the Kultepe I settlement, dating back to the second half of the 7th millennium BC – the 6th millennium BC, near the city of Nakhchivan. During excavations here, three biconical-shaped spindle whorls made of plant mixed clay were discovered (fig. 1,1). Moreover, in several Neolithic graves (No. 46, 66, 76) in the settlement, was found remains of hopsack on the skeletons. According to the author of the excavation, O. Habibullayev, the dead in these graves were buried wrapped in hopsack woven from plant fibers [Abibullayev 1982, 39, 41, 45, 75, 223].

Analogue of the biconical clay spindle whorls discovered at Kultepe I are known from coeval monuments in Western Asia. For example, dozens of such whorls were discovered at the Haji Firuz settlement in the Urmia basin [Narimanov 1987, 155]. This type of

spindle whorls has also been found at Kultepe settlement in northern Mesopotamia [Bader 1989, 154-155]. Conical stone spindle whorls have been found in the Hassun culture in Northern Mesopotamia. Stone spindle whorls of the same type have been found in the Yarimtepe II settlement of the late Halaf culture. At the same time, the number of clay spindle whorls found here were more than 30. Only three of them are conical, the rest are biconical in shape [Munchaev, Merpert 1981, 230].

No spindle whorls are known from other Neolithic monuments of Northern Azerbaijan. The Nakhchivan region, in the Araz River basin,

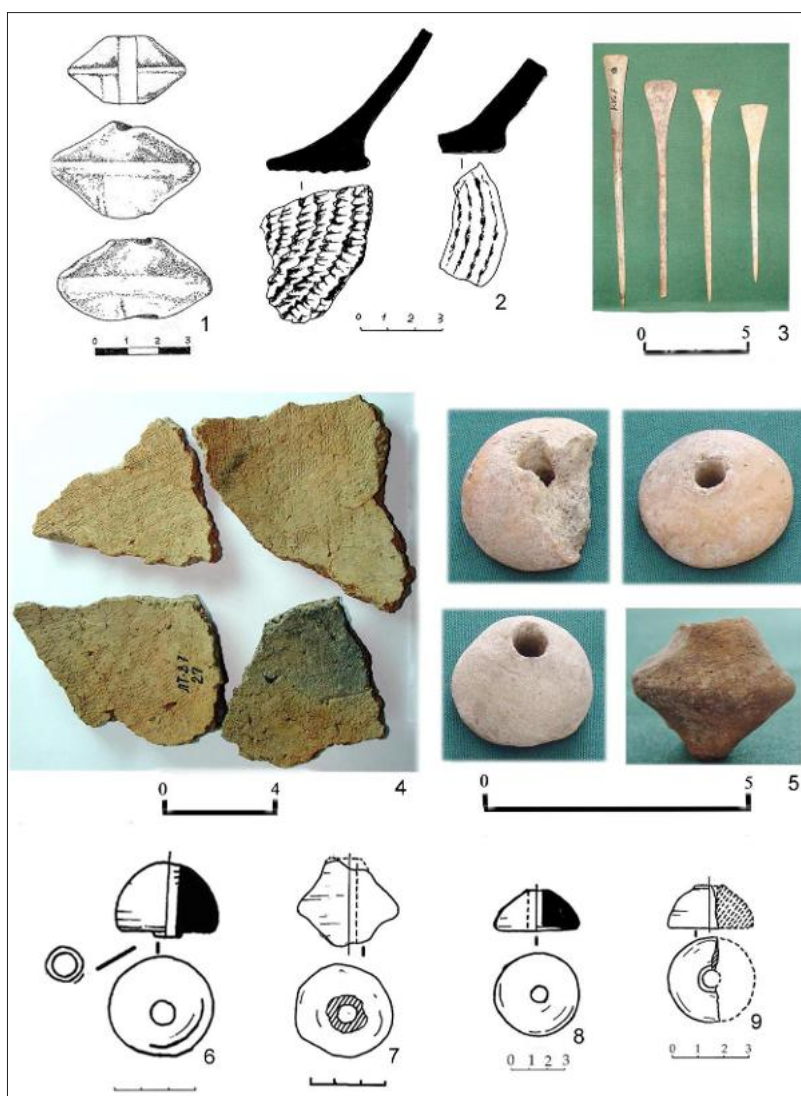


Fig. 1. 1 – Spindle whorls from Kultepe I [Abibullayev 1982]; 2 – Pottery vessel fragments with traces of a bast mat under it from Hasansu I; 3 – Bone pins from Beyuk Kesik; 4 – Vessel fragments with traces of fabric inside from Leilatepe; 5-6 – Clay Spindle whorls from Beyuk Kesik [Müseybli 2020].

is geographically located in the immediate sphere of influence of the cultural traditions of Western Asia – Urmia, Northern Mesopotamia, and Eastern Anatolia. Therefore, the discovery of spindle whorls at the Kultepe I settlement in Nakhchivan can undoubtedly be considered as a result of the cultural influences of Western Asia.

During excavations of Neolithic settlements in Northern Azerbaijan, remains of woven mat made of plant fibers were repeatedly found on the floors of houses. In the settlements of the Middle Kura basin, special mats were woven on which clay pots were shaped and dried. In every monument excavated in this region, pottery vessels with traces of these mats under their seats were discovered [Narimanov 1987, 155-156]. At Hasansu settlement in Agstafa district (late 7th-6th millennium BC), 5 cm thick mat remains were discovered on the floor of one of the houses. Such thickly woven mats ensured that the floors of the houses were kept dry and warm. Traces of the mat remains under the seat of the pottery fragments discovered at this monument (fig. 1,2) are clearly observed [Müseyibli *et al.* 2010, 32; Museibli 2023, fig. 6. 3, 4].

It is not an exception that the bone tools with piercing functions, such as the awl-like tools and the pencil-like pointed tools, which are rarely encountered in Neolithic monuments, were used in the weaving process. It is not an exception that the bone tool with a serrated, saw-shaped end was used in combing wool.

Chalcolithic period

Textile products of the Chalcolithic period in Azerbaijan have been discovered mainly from the monuments of the Leilatepe culture (end of the 5th millennium BC – first half of the 4th millennium BC). This culture is closely related to Northern Mesopotamia-Eastern Anatolia and the production traditions of these regions. It is from the monuments of this period that archaeological remains related to weaving are found in large numbers in Azerbaijan. The monuments where archaeological weaving products have been discovered are mainly the eponymous monuments of Leilatepe, Beyuk Kesik, and Galayeri settlements.

Triangular bone pins with a flat top were discovered in the Leilatepe and Beyuk Kesik set-

tlements. Some of them had a hole in the flat top. Therefore, they can also be conditionally called needles. It can be assumed that these pin/needle-type tools were used in the weaving process (fig. 1,3).

The pottery vessels of this culture were formed on a potter's wheel made with plant mixed clay, and in rare cases from pure clay. However, vessels made of sand-mixed clay were formed by hand. Several vessel fragments made of sand-mixed clay discovered at the Leilatepe settlement have traces of very fine woven fabric on their inner surface (fig. 1,4). This, in turn, indicates that woven fabric was used in the production of such vessels [Aliev, Narimanov 2001, 44].

These findings are evidence that the “bagging” method was also used in the production of Leilatepe culture ceramics. The kneaded clay was placed on a cloth bag filled with sand and shaped into a jar, and the vessel was formed on top of this bag. After the clay was dried or baked, the sand was emptied, resulting in a perfect pottery vessel. At this time, traces of the woven sack remained on the inner surface of the vessel [Müseyibli 2020, 125].

A large number of clay spindle whorls, which were the main weaving tools for spinning yarn at that time, have been discovered from the monuments of the Leilatepe culture. Such tools have been found at Beyuk Kesik (fig. 1,5-9), Leilatepe (fig. 2,1-4), and Galayeri (fig. 2,5-8) [Aliev, Narimanov 2001, 44; Müseyibli 2020, 155]. Great deals of spindle whorls were discovered at Beyuk Kesik. Interestingly, no spindle whorls were discovered in Poylu II settlement, where extensive excavations were conducted. 27 clay spindle whorls were found at Beyuk Kesik. The spindle whorls with reddish and dark grey color some were made of pure clay and some mixed with plants. Some were made of both plants and sand mixed clay. Most of the whorls were discovered in the lower layers of the cultural layer. The dimensions of these tools are similar. Their maximum diameter is 3.5-4 cm.

In terms of shape, the spindle whorls can be grouped as follows: 1) biconical, 2) hemispherical and 3) conical. The spindle whorls belonging to group 2 are more common. Only four spindle whorls with biconical shapes have been discovered. The size of both ends of the tubular holes in the center of the spindle whorls is the same. However, one end of the hole, passing through the center of one of them is smaller than the other. In some cas-

es, the hole is surrounded by a convex circle on one side (fig. 1,6) [Müseybli 2020, 155-156].

One of the spindle whorls found at the Leilatepe settlement has a central hole surrounded by nine grooves (fig. 2,1). Another spindle whorl found at Galayeri site has five grooves on one side only (fig. 2,5).

Conical spindle whorls are known from monuments belonging to the Ubaid, Halaf and Hassun cultures in the Near East [Merpert, Munchaev 1982, 146].

Starting from the Chalcolithic period, bone spindle whorls were also used in Azerbaijan. All bone spindle whorls were made from the pin-

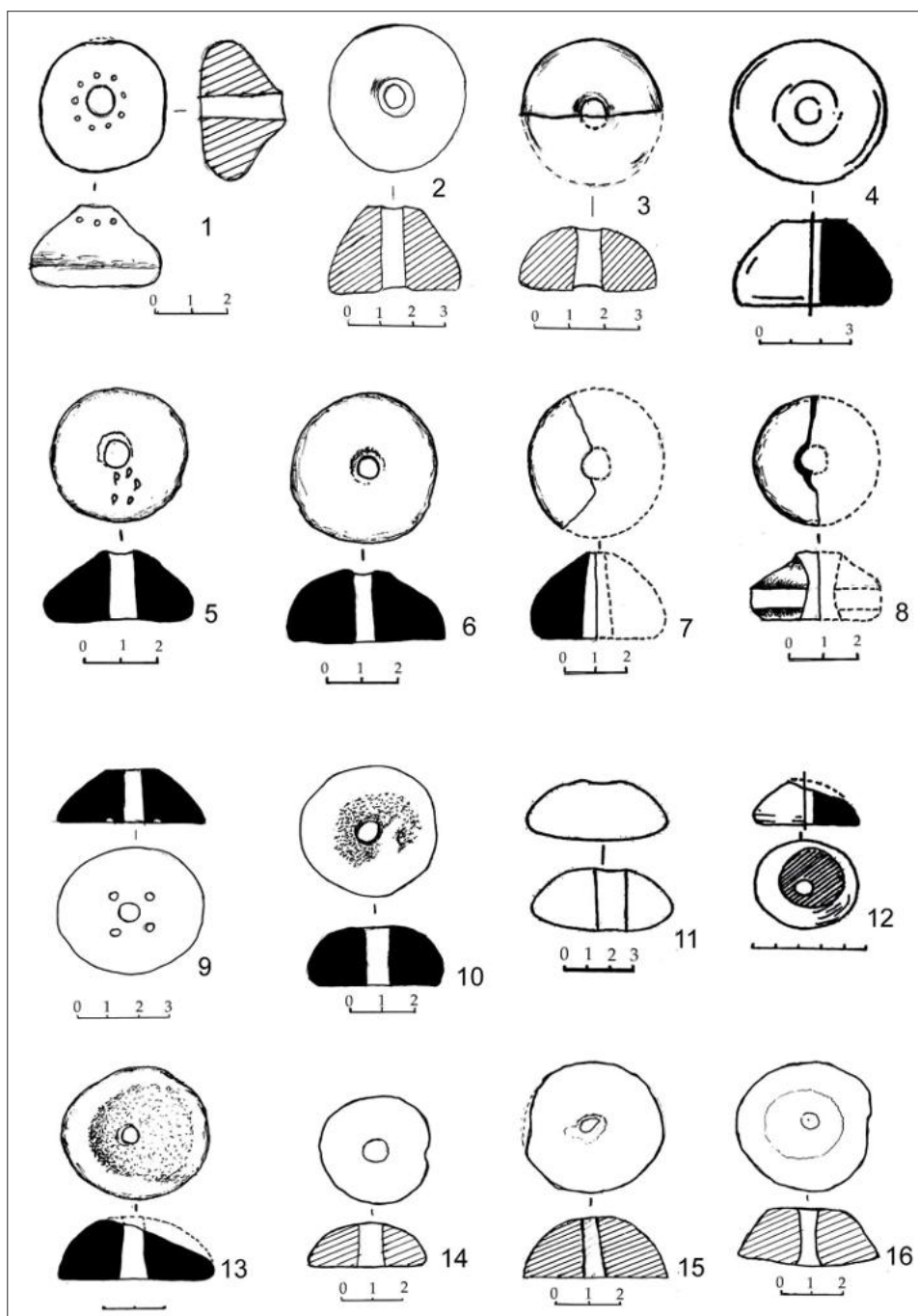


Fig. 2. Clay (1-8) and bone (9-16) spindle whorls from the Chalcolithic period. 1-4, 9,10 – Leilatepe; 5-8, 13-16 – Galayeri; 11-12 – Beyuk Kesik [Müseybli 2020].

eal bone of neat cattle. For this, half of the pineal bone was cut horizontally and a vertical hole was made in its center. Therefore, all bone whorls, both in the Chalcolithic period and the subsequent Bronze Age, were generally conical. Such bone tools are not known from Neolithic sites.

Bone spindle whorls are lighter than similar clay tools. Ethnographic studies show that they differ in shape, volume, and mass depending on their purpose. Heavier spindle whorls were used mainly for spinning linen, while lighter ones were used for spinning wool and silk [Azərbaycan etnoqrafiyası 1988, 407].

Two bone spindle whorls were discovered at the Leilatepe settlement (fig. 2,9-10). One of them is tall and conical. The surface is smooth and polished as a result of processing. The lower surface, although porous, has been cut straight and smoothed. Four symmetrically arranged grooves around a central hole are carved on the lower surface (fig. 2,9).

Two spindle whorls made of pineal bone were discovered from the Beyuk Kesik (fig. 2,11-12). Both of them are hemispherical in profile. Bone spindle whorls were also discovered at different levels in Galayeri, especially in the lower layers (fig. 2,13-16). All of them were made of pineal bone and their sizes vary depending on the size of the bone. The spindle whorls are conical and have smooth surfaces. It seems that their surfaces were in contact more during the labor process. The smoothness is weaker in their lower parts, and in some cases it is more inaccurate. The diameters of the holes opened in the center did not depend on the overall size of the tool. Thus, the hole opened in the center of a small spindle whorl could be bigger than the hole in the center of such a relatively big tool. All these findings indicate the development of weaving in the Leilatepe culture society. Such spindle whorls were widespread during the Early Bronze Age Kur-Araz culture [Müseiyibli 2020, 185].

The discovery of numerous clay and bone weaving tools, as well as traces of finely woven fabrics, from the monuments of the Leilatepe culture suggests that a simple weaving loom had already been invented in the Chalcolithic period.

Bronze-Early Iron Ages

The changes that took place in the economy starting from the Early Bronze Age had an impact

on all areas of craftsmanship, including weaving. From the end of the 4th millennium BC to the beginning of the 3rd millennium BC, rapid changes occurred in the composition of cattle herds, and the number of small cattle increased intensively. At the beginning of the Early Bronze Age, as in the Neolithic and Chalcolithic periods, the number of neat cattle was relatively higher than that of small cattle. Towards the end of this period, the number of small cattle prevailed. This is clearly evidenced by the osteological remains discovered during the excavations of the corresponding layers in the settlements. High mountainous areas were used to provide small cattle with abundant feed and the necessary climatic conditions during the hot summer months, and thus summer pasture cattle breeding emerged [Abibullaev 1982, 215-218; Ismailzade 2008, 136-138].

As mentioned above, the bagging method was used in the production of ceramics as early as the Chalcolithic period. One of the vivid examples of the development of weaving in the Early Bronze Age is the use of woven fabric bags in the shaping of pottery. The facts of the use of woven fabric bags in pottery in the archaeological monuments of Azerbaijan were first revealed by Y.I. Hummel. He found out the traces of woven fabric on the inner surface of some pottery vessels discovered during excavations in the kurgans in Karabakh dating back to the Early Bronze Age. Y.I. Hummel determined the weaving style based on these fabric traces and also prepared a graphic representation of the fabric's structure (fig. 3,1). Y.I. Hummel also discovered ceramic products made in this way during the excavations of workshop No. 78 around Ganja [Gummel' 1939, 88, t. VI, 18; Gummel' 1941, 30]. Traces of fabric on ceramics are also known from the Early Bronze Age settlement of Serkertepe in northeastern Azerbaijan. Traces of fabric at this site, were also found on a copper object, and traces of bast mat were found on a clay fragment [Musaev 2006, 82].

Spindle whorls have also been discovered in grave monuments dating back to the Early Bronze Age. These are mainly bone tools. In the Uzun Rama kurgan dating back to the Early Bronze Age (second half of the 4th millennium BC), excavated near Ganja (Goranboy district), 7 bone spindle whorls and a large amount of fabric remains were revealed. These fabrics were either wrapped

or on human bones. They were charred due to being burned (fig. 3,2) [Jalilov 2018, 99, 103]. Bone spindle whorls have also been discovered in graves dating back to the late stages of the Early Bronze Age [Agalarzade 2012, 392; Akhundova 2025, 89]. The discovery of spindle whorls in graves also shows that weaving was an important craft at that time, and it also held a certain place in spiritual culture and beliefs.

Numerous spindle whorls were discovered in Layer VII of the multilayered Arslantepe settlement in Eastern Anatolia, which is synchronous with the Leilatepe culture, and from Layer VI of the Early Bronze Age, most of which were

made of bone. The clay spindle whorls were bi-conical and conical, the bone spindle whorls were flat or had one side convex (conical). The weight and diameter of the spindle whorls were directly related to their functional uses. Their rotation speed and circulation were also taken into account. Thus, relatively heavy and large-diameter spindle whorls were intended for spinning coarser threads, mainly from plant fibers, while light (bone) spindle whorls were intended for spinning fine threads. The spindle whorls obtained from Layer VIB were smaller in diameter and lighter in weight than those in Layer VII. This situation indicates that more fine threads were produced in

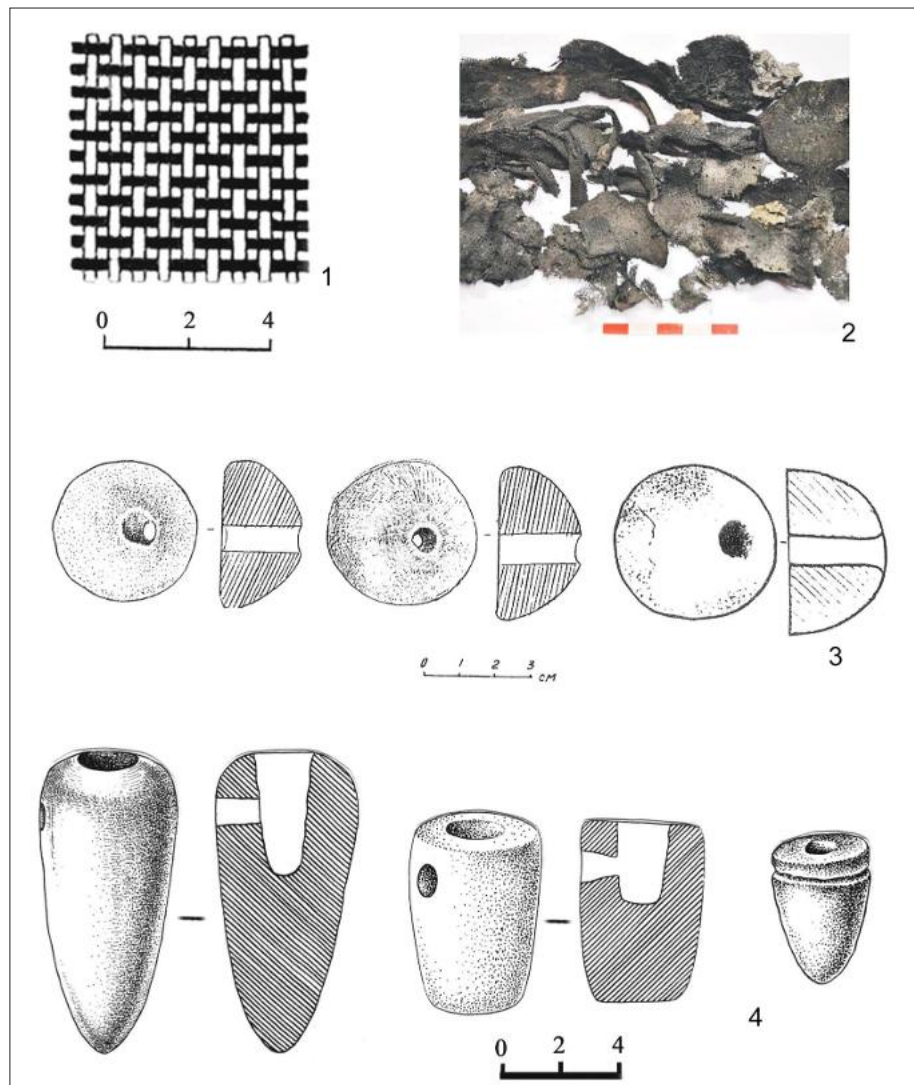


Fig. 3. 1 – Graphic representation of the structure of an Early Bronze Age fabric [Gummel' 1939]; 2 – Fabric remains from the Uzun Rama kurgan [Jalilov 2018]; 3 – Bone spindle whorls from Serkertepa [Musaev 2006]; Stone details of a weaving loom from Gunestepa and Garakopektepe [Ismailzade 2008].

Arslantepi during the Early Bronze Age than in the preceding Chalcolithic period (Frangipane *et al.* 2009, 6-17).

It is known that at that time the main raw material base for weaving was small-cattle (sheep, goats). The wool base, which was of great importance for the development of weaving, was further enriched with the expansion of summer pasture cattle breeding. This process, which began at the end of the 4th millennium BC – the beginning of the 3rd millennium BC, became more intensive in the subsequent stages. It was in the Early Bronze Age layers that the number of clay and bone spindle whorls, which were the main weaving tools, increased even more [Abibullaev 1982, 223]. Interestingly, all of the spindle whorls discovered at the Early Bronze Age Serkertepe settlement is made of bone (fig. 3,3). On the whole, unlike other coeval monuments, the variety and number of bone tools at Serkertepe is richer [Musaev 2006, 82]

Numerous finds related to weaving from the settlements of Guneshtepi and Garakopektepe of this period in Karabakh – spindle whorls, bone piercing tools, and fabric traces – indicate that a simple weaving loom was used in the Early Bronze Age. The cylindrical and conical stone tools discovered from these monuments are particularly interesting (fig. 3,4). These objects, with their special grooves, are identical to the simple weaving loom hanging tools identified ethnographically in Azerbaijan in the last century. During the development of the Kur-Araz culture of the Early Bronze Age, weaving became an independent craft, and professional craftsmen were engaged in this work to meet the needs of the community in the context of high population growth. The expansion of small cattle, in turn, provided the weaving sector with a continuous raw material base. Along with this, individual small family weavers also operated [Ismailzade 2008, 156-157].

Excavations at the Middle Bronze Age (first half of the 2nd millennium BC) monuments show that weaving tools, along with repeating a number of traditions of previous periods, also applied new tools. Great number of clay and bone spindle whorls was discovered in the Middle Bronze Age layers of the settlements of Kultepe I, Kultepe II, and Qizilburun in Nakhchivan, and the settlements of Garakopektepe, Guneshtepi, and Uzerliktepe in Karabakh. Since the weaving looms of this period

were made of wood, their remains have not been discovered. However, weight stones, bone tools – toothed thread straighteners (fig. 4,1), combs (fig. 4,2), spindle whorls (fig. 4,3), and a pointed tool made of deer antler give reason to say that they were used in weaving, that a simple loom existed in the period in question, and that this field was sufficiently developed. For sewing clothes, as in previous periods, along with the bone awls and needles, such tools made of bronze were also used. In big settlements, weaving had already become an independent craft. This, in turn, expanded the exchange of raw materials between cattle-breeders and weaving craftsmen [Aliev 1991, 149-150].

Based on the drawings on the Middle Bronze Age ceramics, it is possible to obtain some information about the clothing of the period. The most obvious example of this is the image on the polychrome painted vessel discovered in Qizilburun (fig. 4,4). Here, a man and a woman depicted side by side are shown in long dresses [Aliev 1991, 149]. Along with this, in the Gemigaya petroglyphs in the high mountainous zone of Nakhchivan, hunters and cattle-breeders are sometimes depicted in knee-length clothes and headdresses (fig. 4,5-6) [Müseyibli 2004, 77]. Visual depictions of weaving products, both on pottery and on rocks, are indicators that this craft was quite developed in Azerbaijan during the Middle Bronze Age.

In the Late Bronze-Early Iron Age (second half of the 2nd millennium BC-beginning of the 1st millennium BC), the emergence of small cattle breeding, especially the rapid development of summer pasture cattle breeding further enriched the raw material base for weaving. These factors, as well as the demographic growth that occurred throughout the region created ample opportunities for the further development and improvement of crafts, including weaving. As a result of archaeological excavations conducted at monuments from this period, both clay and stone spindle whorls were discovered. These findings indicate that, along with the potter's wheel, hand-spinning of yarn was also widely used [Kesamanly 1999, 132]. During the mentioned period, rope made from plant fibers were also used in military work. On one of the bronze arrowheads discovered in grave No. 79 in the Tovuzchay necropolis dating back to this period (fig. 5,1), remains of such rope were preserved, which had been used as

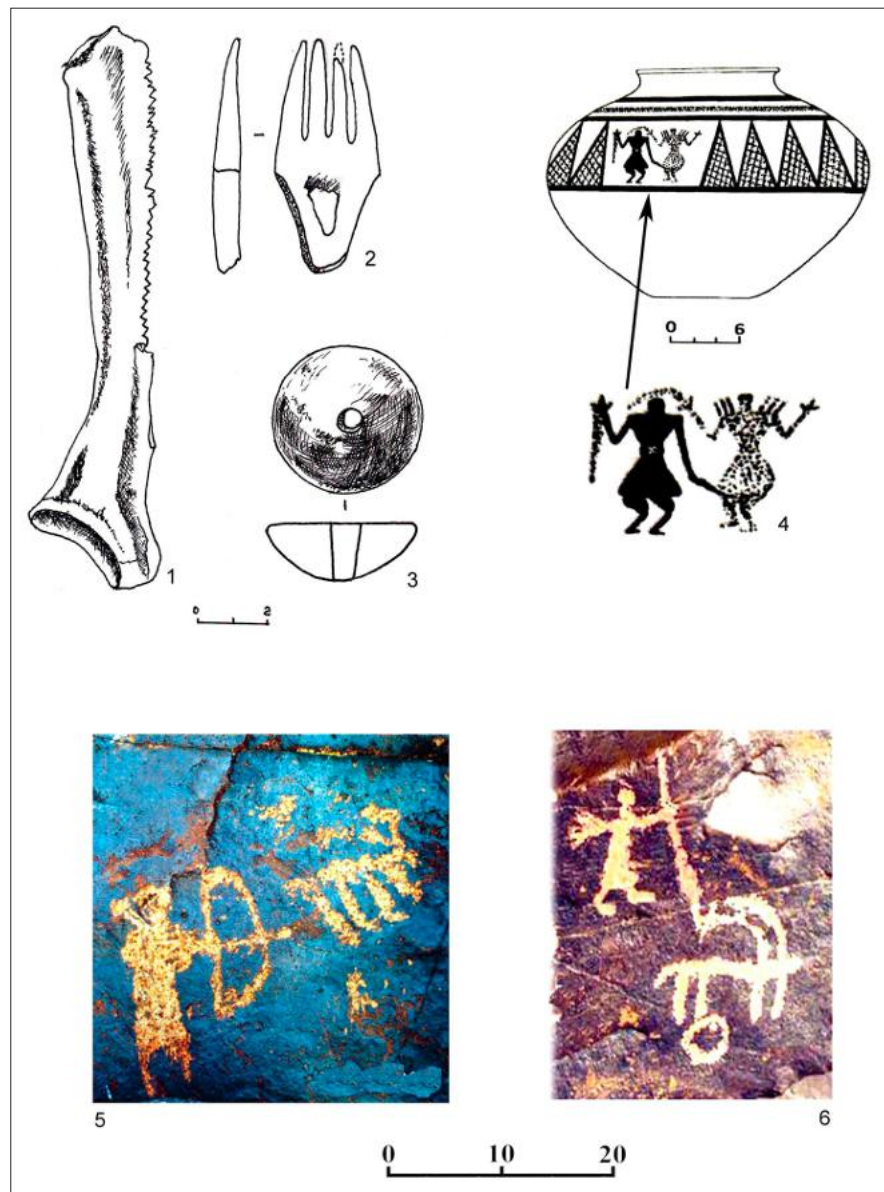


Fig. 4. 1-3 – Weaving tools from the Middle Bronze Age; 4 – Images of a dressed person on a pottery vessel [Aliev 1991]; 5-6 – Images of a dressed person in Gemigaya [Müseyibli 2004].

a means of fastening it to a tree [Müseyibli *et al.* 2021, 62. Fig. 107, 1].

The Late Bronze-Early Iron Age spindle whorls have been found mostly in grave monuments. The findings show that clay and stone spindle whorls (fig. 5,2-3) were used more frequently than similar bone tools during this period [Aslanov *et al.* 1959, 152; Nəcəfov *et al.* 2017, 56-57]. More interesting materials on weaving were discovered during the excavations in Mingchevir. In this complex of monuments, along with weaving tools, remnants of fabrics – weaving products,

were found from earthen graves and kurgans (fig. 5,4-7). The study of these materials showed that they were woven from wool and flax of plant origin. At the same time, the weaving process was carried out with Z-shaped and S-shaped turns, that is, both right-sided and left-sided methods. No remains of a weaving loom were discovered in Mingchevir. However, the discovered tools and remnants of fabrics related to weaving leave no doubt that such looms were used at that time. It is also very likely that these looms were identical to the weaving looms that existed until recent

times and have been observed ethnographically [Aslanov *et al.* 1959, 152].

***Antique (Classical) and Early Middle Ages
(5th century BC-early 8th century AD)***

Numerous finds related to weaving are known from the monuments belonging to this historical stage – the Caucasian Albania period. However, since the archaeological materials related to this craft are a hereditary continuation of the traditions of previous historical periods, we will limit ourselves to a brief discussion of it.

The main weaving tools, the spindle whorls, were mainly discovered in the grave monuments of this period. Almost all spindle whorls were made of clay and a small part were made of various types of stone. Typologically, these tools repeat the finds of previous periods, that is, they are conical, biconical in shape. However, sometimes relatively flat, elliptical-shaped spindles were also found. The surfaces of many spindle whorls from the Antique and Early Middle Ages were decorated with dots and cutting lines [Badalova 1987, 59-63]. In five out of the six graves excavated in the

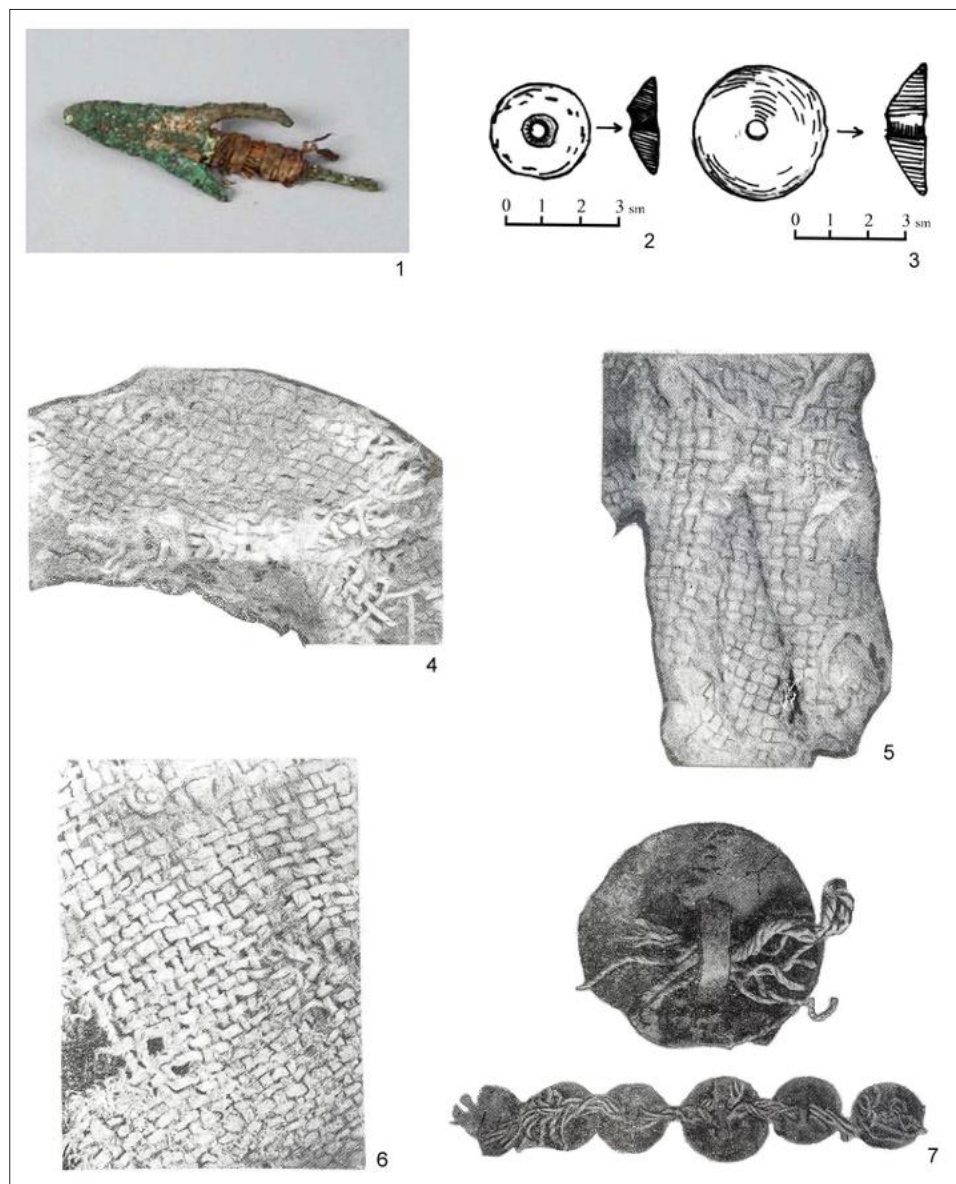


Fig. 5. 1 – Bronze arrowhead [Müseyibli *et al.* 2021]; 2-3 – Stone spindle whorls [Nəcəfov *et al.* 2017]; 4-7 – Fabric remains from Mingchevir (magnified 3-3.5 times) [Aslanov *et al.* 1959].

ancient necropolis of Qirag Kesemen II in Agstafa district were buried women, and several clay spindle whorls were discovered in each of these graves [Müseibli, Axundova 2007, 59]. All findings indicate that weaving developed as an independent craft in Azerbaijan during this period.

Conclusion

Thus, as a result of archaeological excavations conducted at monuments in the territory of Azerbaijan, weaving tools belonging to all historical stages, starting from the early production period, have been discovered. The oldest such finds belong to the first farming and cattle-breeding tribes and date back to the Neolithic period – the 7th-6th millennia BC. The most frequently discovered tools are spindle whorls. In the Neolithic period, they were made only of clay. Starting from the Chalcolithic period, such tools were also made of bone. During this period, the cultural influence of Western Asian traditions on Azerbaijan is undeniable. Starting from the Bronze Age, stone spindle whorls came into use, and towards the

end of this period, bone whorls are rarely found. During the Albanian era, bone whorls are almost never found. The typological and functional characteristics of whorls have remained almost unchanged from the most ancient times to the Middle Ages.

It is believed that bone awls, needles and needle-like tools were also used in the weaving process. At the same time, bone toothed tools were used to comb wool. In the Bronze Age, metal awls and needles were also used in weaving. Starting from the Early Bronze Age, weaving gradually became an independent craft in the territory of Azerbaijan.

It can be said that weaving was traditionally done by women. The discovery of spindle whorls, which were weaving tools, in women's graves in the necropolis of antiquity, confirms this idea.

The ancient inhabitants of Azerbaijan primarily provided themselves with clothing through weaving, and along with this, they widely used woven products in everyday life, farming, and military work.

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