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0009-0002-6033-2413Özlem Tumbek[1], 0000-0002-9884-8397Ömer Zaimoğlu[2]
[1,2]*Akdeniz University*
Antalya, Turkish
E-mail: [1]ozlemtumbek@gmail.com, [2]ozaimoglu@akdeniz.edu.tr

Steps of conservatıon process ın weavıng

Abstract. *Carpets and plain woven fabrics, which are one of our tangible cultural heritages, are handcrafted intensively and each of them is a work of design and art in order to transfer our culture and traditions to future generations. It is necessary and very important to protect and preserve these works and to restore damaged ones so that they can be transferred to future generations. Although the production techniques and materials used in the production of carpets and plain weaves are different, their preservation and restoration are similar. In this study, the tools, equipment and process steps used in the storage and restoration of carpets and plain woven fabrics have been tried to be explained by description method, and suggestions have been tried to be made for correct storage and repair.*
Key Words: *Plain weaving, Carpet, Rug, Conservation, Restoration.*

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Introduction. Hand-woven carpets and plain textiles, especially rugs, are cultural assets where manual labor is intense. Cultural assets can be defined as "artifacts that can be found above, below the ground or under water, and that convey information about the cultures of past civilizations to the present day, and that can be transported or not, depending on their size". Examples of these works include paintings, sculptures, ceramics, glass, metal and leather goods, coins, manuscript books, textiles (carpets, rugs), etc. These works are protected and stored either in museums or in private collections of individuals (Ahunbay, 2011: 22). The preserva-tion and repair of plain weavings and carpets is extremely important for the transfer and promotion of our culture to future generations. The repair or restoration process can be defined as the process of restoring a cultural asset whose integrity has been damaged due to biological, chemical, physical, mechanical or other harmful factors to its former value, without damaging its quality, with the techniques,

methods, tools and equipment thought to have been used when it was first produced (Öztürk, 2007: 33, Ahunbay, 2011: 85). In the Great Turkish Dictionary, restoration; Repair work is defined as repair. With the repair processes, the protection of carpets and plain textiles, whose wear and tear will worsen over time, can also be ensured. The first international initiative to preserve and transfer cultural heritage to future generations was made at the 6th International Congress of Architects held in Madrid in 1904. Declarations regarding the classification and protection of historical buildings have been published here. A charter regarding restoration was published in Italy in 1931, and later by UNESCO in 1964, under the name of Venice charter, under the name of institutionalization and preparation of legislation. An improvement was achieved with the Nara Document on Authenticity prepared at the Nara Authenticity Conference in 1994 (Erder, 1987: 114).

In our country, the preservation and preservation of ancient artifacts dates back to the Ottoman period. It is even known that Sultan Mehmet the Conqueror had some Byzantine ruins brought together and later the old works were preserved and restored (Gürsoy, 2007: 110). The first known antiquities regulation for the protection of cultural assets was published in 1869. With the regulation, which was amended three times until the proclamation of the Republic, it was possible to smuggle artifacts abroad and organize archaeological excavations (Eroğlu, 2012: 127). The most comprehensive understanding of the protection of cultural assets in our country was achieved with the "Ancient Works Law" enacted in 1973 (Eczacıbaşı Foundation, 2008: 1165). The law remained in force between 1973 and 1983, and later came to its current state with the regulations made at both legal and organizational levels in Turkey (Akın, 1993: 234).

The life cycles of our carpets and plain weaves, which have a very important position in terms of our cultural values, may be shortened either during their production or during their use. If the designer draws the pattern incorrectly or the person doing the weaving sees the pattern incorrectly, the motifs may appear incomplete or blend into each other. In addition, the biggest mistakes made during weaving are the extra wefts thrown to ensure row order, the formation of dense or sparse areas in the carpets due to the improper knitting process, and the threads not being placed in equal tension on the loom. The abrage error that occurs as a result of dyeing the yarns in different shades is one of the most common errors. In addition, factors such as the owners of these works cleaning the textiles with the wrong cleaning agents and vacuum cleaners with high suction power, storing them in damp places, the presence of

microorganisms and moths in the environment, the occurrence of natural disasters such as earthquakes and floods can shorten the life of the textiles and also cause them to be lost (Ayhan, 2018: 2-3). The aim of this study is to provide a resource for people who will do research on this subject by explaining the procedures carried out for the repair and protection of carpets and plain textiles, and to make recommendations for the repair of carpets and plain textiles.

1 Conservatıon of carpet and plaın weavıngs. While fabrics can be classified as woven, knitted and non-woven surface fabrics, carpets and plain woven mats are structures that differ from each other in terms of weaving techniques. The carpet is obtained by tying various knots with different pattern threads on two groups of threads called weft and warp on the ground and compressing them with special tools called kirkit. Carpets are fabrics with a pile surface woven with a three-thread system. Plain woven mats are made with two or more threads and are used for floor displays, covers, curtains, etc. are textiles used for different purposes. These also vary among themselves, such as kilim, cicim, zili (sili) and sumac. Each of these weavings has its own unique weaving technique, ornamentation features and types (Deniz, 1999: 395). Although carpets and plain woven mats are different structures in terms of weaving technique, they show both differences and similarities in terms of conservation (repair) technique. The dust removal, washing and drying processes carried out before the repair process of both weaving structures and the tools and equipment used in the repair process are the same (Ayhan, 2018: 20-22).

1.1 Initial Procedures Performed on Carpets and Plain Woven Mats Before Repair. The first thing to consider for both carpets and plain woven mats is whether the weaving is very valuable, such as a collection piece or an antique. If the fabric is very valuable, no processing is done. If the fabric to be repaired is not very valuable, the first step is cleaning. Cleaning processes consist of dust removal, washing and drying (Okca, 2014: 69-70). A machine with an electrically operated wooden drum called a "dust cabinet" is used to remove dust from the textiles. Below is the image of the powder cabinet (Figure 1).


Figure 1: (Ayhan, 2018: 20)

Carpets and flat woven mats, cleaned of dust, are laid on the concrete floor and washed with cold water using a wooden brush, grated green soap and bleach (hypo). After the washing process, the textiles are rotated in drum machines to remove excess water by

squeezing them. Then, the textiles are laid out in the open air to dry completely (Ayhan, 2018: 21). The tumble dryer is shown below (Figure 2).

Figure 2: Dryer (Ayhan, 2018: 22)

1.2 Tools and Equipment Used in the Repair of Weavings. In the repair process of carpets and flat woven mats; loom (frame), tack, nail, hammer, needle, tailor's ring (thimble), wax, awl, pliers, knife awl, needle nose, comb, wire brush, awl, tweezers, thin-tipped scissors, carpet scissors, shaving machine, Iron, blowtorch and broom are used.

Countertop (Frame): It is the name given to a hollow rectangular and hollow frame made of wood in various sizes such as 35x50, 50x75 and 50x100 cm. It is used to repair worn areas, to add wire (warp) to eaves or to weave borders. **Fastener:** It is a flat, wide-headed short nail-like tool used to fasten webbing to any place. **Nail:** It is a glass nail of different sizes used to stretch the textiles onto the loom (frame). **Hammer:** It is used to nail the weaving to the loom or to pound the surface to ensure the compatibility of the repaired area with other parts. **Needle:** Etamine, quilt or sewing needles of various lengths and thicknesses are used in incomplete warp (wire) insertion and pile removal. **Tailor's Ring (Thimble):** It is a tool used to prevent the needle from pricking the hand while threading the warp or during the sewing process. **Beeswax:** It is used in the repair process to increase the slipperiness of the surfaces of the threads so that they can be moved more easily and to increase the durability of the threads. **Crochet:** It is a needle with a hooked tip that is used to easily pull the weft (pass) through the warp (strands) during the repair process. **Pliers:** It is a flat-ended tool used to move the needle carrying the warp through the carpet during the repair process. **Knife Crochet:** It is a tool with a hooked tip and a sharp side, used for tying and cutting knots in carpet repair. **Comb:** It is a toothed tool that ensures that the wefts (passes) and knots placed between the warps fit into place. **Wire Brush:** It is the brush used to comb and fuse the new knots made in the repaired part with the old knots and to obtain piles of the same height. To adjust the pile height of the carpets, the repaired area is combed with a wire brush before cutting. **Us:** It is a pointed awl with a metal tip and a wooden back part, used to remove rotten and weak areas. **Tweezers:** It is a tool used to remove loops. **Fine tip scissors:** Scissors used for cutting thin, small threads. **Carpet Scissors:** It is a tool that cuts the knots tied in carpet leveling at the same level. Its adjustment is made according to the

pile length. It is used by holding it from both ends. **Shaver:** An electric tool with a thin blade made of steel, used to cut the pile height evenly when leveling the carpet after all repair operations are completed. **Iron:** It is used to smooth the repaired floor. The ironing process is applied to both the front and back sides of the fabric. A damp ironing cloth is used to prevent the ironing temperature from damaging the carpet. **Tormuz (Hürmuz):** It is used to smooth the repaired ground by burning it. After the repair process, it cleans the backs of the carpets and the fibers on both sides of the rugs by burning them. **Broom:** It is a tool made of grass or plastic used to clean the residues accumulated on the textile during repair. **Thread:** Thread, which is the most basic element in repair processes, should be made of natural fibers, especially in historical hand-woven carpets and plain weaves, considering that the use of synthetic fibers is in the 21st century. Another thing to consider is that the thread color matches the original structure. For this purpose, scrap yarns obtained by removing old and worn rugs from carpets are preferred. In this way, the texture of the weaving is not damaged and color and quality differences are minimized. In the selection of waste yarns, old carpet and rug waste yarns of the region where the fabric to be repaired belongs to, if possible, should be preferred. If this is not possible, then threads in a color appropriate to the area to be repaired are dyed and used in the dyehouse. Below are similar and different repair techniques used in carpets and flat woven mats (Ünaldı, 2019: 33-38, Karatay, 2018: 98-103) (Figure 3).

Figure 3: The most commonly used tools during the repair phase (Okca, 2014: 123)

Similar repair techniques used on carpets and plain woven mats: -Warp (wire) insertion; -Edge repair; -Chain (fence) repair; -Fringe throw; -Pot repair; -Delete or add motifs; -Shooting process. Different repair techniques used in carpets and plain woven mats: Pile (knot, loop) removal; Wicker weave; Abraj repair; Leveling process (Ayhan, 2018: 23-30, Okca, 2014: 73-77).

1.3 Techniques Used in Carpet Repair.

1.3.1 Warp (Wire) Throwing. If there is no fringe in the area to be repaired, warp (wire) insertion or warp (wire) welding is done with new or torn threads in accordance with the original of the weaving. For this purpose, the relevant area of the carpet to be repaired is stretched onto the frame. During the warp (wire) insertion process, a second warp thread is placed over the damaged warp with the help of a needle. After the selected thread is inserted into the needle, it is thrown vertically to the

wefts (passes), parallel to the wires on the solid ground at the bottom or top of the worn part. In this process, needle, thread, thimble and flat nose pliers are used. During warp threading, a strong, thin thread is threaded onto the needle. This thin thread, which will carry out the task of carrying the warp thread, is called "guide thread". The reason for using the guide thread is that if the warp is directly attached to the needle, the warp may break due to abrasion during the warp insertion process. The warp thread, together with the needle and guide thread, is inserted approximately 4-5 cm from the beginning of the area to be repaired. The exit point of the needle is approximately 4-5 cm from the tear. After the exit point, the warp thread is removed from the needle. This process is applied separately for each warp wire. Then, the excess warp wires are cut off (Okca, 2014: 78) (Figure 4).

1.3.2 Straw Braid. After the area of the carpet to be repaired is nailed to the loom and the warp wires are thrown, the carpet is turned upside down and only the wefts (passes) are passed between the warp wires. Care should be taken to ensure that the number of wefts added is the same as the original weft density of the carpet. 1-2 cm to the solid part of the carpet. The wicker technique is applied by going inside and placing the weft to the end of the ripped, holed, burnt or rotten area. After the mat of the damaged area is woven, the carpet is turned upside down and the pile (knot, loop) is tied with the help of a crochet hook, knife crochet hook or needle (Öztürk, 2007: 99) (Figure 5).

Figure 4: Warp insertion (Okca, 2014: 125)

Figure 5: Wicker knitting throw (Ayhan, 2018: 36)

1.3.3 Pile (Knot-Loop) Throwing. The repair process should be done according to which knot technique (Turkish, Iranian, Spanish, Tibetan, Indian or Nepalese knot) was used when producing the carpet. To do this, a part of the carpet is removed and the type of knot used is determined. In addition, care should be taken to ensure that the density of the new knots is equal to the original knot density of the carpet. Knot tying in carpet repair begins by removing worn knots with the help of tweezers or an awl. This area, cleared of worn knots, is nailed to the loom of appropriate size and the process is completed by tying a knot appropriate to the type of knot used in the carpet. The knot tying process is carried

out with the help of a crochet hook or needle by selecting the appropriate colored thread. Leveling process is applied to completed nodes (Ayhan, 2018: 37-38) (Figure 6).

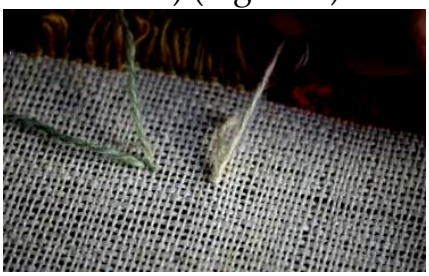

Figure 6: Pile (Knot-Loop) Throwing (Ayhan, 2018: 38)

1.3.4 Edge Repair. The edges of both carpets and plain weaves wear more than other parts. Edge repair of both carpets and plain weaves is done in the same way, and plain weaves are processed according to the rug technique. Four warp wires from the edge warps of carpets and plain woven mats are taken as a pair and woven (Karatay, 2018: 111) (Figure 7).

Figure 7: Edge repair (Karatay, 2018: 111)

1.3.5 Chain (Fence) Repair. It is the process performed on the fringe roots at the beginning and end parts of carpets and plain weaves to prevent deterioration and dismantling in these parts. Needles, thimbles, looms, nails and pliers are used in chain repair. In chain (fence) repair, first wire is tied to the fringes of the weaving and attached to the nails on the loom. A thin thread matching the color of the fabric is threaded into the needle and a houndstooth stitch is made from the bottom of the loops. This process is applied to the back side of the fabric. With chain repair, loops and wefts in carpets and rugs are prevented from coming out of the warps and falling apart (Okca, 2014: 85) (Figure 8).

Figure 8: Fence repair (Okca, 2014: 128)

1.3.6 Fringe Throw. Fringing is a common technique used in repairing both carpets and plain weaves. In both types of weaving, the fringes may wear out or even break over time, causing the weaving to look old and bad. In fringe repair, just like other techniques, thread selection should be made in accordance with the texture and raw material of the carpet or plain weave. During fringe casting, the thread to be used in the fringe is attached to the needle and the needle is threaded up to the fringe root. By entering 2-3 cm, making a U-turn, the needle is removed from the fringe root again. Hundreds of fringes are thrown with this technique. Once enough fringe has been made, the needle is removed and the excess thread is cut straight to equal length. The fringes are either left

straight or intertwined and braided (Ayhan, 2018: 42-44) (Figure 9).

1.3.7 Pot Holder Repair. When carpets and plain weaves are laid on the floor, they must sit completely on the floor. If there is a seating problem anywhere, potting error is observed in that area. This drawback occurs because the warps are not prepared in equal tension during the weaving preparation processes. In order to eliminate the pothole error, the check withdrawal process is applied (Okca, 2014: 80) (Figure 10).

(Ayhan, 2018: 42)

Figure 10:Pot holder repair (Okca, 2014: 124)

1.3.8 Blank Repair. It is an abrage error if the pile yarns in the carpets, which should be of the same tone and color, have a tone difference that can be easily noticed by eye. In the repair of such a weaving, the abraded threads can be removed and re-knotted with threads of a color suitable for the texture, or the fault can be eliminated by dyeing the abraded part directly on the carpet (Ayhan, 2018: 48).

1.3.9 Motif Reduction or Motif Addition Process. If some of the motifs of the carpet or plain weaving to be repaired are very damaged and the pattern or symmetry of the motif cannot be found throughout the weaving, these motifs can be removed. If it is necessary to add motifs to the weaving, the point to be considered is to complete the missing parts by remaining true to the weaving characteristics and motifs of that region. Adding or removing motifs is done either for commercial purposes or at the request of the owner of the carpet or plain weave (Karatay, 2018: 110) (Figure 11).

Figure 11: Motif repair (Karatay, 2018: 110)

1.3.10 Leveling Process. After the repair process of both carpet and plain weaves is completed, the front side of the weaving is leveled as the last process. During carpet leveling, the excess knots made in the repair are cleaned by gradually cutting them with a razor until they are at the same level as the original knot height. After each cutting process, the

relevant area is smoothed manually towards the pile direction of the carpet. Then, the cleaned area is brushed with a wire brush both in the direction of the pile lay and in the opposite direction, and ironed with a wet cloth in the direction of the pile lay. In this way, the knots (piles) are ensured to lie down well. Then, the carpet is turned upside down and beaten with a hammer on the concrete floor so that the newly tied knots (piles) sit in the desired place in the weaving and are in the same alignment with the original knots (picks) (Okca, 2014: 86) (Figure 12).


(Okca, 2014: 86)

1.4 Repair Techniques for Plain Woven Mats (Kilim, Cicim, Zili, Sumak). Weavings made with two or more threads in Anatolia, generally used as floor coverings, covers or curtains, are called plain weaves. These textiles are used under various names such as kilim, cicim, zili (sili), sumac (verneh). Each of these weaving types has different weaving techniques, ornamentation features and different uses. Regardless of the production technique of the weaving, all of them are called rugs (Deniz, 1999: 395). Rug motifs; such as "rugs without vertical lines" with and without buttonholes, the technique of eliminating the buttonholes by double interlocking, the weaving technique with crooked weft, created by squeezing additional weft between normal wefts, the weaving technique created by returning the wefts from the same warp and eliminating the buttonholes, wrapping contour and contour technique with crooked weft. It is obtained by techniques (Acar, 1982: 44). For a good rug repair, it is necessary to know how these techniques are done.

1.4.1 Repair of Tears in Plain Weaves. In repairing the damage caused by broken weft and warp threads in plain weaves, the torn area is first fixed to the loom with nails. Then, warping is done with the help of needle, thimble, pliers and thread. This process starts by inserting the needle with the warp thread into the missing warp wire on the far right side of the torn area and is carried out to the left side along the tear. After warp insertion, weft insertion is done using a needle or crochet hook. The edges of the plain weave in the faulty area are tied with their own weft and the side stitching is performed during the weaving process. After the weaving repair is completed, excess fibers are removed with scissors. After this, the flat fabric is removed from the frame with the help of pliers and laid on the ground, and the excess fibers are removed by burning the repaired area with our blowtorch. Then, the repair process is completed by ironing with large irons. However, in zili, sumac, cicim or mixed

technique weavings, which have different weaving techniques, first the warp and wefts are repaired as the base, and then the missing parts of the weaving are completed with a needle or crochet hook, looking at the solid patterns in accordance with the weaving technique (Karatay, 2018: 108-109).

1.4.2 Fringe Weaving in Plain Weaves. The fringe insertion in plain weaves is the same as the fringe insertion in carpets, and loom, needle, pliers, nails and threads are used. It is important to choose the yarn suitable for the texture of the rug when adding fringe, and the right yarn should be chosen. After the plain weave (rug) is nailed to the loom, the thread is attached to the needle and the needle is threaded into the fringe root. Threads are wrapped around the nails hammered sequentially on one of the edges of the loom, and fringes of the same length are thrown between the nails with a plain weave. After the fringes are placed at a density appropriate to the original density of the weaving, the needle is removed and the excess threads are cut and the process is completed (Okca, 2014: 84).

1.4.3 Leveling Process in Plain Weaves. Leveling; It means "to level, to level" (http://www.tdk.gov.tr). In the last stage of the repair process, leveling, the repaired plain woven fabrics are cleared of excess threads. For this purpose, the coarse parts of the threads are thinned by the burning process with our blowtorch and harmony with the original part of the weave is ensured. Although it is deemed necessary for plain weaves, washing can be applied as the last process.

1.4.4 Drawing Process in Plain Weaves. The drawing process is the process performed to eliminate problems such as warping and warping that occur over time in both carpets and plain weaves.

The shooting process is carried out as follows: • The reverse of the product to be processed is fixed on the wooden floor with the help of a pneumatic stapler. Stapling is done using a thick strip to avoid damaging the product; • Unlike plain weaves, the drawing process in carpets requires stapling according to the direction of the pile. Otherwise, shrinkage and creep will not occur; • Carpets or plain weaves are ironed both while stretching them on the wooden floor and after the stretching process is completed, and they are kept fixed in this way for up to a day, depending on the degree of deterioration; • After all the processes are completed, the staples are removed with the help of pliers and the textiles are removed.

The shooting process of products whose raw material is wool is easier. The shooting process of products containing a mixture of hair and cotton is more difficult and requires longer waiting (Ayhan, 2018: 73-75).

Conclusıon. Each of the carpets and plain weaves that reflect our culture and past, woven with great effort and care, with rich colors, patterns and techniques, and which have survived to the present day, are considered works of art. It is necessary and important to protect our artistically valuable textiles and to repair damaged ones in order to ensure that they can be transferred to future generations. Everyone needs to be made aware of the ownership, protection and repair of traditional textiles. For this purpose, education disciplines that provide art and culture education at associate and undergraduate levels, such as Traditional Turkish Handicrafts, archaeology, art history, painting, museology, restoration and conservation, have a great responsibility. In raising public awareness, it is essential that not only educational institutions but also public and legal entities provide material and moral support, both in providing appropriate conditions and places for the exhibition and storage of textiles, in supporting education, in the reproduction of written publications, and in organizing events. In addition, archiving and documenting the visuals of all the work done before, during and after the repair and the technical analysis, history and aesthetic aspects of the textiles will constitute an important resource in future restoration works, scientific and artistic studies. It is also thought that cataloging the repaired textiles will contribute greatly to the creation of our cultural memory. As a result, it is important that our traditional textiles, which are the milestones of our national culture and produced with great effort, can be transferred to future generations and that they are repaired and protected so that people can visit these rare works with aesthetic pleasure. It is thought that it is not enough to just protect and repair these works, but it is also important for public, legal institutions and organizations that carry out educational activities on this subject to raise more conscious generations so that our traditional arts can see the value they deserve.

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0009-0002-6033-2413Озлем Тумбек[1], 0000-0002-9884-8397Омер Займоглу[2]
[1,2]*Университет Акдениз*
Анталия, Турция
E-mail: [1]ozlemtumbek@gmail.com , [2]ozaimoglu@akdeniz.edu.tr

Этапы процесса консервации при плетении

Аннотация. *Ковры и простые тканые ткани, являющиеся одним из наших материальных культурных достояний, интенсивно изготавливаются вручную, и каждый из них представляет собой произведение дизайна и искусства, призванное передать нашу культуру и традиции будущим поколениям. Необходимо и очень важно беречь и сохранять эти произведения, а также восстанавливать поврежденные, чтобы их можно было передать будущим поколениям. Хотя технологии производства и материалы, используемые при производстве ковров и полотняных тканей, различны, их сохранность и реставрация схожи. В этом исследовании с помощью метода описания были предприняты попытки объяснить инструменты, оборудование и этапы процесса, используемые при хранении и реставрации ковров и*

полотняных тканей, а также были сделаны предложения по правильному хранению и ремонту.
Ключевые слова: *полотняное плетение, ковер, коврик, консервация, реставрация.*

0009-0002-6033-2413 Озлем Тумбек[1], 0000-0002-9884-8397 Омер Займоглу[2]
[1.2] *Акдениз университеті*
Анталья, Туркия
E-mail: [1]ozlemtumbek@gmail.com , [2]ozaimoglu@akdeniz.edu.tr

Тоқу кезіндегі консервілеу процесінің кезеңдері

Аңдатпа. *Біздің материалдық мәдени құндылықтарымыздың бірі кілемдер мен қарапайым тоқылған маталар қарқынды қолдан жасалған, олардың әрқайсысы біздің мәдениетіміз бен дәстүрлерімізді болашақ ұрпаққа жеткізуге арналған дизайн және өнер туындысы. Бұл туындыларды қорғау және сақтау, сондай-ақ бүлінгендерін болашақ ұрпаққа қалдыру үшін қалпына келтіру қажет және өте маңызды. Кілемдер мен төсеніштерді өндіруде қолданылатын өндіріс технологиялары мен материалдары әртүрлі болғанымен, олардың сақталуы мен қалпына келтірілуі ұқсас. Бұл зерттеу кілемдер мен кілемдерді консервациялау мен қалпына келтіруде қолданылатын құралдарды, жабдықтарды және технологиялық қадамдарды сипаттамалық әдіс арқылы түсіндіруге және дұрыс консервациялау мен жөндеуге арналған нұсқаулар беруге тырысады.*
Түйінді сөздер: *қарапайым тоқу, кілем, кілем, консервация, реставрация.*

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