

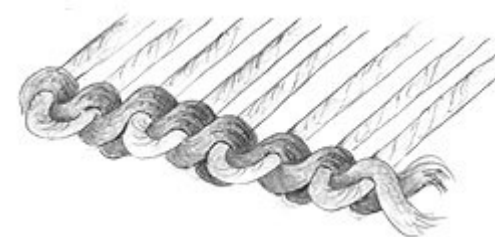
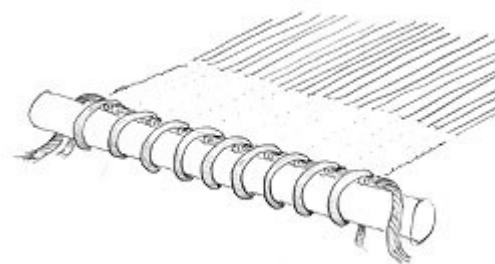
Heading Cords

A *heading cord* can provide a neat, trim, uncut finish for a rug, bag or cover's LOWER end--the end where the weaving begins. At the upper end of the rug the warp is cut, and another finish is necessary because extra warp space is required there for the heddles and shed stick and for opening a shed.

Because heading cords result from a relatively primitive approach to warping the loom, they are important diagnostic features. A heavy crosswise element--either a cord or several yarns together-- is incorporated as the warp is wound. When the warp is transferred to the loom, the heading cord is lashed to the loom beam; then the weaving can proceed. This temporary lashing is shown in the first drawing.

A *plain heading cord*, as in the second drawing, is made by encircling a heavy cord along with the end post when the warp is wound. The warps are, of course, crowded together, not separated as in the drawing.

A *twined heading cord* is shown in the third drawing. As the warp is wound, the two ends of a heavy cord are twined through the warps along the end post. Often one person winds the warp, while a second person twines the heading cord yarns around each individual warp. Moroccan weavers sometimes use two rows of twining, as in the first example below.



Ouaouzguite (Glaoua) Weaving. Morocco
4'6" x 4'11" (137 cm x 150 cm). Early 20th century.

STRUCTURES: Weft-faced plain weave, symmetrically-knotted pile, and two-color twining.

YARN SPIN: Z.

WARP: 2-ply grey goathair. 13 per inch (51 per dm).

WEFT: Wool singles. 58 per inch average (229 per dm).

TWINING YARN: 2-ply wool.

PILE: 2-ply wool.

SELVAGES: The construction varies throughout the weaving, but in most areas 4 warp pairs are alternately interlaced individually and in 2 groups by the ground wefts.

LOWER END FINISH: Heading cord made with countered rows of 2-color twining.

[MM-1772. M. Mallett]



Two rows of 2-color twining are countered to make a decorative as well as functional heading cord on this Moroccan weaving. The black and white band above the heading cord is also twined, with the spans and colors offset to create a pointed twill pattern.

A similar heading cord, with two rows of twining was used on a Hamadan area rug [JB-100] that appears on the *Twill Patterns* page.

Bijar Saddle Cover. West Persia
36" x 41" (91.5 cm. x 104 cm.). Late 19th century.

STRUCTURE: Symmetrical knots; H: 12, V: 12, 144 per square inch. (H: 47/dm, V: 47/dm, 2209 per square dm). Discontinuous wefts and weft inlays. Complete warp depression.

YARN SPIN: Z.

WARP: 2-ply ivory/brown wool.

WEFT: Tan wool singles; 2 shots. Sometimes 1 single, other times 2 singles.

PILE: 1 or 2 wool singles; 3 used occasionally.

SELVAGES: Not original.

UPPER END FINISH: Plain weave.

LOWER END FINISH: Plain heading cord; 2-span looped wrapping with 2 pink wool singles



(see the *Looped Wrapping* page); plain-weave band.
[AA-70. Allan Arthur]



The heading cord on this saddle cover is a plain one made as in the second drawing above. Directly above it is a row of looped wrapping, an unusual structural detail that is diagramed and discussed on the *Looped Wrapping* page.

West Persian Kilim

4'11" x 10' (232 cm x 473 cm). Late 19th century.

PRIMARY STRUCTURES: Dovetailing (1/1) and slit tapestry (dovetailed field, slit-tapestry borders).

SECONDARY STRUCTURES: Narrow borders of 3-span, 2-color twining with heavy groups of 3-4 wool singles. Soumak wrapping of pattern outlines in the main border.

YARN SPIN: Z.

WARP: 2-ply ivory wool; 7 per inch (28 per dm).

WEFT: 2 wool singles; 20-26 per inch (79-102 per dm).

SELVAGES: 1 pair of warps.

UPPER END FINISH: 1.5 cm-wide obliquely interlaced band. (See the *Obliquely Interlaced Bands* page for a photo.)

LOWER END FINISH: Twined heading cord.

[MM-1825. M. Mallett]



This Persian kilim has the most common kind of twined heading cord. The horizontal ivory yarns are the ends of the warps; several diagonally oriented ivory yarns make up the thick heading cord itself.

The colorful borders above are decorative two-color, two-span twining--"two-span," meaning that each segment encloses two warps. Three or four colored yarn singles are actually used together for each twined element.



Bijar Knotted Pile Rug. Northwestern Persia**3'6" x 7'3" (165 cm x 343 cm)****STRUCTURE:** Symmetrical knots, H: 9, V: 8, 72 per square inch (H: 34/dm, V: 32/dm, 1088 per square dm).**Complete warp depression.****YARN SPIN:** Z.**WARP:** 2-ply ivory wool.**WEFTS:** Heavy 2-ply taut ivory wool alternates with 2 sinuous peach wool singles.**SELVAGES:** 1 warp pair, overcast with red wool singles. The overcasting interlocks with each taut weft.**LOWER END FINISH:** A wrapped heading cord is followed by a row of 4/2 soumak; then a row of looped wrapping crosses half of the rug, with a row of 4/2 soumak on the other half. Next come countered rows of 4-span black and white twining, and two more rows of 4/2 soumak. There are no wefts in the end band, merely one heavy plain-weave pick before the knotting begins.*(See the [Looped Wrapping](#) page.)***[AA-1005. Allan Arthur]**

The fraying on this heading cord allows us to see the construction. Three yarns similar to the warps compose the heading cord itself, and these have been wrapped with three more yarns to fill the spaces and make the fabric more compact. This may have been added after the weaving was finished.

The black and ivory yarns are twined; three of the four rows of red wrapping are simple 4/2 soumak, while the red row just beneath the twining is looped wrapping. There are no plain-weave ground wefts separating the soumak or twining, thus this very decorative end finish is stretchy and a bit frail.

(Front and back shown)

Hamadan Rug. Western Central Persia
4'5" x 9'8" (134 cm x 106.5 cm)

STRUCTURE: Symmetrical knots, H: 7.5, V: 8, 60 knots per square inch. (H: 30/dm, V: 32/dm, 960 per square dm.) No warp depression.

YARN SPIN: Z.

WARP: 6-ply white cotton.

WEFT: 2-ply brown wool.

PILE: 2 wool singles.

SELVAGES: Not original.

LOWER END FINISH: Plain heading cord, finished with a blanket stitch (button-hole stitch) in two alternating colors. Balanced plain weave band, with decorative rows of 2-color, 3-span twining. Countered rows of brown and yellow twining are directly above the heading cord.

[AA-109050. Allan Arthur]



A plain heading cord was used at the lower end of this rug, and was followed by two countered rows of brown and yellow twining. After the rug was removed from the loom, alternating brown and yellow blanket stitches were worked through the spaces left by the lashing.

This needle-worked structure is very similar in appearance to the two-color chained selvage shown in Figure 15.64 in *Woven Structures*. That selvage, however, is produced on the loom, as the rug is woven.

Lori Rug. Western Persia
3'5" x 6'6" (102 cm x 195 cm)

STRUCTURE: Symmetrical knots, H: 5, V: 5, 25 per square inch (H: 20/dm, V: 20/dm, 400 per sq. dm). Overlapping knots used profusely along the selvages for additional bulk, also within the field to shape design elements. No warp depression.

YARN SPIN: Z.

WARP: Mixed. Primarily 4-ply cotton, but also 2-ply mixed cotton and wool, 3-ply mixed wool and cotton, 2-ply dark brown wool, 2-ply mixed brown and gray wool, and two-ply blue wool.

WEFT: Mixed. 2 and 3 singles (primarily 2); dark or



medium brown, gray, or red wool; also mixed cotton and wool singles. Most often two different colors or shades were used together. Wefts cross between sheds (see detail below).

PILE: 2 wool singles; a few knots of white cotton.

OVERCAST SELVAGES: 2 warp units (2,2) overcast with thick brown wool singles.

LOWER END FINISH: Twined heading cord; balanced plain weave with brown wool wefts.

DESIGN: Dark blue ground; lattice of staggered large diamonds in three columns containing four stylized flowers.

[DD-131. Daniel Deschuyteneer]



A plain twined heading cord began this Lori weaving.



This detail shows not only the erratic mix of warp materials used in the Lori rug, but also a clear example of wefts crossed between sheds. When the wefts were crossed and placed in the second shed, the interlacement sequence was necessarily interrupted; thus the wefts floated diagonally -- one over two warps, the other under two -- as each continued in its original direction. For a discussion of crossed wefts and the reasons for their use, see pages 43-45 in *Woven Structures*.

Senneh Kilim. Western Iran
 38" x 46" (98 cm x 118 cm)

STRUCTURE: Slit tapestry. Many of the wefts are eccentric.

YARN SPIN: Z.

WARP: 2-ply ivory wool; 13 per inch (51 per dm).

WEFT: 2-ply wool; approximately 80 per inch (315 per dm).

SELVAGES: No special treatment.

LOWER END FINISH: Twined heading cord.

[DM-6006. Darrell Moseley]



In the actual size photo at the left, you can see the Senneh kilim's tiny twined heading cord. This was made in exactly the same way as the heavy heading on the Western Persian kilim above (MM-1825). It is hard to believe that such fine yarns can secure the warp! Four yarns (each the same 2-ply wool as the warps) were combined for each twined element.

In the magnified view below, you can also see a doubled *lease cord* directly above the heading cord. This yarn was inserted in the warp right after it was wound, to maintain the *cross* and keep the yarns in sequence when the warp was moved to the loom. This weaver chose to leave her lease cord as part of the rug, to provide a base against which to begin packing the regular wefts.

Mahal Carpet. Arak area of North Persia
 10'4" x 14'4" (310 cm x 440 cm)

STRUCTURE: Asymmetrical knots, open left; H: 6, V: 8, 48 per square inch. (H: 23/dm, V: 32/dm, 640 per square dm.) Moderate warp depression. Discontinuous wefts (lazy lines).

YARN SPIN: Z.

WARP: 6-ply hand-spun cotton.

WEFT: 5-ply hand-spun blue cotton; 2 picks, one sinuous, one taut.

SELVAGES: Three warp units (1,1,1) overcast with blue wool singles.

LOWER END FINISH: Wrapped heading cord; balanced plain-weave cotton band.

[DD-117. Daniel Deschuyteneer]



NOTE: Daniel reports that he has seen this precise kind of heading cord on several Mahal carpets. He notes also that they have all displayed lazy lines.



The durable plain-weave band at the end of this carpet is a nearly balanced weave--the weft is a pair of heavy, undyed cotton yarns. When the character of the end bands differs from the ground weave in the body of the rug, we should try to remember to note that in our analyses.

The irregularities in the weave here show why other weavers have often used one or more rows of twining at or near the beginnings of their rugs. Twined yarns can secure and space the warps evenly.

The heading cord has been wrapped with an extra cotton yarn--presumably after the rug was removed from the loom--to fill the spaces left when the lashing was removed, and thus make the structure more compact.

Kamereh (Hamaden) Rug

4'4" x 7'1" (205 cm. x 335 cm.). 1880-1900 (?)

STRUCTURE: Symmetrical knots. H: 9, V: 10, 90 per square inch.

YARN SPIN: Z.

WARP: 5-ply cotton, apparently handspun.

WEFT: Loosely twisted 2-ply brown wool; 1 shot.

PILE: 2 wool singles.

SELVAGES: Several warps overcast with dark brown wool.

LOWER END FINISH: Plain heading cord, wrapped with blue and yellow wool yarns.

[MT-47. Mike Tschbull]

NOTE: Mike points out that many older Hamaden rugs--perhaps just antique pieces--have cotton warps and wool wefts, rather than all cotton foundations.





Mehreban Runner

2'9" x 10' (130 cm. x 473 cm.) Circa 1925

STRUCTURE: Symmetrical knots. H: 8, V: 8, 64 knots per square inch.

YARN SPIN: Z.

WARP: 5-ply cotton, apparently machine spun.

WEFT: 2 loosely twisted cotton yarns; 1 shot.

PILE: 2 wool singles.

SELVAGES: Several warps overcast with red wool.

LOWER END FINISH: Heavy cotton heading cord, wrapped with red wool yarn.

[MT-1646. Mike Tschbull]



The colored wool wrapping on this heading cord and the one above serve to fill spaces that were occupied by lashings that held the heading cord to the loom beam. Such wrapping thus makes the lower edge more compact.

Bakhtiari-Lori Bag, Persia**32" x 79" (82 cm x 200 cm). Circa 1890.****STRUCTURE:** Double-interlocked tapestry.
STRUCTURE, BACK SIDE: Plain weft-faced weave.**YARN SPIN:** Z.**WARP:** 2-ply dark brown wool, 10 per inch.**WEFT:** Wool, 2 singles, 30 per inch.**SELVAGES:** 4 outer warps doubled.**LOWER END FINISH:** Plain heavy heading cord; rows of two-color twining.**UPPER END FINISH:** Rows of two-color twining and countered two-color twining.**[TKG-120. Daniel Deschuyteneer]**

The heading cord used to start this weaving is a plain, heavy one, with no wrapping as on the rugs above. Rows of two-colored twining appear within the plain-weave band above the heading cord.



Here's a good opportunity to see the back side of a typical Bakhtiari tapestry weave with double-interlocking wefts. These interlocks form thick ridges on the back, while the front of the weaving is smooth, with sharp divisions between color areas.

Both the field motif and border on this bag were used by other South Persian weavers, but with slit-tapestry or dovetailed structures.

Hamadan Area Rug. Persia
3'4" x 5'6" (158 cm x 260 cm)

STRUCTURE: H: 6, V: 9, 54 per square inch. (H: 2/dm, V: 35/dm, 840 per square dm.) Discontinuous knotting and discontinuous wefts. No warp depression.

YARN SPIN: Z.

WARP: 5-ply white cotton.

WEFT: 8 white cotton singles; 1 shot.

PILE: 2 wool singles.

SELVAGES: 2 warp units (2,2), overcast with peach-colored wool singles. The overcasting interlocks with the wefts.

LOWER END FINISH: Twined heading cord; 2 cm. white cotton balanced plain-weave band made with 8 cotton singles.

[AA-9746. Allan Arthur]



A twined heading cord appears on this more recent Hamadan-area rug. The plain-weave weft is the same 8 cotton singles that are used in the single-pick ground weave.

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