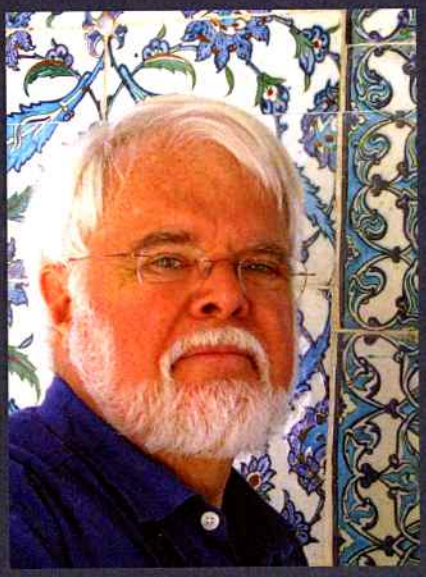
TREASURED KNOWLEDGE

Walter Denny and the Woven World of Carpets



INTRODUCTION

By Chelsea Staub

Walter B. Denny

Walter B. Denny embarked on his lifelong teaching career at the University of Massachusetts Amherst in 1970. Over the span of five decades, he has taught thousands of students the history of Islamic art and architecture, and provided them with key insights into the construction of and meaning behind Islamic carpets.

Denny's initial interest in Islamic art began when he was a high school junior after traveling to Istanbul, Turkey where his father, a physics professor, received a Fulbright Fellowship. After exploring his new surroundings and taking in the city's art and culture, Denny decided to pursue his studies in the Humanities. He began taking undergraduate courses at Robert College in Istanbul and received his Bachelor of Arts at Oberlin College. Initially studying Turkish architecture, Denny's fascination with carpets grew after seeing a summer exhibition in Cambridge, Massachusetts which led to an exploration of Istanbul's Grand Bazaar. As a graduate student at Harvard University, his interest in collecting carpets grew and became a focus of his scholarship.

After publishing an article on the methodology of carpet research early in his academic career, Denny became a leading scholar in Islamic art history, making him a sought-after expert for academic institutions and museums, such as the Harvard University Art Museums and the Metropolitan Museum of Art. His vast knowledge and original research have resulted in several publications, teaching awards, nearly 13,000 photographs, and a series of unique courses like "History of the Decorative Arts" and "History of the Oriental Carpet in East and West."

Below is an introduction into the world of Islamic carpets, to illustrate their importance, their manufacture, and the treasured knowledge that Professor Denny has imparted to students over the years.

Please use this QR code to link to an interview with Professor Denny

Cover Image: 'Star Ushak' Carpet, late 15th century, Turkey. "The Metropolitan Museum of Art, New York," Gift of Joseph V. McMullan, 1958. www.metmuseum.org

THE MAKING OF ISLAMIC CARPETS

Wool Processing & Tools

By Meredith Boyle

The process of preparing sheep's wool for weaving is extensive: wool undergoes several drastic transformations from its presence on the body of a sheep to the yarn found in carpets. Once wool is removed from the sheep's body with shears, it remains intact in the form of a fleece as seen in the image to the right. This fleece is typically heavy, dirty, and oily as it is covered in lanolin–a greasy substance that sheep secrete that is used to protect sheep from their environments, as well as by humans in pharmaceuticals and cosmetics. The wool is washed to remove dirt and oils, often in streams against rocks, and is then carded or combed in order to prepare it for spinning.

Wool is combed or carded to remove knots, increase fluffiness, and make the fibers all follow the same direction. Carding is typically performed using two cards that are lined with wire teeth, which are repeatedly rubbed against one another in opposite directions to pull the fibers apart. Combing, while performing a similar function, is used with one comb and places all of the fibers in a parallel manner. In comparison to carding, combing wool organizes the fibers more, whereas carding focuses more on the separation of the individual fibers. Both techniques result in wool that is ready for spinning, or in the case of felted rugs, it is ready for carpet making.

The process of spinning is what transforms wool into yarn that can be used for rugs. Traditionally, spinning is typically performed by women using a tool called a drop spindle. This technique consists of attaching a corner of combed or carded wool to the spindle and rapidly slapping the spindle against one's thigh, creating a rotating effect, turning the wool into spun yarn. Generally, the spinner spins toward the hip, which creates clockwise wool, otherwise known as Z-spin wool. In some instances, particularly in Egypt, S-spun wool is used in carpets, which is indicative of the spinner slapping their spindle away from the hip. The spinner continues this process until all of the yarn is spun or it becomes too heavy to continue spinning. After spinning the wool, the spun yarn is often turned into thicker yarn by combining several strands of yarn together through twisting them.

Sheep's wool is not the only material used in carpets, although it is by far the most common. Some expensive, luxurious carpets make use of silk, resulting in much finer carpets. Other materials used are goat's hair, linen, and metal thread, which is wrapped in silver or gold to create a shimmering effect. Light-colored sheep's wool is what is most often used, as black wool cannot be dyed effectively, although black wool can be used for the aspects of the carpet that are not seen, such as the structural threads. ■

Carpet image: Five Medallion Carpet. c. 1500, attributed to Egypt, probably Cairo. "The Metropolitan Museum of Art, New York," Fletcher Fund, 1970. www.metmuseum.org

Unless otherwise noted, all photos were taken by Professor Denny.

DYEING THE WOOL

By Masha Pitel

Carpet Dyeing

The dyeing process is an important step in carpet making. Traditionally, dye has been made out of plants, insects, and other natural materials. Large pots are filled with water, dyestuff, and some type of mordant (a fixative, typically an inorganic oxide, that allows for the dye to properly set on the wool fiber). The wool is left to soak in the pot over heat for varied amounts of time, depending on the dyestuff used and the desired color. After the wool fibers are removed from the dye pot, they are either washed or left to dry for several days, depending on the dyestuff used.

Chamomile
Chamomile, or Matricaria chamomilla L., is an herb native to southern and eastern Europe and western Asia. Distinguishable by its small flowers – yellow heads with small white petals – chamomile has been used throughout history for medicinal purposes as well as for dye. When dried, the flower produces a strong warm yellow color. Weld, also known as dyer's weed, and larkspur, are other plants that are traditionally used to make yellow dye.

Madder Root
Native to the Mediterranean region, madder (Rubia tinctorum) has long been distributed and cultivated throughout the entire world, including parts of Europe, Africa, Asia, and the Americas. The plant itself is characterized by its prickly star-shaped leaves and clusters of small yellow flowers. It is harvested after about two or three years, and the root is washed, cut, and dried before it can be used as dye. Madder root has been used for thousands of years to make vibrant shades of reds – ranging from walnut brown to terra-cotta orange and purple. A mordant, such as alum, is added to the dye-pot in order for the wool to properly absorb the color.

Indigo
Indigo is a dye that is most commonly derived from Indigofera Tinctoria, a plant native to India, and the tropical regions of China and Africa. The plant is characterized by its summer-blooming pink and violet flowers. Upon extraction from the leaves of the plant, indigo dye produces a wide variety of blues, ranging from a deep navy to pale blue and violet. It must be noted that indigo does differ from most other dyestuffs. Rather than fully permeating the fibers of the wool, indigo coats the outside of the fiber. Thus, the more coats of Indigo are done by repeatedly dipping the wool in the dye, the darker and more vibrant the color will be. When the indigo-dyed wool is removed from the pot it appears yellow, but it quickly turns green and then blue upon exposure to oxygen.

Cochineal/Lac
Lac, a resinous secretion produced by the lac insect (Kerria lacca), is native to several regions in Southeast Asia and has been used for centuries as a natural dye due to its vibrant and versatile coloring properties. The process of obtaining lac involves harvesting the resinous excretions from host trees, which are then processed into various forms like shellac or seedlac. As a dye, lac offers a variety of rich hues, from deep reds to shades of purple and brown, making it highly sought after in textile and fabric industries. Its application as a natural dye is not limited to fabrics alone; it is also used in cosmetics, food coloring, and even pharmaceuticals.

Alum
Alum, or potassium aluminum sulfate, is a commonly used mordant for dyeing wool. A mordant ensures that the colors are long lasting and durable and has to be used along with all natural dyes with the exception of indigo. Alum is a naturally occurring mineral that was exported from northern Africa during the Islamic Middle Ages. Other mordants that have traditionally been used include dried yogurt, walnut husks, and iron filings. ■

WEAVING THE CARPET

By Jane Curran

The pile of a carpet can be constructed in many ways. There exist many distinct knots that have been used in certain locations for centuries. The two most common types of knots are known as the Persian knot and the Turkish knot. Both knots are used all over the 'rug belt' but are used the most in the areas whose names they bear. The Persian knot is asymmetrical [Fig 1] and can be open on either side depending on the weaver's preference or local tradition. This knot fully envelopes one warp while the other is partially exposed. The Turkish knot is symmetrical and covers two warps [Fig 2]. In both cases the exposed warp is hidden when the weft is shot through after the row of knots, and all is tamped down using a wooden beater [Fig 3].

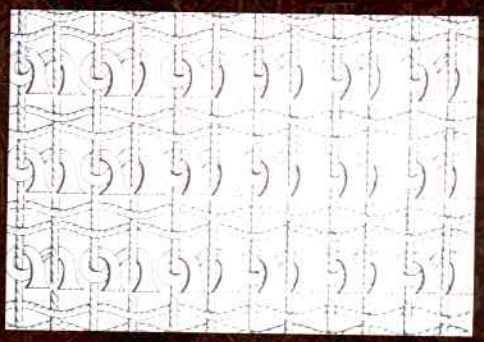


Fig 1

Once the knots are tamped down [Fig 4] the heddle is rotated and a new row is begun. Every few rows the knots are cut to the desired length [Fig 5]. The length of the knot determines how plush the pile is and the definition of the design. As discussed in "Wool Processing & Tools" by Meredith Boyle, the type of fiber used influences the softness of the carpet. Coarser fibers yield a carpet with a stronger structure but a scratchier pile whereas finer fibers (e.g., cashmere, silk, etc.) yield softer carpets but must be woven around wool warps and wefts to ensure structural integrity.

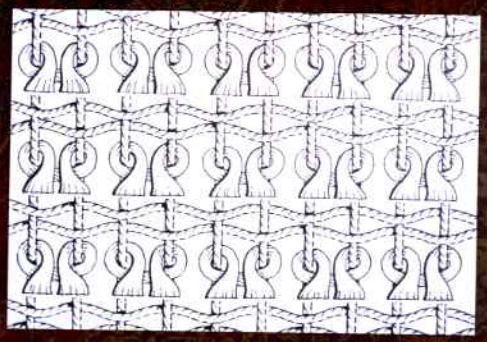


Fig 2

The warps of a rug are vertical (lengthwise) yarns and form the base of the carpet. The knots are tied around the warps and the wefts (horizontal) are shot in between the rows of knots to secure them. This whole process takes place on a loom which can be as simple in structure as four pieces of wood arranged into a rectangle [Fig 6] or as complex as a standing loom with multiple sheds, heddles, and warps [Fig 7]. Once the loom is set up the knots are put in by hand [Fig 8], often by women in nomadic cultures and in villages. In more urban environments, where it is less likely to see women working outside the home, it is often men who do the weaving. ■

Fig 3

Fig 4

Fig 5

Fig 6

Fig 7

Fig 8

BASIC CARPET TECHNIQUE

By Mary Zeng

One should never underestimate the weaving technique of a carpet, as it holds a detailed record of a carpet's age, provenance, and history. As a result, the craftsmanship of a finished carpet is highly dependent on the locally available material and the popular weaving technique and pattern of a certain geographical area, which is often within a village or tribe. According to Professor Denny's book *How to Read Islamic Carpets,* most traditional carpets are often created in one of four basic techniques:

Felt carpet
Felt carpet is an unwoven textile. The maker takes clean, carded wool and simply presses it into a flat slab using hot water, soap, and repeated pressure — a process known as "fulling." Felt carpet is an excellent insulator that is also economical and requires little labor. Slabs of the material constitute the roof and the walls of the yurt, as well as the domical nomadic tent favored in the Islamic world. It can be decorated by using combed and dyed wool in the fulling process. However, felted carpet is not very durable, most surviving felt carpets have primarily been used in nomadic contexts.

Slit-tapestry weave
A subcategory of the kilim technique, where pictorial or abstract designs are commonly used. In this technique, textiles are woven with weft threads of different colors using a loom, completely hiding the warp threads in the process. This technique sometimes creates designs that are two-sided, meaning that they can be viewed on both sides of the carpet.

Brocaded weave
A slightly more complicated weaving technique that requires supplementary wefts in a variety of colors wrapped over and under, then packed down to cover the warps. A common brocading technique called *sumak* consists of wrapping the yarn over four warps, back under two, then over another four. This technique often causes broaceded carpets to have one side that is more presentable than the other.

Knotted-pile weave
This is the most popular Islamic carpet technique with the highest potential in terms of artistic versatility in its finished products. Like brocaded carpet, a pile carpet consists of the basic warp-and-weft structural foundation. However, instead of using supplementary wefts to form the design, a pile carpet is patterned using individual knots, each usually tied on two warps, with the cut ends sticking upward on the "right side" of the fabric to form the thick pile of a carpet. The resulting design is therefore composed of individual dots of colored wool, almost like the pixels of a digital photograph.

WEAVING MEANING INTO CARPETS
Carpet Symbolism

By Ari Whittum and Marcela Pareja

Carpets are not just decorative elements used as floor coverings; they can be highly symbolic and integral to the culture they come from. In Islam carpets are used for prayer, and in the Jewish tradition the parrokhet, a woven carpet, is used to cover the Torah. Islamic carpets have a long history that represents the culture, religion, and heritage of the many groups of people that created them. They are works of art that speak to a vast number of people about their faith and culture. The materiality of the carpets connects directly with those of Islamic faith: prayer carpets are some of the most meaningful items in Islam, after the Qur'an. They contain symbols that carry deep meaning and refer back to their functional role in prayer.

Contrary to Christianity and Judaism, the Islamic faith does not allow the visual representation of God (Allah) in any way. Muslims found ways to represent their relationship to God and their path to Paradise with different motifs that carry deep meaning. Islamic carpets which are used as prayer carpets feature designs that represent the Islamic religion, containing different elements that are meaningful in the religious practice. Some of the more common symbols present in Islamic carpets are arches and hanging lamps. These two symbols are important in the Islamic faith since the arches represent the mihrab, the niche in the mosque that faces the sacred city of Mecca in the East, which is the direction Muslims always face in their daily prayers. The lamp represents the divine and the path to Paradise. Cypress trees are also frequently present, since in the Qur'an they flank the gateway to Paradise. These trees can also be found in Islamic cemeteries.

The following passage of the Qur'an might have been used as reference to create the designs on the carpets:

> "God is the light of the heavens and the Earth
> The symbol of God is an architectural niche,
> wherein hangs a lamp, contained in a glass
> as though it were a glittering star
> its fire kindled from the oil from a precious
> olive tree,
> neither of the east nor the west
> whose oil would shine even if untouched by fire
> Light upon Light!
> God guides to the Light those whom he will."
>
> -Quran 24:35-37

"The Metropolitan Museum of Art, New York," The James F. Ballard Collection, Gift of James F. Ballard, 1922, www.metmuseum.org

The Ballard Prayer Rug, Turkey, c. 1575-1590
In the center, the carpet features an architectural triple-arch design, which represents the entrance to Islamic Paradise. In the center of the architectural design of the carpet, a hanging lamp is depicted. The lamp is the same design as the one used to illuminate sacred temples like mosques. It is a glass oil lamp with a floating wick and it hangs from three chains. The light of the lamp represents the guiding, divine light of God.

Prayer Rug with Triple-Arch Design, c. 18th century
A very common design used in earlier carpets is the arcade, or row of arches, also present in mosques. This design is mostly found in prayer rugs that are specifically used in mosques. The arcade design gave way to the single arch design in later carpets that were hung as decorations. Single arch designs commonly incorporate different designs inside the arches such as hanging lamps or trees and flowers.

"The Metropolitan Museum of Art, New York," Bequest of Joseph V. McMullan, 1973, www.metmuseum.org

"The Metropolitan Museum of Art, New York," The James F. Ballard Collection, Gift of James F. Ballard, 1922, www.metmuseum.org

Ladik Prayer Rug, Turkey, Konya, c. 1795-1796
Prayer rugs are an important object for Muslims, as prayer is a big part of their lives. Prayer rugs found in domestic settings such as homes often depict different symbols that represent rituals Muslims must perform before prayer. This carpet contains illustrations of water pitchers, which represent the importance of water as one of God's greatest gifts, and the ritual of washing oneself prior to performing the prayer.

Conclusion

By Ari Whittum

Walter Denny's journey into the world of carpets began as a graduate student over five decades ago. In the following fifty odd years, Denny's reputation as a scholar of carpets grew and he would go on to work with renowned institutions such as the Metropolitan Museum of Art and the Harvard University Art Museums. During that same period, he traveled and photographed the world's carpets, whether woven in nomadic Turkmen villages or the court ateliers of the Ottoman Empire. While researching and traveling, Denny taught the history of Islamic art at the University of Massachusetts Amherst, educating generations of art historians. His calling card was the course "History of the Oriental Carpet in East and West," where students learned about the materials, origins, and symbolism of carpets, as well as their worldwide cultural impact. Denny taught his signature course for the final time this past spring. This exhibition was put together by the final group of students Denny taught and seeks to highlight and celebrate his career's work and the impact he has had for decades at the University of Massachusetts Amherst. ■

Contributors

• **Meredith Boyle** is a 2023 graduate of the University of Massachusetts Amherst, graduating with a Bachelor's degree in Political Science and the History of Art and Architecture. Currently, Boyle is studying for an MA in the History of Art at the Courtauld Institute of Art, with a concentration on material and visual culture within the circum-Atlantic world of the eighteenth and nineteenth centuries.

• **Amelia Ceballos** graduated from the University of Massachusetts Amherst in December of 2022 as an Art History and Political Science double major. Amelia works as a Museum Educator Volunteer at Springfield Museums in Springfield, MA. She is also working remotely as a Finance Associate & Intern Coordinator at a private fundraising firm in Washington, DC.

• **Jane Curran** is a senior Art History major at the University of Massachusetts Amherst. She has a minor in Japanese and is pursuing two additional minors in Classics and Anthropology. She focuses her studies and research on decorative arts; particularly jewelry and textiles. Additionally, she made the mock loom you can see in the exhibit.

• **Marcela Pareja** is a 2022 graduate of the University of Massachusetts Amherst with a Bachelor's degree in the History of Art and Architecture. Marcela has worked in projects with the Greenbaum Gallery as well as interning at the UMCA where she researched and created a timeline for The Hollister Collection of Southwest Indian Pottery.

• **Andersson Perry** graduated from UMass Amherst in the Fall of 2022. He was a double major in Art History and History. During the Summer of 2022 he worked at the Frick Gallery in NYC as an intern. Upon graduation, Andersson spent three months in Venice working as an intern at the Peggy Guggenheim Collection. He is currently working at Greenwich Auctions in Stamford Connecticut as a Cataloguing and Logistics Assistant.

• **Masha Pitel** is a Senior at the University of Massachusetts Amherst, graduating in May 2024 with a Bachelor's degree in Art History and a minor in Information Technology. Maria has also interned at UMass's University Museum of Contemporary Art, Memorial Hall Museum in Deerfield, MA, and the Marianne Boesky Gallery in New York City, where her focus was on collections management and archival research.

• **Chelsea Staub** graduated from the University of Massachusetts Amherst in 2023 with a double Bachelor's in Art History and Journalism. Currently, she maintains her role as a research assistant for Dr. Kurczynski and plans on attending graduate school in fall 2024 to continue studying women and ecofeminism in Surrealism.

• **Ari Whittum** is a junior majoring in the History of Art and Architecture. Along with his work on the Greenbaum Gallery he has worked as a student educator at the University Museum of Contemporary Art and participated in the UMCA's "Vote for Art" event in 2022. This past summer he worked as an undergraduate research assistant under Professor Monika Schmitter.

• **Mary Zeng** is a junior double majoring in Studio Art and History of Art and Architecture at the University of Massachusetts Amherst. Currently, Mary is interning at the UMCA. Her artwork has been featured in the *Jabberwocky*, a student-run literary journal, and the AASA magazine. She designed the poster for this year's Greenbaum Gallery Exhibition and the catalog brochure that you're currently holding.

• **Meg Vickery** is the Undergraduate Program Director for the History of Art and Architecture Department and worked with the students to curate this exhibition.

Acknowledgement

The curators want to thank the History of Art and Architecture Department at the University of Massachusetts Amherst for its generous support of this exhibition.

Carpet with Scrolling Vines and Blossoms, made in Northern India or Pakistan, Kashmir or Lahore, c. 1650. The Metropolitan Museum of Art, New York, Bequest of Benjamin Altman, 1913, www.metmuseum.org.

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