

**I introduced this material in a lecture for the 7th International Conference on Oriental Carpets (ICOC) in Hamburg, Germany, in 1993. It was published in *Oriental Rug Review*, Dec./January 1994, Volume 14, Number 2, and is slightly revised here.**

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# Tracking the Archetype:

## Technique-Generated Designs and their Mutant Offspring

Marla Mallett

Seeking design origins is a favorite but hazardous pastime of rug buffs. There are some who pursue earlier and earlier forms, imagining goddesses or tribal insignia behind every primitive weaving. Others proclaim the most prosaic designs "archaic" or talk about "images that reflect ancient icons of universal belief." But realistically, what is the basis for such proclamations? How can we separate derivative patterning from the purest archetypal forms?



Researchers and writers have approached this subject from several directions. History, archaeology and anthropology have failed to provide the answers we need. The Mother Goddess cult shenanigans of the early 1990's showed how easily we are misled by an emotional preoccupation with ancient iconography. Cherished totems have fallen when enigmatic Yomud, Qashqa'i and Central Anatolian tribal motifs have proved to be mere stylized versions of urban designs. [1] Lori/Bakhtiari figures, with representational features and more likely totemic meanings, have been championed as prototypes, although the forms in extant pieces are degenerate. [2] Most often, when identifying archaic images, we have relied simply on intuition, our assessments of design purity swayed by a work's esthetic and emotive qualities rather than by rational explanations. We have even heard works proclaimed "archaic" because of their uniqueness. Now, with collectors' interest focused on the simplest of village and nomad products, it has become fashionable to interpret clumsy craftsmanship and naiveté as signs of antiquity. These are not valid criteria.



Weaving was among mankind's earliest and most pervasive craft activities; yet for mysterious reasons, some folks seem compelled to look to other art media for primitive woven design inspiration. [3] Seeking such origins in metalwork, mosaics, stone carving or other media may occasionally be appropriate. But if we carefully examine the textiles themselves, from the weaver's perspective, we find signs of extraordinary inventiveness. In those instances

when we can recognize design that is *technique generated*, we need look no further; we can confidently identify a form's earliest textile manifestations. On these pages I will discuss a few ways that structural design clues can help us to track design archetypes. In Part 2 I will show how designs change as they migrate from one textile medium to another.

**Notes appear at the end of this page.**

It is definitely a mistake, when tracing design development, to study knotted-pile carpets and flatweave textiles separately. Some of the earliest, most well-known knotted carpets display design elements that originated in a variety of other weaving techniques. We find flatweave features in the well-known Berlin "Dragon and Phoenix" rug (shown here), in the "Marby" carpet, in knotted Fostat fragments, and in some of the so-called Seljuk carpets from Konya and Beyshehir. Indeed, the frequency with which villagers and nomads have transferred motifs from one weaving medium to another accounts for much of the richness and complexity in Middle Eastern rug designing. When nomads settled into village life, they often turned from their old flatweave traditions to pile-rug production. How natural that they should include flatweave motifs and details in their new weavings.



The key to understanding the evolution of any textile motif is determining the medium in which it originated. Only then can we separate pure forms from adaptations. But what are the clues? If we find similar forms in different kinds of tribal weavings, how can we decide which came first?

## **The Dominant Flow of Design Influence: From Restrictive to Less Restrictive Techniques**

Design influence flows most often from restrictive fiber techniques to freer techniques. Knotted pile, soumak and embroidery allow the most freedom. They are the most eclectic. They can copy almost anything. Among the more restrictive techniques are brocading, the warp-patterned weaves and slit tapestry. When borrowings occur, these are frequently the sources. [4]

Determining origins is simple when identical design features in two textiles have been dictated by technical or structural limitations in one of the weaves. The Anatolian zili brocade at the right exemplifies a limited, restrictive structure. The field design of the Shahsevan khorjin below is a copy, in a much freer technique, reverse soumak. The original zili design is blocky because it is based solely on vertically aligned three-span weft floats. Each fourth warp serves as a tie-down, holding the floats in place and giving the piece a corded look. The soumak weaver, below, wrapping single warps, was free to create virtually anything. She was most unlikely, by *coincidence*, to have invented a design based solely on the precise features *required* by the zili weave. [5]



**Figure 1. Zili overlay brocade mafrash. Eastern Anatolia**



**Figure 2. Shahsevan reverse soumak saddlebag pouch with zili design in the field. Courtesy, E. Herrmann**

It is rare, however, to find identical patterning in two different structures to analyze and compare. Borrowed designs have usually been altered or combined, thus determining their technical origins and discovering their purest, most vigorous and archetypal forms is more complex. We must be able to identify those design features that occur naturally within each basic weave. We must understand not only how *structural* limitations shape designs, but also how various *weaving processes* affect designing. It helps to understand the problems that the weaver encounters with each technique.

## The Warp-Patterned Weaves:

## One Source of Technique-Generated Design

Let us look briefly at a couple of simple warp-patterned motifs. [6] They provide superb examples of technique-generated design that has migrated to less restrictive structures. Weaves in which the patterning has all been done with the warps -- primarily warp substitution and double weave -- are the probable source of many soumak and knotted-pile border designs.

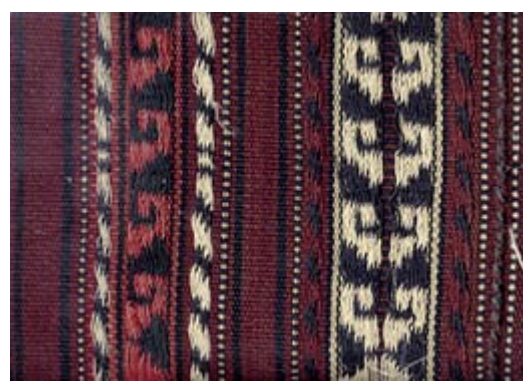
Some of the world's oldest surviving textiles are warp-faced bands. Narrow warp-faced tapes even appeared in Neolithic Anatolian Çatal Hüyük burials. Over the centuries, strong woven bands have been used to fasten packs on animals, close storage sacks and support trellis tents. Wide warp-substitution bands have sometimes been sewn together to make sturdy covers, or "jajims."

A weave is strongest when warp yarns are tightly spun, plied, and then crowded together. With the wefts hidden, designs must be formed entirely by the warps. Because of severely limited design options, most warp-patterned designs have evolved through experimentation directly on the loom. We see both covers and straps in which the weaver has flipped, altered and exchanged parts of her simple designs endlessly.

Except in card-woven warp twining, which is not our concern here, Middle Eastern warp-patterned structures limit the weaver to one or two colors in each warp position. Light pairs of warps substitute for dark pairs as needed. The weaver "picks" either a light pair of yarns or a dark pair for each part of her design, and drops the unwanted pair to the back, where they float loosely.



**Figure 3. Kurdish Savak warp-substitution jajim. Eastern Anatolia.**



**Figure 4a. Savak warp-substitution jajim, Eastern Anatolia.**

**Figure 4b. Back of the Savak warp-substitution jajim.**

In warp-substitution weaves, such as the jajim above, warp tension is critical. It is continually changing in every warp position. Thus within each set of four warps, the two differently colored pairs must be used in nearly equal proportions; otherwise part of the yarns will become loose and sag. [7]

Angular designs that alternate or undulate work best. Alternating blocks of color are good. Lopsided designs don't work. They destroy warp tension. [8] Many kinds of centralized motifs don't work. Diagonal lines nearly always are formed with steps, because the weaver works with two-weft units. She often combines several warp units to "square" the steps and clearly articulate patterns.

The simple Savak warp-substitution design above and at the right appears regularly as a knotted carpet border--either as arrows or in its halved version, the familiar "running dog" motif. In this kind of flatweave, since only two colors can occupy any one vertical position, the weaver often adds interest with warp stripes. Frequently two colors are alternated, as down the center of the arrows. Small cross-wise bands are thus formed by this very clever but simple device, enriching the textile. Other vertical stripes are commonly patterned with simple staggered blocks, as seen at the right in the detail.

The Lori/Bakhtiari soumak salt bag below not only uses the arrow and half-arrow motif as its main decoration, but it also copies the warp-substitution two-color center stripe idea -- in this case, staggered blocks.



**Figure 5. Lori/Bakhtiari soumak and knotted-pile salt bag showing a warp-substitution design motif. Courtesy, Manijeh and Parviz Tanavoli.**



Small checks are another common feature in early warp-patterned covers. They fill the arrows in the Savak jajim detail. In the very limited two-color technique, these checks serve both decorative and technical functions. While they provide ornamentation, their close interlacement stabilizes the warp. The appearance of this design feature in the knotted-pile arrow border of the Afshar salt bag below is a tell-tale sign of the design's warp-pattern origins. [9]



**Figure 6. Savak warp-substitution jajim, Eastern Anatolia.**



**Figure 7. Lori/Bakhtiari salt bag with a warp-substitution arrow design in a knotted-pile border. The field is weft-substitution weave. Courtesy, Manijeh and Parviz Tanavoli.**

Another standard warp-substitution design is the so-called "ainak" motif (below, left). Its angular hooks, alternating color blocks and checks are a near-perfect solution to properly handling warp-substitution tension problems.

These alternating color blocks and hooks have merely been compressed in the Tekke knotted-pile version in the center below. This Tekke border even copies the small checks that the jajim weaver used in her dark blocks to insure equal warp take-up and consistent warp tension. In the Saryk ensi border, at the right, the typical warp-pattern vertical center stripe has been emphasized; it imitates the two alternating colors of the warp stripe in the jajim. The flatweave origins of these Turkmen carpet borders are proclaimed

loudly and clearly. Design features prompted by structural and technical limitations are important clues that can direct us to the medium of origin and the purest forms.



**Figure 8. Savak warp-substitution jajim with 'ainak' motif.**

**Figure 9a and 9b. Tekke ensi border, and Saryk ensi border.**

Several early knotted-pile carpet borders of "S" forms are perfectly balanced warp-substitution designs. [10] In the border of the famous Berlin "Dragon and Phoenix" knotted rug, we see the blocky, stepped diagonals typical of the warp-patterned weaves. In contrast, the rest of the carpet design is woven with smooth diagonals -- without steps. The knotted-pile weaver's exact duplication of the flatweave detail explains the disparity.

The Shahsevan soumak version of the same "S" border, below, shows a similar disparity between its stepped formation and smooth diagonals in the rest of the design. This kind of design inconsistency between various parts of a textile strongly indicates diverse technical origins. [11]



**Figure 10. "Dragon and Phoenix" rug, Museum für Islamische Kunst, Berlin, Inv. no. 1.4. The border is a standard warp-substitution design.**



**Figure 11. Shahsevan soumak bag with narrow warp-substitution "S" border.**

The border of this important early carpet from Beyshehir in Central Anatolia surely developed (without the outlining) as a double-weave strap design. [12] In the carpet's knotted border there are two equitably distributed colors with no large solid areas, the design's angularity is perfect for a warp-faced double weave, and its parts are easily turned or flipped. [13] As in our last example, the border's stepped diagonals contrast with the field's smoothly articulated forms.

But there is a further clue to this border's origin. The carpet's side border is a dark-on-light figure, while the end border, at the top, is a light-on-dark design. To see this difference, look at the negative space - or perhaps the diagonal element. If this weaver was copying a double-weave band, when she reached the horizontal end border, she referred by mistake to the band's back side, where the perfectly balanced colors were reversed.



**Figure 12. Beyshehir knotted-pile carpet with double-weave band design in border. Mevlana Museum, Konya, 860/861/1033**

## **A Comparison of Intrinsic Design Features: Slit Tapestry and Knotted Pile**

To approach our subject from a slightly different perspective, I would like to briefly compare knotting and slit tapestry. To identify designs original to each, we must first separate forms that evolve naturally in each technique from those that are forced or contrived.



The two weavings below by a young Egyptian girl, Garia Mahmoud, show how differently simple figures develop with the two techniques. Her knotted-pile piece, on the left, is linear; it is primarily vertical and horizontal. Her slit-tapestry imagery, on the right, is diagonal and horizontal, with no vertical shapes or lines anywhere. Every linear element is horizontal. Although the Middle Eastern village or nomad weaver with a tribal background normally uses geometric rather than figurative forms, she works with precisely the same technical and structural constraints. These constraints account for the natural differences between pure knotted-pile and slit-tapestry design repertoires.



**Figures 13 and 14. Two weavings by Garia Mahmoud, of Harrania, Egypt, that were done when she was a young girl. On the left is a knotted-pile weaving; on the right, a tapestry.**

**[Works by the current generation of Egyptian child weavers appear on the Tapestry pages of this website. For background on the astonishing Harranian "experiment in creativity," see our [Wissa Wassef](#) page.]**

The **KNOTTED-PILE** carpet weaver is limited only by her mental image of the design as it grows upward, row by row. We must never assume that simple geometric knotted designs were inspired by kilims. Horizontal/vertical patterns are the most naturally evolving forms in knotting, while they are impractical for slit tapestry. [14] Diagonals, all on the same slant, also are perfectly natural in knotting, although without a cartoon, radiating designs pose problems. Linear forms, intricate details and outlines are simple and natural in knotting.

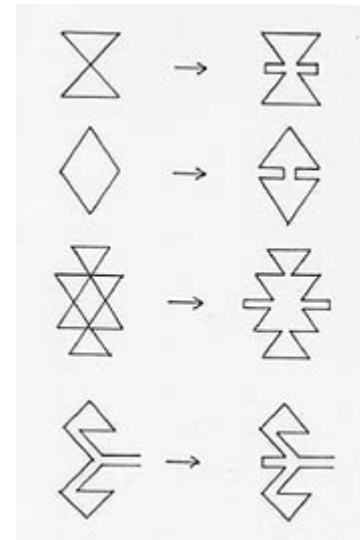


**SLIT TAPESTRY**, in contrast, features broad color areas, since the use of single or double warp units produces a weak fabric. The most natural of all kilim forms are based on horizontal, weft-wise shapes and bands. It is logical to assume that in most places the earliest kilims used these forms. Reciprocal designs are used frequently in slit tapestry because of the required weaving sequences, and I will discuss this later. The outlining so natural in knotting poses severe structural problems in slit tapestry. [15] Although borders on four sides are a natural pile-carpet development, vertical borders cause so many problems for slit-tapestry weavers that early kilims evolved with minimal side borders, or with none at all. In my lecture at the 6th International Conference on Oriental Carpets in San Francisco, 1990, I focused on structural matters such as these, contending that unresolved structural problems tell us much about a kilim tradition's antiquity. [16]



As we saw with the warp-patterned weaves, small details sometimes provide tell-tale signs of structural design origins. Let's look at some slit-tapestry examples.

Tapestry designs are based primarily on diagonals, yet these diagonals must be used carefully. Close parallel diagonals are weak, so they are normally avoided. Intersecting diagonals also present structural problems, as when triangles are stacked. The diagram shows how tapestry weavers sometimes strengthen simple designs at points of stress by adding horizontal bars at the intersections. The altered motifs are true structurally-generated forms. Horizontal bars that project from between paired hooks perform the same stabilizing function. When any of these forms appear in carpet knotting, soumak, brocading, or even on decorated reed screens like the Kyrgyz example below, the horizontal bars are obviously no longer functional. Instead, these details are conclusive evidence of slit-tapestry influence.



**Figure 15. Kyrgyz reed screen with the stabilized hooks of slit tapestry. Courtesy, John and Donna Sommer.**

The Avar kilim at the right and the Avar knotted carpet below both have kilim features; both also have knotted carpet characteristics. So which is closest to the original form?



Although both are dramatic pieces, the kilim exemplifies an unnatural, contrived tapestry expression. It is primarily linear and vertical in its patterning, with multiple rows of endless tiny crenellations. In my opinion, the general character of these pieces evolved in knotted pile. The kilim is a copy of a knotted-pile carpet rendition of a kilim design.



**Figure 17. Avar knotted carpet, Caucasus.**  
Courtesy, Harold Keshishian



**Figure 16. Avar slit-tapestry kilim.**  
Courtesy, James Burns



**Figure 18. Lotto carpet in so-called "Kilim Style."**

Rug literature has categorized one group of "Lotto" carpets as "kilim style." Yet no forms in these works are related directly to kilim design. The pattern in this example is too linear, too vertical, and the serrated shapes, formed with vertical and diagonal serrations, are standard knotted-pile carpet devices. They are common in Turkmen, Baluch, Caucasian and Kurdish pile rugs, among others. Of course the general layout is related to that in the so-called "Holbein" carpets, with their interlaced medallions and arabesques. In any case, vertically oriented serrations never appear in kilims, where horizontal, weft-wise forms, are instead the natural development. We can easily be misled by superficial similarities. [17]



**Figure 19. Anatolian knotted-pile border design combining vertical and horizontal serrations.**

Designs composed of both horizontal and vertical serrations, as in the Anatolian knotted-pile border here, likewise evolved as pile carpet forms. Although these jagged shapes may seem "kilim like" at first glance, with vertical serrations, they are definitely NOT migrant slit-tapestry motifs. [A workshop which I conducted at the 8th ICOC in Philadelphia focused on the differences between cartoon and non-cartoon design concepts. In that workshop, we demonstrated exactly why this is indeed a cartoon design. To my knowledge the earliest extant carpets displaying the motif are so-called "Holbein" and "Lotto" rugs.]

Contrary to common belief, delicately shaped forms with graceful nuances are more easily produced in slit tapestry than in other primitive weaving techniques. Slightly eccentric wefts are perfectly natural for a weaver using discontinuous wefts and no mechanical beater.

Some subtle shapes that can be gracefully contoured with slit-tapestry wefts, as in the kilim at the right, are comparatively clumsy when executed in knotted pile, as in the Anatolian rug below. The fine articulation of inherently natural forms is an important clue to design origins.



**Above: Figure 20. Slit-tapestry kilim with subtly contoured details. Central Anatolia. Courtesy, W. Brüggemann**

**Figure 21. Kilim motifs in knotted-pile carpet. Eastern Anatolia. Courtesy, Harald Böhmer.**



Parallels among basketry, basket motifs on Neolithic pottery, reed screen designs, and Anatolian slit-tapestry kilim designs have been pointed out by Catherine Cootner in the De Young Museum catalog of the McCoy Jones kilim collection. [18] These resemblances, however, are superficial. To equate "a variety of triangles or stepped or serrated zigzagged bands" with "the decorative essence of baskets and kilims" is misleading. A great many of the designs that Cootner shows from Hacilar pots [19] --supposedly with basketry designs--could not be successfully duplicated in the slit-weave tapestry of Anatolia. Likewise, two of the three examples in her photo of twined baskets show designs that pose severe structural problems for slit tapestry, although such designs are suitable for knotted pile. [20] Color intersections aligned vertically and numerous narrow parallel verticals or diagonals are features that experienced tapestry weavers try their best to *avoid*. [21]



**Pottery from Hacilar.**  
Mellaart, *Excavations at Hacilar, Levels V-1*. After Cootner.

Coiling is the only basketry structure with design limitations that are vaguely similar to those of wrapped reed screens. Even this relationship is tenuous. In reed screens, the wrapping elements do not connect the reeds; in coiling, the wrapping joins successive basket coils. Entirely different structural design rules apply in both plaiting and twining. The plaited Indonesian basket that Cootner illustrates [22] has logical structural design parallels with some kinds of brocading, but none with either the type of reed screen design that she illustrates or those slit-tapestry designs that she believes ultimately evolved from the screens. Relying on superficial similarities, she deduces: "At this point the profusion of involuted, hooked motifs in Anatolian kilims can only be attributed with confidence to the probable influence of reed screens." [23] Her screen example, however, shows poorly articulated, clumsy, diagonal-hooked medallions. In my opinion, these decorative forms are among the least likely to have originated within that medium. [24]

## **Next: Part 2 - Design Disintegration**

### **Notes - Part 1**

- 1. Yomut "kepche" guls have been traced to Caucasian and Persian palmettes; seemingly anthropomorphic Qashqa'i emblems have proved to be simplifications of floral medallions and pendants; and "deities with vultures" in Anatolian kilims have reverted to geometricized Ottoman textile carnations.**

2. **The presence of recognizable animal features -- horns and eyes -- on Lori/Bakhtiari soumak hooked medallions or columns may make them bona fide totems. It does not make them archetypes. James Opie, in *Tribal Rugs*, Portland, 1992, theorizes that these forms evolved out of early animal-style art and subsequently provided the source for a wide range of related, but non-objective, designs appearing throughout the Middle East and Central Asia. Technical arguments suggest, instead, that common existing forms were altered, embellished, and overlaid with local meaning by the Zagros Mountain weavers. It is a mistake to assume that in primitive art the direction of image development is always from the realistic to the geometric.**
  
3. **It is normal for the most highly developed art forms in any society to impose their styles on works in other media. It is just as logical to expect Central and West Asian woven designs to have influenced other media as the reverse. But perhaps even rug enthusiasts harbor a bias against weaving as a creative art. Or against women's work. Most of us truly value the fine arts more than functional objects, figurative art more than non-representational forms. In our constant search for "meanings" it is clear that we find the visual arts more significant if they make associative connections. Maintaining objectivity is a major problem when tracing design origins.**
  
4. **Other restrictive primitive techniques include interlocked and dovetailed tapestry, warp twining, and twill weaves. Additional techniques are used less frequently. It is not possible to place the entire group of weaves on a precise continuum ranging from the most to the least restrictive, since designing is limited by each in a unique way. We can compare radically different weaves only when dealing with specific design capabilities and limitations.**

**We can generalize, however: warp substitution is more restrictive than weft substitution; zili overlay brocading and overlay-underlay brocading are more restrictive than reciprocal brocading; warp twining is more restrictive than weft twining, etc. Among tapestry techniques, interlocking is more restrictive than dovetailing. Both of these are less restrictive *structures* than slit tapestry. Yet, slit tapestry *processes* permit more freedom and thus encourage greater spontaneity and creativity.**

**Design differences that result from varying loom refinements are a somewhat separate subject. For example, hand-picked sheds encourage different kinds of patterning than do mechanically made sheds; drawloom processes facilitate some kinds of patterning but discourage others. This article is concerned only with the design influences exerted by structure or by those aspects of the processes that remain constant, regardless of the loom used.**

**A provocative paper presented by Jon Thompson in Hamburg (June 1993) outlined possible drawloom influences on the pattern layouts characteristic of some Turkmen weavings. In general, drawloom *procedures* and mechanics are a restrictive design influence, while the fine scale of drawloom fabrics typically means that weave *structure* (often compound weft-faced twill in early Asian patterned silks) is a less limiting**

**factor.**

- 5. For a discussion of zili, as well as other brocade structures, techniques, and technique-generated design, see M. Mallett, "The Classification of Anatolian Brocades," *Oriental Rug Review*, Vol. XII, No. 1, October/November 1991, pp. 16-26.**
  
- 6. This discussion does not include warp twining. Although warp-twined and double-woven straps can both be constructed on card looms, the two structures differ radically. Consequently, their design repertoires differ completely. The term "card weaving" refers *only* to the mechanism used, *not* to a specific technique or structure. It is a common mistake to assume that all card weaving is warp twining, or that all straps are card woven. See Opie, *op. cit.*, for examples to compare. The band in Plate 8.10 is warp twined, while the bands in Plates 10.23 and 10.24 are double woven.**
  
- 7. Although some of the same designs have developed in double weaves (primarily for straps) and warp-substitution structures (primarily for wider bands that have been subsequently sewn together to make covers), the two weaves have slightly different limitations. A warp-substitution structure is much like a double weave in which the top layer is woven while the bottom layer is ignored. In this kind of weave, if some colored warps float loosely on the back for an inordinate distance while their complementary pairs interlace to form the design, tension problems can be expected. This is not a problem with double-weave structures, since in these the warp take-up is fairly uniform regardless of color distribution. A narrow band is more sturdy, however, if frequent color changes bind the two fabric layers closely together.**
  
- 8. In any part of a warp-patterned textile's width, the weaver may choose to use a single color instead of substituting pairs of two different colors. Some designs may, at first glance, appear lopsided, when at one or both edges the warps are a single color throughout the entire length of the design.**
  
- 9. The relative proportions of warp-pattern design parts are critical; they have been altered freely by the weaver of the soumak salt bag illustrated.**
  
- 10. Many more angular "S" borders also originated as warp-pattern designs. The guard borders in the Marby carpet are a typical example. See C.J. Lamm, *Carpet Fragments*, Uddevalla, 1985, Plate 17.**
  
- 11. We see some warp-patterned borders in knotted-pile carpets in which the weaver has smoothed out all diagonal steps. Other borders are multicolored or show proportions that have been altered. All of a design's features must be considered when we attempt to determine its origin. It is unwise to rely on any single characteristic. A good place to see an assortment of warp-pattern border designs is in the early carpets from Divrigi in eastern Anatolia. See B. Balpinar and**

**U. Hirsch, *Carpets of the Vakiflar Museum Istanbul, Wesel, 1988.***

- 12. The purest, two-color version can be seen in a Fostat fragment, Lamm, *op. cit.*, Plate 25. This pattern is ideal for a double-weave strap, but slightly off-balance for a single-faced, warp-substitution weave.**
- 13. One early configuration of this border may have featured the triangular parts turned and flipped to form an undulating design of two triangles, rather than the blocks we see in Figure 12. One small section in the lower left-hand corner of the main border in the Marby carpet shows this arrangement. See Lamm, *op. cit.*, Plate 17.**
- 14. Interlocked and dovetailed tapestry use such forms regularly. Since slit tapestry developments have been by far the most significant in the Middle East, this discussion of tapestry is confined to that one structure.**
- 15. For a discussion of structural problems caused by outlining in slit-tapestry kilims, see M. Mallett, "Structural Clues to Antiquity in Kilim Design," *Oriental Carpet and Textile Studies*, Murray Eiland, Ed., San Francisco, 1993, pp. 113-124.**
- 16. *Ibid.***
- 17. Some specific knotted-pile designs with vertical/diagonal serrations may, arguably, represent structurally-generated kilim figures turned sideways – particularly when the motifs incorporate stabilizing elements, as in the first diagram. The design device in the Lotto carpets, however, is natural in knotted form -- one more easily articulated than horizontal/diagonal versions.**
- 18. Catherine Cootner, *Anatolian Kilims*, San Francisco, 1990.**
- 19. *Ibid.*, pp. 56, 57, 273 and 274.**
- 20. *Ibid.*, p. 48, Fig. 20.**
- 21. This kind of patterning is so structurally impractical, it must be limited to very small pattern areas or avoided entirely.**
- 22. *Ibid.*, p. 55, Fig. 29a.**
- 23. *Ibid.*, p. 54.**
- 24. *Ibid.*, p. 55, Fig. 28.**



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