

DIVERSITY AND VIRTUOSITY IN EARLY NASCA FABRICS

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INTRODUCTION¹

The headland of Nasca culture was the Río Grande de Nazca drainage in southern Peru, an enormous tree-shaped river system formed of ten tributaries that empty into the main channel of the Río Grande before it reaches the Pacific Ocean. Hundreds of Nasca sites, many surveyed or excavated, but many others pillaged since the early twentieth century, are scattered in the river valleys throughout this region as well as in the Ica Valley to the north and the Acarí Valley to the south. These sites are the source of the material remains that are the basis of the definition of this archaeological culture. In addition to architectural monuments, there are many types of artifacts, among which pottery and textiles are particularly numerous. This essay focuses on a small number of textiles that were made during the early part of the Nasca tradition.² My

goal is to pinpoint some of the diagnostic features of the Early Nasca textile style and to show how these features are different from those of the textile style that immediately preceded it on the south coast.

CHRONOLOGY OF POTTERY AND TEXTILES

A major obstacle in our understanding of the development of Nasca culture is that, because relatively few sites have been excavated by archaeologists, much of the material that scholars use to understand ancient Nasca is devoid of scientific context. This is true for the majority of ceramic specimens in museum collections, as well as for all of the textiles published here. Nasca pottery, however, is rich in its range of vessel shapes and painted iconography, and these features can be used to seriate pottery styles over time to provide a relative chronology for the culture. The seriation of the Nasca ceramic style, developed by Lawrence Dawson in the 1950s at the University of California, Berkeley, is based on the relationship between the shapes of pottery and the style and iconography of the designs painted on the surfaces of those vessels. Dawson identified nine sequential stylistic phases of unequal length that span the entire Early Intermediate Period (with eight epochs) and the first epoch of the Middle Hori-

¹ *Editor's note:* Anne Paul died on 8 April 2003 (Niles 2007:75) less than ten weeks after submitting this article to *Andean Past*. Minor revisions and the final preparation of illustrations were therefore undertaken by the editors.

² This article is an expanded translation of an essay in the catalogue for an exhibition on Nasca pottery and textiles held at the Reiss-Engelhorn Museum, Mannheim in 2002 (Paul 2002). Both the references and Table 1 have been augmented. A recent ¹⁴C date for the fabric in the Mannheim Museum has been added. This is particularly important because it offers something new in terms of the absolute dating of EIP 3. Color photos of all objects illustrated here in black and white appear in the Mann-

heim volume. The exhibition was curated by Michael Telienbach, who has graciously granted permission to republish the contribution in English.

zon (roughly 1-700 A.D.). The Nasca culture, as defined by Dawson and other archaeologists, begins with the introduction of slip painting on pottery. The designs painted on vessels dating to this phase are outlined with narrow incisions (such marks are visible, for instance, in the head cloth depicted on the Nasca 1 drum in Figure 1). Though Dawson has never published his seriation, other authors have refined and published the traits of some of the phases (Blagg 1975; Proulx 1968; Roark 1965; Silverman 1977; Wolfe 1981).³

The phases in this relative chronology have been dated using ¹⁴C measurements of organic items found in association with ceramics. The relative dates of Nasca artifacts mentioned in this article, and their probable absolute dates, are Early Intermediate Period (hereafter abbreviated as EIP, c. A.D. 1-100), EIP 2 (c. A.D. 100-200), and EIP 3 (c. A.D. 200-400).⁴ Obviously, there is a certain lack of precision in a chronological scheme in which the "date" given for a Nasca monumental pyramidal mound, or for a ceramic vessel or a textile, falls within a time frame that can span more than a hundred years. Nevertheless, this system of relative chronology does permit scholars to analyze objects, whether scientifically excavated or not, within a chronological framework, facilitating studies that trace the evolution of artistic styles, iconography, and symbolic systems.

³ Photographs of the pottery that Dawson used to define the nine phases of his sequence have been published by Helaine Silverman (1993: figures 3.2-3.8). Of particular interest to the discussion here are figures 3.2 and 3.3 (*ibid*), which illustrate pottery diagnostic of Nasca phases 1, 2, and 3. Silverman and Proulx (2002:25-37) briefly describe all of the Nasca ceramic phases.

⁴ I have previously published a date of c. A.D. 200-300 for EIP 3. Silverman and Proulx (2002:38), however, suggest that Nasca 3 (EIP 3) dates to A.D. 200-400. The results of a recent ¹⁴C measurement of one of the textiles discussed in this article (see the caption for Figure 5a) seem to support this readjustment of the absolute chronology.

Nasca textiles have not been independently dated through a detailed stylistic seriation like that for pottery. Rather, our chronology for the textile tradition is based primarily on the association of textiles with scientifically excavated pottery and on iconographic comparisons with dated ceramics. The latter method—assigning textiles a place in the relative chronology based on comparisons with pottery designs—is often difficult.⁵ This article focuses on the Early Nasca textile style, the dating and definition of which are based largely on the corpus of textiles recovered in association with Early Nasca ceramics found during Alfred L. Kroeber's 1926 excavations in the Río Grande de Nazca drainage, primarily at Cahuachi.⁶ These fabrics, housed in the Field Museum of Natural History in Chicago and described by Lila O'Neale (1937), are the only sizable sample of EIP 3 textiles published to date that "have a known provenience as to site, sub-site, and tomb, and therefore possess known relations to types of pottery and other artifacts" (Kroeber, in his preface to O'Neale 1937:127).

⁵ It is especially hard to assign a relative date to textiles with geometric designs. One technically complex and extremely beautiful Nasca rectangular cloth in the Museum of Fine Arts, Boston, for instance, has a central band of woven stepped-frets, interrupted by diagonal rows of steps (Stone-Miller 1992: plate 17). In trying to date this fabric by comparing its iconography to excavated Nasca pottery, we find that stepped-fret motifs appear on Nasca 3 (Kroeber and Collier 1998: figures 121, 150, and 235), Nasca 5 (*ibid*: figures 252, 261, 263, 274, and 280), Nasca 6 (*ibid*: figure 292), Nasca 7 (*ibid*: figure 319), and Nasca 8 (*ibid*: figures 324 and 342) specimens. The border format on the Boston Nasca textile is known among the late EIP 2 Paracas Necrópolis mantles from the Paracas Peninsula, while its delicate gossamer field is similar to two textiles discussed here (Figures 9 and 10). Based on these comparisons I would assign an EIP 3 date to the Boston textile.

⁶ The site of Cahuachi in the Nazca Valley was probably a habitation site as well as a ceremonial center in EIP 1, but by EIP 3 it was a pilgrimage shrine without a large permanent resident occupation (see Silverman 1993:300 ff.).

The known grave lot of each textile is given by O’Neale (1937:132); these grave lots have been assigned relative dates based on the associated ceramic material (see Proulx 1968; and Kroeber and Collier 1998).⁷

Most of the Early Nasca textiles in museum collections—including those illustrated in this article—lack exact provenience data. Some of these textiles can be dated to EIP 3 based on comparisons with designs painted on pottery. Other textiles without secure provenience can be anchored into the chronology on the basis of iconographic and structural resemblances to excavated textiles.

ANTECEDENTS TO EARLY NASCA: THE PARACAS NECRÓPOLIS TEXTILE STYLE

Textiles assumed a paramount role in the symbolic life of ancient Andeans, and because of this fact they can be used to try to understand, from the perspective of artifacts, how ancient cultures evolved. A principal question addressed in this essay—what kinds of transformations in textiles signify the gradual disappearance of one culture and the emergence of a subsequent one?—can be partially answered by examining Nasca

cloth in the context of a south coast textile tradition that was well established long before EIP 3. Specifically, the world-famous embroideries produced by Paracas/Topará weavers, packed into funerary bundles that were buried in cemeteries on the Paracas Peninsula, are the “ancestors” of the textiles published here. In order to better understand in what sense Early Nasca textiles represent a new cultural expression on the south coast, a brief description of the diagnostic features of Paracas Necrópolis style textiles is necessary.

Most of the quintessential elements of the Paracas Necrópolis style are present in the late EIP 1 mantle illustrated in Figure 2a-c. It is woven in plain weave, decorated with colorful images embroidered in 4/2 stem stitch in its borders and field. This particular type of embroidery stitch creates a single-faced fabric that has a distinct right side and a wrong side.⁸ The garment has a pair of U-shaped borders on both lengths, the most common border format on Paracas Necrópolis mantles and headcloths. As on almost all Paracas Necrópolis textiles, a single iconographic motif is stitched over and over in different color combinations, or color blocks. Here, each figure is stitched in one of five possible color blocks that alternate in regular sequences in the borders. These identical design units repeat in the borders using glide reflection as the symmetry motion.⁹ The heads

⁷ William Duncan Strong (1957) also excavated textile fragments at Cahuachi in 1952-53, but these were found in the artificial strata of refuse and are difficult to date reliably (see Phipps 1989:291). In addition, Henrich Ubbelohde-Doering, Helaine Silverman, and Guiseppi Orefici have excavated at Cahuachi. Ubbelohde-Doering’s finds are housed in the Staatliches Museum für Völkerkunde, Munich and have not been published. Silverman (1993:264-274) and Orefici (1993) illustrate and describe EIP textile artifacts from the site. Finally, under the direction of Markus Reindel and Johnny Isla, a team of archaeologists has been excavating EIP sites in the Grande and Palpa Valleys since 1997. (Isla and Reindel 2005) EIP 2 and 3 textiles from the sites of Los Molinas and La Muña (both near the banks of the Río Grande) currently are being analyzed for publication by Daniela Biermann (personal communication 2001; Biermann 2002). For a history of fieldwork in the Nazca region, see Silverman (1993:14-29) and Schreiber (1998).

⁸ In 4/2 stem stitch the needle with thread moves forward over four warps or wefts of the cloth that is being embroidered. Then it passes through the cloth to the underside, where it moves backwards two warps or wefts before passing through to the upper side of the cloth, where the procedure repeats. This method of stitching results in a fabric that has two different faces, one of which is the “right” side. If the ratio of forward to backward movement is changed to 6/4, the result is a fabric in which the embroidery looks the same on both sides of the cloth, hence making it reversible.

⁹ Glide reflection is defined as “simultaneous translation and longitudinal reflection resulting in alternate right and

of falcon impersonators in the borders of this mantle are oriented in a clockwise direction around the perimeter of the cloth, like those on the majority of Paracas Necrópolis fabrics with asymmetric motifs. In addition, the field has rows and columns of motifs disposed in a checkerboard arrangement (called a diamond lattice by mathematicians), and these field motifs create a regular symmetry pattern (Paul 2004). Finally, many Paracas Necrópolis mantles with field figures use those motifs to create a repetitive color pattern in the field, though such repetitions are not present in the mantle, illustrated here (see Paul 1997: diagram 32). Although the overwhelming visual impression projected by the large corpus of Paracas Necrópolis textiles is one of immense variety, the above set of design principles was rigorously followed throughout much of the tradition. This tradition begins to change during EIP 2, and I believe that these transformations reflect societal changes experienced within the Paracas/Topará communities who made these textiles (see Paul under review). By early EIP 3 it is possible to speak of the emergence of a new textile style in the Río Grande de Nazca area of southern Peru. What exactly changes in Early Nasca textiles? Some of the answers to this question can be found in a small number of rectangular cloths which are the focus of this discussion.

EARLY NASCA STYLE SHAWLS: A PRELIMINARY DEFINITION OF A TEXTILE STYLE

The best inventory of EIP 3 textiles from the Nazca drainage is given by Lila O'Neale (1937:133-34). It includes mantles, tunics, small cloths, hangings, and bands. There are also headcloths and loincloths (Silverman 1991: figure 9.29; Sawyer 1997: figure 99). The function of the textiles discussed in this essay is

ambiguous. They are small enough to have been placed over, or wrapped around, the head, as illustrated by the ceramic drum in Figure 1 and in photographs of excavated Nasca burials (Silverman 1993: figure 18.4; Disselhoff 1968: 123, 124). Most, however, are also large enough to have been draped over the shoulders. The designation "shawl" is appropriate to describe their possible multifunctional use, because this type of garment can be worn as a covering for either the head or the shoulders.

Many Nasca shawls, including all of the items illustrated here, have needlework borders worked in either cross-knit loop stitch or stem stitch. In fact, loose borders, unattached to woven fields, are the most numerous type of Early Nasca fabric from Cahuachi and from the Nazca drainage in general. Bands and borders comprising three-dimensional birds, flowers, beans, human heads, and occasionally fish have been reported from scientifically-controlled excavations (O'Neale 1937: plates LXI and LXII; Phipps 1989:684, 688; Silverman 1991: figures 9.14-9.16, 9.20) and there are scores of other specimens without exact provenience (see, for instance, Bird and Bellinger 1954: plates CIV, CVI, and CIX-CXIV; Eisleb 1975: figures 123-129, 131, 134-144; Sawyer 1997: figures 101, 105-1 II, 116, 127; and Stone-Miller 1992:218-19).

In the following paragraphs, six Early Nasca fabrics will be described. Several different aspects of each will be presented, including fabric structures, iconography, and the symmetry and color patterns of the decorative motifs. Following these descriptions, I suggest which features differentiate these textiles from their Paracas Necrópolis antecedents, and propose a preliminary definition of the Early Nasca textile style as embodied in shawls.

Though there are no securely documented EIP 2 Nasca-style textiles with iconography from

left images along the axis of the band" (Shepard 1948: 219).

the Nazca drainage, there are a number of non-scientifically excavated specimens that probably date to the early part of the EIP 3. The painted cloth fragment with a cross-knit looped border illustrated in Figure 3a-d may date to this period, based on a comparison of the bird imagery with that on Nasca style pottery dating to the same epoch.¹⁰ Possibly a small head or shoulder shawl, it was collected in the Nazca region by the German archaeologist H. Ubbelohde-Doering (Ubbelohde-Doering 1952:45). Painted birds, each pecking at vegetation, look as though they are jammed together in no particular order. In fact, they are rather carefully aligned in rows and columns, disposed in what mathematicians refer to as a rectangular lattice. Figure 3b shows the orientation pattern of the birds, with each asymmetric animal represented by an arrow with a crook pointing in the direction of the bird's beak. The motifs in each horizontal row repeat in the symmetry operation called glide reflection. Axes of bifold rotation emerge on the S and Z diagonals of the top five rows.¹¹ The bottom row is out of alignment with the rest of the pattern, probably shifted slightly to the right as it was being painted.

It seems likely that the painting on this shawl was started at the top (as illustrated in Figure 3a) of the fabric, and then proceeded by

horizontal rows downwards: the birds in the upper row each are associated with a plant motif and are relatively uncramped, while two birds in the bottom row (indicated with black arrows in Figure 3d) are missing vegetation, possibly due to lack of room. Several birds (in the middle and bottom rows) have their tail feathers bent downwards to fit into the limited available space, and the tail feathers of others crowd out the vegetation.

Alan Sawyer (1979) identified the crop symbols on Nasca textiles, and those that appear on this shawl include beans, peanuts, guavas, egg fruits, and peppers (*ibid*:147-48, figure 26). These different seeds and fruits do not alternate in a regular pattern on the cloth. However, there is a system of order underlying the relationships between birds and their associated vegetation. Though imperfectly worked out on the fabric, the pattern is that every other bird in a horizontal row "shares" its vegetation with a bird in a contiguous row (Figure 3c; indicated by solid connecting lines). That is to say, two birds each peck at a single plant motif. Occasionally, when there is not enough available space to show a single plant spanning two rows, the birds "share" the same type of vegetation even though the motifs are disconnected (Figure 3c; indicated by dotted lines).

The Nasca artist/s who painted the birds made a subtle but strict distinction in the coloring of the shoulder section of the wing on each bird: the half-circle shape that touches the head may be either maroon or grey (see sketch of bird in Figure 3b). Each of these color variations is considered here to be a color block, though a color block that has many fewer component parts than in a Paracas Necrópolis embroidered motif. When the half-circle on the wing is maroon the motif is assigned the letter "A", and when it is grey the bird is designated with the letter "B". As seen in Figure 3d, these color blocks establish a legible color pattern on the

¹⁰ Compare the textile iconography to the depictions of birds on Nasca 3 vessels in Kroeber and Collier 1998: figures 94, 103, 108, 178, and 183 and in Proulx 1968: plate 13b. None is exactly the same as the birds painted on the textile, but the manner of depicting the lobed legs is similar.

¹¹ Bifold rotation is 180 degree "rotation about a series of equally spaced axes" (Shepard 1948:219). In order to have symmetry repeats the motifs must be identical, which is not the case here because the bird/vegetation motifs have different types of vegetation. For purposes of plotting the orientation pattern on this cloth I have diagrammed the birds without taking into consideration their vegetation. An S diagonal slants from upper left to bottom right, while a Z diagonal slants from upper right to bottom left.

surface of the cloth: there are two regularly alternating monochrome zigzag paths on the S diagonals (in the diagram, dotted lines connect the color block letters in order to make these paths visible).

The painted cloth has a fragmentary embroidered border attached with tiny tabs to one edge (there is no evidence of any border having been attached to the opposite edge). Both the border band and the tabs are deteriorated and faded, so it is not possible to identify the small-scale motifs nor establish a sequence of colors.

Another fine Early Nasca fabric in a public collection (Figure 4a-c) was acquired by H. Ubbelohde-Doering in the Río Grande de Nazca Valley (1952:45). It is a monochrome plain weave and gauze weave rectangular cloth with two (partly fragmentary) brightly colored three-dimensional borders sewn to its edges. Both faces of the textile are equally finished, making it reversible. Unfolded, this garment would have been too large to be worn as a headcloth and difficult to position around the shoulders. However, if folded on a vertical axis—roughly between the third and fourth columns of motifs from the left, for example (see below), it would have been possible to wear it either way. If this were the case, both faces would have been visible, a fact which may have motivated the choice of a reversible fabric structure.

The cloth's warp threads are positioned horizontally in Figure 4a. Weaving probably started at what is the right-hand edge in the photo. The field has fish motifs disposed in a rectangular lattice. While the pattern looks regularly resolved at first glance, there are major inconsistencies in the figural orientation (Figure 4c). First of all, the images in the six right-hand columns repeat in glide reflection in columns as well as in rows, while the images in the three left-hand columns repeat in glide reflection in columns and bifold rotation in rows. Further-

more, the motifs in the fourth column from the left-hand side of the cloth repeat in glide reflection on the vertical axis, but because there is one less figure in this column than in the others its motifs do not “work” with the symmetry schemes on either side. Though it is difficult to say that these anomalies were planned, it is also hard to see how they could have been mistakes, because the technique used to weave this cloth is one that requires forethought and planning. Whether or not these design details had any relation to the possible folding of the shawl remains an open question.

Finely executed cross-knit looped U-shaped borders, with at least four different types of three-dimensional birds alternating with several types of plants, are sewn to the edges of the navy fabric.¹² The birds' heads face the same direction in both borders (that is, all to the right or all to the left, depending on which face of the textile is in view). The colors of the birds' bodies (but not of their heads or tails) repeat regularly; a sequence comprising from 18 to 20 differently colored bodies repeats nearly three times in each border.

Even though only a fraction of the plain weave and gauze weave field of the cloth in Figure 5a-b is intact, it is possible to reconstruct the probable design that was woven into its structure by comparing it to three other fabrics. The first comparison is with a rectangular cloth that was among the contents of a late (EIP 2) Paracas/Topará burial bundle excavated from the Necrópolis de Wari Kayan on the Paracas Peninsula. It has a black plain weave and gauze weave field with interlocked stepped-fret motifs (Figure 6). Both the structure and the image in the field of this Paracas Necrópolis fabric are comparable to an EIP Nasca 3 fabric from

¹² The borders on both sides are fragmentary and have been stitched to the ground cloth in some places with modern thread.

Cahuachi (Figure 7; see photo in O'Neale and Kroeber 1930: plate 4a). The image is also similar to that on a discontinuous warp and weft EIP 3 Cahuachi textile (O'Neale 1937: plate XXXIXc). Examination of the remaining portions of cloth on the edges of the fragment in Figure 5a, in conjunction with a knowledge of the structures, motifs, and proportions of the other textiles mentioned here, suggests that it would have originally looked like the reconstruction in Figure 5c. It may have been a small head shawl. It seems a little short to have been wrapped around the shoulders.

The fragment is bordered on one edge by a superbly made cross-knit looped border which is attached to the field with tiny looped tabs. Six differently colored birds (including a condor, three falcons, and two unidentified species) repeat almost seven times in a regularly alternating sequence (Figure 5d). In addition, the connecting tabs are each constructed in one of seven different colors (blue, gold, green, rose, light green, purple, or yellow) which also repeat in a regular fashion (see diagram and caption in Figure 5d).

Most Early Nasca textiles lack exact provenience, but thanks to a few archaeological finds it is possible to assign relative dates to some of those which were not scientifically excavated. For instance, a small head or shoulder shawl in the Museo Civico Archeologico Etnologico, Modena (Figure 8a-c) can be attributed to Nasca weavers and reasonably dated to EIP 3 based on comparison with an EIP 3 textile excavated at Cahuachi (see O'Neale and Kroeber 1930: plate 5). The Cahuachi mantle has a striped field with no figural imagery. It has U-shaped longitudinal borders executed in cross-knit looping, with fringe placed between the ends of these borders on the widths.¹³ The

rectangular cloth in Modena also has a striped plain weave field, with a pair of narrow, reversible, embroidered borders attached to its edges with tiny tabs constructed in reinforced simple looping (Desrosiers and Putini 1992:107, figures 31 a and 115). There is fringe between the ends of the borders on both sides of the cloth.

An unidentified motif (possibly a fan with appendages, Figure 8c) appears in the narrow border bands (Figure 8b). The motif is severely reduced in both scale and iconographic detail compared to the visually complex iconography of Paracas Necrópolis textiles (see Figure 2, for example), though it repeats in a regular sequence of four color blocks. Each form is bilaterally symmetrically, and the design units repeat through translation.¹⁴ The solidly-colored tabs that join the borders to the field (Figure 8b) were probably intended to have a rather elaborate repeating color pattern in which one complete color sequence comprises 42 tabs in seven different colors that are arranged in the following manner: one set of four red tabs, plus one tricolor set that includes a black tab, a "color x" tab, and a black tab ("color x" is either pink, green, yellow, light green, red, or blue), repeated six times so that all "color x" tones are used. In one border there are two of these complete and regular sequences, plus four tricolor sets using red and green as "color x" (two sequences of 4 red/1 black/1 red/1 black, and two of 4 red/1 black/1 green/1 black). The second border has only partial segments of the pattern, in addition to several tricolor sets that do not follow the regular sequence at all. The contrast in regularity versus irregularity in the color patterns in the

has a striped ground cloth with a cross-knit looped U-shaped border sewn to one side.

¹³ Another EIP 3 textile in a private collection (illustrated in Kajitani 1982: plate 49) relates to these two fabrics. It

¹⁴ Translation is a symmetry motion in which there is a "shift in position without change in orientation" (Shephard 1948:219).

two borders suggests to me that they may have been made by different artisans.¹⁵

The almost square plain-weave cloth illustrated in Figure 9 comprises two loosely-woven webs that are sewn together. Two narrow, fringed U-shaped borders constructed with cross-knit loop stitches are connected to the main cloth with looped tabs. These bands carry motifs on both faces: 12 backward S (or curvilinear Z) designs appear in short sections A, C, and D (see Figure 9c), and 12 S motifs in short section F. Section B has 102 S motifs, plus one Z motif, and Section E has 92 motifs arranged in an irregular order of 38 S, 10 Z, 7 S, and 37 Z (Petra Czerwinske, personal communication 2002). Though these borders are not as impressive in appearance as those of other Early Nasca fabrics presented in this essay, the person/s who made them embedded into the motifs an eleven-part color sequence using nine colors. Each complete sequence consists of a regular alternation of the colors red, light green, pink, dark green, gold, blue, gold, brown, red, dark gold, and grey. Starting at the left-hand side of the top border in Figure 9c, the motifs repeat in the following order: Section A: 1 complete sequence + 1 red; Section B: 5 complete sequences; 1 incomplete sequence (missing grey); 1 incomplete sequence (missing the second gold); 2 complete sequences; 1 incomplete sequence (missing dark gold and grey); Section C: complete sequence starting with dark green instead of red + dark green. Continuing clockwise around the cloth, on the right-hand side of the bottom border, the color pattern is as follows: Section D: 1 sequence + 1 red; Section E: 1 incomplete sequence using seven colors that are out of order; 4 complete sequences; 1 incomplete sequence using four colors that are out of order; 3 complete sequences; 1 incomplete sequence using four colors that are out of order;

Section F: 1 red + 1 complete sequence in which the colors are arranged in reverse order.

Both the color and motif sequencing are more regular on the A, B, C side than on the D, E, F side of the cloth, raising the possibility that they were worked by two different persons, one of whom was more exacting than the other. The short Section F is particularly curious because, relative to the other three bracket sections of the borders, both the motif and the color sequencing are reversed.

The shawl is large enough to have been worn over the shoulders, or possibly on the head like the textiles represented on an EIP1 Nasca drum (Figure 1). However, it would have draped more easily if folded along either its length or width, and the fact that it is reversible would have made either side presentable. The ceramic representation in Figure 1 shows a headdress with U-shaped borders decorated with S motifs, though those borders are depicted as though embroidered directly on the ground cloth of the field rather than made separately and attached, as in the Cologne textile. In spite of the intriguing similarities between the painted depiction of a headcloth and an actual weaving, the drum and the textile probably date to different phases within the Nasca sequence. Based on comparisons with woven material recovered in association with ceramics at Cahuachi, the textile likely dates to EIP 3.

The red warp and weft yams in the field of the head shawl in Figure 10a-c are tightly twisted and widely spaced, producing an almost diaphanous cloth that is similar to another Nasca fabric in the Museum of Fine Art, Boston collection (see footnote 5). Narrow borders covered with 4/2 stem stitch embroidery are sewn to each length (Figures 10a and b show the right or “finished” side). The iconography includes two principal motifs, a bird and a fish, alternating with each other in groups of three

¹⁵ Ilaria Pulini very kindly recorded for me the color sequencing of the 233 tabs on this shawl.

(three birds, three fish, three birds, etc.), plus one tiny depiction of a spider at the right-hand end of the upper border. Each of the two principal iconographic types can be colored in three different color combinations, so that the configuration of the pattern repeat is IA, IB, IC, 2D, 2E, 2F, etc. (Figure 10c; the iconographic types are differentiated by black or white arrows, while the color blocks are designated with letters). Hence, though each individual image is small and iconographically simple, the combined iconography and color pattern is slightly more elaborate. Figures face clockwise around the perimeter of the cloth and alternate right/left directions in the bands, though because the motifs are not identical we cannot speak of symmetry repeats.

DISCUSSION

The Early Nasca textiles presented here, as well as those from Cahuachi, differ in significant ways from Paracas Necrópolis-style textiles. It is by pinpointing these distinctions that we can begin to identify the salient traits of the textile style that emerged in the Río Grande de Nazca drainage at the beginning of EIP 3. In particular, the following aspects of Early Nasca textiles can be compared to and contrasted with Paracas Necrópolis textiles: the size and proportions of rectangular cloths; choice of fabric structures; iconography; the types of symmetry and color, repeats among border motifs; and the symmetry and color patterns of field motifs.¹⁶

Early Nasca shawls are significantly smaller and often closer to being square than mantles from the Paracas Necrópolis bundles. A Necró-

polis mantle measures on average 266cm x 132cm and is twice as long as it is wide (the mantle illustrated in Figure 2 is 251cm x 108cm). Whereas there are two discrete types of Necrópolis rectangular cloths with pairs of borders—mantles that were worn over the shoulders and headcloths that covered the head—these functions may have been combined into one garment, the shawl, by the ancient Nasicans. Eight complete EIP 3 Nasca rectangular cloths were reported from Kroeber's excavations at Cahuachi (called mantles by O'Neale 1937). All were found in proximity to each other at the site (Kroeber and Collier 1998: figure 66), with seven having been excavated from three graves that were clustered together in Subsite A (*ibid*: figure 69). Although the Cahuachi weavings vary in size, their proportions are virtually the same (Table 1), the ratio of length to width is 1.2 for six specimens and 1.3 for two others. Such uniformity among fabrics found in a restricted zone of a huge site may indicate that the persons who made them shared certain design canons. This is not the case for the group of rectangular cloths without provenience listed in Table 1 (including those presented in this essay as well as fourteen others), which are diverse in both size and proportions.¹⁷

Though the ancient weavers who made Paracas Necrópolis textiles possessed the knowl-

¹⁶ For a thorough review of scholarship on the iconographic differences and similarities between Paracas Necrópolis and Early Nasca textiles, see Silverman's recent study (2002). In this work she outlines some of the definitive elements of the Early Nasca textile tradition (*ibid*:98-100).

¹⁷ An Early Nasca rectangular cloth in the Reiss-Engelhom Museum, Mannheim (Tallenbach 2002:93-94, figure 3.5) is not included in this table because it is, in part, a reconstruction. Fragments from several different three-dimensional borders have been sewn with modern thread to a ground cloth without complete selvages. Another fabric with cross-knit looped borders (Solanilla 2002:376), in the Museo Barbier-Mueller, Geneva (formerly in the Museo Barbier-Mueller, Barcelona), is also "reconstructed" (Victoria Solanilla personal communication 2002) and hence is not listed here. A third specimen (Beukers 2002:27) in the Wereldmuseum, Rotterdam, and a fourth cloth in a private collection (Sotheby's 2000:104, 112), do not appear in Table 1 because I have not verified that their current dimensions are authentically ancient.

edge and expertise to make almost any known fabric structure (we know this because they did it), they overwhelmingly favored plain weave decorated with 4/2 stem stitch embroidery. This was not true for Early Nasca weavers, who continued to produce extraordinary needlework as they simultaneously explored many different ways to make and decorate cloth. Painted plain weave, striped plain weave, plain dimensional cross-knit looping, 4/2 stem stitch, and 6/4 stem stitch all are present within the small group of fabrics examined here. This list of fabric structures and accessory stitches lengthens considerably when the specimens excavated at Cahuachi are added to it (see O'Neale 1937). While needlework is still favored, an interest in using a broad range of fabric structures and of structures accessory to fabrics is a striking aspect of the style, as is the fact that Early Nasca weavers often produced textiles that were finished on both faces. The shawls illustrated in Figures 4, 5, 8, and 9, for instance, are completely reversible.

On the other hand, there is less emphasis on the elaborate figural iconography characteristic of Paracas Necrópolis textiles. The embroidered images on Necrópolis textiles depict, among other things, an assortment of birds, pampas cats, sharks, costumed anthropomorphs impersonating these creatures (see Figure 2b, for instance), and vegetation. Though the iconography present on the six Nasca shawls includes several kinds of birds (Figures 3, 4, 5, and 10), fish (Figures 4 and 10), flowers and vegetation (Figures 3 and 4), and geometric motifs (Figures 5 and 9), all of the depictions are smaller in scale and many are less detailed iconographically than their "counterparts" in Paracas Necrópolis iconography. Another decorative aspect of Early Nasca textiles that is distinct from the Necrópolis sample is the number of distinct iconographic motifs per fabric: while a Necrópolis textile normally has a single type of design embroidered many times in the borders and field, Nasca specimens frequently are deco-

rated with two or more different motifs (see Figures 3, 4, 5, and 10).

Borders are an important component of fabrics in both textile traditions (for a discussion of the symbolism of Paracas borders, see Paul 2000), and the formats of the borders on all of the Early Nasca shawls illustrated here replicate those found on the mantles and headcloths from the Paracas Peninsula site. However, there is a subtle change in their positioning on the cloth. The longitudinal borders on a Necrópolis mantle (see Figure 2a and b, for example) are usually two independent webs that are covered with embroidery and stitched to the mantle field; the bracket parts that create the U-shapes are embroidered directly on the ground cloth of the field (the orientation and color design of these bracket figures relate conceptually to the borders, not to the other figures in the field of the mantle). The visual effect is a rectangular cloth that has two U-shaped borders *within* its perimeter. In contrast, the borders on the Early Nasca shawls in Figures 3, 4, 5, 8, and 11 are entirely separate and reversible constructions that are attached by means of rectangular tabs or tail feathers and project outside the perimeter of the ground cloth. Except for the specimen in Figure 10, the borders and the field of each shawl are two distinct products that are not necessarily coordinated in their colors or patterns (contrast this with the visual coordination of the borders and field of the mantle in Figure 2). The shawl in Figure 10 is the exception in this group in that its separately woven and embroidered borders have a red background color that duplicates the color of the field so that the discrete parts of the textile match in color design.

Textile borders contain other types of information that are culture specific and diagnostic of these two distinct south coast textile styles. One of these concerns the motions of symmetry used in the repetition of contiguous motifs in one-dimensional repeating patterns. Dorothy

Washburn and Donald Crowe have noted that, although there are numerous one-dimensional and two-dimensional classes of symmetry, any given cultural group will regularly use only a few specific symmetries when arranging design elements (1988:24). In fact, the number of ways of arranging identical motifs in Paracas Necrópolis textile borders is severely limited. The motifs in over 97 percent of the borders in a sample of 543 Paracas Necrópolis items repeat using either glide reflection or bifold rotation as the symmetry motion (Paul 2000). This is not true in Early Nasca textile borders, which seem to be as unpredictable in their use of symmetry as the Paracas Necrópolis borders are immutable. First of all, the borders on several shawls have more than one type of motif (Figures 3, 5, and 10). Because a defining feature of symmetry is that the same design unit is repeated, we can not speak of symmetry repeats when there is more than one iconographic type per weaving. Secondly, when identical motifs are present, translation alone is the preferred isometry (Figure 8; the border birds on the shawls in Figures 4 and 5 also give the impression that they repeat in translation, though they are of different iconographic types). This symmetry motion occurs only four times in the borders of 543 Paracas Necrópolis textiles (Paul 2000:153). This change in the underlying organization of figural orientation in borders likely reflects a shift in structural principles among the makers of cloth, and permits us to distinguish one cultural group from another (for a relevant discussion of how the Hopi encode cultural principles in the symmetrical structure of the patterns on their ceramics, see Washburn 1999).

Another aspect of border design for which the rules are rigid in Paracas Necrópolis textiles is the clockwise versus counterclockwise orientation of figures around the outer edge of a weaving. When an asymmetric motif is aligned so that its central axis is parallel to the edge of an exterior border, the tops of figures almost

always point to the right in the upper border and to the left in the lower border so that a continuous clockwise circuit is established around the perimeter of the cloth (Figure 2b; see Paul 2000: note 7). This particular orientation does not seem to have been especially favored by Early Nasca weavers, though a much larger sample needs to be examined before a definitive statement can be made. What we can say is that, among the shawls illustrated here, there are several solutions to the problem of how to orient the motifs around the circumference of a cloth. One replicates the Paracas Necrópolis choice (Figure 10); another has motifs that establish a continuous circuit that is either clockwise or counterclockwise depending on which side of the reversible fabric is in view (Figure 8); a third has point symmetrical design units that are reversed in several sections of the border so that there is no continuous revolution around the periphery (Figure 9); a fourth has birds that face the same direction in the top and bottom borders, thus eliminating a continuous directional circuit around the perimeter (Figure 4); and a fifth has a single remaining reversible border in which birds all point in the same direction (Figure 5). Though the sample of shawls is small, they embody a diversity of design solutions that is striking, and strikingly at odds with the narrow range of purposeful choices that permeate Paracas Necrópolis border design.

Color repetition is another important component of border design on both Paracas Necrópolis and Early Nasca fabrics. Border patterns on Necrópolis textiles have anywhere from two to eight differently-colored figures arranged in regular alternation. Color block repetitions are also embedded in some of the Early Nasca shawls: motifs repeat in sequences of three color blocks each for two different figural types (Figure 10), in a sequence of four color blocks (Figure 8), and in a sequence of at least 18 color blocks on one shawl (Figure 4). As with Paracas

Necrópolis textiles, there is also a range of color repeat variants in details such as the geometric motifs in the cross-knit looped borders and in the color of tabs. For instance, the color sequence in one textile (Figure 9) is carried by motifs which repeat using nine colors in an eleven-part color sequence, and in two others (Figures 5 and 8) by the looped tabs that join the borders to the fabric field (seven regularly alternating colors in Figure 5, and seven in Figure 8). Once more data on these kinds of details have been collected, it may be possible to identify the entire range of color repeat variants they encode.¹⁸

A relatively small number of Paracas Necropolis textiles have motifs embroidered in their fields, but when they do, the images are almost always disposed in a diamond lattice pattern (in 173 cases out of 176). The coloring and orientation of these figures carry complicated and comprehensive color and symmetry patterns (see Paul 1997, 2004). There are few Early Nasca shawls with field iconography (Figures 3, 4, and 5), and in these examples motifs are arranged in a rectangular lattice instead of a diamond lattice.¹⁹ Color patterning

is present in only one shawl: painted using simple color blocks, the birds are arranged to create a pattern of two discrete monochrome S zigzag diagonals (Figure 3d). This pattern does not adhere to the rules that underlie the patterns on Necropolis textiles (see Paul 1997 for a discussion of these rules). The field symmetry schemes on these textiles (Figures 3b and 4e) differ from those on Necropolis textiles because the motifs are disposed in rectangular lattices, but the motifs repeat using the same isometrics as those on seventeen late EIP 2 Necropolis mantles (Paul 2004).

CONCLUSIONS

The number of known EIP 3 south coast textiles is surprisingly scanty when compared to the large quantity of EIP 1 and 2 fabrics contained in the funerary bundles excavated from the Paracas Peninsula. Some scholars have suggested that one of the reasons for this smaller number of textiles is that pottery assumed the dominant role as prestige item, and that Nasca iconography was transferred from the textile medium to pottery. For example, Silverman states that “with Early Intermediate Period epoch 3, it appears that the perfection of slip-painting ceramic technology and the florescence of ceremonial activity at Cahuachi . . . motivated Nasca artists to choose pottery rather than textiles as their preferred medium of iconographic expression. . .” (1991:394). Sawyer writes that by the middle of Early Intermediate Period 3, “embroidery had been entirely supplanted as the primary bearer of religious iconography—not by other textile types, however, but by the newly evolved polychrome slip-decorated Nasca ceramic” (1997:160). Aside from the fact that these explanations do not fit well with the long Andean tradition of encoding symbolic information in cloth, they are not necessarily supported by the archaeology. For instance, an EIP 3 Nasca grave excavated near Cahuachi by Ubbelohde-Doering in 1932 (Ubbelohde-

¹⁸ One beautiful Early Nasca rectangular cloth (see Sawyer 1997: figure 87 for a color illustration) that is not included in this article because I think that it is too small to be a shawl has an interesting color pattern in the looped tabs that attach its two borders to the field: five colors of tabs are arranged in four different sets, each comprising five tabs and three colors (for example, purple/blue/purple/red/red). These sets, each assigned a letter, are arranged in the sequence ABCBCAD to make one complete color sequence of 35 tabs. Both borders have slightly over three complete sequences, though one border has several irregularities in its pattern.

¹⁹ The rectangular lattice arrangement of field motifs is favored as well on other Nasca garments and textile fragments (see Albers 1965: plate 86; Frame 1999: plate 4; d'Harcourt 1962: plate 5B; Kajitani 1982: plate 48; O'Neale 1937:135 and plate LIX; Sawyer 1979: figures 4, 7, 13, 14, 22 and 23; and Sawyer 1997: figures 82, 87, 88, and 133).

Doering 1967:143, 188, and 189) contained a headless male body wrapped in a gauze cloth and several more fabrics, including an embroidered one. The burial also included a vase painted with images of hummingbirds. In addition, five EIP 3 Nasca tombs at Cahuachi excavated by Kroeber in 1926 contained multiple cloth garments and fabric fragments in addition to pottery (O'Neale 1937). Patrick Carmichael believes, based on these finds, that "it appears that textiles were in fact common as a principal means of conveying identity, wealth and prestige throughout the south coast Early Intermediate Period" (personal communication 1998). Carmichael thinks that textiles were as common (though perhaps not as elaborate) during this period as before, but that there are fewer examples because: "1) expansion of agriculture has destroyed most of the burial sites either directly or by raising the water table; 2) burials were of individuals and therefore do not have the artifact concentrations found in collective tombs; and 3) since the textiles are less elaborate, looters and their buyers are not as interested in them" (personal communication 1998). Indeed, the impressive visual and structural variety present among the relatively small number of published Early Nasca textiles leaves little doubt that the textile tradition was alive and well during EIP 3.

Nevertheless, the textile record clearly indicates that there were significant cultural changes in south coast populations near the end of the EIP 2. A garment of smaller dimensions and different proportions appears, accompanied by a more varied array of fabric structures. Textile iconography is narrower in scope and less visually complex. Shifts in the underlying symmetry structures and orientation patterns of textile motifs are also important manifestations of differences between these weavers and those who produced Paracas Necropolis fabrics. Furthermore, whereas the weavers and embroiderers of Paracas Necropolis ritual attire were

decidedly conformist, rigidly adhering to certain "rules", Early Nasca 4 weavers seem not to have shared with each other all of the same principles of textile design. While they participated in the same textile tradition, they apparently had more liberty to make individual design decisions. The existing picture for the production of textiles in EIP 3 Nasca society is one of a smaller scale (and less control from an outside source) than that for Paracas/Topará communities. Many Early Nasca fabrics, including some of those presented in this article, have structures that were incredibly labor intensive, but the labor was likely of one or two individuals per product. Each cross-knit looped border band, for instance, was worked by a single set of hands at a time, not by the groups of embroiderers who stitched a Paracas Necropolis mantle. The central field of the Paracas Necropolis mantle in Figure 2 was large enough to accommodate eight different embroiderers, each of whom worked in vertical columns (Figure 2c and Paul 1986).

This description of the organization of Early Nasca weavers may also have applied to the individual artisans who made polychrome pottery and, to a certain extent, to those who built sacred architectural spaces. The great pilgrimage site of Cahuachi, for example, has many natural hills that were terraced and built up with hand-made adobes. In all there are roughly forty artificial and semi-artificial mounds of different sizes and shapes. These mounds, according to Silverman (1993:337ff.), are the monumental constructions of early Nascans. She thinks that "the proliferation of architectural foci at the site [of Cahuachi] is an indication both of Nasca social organization (*i.e.*, that the many mounds are *ayllu* temples of the various social groups) and of a societal inability and/or lack of desire to marshal human energy toward one project" (*ibid.*:337). Proulx, drawing in part from evidence presented in Silverman's 1993 study, notes that "politically the Nasca people did not

have a unified central government or a capital city, which are characteristics of state-level societies, but rather were divided into a series of chiefdoms, each with its own leader, yet sharing a common cultural tradition . . . The centers of these chiefdoms have yet to be determined, although the multiple tributaries of the Río Grande de Nasca system may have formed the natural boundaries for such a division" (Proulx 2001:119ff.). Though the Early Nasca textile record has never been correlated with these kinds of observations about Nasca social and political structures, it is possible that an analysis of a much larger sample of fabrics would permit scholars to incorporate fiber, one of ancient Andeans' most precious materials, into our interpretation of this remarkable civilization.

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Table 1. Early Nasca Rectangular Cloths

Specimen number	Size in cm	Ratio L/W	References and comments
<i>Late EIP2/EIP 3 Early Nasca fabrics without exact provenience:</i> ²⁰			
MVMun 34-41-47a	(90) x 61	(1.5)	Figure 3; total original length unknown
MVMun D-1006	134.5 x 126	1.1	Figure 4
R-E-M AM4945	90 x (60?)	(1.5?)	Figure 5; original width unknown
MCM F1	96 x 53.4	1.8	Figure 8
R-J-M 49748	122 x 108.5	1.1	Figure 9
MM 1996.16	89 x 58.5	1.5	Figure 10
BM 38.121	125 x 2.5	2.5	Kajitani 1982: plate 48
EP	(193) x 63	(3)	Frame 1999: plate 4; no length selvages
KAM 1967-29-56	182.5 x 142.5	1.3	http://www.kam.uiuc.edu/collection.cfm?show=americas#
Met 1980.233.1	137.5 x 125	1.1	pc (consulted 9 April 2007; Sawyer 1975: figure 124
Met 1980.233.2	162.5 x 135	1.2	unpublished
MFAB 64.2044	175 x 100	1.8	unpublished
NMWC 35.32.179	100 x 52	1.9	Stone-Miller 1992: plate 17
PC	105 x 77	1.4	Sawyer 1997: figure 133
PC	142.8 x (128.2)	1.1	Frame 1999: plate 3
PMA 95.22.1	138 x 138	1.0	Paul and Niles (1992: plate 3); only half the shawl is extant
PMA 00.26.4	155 x 66	2.3	
TM 91.205	109 x 38	2.9	
TM 91.511	157 x 125	1.3	Kajitani 1982: plate 42
TM 1965.40.23	84.4 x 45	1.9	Bird and Bellinger 1954: plate CX, 83 Sawyer 1997: figure 87
<i>EIP 3 Early Nasca fabrics excavated at Cahuachi:</i>			
171182a	140 x 120	1.2	O'Neale 1937:154
171214	137.5 x 112.5	1.2	O'Neale 1937:154, plate LXVIIIf
171216	142.5 x 118.8	1.2	O'Neale 1937:154, plate LVIII
171220	200? X 162.5	1.2	O'Neale 1937:154, plate XLIX
171222	125 x 103.6	1.2	O'Neale 1937:154, plate LIX
171262	150 x 130	1.2	O'Neale 1937:154, plate XXXIVb, XXXVIIIf
171265	120 x 95	1.3	O'Neale 1937:154, plate XXXVIIe
171305a	170 x 130	1.3	O'Neale 1937:154

²⁰ Museum abbreviations: BM, The Brooklyn Museum of Art, New York, New York; EP, Colección Enrico Poli, Lima, Peru; KAM, Krannert Art Museum, Urbana-Champaign, Illinois; Met, The Metropolitan Museum of Art, New York, New York; MM, Mint Museum of Art, Charlotte, North Carolina; MCM, Museo Civico Archeologico Etnologico, Modena, Italy; MFAB, Museum of Fine Arts, Boston, Massachusetts; MVMun, Staatliches Museum für Völkerkunde, Munich, Germany; NMWC, The National Museum of World Cultures, Gothenburg (formerly Etnografiska Museet), Sweden; PC, private collection; PMA, Robert S. Peabody Museum of Archaeology, Phillips Academy, Andover, Massachusetts; R-J-M, Rautenstrauch-Joest-Museum, Museum für Völkerkunde, Cologne, Germany; R-E-M, Reiss-Engelhorn Museum, Mannheim, Germany; TM, The Textile Museum, Washington, D.C.



Figure 1. Nasca 1 polychrome ceramic drum, Denver Art Museum Collection: Marion Hendrie Fund, 1972.189. The drum, which measures 41.9 cm in height, shows a person wearing a headcloth with U-shaped borders that are decorated with S motifs. The drum was painted before it was fired and all design details are outlined with incisions, diagnostic features of EIP 1 Nasca pottery (photographs courtesy of the Denver Art Museum).

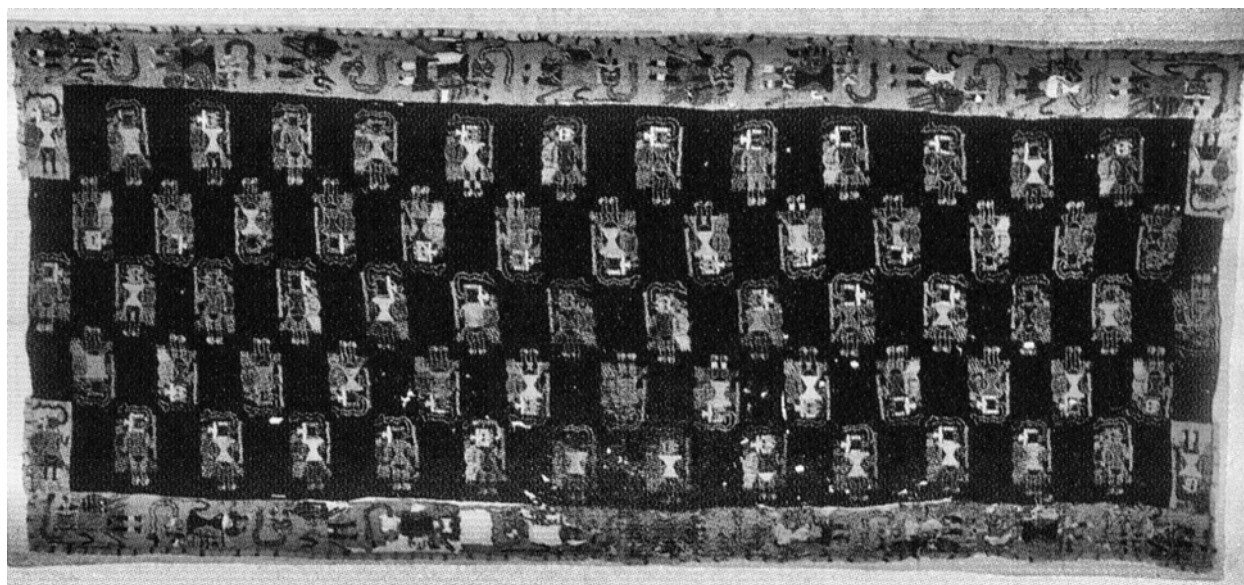


Figure 2a. Paracas Necrópolis mantle 89-14 (RT 1653), Museo Nacional de Arqueología, Antropología e Historia del Perú, Lima. Camelid fiber, 251 cm x 108 cm, late EIP 1 or early EIP 2. The embroidery in the field of the mantle is unfinished and one of the U-shaped borders is damaged.

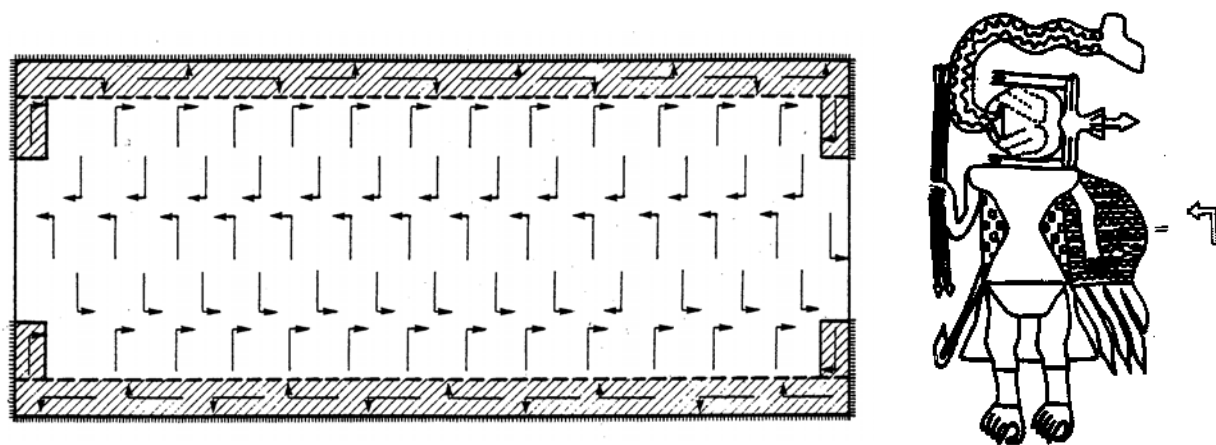


Figure 2b. Diagram of mantle 89-14 showing orientation of its embroidered motifs (after Paul 1991: figure 5.5). Iconographically identical images of a falcon impersonator are stitched in five different color blocks in the borders and field of the garment. Each is represented here by an arrow that shows lateral and vertical orientation.

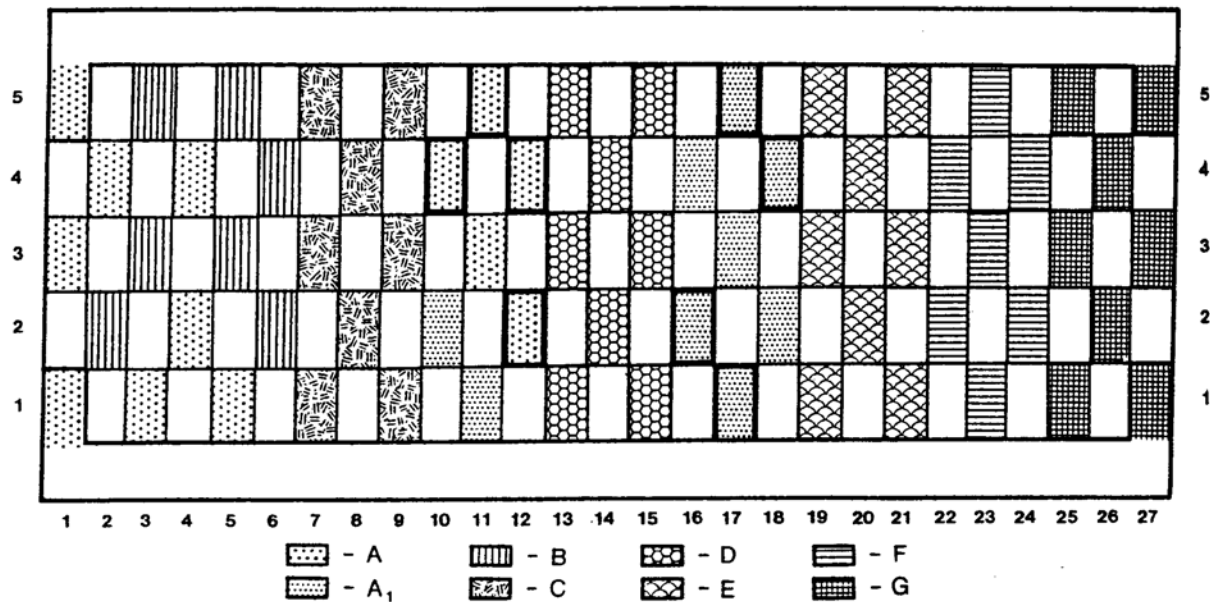


Figure 2c. Diagram of the different hands at work on mantle 89-14 (after Paul 1986: figure 11). Eight embroiderers stitched the motifs in the field, each one working in vertical columns. The areas outlined in bold indicate the images with the most embroidery completed.

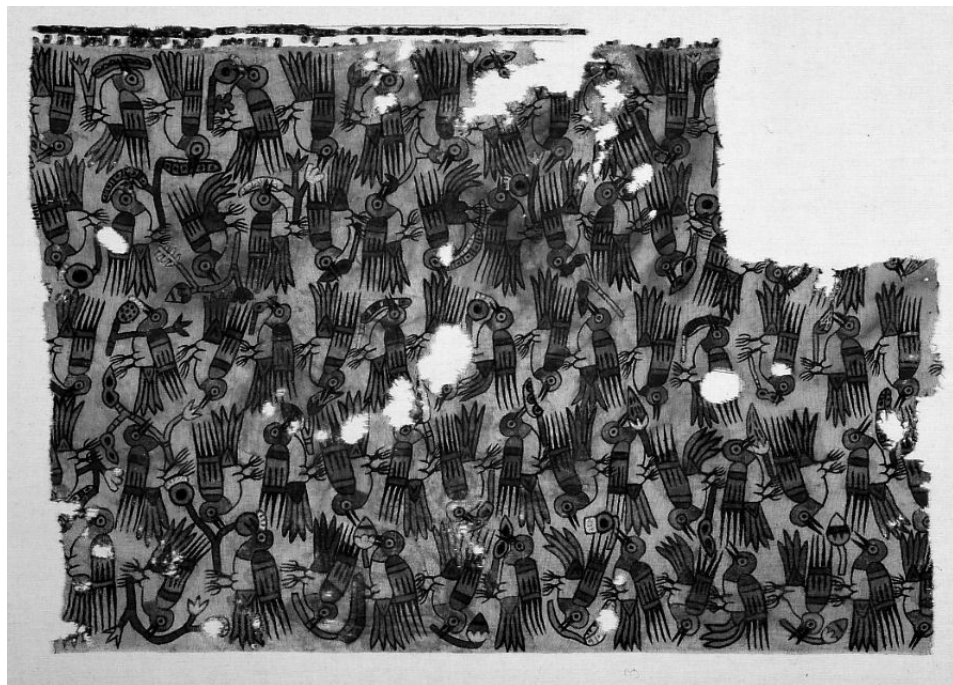


Figure 3a. Early Nasca rectangular cloth fragment with birds and vegetation painted in the field, Staatliches Museum für Völkerkunde, Munich 34-41-47a. Cotton, 90 cm x 61 cm, not including 2 cm border width, early EIP 3. A camelid fiber cross-knit looped border is stitched to one edge (photograph courtesy of the Staatliches Museum für Völkerkunde, Munich).

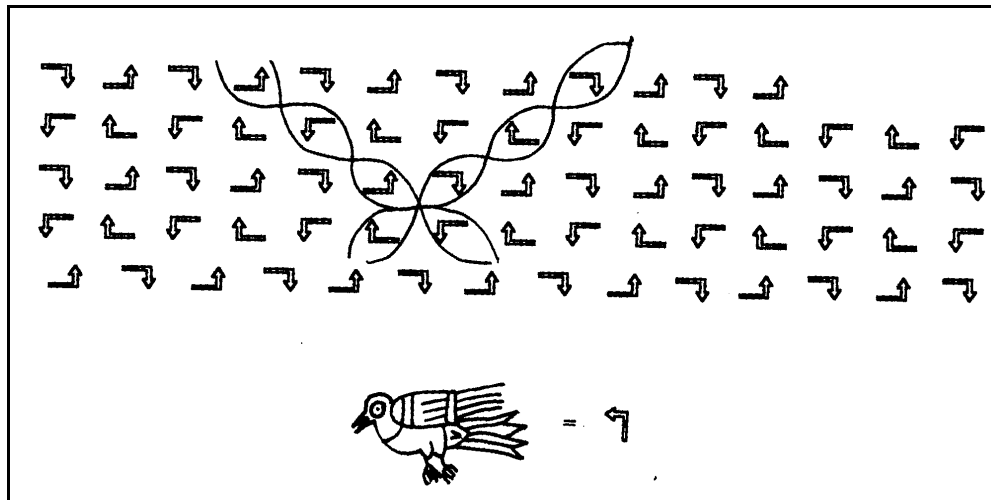


Figure 3b. Diagram of the orientation pattern of the birds in the field of the fabric in Figure 3a. Each bird is represented by an arrow with the crook pointing in the same direction as its beak. The motifs repeat in glide reflection along rows and in bifold rotation along S and Z diagonals (the lines of rotation have been added to the diagram). The bottom row is out of alignment.

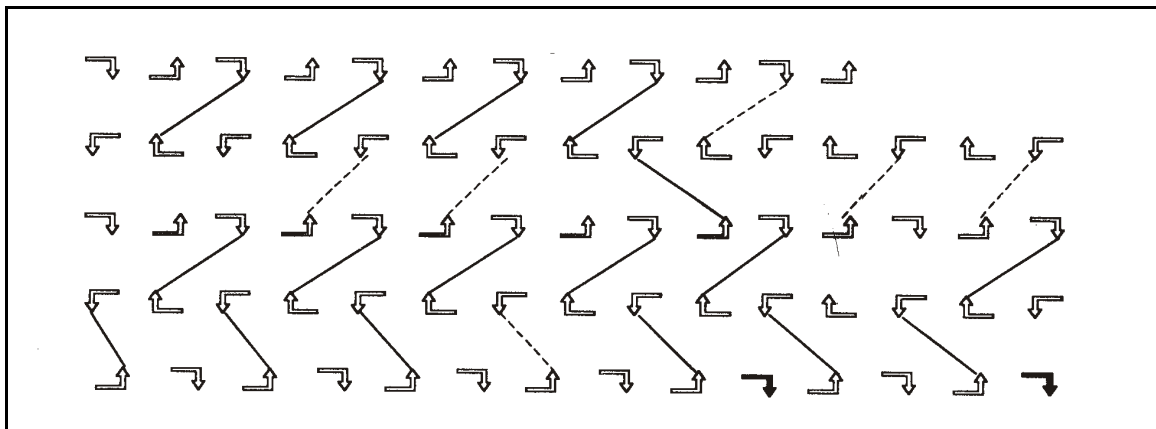


Figure 3c. Diagram showing bird/vegetation pattern. The intended pattern is, I believe, one in which every other bird in a horizontal row pecks at the same plant as a bird in a contiguous row (here indicated with connecting lines).

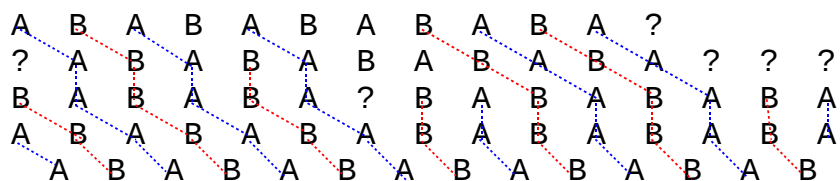


Figure 3d. Diagram of the color pattern of the birds painted on the field. The half-circle section of the wing that touches the head (see the drawing in Figure 4b) can be either maroon or grey. These color choices create two color blocks (designated A and B) which are distributed to create a pattern of S zigzag diagonals.

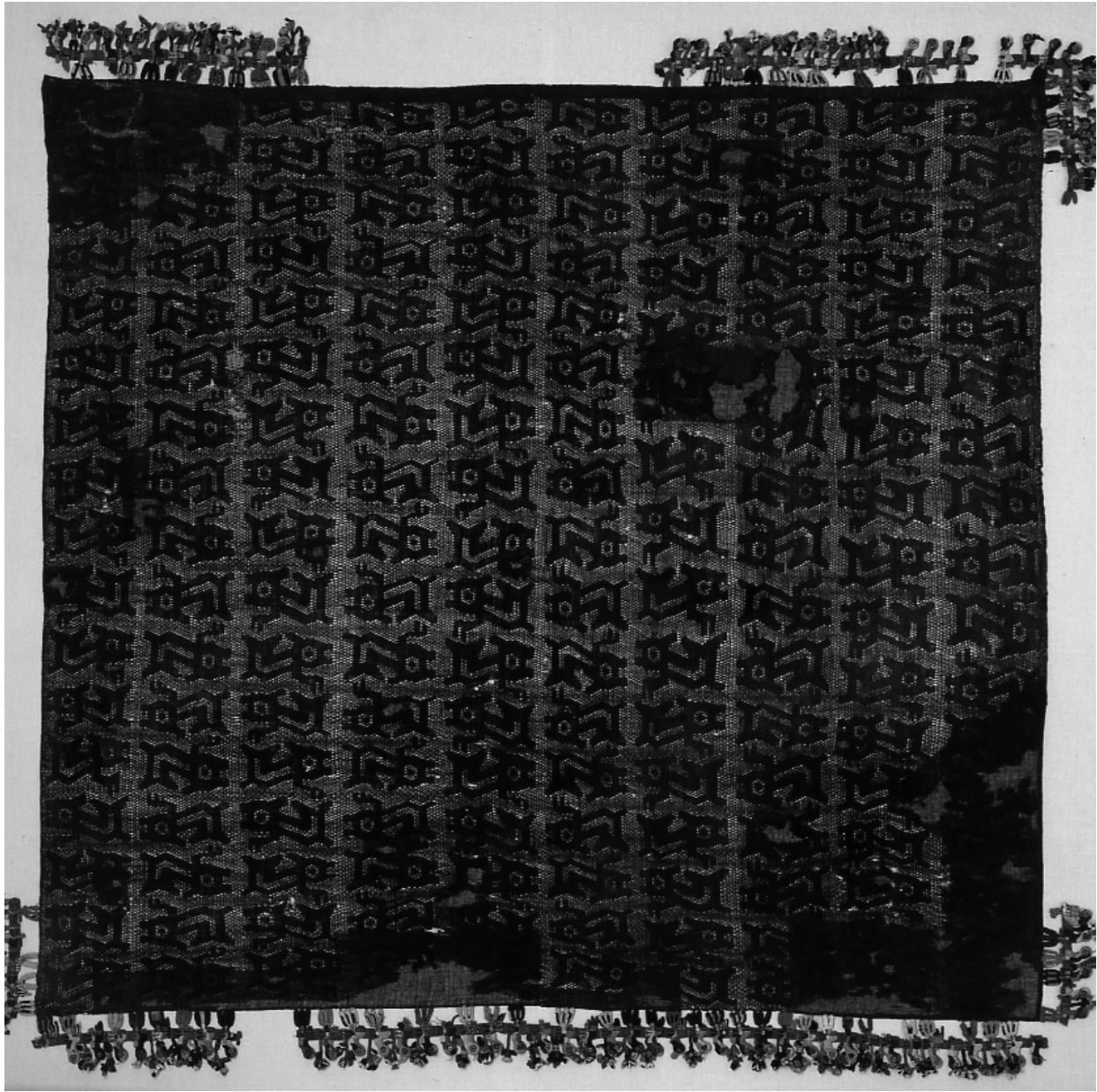


Figure 4a. Early Nasca shawl, Staatliches Museum für Völkerkunde, Munich D-1006. Cotton field, camelid fiber borders, 134.5 cm x 126 cm, EIP 3 (photograph courtesy of the Staatliches Museum für Völkerkunde, Munich).

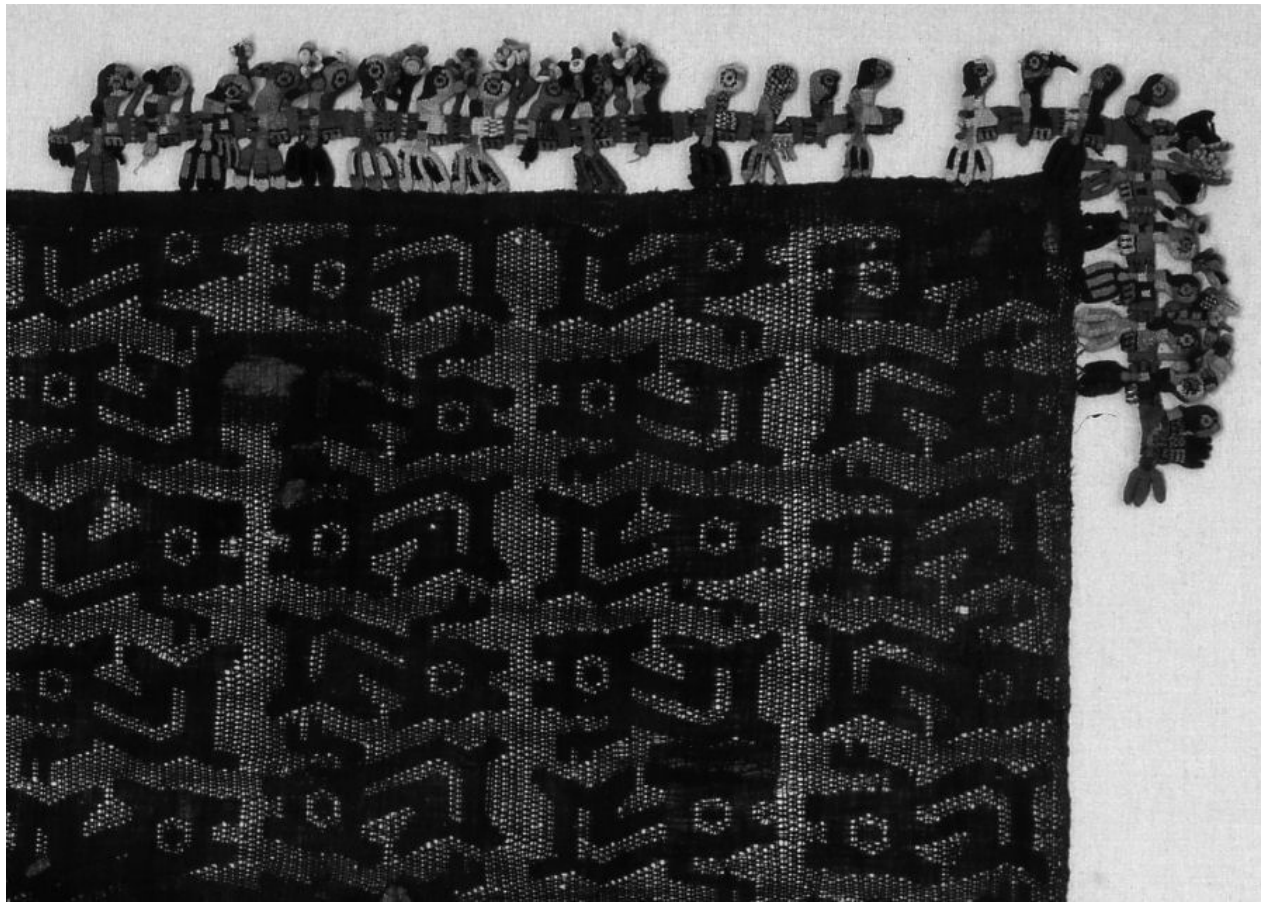


Figure 4b. Detail of the shawl in Figure 4a, showing camelid fiber border with birds and vegetation.

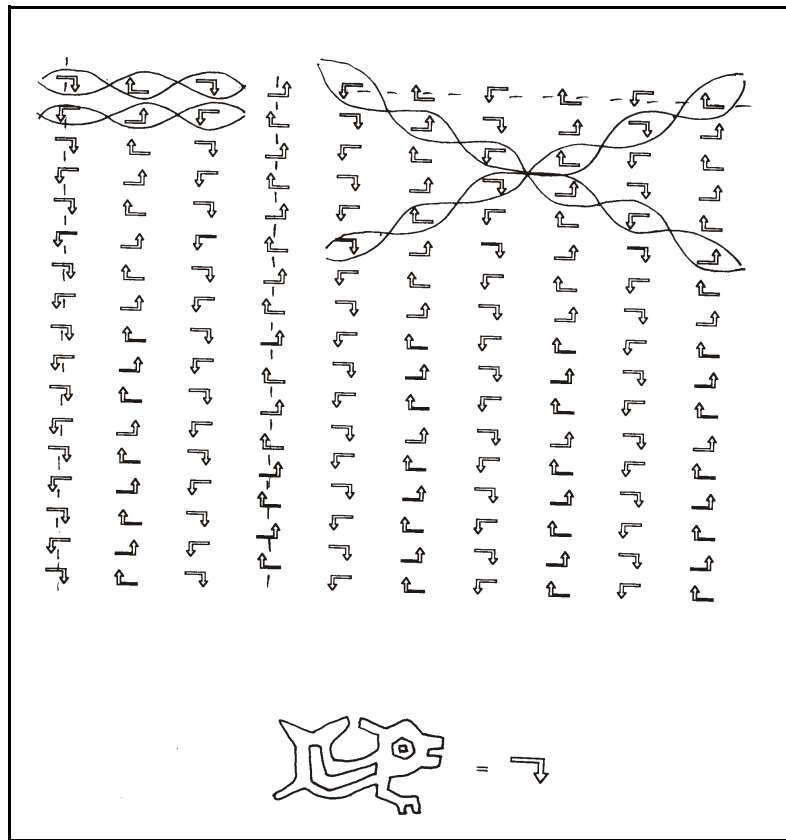


Figure 4c. Diagram of orientation pattern of fish in field of the shawl in Figure 4a. The six right-hand columns have one symmetry scheme (see text), the three left-hand columns have another, and the fourth column from the left is short one motif and hence does not align with the symmetry scheme on either side. The axes of glide reflection are indicated by dotted lines, while axes of bifold rotation are shown with two twisting lines.

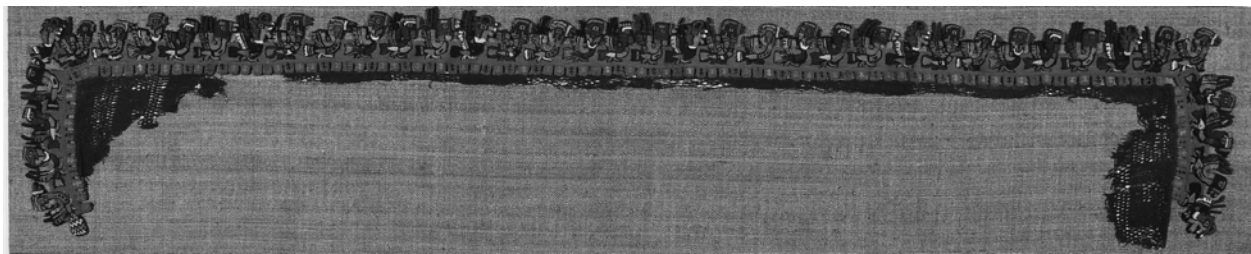


Figure 5a. Early Nasca fragment of shawl (?), Reiss-Engelhorn Museum, Mannheim, Germany AM4945. Cotton field and camelid fiber border, 90 cm x probably approximately 60 cm, EIP 3. A recent ^{14}C measurement of this textile (sample Ua-19541) produced the date 1645 ± 55 BP (2 sigma: Cal A.D. 250-A.D. 540; 1 sigma: A.D. 260-A.D. 530 OxCal 3.5). That is to say, when calibrated this date places manufacture of the shawl, with a probability level of 95.4%, between A.D. 250 and A.D. 540; with a probability level of 51.8%, the value of the dating would range between A.D. 330 and A.D. 440.

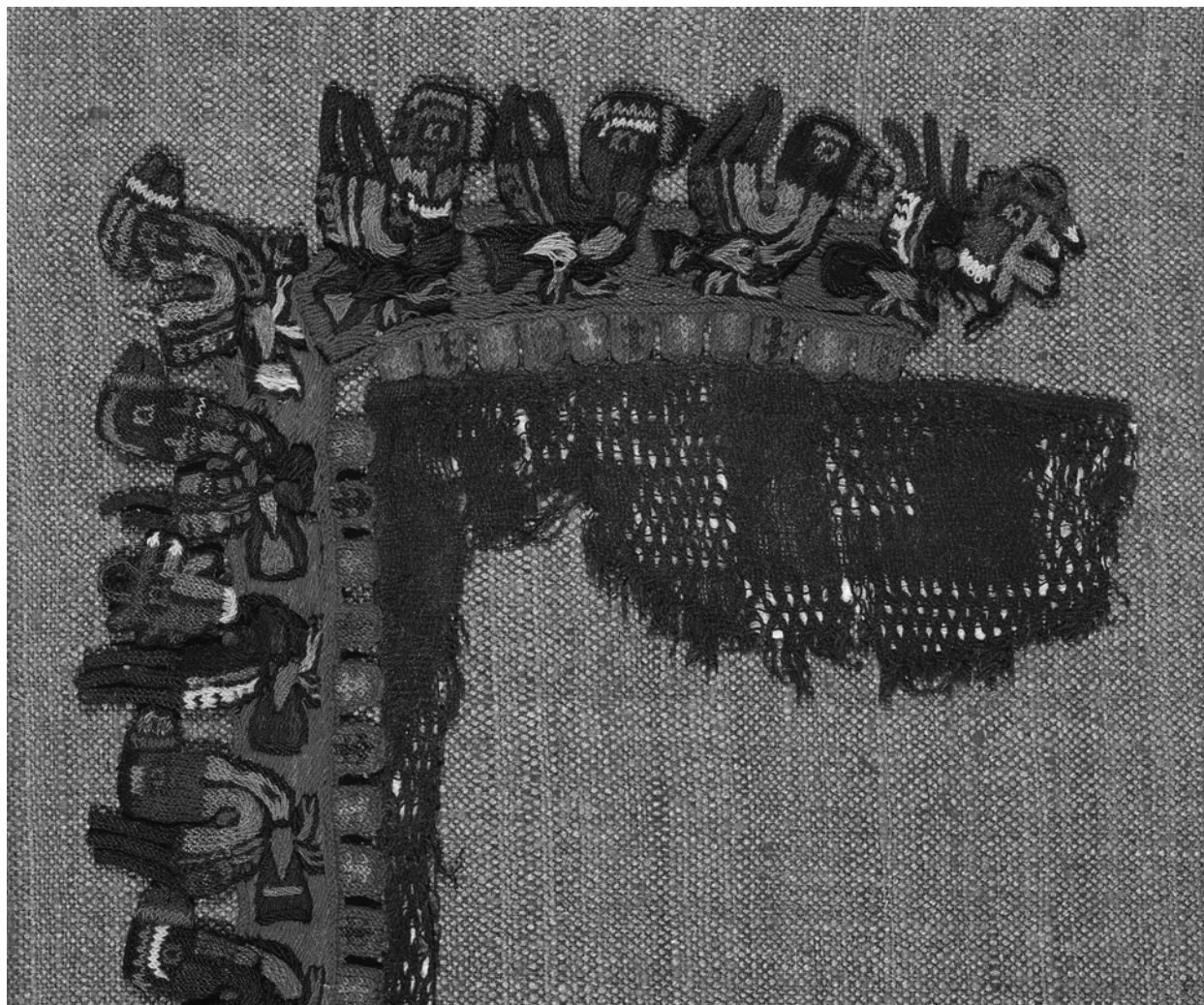


Figure 5b. Detail of the shawl fragment in the Reiss-Engelhorn Museum, Mannheim.

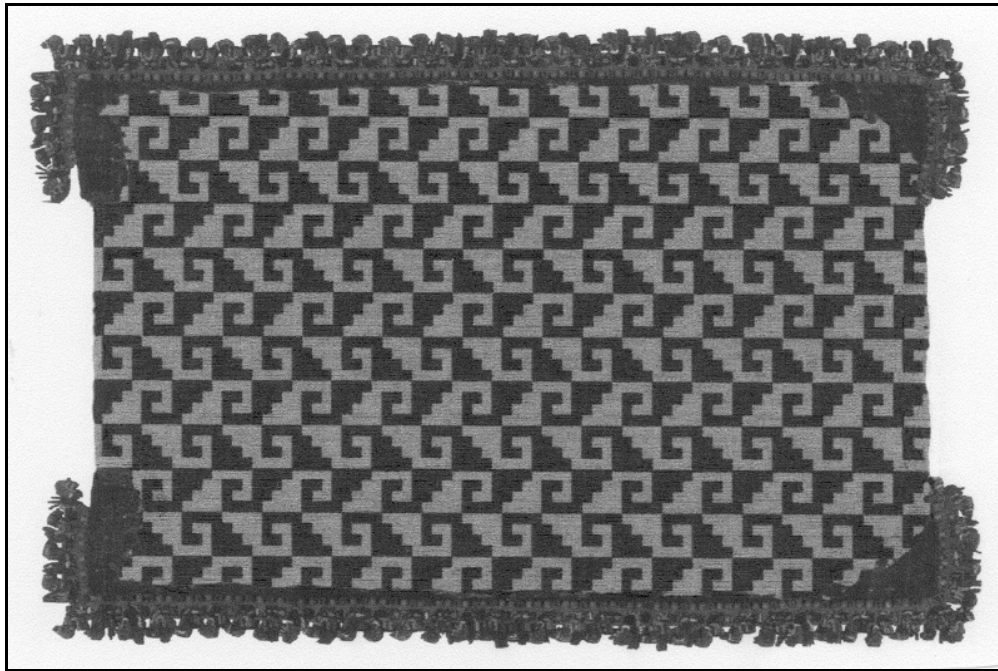


Figure 5c. Reconstruction photograph of the Reiss-Engelhorn Museum fragment, giving an idea of what garment field may have looked like in its original state.

The computer-generated reconstruction was done by Hans Peter Niers
(photograph courtesy of the Reiss- Engelhorn Museum).

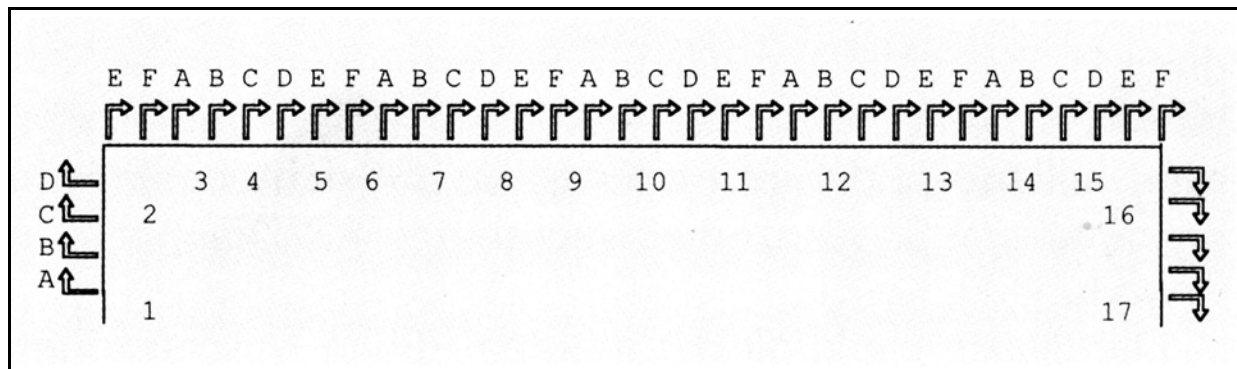


Figure 5d. Diagram of the Reiss-Engelhorn Museum shawl border, showing orientation of the three-dimensional birds and the number of repeating color sequences. Six different birds, each assigned a letter (A-F), repeat regularly in the border. There are six complete sequences plus five birds in a seventh sequence. The numbers on the inside of the sketch (1-17) refer to the color patterning of the looped tabs. Each number refers to a color sequence comprising seven colors of tabs (yellow, purple, light green, pink, green, gold, and blue) that alternate regularly in most of the border. There are anomalies in numbers 3 and 5 (which have five and eight colors, respectively), and number 1 has only the last two colors of the sequence.

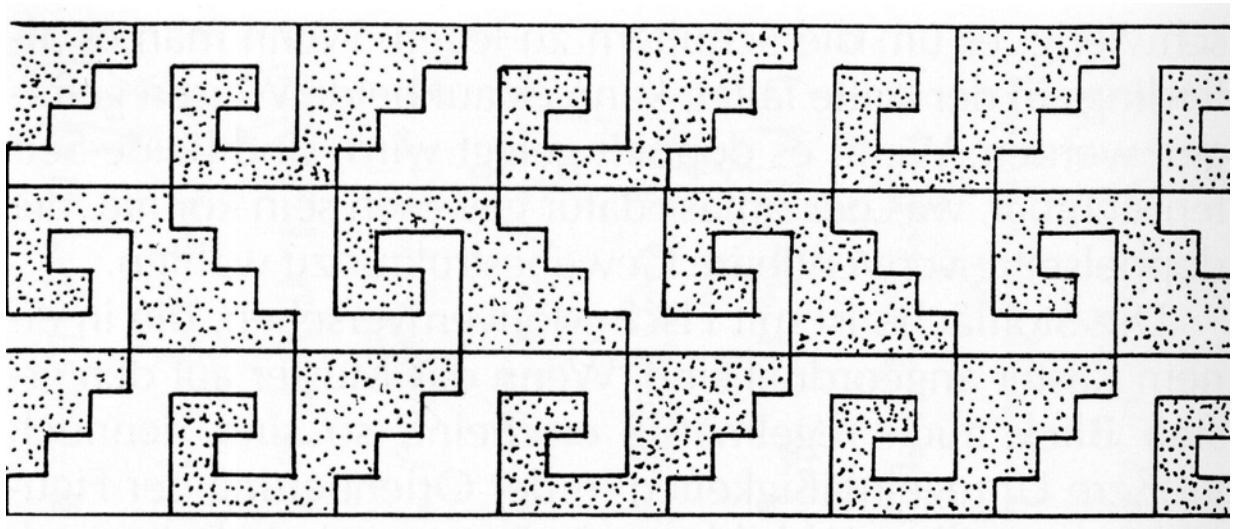


Figure 6. Drawing of plain weave and gauze weave design in the field of textile number 31 from EIP 2 Paracas Necrópolis bundle 319 (RT 2926), Museo Nacional de Arqueología, Antropología e Historia del Perú, Lima.

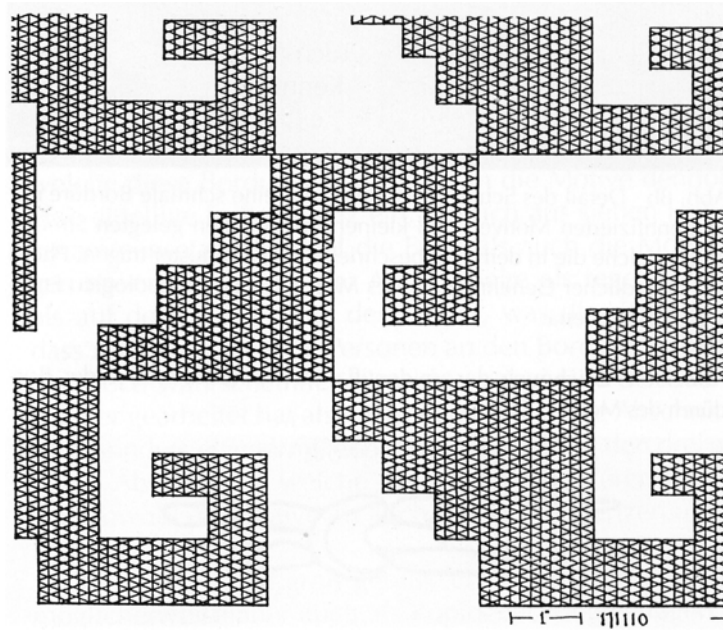


Figure 7. Drawing of the field design on EIP 3 Cahuachi textile number 171111, The Field Museum of Natural History, Chicago (after O'Neale and Kroeber 1930: plate 4a).

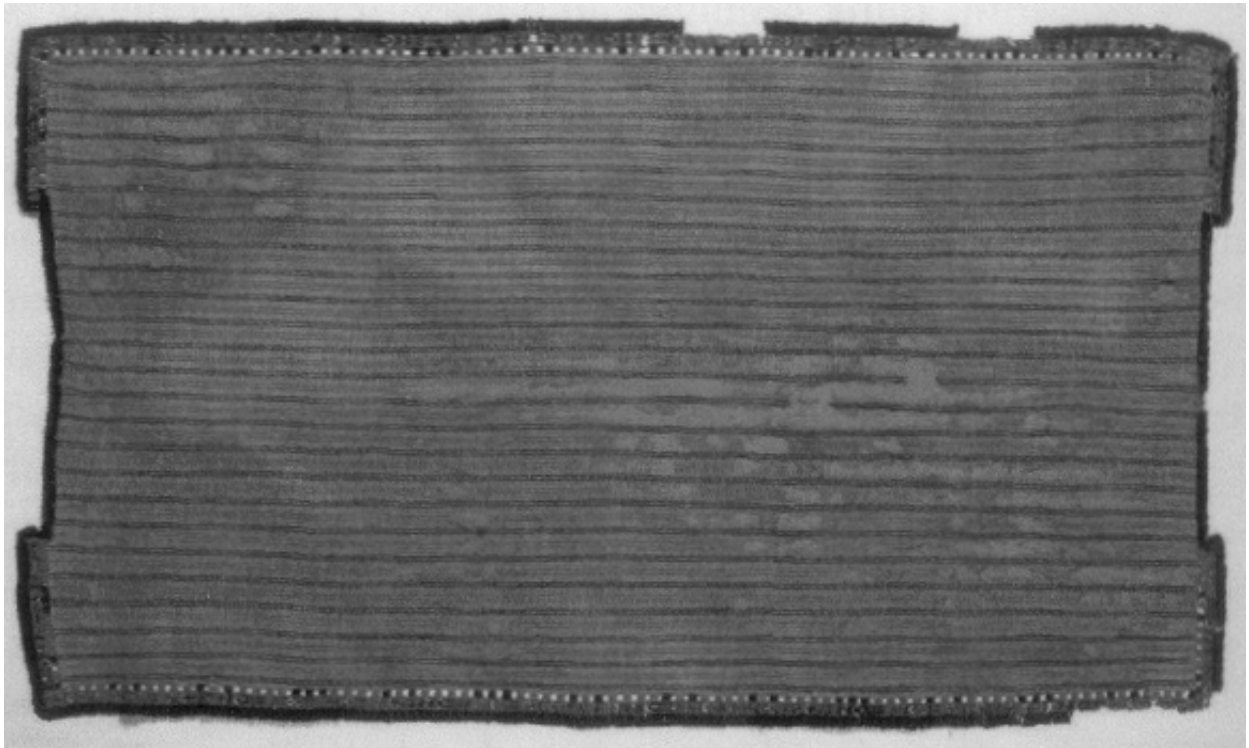


Figure 8a. Early Nasca shawl, Museo Civico Archeologico Etnologico di Modena F1. Camelid fiber, 96 cm x 53.4 cm, EIP 3 (photograph courtesy of Museo Civico Archeologico Etnologico di Modena).

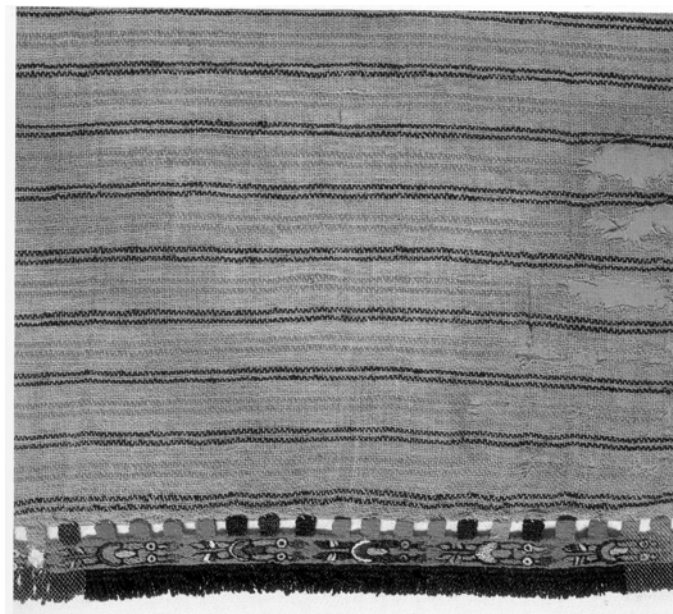


Figure 8b. Detail of the Modena shawl, showing narrow border with unidentified motifs and tiny looped tabs that carry the color pattern described in text (photograph courtesy of Museo Civico Archeologico Etnologico di Modena).

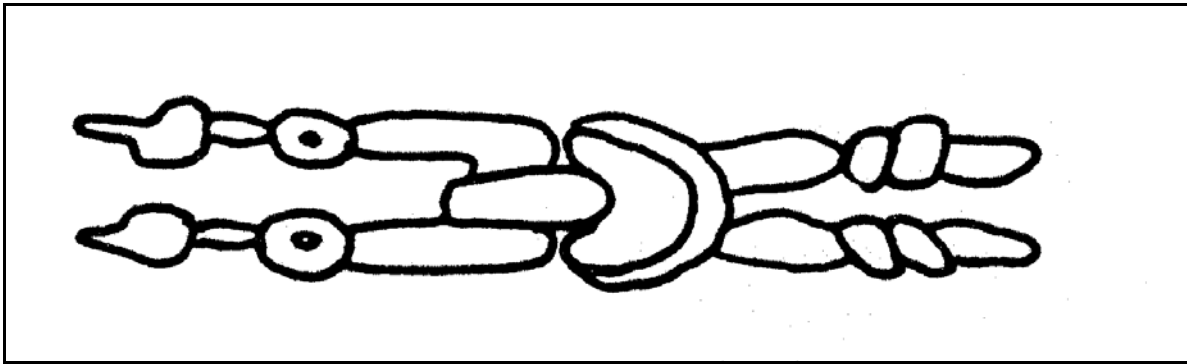


Figure 8c. Drawing of unidentified embroidered motif in borders of Modena shawl.

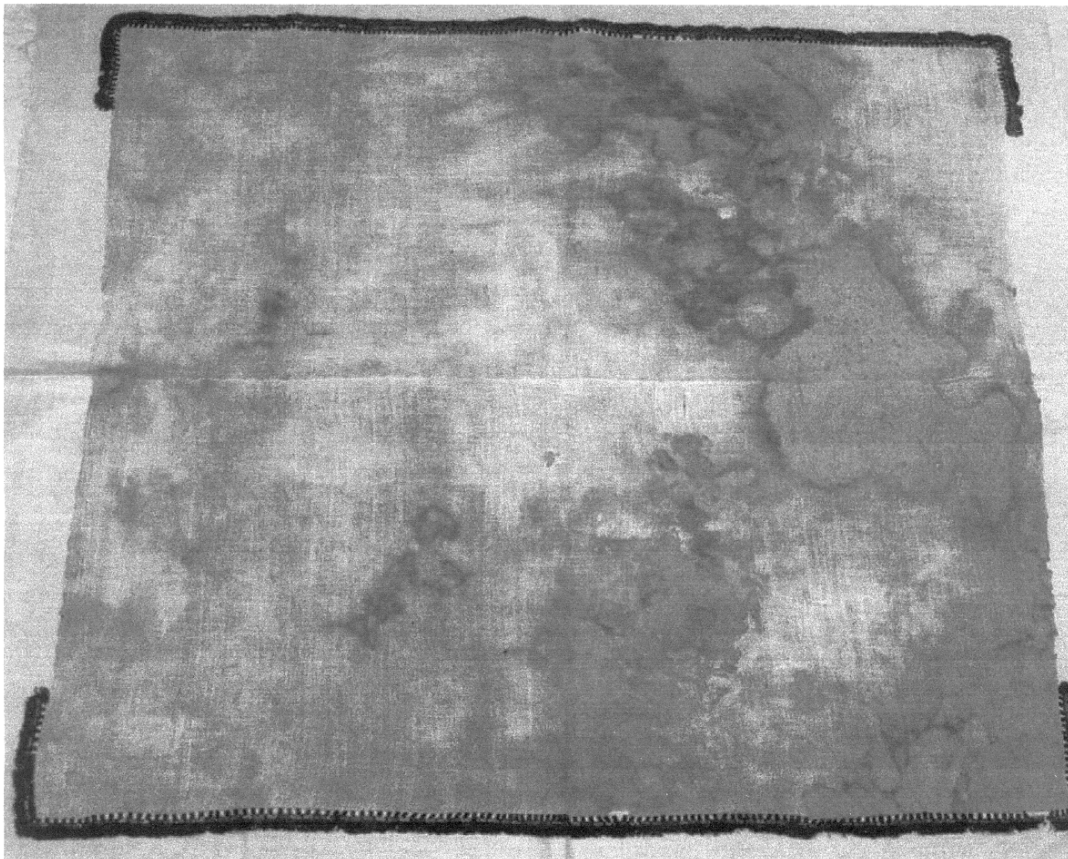


Figure 9a. Early Nasca shawl, Rautenstrauch-Joest-Museum, Cologne 49748. Camelid fiber borders, possibly camelid fiber field, 122 cm x 108.5 cm, EIP 3
(photograph courtesy of Rautenstrauch-Joest-Museum, Museum für Völkerkunde, Cologne).

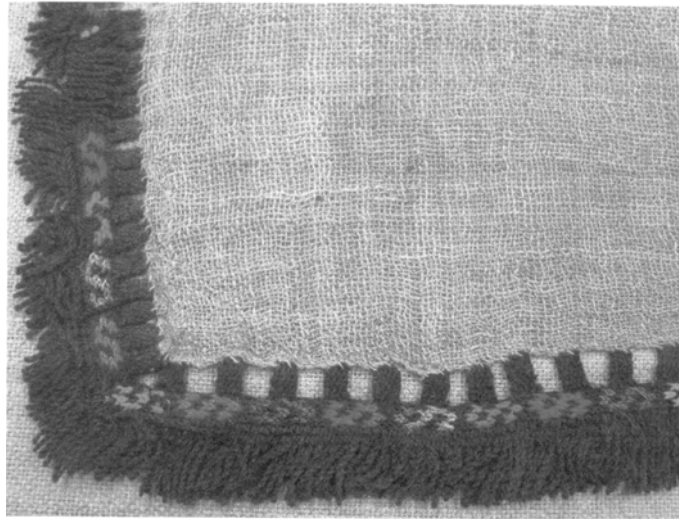


Figure 9b. Detail of Cologne shawl, showing cross-knit looped border with S motifs (photograph courtesy of Rautenstrauch-Joest-Museum, Museum für Völkerkunde, Cologne).

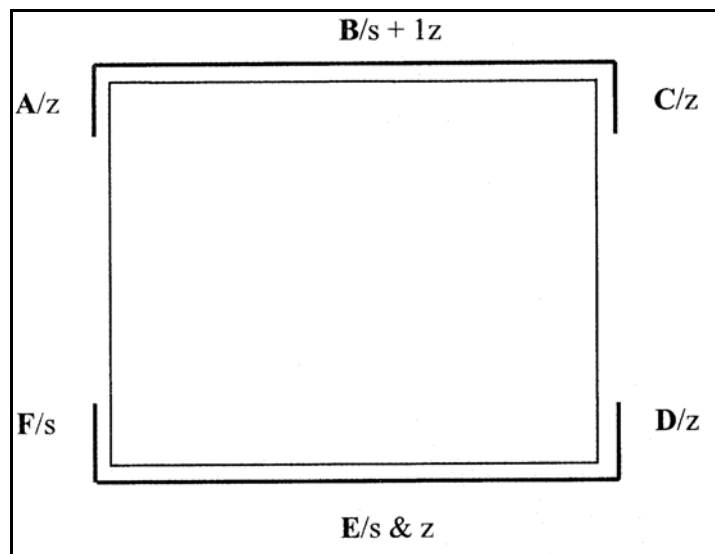


Figure 9c. Diagram of the Rautenstrauch-Joest-Museum shawl, showing the six sections of the borders (A-F) described in text.

“Z” and “S” refer to the motifs that appear in the different sections of the borders.

See text for a description of the color repeats.

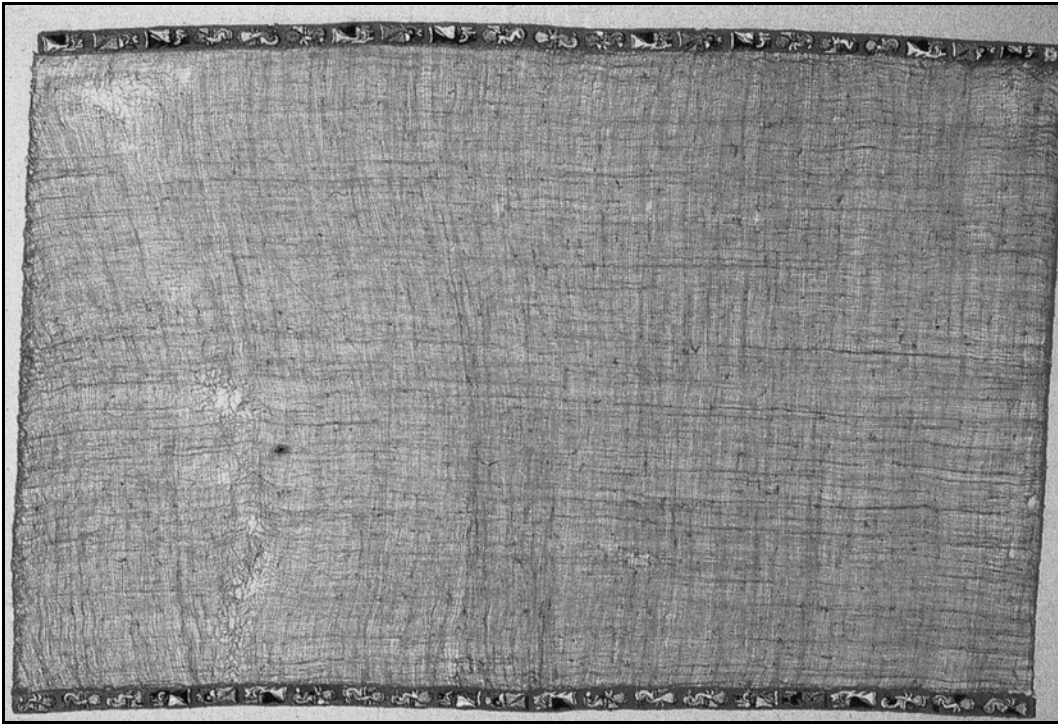
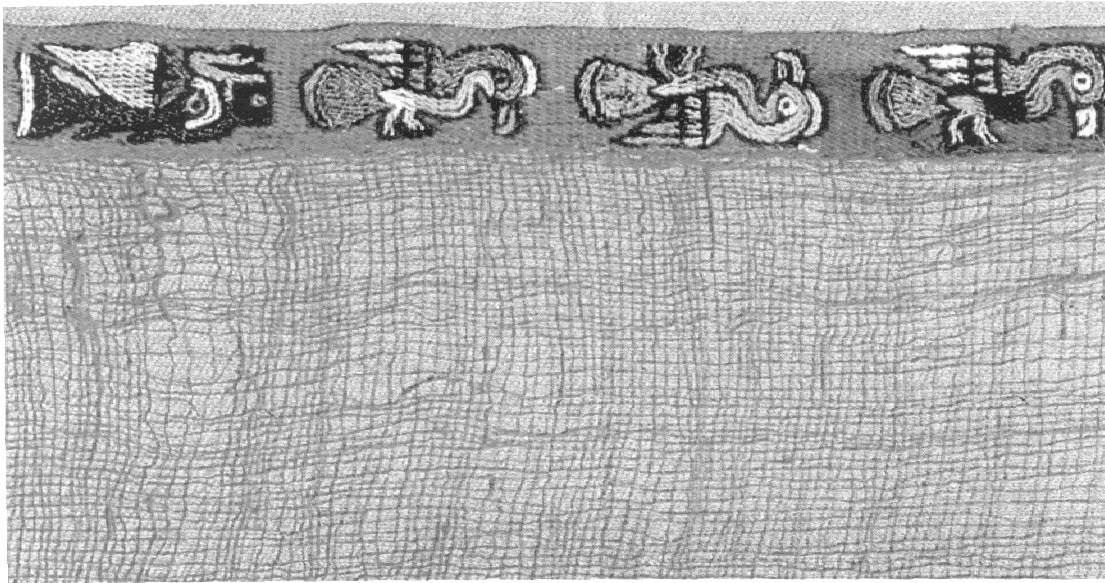


Figure 10a. Early Nasca shawl, Mint Museum of Art, Charlotte, North Carolina, USA. Museum Purchase: Charlotte Debutante Club Fund and Claudio and Betsy Phillips. 1996.16. Camelid fiber, 58.42 x 89.53 cm, EIP 3 (photograph courtesy of the Mint Museum of Art).



10b. Detail of shawl in Figure 10a, showing the two principal motifs embroidered in the borders. The Mint Museum, Charlotte, North Carolina. Museum Purchase: Charlotte Debutante Club Fund and Claudio and Betsy Phillips. 1996.16 (photograph courtesy of the Mint Museum of Art).

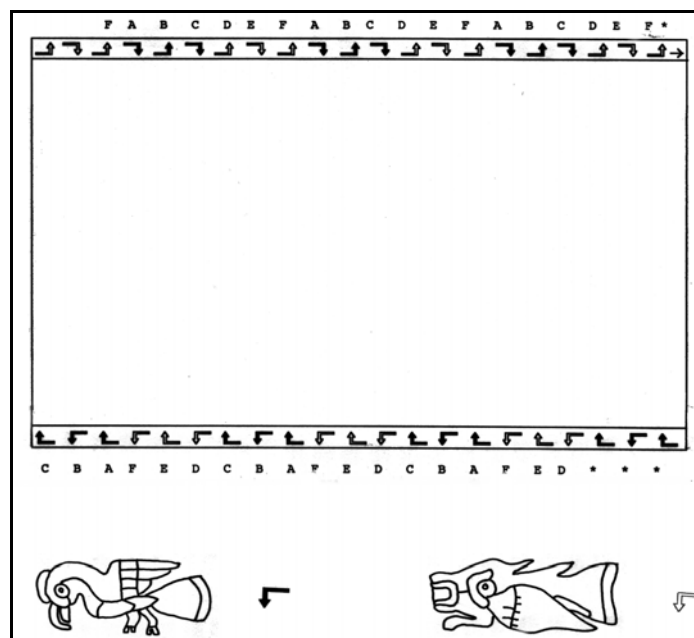


Figure 10c. Diagram of the Mint Museum shawl showing orientation and color patterns in the borders. The black arrows represent the birds and the white arrows represent the fish. The bird on the right-hand side of the bottom border is not the same as the others, and the color blocks of the first three images in this section of the border (marked here with asterisks) are not the same as the color blocks of the other bird motifs. Two color blocks of the fish motifs are underlined to indicate that the color of one component part is different from that used in other F color blocks. The straight arrow and the asterisk in the upper right-hand corner stand for the small image of a spider.