

BROCADES* OR EMBROIDERIES?
SEVENTEEN TEXTILES FROM PACHACAMAC, PERU

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OVER the sixty-odd years during which archaeological textiles from Peru have been studied, there has been considerable controversy among experts concerning the accuracy of distinctions between brocades and embroideries. It is generally agreed that both brocade and embroidery are forms of textile patterning in which supplementary yarns are used for producing ornamental designs. In both, the ornamentation can be removed without destroying the ground fabric. The method of construction is the basis for the differentiation. Brocade patterning is *woven*, the pattern being produced by means of supplementary warps or wefts, or both, as the cloth is made. Embroidery is *sewed*, a type of decoration added after the cloth has been constructed. *Weaving* generally implies the use of a bobbin or shuttle to carry any decorative weft yarns and, as a corollary, the use of long lengths of yarn, which are wound onto the bobbin. Or, if the pattern yarns are warpwise, the warping and drawing-in of these is a part of the basic threading of the loom. *Embroidery* is needlework. The term indicates the use of an eyed needle and the necessity for working with short lengths of thread, regardless of the direction the thread is carried. While a few exceptions of a specialized nature, such as the use of reeds in weaving and quills in embroidery, can be cited, the fundamental distinction between brocade and embroidery, as we see it today, is clearly the difference between weaving and sewing.

This division seems quite simple and logical, until we begin looking closely at certain pre-Columbian fabrics. Some of these fit neatly into the familiar categories. Others having the same general characteristics cannot be classified, with assurance, as either brocades or embroideries (O'Neale, 1937: 167-8, 215). Attempts to differentiate between the two techniques hinge on such details as the directions in which the pattern yarns travel, the manner in which the ends of these have been finished or secured, the presence of overlapping yarns, and of yarns pierced by a thread-carrying needle (O'Neale and Kroeber, 1930:30, f.n.16). Important, also, is the degree of accommodation of the decorative yarns within the plane of the ground fabric, and the correspondence between the undulations of the ground and pattern yarns.

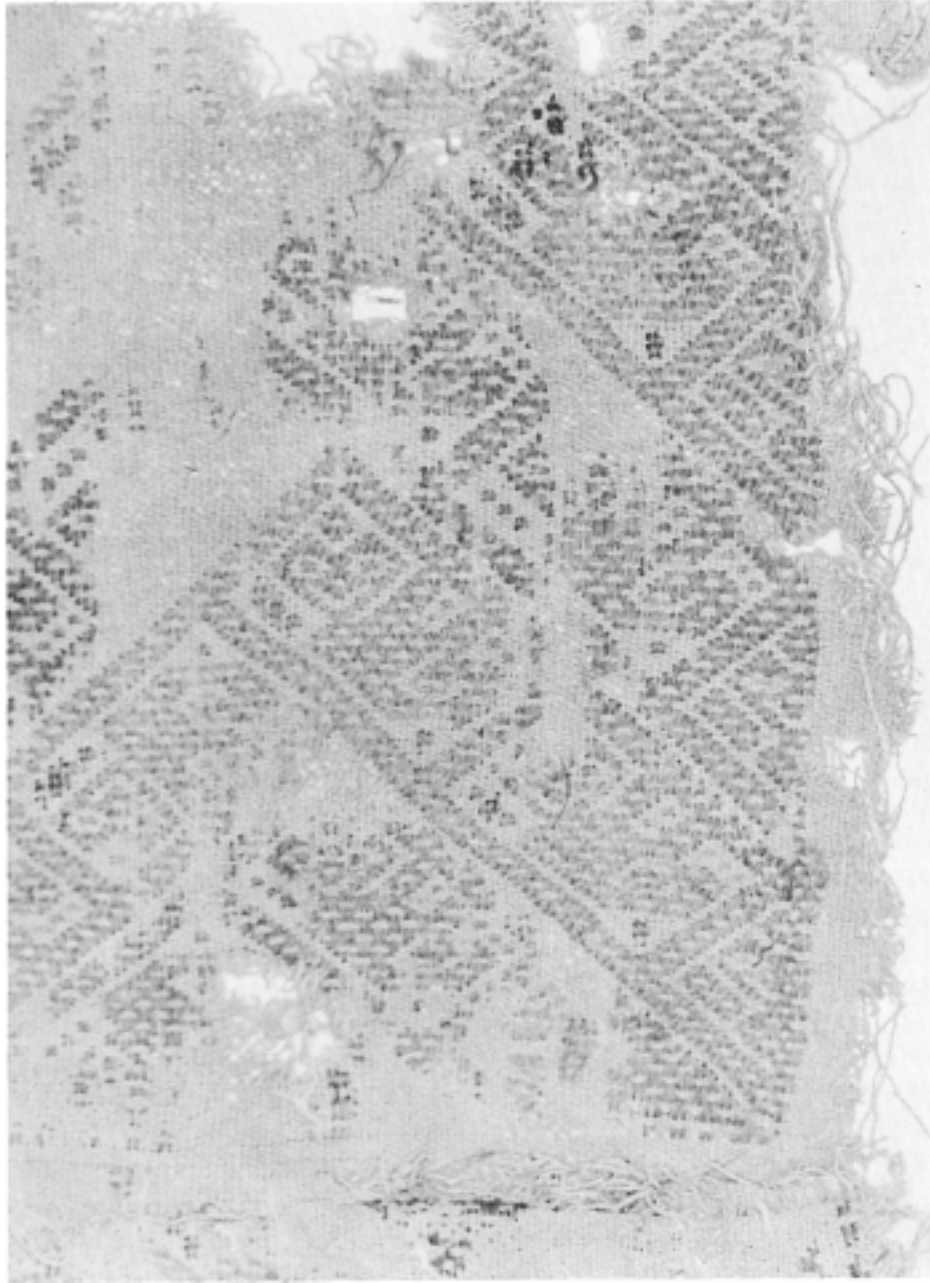
*Brocade—A weave with a pattern produced by supplementary yarns which can be removed without destroying the cloth.—*Author's definition.*



2. An enlarged section of the specimen shown in figure 1, showing the construction detail.

A study of one group of seventeen cloths from beneath the temple of Pachacamac, collected by the late Dr. Max Uhle and now in the University Museum, University of Pennsylvania, reveals some of the problems involved in using this dichotomous classification. The examples of this group are homogeneous in some respects, making their comparison relatively simple. All have patterns produced by wool yarns of various colors against monochrome cotton grounds. All of the ground areas are in one-over-one plain weave and, with one exception, are of natural color cottons, ranging from cream-white to brown. The one odd piece appears to have been piece-dyed to a light orange color. Where the directions of the warp and weft can be determined, the pattern yarns are parallel to the wefts on the face of each of the fabrics. Of the seventeen pieces, fifteen are identified in Uhle's *Field Catalogue* (1896-7) as "embroidered"; the other two (listed as a single specimen, 29760a,b [3258b]), are described as "decorated stuffs". Close examination shows two of the seventeen examples to be brocades, while only three are clearly embroideries. None of the others can be classed, unreservedly, as either embroidery or brocade. General features of both techniques are present. Several cloths have small pattern details in which there is no doubt that embroidery has been used, or one color may appear as brocade, another as embroidery.

One of the two pieces that are unquestionably brocades has a familiar Peruvian design of interlocked birds' heads arranged in reversing diagonal bands, now alternately dark and light (specimen 30174 [1090s]). The patterning is of an allover type (fig. 1). A section about 9 inches deep, edged top and bottom with a $\frac{1}{4}$ -inch strip of contrasting pattern, forms a band across the end of a plain cotton cloth. The specimen, now a fragment 16 by 20 $\frac{1}{2}$ inches, consists of parts of two webs seamed together along their warpwise selvages. One web is 10 inches wide, one 10 $\frac{1}{2}$. The patterning begins two inches above the one remaining bit of end selvage and extends to the side selvages. Some attempt was made to match the pattern at the seamline, but the result was not very successful. At the two outer side selvages, needle-knitted "bindings" finish the pattern edges. Originally, each of the wool pattern yarns alternated with one of the cotton wefts of the ground fabric and travelled over and under the warps according to the requirements of the design, with each pattern yarn turning back at the edge of its respective color unit, instead of continuing across the width of the web. Some of the wool yarns now have disintegrated, exposing the ground fabric

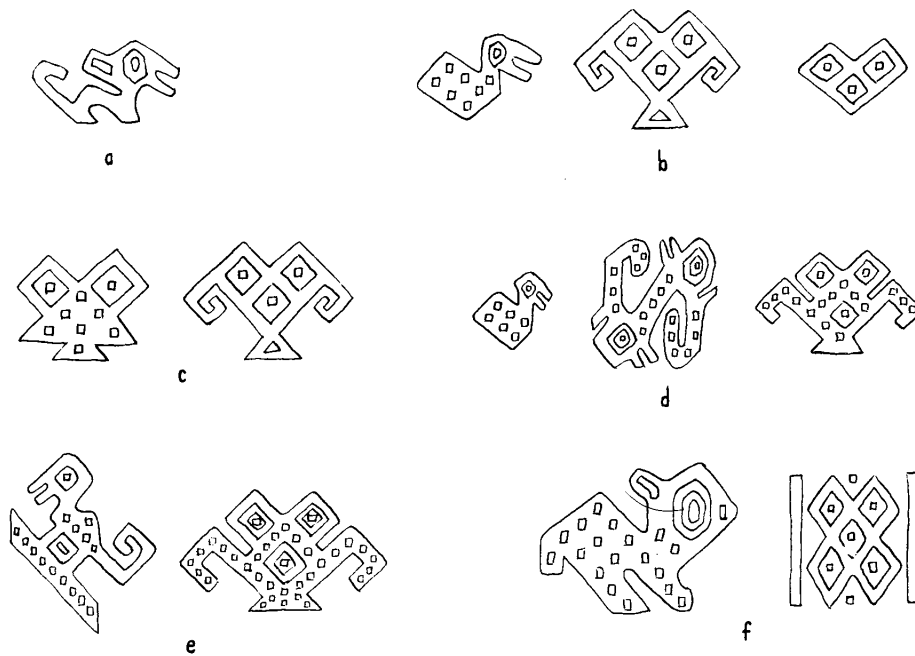


3. A second reversed diagonal pattern. A section of a brocade, differing in detail from the first. (specimen 30176 [3793]).

and showing the details of the construction (fig. 2). The pattern colors, apparently only two, are badly deteriorated, and patches of fading reveal the way in which the cloth was folded. The colors appear, at present, as two shades of brown, but there are indications that the lighter was rose-color or red at the time of weaving. Presumably each of the diagonal bands was in one of the two colors, with these arranged alternately.

The second example of brocade (specimen 30176 [3793]) is similar to the first in appearance. It has the same type of reversed diagonal design arrangement (fig. 3), with the alternate diagonal bands in contrasting colors. The basic method of construction is the same, but the details differ. The pattern delineations are lattice-like, in contrast to the simple outlines of the preceding, and the edges of the diagonal bands are smooth, instead of crenelated. The design motive consists of a cat figure within a rectangular block, while the bird motive of the other brocade is interlocking and continuous. The major colors are red and brown. Accents of red have been used in the brown bands, and vice versa. Bits of blue-green have been added in the red bands. A second accent color may have been present in the brown bands, also, but if so, this has disappeared. The cloth is finer and more closely woven than the first example, but is less well preserved. Only one length, one inch long, of what appears to be a side selvage remains, and this has been turned under and sewed down with buttonhole stitches. The specimen consists of two sections, each about 8 by 12 inches. These have been overlapped and sewed together with coarse stitches. The patterning covers almost all of the two fragments, but the nature of the design changes close to the upper and lower edges of both pieces, suggesting that the plain cloth was cut away and the major pattern sections saved for some secondary usage. An additional small scrap of plain fabric, which may or may not have been part of one of the original webs, has been rolled up and sewed to one edge of the cloth with coarse whipping stitches.

Identifying the embroideries is more difficult. Each of the three examples believed to be embroideries differs quite markedly from the others. One specimen (29664 [3222a]), a badly charred and brittle fragment about 16 by 11 inches with no selvage, has an animal motive $\frac{1}{2}$ inch high (fig. 4a) repeated in a diapered arrangement over most of the remaining cloth. Each motive, embroidered on a brown ground, is in one of three colors, arranged in sequence to produce diagonal lines.



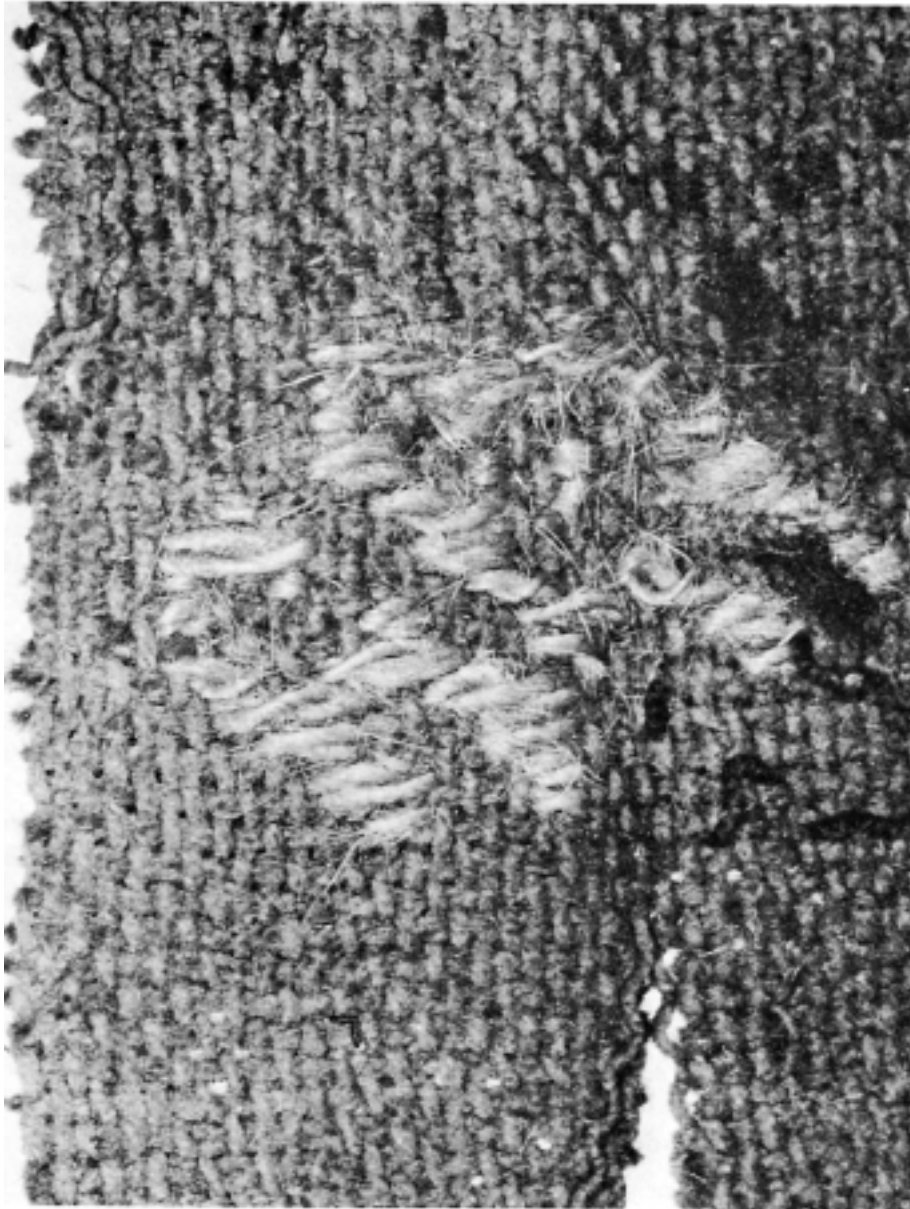
4. The small motives used in the repeat patterns. All are drawn to the same scale.
 - a. A diapered repeat in embroidery (speciment 29664 [3222a]).
 - b. Three embroidered motives, arranged in a simple repeat 29760a,b [3258b]).
 - c. The two motives from the larger piece having the same number as b; chiefly brocade, details in embroidery.
 - d. The motives from specimen 30153 [1090v], combined brocade and embroidery.
 - e. Motives, specimen 29757 [1182e]). Technically like the preceding, the appearance is different, due largely to brighter colors.
 - f. The two chief motives from specimen 29756 [3193b]).

The colors now are light green, light russet and brown, with the brown showing considerable evidence of deterioration. The type of stitchery used for the figures is shown in the enlarged photograph (fig. 5).

The second embroidery is an unattached fragment of cloth about 13 inches square. It is listed as part of another specimen (29760ab [3258b]), which it resembles but does not match. The design consists of three small motives (fig. 4b) used in a simple repeat. Each motive forms a horizontal row, the figures of succeeding rows being placed directly above the figures of the preceding row. The embroidery stitches are similar to those of the first example (fig. 5), but the finished effect differs, since the figures are filled-in, rather than outlined (fig. 6). Each figure has been worked in rose-color and brown, with one of the colors predominating. The dominant colors have been arranged alternately, both vertically and horizontally. The patterning covers most of the cloth fragment. A section of one side selvage remains, but no end selvage. One end of the fabric has been rolled under and sewed tightly with whipping stitches.

The third embroidery (specimen 29759 [1182f]) differs from the others in both appearance and technique. The cloth fragment which is 16 by $7\frac{1}{2}$ inches, shows only two repeats of a small rectangular motive (fig. 7). Each of these has been worked to look alike on both the obverse and reverse faces of the fabric, and each motive, measuring 1 by $1\frac{3}{4}$ inches, has seven or eight colors. These include rose-reds and brown, gold-color, yellow, buff, beige and white and, less usual, bright blue and olive green. The coloring of the two units differs, but some of the hues have been repeated. The pattern yarns cover the ground fabric within the rectangle almost completely. The general effect is tapestry-like, a result of inserting two matching yarns in alternate positions, between two adjacent cotton wefts. Both of the motives have been placed $\frac{1}{2}$ inch from the end selvage; one is $1\frac{1}{2}$ inches from the remaining side selvage, the other is 1 inch from the first. There is no space, within the fragment, for additional motives in corresponding positions.

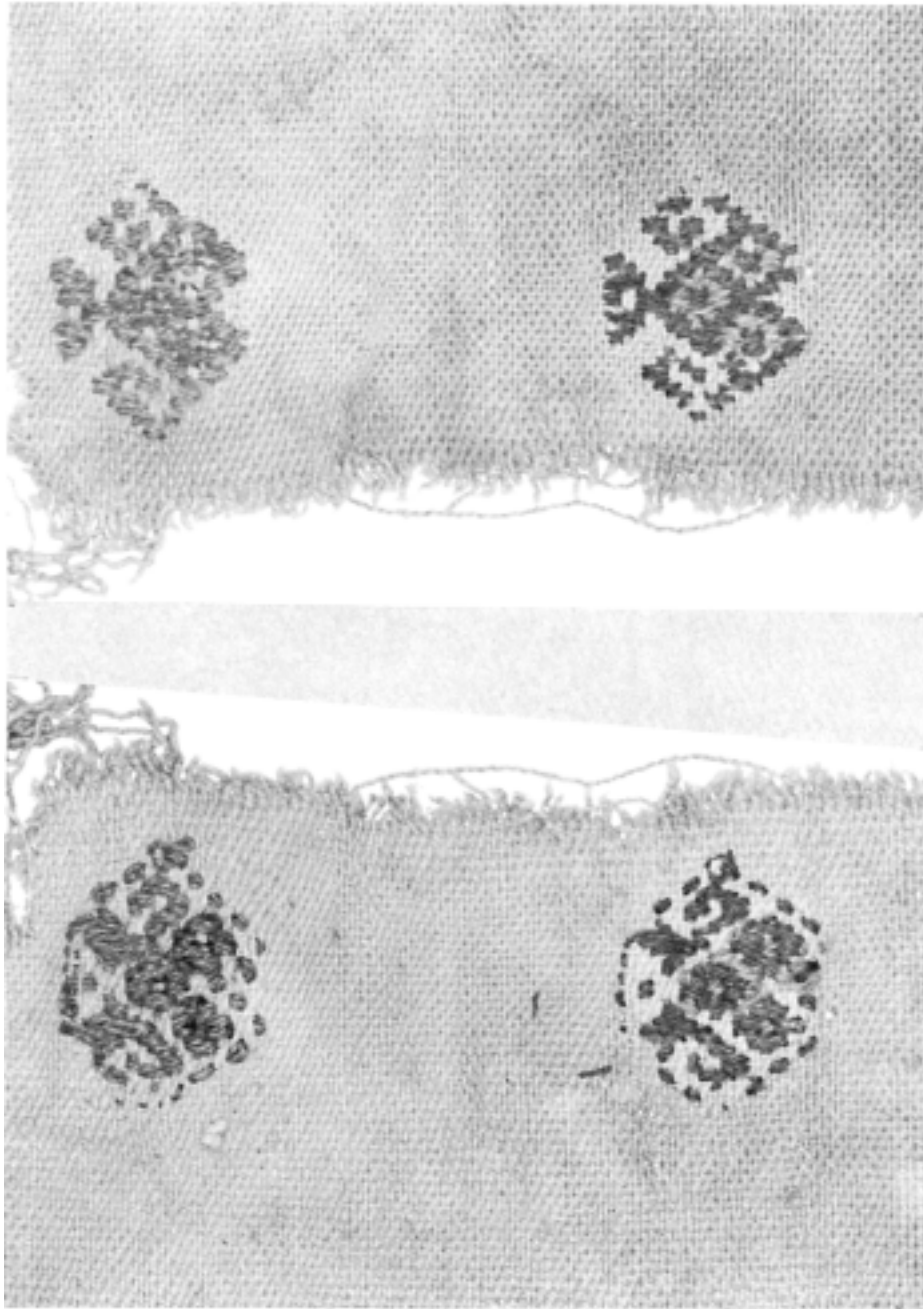
No other of the seventeen specimens is similar to the brocades in style or layout and none is like the first of the embroideries. Three resemble the second of the embroideries closely, another is similar in several respects. One of the three, the larger piece carrying the same specimen number as the embroidery (29760a,b [3258b]), has two closely related motives (fig. 4c) arranged in the same manner as those of the embroidery, but set more compactly. The colors are also rose-



5. A detail of the single motive of the embroidery with a diapered repeat, showing the type of stitches. (specimen 29664 [3222a]).

color and brown, arranged as in the embroidery. The pattern area forms a rectangle, 8 by $11\frac{1}{2}$ inches, adjacent to one side selvage and about 7 inches from one end selvage. Parts of the design appear to have been woven, while other parts, especially the tiny details, appear to have been added as embroidery after the major sections of each motive were complete. The specimen consists of parts of two webs which have been sewed together along the side selvages, with all of the remaining patterning near the outer edge of one web. The present length of this web is 30 inches; its woven width, 17 inches. The attached fragment is 24 by $4\frac{1}{2}$ inches.

Two other specimens fit into this category. Like the preceding, they have small repeated figures, $\frac{1}{2}$ to 1 inch in height, produced by means of combination of weaving and embroidery. One specimen (30153 [1090v]) has two motives (fig. 4 d, *right* and *left*) repeated in rows, but the sequence has been maintained indifferently. One additional odd motive (fig. 4 d, *center*) appears twice. The motives are either red or brown, except in the odd figures, where the major part is red or brown and the second color has been used for small details. These details appear to be the only embroidered parts and there is a strong possibility that some of these may have been woven (fig. 8). The patterning is adjacent to a side selvage and $5\frac{1}{2}$ inches from an end selvage. The cloth fragment is $19\frac{1}{2}$ by $15\frac{1}{2}$ inches. The present pattern area, which probably is incomplete, is 14 inches both warpwise and weftwise. The other specimen (29757 [1182e]) has somewhat bolder patterning. This may be attributed, in part, to better color preservation. The colors are brighter, the figures slightly larger (fig. 4 e) and closer together, and the style of the representation differs. Most of the outlines consist of double lines connected with narrow crosswise bars, producing a lattice-like effect. While some of the lattice-work is present in the preceding specimen, the handling differs slightly. In other respects the ornamentation follows the same plan. There are two motives arranged in rows, two colors, red and brown, one dominant in each figure, with the dominating colors alternating. A few of the color accents show the characteristics of embroidery. The patterned area, 9 by $14\frac{1}{2}$ inches, has been located adjacent to one side selvage and $6\frac{1}{2}$ inches from an end selvage. The woven width of the web is $18\frac{1}{2}$ inches; the remaining length, 18 inches. A fragment of a second web, with a section of patterning which appears to have been like the other, is sewed to the first along the side selvage. The patterning differs only in the inverted positions of the



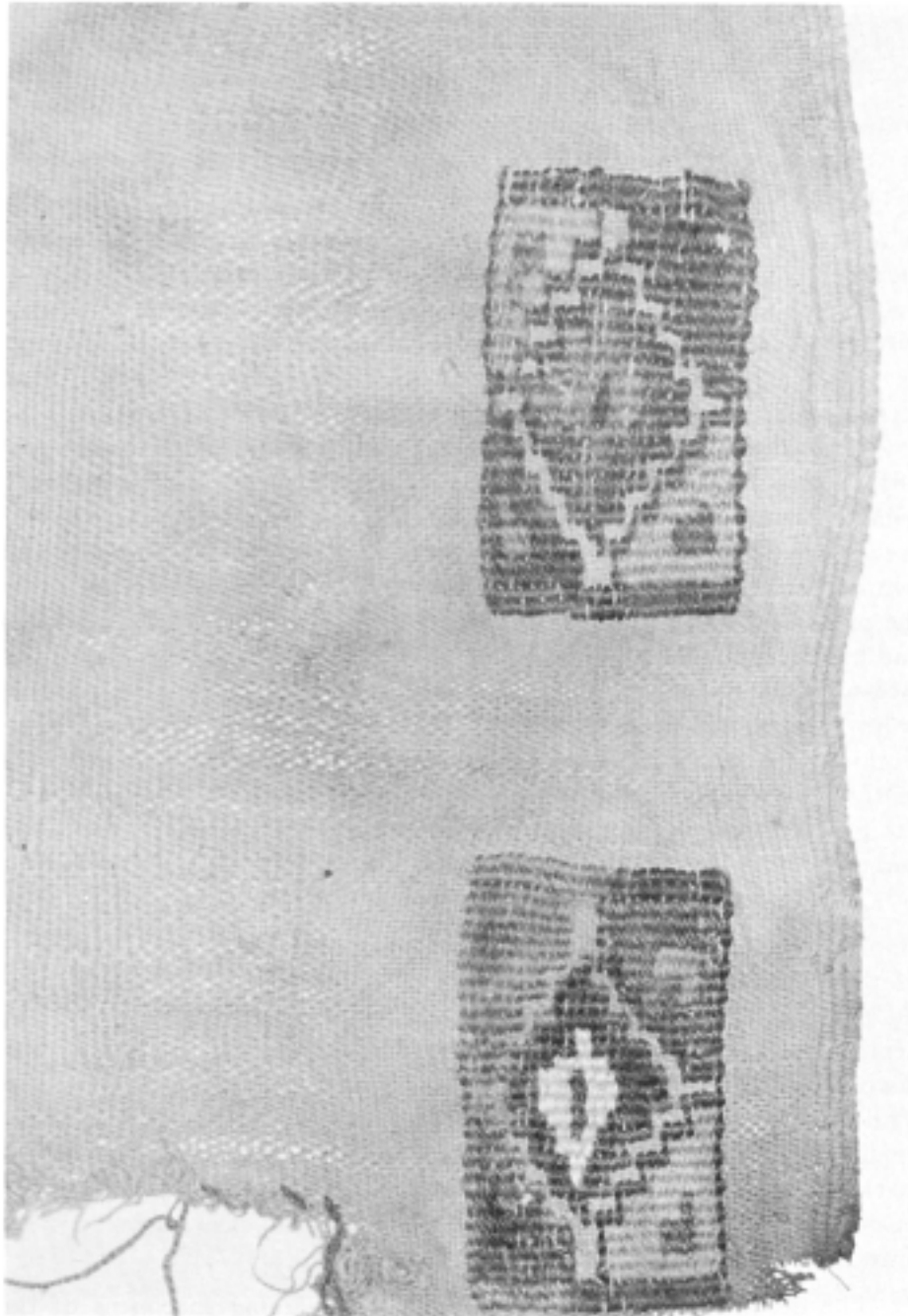
6. The obverse (a) and the reverse (b) of two motives from an embroidered simple repeat pattern (specimen 29760ab [3258b]), showing the stitches.

motives and the addition of yellow in a few of the details. As with the other web, the design block is close to the outer edge.

Design motives, similar in respect to weave or stitches, are present in one other example (specimen 29756 [3193b]). In this the design blocks are near the two outer corners of one end of a large, well preserved two-web cloth which has a central lengthwise seam. The patterns are completely intact in this specimen. Although they are basically alike on the two webs, they show differences which suggest that the two sections represent the work of different people. Each section consists of four pattern rows, two each of a geometric motive and an animal figure (fig. 9 a, b). Again, there are two colors, light red and brown, distributed as in the preceding examples. On one web the animal figures are inverted, the spacing of the motives has been handled poorly and two odd motives have been added, presumably as space fillers. Each of the pattern areas is $5\frac{1}{2}$ by $9\frac{1}{2}$ inches and is adjacent to a side selvage and $6\frac{1}{2}$ inches from an end selvage. Although each web is complete and measures about 45 by $18\frac{1}{2}$ inches and is in excellent condition, there is no evidence of other areas of patterning. While in most of these cloths there are five or more rows of motives and the rows of different motives have been used alternately, in this there are only four rows and the two central rows are alike, the second motive appearing in the top and bottom rows.

A classification as brocade may seem logical for these mixed examples, since only small details are clearly embroidery. The presence of these bits of embroidery is sufficient to confuse any analyst, since the embroidery usually has been added last and, being worked over the brocaded areas, its earmarks are the more obvious. In some cases the distinctions cannot be judged solely on the basis of the usual criteria. The correspondence in the tensions of the ground and pattern yarns, the degree of accuracy of the weftwise lines within the individual motives, in the alignment of the design units, and the tendency of the pattern lines or fabric to bulge, due to the excess of yarns in the patterned areas, must be considered also.

The decorative stitch or weave of the remaining specimens of the group resembles that of the third of the embroideries (figs. 7, 10 b). One specimen (29661a,b [1084]) is also similar in having a small motive confined within a simple rectangular frame (fig. 10 a). All of the other motives of this group, which are intact, are also basically rectangular in shape, although some have elaborate frames, and two are un-



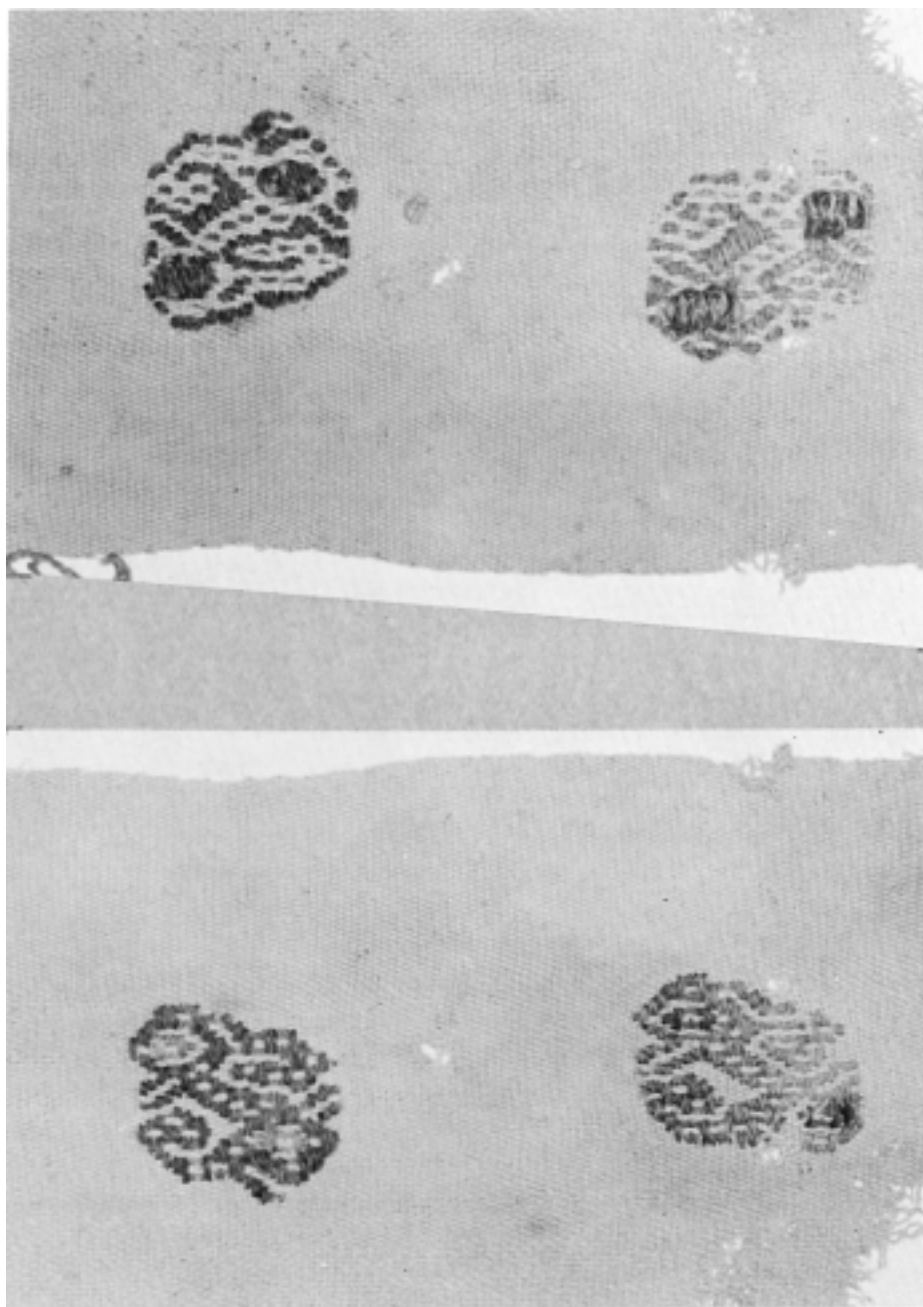
7. A small rectangular motive in reversible embroidery; polychrome, (specimen 29759 [1182f]).

framed (fig. 10 c-h). As in the embroidery, pairs of pattern yarns have been used in reciprocal positions to produce matching designs on both faces of the fabric.

In the example with the figure in a simple rectangular frame (specimen 29661a, b [1084]), a single motive, which is nearly square, has been repeated twenty-one times in a checkerboard arrangement. Four colors have been used. Two of these, red and brown, are alternately dominant; the others, yellow and blue-green, provide the accents. The color sequence changes the simple checkerboard into an arrow-like reversed diagonal which is emphasized by the squares being placed to form a point, instead of the usual unbroken straight line, at one end of the pattern block. As with several of the other examples, the ornamentation is adjacent to a side selvage. The one remaining bit of end selvage is $13\frac{1}{2}$ inches from the pattern; whether or not the other was closer cannot be determined. A two-inch length of a second web has been sewed to this bit of end selvage with fine whipping stitches. The width of the web is complete, 30 inches from side selvage to side selvage. The present length is $20\frac{1}{2}$ inches. The patterned area measures $9\frac{3}{4}$ by $14\frac{1}{2}$ inches. All of the criteria mentioned above point toward the use of weaving, rather than a sewing process, in producing the major parts of the pattern of this fabric. In addition, a tendency for each square to bulge at the sides indicates that the insertion of so many extra wefts forced the basic warps and wefts out of their standard straight lines. Had these been added after the cloth was woven, except as the basic yarns were widely spaced, any bulging would have tended to be away from the plane of the fabric rather than within it.

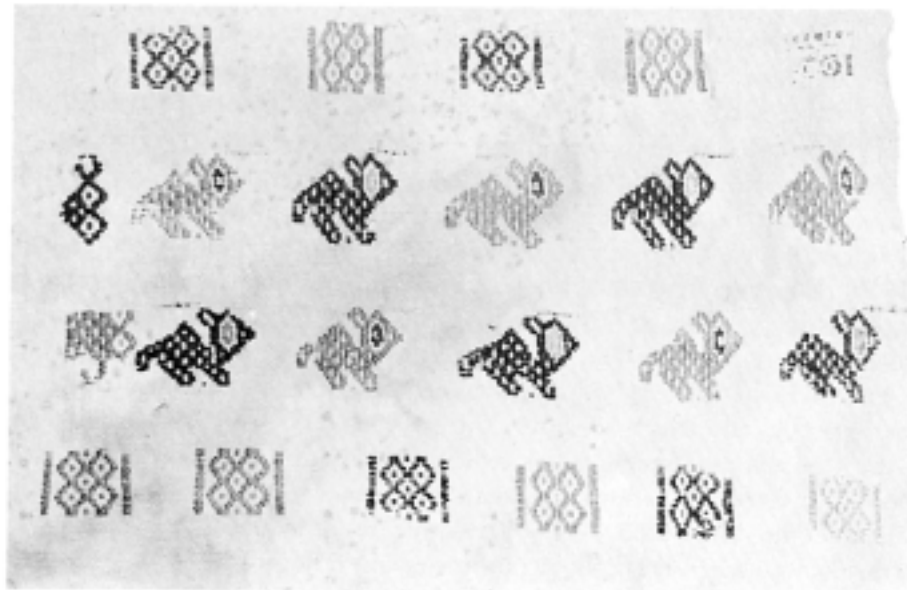
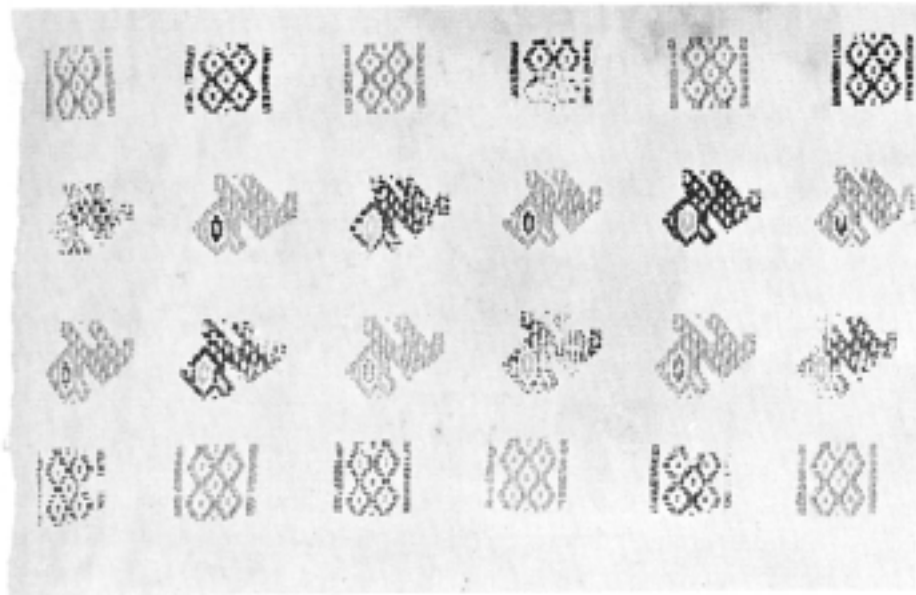
There is one other example (specimen 29653 [3791f]) which seems to confirm the practice of producing these reversible patterns as brocades as well as embroideries. This shows a "squirrel" figure in which the same sort of bulging occurs and the basic yarns have been forced out of line (fig. 11). This figure, although having neither rectangular outlines nor framing, almost fills a $2\frac{1}{2}$ -inch square. It has been repeated twice on a fragment of cloth $3\frac{1}{4}$ by $13\frac{1}{4}$ inches, with one figure placed 3 inches from the remaining bit of side selvage, the second figure 3 inches from the first. One is predominantly red, with blue-green, brown and yellow accents, and a single spot of white. The other is chiefly brown, with yellow, blue-green and red added.

Four fragments with larger, more elaborate rectangular motives appear to have been produced in a like manner. One (specimen 29662



8. The odd motive from a simple repeat pattern developed in a combination of brocade and embroidery: (a) obverse, (b) reverse. (specimen 30153 [1090v]).

[1085a]) is about 31 by 18 inches, with a small section of end selvage intact and, at the opposite end of the cloth, two nearly square motives, (fig. 10 g, h) each of which probably was about $3\frac{1}{4}$ by $3\frac{1}{2}$ inches, although parts of the edges are missing. The two motives differ, but in both cases major parts of a central figure have been outlined, and these outlines, in contrast to the other parts of the design, appear to have been embroidered. Two of the four fragments are very small pieces (specimen 29652a [3791e], 29652b [3791d]), each of which preserves just one design motive, an animal figure in a rectangular frame surrounded by a border of double-headed birds (fig. 10 d). These patterns are basically alike, but differ somewhat in their proportions. The fabrics are in poor condition and both have been mended, but in so far as it is possible to judge, except for some of the narrower outlines, they are brocades rather than embroideries. The first measures $3\frac{1}{2}$ by 6 inches. The patterning commences about 1 inch from a small section of side selvage and covers the remainder of the fragment. Red is the predominant color. Outlines of the main figure and parts of the border are brown and there are bits of blue-green, yellow and a light yellow-green. The second measures $3\frac{1}{2}$ by $5\frac{1}{2}$ inches and is so small that some of the edges of the design have been lost. Except for a reversing of the relative positions of the red and brown, the colors are about the same, although the shades in the minor areas are darker. The last of the four (specimen 29650 [3792]) has two different motives. It shows two repeats of a rectangular figure (fig. 10 e) which is similar to the above. Although more nearly square than the others, 3 by $4\frac{1}{2}$ inches, and more compact, it has the same central animal figure and birds' head border. A smaller motive, $1\frac{1}{4}$ by $1\frac{3}{4}$ inches, stylized human figure without a frame (fig. 10 f), has been repeated in two rows, one on each side of the row of larger motives. These may have formed a border across the end of a cloth, since three of the figures are adjacent to the one remaining length of side selvage and the spaces above and below the figures are greater than the spaces between the rows of motives. The total size of the specimen is $10\frac{1}{2}$ by $7\frac{1}{4}$ inches. The pattern colors are red and brown, alternating in importance, with accents of green-blue and gold-color. In this example relatively more space has been allotted to the accent colors than in the others. The technique used for producing the pattern appears to have been the same as in the preceding specimens. The ground yarns show considerable evidence of being forced into curves to accommodate the added thickness of the pattern yarns, showing that these were introduced as the weaving pro-

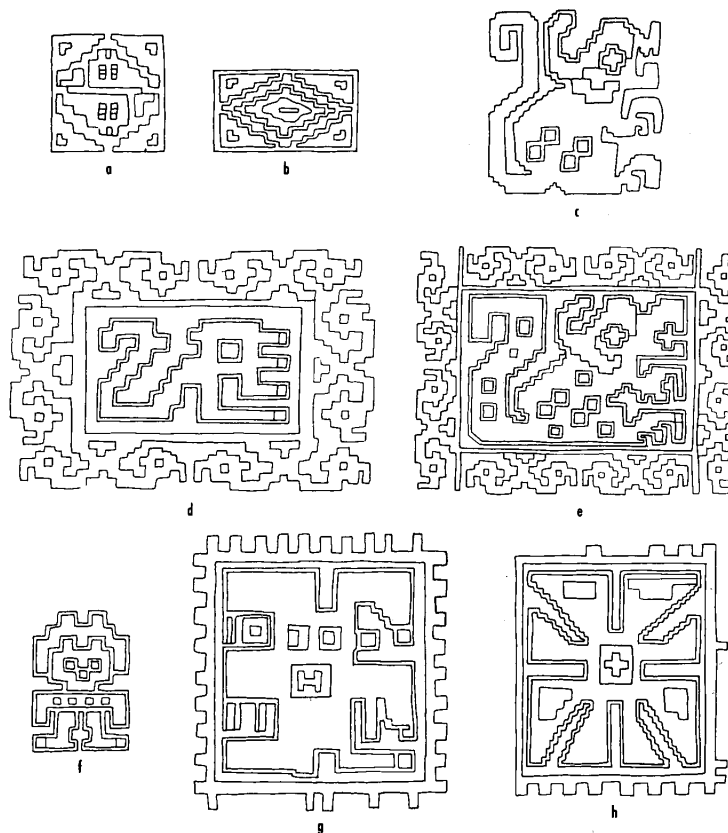


9. The complete designs from two webs which are seamed together (specimen 29756 [3193b]).
 - a. Block at lower left of seamed cloth.
 - b. Corresponding block at lower right.

gressed. At the same time, the pattern areas tend to bulge away from the plane of the fabric, as they do when pattern yarns are added after the ground fabric has been completed. This may indicate either that the bulk of the pattern yarns was so great that it could not be accommodated within the plane of the fabric, or that subsequent shrinkage of the cotton yarns exceeded that of the wool, causing the pattern blocks to bulge away from the plane of the fabric.

Two other scraps of cloth (specimens 29657 [3791i], 29658 [3791h]) for which the designs cannot be reconstructed, had larger patterns. Both appear to be brocades with embroidered details. Of these, the former has a light orange-color ground, probably obtained by piece-dyeing and seems to have been dyed over the pattern as well as the ground. The patterning covers the whole of the fragment and there is nothing to indicate that the design was separated into units. The cloth measures $2\frac{1}{2}$ by 13 inches and one narrow end has been rolled under and sewed tightly with whipping stitches. The other specimen is $10\frac{1}{2}$ by 3 inches. The patterning of this may have formed a rectangular block with one side 7 inches long. Both patterns have the usual colors: red, brown, blue-green and yellow. In both, the red and brown areas are about equal, with lesser amounts of the blue-green and yellow, but no dominant color. If there were additional hues, they have disappeared.

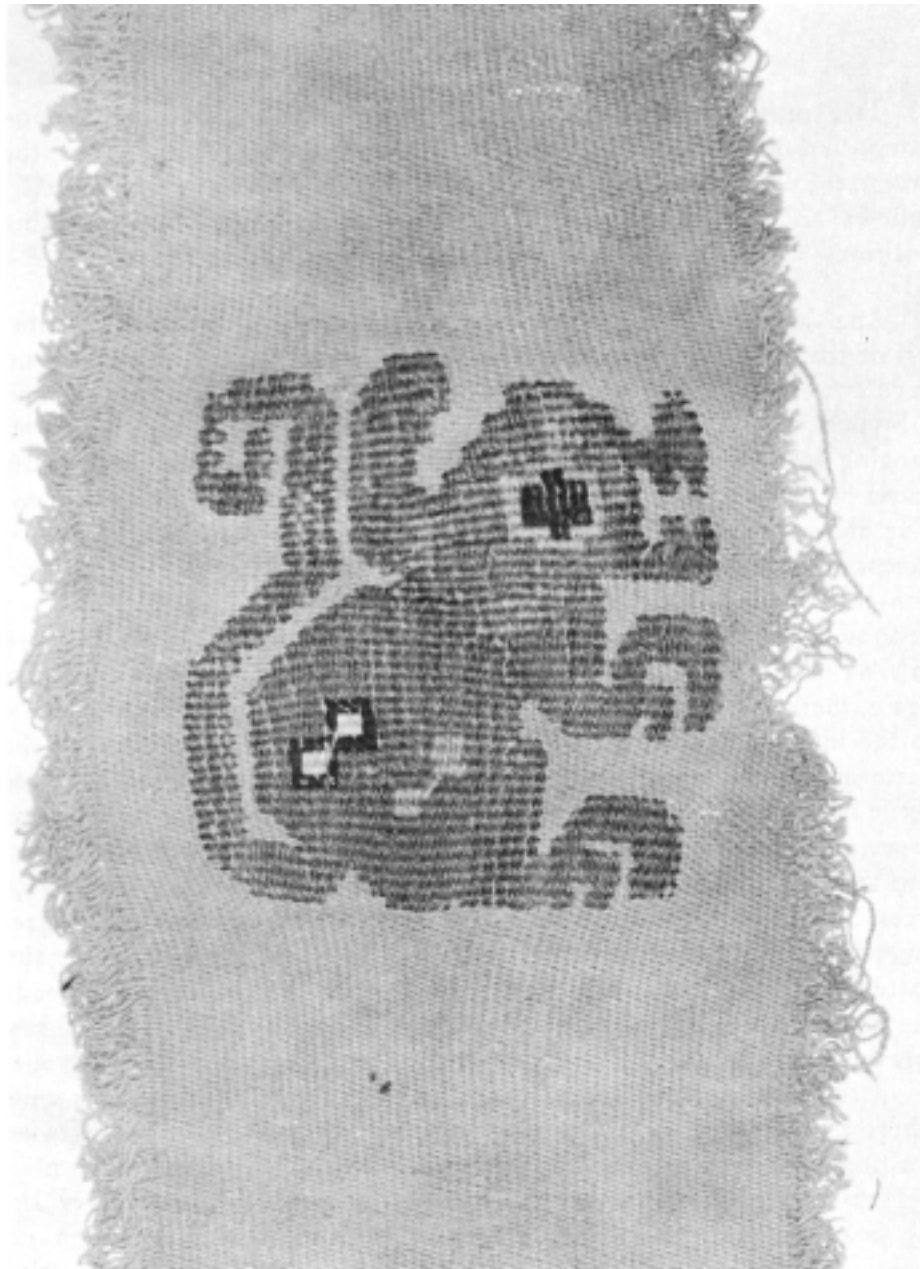
Four distinct design types are present within this small group of textiles: reversing diagonals, seen in two of the specimens (fig. 12 a); a single small motive repeated in a diapered arrangement, in one example (fig. 12 b); two or more motives, usually with two alternating, set in the form of a simple repeat, of which there are five examples (fig. 12 c); and rectangular block figures of more or less complexity, with nine examples (fig. 12 d). While it is obvious that this last design category comprises more than a single design type, the remaining fragments provide insufficient evidence on which to base clear-cut subdivisions. On the basis of fabric analyses, the first of these design categories can be said to include brocades only; the second, embroidery only; while the third and fourth show one embroidery each, the remaining specimens being combinations of brocade and embroidery. The designs appear to have been used in blocks, with certain standardized locations on the fabric generally apparent: the reversed diagonals crossing the end of a web; the small simple repeat patterns placed near one corner of each web; the rectangular patterns starting near a side selvage but their extent not clearly defined.



10. Drawings of the rectangular type designs. All of these are reversible.
- a. Simple rectangular figure in brocade and embroidery, arranged in checkerboard fashion (specimen 29661ab [1084]).
 - b. The motive from the embroidered cloth, figure 7.
 - c. The "squirrel", an unframed rectangular figure, in brocade and embroidery (specimen 29653 [3791f]).
 - d. The animal figure with a bird's head border, from specimen 29652a [3791e]); brocade and embroidery.
 - e. Another version of the same motive, the larger figure from specimen 29650 [3792].
 - f. The smaller figure from the same fragment. Both brocade and embroidery.
 - g. One motive from specimen 29662 [1085a]; only partially preserved.
 - h. The second motive from the same cloth. Brocaded figures, embroidered outlines.

Two of the embroideries, those in the second and fourth design categories, have distinctive color schemes. For the remainder of the group, the colors tend to be limited to four and their arrangement usually follows an established pattern, red and brown placed in alternating positions, with the addition of blue-green and yellow optional.

Analyses of the yarns also indicate emphasis on established forms. All of the cotton yarns of the ground fabrics are two-ply, Z-S spun and hard twist. All of the wool decorative yarns are, likewise, two-ply and Z-S spun. These show much greater variation in the degree of twist, ranging from medium to very soft, with greater differences between the yarns of different colors than between the yarns of different specimens. The diameters of these wool yarns are remarkably constant. With two exceptions, all are near $1/48$ inch. The diameters of the yarns of the two non-conforming examples (specimens 29760ab [3258b], 30153 [1090v]) are $1/32$ inch. The cotton yarn diameters range from $1/48$ to $1/64$ inch, and generally the warps and wefts of each fabric are alike; again, there are two exceptions. These details, with the number of yarns to the inch, are shown in Table 1. In one of the brocades, where the patterning is continuous across the width of the web, distinct differences occur in the weft counts for the plain and patterned areas. In this case (specimen 30174 [1090s]) there are 30 cotton wefts in the plain area, and 20 cotton, plus 20 wool, in the patterned section, in each of the two webs. In the other similar fabric, none of the plain part has been preserved, and the weft count for the ground yarns could be made for the patterned section only. The number of warp yarns to the inch exceeds the number of basic weft yarns in every example where a bit of key selvage is intact. Using this criterion for those pieces lacking a selvage, all of the pattern yarns are weftwise. Only at the end of a pattern unit, where a yarn reverses its direction, is there a change from the weftwise position; and if more than two yarn diameters in length, these non-weftwise yarns are on the reverse face of the fabric. Held in this working position, the design motives tend to be horizontal, although on occasion they are upright or inverted. For the ground fabrics the spinning and weaving are consistently even and smooth and all of the workmanship is of good quality. The patterns have been handled less skillfully in some cases than others. The cloths are not all of equal fineness but generally the fabrics are closely woven and firm; some are approximately square count, others nearly warpface. None of these distinctions appear to be related to either the nature of the design or the technique

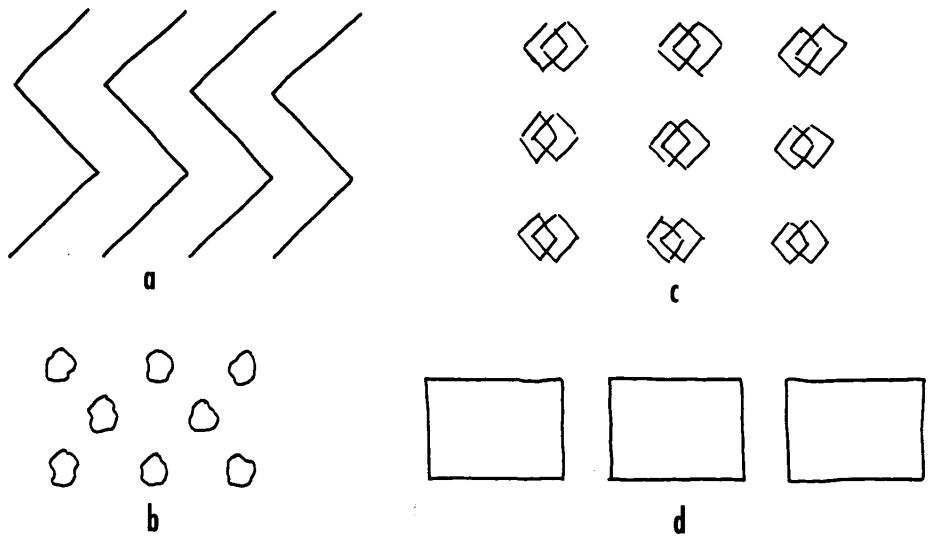


11. A photograph of the "squirrel" figure placed in the position in which it was woven, showing the curving of the weft yarns of the ground fabric to accommodate the added bulk of the decorative yarns.

used in producing the patterning.

In Uhle's descriptions of these fabrics in *Pachacamac* (1903), he has mentioned the use of figures of the rectangular type, cut out and "laid upon the head of the corpse or fastened to the shroud [these] seem to have been cut from larger pieces of stuff before being embroidered" (p. 30). Illustrations of two of these are shown with the "Textiles of the Epigone Period" (pl. 6, figs. 1, 3). One (specimen 29647 [3791]), a stylized human figure (also shown p. 30, fig. 30) is similar to that of figure 10 f, and is one of the same series of textiles. The second is the "squirrel" of figure 10 c (specimen 29653 [3791f]). A third, in the same technique but not cut out, is shown with the others (pl. 6, fig. 14). While this appears to be the same as that of figure 10 a, there is a discrepancy in the numbering (29662 [1085a], attached to the cloth in hand; 29663 [3229a] given in *Pachacamac*). It is possible that two similar, but distinct, specimens are represented. These three are of the rectangular design type. Neither the small repeat designs (fig. 4) nor the reversed diagonals are included with the "Epigone" textiles or elsewhere in *Pachacamac*.

Burial associations, as reported in Uhle's *Field Catalogue*, support this separation of the rectangular design type from the others to some extent, although the types were found intermixed within the burial grounds. All but two of the cloths seem to have come from "Burial Place Number One, beneath the temple of Pachacamac". (Uhle's place designations are particularly confusing in respect to some of this group, especially those listed in the Appendix.) The other two, one of the brocades (specimen 30174 [1090s]) and one of the simple repeat patterns (specimen 30153 [1090v]), are from an "excavation 10 meters to the west of the foregoing ones, at the foot of an old half-terrace." A few burial associations have been noted for the pieces from "Burial Place Number One." As mentioned previously, the two pieces carrying the same number (29760a,b [3258b]) were together. Both have simple repeat patterns; one is an embroidery. Another of the cloths with a small repeat pattern (specimen 29757 [1182e]) was found with the embroidery having a rectangular pattern (specimen 29759 [1182f]). Two of the rectangular patterns (specimens 2966a,b [1084], 29662 [1085a]) were from a "wrapper composed of different fragments." (p. 20). Five, of the other six in the same design category (excepting specimen 29650 [3792]), are "pieces of tissue of cotton with embroidered figures, parts of the wrapper of a mummy bale" (Appendix).



12. Diagram of the four basic design types.

- a. Reverse diagonal bands.
- b. Single small figure in a diapered repeat.
- c. Two or more small motives, usually in alternate rows, in a simple repeat.
- d. Rectangular block figures, of more or less rigidity and complexity.

These notes reveal no clear relationships between the various types of designs or between the techniques used in their production. The one embroidered rectangular pattern was found in association with one of the simple repeat patterns made in a combination of brocade and embroidery, as were, also, one of the two brocades, and the one example of an embroidered, simple repeat pattern. The rectangular patterns which were primarily woven, were not found in association with one of the other types. This may indicate that these were more or less unrelated to the others. However, the close associations of the small, cut-out, rectangular patterns of this group seem quite artificial, since all represent re-used fabrics, presumably brought together for funerary use. And, in respect to these particular pieces, there are no technical grounds to support Uhle's theory of embroidery being added to the cloths after they were cut to small sizes. The similarities of the yarns and colors and the evidence of vacillation between the use of two techniques, weaving and embroidery, in the production of both the simple repeat and rectangular patterns, together with their close proximity in the grave-field, makes this reasoning rather unconvincing. The design types are sufficiently distinctive as to be unrelated, but this offers no proof that they were not used concurrently.

The evidence gleaned from this sampling of "embroideries" from excavations beneath the Temple of Pachacamac indicates that both brocading and embroidery were used to produce the patterns of these fabrics. Generally the simple designs which were developed in several colors were embroidered; the patterns which crossed the entire width of each web, were woven-in, although the yarns of a single color did not continue across the web but turned back at the edge of the color unit of the design. Where the motives were independent units, not continuous, and the color selection was limited, the major part of each pattern unit usually was woven in, with the smaller color bits added as needlework. The weftwise position of the decorative yarns was maintained whether the method of insertion was brocading or embroidery. It was standard practice to use fine, firm, plain weave fabrics of good quality for the monochrome cotton grounds of both brocading and embroidery.

It is now impossible to determine when the embroidery was added. Was it after the whole fabric was woven and removed from the loom, as is customary today? When the cloth was complete but still on the loom? Or did it progress with the weaving, only a step or two behind

Table 1
Yarn Details—Brocades or Embroideries

Technique Classification	Specimen Number	Cotton yarns of ground fabric*				Design Classification
		Diameter		Number per inch		
		Warp	Weft	Warp	Weft	
Brocade	30174 [1090s]	1/64	1/64	46	30	Reversed diagonal
	Second web	1/64	1/64	46	30	
	30176 [3793]	1/64	1/64	64	34**	
	Second web	1/64	1/64	64	34**	
Embroidery	29664 [3222a]	1/48	1/48	36	30	Diapered repeat
	29760ab [3258b] (smaller piece)	1/48	1/48	44	28	Simple repeat
	29759 [1182f]	1/64	1/64	46	30	Rectangular***
Brocade and embroidery combined	29760ab [3258b] (larger piece)	1/48	1/48	48	28	Simple repeat
	Second web	1/48	1/48	50	30	
	30153 [1090v]	1/64	1/64	72	38	
	29757 [1182e]	1/48	1/64	68	24	
	Second web	1/48	1/64	68	24	
	29756 [3193b]	1/48	1/48	54	28	
	Second web	1/48	1/48	54	28	
	29661ab [1084]	1/48	1/48	52	24	Rectangular***
	Second web	1/48	1/48	44	24	
	29653 [3791f]	1/48	1/48	76	26	
	29662 [1085a]	1/48	1/48	60	23	
	2952a[3791e]****	1/48	1/48	52	24	
	2952b[3791d]****	1/48	1/48	50	26	
	29650 [3792]	1/48	1/48	80	28	
	29657 [3791i]	1/48	1/48	64	20	
29658 [3791h]	1/64	1/48	68	28		

*All are two-ply, Z-S spun, hard twist.

**The number of cotton wefts in pattern section (p. 4, text).

***These have reversible patterning, alike on both faces of the fabric.

****The letters of these two *Field Catalogue* numbers are reversed on the specimen tags.

the insertion of the various wefts? If both brocading and embroidery were present, was a needle or a shuttle used to carry the yarns of any brocaded sections? Certainly, in the case of the small repeat patterns, short lengths of yarn in the various pattern colors would have been ample to complete a motive. It is quite possible that many of the patterns were literally sewed onto the bare warps, progressing yarn by yarn as the ground fabric was woven. In this case, split yarns might be present; stitching back, and at angles, would have been possible, as well as overlapping, and thread ends could have been knotted, sewed in, or laid in the shed of the plain weave as in several of the present examples (notably one of the two webs of specimen 29756 [3193b]). Only finding one or more pieces of similar fabric, partially completed and still on the loom, with shuttles or needles intact, will clarify our knowledge of the methods used. More effort needs to be turned to identifying such a loom and carefully preserving any appended yarns and associated tools. The latter may appear to be only broken sticks, small bones or thorns. It seems likely that finding such a cloth in the process of construction would show that much of the patterning was added while the weaving was in progress, by methods more or less parallel to those used in Peruvian tapestry weaving, methods which lend themselves to use with a Peruvian loom, but not with a European-type loom having a fixed beater.

Looking at these textiles from the point of view of production, it is obvious that certain established procedures were followed in the spinning of the yarns, the selection and distribution of the colors, and the weaving of the ground fabrics. Certain accepted forms are evident, also, in the nature of the designs, their positions and their general extent. This holds in respect to both the complete design units or blocks and the individual motives comprising these blocks.

The craftsmen who produced these fabrics had mastery of the techniques of both brocade and embroidery and access to the essential tools. Their objective seems to have been to obtain a specific finished appearance, for each design type, but the evidence suggests that the method used in a particular case was left to the craftsman's discretion. There are no indications that the crafts, of embroiderer and weaver, were separate among the workers who produced these textiles found beneath the Temple of Pachacamac. Neither is there anything to suggest that our present-day dichotomous division into two distinct techniques had any meaning to these particular craftsmen. Thus it seems illogical to insist

upon classifying the majority of the textiles constituting this group as belonging to one category or the other, at least for the present. The same would hold for numerous other textiles from pre-Columbian Peru. When looms with partially completed textiles of similar types are found and reported, or pieces are discovered with work of a corresponding type in progress, accurate and meaningful classifications will be possible. It seems probable that, in addition to the clearly identifiable examples of brocade and embroidery, as generally defined, the presence of needle-made "brocades" or loom-worked "embroideries", or both, will be confirmed. When all of the various processes that were used are fully known, new categories for their classification, with different terminology, are likely to be needed. And, as a corollary, some traditional ideas will have to be discarded.

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