

TELAS DE LOS MUERTOS

DOUBLE-CLOTH

by Suzanne Baizerman

Among the most frequently encountered textiles in ancient Peruvian collections are fabrics with bold brown and white patterns. These are double-cloths, compound fabrics composed of two layers of cloth, each with its own set of warp and weft, which interpenetrate each other in such a way as to form patterns.

They are found in Peru in cultures dating back to the Early Horizon. During this Horizon, early in the Christian era, very large ceremonial pieces were woven and later buried, at the Paracas Cavernas site for example. Mythological beings, complete with trophy heads were depicted. Even at this early date, the textiles evidence complete mastery of the technique.

Later cultures used this graphic technique to express their own motifs, Middle Horizon double-cloths of the Coastal region show the influence of the Huari culture; these cloths are red and white accented with tiny multicolored dots.

The vast majority of the double-cloths from ancient Peru are from the Late Intermediate Period (900 A.D. – 1476 A.D.). Like those of the Middle Horizon they were probably chiefly used for clothing. (Double-cloth is well-suited for use as clothing because the two layers composing the fabric can create an insulating layer.) There are six examples of double-cloth in the Science Museum of Minnesota's collection. One is a large rectangle, 25" x 28". Two others are long narrow strips (6½" x 51½"; 5½" x 38"). The remainder are small rectangles under a foot square. They likely date to the Late Intermediate Period.

It should also be mentioned that the design potential of double-cloth has been fully exploited in other areas of the world, notably Scandinavia, Poland and Mexico (Otomi and Huichol Indians).

Structure

As noted above, in a double-cloth, we find two layers of cloth which interpenetrate each other. Each cloth has its own set of warps; usually there is one light set and one dark, arranged in such a way that they may be woven one above the other. Each set of warps has its own matching weft; each set of warps is crossed only by its own weft. (See Fig. 1 and 2.) Patterns are formed when warps are reciprocally exchanged between layers. Except at the boundaries of the patterns where the warps have been exchanged, the layers are separate (you can literally pull them apart with your fingers).

One may speculate on the evolution of the double-cloth weave technique. Much as the modern weaver uses four harnesses to execute a patterned double weave, the ancient Peruvians appear to have utilized three heddle sticks and one shed stick to achieve the same shedding system. Because modern weavers use a straight draw twill threading to execute a patterned double weave (Fig. 3) and consider double weave to be a twill derivative, it is often assumed that the ancient Peruvians, too, derived their double weave from the twill weave.

However, twill as we know it is a very uncommon ancient Peruvian weave. The paucity of twill and its derivatives is probably due to the type of loom utilized by the ancients. As Harriet Tidball¹ points out, in a loom without a reed a close warp-weft relationship is needed to control warp spacing; double cloth weave is one of several solutions to this problem. Other possible solutions include warp-faced and weft-faced weaves.

Double cloth weave may not have been derived from the twill. It might have evolved from supplementary warp techniques. Perhaps the weaver first discovered double cloth when she/he introduced supplementary weft into a supplementary warp!

Double-cloths give the impression that each layer has been executed in a balanced plain weave, although Science Museum examples show considerably more warp ends per inch than weft passes. A typical double cloth has 33 warp ends per inch per layer (66 warp ends per inch total) and 24 weft passes (48 total). (SMM: A74-17-46)

Frequently one sees a fine light thread used for background and a heavier or loftier yarn used for the figure. This approach achieves a sculptural or relief effect that adds a special dimension to the cloth.



¹Tidball, Harriet. Peru: Textiles Unlimited, Part I, Lansing, Michigan, The Shuttle Craft Guild, p. 33.

There are other weave structures related to the type of patterned double cloth we have been discussing. One is one-weft double-cloth, discussed fully in Cason and Cahlander, *The Art of Bolivian Highland Weaving*. It is a warp-faced weave and was used for belts, straps and other narrow bands by the ancient Peruvians. Because the weft does not show, one weft can do the job that two wefts do in a balanced weave double cloth. This one weft weaves the top layer of warp then the bottom layer; a flattened tube, joined by patterning is formed. The Science Museum has one example of one-weft double cloth, a portion of a band, 1½" x 14".

One also finds what is referred to as "triple-cloth." Here, extra sets of warps in additional colors are carried between the layers of the regular double-cloth warps. The extra warps are substituted for the primary warps when needed, to add contrasting color areas to the cloth.

There is no good evidence that the ancient Peruvians utilized double weave in its other aspects—double width, multiple layers, etc. However, very wide cloths have been found and one possibility is that they were woven on a narrow loom set up to weave many connected layers.

Materials

Typical double-cloths are executed in a two-ply cotton which has a medium to hard twist. Colors are usually brown and white. Of the six Science Museum examples of this technique, five use yarn which is Z spun, S plied. The remaining fabric is composed of singles yarn, Z spun for the warp, S spun for the weft. In this latter example, the warp yarns are used in pairs; each pair is treated as one warp end.

One of the fabrics using plied yarns is blue and white in color. Interestingly, the white warp and weft and the blue warp are cotton, while the blue weft is alpaca. Perhaps the alpaca was used because it accepted the indigo dye much better. (The blue cotton is much lighter, less "rich" looking, than the blue wool.)

Examples of double-cloth from the Early and Middle Horizons are made of wool or wool and cotton. The one-weft double cloth in the Museum collection is all wool.

Process

Like all Peruvian cloths, the double-cloths were woven on a backstrap loom. In addition to the usual heddle stick and shed rod there were two additional heddle sticks. Four basic sheds were then available—two for each layer of warp. Odd-numbered elements of light warp were arranged on one shedding device, even-numbered on another, with a similar arrangement of dark warp ends. (Handweavers can compare this arrangement with threading drafts used for patterned double-cloths, Fig. 3.)

We do not know exactly how the ancient Peruvians proceeded with their weaving. The modern weaver has several alternative methods available to execute a double weave. Generally, one set of warps, e.g., the pattern warp threads are held aside with a pick-up stick as the design requires, while the background is woven. The weaver is then faced with several choices. First, one shot of weft, or two in alternate sheds, may be woven each time the warp threads are held aside, depending on the method employed.²

Second, there are also different ways of selecting those threads to be held aside. The number of pattern threads held aside might be equal to the number of background threads; or there may be more threads held aside on one surface than the other, producing a more crowded "face" on the fabric with a distorted reverse side, but at the same time with a clearer pattern on the face. (See Figs. 1 and 2.)

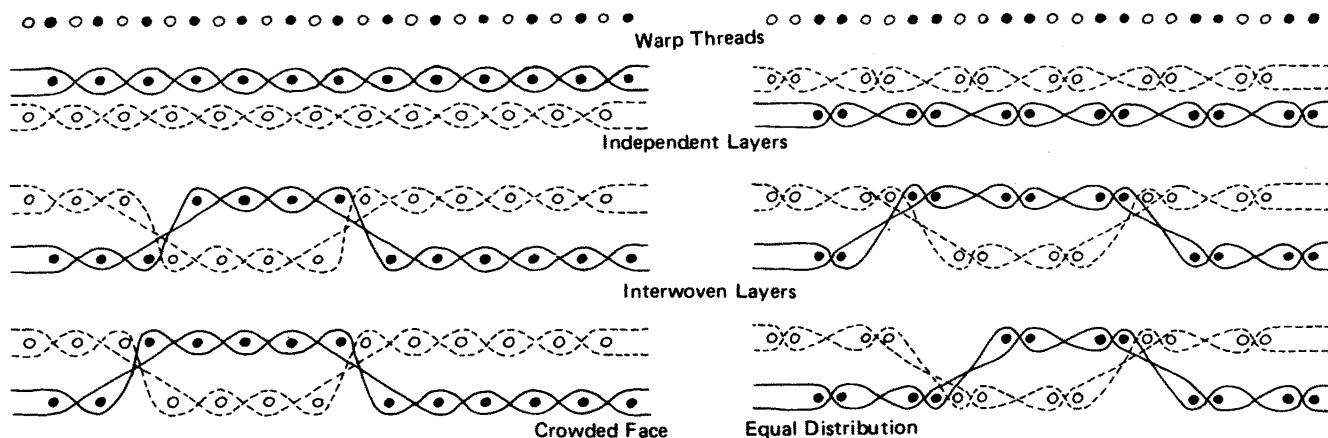


Fig. 1 Cross Section View of Double Cloth: Warps Interchange Singly

Fig. 2 Cross Section View of Double Cloth Warps Interchange in Pairs

Third, warps may be exchanged singly or in pairs, also shown in Figures 1 and 2. For the contemporary handweaver, this involves the choice between threading draft 3a and threading draft 3b.

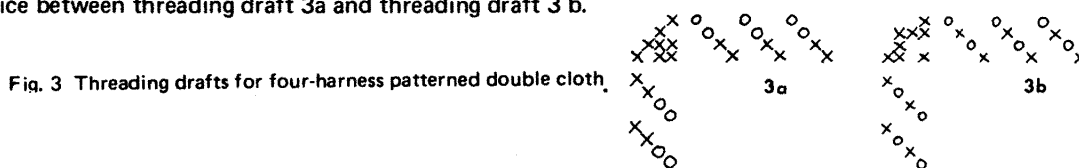
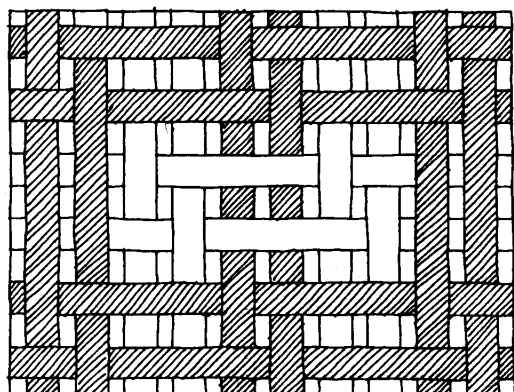


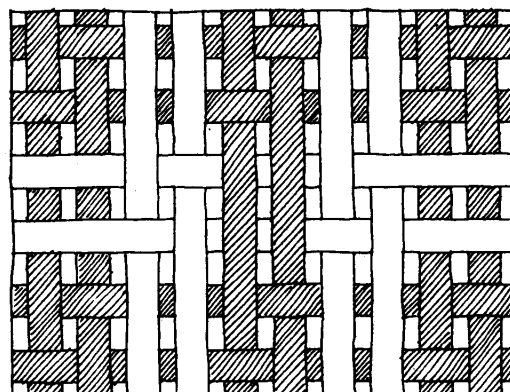
Fig. 3 Threading drafts for four-harness patterned double cloth.

²Refer to Harriett Tidball, *The Double Weave*, Shuttle Craft Monograph No. 1, 1960, pp. 12-14.

The ancient Peruvians consistently exchanged the warp in pairs (as in the threading in Fig. 3b). In addition, weft was inserted in pairs. The result of this procedure is represented diagrammatically in Fig. 4. Fig. 4a represents the right side of the fabric; 4b the reverse side. The Peruvians also utilized more threads on the face of the fabric, created jagged lines to varying extents on the reverse side. Almost always there is a clear right and wrong side to Peruvian double cloth.



a. Face



b. Reverse

Fig. 4 Close view of structure of double cloth: Warps interchange in pairs

The double cloths, like other Pre-Columbian Peruvian fabrics, are four-selvage pieces. An inch or two is woven at one end of the loom, then the loom is turned around and weaving progresses until it meets the area first woven. It is difficult enough to join these two areas of weaving when the cloth is plain weave in structure. Smaller and smaller shed rods are needed to accommodate the shorter and shorter available warp. Then the last few weft passes are worked in with a needle. A four-selvage fabric is the result.

Imagine filling in the last few rows while at the same time making an elaborate motif with three heddles and a shed rod! And yet one finds particularly well-crafted pieces where this point of the termination of weaving is barely detectable. (Of course there are other examples where gross distortions in patterning show up in this terminal area.)

Design

As with many other weaving techniques utilized by the ancient Peruvian people to execute designs, double weave does not allow for great spontaneity. Horizontal, vertical and diagonal outlines are best suited to the technique. The design must be planned enough so that it does not need to be modified once weaving has begun. Unlike a painter's canvas, once a design is started in this weaving technique it is practically impossible to change. The ancient Peruvians appear to have been expert at this type of planning and furthermore to have been challenged by the very limitations imposed by the medium.

As is true of most ancient Peruvian design, one sees in the ancient Peruvian double cloths a superb sense of balance and a good use of negative space. There are many space fillers; "Horror vaccui" (fear of open spaces) is evident. There is high contrast, and the main figures are stylized, conventionalized animals or humanoids. One does not find a range of color in double cloth. Probably 90% are done in brown and white, most of the others in blue and white.

In collections of ancient Peruvian textiles, one encounters many specimens of cloth which bear a strong resemblance to double weave cloths but which are executed in other techniques. It is often difficult to establish at first glance the technique utilized in a particular piece. Many specimens executed in brocade, scaffold weaving, and some of the warp-patterned weaves bear a strong resemblance in color, fiber, and scale to the double cloth specimens. Design and expression seemed to take precedent over technique.

