

FIGURE 1

## *The Weaving Technique of Some Early Peruvian Textiles*

BY VIOLA W. QUIGLEY

JUDGING from a detailed study of the technique employed in the production of a group of ancient textiles found on the west coast of Peru, the Peruvians were weavers of exceptional ability. Even greater uniformity of excellent work was observed in their spinning, for all materials, even when poorly woven, displayed admirably spun thread. In some cases careless and slovenly personalities could be pictured through the textiles, and again the true artist could be appreciated in the perfectly woven material and true execution of design. The majority of fragments showed such a wealth of intricate design and perfect execution of the loom that as a whole the Peruvians must have been a patient, methodical and beauty-loving race. The examination of many fragments showed no instance of the flaws so commonly found in

hand-woven materials, such as weft threads skipping over warp threads.

The variations obtained by the weavers in their designs were striking; furthermore, when the design of the whole of a piece of material, particularly a piece of tapestry, is examined one finds a clever repetition of a simple interlocking unit used with interchanging color combinations. Bird, animal, fish, human and inanimate conventionalized design units are most common.

It would be difficult to say in which line of weaving the Peruvians excelled, for they seemed adept in all simple types except the weft pattern weaving. Their tapestry was exquisitely executed with great detail of design. The double weaving is quite a surprise, for one cannot help but wonder

at the skill required to manipulate a double warp on the simple looms that were used. Also, their warp patterns showed a great dexterity in manipulating warp threads to give such beautiful and detailed patterns.

These features are well illustrated in the outstanding examples of the various types of Peruvian weaving to be found in the Field Museum, as the following descriptions delineate.

A most remarkable piece of weaving, showing infinite patience on the part of the weaver together with perfect technique is demonstrated in a short shirt shown in Figure 1 (Catalogue No. 77780). No error in weaving was found in the portions still intact. It was made of two strips of material 32 inches long and 18½ inches wide. These strips were

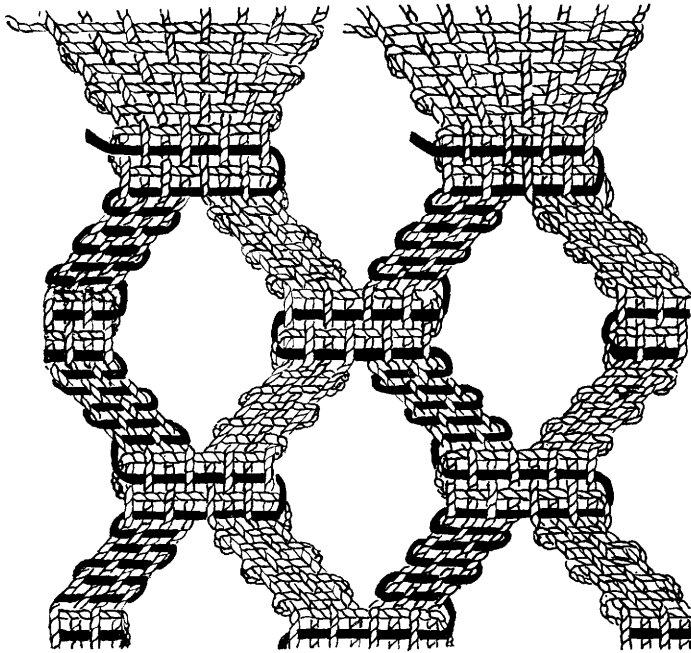


FIGURE 2

sewn together, leaving a short space unjoined in the center which forms the neck. The strips were then folded end to end and the sides of the shirt sewn together, leaving the upper edges unjoined to form armholes.

The material itself is of a very finely spun single strand natural brown cotton thread with 60 warps and 60 wefts to the inch. The whole was woven in oblongs of plain weave with squares of open weave, which will be referred to as "lace weave." The plain weave sections are 2 inches by 2½ inches, while the lace weave sections are 2 inches square. In changing from the plain weave to the lace weave, the warps were divided into groups of 16, making 7½ groups to the square. Each group was then woven in plain weave separately for a few rows until the warps were well drawn together, when a second weft thread, identical to the first, was thrown in the same shed with the first thread, but thrown in the opposite direction (Figure 2). This was repeated for several rows until the second weft threads were well tied, when the warps were again divided into groups of 8. These warps were then woven in plain weave with the two wefts started previously, each weaving the warp group on its side. This was continued for 3/16 of an inch, when each group of 8 warp threads was woven together with the neighboring groups of 8 threads. The two wefts were then

**THE WEAVER**

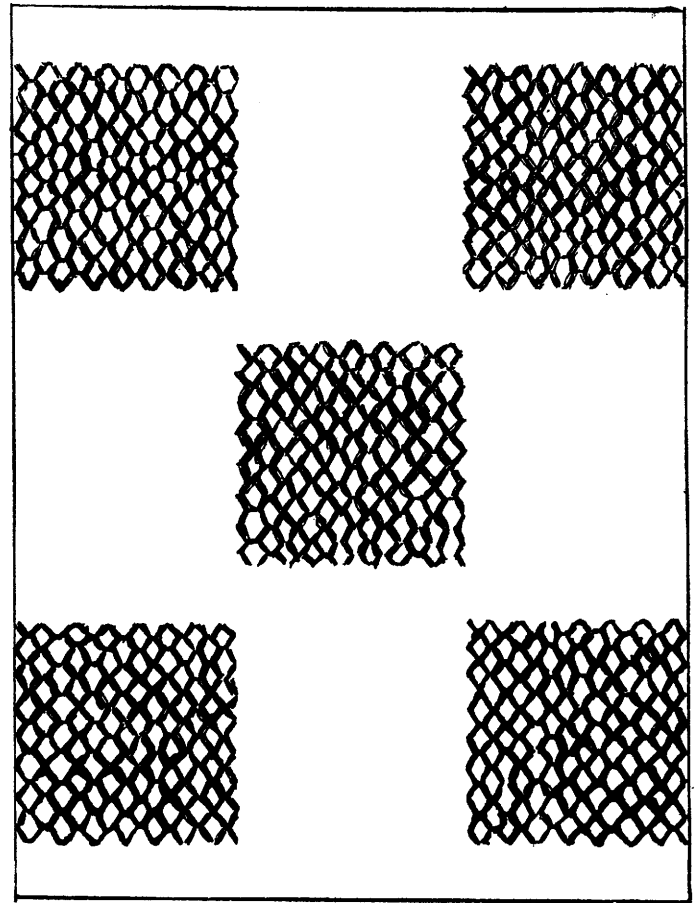


FIGURE 3

thrown in opposite directions in the same shed for 4 rows, when the wefts again separate and weave the original group of 8 threads for another 3/16 of an inch. The original 16 warp threads are again woven together for 4 rows. This technique is repeated 9½ times; the last group of warps

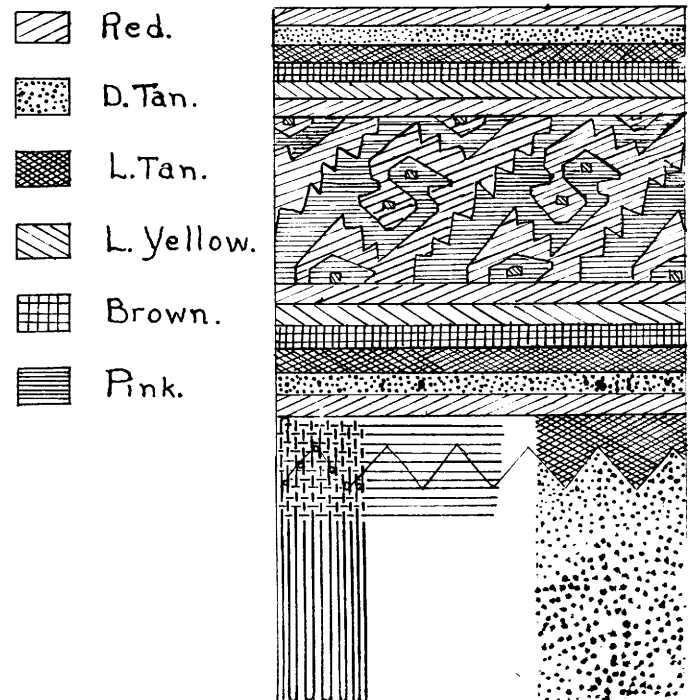


FIGURE 4

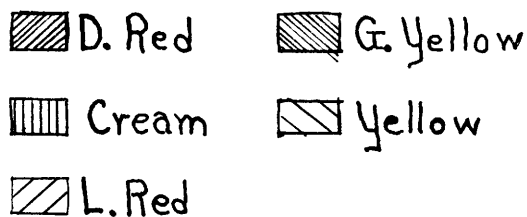
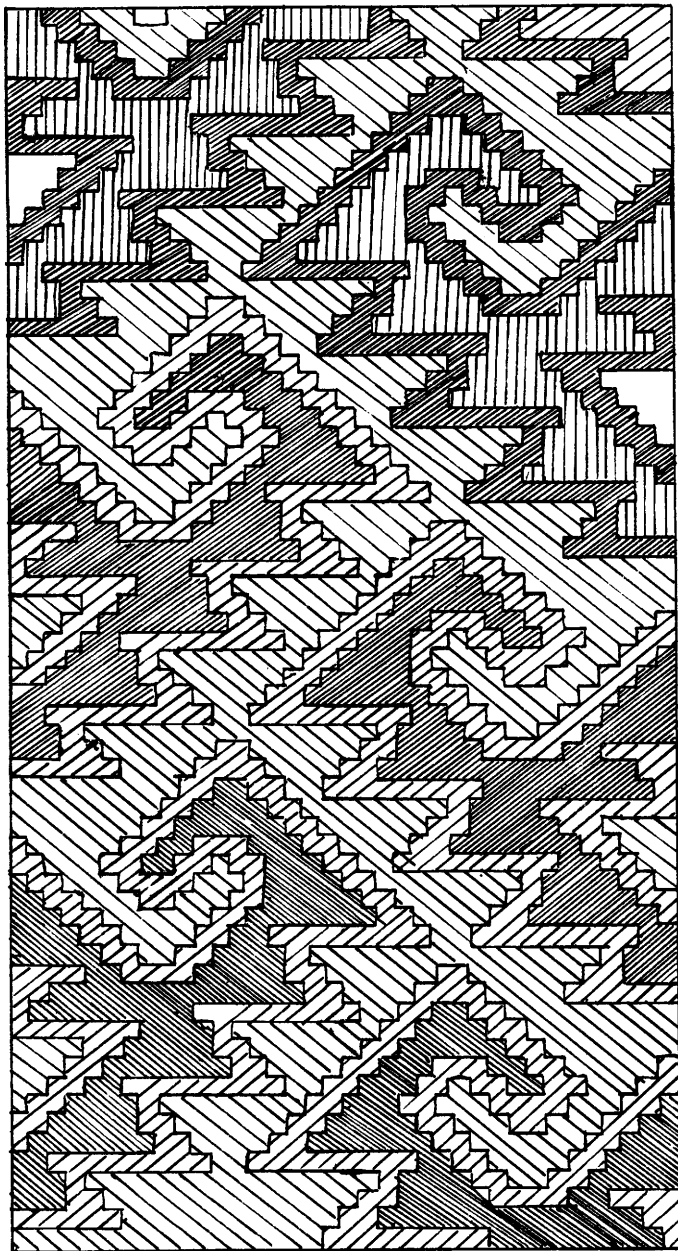


FIGURE 5

joined are from neighboring groups of the original 16. See Figure 3 for the diagrammatic plan of material, and Figure 2 for details of the technique of the lace weave.

Around the bottom of the shirt is a beautiful piece of tapestry woven on 32 brown cotton warps to the inch with 144 finely spun two-strand wool wefts to the inch. Narrow stripes of color outline the center stripe, which has an interlocking bird design. The colors in the central design are separated by one warp thread which was wound with black yarn, giving an outline to the design. Figure 4 shows the tapestry band and the woven fringe which was sewn to it.

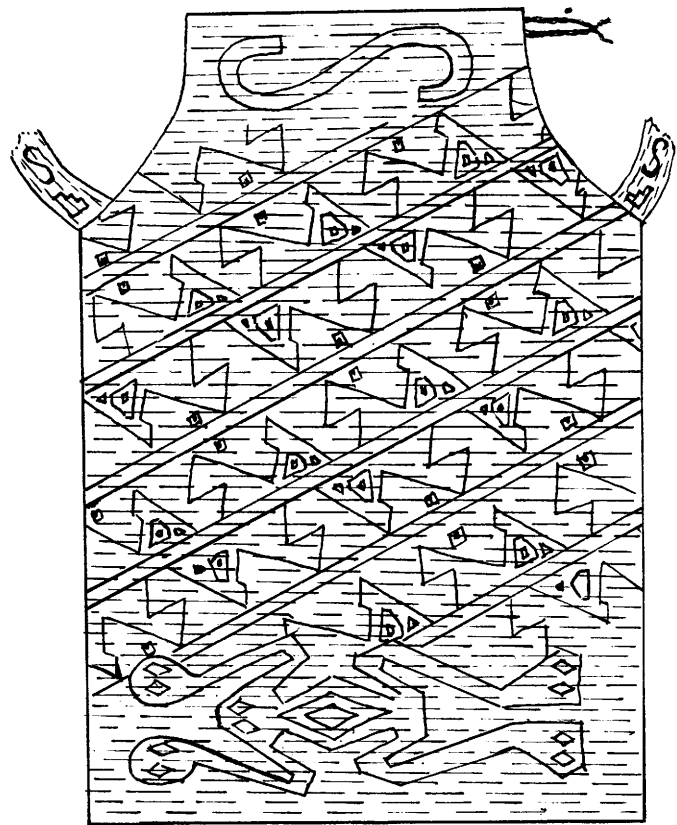
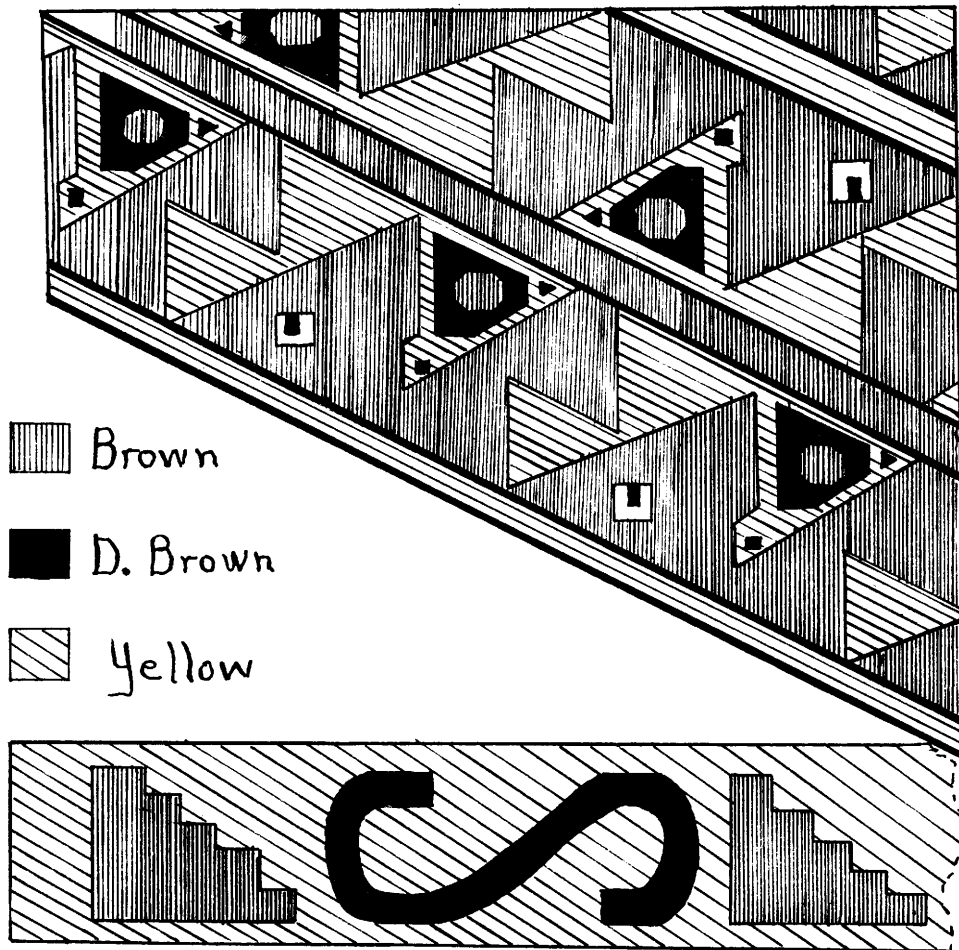


FIGURE 6

The fringe is most interesting in that it illustrates the painstaking care with which the Peruvians finished their garments. The simplest workable method to reproduce this woven fringe appears to be the following: eleven threads were warped in  $\frac{3}{4}$  of an inch; another heavy thread was strung  $\frac{3}{4}$  of an inch from the last warp thread. Two shades of tan were then woven in tapestry weave, as in Figure 4, the dark tan extending beyond the eleventh warp thread and looping around the heavy thread  $\frac{3}{4}$  inch from the last warp. After the band was removed from the loom, this heavy thread was drawn out and the long loops of the dark tan made an ingeniously woven looped fringe.

An unusual bag (Catalogue No. 183748), probably intended to be carried from the shoulder, was woven in warp pattern (Figure 6). The two ends of the strap were not intact, but undoubtedly had been long enough to be used as shoulder straps. A small drawstring was run through the top, so the small opening could be closed. The interlocking fish design was executed in two shades of brown and yellow, as indicated in Figure 7. The manipulation of the warps to give such a design indicates the dexterity with which Peruvians handled their looms. The warp was of a medium-weight two-strand wool, and the weft brown cotton. The central figure at the bottom of the bag (Figure 9) strongly resembles a frog, although this particular animal is rare in Peruvian design. Figure 8 shows the design unit of the strap.

A small fragment of tapestry was found with a group of very coarsely and poorly woven simple cloth materials, apparently from the same mummy bundle. The threads of the various colors were interlocked so that no slits occurred. There were 27 warps and 64 wefts to the inch. Figure 5 shows the interlocking design, which unit is repeated with the variations in color.



FIGURES 7 AND 8

A pair of bag-like ornaments had two sides alike, but the two pieces of material are joined all the way around. They are woven entirely in the tapestry weave, the outer bands being tapestry strips  $1\frac{1}{4}$  inches wide, sewn together, the inner edges of which were slightly gathered to make the strips lie flat around the corners of the central square containing two figures. The small conventionalized human figures were done in the slit tapestry weave. There were 15 brown single-strand cotton warps and 132 two-strand wool wefts to the inch. A large tassel fastened in the center at the bottom of the ornament was made in a rather ingenious manner. There was a core of material apparently stuffed with cotton, and to this firm core were attached a multitude of tiny tassels. Each small tassel had two more small tassels attached to it, thus forming a very full well-made tassel. At the top of the ornament fragments of cords were still intact. These were made of strips of material, one side of which was fringed, sewn around a core of brown cotton material

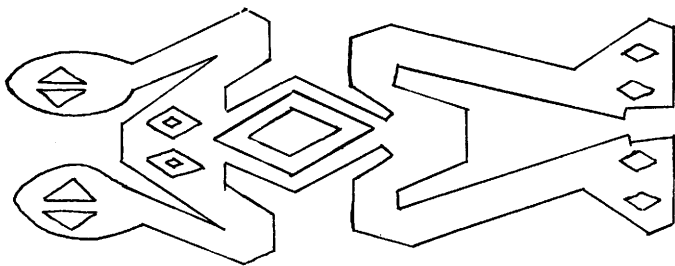


FIGURE 9

THE WEAVER

stuffed with cotton. This fringed cord was probably woven in the same manner as the woven fringe on the shirt described above, but in this case the looped ends around the outer cord were cut.

Ties must have been very popular in the Peruvian dress. Many ties were among the various fabrics, and practically all were done in double weaving in that portion where the design occurs. The centers, usually two pieces of material, were sewn together at the center back and had only the ends patterned. The centers were coarsely woven simple cloth of single-ply cotton thread. The extra warp must have been attached to the loom when needed, and this was generally colored wool. In some ties the double weaving is beautifully done, while in others it is very poor and coarse. In some cases where a border across the width of the material was desired, only the right-side warp would be woven, while the under warp would appear unwoven for the width of the stripe.

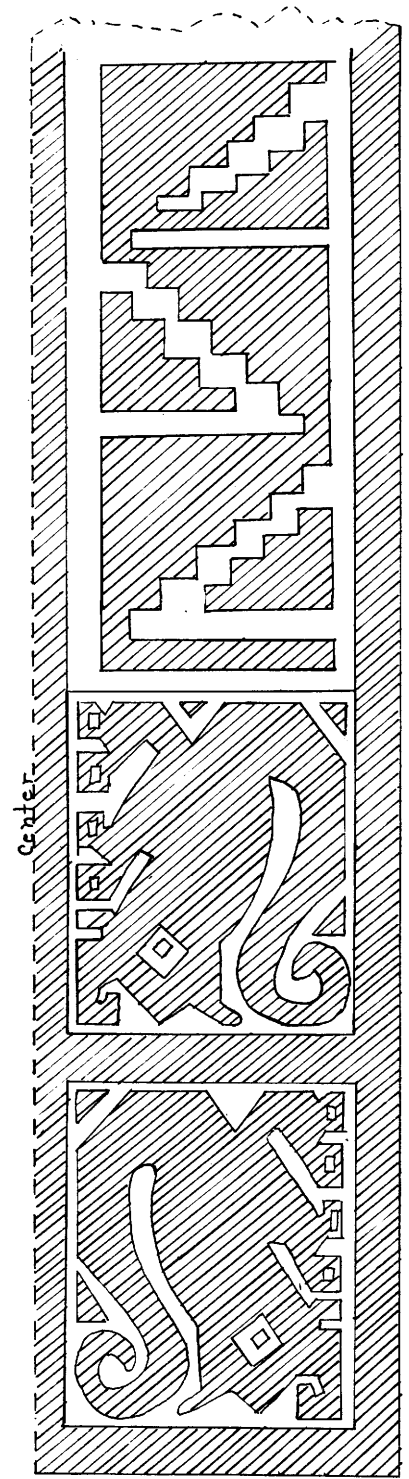
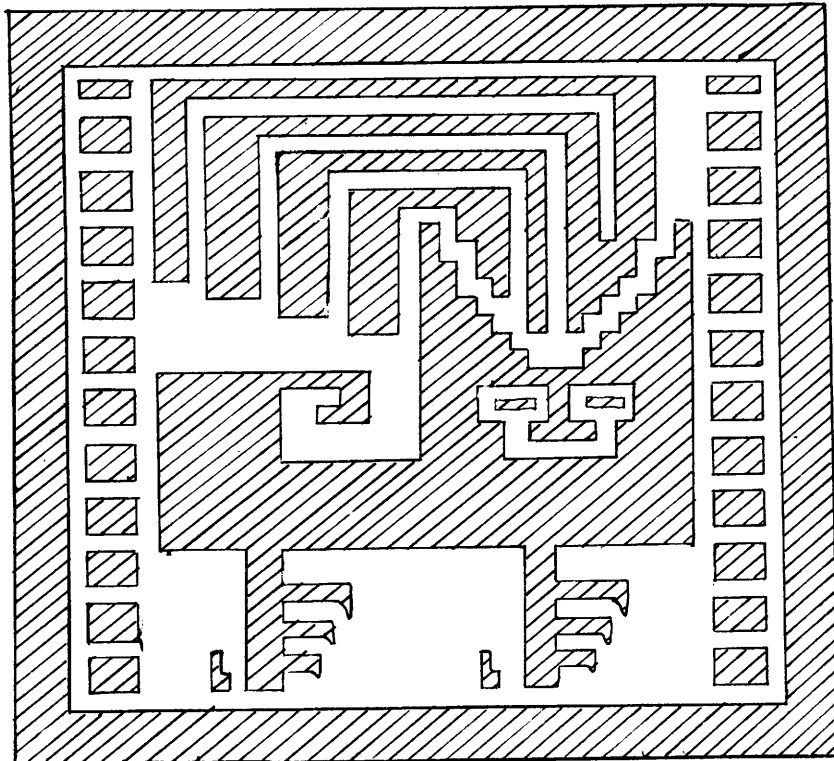


FIGURE 10



Red
  Green

FIGURE 11

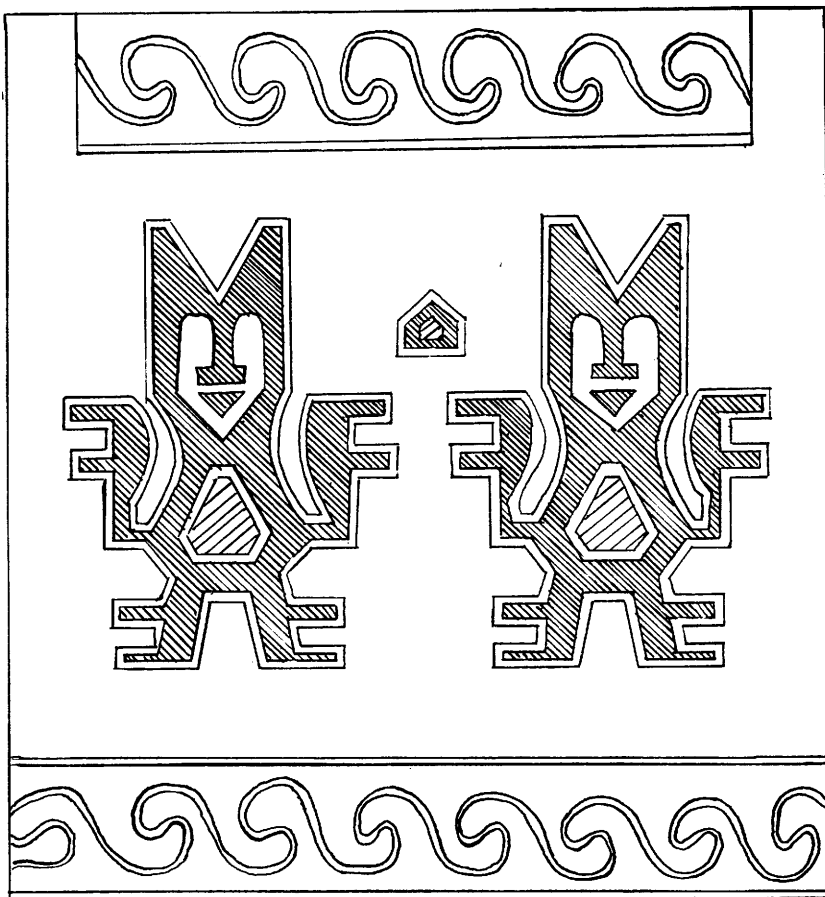


FIGURE 12

A few beautiful ties done in warp pattern weaving were obtained from the Ancon district of Peru. These ties were narrower than the ones done in double weaving; ranging from a half inch to 3 inches in width, and the designs were all small and geometrical. Three of the best and most characteristic of the double-woven ties are illustrated in Figures 10, 11, and 12. An unusual type of double weave was used in the latter. The warp and weft of one side is brown cotton, and the other of a red-brown wool. Supplementary wefts were used, one green and the other red wool, to form the designs. On the wool surface the red and green were woven where illustrated (Figure 12), with the brown wool floating between the two materials, and the green and red floating where it was not essential for the design. On the cotton surface the green was brought to light to outline the figures, interchanging with the brown cotton weft which was brought to the wool surface to outline the figures. The warps interplay only in the scroll border on either side of the figures.

Three long ponchos from the Lower Chillon Valley (Catalogue Nos. 170317, 170164 and 170328) are especially interesting because of the intricacy of method employed. They were all woven in the tapestry weave with the interlocking weft colors passing around the same warp. These were the only pieces I found with this method of changing from one color to another. Figures 13 and 14 show design of two of the ponchos.

The ponchos were made of two strips of material  $17\frac{1}{2}$  inches by 52 inches and sewn together in the same manner as the shirt described in Figure 1, but in these garments the method of weaving is in striking contrast to the usual manner. Ordinarily the warp of material runs the length, and the weft is woven in from side to side across the narrow dimension. In these ponchos, however, the rule is reversed, and the design is woven the length of the material. As indicated in Figure 14, the eleven balls or shuttles of colored wool were woven over the brown cotton threads running from side to side. Thus the usual warp becomes the weft, and vice versa. The great difficulty in reconstructing the method employed arises from the fact that a perfect warp selvage appears across the two narrow ends, and a true weft selvage along the sides. The colors, however, had to be woven over the brown cotton foundation threads, for it would be impossible to warp the pattern threads in tapestry weave.

This material was probably woven in the following manner. Three to five warp threads were strung along either side of the warp frame.

The brown cotton weft was then woven across through the warps at either side, leaving long bare threads in the center. The frame was then turned on its side and the  $17\frac{1}{2}$ -inch wefts became the warps, and the colored wefts were

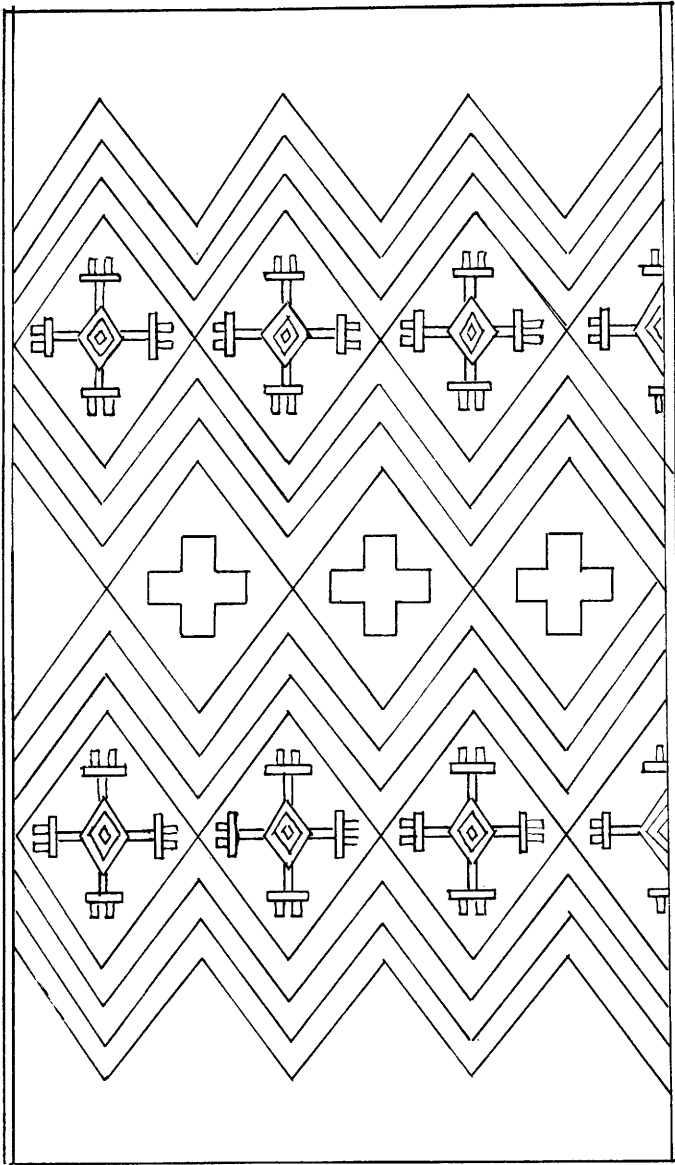
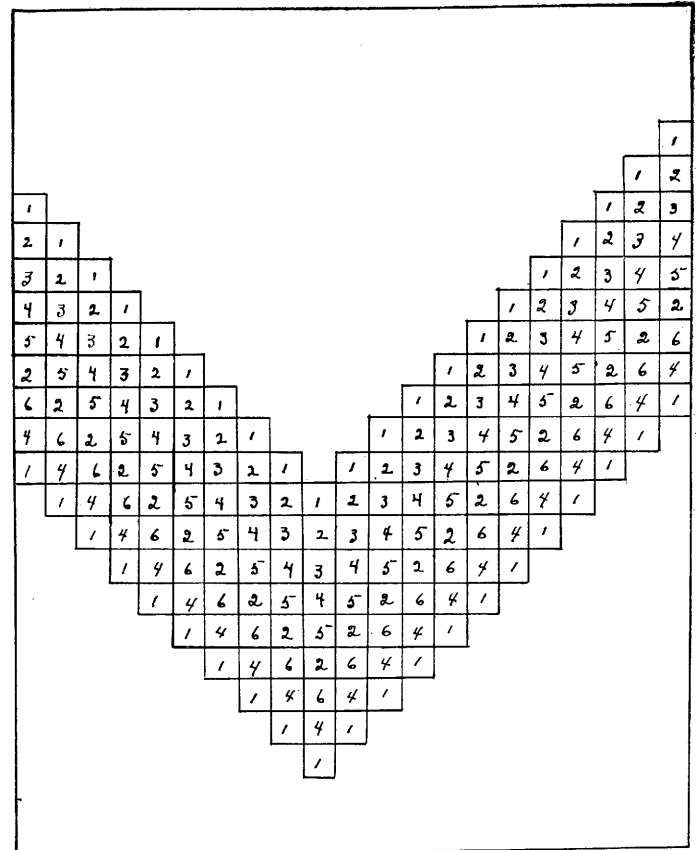


FIGURE 13

then woven along the 52-inch width of the material. This seems a very awkward method of achieving an end, but for some reason the weaver or weavers preferred to insert their pattern lengthwise of the material.

It is a pleasure to acknowledge my appreciation to the late Dr. Berthold Laufer and Mr. J. Eric Thompson for graciously making material available and for numerous valuable suggestions.

*Notes:* Simple cloth or plain weave: Warp threads and weft threads pass over and under each other alternately.



- 1. White.
- 2. Red
- 3. Yellow.
- 4. D. Blue.
- 5. Blue green.
- 6. Yellow green.

FIGURE 14

**Warp pattern:** Warps pass over and under wefts in various groupings to give a desired design. The weft plays no part in design, merely making a foundation.

**Weft pattern:** Weft pattern is the same principle as warp pattern, with the weft passing over and under warps in various groupings to give the desired design, and the warp thread forming the foundation.

**Tapestry weave:** A simple fabric of cloth weave, usually with vertical ribbing, in which the weft threads form the pattern and do not run the full width of the piece. Each weft is woven back and forth around the warp threads only where each particular color is needed.

**Slit tapestry:** A tapestry in which the various wefts are not interwoven with each other at their edges, and slits therefore appear between them.

**Interlocking tapestry:** A tapestry in which the various wefts, at their edges, are looped through each other so that there are no slits.

