

Two-Shed Weaving

I. POSSIBILITIES OF THE PLAIN WEAVE

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All Illustrations by Courtesy of the Museum of Fine Arts, Boston

(This is the first of a series of articles by Mrs. Atwater. The second, which will deal with a number of weft-face two-harness weaves, will appear in the September number of the HANDICRAFTER.)

IT is, I believe, true of all art that the simplest processes yield the most varied and magnificent possibilities, so one need not be surprised to find that the same law holds good in weaving.

The simplest manner of constructing a textile fabric is a plain over-and-under interlacing of weft with warp. This is the fundamental weave. The most ancient piece of weaving in existence — a fragment of linen material discovered among the relics of the Swiss Lake-Dwellers — is plain "tabby"; and most of the fabrics with which we clothe existence today are in this weave also.

Modern American craftsmen in weaving are apt to think of the plain weave as merely the uninteresting though necessary foundation for their pattern effects; and the owners of two-harness looms seem usually to be unable to make anything except "hit and miss" rag rugs. It is curious that this should be the case, for the possibilities of the plain weave are greater and more varied than the possibilities of any other weave —

ranging all the way from priceless Oriental rugs, and tapestries that are works of fine art, down to the humble rag mat that one may buy for thirty-nine cents in the bargain basement of any department store.

I once visited the weaving room of a large institution where I saw twenty-five two-harness looms, each warped in carpet warp on which a rag rug was being woven. It was to me a distressing sight, for this was not a rug factory, but a craft shop. And when multiplied by hundreds — the thought of all the two-harness looms made by all the factories, all set up somewhere and making rag rugs — the distress



Coptic Textile, Rabbit

became intense. Plain rugs are, to be sure, honorable and useful products when well planned and well woven, but an infinity of plain rugs is painful to contemplate. There are so many things that are more beautiful and more interesting, and that are just as useful in their way. If the following notes serve to open wider horizons to here and there a rug-weary loom they will have served their purpose.

It is, of course, impossible in a few magazine articles to cover exhaustively so vast a subject as the plain weave. The present series is designed to be practical rather than complete, and will consist in the main of detailed directions for two-harness fabrics that may be woven on the ordinary two-harness treadle loom.

Two-harness fabrics fall naturally into three groups: fabrics in which the weft predominates, fabrics in which the warp predominates, and fabrics in which warp and weft are equal or nearly so. And under each of these divisions we find numerous subdivisions. Group I — Weft-Face Fabrics

(a) Tapestry — including primitive ornamental weavings of this type, ancient Peruvian weaving, ancient Egyptian weaving, Coptic weaving, Navajo blanket weaving, ancient and modern Scandinavian weavings, Kiz-Kilim weaving, much small modern work in the tapestry technique, as well as the magnificent woven pictures we think of chiefly when we say "tapestry."

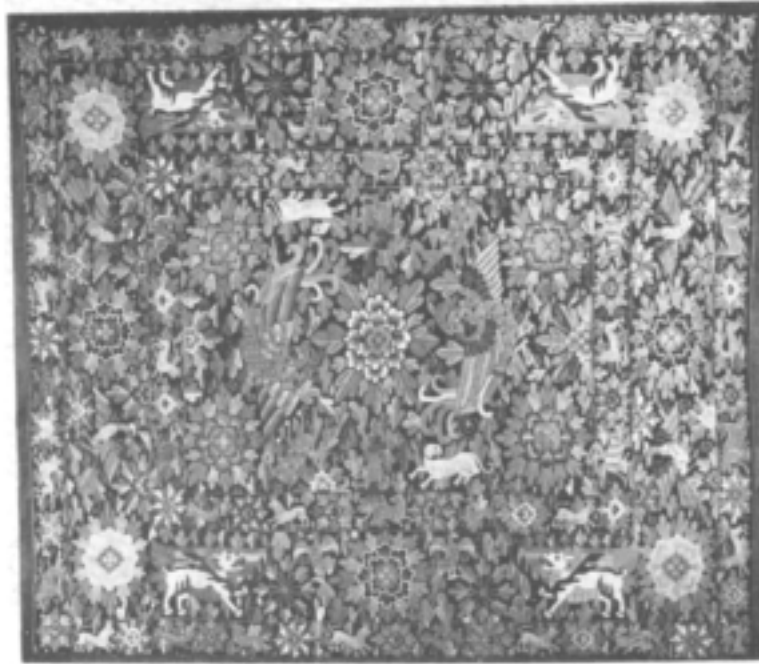
(b) Oriental "pile" rugs, made with the Ghiordes knot or the Sehna knot.

(c) Cord fabrics, plain and fancy, of the "canalé" type, made by weaving with many fine shoots of weft over a coarse warp set fairly far apart. A number of simple pattern effects are possible in this technique, which is used for borders of curtains and also for the making of chair-coverings and the like.

(d) Embroidery weaving with the use of a shed-stick. (This is not, strictly speaking, a two-shed weave, but it is an interesting possibility of some two-harness looms.)

(e) Weft-face weaving over spaced warps.

(f) Plain-weave rugs — with warp set close, with warp set far apart, arrow-head borders, set-in patterns, etc.



Tapestry — Peruvian, 17th or 18th Century

Group II — Warp-Face Fabrics

(a) Scandinavian mat-weaving, a technique that permits the use of a great variety of patterns and as many colors as one chooses.

(b) Corded fabrics of the repp and poplin orders, plain and fancy.

(c) Primitive belt-weaving and mat-weaving in warp-face effects.

(d) Scandinavian band-weaving with picked up patterns.

(e) Colonial garter-weaving.

(f) An old Colonial warp-face carpet — with the face of colored wool in stripes and the foundation of heavy linen.

(g) Fringes with warp-face headings.

Group III — Half-and-Half Fabrics

(a) Plain tabby fabrics in linen, cotton, wool and silk — these are very numerous among commercial fabrics and only a few of them are of interest to hand-weavers. Plain-weave towelling with borders, changeable fabrics for clothing, curtain scrim and several others are, however, worth considering for the hand-loom.

(b) Crêped fabrics.

(c) Ratiné.

(d) A type of two-harness pattern weaving valuable for coarse linens.

(e) Borders all around, for table linens.

(f) Checks, "Shepherd's plaid," etc.

(g) Scotch tartan plaids. These are always of interest for their historic and sentimental value as well as for their beauty.

(h) "French" plaids.

(i) Patterns in "log-cabin" effect.

(j) The mock basket weave — used in Canada for light blankets.

(k) Plain weaving with spaces left unwoven for tapestry or drawn-work, Swedish darning, etc.

(l) Fringes with tabby heading — usually of heavy linen.

(m) A lace-like Spanish weave.

There are, of course, many other variations that



Tapestry Border — Gobelin, 18th Century



Fragment of Spanish Rug



Flemish Tapestry, Mast of Ship Ulysses

might be included, but as outlined we have a large field with plenty of variety. In the list will be found fabrics suitable for any purpose, practical or decorative.

Tapestry is set first in the list because this is, it seems to me, the highest form of decorative weaving. It is also probably the most ancient form, — Egyptian tapestries are known that are supposed to have been made in 2000 B.C. It is also the most widely distributed form of decorative weaving, being found in practically all parts of the world, and in all ages.

(The commercial fabric sold in the shops as tapestry is, of course, not tapestry at all, but is a complicated Jacquard weave that resembles true tapestry in color and design, though it is entirely different in structure and texture.)

To most people, I think, the word "tapestry" stands for the magnificent woven pictures of the Middle Ages, that are among the art treasures of all time. The period from the fourteenth to the seventeenth centuries was the richest in this form of weaving, though much fine tapestry was woven later, and some is woven in our day.

It may not be known to all readers of *THE HANDICRAFTER* that Mr. Emil Bernat is an artist in this old art — one of the leading, if not *the* leading tapestry weaver in America. The Emile Bernat and Sons Company is a result of Mr. Bernat's need of fine yarns for his work, — dyed in beautiful and permanent colors. Perhaps some day the Editor will persuade his distinguished father to give an account of his art in the pages of *THE HANDICRAFTER*. Such an account would be of the greatest interest.

Tapestry weaving of this sort is the study and work of a lifetime and is far beyond the ambition and capacity of the amateur craftsman.

Two different types of loom are used in tapestry weaving. In one the warp is stretched in a horizontal position and the sheds are opened by treadles, as in the ordinary treadle loom. This is the "low warp" or "basse lisse" loom. Looms of this sort were used in the famous tapestry factory of Beauvais. In the other type of loom the warp is stretched in an upright position and the sheds are opened by means of a series of cords. This is the "high warp" or "haute lisse" loom, and is the type used at the celebrated Gobelins factory.

The high warp loom is probably the more ancient type. Penelope's loom was an upright loom, and Egyptian paintings show upright looms in use. The Navajo Indian weaver uses an upright loom also, though I have seen Indian weavers in South America weaving tapestry over a warp stretched flat on the ground. The weaving is done in exactly the same manner no matter which type of loom is used, and the choice is a matter of personal convenience. Small tapestry pieces are, I think, usually woven on upright looms in our day, and for large pieces the low-warp looms are probably the choice of most modern tapestry weavers.

A low-warp loom built especially for tapestry weaving differs in some ways from the ordinary two-harness treadle loom of commerce. If it is a very wide loom the harnesses are broken up into a number of pairs of small harnesses. The weaver works over a small part of his ground only, and it is a waste of effort to open the sheds all the way across the loom. Often, too, the depth of the loom from front to back is not as great on a tapestry loom as on a carpet loom. A deep shed is unnecessary to allow the passage of the small bobbins used instead of shuttles. However, anyone who wishes could weave fine tapestry on an ordinary carpet loom without inconvenience.

In the upright loom the sheds are opened by groups of cords, allowing the weaver to open the shed at the part of the ground over which he is working. The advantage of this type of loom is that the weaver can see both sides of his fabric if he wishes. A mirror is sometimes suspended behind the loom in such a way that the weaver may look through the unwoven warp and watch the right side of his work.

Tapestry is woven wrong side out for convenience in taking care of ends, but as the pattern is the same on both sides of the fabric — except, of course, that the figures are reversed — this causes no great inconvenience.

The process of tapestry weaving is in itself extremely simple. The weft threads instead of passing all the way across the loom are woven back and forth between a few threads at a time, according to the design. The effect depends on the use of color. A separate hobbin is required for each change of color in the width of the piece, and even a small and simple piece uses many bobbins. These are



Persian Rug, 16th Century



Chinese Rug, 18th Century



Chinese Tapestry



Mexican Bags, Mexican Belt, Ancient Indian Textile

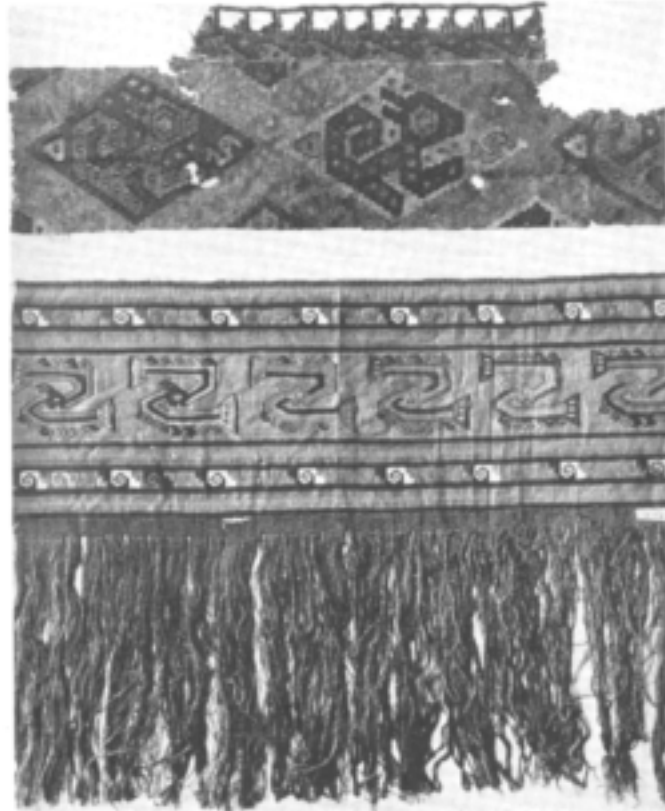
peg-shaped pieces of wood with the thread wound on the thicker end of the peg, and are allowed to hang from the unfinished edge of the work till required.

The batten of an ordinary loom cannot be used in tapestry weaving, as the edge of the work is never even owing to the fact that the fabric is built up in sections. An instrument like a small, heavy comb is used to drive the weft-threads close together. The Indian weavers sometimes use as beater a heavy wooden knife-shaped instrument like a big paper-knife.

The weft must be fine enough in relation to the grist and spacing of the warp so that when pressed together the weft will cover the warp completely. Elaborate patterns require a fine warp set close, and a correspondingly fine weft. A fine tapestry will have sixteen or more threads to the inch, while coarse weavings, like the Navajo weaving, are made on warps set at five or six threads to the inch. Warp for tapestry weaving should be exceptionally strong and smooth, especially for fine work. Silk warps are sometimes used.

The greatest possible variety in design is possible in tapestry weaving. The Indian weavings and the Oriental Kiz-Kilims are made on bold geometric patterns, while the Coptic weavings — ornamental bands and medallions let into plain-weave linen fabrics — usually show more or less naturalistic forms worked out in delicate detail. The elaboration of some of the great woven pictures is amazing.

Perpendicular lines in the design are to be avoided when possible owing to the fact that they produce slits in the fabric that must later be drawn together



Peruvian Tapestry — Pre-Colombian

with a needle. In some types of tapestry an interlocking system of weaving is used to avoid these slits, and in Kiz-Kilim work the slits are allowed to remain open and are used as a part of the design, giving it an openwork appearance that is very effective, though it detracts from the wearing qualities of the material. The long, narrow tapestries characteristic of the early European work were

no doubt woven with the selvages for top and bottom of the piece to avoid the difficulty of perpendicular lines. The interlocking method of weaving is difficult and the method of sewing up the slits not altogether satisfactory.

The greatest painters of the Middle Ages made designs or "cartoons" for tapestry weaving. Sometimes the cartoons were fastened just under or just behind the warp so that the weaver worked each figure directly over the drawing. Simple patterns are best traced on

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Peruvian Textiles — Pre-Colombian