

The background features several overlapping technical diagrams and patterns for weaving. At the top left, there are handwritten notes: "J3", "SK-8", "SP-8", "ST-8". In the top center, Finnish text reads "loimi- ja kudel- vallaista pomsia yhdistetty." To the right, a vertical scale lists "2x", "2x", "2x", "8x", "8x". Below this, a diagram shows "Thread from A... to C" and "Thread from B... to C" with "times" written vertically. Further right, another diagram shows "Thread from C... to D" and "Thread from D... to E" with "times" written vertically. At the bottom left, a diagram is labeled "Threads 880", "Inches Wide In Reed 12.5", and "Inch Wide Material 12". At the bottom right, there are labels "Oikeampioleisen rakenne." and "nuoleisen rakenne." in Finnish. A page number "3457" is visible on the right edge.

MASTER WEAVER

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FOR HANDWEAVERS



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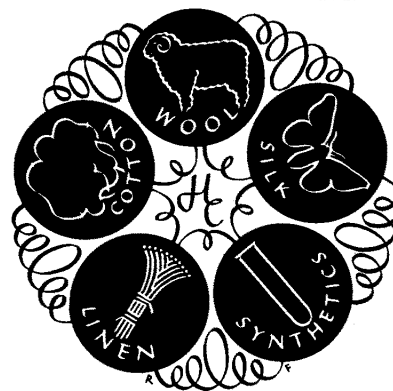
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GENEALOGY

OF WEAVES

There were many attempts made to classify the weaves, so that they could be kept in some sort of an order. For instance they would be divided into basic weaves; derivate weaves, pattern weaves, texture weaves etc.

The classifications in many cases were rather surprising. For instance Satin was considered as a basic weave, although it is obviously a variety of a broken twill, when such pattern weaves as Overshot, Summer-2-Winter, and Crackle were entirely omitted.

The reason why the classification is so difficult is twofold: first, nobody defined exactly the word "weave"; second, many weaves may be derived from more than one simpler weave.

"Weave" should mean the way warp and weft are interlaced, regardless of colour, count of yarn, and the ratio between the two. From this point of view "tabby" should include Log Cabin, Rep, simple Two-Warp fabrics, and most tapestries. Also (but with reservations): Inlay, certain types of Swivel, and Locked Wefts if woven in tabby sheds.

As to the derivation of weaves it is next to impossible to establish it historically, because we simply have not enough material to work with. We can only reconstruct the logical derivation, which may be also chronological or not.

The simplest weave of all is tabby. Incidentally it has nothing to do with tabby cat. The name comes from a suburb of Bagdad, called Attabiya.

Tabby is simple and very strong, but at the same time stiff and cold. To make it softer we may use 2, 3, or even 4 yarns woven parallel. Thus we have 2:2, 3:3, or 4:4 Basket Weave. It is warm and soft but at the same time much too weak. As a compromise 2:2 Twill was developed from 2:2 Basket. Fig.1 shows the transition from

Tabby to Basket, and to Twill:



Fig.1

This is the logical development, but it is not true historically, at least not everywhere. We have enough evidence now to be fairly sure that in continental Europe, and probably in the Near East 1:2 Twill preceded 2:2 Twill, and that the sequence was: Tabby, Basket, 1:2 Twill, 2:2 Twill.

From 2:2 Twill the logical progress is clear, although it probably took many centuries. Any weaver who would keep on threading a loom always in one direction (1,2,3,4 or 4,3,2,1), was bound to try to change this direction from time to time and see what will happen. Thus we have Herringbone Twill either 1:2, or 2:2. A similar experiment in treadling will give Wave with plain threading, and Diamond Twill with Herringbone threading.

The smaller the diamonds in the Diamond Twill, the more often we change the direction of threading. If this change comes every three heddles, we have Crackle, and finally if we go back and forth still more often, it is Overshot (fig.2):

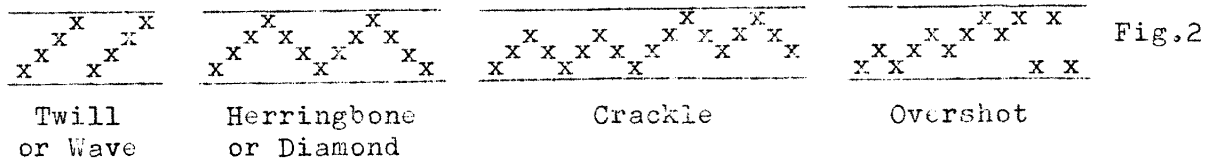


Fig.2

Crackle as a pattern weave is a little complicated, and was developed only in comparatively advanced weaving communities. On the other hand Overshot was known in every country where four-shaft looms were known.

Overshot-on-opposites was a simple development of plain four-block overshot, but Summer-&-Winter, although nothing else but Crackle-on-opposites, was a much later refinement.

This whole group of weaves comes to a dead end on multishaft looms, which increase the number of blocks of pattern, without changing in any way the principle of the weave itself.

***** (to be continued) *****

D I S T O R T E D W E F T

The term "distorted" is much older than "deflected", and this is why we use it. On the other hand we must admit that "deflected" better describes the phenomenon we are going to discuss.

On paper, that is on a draw-down, the weft runs always straight, but not so in a fabric. For that matter fabrics with a completely straight weft are very few: mostly warp-face. The weft bends around the warp ends up and down, but if the warp forms a float, the weft has a tendency to bend towards the center of this float, that is sideways. If not for this tendency, such weaves as lace, M's-&-O's, waffle, colonial honeycomb etc., would be impossible.

We have also weaves in which this distortion is not intentional, and even harmful. For instance in Overshot the pattern weft runs diagonally in most blocks; this diagonal changes direction in alternate shots of pattern weft. In Summer-&-Winter we have shots of pattern running in pairs, due to the same cause.

In this article we shall deal only with weaves which produce a pattern due entirely to the deflection or distortion of the weft, and sometimes of the warp also.

Of the traditional weaves which have a pattern in distorted weft we can mention Colonial Honeycomb (MW 17/11). Here the distortion is due to the alternate areas of tabby, which spread the fabric in all directions, when the spaces between these areas are very soft, or not woven at all (dropped tabby). Fig.1 shows an example.

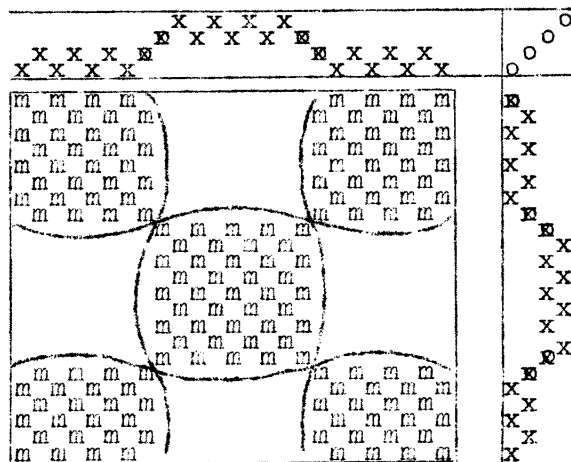


Fig.1

The fabric of this kind may be not very practical, because of comparatively long floats in warp on one side, and in weft on the other. With 8 shafts we can have alternate areas of tabby and 4:4 basket as in fig.2.

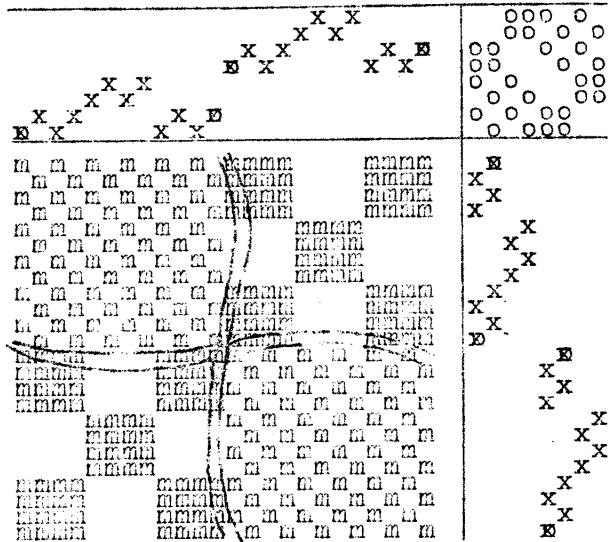


Fig.2

Since 4:4 Basket is so much softer than tabby, again tabby will spread distorting both: warp and weft. To make this distortion more evident we use heavier yarn between the blocks. It is marked "m" in both: threading and treading in figs.1, and 2.

The sett of warp in this case is of extreme importance. If we make the warp as for tabby, evidently nothing much will happen. The sett must be much closer: at least 50% higher than for tabby in fig.2, and 80% in fig.1. That is: if good, firm tabby is woven at 24 ends per inch, the sett for distorted weft should be 36 in fig.2, and 44 or more in fig.1.

But the most spectacular effect of distorted weft is gained when the pattern weft forms floats on the otherwise uniform surface of the ground fabric. As an example may serve a Bronson draft in fig.3.

Weft marked "x" weaves the ground and forms floats in warp. The pattern weft "m" is much heavier than the ground; usually candle-wick, rug filler, soft silk cord, or silk ribbon. The 1 3 part of the threading draft, which produces floats of the distorted weft,

The draft in fig.6 (called "Cannelé" by Berieau) has a completely balanced tie-up, but the ground is not uniform, that is no true tabby.

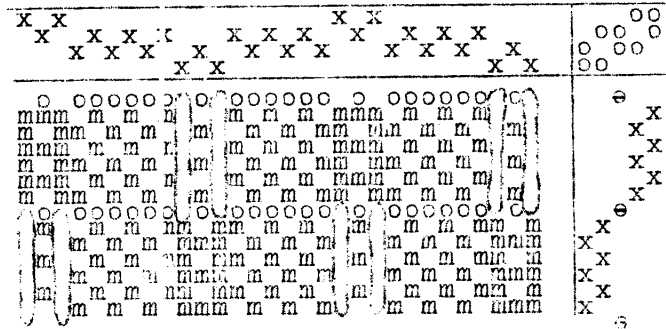


Fig.6

In all drafts so far we had floats of distorted weft all of the same length in the same piece of weaving. If we are looking for more variety, we can alternate long and short floats as in fig.7.

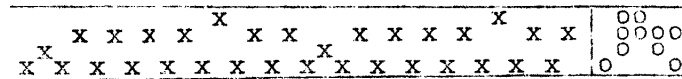
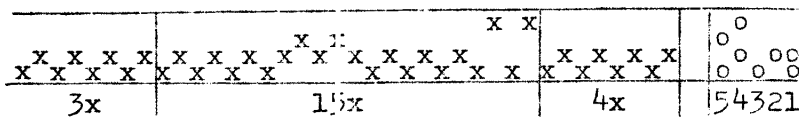


Fig.7

When weaving any of the fabrics in drafts 3, 4, 5, 6, and 7, plenty of weft must be left in the pattern shed to get the full effect of the deflection. Usually the distorted weft does not reach all the way from one edge of the fabric to the other: there is a margin of an inch or so all around. Therefore we must be careful not to cross the ground and the pattern weft shuttles at the edges.

PRACTICAL PROJECT. A center piece.

Warp: 10/2 cotton, dark green. No. of ends: 386. Sett: 24 ends/inch.



Weft: ground - 10/2 cotton, brown; pattern - light rug filler, old gold, or light chartreuse.
 Treading: 54 - to make 3"; 52514341 (or 525251434341) to make 40";
 finish with 54 - to make 3". Pattern weft on treadle 1.

TISSUE WEAVES

B R O C H É

This technique in its original form was used mostly on draw-
looms, i.e. looms which give a practically infinite number of blocks
of pattern. The idea was to fill one shed with three colours in a row,
each colour appearing in places where it was required. These colours
can be combined in alternate sheds to produce intermediary hues.

Fig.1 shows the draw-down of the fabric. If "x" stands for
red, "o" for blue, and "-" for yellow, we have the following combina-
tions of colours.

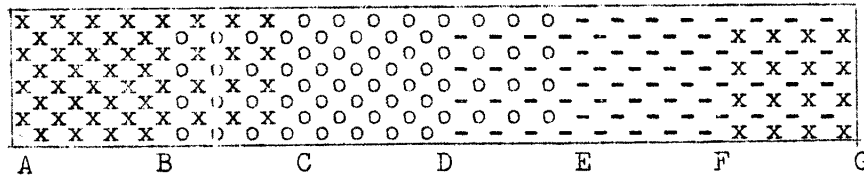


Fig.1

From A to B we have pure red; from B to C - purple as a re-
sult of mixing red and blue; from C to D pure blue; from D to E -
green, or mixture of blue and yellow; from E to F pure yellow; and
from F to G - orange (mixed yellow and red). The warp is covered by
weft and its colour does not matter. But purple, green, and orange
will produce fine vertical stripes if the fabric is woven in tabby
as in fig.1. The finer the fabric, the less obvious the stripes.

Thus the face of the fabric will look very much like real
brocade. To distinguish the fabric from real brocade it is called
Broche (pronounce: Broshay).

What happens on the back of the fabric is another matter.
When we throw the shuttle with red weft it will form a float from
C to G in the first shed of tabby, and from B to F in the second.
In other words 2/3 of the weft is wasted. The same applies to other
colours. The back is thickly padded with unnecessary floats. We could
have exactly the same effect without wasting any yarn if we picked
up the pattern using short pieces of weft as in real Brocade, or if
we had woven it as tapestry or inlay. But these two techniques mean
extremely slow weaving, therefore a waste of time.

As usual with multi-block patterns, we work them out from a profile, or make the pattern first and analyze it later. Each line of the profile represents one block (or two shafts), and each tie in the short tie-up draft two treadles (1-5, 2-6, 3-7, 4-8). In fig.3 we have three examples of patterns and their profiles.

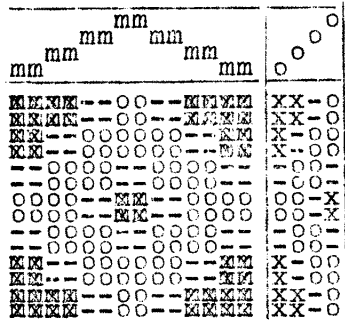


Fig.3 A

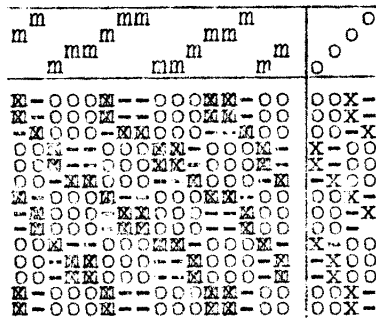


Fig.3 B

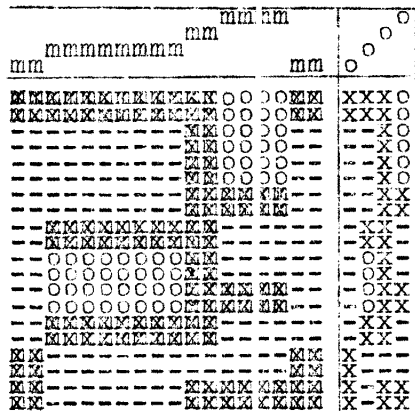


Fig.3 C

To make the drafts as simple, and as clear as possible, we are using here only pure colours. The number of blocks is therefore only four. By blending

colours we can have six more blocks. But for blending we must use additional symbols in treadling. For instance if we blend x and o, neither can be used in the treadling directions, except in the full draft as in fig.2. In a short draft the blending can be indicated by additional letters, e.g. "v" = x+o; "z" = -+o, etc. Needless to say that these additional blocks will be only

in treadling, since they cannot change the profile.

With a higher number of shafts we can use twill as the ground weave, instead of tabby. Fig.4 is an example of 1:3, or rather 3:1 twill. It can be woven as satinet.

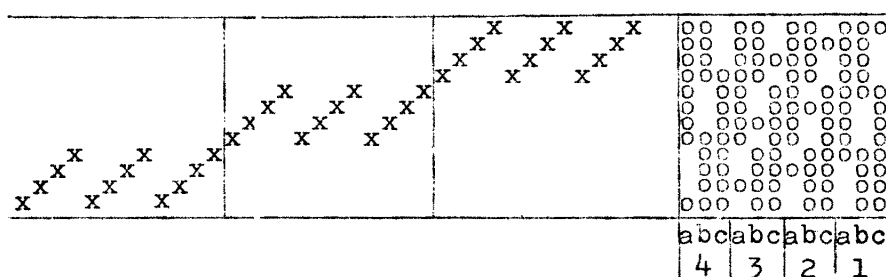


Fig.4

We have here three blocks of pattern only, because each block takes four shafts, Four blocks would require 16 shafts.

The treadling for broken 3:1 twill will be: 4a, 4b, 4c, 2a, 2b, 2c, 3a, 3b, 3c, 1a, 1b, 1c.

For broken 2:2 twill: 4a+3a, 4b+3b, 4c+3c, 1a+2a, 1b+2b, 1c+2c, 2a+3a, 2b+3b, 2c+3c, 1a+4a, 1b+4b, 1c+4c.

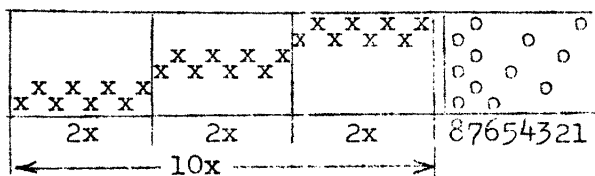
For biased 3:1 twill: 4a, 4b, 4c, 3a, 3b, 3c, 2a, 2b, 2c, 1a, 1b, 1c.

These treadlings do not indicate the colours used, because the selection of colours depends on the pattern woven. Of these three treadlings the most satisfactory is the first, because it gives the best coverage of warp without any diagonal in the texture.

Broche woven on a multi-shaft loom has a very limited number of blocks, when compared with a draw-loom. This is why, before coming to this final stage, we had an article on Locked Wefts in Full Swivel. In Broche we can use locked wefts exactly as in Full Swivel, and with the same results, that is increasing considerably the number of blocks of pattern, and this time we are speaking about the blocks in the profile. The more complicated the profile, the more we gain. Thus in Fig.3 C, where the profile is very simple we gain only one block. In fig.3 A - we have three additional blocks. But in fig.3 B locked wefts can give as many as eight blocks extra.

We shall not go into all details of weaving Broche, because such details would take too much space, and also because the weave is likely to be experimented with by really advanced weavers, who are able to solve purely technical problems.

PRACTICAL PROJECT. Upholstery.



Warp: 10/2 merc.cotton, beige.
No.of ends: 480; sett: 20 ends per inch; reed No.10, 2 ends per dent.

Weft: 10 merc.cotton, soft twist, or corresponding pearl cotton.
Treadling: 6,5,4,3,2,1. Order of colours: aababb, cbccac, etc.
Suggested colours: a - black, b - grey, c - white.

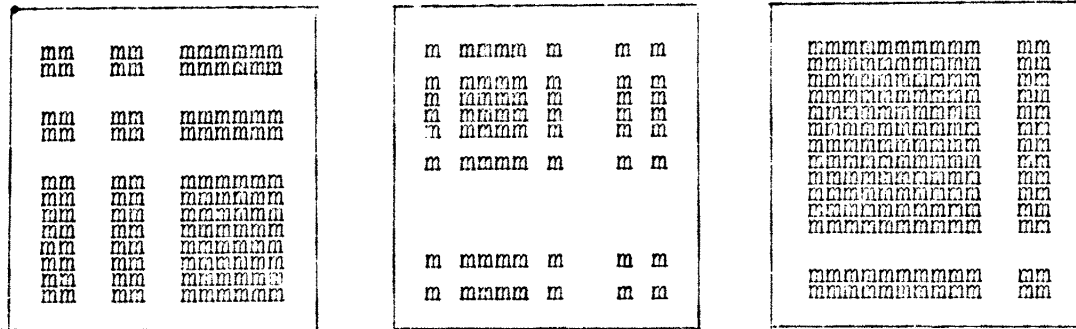


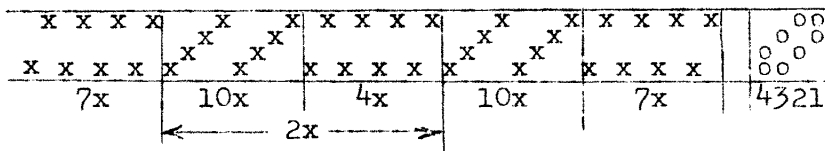
Fig.4

There is nothing particularly difficult about weaving this kind of lace. The sett of warp is the same as for tabby. In sleying, heddles 1 and 2 must be in the same dent, and so are heddles 3 and 4. The fabric should be exactly 50:50, that is the number of picks per inch is the same as the sett of warp.

The same weave will produce more complicated patterns with more shafts: two shafts for each additional block of pattern. We shall describe these multiblock patterns in the next issue of the Master Weaver.

PRACTICAL PROJECT for 4 shafts.

Linen towels.



Warp: 25/2, or 12 single linen half-bleached or natural. No.of ends: 456; sett 28 ends per inch; reed No.14; 2 ends per dent.

Weft: same as warp, or single weft on two-ply warp.

Treadling: 6" of tabby (23); 2413 - 24 times, 23 - 16 times; repeat the last two groups until the desired length is reached; finish with 2413 - 24 times, and 6" of tabby.

Finishing: boil in water with soap for 10 minutes; rinse; iron damp with a very hot iron and plenty of pressure.

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