The background of the cover is a collage of various weaving-related documents. It includes several grid-based charts with different patterns, some with handwritten notes in Finnish. One note at the top left says "loimi- ja kudel- vaitaista pomsia yllistetty." Another note in the middle says "Threads 880 Inches Wide In Reed 12.5 Inch Wide Material 12". There are also some numbers and letters scattered around, like "2x", "8x", "345", and "3-752 K".

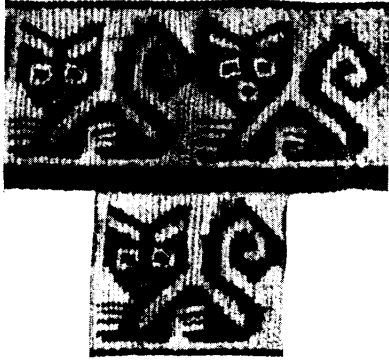
MASTER WEAVER

BI-MONTHLY BULLETIN
FOR HANDWEAVERS



Z-HANDICRAFTS
FULFORD, QUE., CANADA

Handweaver & Craftsman



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BI-MONTHLY BULLETIN FOR HANDWEAVERS

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September, 1957

No. 35

DESIGNING MADE EASIER

NUMERICAL PATTERNS

This is our last article in the current series on Designing. We shall describe here a technique which bears the same relationship to designing patterns, as the "accidental weaves" (MW 26/1) to drafting in general. This technique unfortunately has only a limited application in weaving, since the patterns are free and require quite a large number of harness-frames.

Otherwise "Numerical Patterns" may be used in the following weaving techniques: Rugs in Chenille; Swivel on a 12 or 16 frame loom; Embroidery Weave on a Pattern Harness, and of course in all sorts of inlay, pick-up, tapestry, knotted rugs, and other free weaves.

In other crafts the same principle may be applied to mosaics in tiles, pottery, inlay in wood, linoleum floors, panelling etc.

To make the pattern we first outline the area corresponding to the project on graph-paper and divide it into small squares, all of the same size (fig.1). Then in this space we mark the sequence in which we shall fill-in the squares with colours - we shall call this sequence: the "movement" of the pattern. The movements are shown in fig.2 and 3.

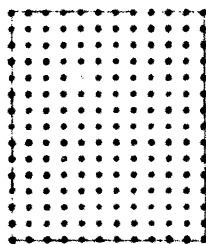


Fig.1

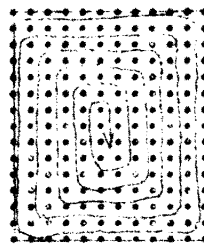


Fig.2

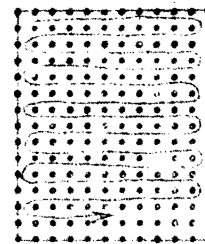


Fig.3

Finally we choose the colours and their proportions. To make the problem simpler we suppose that we use only 3 colours: A, D, and W (see "Colour" MW.32); for instance: white, light grey, and

black. Since Grey is the Dominant, it should cover the largest area: let us say 6 squares. The accent (white) may be then 3, and the sub-dominant (black) - 4. Instead of 6, 3, 4, we could take as well: 12, 6, 3, or 18, 9, 12. We could also use a different proportion, like 8, 2, 3, or 9, 3, 5 etc.

Now to draw the pattern we go along the line which indicates the direction of the movement (fig.2) and count the squares. We start

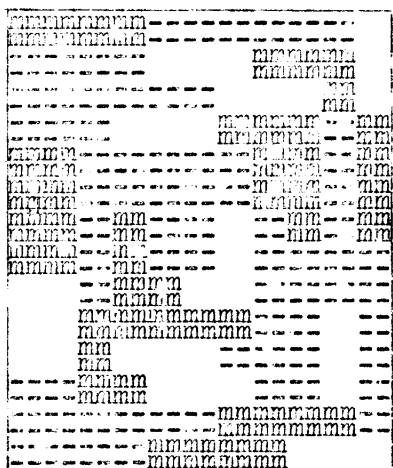


Fig.4

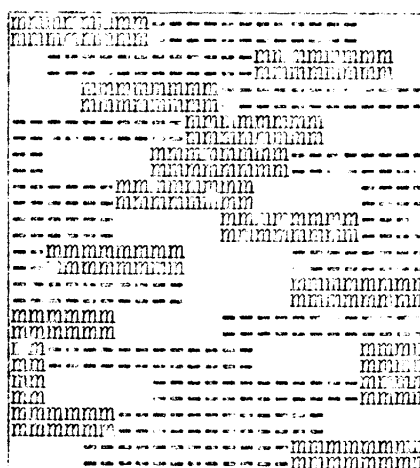


Fig.5

with black in the left-hand upper corner, count 4 squares and paint them black. Then 6 grey squares, then 3 white, etc. We keep on following the movement of the pattern until we reach the center. The resulting design is shown in fig.4.

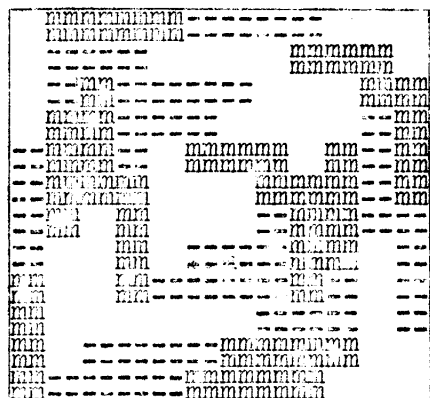


Fig.6

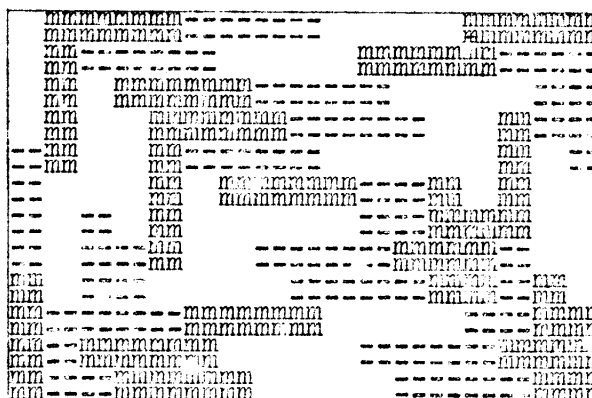


Fig.7

The peculiarity of this pattern is that it does not suggest at all the original rotary movement which we have been following. We shall make now another experiment. We shall keep the same colours, the same proportions (colour ratio), and about the same size of the woven piece, but we shall try another movement - as in fig.3. The pattern is shown in fig.5. Here we have an effect of horizontal

stripes, which we could expect, but there is also a much more striking effect of two crossed diagonals.

What would happen if we did not stick to the Munsell's theory of colour, and used completely different colour ratios? For instance the same amount of each? The answer is given in figs.6 and 7. In both cases "circular" movement (fig.2) has been used, and the ratio is: white - 4, grey - 4, black - 4.

Both patterns are quite good, probably better than the one in fig.5. But when we look at them we are not quite satisfied; we wish there were more of grey, or perhaps more of white. Or is it just the result of a habit?

Whatever it is, we may try more patterns with one dominant colour. Fig.8 shows a new movement, more or less like a letter "S", and fig.9 - a still more complicated one. On the basis of the movement in fig.8 we made the pattern in fig.10, and the movement in fig.9 has been developed into the pattern in fig.11.

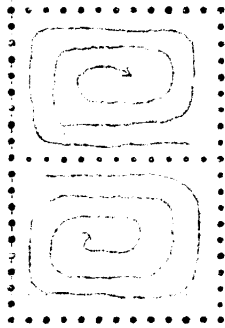


Fig.8

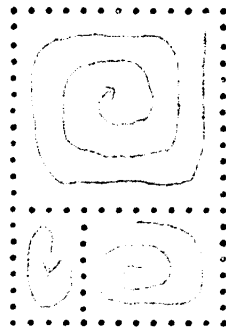


Fig.9

Fig.10 has the sequence: 3,5,4 (black, white, grey); and fig.11: 4,5,3 (black, grey, white). In both patterns we kept to the Golden Rule ("Proportions" MW.33) as far as the shape of the woven piece is concerned. In fig.11 we also subdivided the main rectangle into three areas in the same way.

Now comes the question: What is the value of such patterns made entirely by formulas? After all these patterns could be designed by an electronic brain, or even by a much simpler machinery.

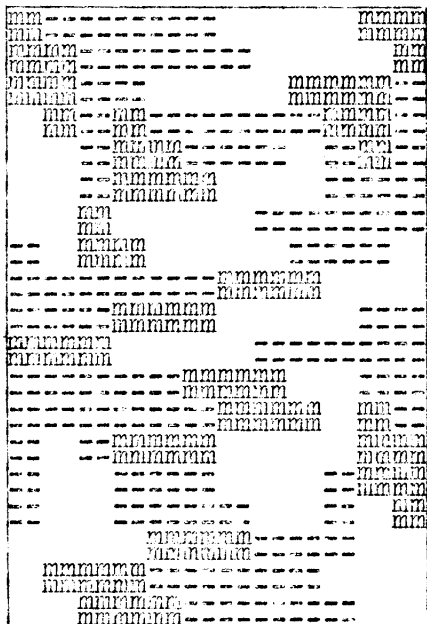


Fig.10

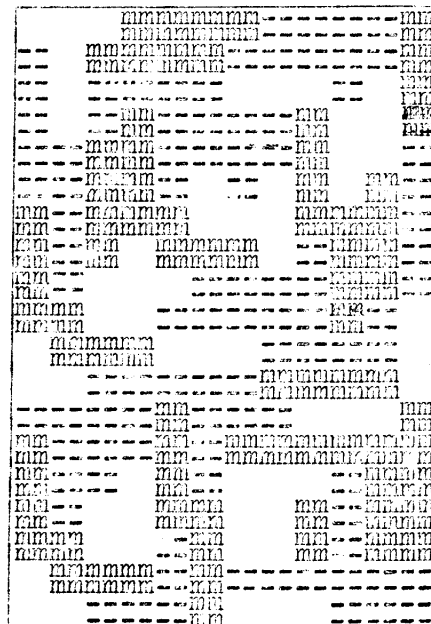


Fig.11

This is perfectly true. Except for the selection of colours, and for the choice of the sequence of numbers, there is little "self-expression", "creativity", etc. in this method. This we admit and it should be kept in mind.

But at the beginning of this series of articles about designing we stressed the fact that there are trends to express creativity in formulas. Our personal opinion is that formulas are of little value, whether for colour, texture or pattern. However we have promised to make a survey of such methods of designing, and we have kept our word.

To a craftsman who is an artist at the same time, all these formulas are completely worthless. But very few craftsmen are artists. If they are good craftsmen, why should they be deprived of the pleasure of creating their own projects? Why should they be condemned to copy other people's work? Or still worse why should they make insincere attempts at "being artistic"? Is not it better that they should follow certain rules, which certainly will not make masterpieces of their work, but which at least will prevent them from producing poorly designed projects?

A project in which one follows strictly all the rules of colour, texture, and pattern will never offend the eye. Such a project may be not striking, but it will be pleasing, because the rules are based on the likes and dislikes of an average member of our civilisation.

Finally if one learns the rules, practises them for a time, and looks critically at the results, he may so to speak "wake up" one day to find out that he does not need any rules any more. The rules simply became a part of his unconscious life.

Is this good or bad?

Such integration of rules of designing could be a death of an artist, but also it can be the making of a good craftsman.

FROM THE CLASSICS

C.G. Gilroy, 1844

The pattern drawer, like the poet and the painter, ought to possess a strong and lively imagination, to be deeply impressed with the beauties of nature, and to be able to draw from thence the principal effect of his designs. A chaste taste also is necessary in the pattern drawer as in the manufacturer; and this will be greatly improved by a little knowledge of geometry, particularly symmetry and proportion; for nothing can be more offensive to a person of genuine taste than a pattern crowded with an incongruous assemblage of distorted objects.

MODERN S & W.

It seldom happens that we can introduce a new weave to our readers. And when we say "new", we mean only that as far as we know this weave has not been used in handweaving during the last century or so. So far we have described the following "new" weaves: Swivel (old English spotweave), Locked Wefts, Paper Spots (dropped tabby), Turned Bronson, Double Waffle, etc. Probably none of them is really new, and this applies to the present case as well.

Summer-&-Winter has two qualities which distinguish it from other pattern weaves: uniformity of floats (all of 3, or 2), and the smoothness of texture due to the floats being staggered. Thus in Summer-&-Winter the weft covers the warp (when so desired) much better than in case of Overshot, Crackle, etc. This is particularly important in case of weft-face fabrics, such as bound woven rugs.

However the fact that all the floats are so short (so desirable when strong, firm fabrics are woven) makes Summer-&-Winter of little use in such applications as texture weaving with 3D yarns, soft, flat rugs, couch covers, and so on.

If we could have a Summer-&-Winter with floats of any length (but of the same length in the same piece of weaving) it surely would be an improvement. Then we could adapt it to nearly any purpose.

The weave which we are going to describe is just that: a variation of Summer-&-Winter with floats of 5, 7, or even 9. But we must discourage any undue enthusiasm right away: this is a multi-frame weave only, from 6 frames up. It is true that it could be woven on 4 frames, but only as an uniform texture (fig.1a), and then it

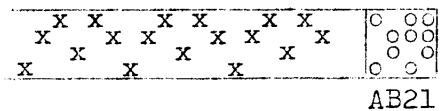


Fig.1a

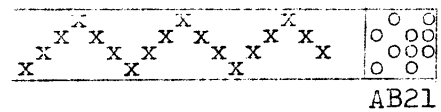


Fig.1b

would not have any advantage over a plain twill as in fig.1b. In both cases treadling: 2,A,1,B will give staggered floats of 5, but the floats will cover the whole surface of the fabric. Such a draft can be of some use to the texture weavers who use 3D yarns. With soft and rather bulky weft the ground will be hardly visible, and yet the fabric will be quite strong. The texture weft on treadles 1 and 2; and the binder on treadles A and B. But there is no pattern of course.

Two-block patterns require 6 frames, and three-block - eight frames. Let us start with the simplest case of two blocks, and floats of 5. The draft is shown in fig.2. The first two frames are playing the same role as usual in summer-&-winter - they stitch the floats of pattern to the ground. But the pattern frames (3, 4, 5, 6) have now two objects to achieve: 1-st to produce the blocks of pattern, 2-nd to supply the tabby for the binder. Obviously the two first frames could not do it. This is why each block of pattern requires now two frames instead of one.

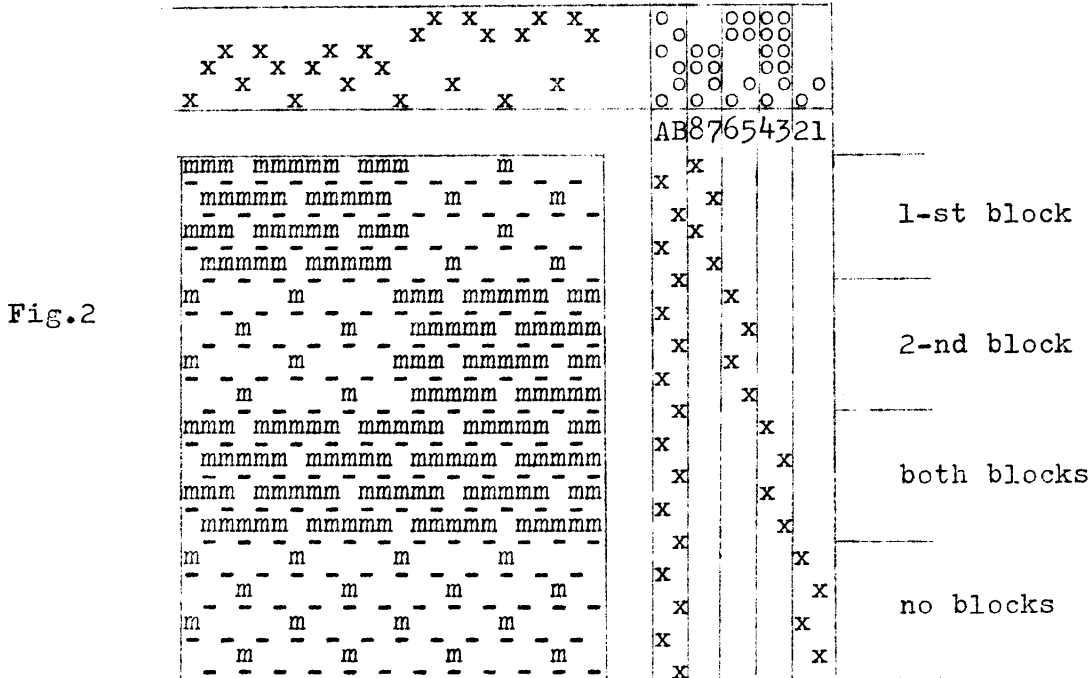


Fig.2

We are using 10 treadles because there are very few 6-frame looms with 8 treadles, and it is nearly certain that an 8-frame loom with 10 treadles will be used anyhow.

The treadling in fig.2 is for plain weaving with a binder on A and B. Treadling for bound weaving will be as follows:

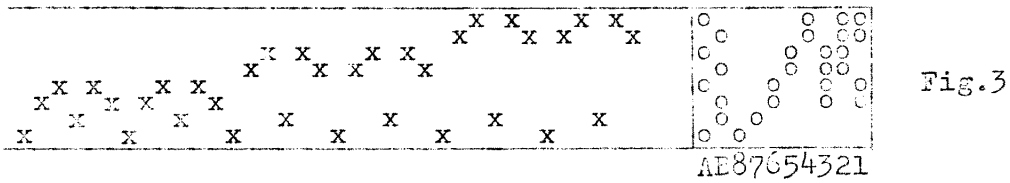
1-st block: 8, 5, 7, 6; 2-nd block: 6, 7, 5, 8;

both blocks: 4, 1, 3, 2; no blocks: 2, 3, 1, 4;

Dark colour on first and third pick in each repeat (underscored), light colour on second and fourth pick of weft. Otherwise the bound weaving is done as usual, and the same rules concerning the selection of warp and weft, treadling, beating etc. as for 4-frame Summer-&-Winter - apply here.

On an 8-frame loom we can have the same weave with 3 blocks of pattern as in fig.3. But here the number of treadles for all possible combinations of blocks (1, 2, 3, 1+2, 1+3, 2+3, 1+2+3, 0) would be 18. Therefore we must use a compound tie-up and a two-foot tread-

ling most of the time. The draw-down has been omitted, because it would look exactly as in fig.2, except for the number of blocks.



Treading. 1-st block: 6+8,A,6+7,B; 2-nd bl.: 5+8,A,5+7,B; 3-rd bl.: 4+8,A,4+7,B; treadle 3 gives the combination of the first and 2-nd block; treadle 2 - 2-nd and 3-rd block; treadle 1 - 1-st, and 3-rd block. No blocks - 8,A,7,B.

Even here to get all blocks (1+2+3) three treadles must be used at a time: 3+4+8,A,3+4+7,B. The "no blocks" combination is often called "ground", but this should not be confused with tabby, which is not used at all except as binder

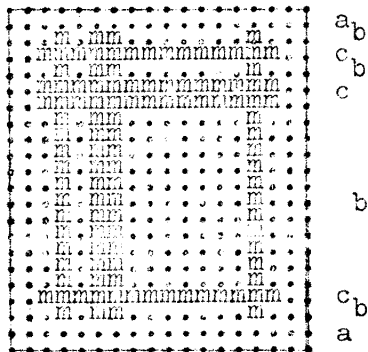


Fig.4a

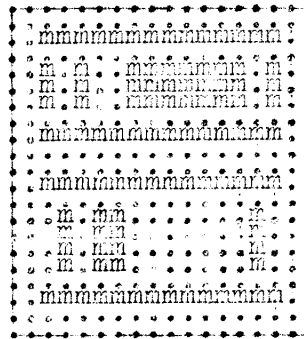


Fig.4b

However in most cases we shall not need all the combinations of blocks, and instead of the tie-up in fig.3 we may use a simpler one. For instance in fig.4a we have only the following combinations: a - no blocks, b - block 3, and c - blocks 2 and 3. Therefore this pattern can be woven on a straight tie-up with 8 treadles. Fig.4b has 4 combinations and can be woven with 10 treadles. The whole draft for both patterns is shown in fig.5. We suppose that one square is equal to 1 inch, and that we have a warp of 30 ends per inch.

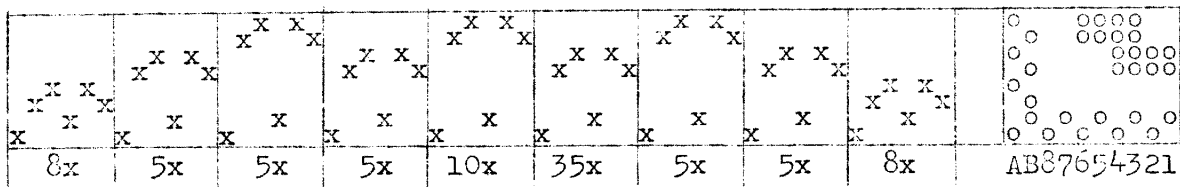
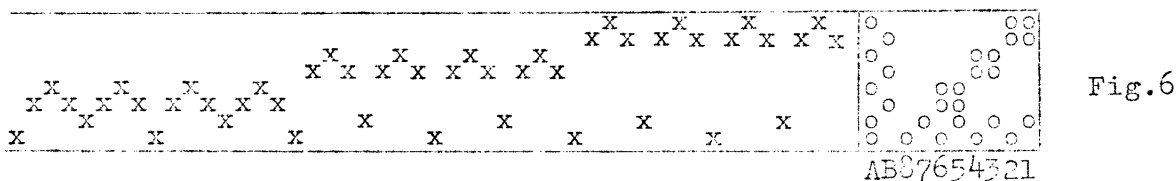


Fig.5

Treading: 2-nd block: 2,A,1,B; 3-rd bl.: 6,A,5,B; 2+3 bl.: 4,A,3,B; and "no blocks": 8,A,7,B.

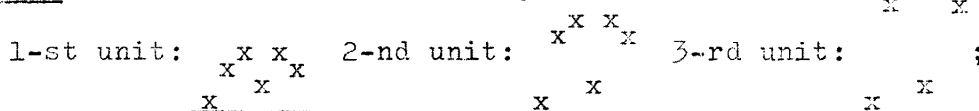
Longer floats require a different threading draft, and incidentally - a different tie-up, at least for tabby. Let us take first floats of 7. The draft in fig.6 shows three blocks on 8 frames:



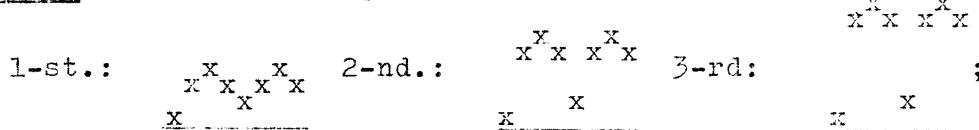
Treadingling the same as with floats of 5, i.e.: no blocks - 8,A,7,B; 1-st bl.: 6,A,5,B; 2-nd bl.: 4,A,3,B; 3-rd bl.: 2,A,1,B. The above tie-up does not give combined blocks, but for instance in case of patterns like 4a, and 4b - the same tie-up and the same treadingling can be used as in fig.5 except for the ties on tabby sheds.

We have here exactly as in plain Summer-&Winter distinct units of threading, and therefore the same Profiles as for other pattern weaves can be used. The units are as follows:

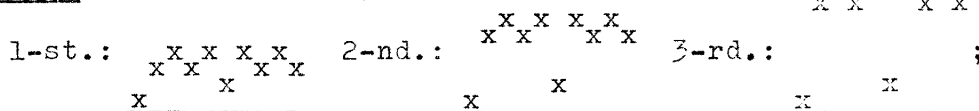
Floats of 5. The same tie-up as in fig.5.



Floats of 7. Tie-up as in fig.6.



Floats of 9. Tie-up as in fig.5.



We could go on like that indefinitely, but floats longer than 9 are of doubtful value.

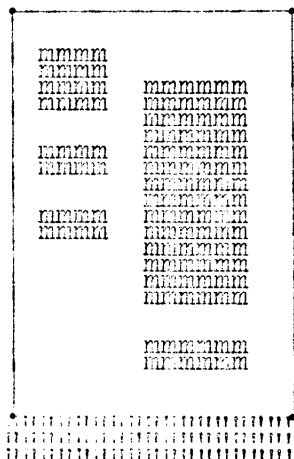
With a higher number of frames we may have a higher number of blocks. Thus with 10 frames - 4 blocks of pattern; with 12 fr. - 5 blocks; with 14 fr. - 6 blocks, and with 16 fr. - 7 blocks. But to take a full advantage of so many blocks we would have to have a still larger number of treadles: 34 for 4 blocks, 66 for 5 blocks, 130 for 6, and 258 for 7. Here even a compound tie-up will not help. Only a table loom (and correspondingly slow weaving) or a Jacquard would answer. Any pattern with more than 3 blocks must be therefore very carefully planned, analysed, and the tie-up established even before the warp is made.

The principal application of this weave is to the modern "texture" weaving. Since the main problem of weaving patterns with 3D yarns is how to show the pattern yarn to its advantage, but only where and when it is wanted, the long-float Summer-2-Winter is the obvious answer. It is much better than the modern overshot (compare "Texture" MW 34) because it produces a more uniform texture, and because blocks of pattern can be combined easier. The length of floats can be adapted to the yarn at will.

Another possibility more in keeping with traditional weaving although also in the "texture" class is to weave fabrics very much like "tissue" weaves, where we have a contrast between the ground and the pattern due to the difference in texture of the weave, but not of the yarn used. Thus we can have fabrics woven all in the same, or very similar yarns with pattern not unlike satin, and ground not unlike tabby. Here all other factors remaining the same as before we use fine, smooth yarns, closely set warp, and rather glossy weft.

PRACTICAL PROJECT.

Wall hanging (over a matlepiece?) 24" by 36". Pattern as in fig.7.



A
B
C
D
C
D
C
D
A
D
A
F

Warp: linen No.1½ natural or light rust.

Sett: 9 ends per inch; reed No.9; one end per dent.

Weft: (binder) linen tow, or homespun No.4, 6 or 8, natural.

Weft: (pattern) very heavy wool, about 500 yds/lb. dark rust twisted with metallic dull copper, or old gold. This kind of wool may be hard to get. Find the heaviest of the required colour, and twist several yarns together. Use a doubling stand to prevent loops at the edges.

Fig.7

Threading draft:

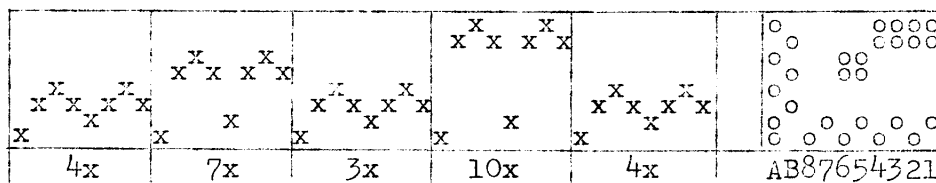


Fig.8

Treadling: A (fig.7) - 8A7B; B - 6A5B; C - 2A1B; D - 4A3B. There should be approximately: 3" of A; 3" of B; 3" of C; 3" of D; 3" of C; 3" of D; 3" of C; 6" of D; 3" of A; 3" of D; and 3" of A. Finish with 6" of fringe in warp.

When the piece is taken off the loom, spread on a table and comb with a wire brush (downwards only) to rise a "nap".

PATTERNS

IN VELVET RUGS

The simplest pattern in velvet is made by mixing several colours in pile warp (compare the article about Velvet in MW 34). This will produce stripes parallel to the warp. For instance 8 warp ends in one colour will make a stripe 1 inch wide. Unfortunately stripes in warp are very unsatisfactory as pattern go. About the

only application of this technique are cushions (fig.1). The length of the cushion is made from the width of the woven fabric - thus the stripes go across the cushion and not parallel to its long sides.

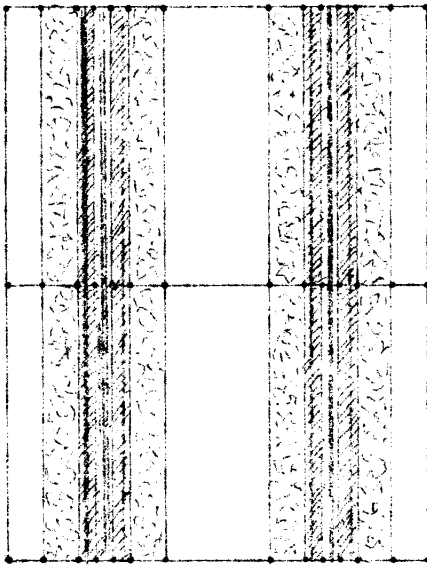


Fig.1

As an example we can make a warp 24" wide for cushions about 15" by 20". This means 192 warp ends in the pile warp. The warping plan may be as follows:

20 white, 12 grey, 4 black, 1 white, 2 black, 1 white, 4 black, 1 white, 2 black, 1 white, 4 black, 8 grey, 4 black, 1 white, 2 black, 1 white, 4 black 12, grey, 40 white, 12 grey, 4 black, 1 white, 2 black, 1 white, 4 black, 8 grey, 4 black, 1 white, 2 black, 1 white, 4 black, 12 grey, 20 white. The ground warp and binder should be grey.

Two-block patterns have more possibilities. But first of all: what do we mean by "block" in velvet? Since one block as in the former example can have as many stripes and colours as desired, then the meaning of a "block" is here not the same as in other pattern weaves. Block in velvet is a combination of colours in one horizontal line, i.e. running across the fabric. If we have two such combinations we have two blocks. But the two blocks are completely independent from each other. One can be all red, and the other all white (this would produce stripes parallel to the weft), or one can have two colours, when the other will have five. The sequence of colours may be also chosen at will.

The profile for velvet looks as in fig.2, where "m" is for instance black, "-" - grey, and "." white. Below the profile we have the draw-down, or simply the pattern of the rug.

If we rather like the traditional patterns we can copy any of the two-block patterns for Summer-&-Winter, damask, or double weave. The black squares in the profile represent one colour, and the empty spaces - another.

The profile can be made in the following way: one square of the graph paper means one inch in the width of warp, or 4 ends in one block plus 4 ends in the second block. Thus if we intend to make

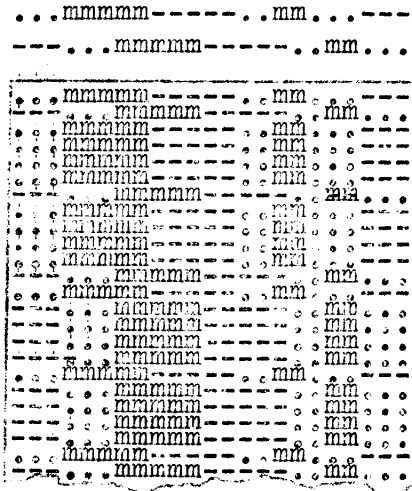


Fig.2

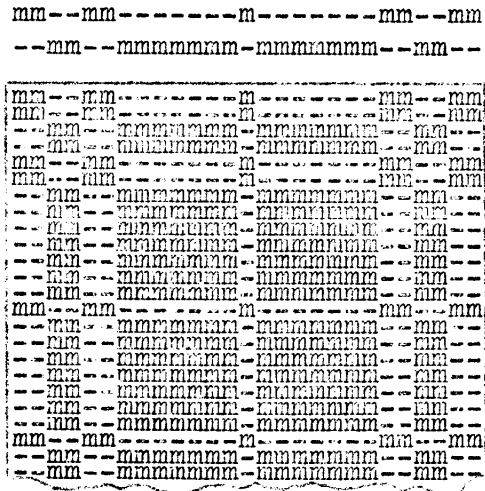


Fig.3

a rug 27 inches wide, we mark off on the paper 27 squares in one line, fill in the colours, and then right under the first line we mark another, and also fill the colours, as in fig.3 for instance.

This means of course that we shall have two warps: one corresponding to the upper line of the profile, and a second one corresponding to the lower line. Each will have 27 x 4 or 108 ends. Both will have the same length if both blocks are used at the same rate, but this is seldom the case. Otherwise we must make first a complete draw-down of the pattern and figure out how many squares of each block we have in the vertical direction. For instance if we made a complete draft of the pattern in fig.3 for a rug 27" by 35", block No.2 (upper line) would be used 10 times (or 10 squares), when the lower line (block No.1) takes 25 squares. Thus the warp for the first block will be 2½ times longer than the warp for the second block.

Now, how long are both warps? This depends on the length of the pile, and on the number of the rows of pile per inch. If we have a pile ½" long (or one inch per loop before cutting), and 6 rows per inch, then we need 6 times 1 inch, or 6 inches plus about 1 inch for stitching the pile to the ground, or 7 inches in all. Therefore the warp for the 1-st block will be 25 times 7", or 175" (about 5 yds.) for each rug plus wastage. The warp for the second block will be only 10 times 7 or 70", or about 2 yds plus wastage. It is rather unlikely that we would make only one small rug with such an elaborate set up. Let us suppose that we shall make 5 rugs. Then the length of the warp for bl.No.1 is 5 x 175 plus 1 yd (wastage) or 875 yards in all, and the warp for the bl.No.2 is 5 x 70 + 1 or 351 yards. The ground warp will be still only about 6 yds (5 x 1 + 1).

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