MASTER WEAVER

Z-HANDICRAFTS - FULFORD - QUEBEC - CANADA

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POLYCHROME DOUBLE WEAVES.

"Polychrome" is one of the catch-words from which we are suffering during the last decade or so. It simply means, when applied to weaving, that we are using several colours. All tartans are "polychrome", and so are striped fabrics with all colours in weft - the lowest although beautiful form of pattern weaving. Another term which means the same thing is "multicolour". You can try also "polycolor", and "multichrome". It is fortunate that we are slightly acquainted with Latin and Greek only. If we knew other languages, the number of terms to designate the same phenomenon would be astronomical.

It all boils down to the fact that we are trying to get many colour combinations with comparatively limited means. If our "means" are limited to two harness-frames, then we can have three basic colours in warp and the same number in weft. By crossing them as in plaids or tartans we can also get the intermediary shades. In all: blue, violet, red, orange, yellow, green, and also their mixtures with black and white. But with this method of blending colours we cannot get more than one pure colour in each vertical or horizontal line.

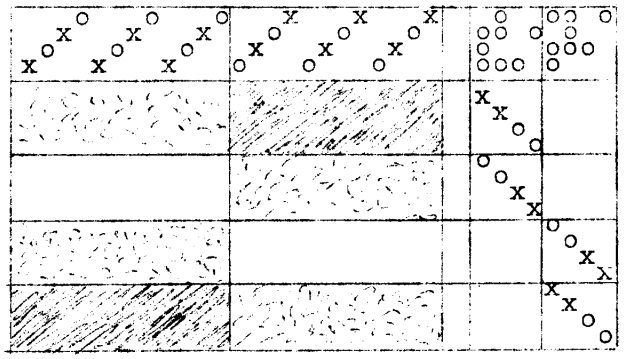


Fig.1

o - white,

x - black.

With four frames we can do a little better. In double weave for instance we can have two pure colours in one line, but only in one direction. This requires special tie-up, which will bring either one or the the other layer of cloth to the surface, as in fig.1.

With only two colours in warp and weft we have three combinations - two pure colours and one blended. In our example it is white, black, and grey. Thus we can have a square of black directly under a square of white (impossible with any other weave on 4 frames), but not beside a square of white. This rather limits possibilities of designing patterns.

When we have 8 frames, the situation is completely different. Not only can we have two pure colours in both: vertical and horizontal direction, but we have also "blocks" of pattern, exactly as in Summer-&-Winter or other pattern weaves. These blocks are not the same as the usual blocks of double weaves. The latter require four frames for each block, and are independent from the combination of colours used, when our "polychrome" blocks grow more numerous with increased number of colours.

Even with two colours: white and black, we can have four independent blocks of pattern and four combinations of blocks. Fig.2 shows all the eight combinations.

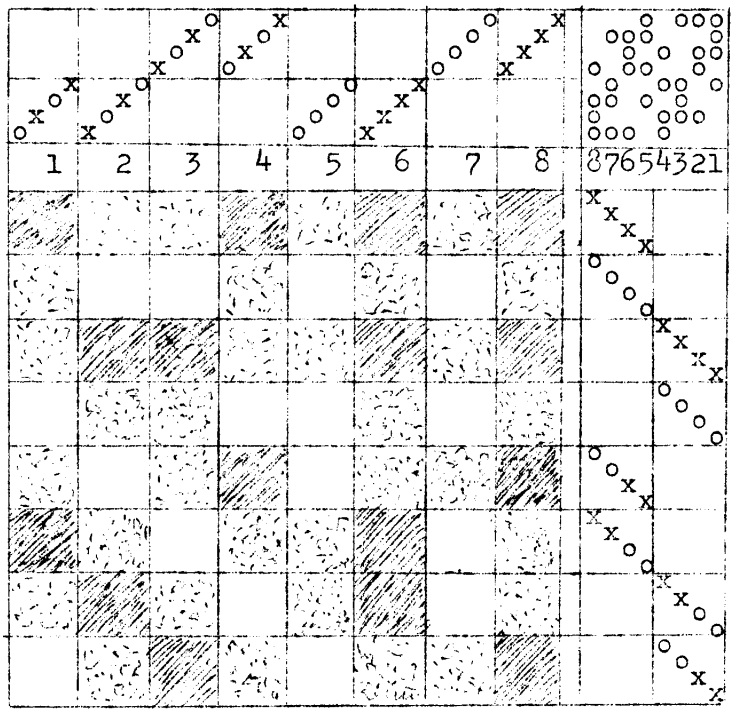


Fig.2

The eight blocks of threading (1,2,3 etc) can be of any size and they can be taken in any order. The same applies to the units of treadling (A,B,C,D, etc).

The table in fig.2 is the key to designing in polychrome double weave. Without this key all attempts to figure out a design will be purely a hit-and-miss affair. This is because with each additional colour the number of combinations increases. For instance 3 colours give 16 "blocks"; 4 colours - 32 blocks, and so on. There are simply too many possibilities for trial and error method.

We shall try now to design simple patterns in white and black, plus of course the incidental grey. The pattern itself must be in a pure colour, either black or white; patterns in grey would be hardly visible, because then the white and black blocks would become "incidental".

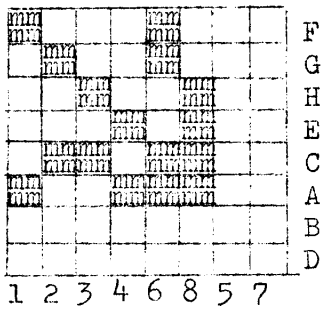


Fig.3

If we decide on black as our leading colour, then we shall regard white and grey as "background". Now we shall arrange the black blocks in some sort of a "profile", or rather a short draw-down (fig.3). We have now a choice of 1,2,3, 4,6,8, and F,G,H,E,C,A for the pattern, and 5,7,B, and D for the ground.

Figures 4,5,6,7,8, and 9 show, what can be done with the draw-down on fig.3. By selecting, enlarging, and rearranging the blocks of pattern we can get quite a large variety of both traditional (fig.4 and 7), and "modern" designs.

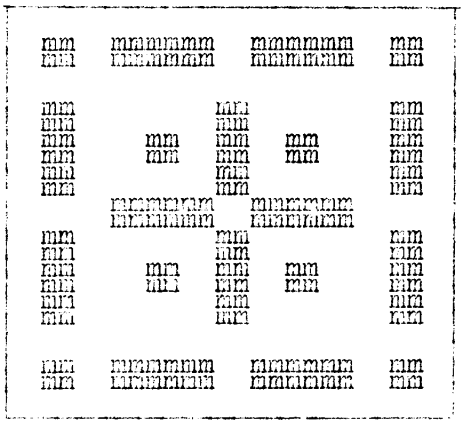


Fig.4

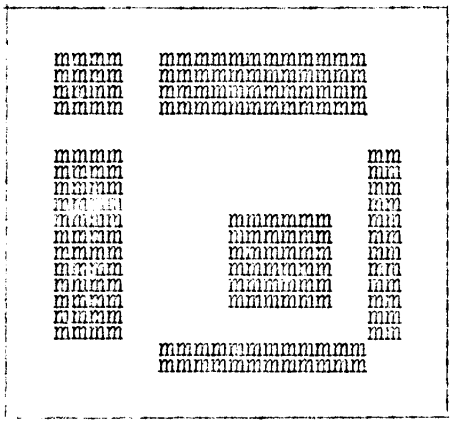


Fig.5

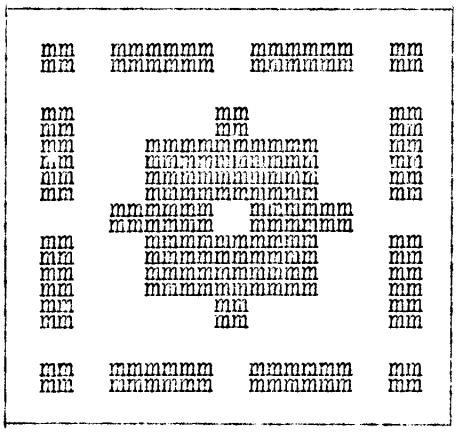


Fig.6

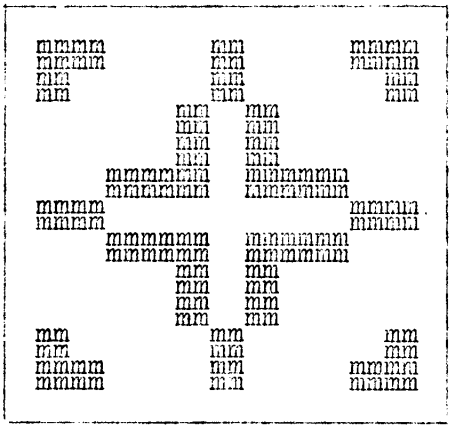


Fig.7

In fig.4 the threading was: 7653831303567, and the treadling: BCDFAFHFAFDCB.

In fig.5, threading: 766533888317; treadling: BCCDFFAAAFHB.
In fig.6, threading: 5673881883765; treadling: BCDFAAHAAFDCB.

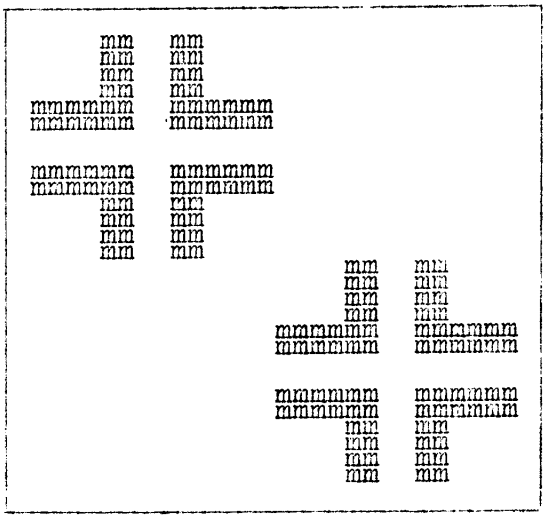


Fig.8

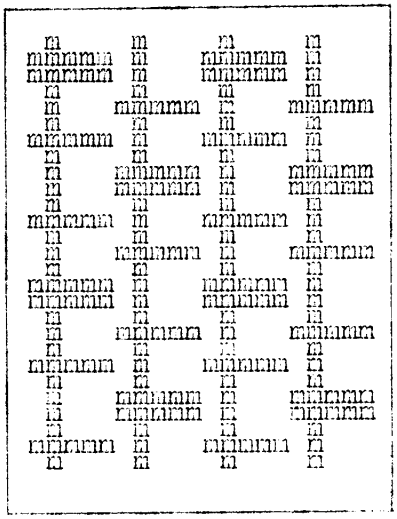


Fig.9

In fig.8 the threading is: 73325233441714l45, and the treadling: DGGCBCGGFFADAFFB. Fig.9 is really an "all-over-pattern" with threading draft: 7181112822218111282227, and the treadling: BHAAHCHAHCCHAHCHAAHCHAHCCHAHB.

If we give so many examples of symmetrical or partly symmetrical patterns it is because they are much more difficult to design from a given profile than the so called "modern" or free pattern. Any corner of one of the symmetrical patterns can be cut off, enlarged, and deformed if necessary, to produce a new pattern. For instance fig.5 is nothing else but the left hand upper corner of fig.4 with the blocks changed slightly in length. In the same way fig.8 has been taken from fig.7 with the extensions of the central cross cut off (this removed the corners as well), and then repeated in another combination of blocks.

Speaking about blocks, we may remind the reader that the definition of a block in pattern analysis is: a vertical element of a pattern. Thus in fig.4 we have 5 blocks, and the same number in figs.: 5 and 6. There are six blocks in fig.7 and in fig.8 (two blocks of the ground), and only four in fig.9. The total number of blocks is sometimes 8 (but not more); this in plain double-weave would require 32 frames, and at least 32 treadles. And this is the real advantage of the polychrome double weave - not that it is "polychrome" but that it gives more possibilities in designing than any other 8-frame weave.

The difference in texture between traditional double weave and polychrome is that the change of colour does not coincide necessarily with the change of the two layers of the weave. Thus a black square in traditional double weave is "stitched" on all four sides. In polychrome it may be stitched or not. In other words the pattern follows the structure of the fabric in traditional double weave, but not in polychrome.

If we are using more than two colours we must make for each pair of colours a copy of the table in fig.2. Then we replace black with one of the new colours, and white with the other. The grey will correspond to the mixture of the two colours: green for blue and yellow, purple for red and blue, and orange for red and yellow.

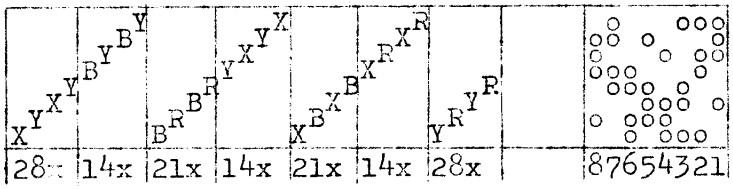
To see what happens when one pair of colours crosses another pair, for instance black and red in threading crosses blue and yellow in treadling, we would have to prepare still more copies of the table No.2. In case of 4 colours, we would need 16 such copies. This however is not necessary at all. A much easier way, is to decide first on the threading. Since the pattern is going to be woven in pure colours, we make only copies of the table 2 in those colours which we intend to have in the pattern. From these tables we can deduce the threading. The black is now replaced with dark colours selected for the pattern. The white may remain white, or be changed to any light colour or even several light colours.

Once the threading is done, instead of working out all the colour combinations on paper, we weave a sampler with about ½" of each possible colour combination in weft, making notes as we go along. This will be described again in our Practical Project.

Let us suppose that in the fig.8 we should like to have the upper left cross in red, and the second one in navy blue. We replace black by red in blocks 2 and 3, and by blue in blocks 1 and 4. In weaving we also use red instead of black in blocks C and G, and blue instead of black in A and F. The ground may remain white, or we can change the white to grey, ivory, yellow, etc.

Practical Project.

Place mats to go with Mexican pottery. Colours: black, red, blue, and yellow. Design - irrational. Warp: 8/2 cotton, 40 ends per inch, 560 ends. Reed No.10, 4 ends per dent. Threading draft (R - red; Y - yellow; B - blue; X - black):



The treadling is always 1324, or 5768. To establish all possible blocks of pattern in polychrome we make the following sampler (each sample about ½" wide):

Sample No.1 - 5768 - XXXX; Sample No.2 - 1324 - XXXX;

(this means that black is used on all four treadles in each sample)

Sample No.3 - 5768 - RRRR; Sample No.4 - 1324 - RRRR;

" No.5 " BBBB; " No.6 " BBBB;

" No.7 " YYYY; " No.8 " YYYY;

Sample	No.9	- 5768 -	XRXR;	Sample	No.10	- 1324 -	XRXR;
"	No.11	"	RXRX;	"	No.12	"	RXRX;
"	No.13	"	YXYX;	"	No.14	"	YXYX;
"	No.15	"	XYXY;	"	No.16	"	XYXY;
"	No.17	"	XBXB;	"	No.18	"	XBXB;
"	No.19	"	BXBX;	"	No.20	"	BXBX;
"	No.21	"	RBRB;	"	No.22	"	RBRB;
"	No.23	"	BRBR;	"	No.24	"	BRBR;
"	No.25	"	BYBY;	"	No.26	"	BYBY;
"	No.27	"	YBYB;	"	No.28	"	YBYB;
"	No.29	"	RYRY;	"	No.30	"	RYRY;
"	No.31	"	YRYR;	"	No.32	"	YRYR;

The darkest colours in our project are: black and blue, and the pattern should be designed in those two. The remaining colours will be more or less incidental. As an example we can use the following treadling: No.8 - ¼"; No.7 - ¼"; -repeat these two blocks 5 times; No.14 - 1"; No.15 - 1½"; No.1 - 1"; No.15 - 1½"; No.14 - 1"; No.7 - 1", No.1 - 1½"; No.13 - 1"; No.1 - 1½"; No.7 - 1"; 8 - ¼" and 7 - ¼" five times.

This should give about the right length for a place-mat. It will have a definite pattern (a square and a cross) on one side, when the other side will be more accidental. Both can be used, of course.

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We may say as well here that the polychrome double weave is about the most difficult one in drafting. The confusion of the two layers of which the lower one becomes the upper and vice versa, the two colours in each layer and/or in each block of pattern; the two kinds of "blocks": one in colours, and another in the structure, makes any "short drafting" very uncertain. A table such as in fig.2 should be worked out for each particular tie-up from Full draw-downs in colour.

In our discussion we have used the standard tie-up for 8 treadles. With 12 or still better 16 treadles we have still more possibilities of combining blocks, but 8-frame looms have seldom more than 10 treadles, and we did not think it wise to include the more complicated tie-ups in this article.

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