

The background of the cover is a collage of various weaving-related documents. It includes several grid-based patterns, some with intricate designs. There are handwritten notes in Finnish, such as "lainsi- ja kudot. mallista pomeia yhdistet 2y." at the top. Other text includes "Turned from A", "Threaded from B", "Threaded from C", and "Threaded from D". A central note says "Threads 880", "Linen Whip in Hand 12.5", and "72.7". At the bottom left, there is a note "3-752 K".

MASTER WEAVER

**BI-MONTHLY BULLETIN
FOR HANDWEAVERS**



**Z-HANDICRAFTS
FULFORD, QUE., CANADA**

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STRIPES

When primitive weaving reached the stage where utility of woven cloth was no more of primary importance, when yarn could be processed in such a way that it was made in different colours, either by sorting and mixing, as white, black, and grey wool, or by bleaching, as natural, half-bleached, and bleached linen, or finally by dyeing the yarn - a new way became open for expression of weaver's artistic, irrational needs.

The easiest way of using colour were stripes in weft. This stage was common to all cultures. But the following step depended on climat and economics. For instance in tropical countries, where life was easy, a weaver had enough time to go into intricacies of pick-up on extremely primitive looms, with the resulting highly developed design in weft. But in moderate zones where agriculture demanded much more labour, the weaver had to be efficient before he could afford to be artistic. Thus he had to develop a better weaving equipment first, and ornamental weaving later.

Therefore if we look for interesting patterns in stripes, we must study countries where this type of weaving lasted longer than in economically more fortunate parts of our globe.

Stripes in weft logically lead to plaids, that is stripes in both: warp and weft. But stripes in warp mean also a comparatively high weaving technique: good looms and warping equipment, and high skill necessary to make a 50:50 fabric. Thus we may expect to find plaids in moderate zones, but only in higher cultures. And this is what we actually find.

We can learn a lot about composition of striped fabrics by observing how this technique developed in primitive weaving cul-

tures. We do not like to say "primitive cultures", because often quite advanced cultures are primitive in weaving. Particularly in the Eastern Block we find communities where "citizen peasant" uses tractors, has electricity and radio in his home, but his wife still weaves striped fabrics on a very simple loom.

First there are only two colours alternating at the same rate, that is each takes the same space. This is extremely uninteresting by all standards, and we can see that soon one colour (usually the darker or the more striking) is broken into stripes of different widths. Compare fig.1 A and B. At the same time one colour will take

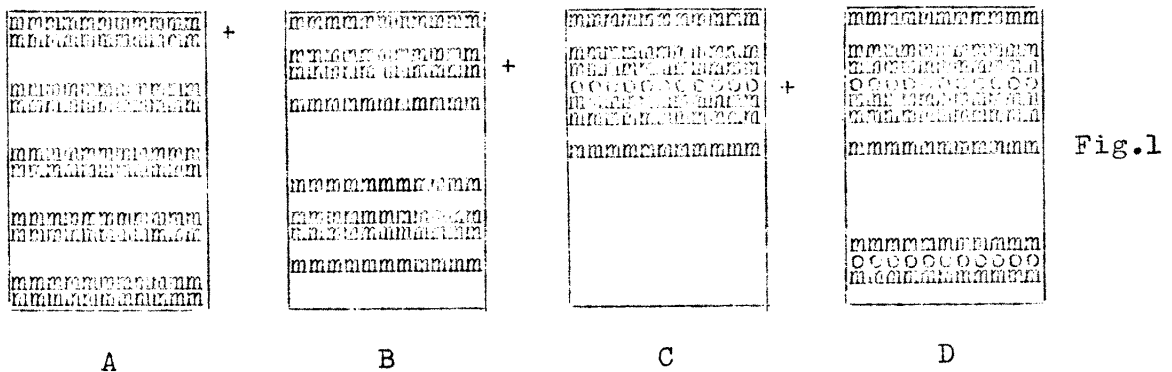


Fig.1

more space than the other. Thus the first colour becomes a "dominant" (MW 32 page 3), and the second a subdominant. Here the reason for having a smaller amount of one colour may be purely economical, because the dominant is usually neutral (white, grey, natural) that is less expensive than the other colour.

The next step is introduction of a third colour usually in a very limited quantity (fig.1 C). This is what we call an accent. Thus the one stripe of a darker colour becomes more and more complicated: compare "+" in A, B, and C.

The next stage is the appearance of a secondary narrower stripe in some way resembling the main stripe as in fig.1 D. This stage may or may not coincide with the introduction of the fourth colour, which would be used also sparingly, and we might call it a secondary accent, something which corresponds to the accent on the subdominant.

But this should not lead us to the conclusion that the development of primitive striped fabrics follows the theory of Mun-

zell, or any other theory of designing, even if we have the four colour elements in the right proportions, because the hues are quite independent of any particular sequence. Here again the economical factors dictated the choice of colours, at least in many cases.

Regardless of how many colours were used, or how advanced was the weaving culture, in primitive design we have only symmetrical stripes, and the rhythm, that is the sequence of different stripes when once established never changes in one piece of weaving. There is also a complete lack of any attempt to blend two colours by using mathematical progressions, like 1, 2, 3, 4, etc., or 1, 2, 4, 8, 16, and so on.

With all these limitations the striped fabrics are fascinating just because they can produce such beautiful effects with such simple means.

If we want to venture into designing of stripes, we have the following possibilities:

1.) Copy and develop traditional stripes by changing and adding colours.

2.) Blend the dominant and the subdominant (not the accents), for instance: 1A, 8B, 2A, 7B, 3A, 6B, 4A, 5B, 3A, 6B, 2A, 7B, 1A, 8B; or: 1A, 8B, 2A, 4B, 4A, 2B, 8A, 1B. The blending area can be followed by a solid stripe.

3.) Use unsymmetrical stripes.

4.) Change the rhythm. This must be done very gradually. At first change slightly the main stripe; repeat; change the secondary stripe; repeat; introduce a new colour in the main stripe, then in the secondary; drop out one colour in the primary; the same in secondary; introduce another colour in primary etc. This is the most creative and rewarding way of composing striped fabrics.

5.) Try to apply faithfully Munzell's theory to stripes; that is select colours, and ratios in which they should be used. Play changes on this theme.

6.) Introduce texture by using floats in accents. This by the way has been done in primitive weaving.

The stripes can be woven in tabby, but not 50:50 tabby. The warp should be covered by weft or nearly so. Other weaves are 2:2 broken twill, or 3:1 broken twill.

H A N D W O V E N F U R C O A T

Needless to say, that the "fur coat" should not be taken literally. The fabric described here ressembles fur inasmuch as it has pile on one side and a solid surface on the other. Incidentally it is much warmer than any fur. Also it does not need any lining because lining is woven at the same time as the pile. It is not washable but it can be dry cleaned. It is more hygienic because it is not airtight. All in all it is the ultimate in woolen fabrics for cold weather.

On the other hand the fabric is not as strong as good fur, it is not quite easy to weave, and presents problems in tailoring. We shall take up these difficulties later on.

We start with corduroy. This gives us pile but very little foundation. We could use a 4-shaft corduroy all in wool, but the fabric would be too flimsy, even with lining. The only type of lining which can make it practical is one stitched all over to the pile fabric.

Thus we have three problems in drafting: pile fabric, lining, and stitching. The best pile fabric will be the one shown in fig.1 A.

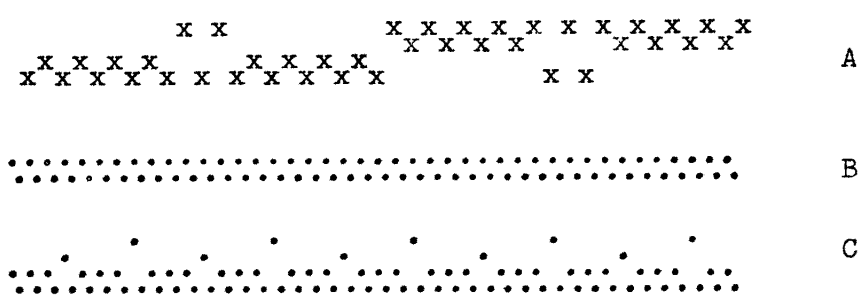


Fig.1

The lining is tabby, and much finer than the pile. Thus the draft in fig.1 B would be suitable with twice as many ends per inch as the pile fabric. Still it cannot be stitched to the pile very easily except in horizontal rows. Fig.1 C shows a draft for lining which can be stitched at will, that is either heddles on shaft 3 or 4, or both can be used for stitching in any order and as often as necessary.

The combination of 4-shaft corduroy and 4-shaft lining looks more or less as in fig.2 which is only a part of one repeat.

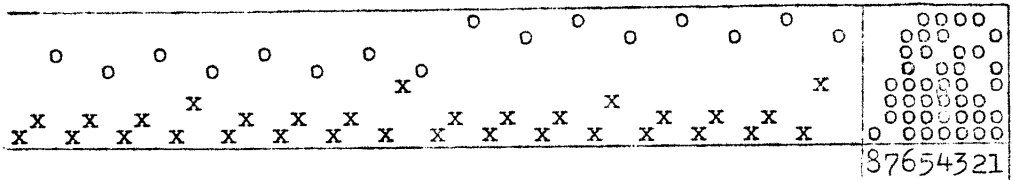


Fig.2

treading: 876875874873872876875874873871. Heavy yarn on treadles 1,2,3,4,5, and 6; fine yarn on treadles 7, and 8.

Shafts 1 and 2 are the lining; 3 and 4 - stitching; 5, 6, 7, and 8 - the pile. Treadles 7, and 8 weave lining; 3, 4, 5, and 6 - the pile; and 1 and 2 are stitching both layers.

Having two stitching shafts is a luxury, because stitching should be invisible anyhow, and it matter little whether we stitch in squares: :: , or diamonds: .'. alhtough the lattern stitching may have some influence on the doftness of the fabric. Thus we could easily cut down the number of shafts to 7, but we do not gain much by doing it - we must still use an 8-shaft loom. If we could make it on 6 shafts it would be another matter. But can we?

Since we need at least 3 shafts for lining with stitching, we can use only 3 shafts for the pile fabric. A 3-shaft corduroy can be woven on a Bronson draft, but it gives a less satisfactory pile than the 4-shaft one. Still here is the draft:

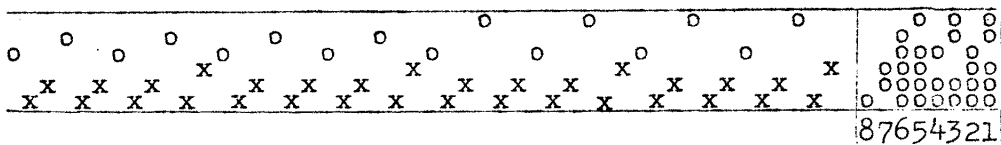


Fig.3

This is the most economical solution of the problem. It will work only when pile, lining, and warp for both are of the same colour because ground will show between rows of pile. Treadles 7 and 8 weave the lining; 5 and 6 - the pile, which must be fastened to its ground by treadles 1 and 2 used alternately every few shots of pile. Treadles 3 and 4 are stitching treadles and can be used as necessary - treadle 3 instead of 1, and treadle 4 instead of 2. For instance: 876875876875872876875876875871 etc.

With 4 shafts for pile, we have quite a choice of different pile fabrics. When we mentioned before that fig.1 A shows the best corduroy we meant that the fabric is at the same time good looking

Treadles 1 and 2 weave the lining; 7 and 8 - the pile; 5 and 6 - the ground for the pile, and 3 and 4 are stitching treadles. The order of treadling is not easy to establish on paper, because it depends a lot on the yarn used.

All tie-ups given so far are for sinking shed. In most cases it does not matter too much which side of the fabric is on top. Here however, particularly if we cut the pile during weaving we must have pile on top. Therefore with jack-type looms the tie-up must be reversed, that is we tie the empty spaces instead of the marked ones.

For purely practical reasons it is advisable to use the same yarn for both warps: lining and pile. It makes warping much easier, and saves us from tangled sheds later on. It must be either hard-twist single, or two-ply warp yarn, e.g. # 2 single, or 2/4. It should be set 18 ends per inch for lining, and 9 ends per inch for pile. In all 27 ends per inch (reed No.9, 3 ends per dent). The weft for lining may be of the same count but of softer twist, and the weft for pile - a much heavier 2 or 3 ply wool, for instance domestic coarse two-ply.

The threading draft being rather complicated, it is very likely that we shall have some mistakes. The ones in the upper layer (pile) are visible and therefore easy to correct. But the lower layer can be seen only in a mirror and locating a mistake is a problem. Here are two suggestions: weave one inch of lining without the upper layer at all - then the lower layer will be visible through the warp; or better tie two extra treadles exactly opposed to treadles 1 and 2. These will bring the lining to the top, and make correcting quite easy.

The treadling can be established only when the loom is set up and the weaving started. This is because pile must be beaten very hard to bind it to the ground; otherwise the pile will pull out. If we weave too much lining the beating of the pile is ineffectual.

Thus even if theoretical treadling on paper is: 127128127
128125127128127128126 for two independent layers woven at the same rate, we may find out that the pile is not tight enough, and that we must treadle: 127812781275127812781276; or even 1278512786. Weave one inch of each, then cut the pile and see how firmly it is bound

to the ground by trying to pull single yarns. They can be pulled out no matter how the fabric is woven but they should offer certain resistance. This resistance may increase in finishing.

The pile can be cut on the loom or later. Cutting on the loom (every 6" or so) is easier, but then the fabric becomes bulky which means that we may have to cut off the fabric from time to time.

Tailoring depends to a certain extent on finishing, and we shall speak about these problems later on.

FROM THE CLASSICS

HARMONIOUS COLOURING

(from "The Art of Weaving")

By Clinton G. Gilroy 1844.

"Harmonious arrangements of colours are such combinations as by certain principles of our nature produce an effect on the eye similar to that which is produced by harmonious music on the ear; and a remarkable conformity exists between the science of colour and that of sound in their fundamental principles, as well as in their effects."

"It is well known to all who have studied music, that there are three fundamental notes, viz. C, E, and G, which compose the common chord or harmonic triad; and that they are the foundation of all harmony. So there are, also, three fundamental colours, the lowest number capable of uniting in variety, harmony, or system."

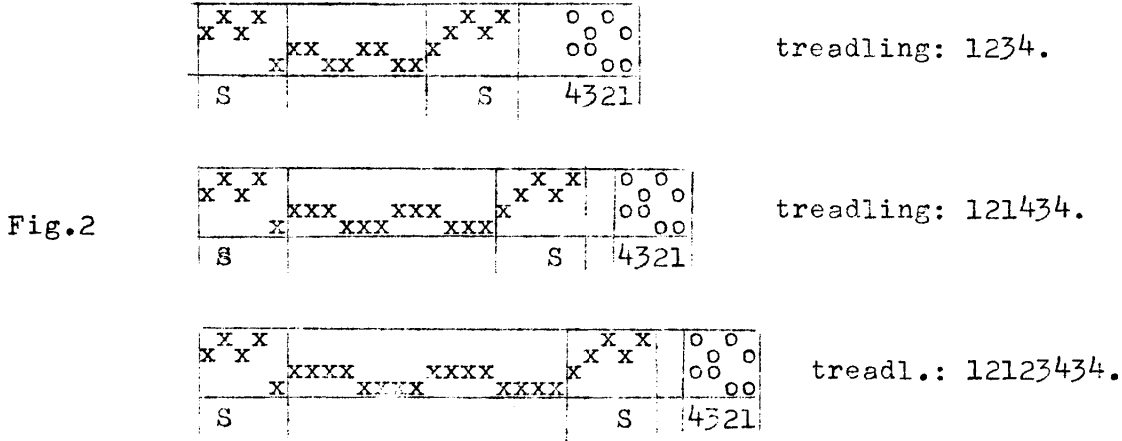
"By the combination of any two of these primary colours a secondary colour of a distinct kind is produced; and as only one absolutely distinct denomination of colour can arise from a combination of the three primaries, the full number of really distinct colours is seven, corresponding to the seven notes in the complete scale of the musician. Each of these colours is capable of forming an archus or key for an arrangement to which all the other colours introduced must refer subordinately. This reference and subordination to one particular colour, as in the case in regard to the key note in musical composition, gives a character to the whole."

"This characteristic of an arrangement of colour is generally called its tone; but, this tone is more applicable to individual, as it is in music to voices and instruments alone. The colourist, like the musician, notwithstanding the extreme simplicity of the fundamental principles upon which his art is founded, has ample scope for the production of originality and beauty, in the various combinations and arrangements of his materials."

1.) For small samples we use one shuttle (with a single yarn), and throw it in the same shed as many times as necessary. To prevent the weft from being pulled out we pass the shuttle over one or two yarns at the edge.

2.) If the amount of basket is considerable, it is better to use 2 shuttles for 2:2 basket; 3 for 3:3, and 4 for 4:4. The shuttles should be marked with numbers so as to be used always in the same order; this will give better edges.

3.) Finally if the project is yardage in basket, we should change the threading draft so as to have tabby edges. This can be done on 4 shafts, as in fig.2. Only one shuttle is used.



In all three cases the rhythm of weaving is completely changed. First of all the beating is much lighter than with most weaves. The first pick in each shed is thrown as usual, but the shed is not changed. After beating the first pick, we throw the second. Now we close the shed in case of 3:3 or 4:4 basket, or change it in case of 2:2 basket, and only then beat the second pick. The third or fourth pick will be made in the same way. After the last pick in the same shed the shed is always changed before beating. This prevents the picks of weft in the same shed from twisting.

In basket weave it is extremely important to make the fabric exactly 50:50 and the beating must be adjusted so as to achieve this proportion. The weft must be of the same weight as the warp, but it may be of a different colour.

BACKING IN WARP.

All drafts we had so far were for backing yarn in weft. This means one additional shuttle, and sometimes a lot of treadles.

If the face is woven with two or more shuttles, the extra one for backing is of no importance. But if we use only one shuttle for the face, than the second one slows down the work by some 50%.

The number of treadles required for some of the fabrics is rather awkward. When the number exceeds 6 for a 4-shaft draft, we must use a skeleton tie-up, or a compound one: partly skeleton and partly standard, which means pressing two or more treadles at a time. This practice is perfectly all right for samples, but not for longer projects, particulalry yardage.

Therefore it would be to our advantage if we could have the backing in warp only. In theory this is quite simple: we "turn" the draft by 90° , use the threading draft for treadling, and the treadling draft for threading. The warp is now made of both: face yarn and backing, but the weft is now only face weft, and in all cases we have only 4 treadles which can be arranged so that a perfect treadling is made possible.

Since we have now two yarns in the warp and they are widely different, we have every reason to expect trouble. The warp ends may twist in pairs or bunches difficult to untwist, particularly when threading.

The sett of warp must be figured as if only the face warp existed. The backing warp is added to the sett of the face fabric. Thus if a fabric without backing needs 24 ends per inch, we must add to it the sett for backing. If the latter is 12, the total is 36.

We can warp both yarns together provided that we do it under tension. The same applies to beaming. Chaining a warp of this type is asking for trouble. Thus either sectional warping, or a warping mill are indicated. Never release the tension, not even when threading. Take a bunch of warp ends corresponding to about one inch of warp and tie them at the lower end with an elastic. Hang a weight on the elastic. When threading, do not try to straighten out the ends, but simply pull the required end from the bunch with the hook.

If the elastic is not too tight and the weight right, it will come up easily. The last few ends in each group will be the worst. Move them to the next group.

The second problem, the number of shafts, must be dealt with in a different manner. If we use drafts from the former articles on Backing we shall run into as many as 12 shafts. Therefore we must use a multishaft loom, or simplify the drafts.

Fig.1 shows a draft for backed 2:2 basket weave. Treading requires only 3 treadles, but we must use two shuttles. After turning it (fig.2) we need 3 shafts and 4 treadles, and only one shuttle. Three shafts do not seem to be very practical, but we can do it on four (fig.3).

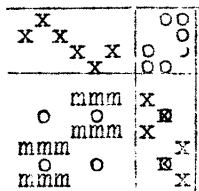


Fig.1

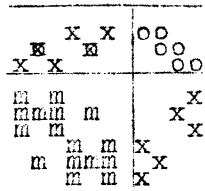


Fig.2

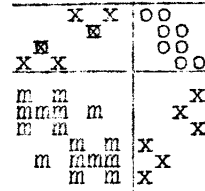


Fig.3

In fig.4 we have a fabric which would be impossible without backing. It has a texture similar to Summer-&-Winter, and it could not be woven without a binder because of floats in warp. The backing replaces the binder, and both sides have the same texture, but not the same yarn.

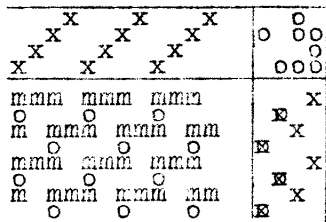


Fig.4

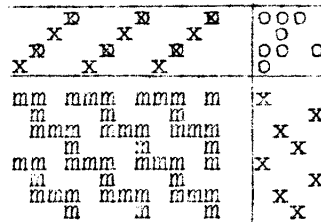


Fig.5

If we simply turn the draft we have an awkward threading, and poor treading. After rearranging the shafts and treadles we have a draft as in fig.5.

In the same way we can deal with drafts requiring a higher number of shafts. We shall take up this subject in the next issue.

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