

The background of the cover is a collage of various weaving charts and patterns. These include grid-based diagrams with different symbols and colors, some with handwritten notes in Finnish. One note at the top left reads 'J3 5K-8 5P-8 5T-8'. Another at the top center says 'laini- ja kudel. mallista pvm:ia yhdistet 23g.'. A central note lists 'Turned from A', 'Threaded from B', 'Threaded from C', 'Threaded from D', and 'Threaded from E'. Other notes include 'Threads 880', 'Loose Weave in Reed 12.5', '72.9 material 12', and '3-752 K' at the bottom left. The charts are arranged in a layered, overlapping fashion, creating a rich, technical texture.

MASTER WEAVER

**BI-MONTHLY BULLETIN
FOR HANDWEAVERS**



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

Handweaver & Craftsman



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MASTER WEAVER

BI - MONTHLY BULLETIN FOR HANDWEAVERS

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CERTIFICATES

Our readers who kept in touch with us for the last five years or so must remember the campaign we started regarding the Standards for weavers (MW 24/1, 25/1, 27/1, 33/11). We hoped, and we still do hope that finally a national or better an international organization will adopt such standards. But we have also expressed our opinion that in the meantime any teacher, weaving school, or guild has a perfect right to issue certificates of skill, provided that:

1. The certificate expresses only an opinion of the teacher, school or guild, but not an objective judgement.
2. That it shows a list of requirements for the particular stage of skill to which it refers.
3. That there must be a personal interview with the candidate prior to the issuance of the certificate.
4. That, if there is any fee or payment involved, it must be nominal.

As a service to our subscribers we are in position now to offer them certificates of: Junior Weaver (Apprentice); Advanced Weaver (Journeyman); Junior Master Weaver; and Senior Master Weaver. There is also a certificate of Instructor, which can be obtained only after passing one of the former tests.

Requirements for the different stages are listed on the next page. The candidate can make all necessary samples, and drafts at his leisure, and bring them personally for the final interview.

We shall give more particulars about this subject in the next issue, in an article about teaching.

In the meantime we shall be glad to answer questions related to the practical side of preparing the required materials, and of getting a certificate.

REQUIREMENTS:Apprentice (or Junior Weaver)

1. Sample *) of 50:50 tabby in any yarn with good edges, even beating. Different colours for weft and warp.
2. Sampler on plain threading (1234): tabby, basket, and 8 variations of twill. Samples 3"x 12". One inch of tabby between samples.
3. Sample of Overshot woven-as-drawn-in.
4. Inlay in any technique (not swivel or locked wefts).
5. Describe step by step any method of warping and beaming.
6. Make a draw-down on graphpaper (30 ends & picks or more).

Journeyman (or Advanced Weaver)

1. Sample in any simple weave with two yarns in both warp & weft. Explain in a note the reason for selection of yarns.
2. Sample in single linen of Bronson, or Huck, Huckaback-Lace, Swedish Lace, M's-&-O's.
3. Woollen fabric 36" wide, 3 yds long in any weave.
4. Sample of warp-face effect in any weave.
5. Sampler of Overshot (as App.2) with all traditional and some modern variations.
6. Describe the following weaves: Crackle, S-&-W, Huckaback, Waffle. Give in each case complete data for one project.

Junior Master Weaver

1. Sample of 3D effect, not traditional.
2. Sample of turned twill, 6 shafts or more.
3. Sample of double weave, 8 shafts or more.
4. Sample of fine fabric in any weave with at least 48 picks, and 48 ends per inch.
5. Sample of tapestry, or of a knotted-pile rug, original pattern.
6. Describe: Doup Leno (gauze), corduroy, warp-pile (velvet), crepe, dropped tabby. Give in each case complete data for one project.
7. Describe 5 different free techniques.
8. Make analysis of 3 samples (from 4 to 8 shafts). Complete data.

Senior Master Weaver

1. Sample from an original draft for effects in texture and colour. Explain steps taken in designing.
2. Sample of Satin or of true Damask.
3. A rug not less than 30" x 45" in chenille, warp-pile, or corduroy
4. Six samples (12" x 12") in finest yarns, and six samples in coarsest yarns available: wool, linen, cotton, silk, synthetic yarns, metallics. One sample of more than 80 ends per inch, and one of less than 5 ends per inch.
5. Describe: multishaft huck, swivel, Bronson, double harness, drawloom, net weaves, lappet.
6. Describe original weaving technique or adaptation. Samples.
7. Analysis of multishaft samples.
8. Write a short essay on designing, traditional and modern.

- "Original" means invented by the candidate.

- *) all samples 12" x 18" or more unless otherwise specified.

BRONSON LACE

There are very few weaves which can be called with any justification "true linen weaves". One could even argue that there are none. But if there are any, then Bronson Lace and Swedish Lace (MW 29/7) are the best examples. The lace effect becomes apparent only after the fabric is finished i.e. thoroughly washed and ironed.

In drafting the weave is a derivate of the spot-bronson. The only difference is that in lace the same block of pattern is repeated over and over again. But to be repeated each block must be tied down to avoid long floats.

For purely practical reasons all floats of the lace should be of the same length in the same piece of weaving, and therefore we have here "units" both in threading and in treadling. These units may produce floats of 3, 5, or 7. The table in fig.1 shows all three, as well as the tabby ground

<u>ground</u>	floats of 3;	floats of 5;	floats of 7;	Tie-up:								
threading:	1212	121212	12121212	<table border="1"> <tr> <td>o</td><td>oo</td></tr> <tr> <td>oo</td><td>o</td></tr> <tr> <td>o</td><td>ooo</td></tr> <tr> <td>5</td><td>4321</td></tr> </table>	o	oo	oo	o	o	ooo	5	4321
o	oo											
oo	o											
o	ooo											
5	4321											
treadling:	4545	454545	45454545									
<u>1-st block</u>				<p>Fig.1</p>								
threading:	1312	131312	13131312									
treadling:	4345	434345	43434345									
<u>2-nd block</u>												
threading:	1412	141412	14141412									
treadling:	4245	424245	42424245									
<u>Both blocks</u>												
treadling:	4145	414145	41414145									

With a higher number of shafts the blocks of pattern follow the same principle, except that there are more combinations of blocks. For instance with an 8-shaft draft we have 6 blocks of pattern, combined at will as long as we have enough treadles. In lace with floats of 5 we shall have the following units (fig.2):

S H O R T C U T S

D E K N O T T I N G

This strangely looking word means removing knots from fabrics. Many weavers take unnecessary precautions when they find a knot in the warp, or when a warp end breaks, and they must tie a piece of yarn to repair the damage. For instance they tie long pieces of yarn and let them hanging on bobbins in the back of the loom, or make temporary draw-knots to attach the new piece of yarn to the old warp end, and then shift them back over and over again.

If there is a knot in the warp and it holds, then leave it alone and weave it in. If the knot shows a tendency to slip, tighten it from time to time; weave for a while with only partly open shed; close the shed (but do not change it) before beating. If the knot parts in spite of all our efforts, release the cloth beam, and tie the two ends together. Tighten the warp again and proceed.

If there is no way of tying the two loose ends together, or if an end breaks closely to the fabric, take a pin, and insert it horizontally in the fabric. Take a piece of yarn about 18" long; tie it to the broken warp end at the back of the harness (between the shafts and the lease rods). Use a square (reef) knot, and make it as tight as possible short of breaking the yarn. Thread the yarn and pass it through the reed, and finally wind it around the pin. Trim the loose ends of the knot to about 3/8".

This means of course that we shall have knots in the fabric, after it is taken off the loom. Now comes the "deknotting".

First look for knots on both sides of the fabric. If they are invisible, there is little to worry about. If you can see a knot, take a needle, and pull the loose ends to the same side of the fabric. Pull a little more so that the knot will project above the fabric. Now with a needle and a few inches of yarn identical with the warp yarn darn in the new piece of yarn for about 3/4" on both sides of the knot exactly parallel to the warp end. Then cut off the knot.

The advantage of this method is that it does not stop the weaving for mending, and the result is as good.

HOW TO FIND

THE NUMBER OF PATTERN VARIATIONS

We state quite often in our articles that with so many blocks of pattern we have so many symmetrical variations. How do we know?

There is a branch of mathematics which deals with so called permutations, and it gives us all the answers.

For instance if we have blocks of pattern which cannot be combined, i.e. each block is woven singly, and there is no ground, we have a very simple formula:

$$N = 2^{(n-1)}; \quad \dots\dots\dots (1)$$

where N is the number of variations, and "n" - the number of blocks. With 4 blocks $N = 2^{(4-1)} = 2^3 = 2 \times 2 \times 2 = 8$.

When the blocks can be combined at will, the formula is much more complicated:

$$N = 2^{\frac{n(n+1)}{2}}; \quad \dots\dots\dots (2)$$

Here with four blocks we have: $N = 2^{\frac{4(4+1)}{2}} = 2^{10} = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 1024$.

When there is ground, and the blocks cannot be combined (but they can be replaced by ground) we have a still different formula:

$$N = \frac{3^n + 1}{2}; \quad \dots\dots\dots (3)$$

In this case with four blocks we have: $N = \frac{3^4 + 1}{2} = \frac{3 \times 3 \times 3 \times 3 + 1}{2} = \frac{81 + 1}{2} = 41$.

Why in the first two formulas we had "2" as a constant number, and here we have "3" is more than we could explain.

Formula 1 will apply to Overshot on opposites, plain Bronson, and traditional Overshot (but with reservations).

Formula 2 will work with Swivel, Bronson Lace, Summer-&-Winter, Turned Twills, Double Weaves.

Formula 3 must be used with Spot Bronson, Dropped Weaves etc.

TWO-WARP FABRICS 2

In the former article we had both warps with the same sett, i.e. one warp end of the first warp alternated with one warp end of the second warp. But this does not need to be the case. Since the first warp is always invisible, it may have fewer ends provided that they are strong enough to support the comparatively high tension.

Thus drafts No.1, 2, and 3 may be replaced by drafts No.6, 7, or 8:

x	x	x	o
xx	xx	xx	o
			21

Fig.6

x	x	x	o
xxx	xxx	xxx	o
			21

Fig.7

x	x	x	o
xxxx	xxxx	xxxx	o
			21

Fig.8

and when the fabric is woven on 4 shafts, instead of the drafts No.4, or 5, we shall have drafts No.9, 10, or 11:

x	x	x	o
x	x	x	o
x	x	x	o
			21

Fig.9

x	x	x	o
x	x	x	o
x	x	x	o
			21

Fig.10

x	x	x	o
x	x	x	o
x	x	x	o
			21

Fig.11

In drafts 6 and 9 the ratio between the two warps is 1:2; in 7 and 10: 1:3; and in 8 and 11: 1:4. If both warps are closely set, the warp will cover the weft, or nearly so, and we shall have a warp-face fabric. The treadling in the above drafts is the same as in drafts: 1 to 5.

So far we have described only 2-shaft drafts, even if they woven on 4 shafts, because shafts 1 and 2, and also 3 and 4 were always tied together. Without changing anything in the threading draft we can introduce more treadles, and therefore more variations of structure. For instance in fig.12 we have divided the second warp so that only one half of it will be raised at any time:

x	x	x	o
x	x	x	o
x	x	x	o
			4321

Fig.12

x	x	x	o
x	x	x	o
x	x	x	o
			654321

Fig.13

What do we gain by doing it? We may have for instance yarn of one colour on shaft No.1, and of another on shaft No.2. Then we may bring either of these colours to the top. The treadling may be: 4H,2H,4H,1H; or: 4f,3f,4f,3f,4f,2H,4f,3f,4f,3f,4f,1H.

Should we want to make our fabric reversible, i.e. to get the same effect on both sides, we must use the tie-up in fig.13. The treadling either: 4H,1H,3H,2H; or 6f,5f,2H,6f,5f,4H,6f,5f,3H,6f,5f,1H.

All treadlings given here are only examples of types of treadlings. For instance the first treadling in both figs: 12 and 13 gives a heavy fabric, comparatively smooth, when the second treadling produces somewhat finer fabric with raised "cords" on one or both sides. Both types may have many variations and since we are dealing here with predominantly 3D textures, there is little we can do on paper, and we should experiment right on the loom. A sampler will teach us a lot.

We are already at the stage when warp-pile effect may be obtained with no extra effort. The pile can be used exclusively or mixed with fine and heavy cord.

Let us take as an example the draft in fig.12 and the second treadling. Whenever the heavy weft (H) is indicated we insert a smooth steel rod. For a narrow sampler we can use knitting needles of different thickness. After about 5 of these needles are in the fabric we can pull out the lowest one and move it up to the next H shed. This will give us a Terry pile (uncut pile).

For cut pile we must have velvet rods (MW 34/6), or flossa rods, i.e. anything which makes it possible to cut the pile without damaging the ground.

Thus we can combine in the same fabric the following elements of texture: ground (fine weft on treadles 3 and 4 in fig.12); raised cords on 1, 2, or 3 with colour effects; terry pile also with colour on 1, 2, and 3; finally cut pile on the same treadles. The pile, both cut and uncut may be of different lengths.

There are a few reservation however: we must use the second warp at the same rate, i.e. in any repeat of treadling treadles 1 and 2 must be used the same number of times. Also the average length of pile must be the same on both treadles. Otherwise one half of the second warp will become much tighter than the other. This does not apply to treadle 3. Finally terry pile is difficult on the back of the fabric (fig.13) and cut pile impossible.

Here we have enough material to experiment for a while, before we turn to other techniques.

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