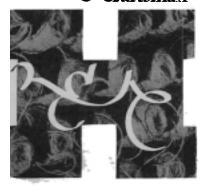
MASTER WEAVER

BI-MONTHLY BULLETIN FOR HANDWEAVERS

Z-HANDICRAFTS FULFORD, QUE., CANADA

Handweaver & Craftsman



Articles from previous issues constantly in demand—

- ★ Buying a Loom F 52
- ★ Cloth Analysis F 51
- ★ Damask Looms Su 55
- ★ Double Warp Weaving F 54
- ★ Inkle Weaving Sp 52
- ★ Knotted and Tufted Rugs W 58
- ★ Uses for Double Weave F 57
- ★ Problems in Warping W 51
- ★ Rugs and Carpets W 52, F 52, W 53
- ★ Tapestry Weaving W 54
- ★ Weaving on a Drawloom Su 55, Su 56
- ★ What is Leno? Sp 55

Handweaver & Craftsman



Something for every handweaver beginning or advanced in every issue.

First gift subscription

\$4.00

Each additional gift

\$3.60

You may include your own subscription or renewals for yourself and your friends.

All must be on one check.

An attractive card will announce your gift.

Canadian rates — same as in U. S.

Pan American & Foreign rates \$1 a year extra.

Single copies 1951-1958 \$1.25, 1950 \$1.50

Handweavers on your list

will appreciate receiving

the back issues which they have missed

Any 4 back issues \$4.50

(Winter 1957 not available)

First 23 issues 1950-1955 \$18.00 postpaid in U. S.

Handweaver & Craftsman



Canadian Subscription rates

Now the same as in the United States

1 year \$4.00

2 years \$7.50

3 years \$10.00

5 years \$15.00

Send checks or money orders to

Handweaver & Craftsman 246 Fifth Avenue, New York 1







MASTER WEAVER

BI-MONTHLY BULLETIN FOR HANDWEAVERS

Z-HANDICRAFTS - FULFORD - P.O. - CANADA

CERTOFOCATES

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-&-0'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 te 8 shafts). Complete data.

Senior Master Weaver

- 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 co. duroy
- 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, draw-loom, net weaves, lappet.
- 6. Describe original weaving technique or adaptation. Samples.
- 7. Amalysis 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.l shows all three, as well as the tabby ground

ground	floats of 3;	floats of 5;	floats of 7	Tie-up:
threading:	1212	121212	12121212	
treadling:	4545	454545	45454545	
1-st block				0 00
threading:	1312	131312	13131312	0 000
treadling:	4345	434345	43434345	54321
2-nd block			ngangan palamanya kanjungan dangah tili integrit kanjungan aya utaga terbahan dari Protegish Mekatar.	
threading:	1412	141412	14141412	
treadling:	4245	424245	42424245	Fig.1
Both blocks			and a superior of the superior	
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):

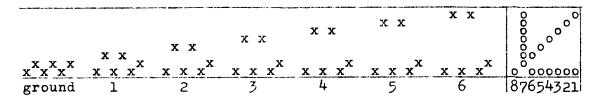


Fig.2

Here the tie-up shows only individual blocks. To combine the blocks i.e. to weave two or more at a time we must either have more treadles or press two or more treadles simultaneously. How many possible combinations are there? Theoretically 64; in practice 63 (because one of them is "ho blocks"), which would mean 65 treadles.

How many symmetrical patterns can be woven on the same 8-shaft threading? Roughly two millions. If one wanted to make all these samples 12" square, the warp would have to be 400 mls long.

The lace effect is produced by at least two units of the weave both in threading and in treadling (fig.3). Right in the centre of the four repeats we have a characteristic opening which looks

* * * * * * * * * * * * * * * * * * *	0000
	x x x x x x x x x x x x x x x x x x x

Fig.3

(against the light) like a small window with 4 panes. The lace is shown in fig.3 as "o". Actually the openings are much larger, because the two floats in warp and a similar pair in weft have a tendency to shift to the centre of each unit, particularly after washing. This is why Bronson lace looks rather disappointing on the loom.

Four-shaft lace gives only 7 symmetrical variations of pattern on the same threading. Therefore we can start with a certain profile and draw on graphpaper all possible patterns to be able to decide which we like best. But with a higher number of shafts the number of patterns is too high, and the paper work would take too long, for instance: 50 years at 10 hrs a day for 8 shafts.

Here, as in the case of polychrome swivel (MW 53/7), we must start with a definite pattern; analyze it; find out the number of shafts it requires, and if the number is too high, simplify the pattern. An example is shown in fig.4: we make first the draw-down (A),

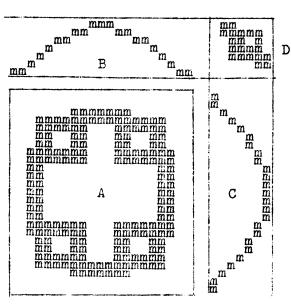
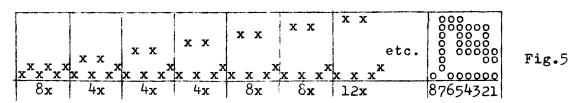


Fig.4

of the pattern; find the profile (B) and count the blocks. There are 7 of them, but the first is ground: just the right number for 8 shafts. Then we follow with a short treadling draft (C) and finally with the short tieup (D). The first half of the threading draft is shown in fig.5 (read from the left).

If the number of blocks is too high we cut out one or two blocks in the profile, and redraw the pattern.



treadling: 787878 - 8x; 767678 - 4x; 757578 - 4x; 747478 - 4x; 737378 - 8x; 727278 - 8x; 717178 - 24x; etc.

Once the pattern is visible, there is no need to follow the treadling directions, as long as we remember the units. We simply follow the draw-down.

There are very few purely technical difficulties about weaving the Bronson Lace. One is the right selection of the sett of warp. The other are sagging warp ends, whenever a blook of lace is woven too long (e.g. block 3 in our case).

SHORTCUTS

DEKNOTTING

This strangely looking word means removing knots from fabrics. Many weavers take unnecessary precaustions 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. Trin 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 %" 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 IO 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:

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

where N is the number of variations, and "n" - the number of blocks. With 4 blocks $N = 2^{(4-1)} = 2^3 = 2x2x2 = 8$.

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

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

Here with four blocks we have: $N = 2 \frac{4(4+1)}{2} = 2^{10}$ 2x2x2x2x2x2x2x2x2x2x2 = 1024.

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

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

In this case with four blocks we have: $N = \frac{3^4 + 1}{2} =$ $\frac{3x3x3x3+1}{2} = \frac{81+1}{2} = 41.$

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

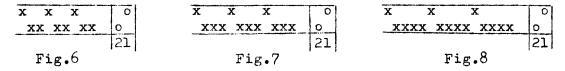
Formula 2 will work with Swivel, Bronson Lace, Summer-&-Winter, Turned Twills, Double Weaves.

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

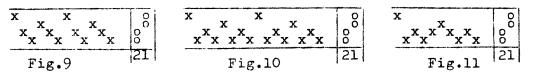
IWO°WARP FABRICS 2

In the formaer 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:



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:



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 x x x x	000 000 000	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	8000
Fig.12	4321	Fig.13	654321

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.

1958 1959 1960 Vol.13-14 15-16 17-18

The first number is the issue.

The second number - the page

ACCIDENTAL Inlay 47/5 advanced weaver 54/2 all-ober Bronson 51/6 apprentice 54/2 art or eraft 38/1 BARLEY Corn 51/6 beaming 46/5 biased turned twills 45/5 bobbins 50/8 bookmarks 48/4 brocade 50/3 broken twills, turned 49/9 Bronson 50/10 51/5 54/3 Bronson, 3-shaft 53/4 CHENILLE, free patterns 38/4 certificates 54/1 chinese rugs 50/5 christmas cards 48/1 coasters 48/4 cocktail napkins 48/5 colours, subjective 43/1 conclusions 41/1 constant tension brake 52/7 corded fabrics 51/1 53/11 54/8 corded free weaves 50/4 counterbalanced looms 42/3 crackle, 3-shaft 53/4 crackle, 8-block 52/1 cross-comb 38/10 DAMASK 49/11 50/6

designing, terminology of 37/1 deknotting 54/6 diamond twill, 3-shaft 53/3 dimity 40/5 dornick 47/11 double weaves, 4-shaft 49/4 52/12 dukagang 50/3 duma 50/2 EIGHT-block crackle 52/1 embroidery weaves 50/3 exhibitions 39/10 FINN-weave 50/4 flemish weave 50/2 four-shaft double weaves 49/4 free patterns in chenille 38/4 GATING 49/1 ghiordes knot 50/5 gifts, small 48/4 gobelins 50/2 guest towels 48/5 HANDWEAVING, history of 45/1 46/1 hankies 48/5 heading 48/11 high tension beaming 46/6 high twills 37/6 38/8high warp 50/2 hindu warping 43/5 history of handweaving 45/1 46/1 horizontal warping reel 43/7 how to find No. of patterns 54/7

how to improve & maintain a loom 42/3 how to start 47/1 how to weave 39/1 huckaback lace, irregular 46/8 huck lace, unsymmetrical 45/7 IDEAS for Christmas inlay 50/3in this we believe 42/2irregular huck lace 46/8 JACK type looms 42/2 journeyman 54/2 junior master weaver 54/2 junior weaver 54/2 KILIM 50/2 knotted pile rugs 50/4 LACE, Bronson 54/3 loom, maintenance 42/3 loom, multishaft 41/4 loom, setting up 41/5 looms 40/1 low tension beaming 46/5 low warp 50/3 MAIL net 37/11 maintenance of a loom 42/3 master weaver 54/2 NET weaves 37/10 38/10 40/10. 43/12 44/10 north african rugs 50/5 number of patterns 54/7 ONE-TWO twill patterns 41/10 overshot patterns, small 43/8 overshot, 3-shaft 53/3 PATENT net 37/12 pattern twills, turned 51/10 pattern variations 54/7 patterns in 1:2 twill 41/10 patterns, small 43/8

persian rugs 50/5 pick-up thimble 52/7 pile fabrics, two-warp 54/9 plain swivel 44/5 polychrome swivel 53/7 princess royal 37/12 problems in damask 50/6 QUILLS 50/8 RECORDS of drafts 47/2 reduced friction beaming 46/7 requirements 54/2 rhythm 51/2 royal net 37/12 rugs 20/1 SAMPLES & sample cards 47/1 scandinavian rugs 50/5 second warp beam 52/9 sectional warping 44/1 sehna knot 50/5 senior master weaver 54/2 sett indicator 40/12 setting up the loom 41/5 shuttles 50/8 single warp knot 50/4 six-block overshot 42/8 sleying 47/7 small gifts 48/4 small patterns 43/8 spanish rugs 50/5 spider net 37/11 spot bronson 50/10 spot weave, turned 51/5 story of handweaving 45/1 46/1 stretchers 45/10 sumak 50/4 summer-&-winter, 3-shaft 53/4 summer-&-winter, with tabby 39/4

summer-&-winter, free 50/3 subjective colours 43/1 swivel, plain 44/5 swivel, polychrome 53/7 swivel, 3-shaft 53/5 TAPESTRY 50/1 templets 45/10 tension box 44/2 terminology of designing 37/1 texture weaves, 3-shaft 53/6 threading and sleying 47/7 three-shaft weaves 53/1 transcribing 48/6 true tapestry & rugs 50/1 turkestan rugs 50/5 turned spot weave - 51/5 turned twills 45/4 46/10 47/10 49/9 50/6 51/10

twills, high 37/6 38/8 twills, turned 45/4 46/10 47/10 49/9 50/6 51/10 twills, 3-shaft 53/2 two-warp fabrics 51/1 53/11 54/8 tying-in 48/10 UNSYMMETRICAL huck lace 45/7 VARIATIONS of patterns 54/7 WAFFLE weave, 3-shaft 53/5 warping 43/4 warping frame 43/5 warping mill 44/4 warping reel, horizontal 43/7 warping, sectional 44/1 weaving literature, records of 47/2 whip net 37/11 43/12 44/10 YAMAN 50/4

We wish to remind you that the above index covers only the years 1958 - 1960. For years 1955 - 1957 there is an idex in the MW 36. and for 1951-- 1954 in MW 18.

THE EASIEST WAY OF PRESERVING BACK COPIES OF THE MASTER WEAVER is the following one:

When you receive a new issue, first of all remove the staples with a knife, scissors, or nail file. Punch three holes in each page including the cover with an all purpose paper punch. Four pages can be punches at a time. The holes have a standard distance: 1½", 5½", and 9¾" from the bottom of the page. Then staple the issue again. For very heavy service use six staples: one immediately below and one immediately above each hole.

The back issues can be then kept in standard, three-hole loose leaf binders, 12 issues or two years to a binder. They will last practically for ever.
