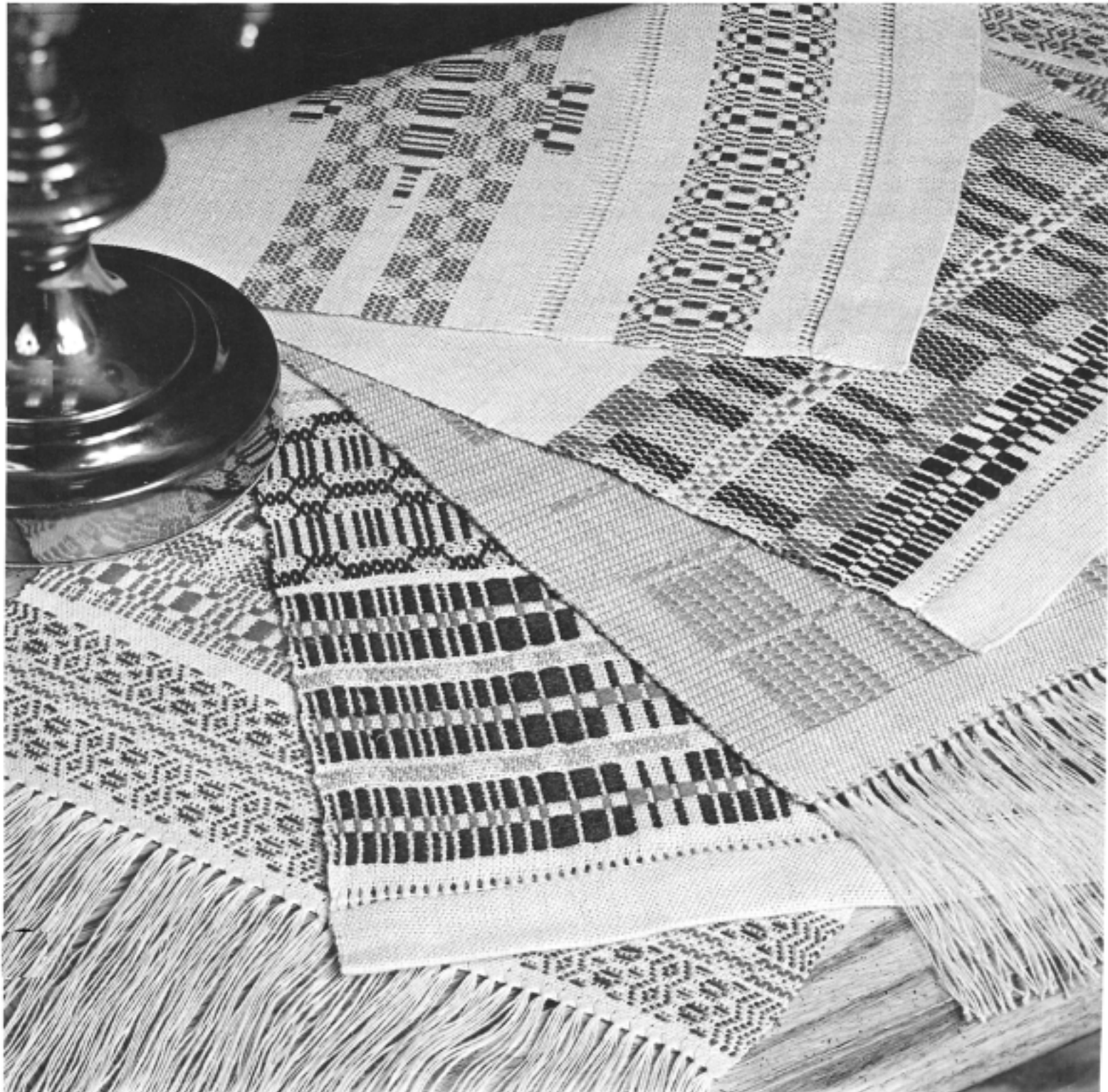


BELDING LILY COMPANY 

A SUBSIDIARY OF BELDING HEMINWAY CO., INC.

**A CREATIVE
APPROACH FOR
THE MULTIPLE
HARNESS WEAVER**

Price \$1.00



A + B = C

By Sylvia Domingo Pocock
Woven Samples by Jeanne Sutton

Not everything learned at a weaver's conference is learned at the structured workshops. While on a trip down the Ohio River during Convergence 1976, I met a charming lady from Canada, Ada Pretatis. She told me about her system of using two different overshot drafts, for example, Whig Rose and Snail Trail, combing them, and threading this combined form on eight harnesses. She then could weave either the Whig Rose Pattern or the Snail Trail pattern.

When I returned home, I tried to work out the formula from the hasty notes I had made during my trip on the River. I was not only able to combine two overshot threadings on eight harnesses, but I discovered that I could combine an overshot with a Bronson threading, or two unit weaves, such as Summer and Winter and Monks Belt.

In fact, I found I could combine any two four-harness threadings on eight harnesses, or any three four-harness threadings on twelve harnesses. It is also possible to integrate the two weaves when weaving. For example, it is possible to weave part of a project in Summer and Winter and part in overshot. The table runner was woven in this manner. (See Illustration 2 and 3). Illustration 4 is a sampler of two overshot drafts using intergrated draft No. 2.

This system of combining two four-harness threading drafts not only gives the weaver almost unlimited possibilities for originality, but also allows one to weave from two completely different threadings. No rethreading or resleying of the loom is necessary. The only rule is that the two threading drafts must have the same number of ends.

The following is an example of how two four-harness threadings are combined to form one eight-harness draft. Figure 1A is a small overshot threading draft (Iris), and Figure 1B is a Summer and Winter threading draft.

Overshot Draft

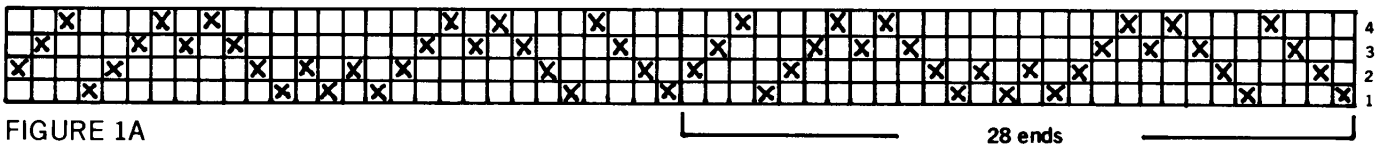


FIGURE 1A

Summer and Winter draft

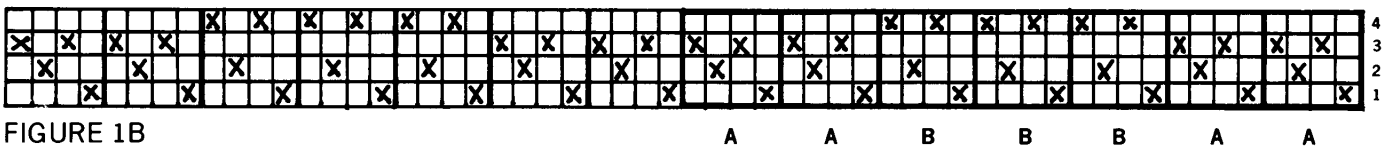
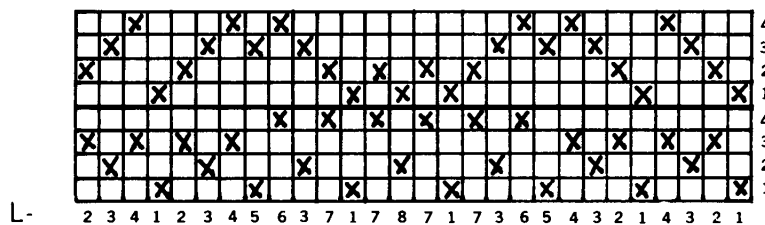


FIGURE 1B

Place draft B under draft A, as shown in Figure 2.

FIGURE 2



Drafts A and B will now be combined into (in reality, replaced by) one eight-harness threading draft. One warp will be prepared. In this example, the warp will have 212 ends and will be threaded according to the new eight-harness draft C.

COMBINING TWO DRAFTS

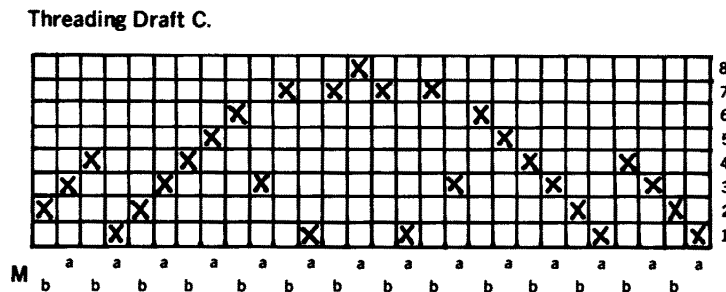
To combine threading drafts A and B into threading draft C, the first end in draft A and the first end in draft B will be replaced by the first end in draft C. It is simpler at this point to assign the new draft C harness numbers to each new combination of A and B as noted on line 2L in Figure 2. Place these combinations in a column as shown in Figure 3.

FIGURE 3

THREADING IN A	THREADING IN B	IS EQUIVALENT TO INTEGRATED THREADING
1	1	1
2	3	2*
3	2	3*
4	3	4*
1	1	1
2	3	2
3	2	3
4	3	4
3	1	5*
4	4	6*
3	2	3
2	4	7*
1	1	1
2	4	7
1	2	8*
2	4	7
1	1	1
2	4	7
3	2	3
4	4	6
3	1	5
4	3	4
3	2	3
2	3	2
1	1	1
4	3	4
3	2	3
2	3	2

Note that there are only eight different combinations of A and B, indicated by the asterisk (). From line L in Figure 2, develop threading draft C as shown in Figure 4.

FIGURE 4

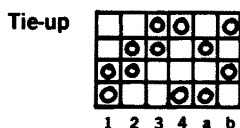


TIE-UP

There will be two tie-ups for draft C. One tie-up will be used for weaving the overshot patterns, and the other will be used for weaving summer and winter patterns. However, both of these will have the same plain-weave tie-up, since in plain-weave, every other end is in the "up" position. In Figure 4 at line M, note how the plain-weave tie-up is found. (a is 1, 3, 5, 8 and b is 2, 4, 6, 7.)

In order to weave the overshot patterns on four harnesses, use the standard tie-up. See Figure 5.

FIGURE 5



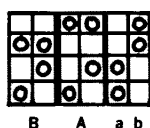
In order to find the equivalent tie-up in column C (Figure 3), look at the harness numbers in column A and their equivalents in column C. For tie-up 1, 2 of the standard tie-up (Figure 5), 1 in column A (Figure 3) is equivalent to 1 and 8 in column C, and 2 in column A (Figure 3) is equivalent to 2 and 7 in column C. Therefore, A 1, 2 is equivalent to C 1, 2, 7, 8, which is the first tie-up for draft C. The complete equivalent tie-up for draft C is:

COLUMN A	COLUMN C
1, 2	1, 2, 7, 8
2, 3	2, 3, 5, 7
3, 4	3, 4, 5, 6
1, 4	1, 4, 6, 8
1, 3	1, 3, 5, 8 (a)
2, 4	2, 4, 6, 7 (b)

In order to weave the summer and winter patterns on four harnesses, the tie-up combinations in Figure 6 are used.

FIGURE 6

Tie-up

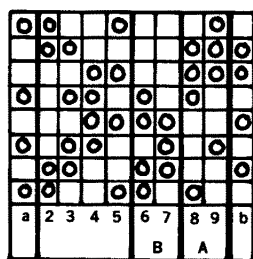


To find the equivalent tie-up for threading draft C, look at the harness numbers in column B only (Figure 3) and their equivalents in column C. For the tie-up 1, 3 (Figure 6), 1 in column B is equivalent to 1 and 8 in column C, and 3 in column B is equivalent to 3 and 5 in column C.

COLUMN B	COLUMN C
1, 3	1, 3, 5, 8
2, 3	2, 3, 5, 7
1, 4	1, 4, 6, 8
2, 4	2, 4, 6, 7
1, 2	1, 3, 5, 8 (a)
3, 4	2, 4, 6, 7 (b)

When tying up the loom, place the "a" tabby on the extreme right, and the "b" tabby between the overshot and summer and winter tie-up, and another "a" tabby on the extreme left. With this tie-up, it is easier to treadle either the overshot or the summer and winter patterns.

FIGURE 7



This now completes the eight-harness threading draft and tie-up. It is, in reality, two four-harness drafts which have been combined into (or rather replaced by) the eight-harness draft. Through the tie-up, either one of the two original four-harness drafts can be extracted and woven.

TREADLING

In order to weave the overshot patterns, follow the treadling directions for the four harness patterns. It should be clear that for this particular eight-harness threading draft, 1, 2 has become 1, 2, 7, 8; 2, 3 has become 2, 3, 5, 7; 3, 4 has become 3, 4, 5, 6; and 1, 4 has become 1, 4, 6, 8. The tabby or plain weave sheds are a-1, 3, 5, 8 and b-2, 4, 6, 7.

To weave the summer and winter patterns, follow the treadling system for summer and winter. For example, for floats in the A block, treadle block, 1, 4; 2, 4; 2, 4; 1, 4. For floats in B area, treadle 1, 3; 2, 3; 2, 3; 1, 3, using, of course, the eight-harness equivalent tie-up with alternating tabby.

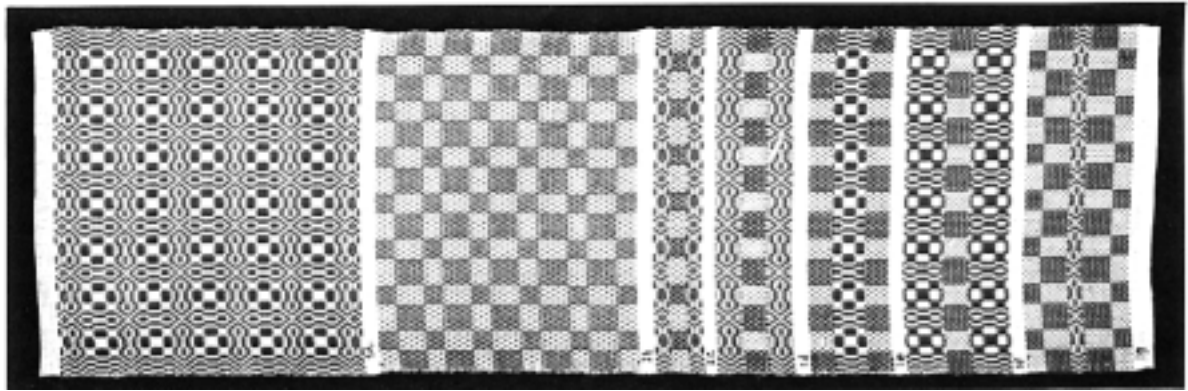
Illustration 1 is a woven sampler using this integrated draft and tie-up. (Draft C.)

Illustration 2, 3 are table runners using this draft. All the variations of these weaves may be woven as well.

For every combination of two four-harness threading drafts, the plain weave tie-up will be different, even when two overshot drafts are combined. The pattern tie-ups will also vary. The eight-harness threading drafts will seldom be symmetrical or balanced, as is the case with overshot drafts on four harnesses.

SAMPLER

Summer and Winter and Iris, an original overshoot draft



1a 1b 1c 1d 1e 1f 1g

Illustration 1 Draft C

MATERIALS: WARP: Lily Pearl Cotton, Article 114, Size 10/2 natural 862
 SETT: 24 epi
 PATTERN WEFT: Lily Article 121 Six Strand Floss, Signal Red 228
 Lily Article 114 Pearl Cotton, Peacock Blue 1455
 TABBY: Same as Warp.

Draft C

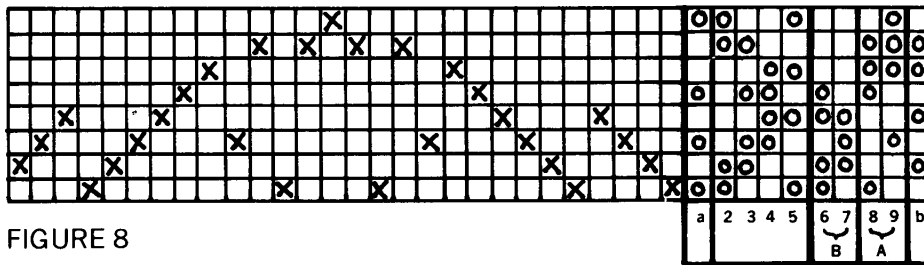


FIGURE 8

Treadling for Iris Illustration 1a	Treadling for Summer and Winter Illustration 1b	
Treadle 2 - 1x	A Block	B Block
3 - 1x	Treadle:	Treadle:
4 - 1x	a	a
5 - 1x	9	7
2 - 1x	b	b
3 - 1x	8	6
4 - 4x	a	a
3 - 1x	8	6
2 - 6x	b	b
3 - 1x	9	7
4 - 4x		
3 - 1x	A Block—2x	
2 - 1x	B Block—3x	
5 - 1x	A Block—4x*	
4 - 1x	B Block—3x	
3 - 1x	Repeat from *	
2 - 1x	End with A Block 2x	

SMALL BORDERS

<p>Illustration 1c Treadle No. for Overshot with Tabby</p> <p>2 - 1x 3 - 1x 4 - 1x 5 - 1x</p> <p>Block B - 2x 5 - 1x for overshoot 4 - 1x 3 - 1x 2 - 1x</p>	<p>Illustration 1d Treadle No. for Overshot with Tabby</p> <p>3 - 1x 2 - 1x 5 - 1x 4 - 1x 3 - 1x 2 - 1x 3 - 1x 4 - 1x 5 - 1x 2 - 1x 3 - 1x</p> <p>Block A - 3x Repeat Overshot Treading</p>	<p>Illustration 1e Block A - 3x Treadle No. for Overshot</p> <p>3 - 1x 4 - 4x 3 - 1x 2 - 6x 3 - 1x 4 - 4x 3 - 1x</p> <p>Block A - 3x</p>
---	---	--

<p>Illustration 1f Treadle No. for Overshot</p> <p>4 - 1x 5 - 1x 2 - 4x 5 - 1x 4 - 6x 5 - 1x 2 - 4x 5 - 1x 4 - 1x</p> <p>Block A Repeat Overshot Treading</p>	<p>Illustration 1g Summer and Winter Woven in Singles or Nonpairs*</p> <p>Treadle No.</p> <p>a 8 b 4x Block B 9 a a 6 b 6x Block A 7 a</p> <p>Treadle No. Overshot</p> <p>5 - 1x 4 - 1x 3 - 1x 2 - 1x 3 - 1x 4 - 1x 5 - 1x</p> <p>Repeat A Block Repeat B Block</p> <p><i>*New Key to Weaving, Mary Black, Pg. 257</i></p>
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CHRISTMAS RUNNER

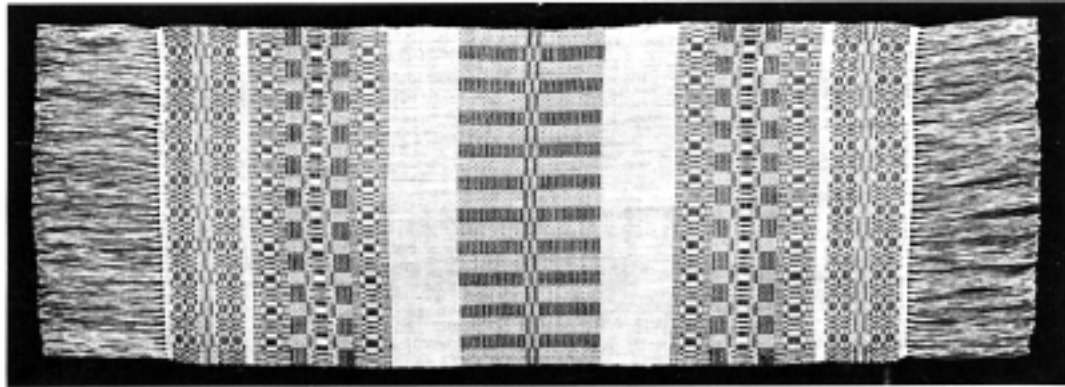


Illustration 2

Summer and Winter

Iris

Use integrated draft C and tie-up, Figure 8.

MATERIALS: **WARP:** Size 20/2 Linen
 SETT: 24 epi 12½” 297 ends
 WEFT: Lily Art. 121 6 Strand Floss Signal Red—228.
 Lily Art. 114 Pearl Cotton Green—459.
 TABBY: Same as Warp

Start with 6 picks of plain weave. Weave with Tabby. Numbers refer to treadle numbers in tie-up (Figure 7).

- a) With Green 2, 3, 4, 5, 3, 2, - 2 times
- b) With Red Summer & Winter. Block A, B, A
- c) With Green 2, 3, 4, 5, 4, 3, 2, - 2 times
 6 picks plain weave
- d) With Red Treadle 5 - 4x
 2 - 2x
 4 - 6x
 2 - 2x
 5 - 4x
- e) With Green Block A - 4x
 Block B - 1x
 Block 3 - 2x
 Block 2 - 6x
 Block 3 - 2x
 Block B - 1x
 Block A - 4x
- f) Repeat d
 2” plain weave
- g) With Green Block B - 15x
 Center Block A - 1x
 Block B - 1x
 Block A - 1x
 Block B - 15x

JEANNE'S RUNNER

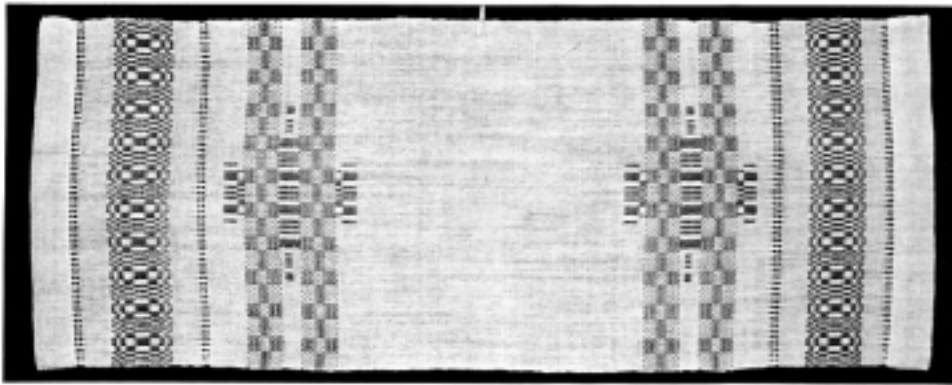


Illustration 3

Summer and Winter

Iris

Use integrated draft C and tie-up, Figure 8.

MATERIALS: WARP: Size 20/2 Linen
SETT: 24 epi 12½" 297 ends
WEFT: Lily Art. 121 Six Strand Floss Signal Red —228.
TABBY: Same as Warp

Jeanne Sutton wove areas of pick-up overshoot. For directions, see page 1.

4" plain weave

1 row 2/2 leno

7/8" plain weave

a) Treadle for Iris—See Sampler 1a

7/8" plain weave

1 row 2/2 leno

b) Pick up two center motifs in the overshoot treading using treadle 2

2 - 8x

4 - 4x

c) Summer and Winter Block B - 3x

Block A - 2x

Block B - 3x

d) Pick up four center motifs in overshoot treading using treadle 2

e) Repeat c

f) Pick up as in part b. (but reversing)

4 - 4x

2 - 8x

Plain weave center - 8"

Weave sections f, e, d, c, b, a,

SAMPLER

Flower of Flanders and Orange Peel from Miniature Patterns
for the Handweaver by Josephine Estes.

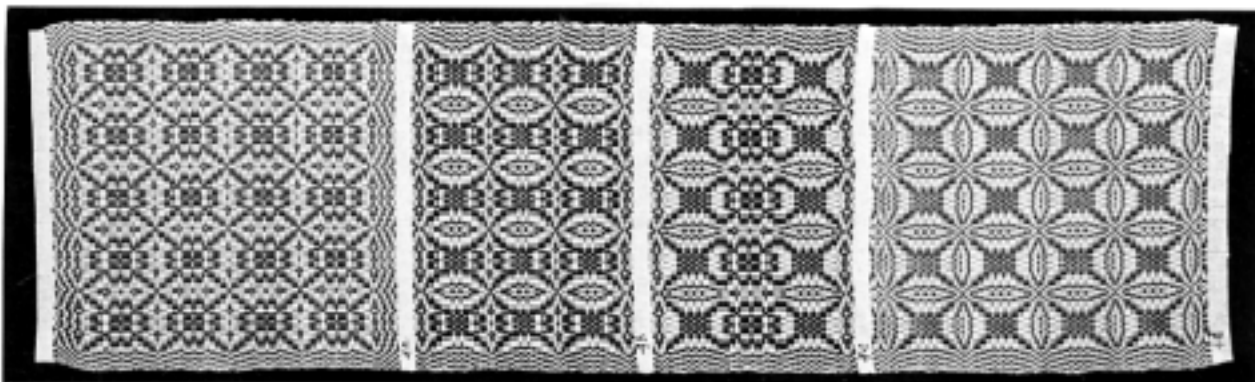


Illustration 4

MATERIALS: WARP: Lily Pearl Cotton, Article 114, Size 10/2 Natural 862
 SETT: 24 epi
 PATTERN WEFT: Lily Article 121 Six Strand Floss Dark Brown 134
 Lily Article 121 Six Strand Floss Tropic Orange 461
 TABBY: Same as Warp

Integrated Draft 2

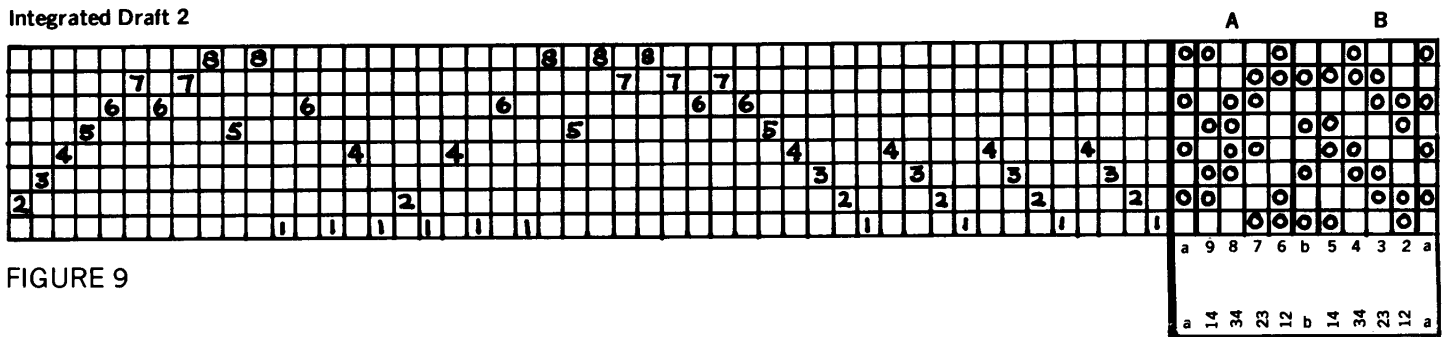
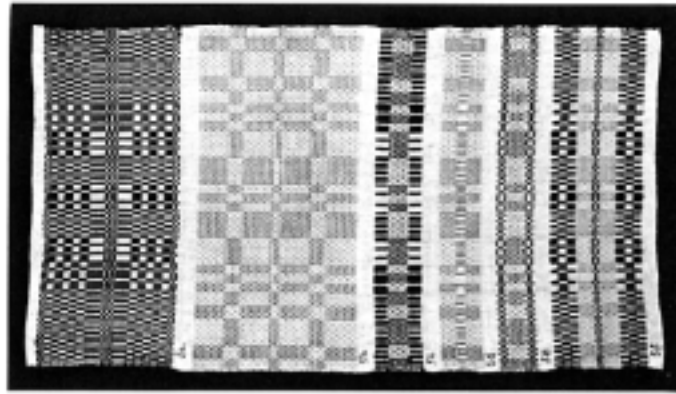


FIGURE 9

<p>Treadling for Orange Peel Illustration 4d Treadle No.</p> <p>4 - 1x 5 - 1x 2 - 1x 3 - 1x 4 - 1x 5 - 3x 2 - 3x 3 - 3x 4 - 2x 3 - 2x 4 - 2x 3 - 2x 4 - 2x 3 - 3x 2 - 3x 5 - 3x 4 - 1x 3 - 1x 2 - 1x 5 - 1x 4 - 1x</p>	<p>Treadling for Flower of Flanders Illustration 4a Treadle No.</p> <p>8 - 1x 7 - 1x 6 - 3x 9 - 3x 8 - 3x 7 - 2x 8 - 1x 9 - 4x 8 - 2x 9 - 4x 8 - 1x 7 - 2x 8 - 3x 9 - 3x 6 - 3x 7 - 1x 8 - 1x</p>	<p>Illustration 4b Treadle No.</p> <p>8 - 1x 7 - 1x 6 - 1x 9 - 3x 8 - 3x 7 - 2x 3 - 3x 4 - 2x 3 - 2x 4 - 2x 3 - 3x 7 - 2x 8 - 3x 9 - 3x 6 - 1x 7 - 1x 8 - 1x</p>
<p>Illustration 4c Treadle No.</p> <p>5 - 3x 2 - 3x 3 - 3x 4 - 2x 3 - 2x 4 - 2x 3 - 2x 4 - 2x 3 - 3x 2 - 3x 5 - 3x</p> <p>→</p> <p>9 - 3x 8 - 3x 7 - 2x 8 - 1x 9 - 4x 8 - 2x 9 - 4x 8 - 1x 7 - 2x 8 - 3x 9 - 3x</p> <p>→</p> <p>5 - 3x 2 - 3x 3 - 3x 4 - 2x 3 - 2x 4 - 2x 3 - 2x 4 - 2x 3 - 3x 2 - 3x 5 - 3x</p>		

SAMPLER



a b c d e f

Illustration 5 Draft 3

Monks Belt and Summer & Winter

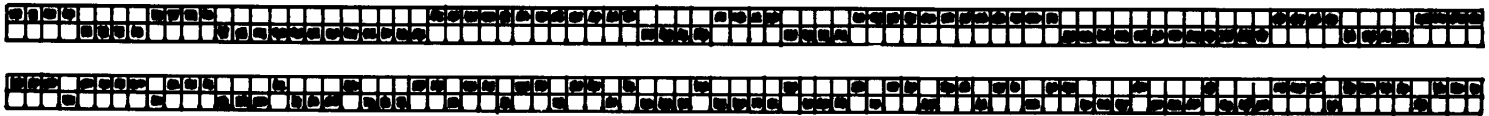
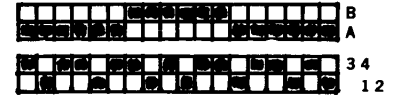
- a) Weft Art. 111 Lily Weaving Wool Art. 111 used double in the bobbin
 Color 143 rust - 143
 Color 124 Dark Brown - 124
- a) Monks Belt Treadle No.
 Rust 3, 2, 3
 Dk. Brown 2 - 4x
 Rust 3 - 4x
 Dk. Brown 2 - 4x
 Rust 3 - 4x
 * Dk. Brown 2 - 4x
 Rust 3 - 8x Reverse from *
- b) Summer & Winter—Weft Art. 121 6 Strand Floss Color 183 Leaf Green
 Block A - 4x
 Block B - 2x
 Block A - 4x
 Block B - 1x
 Block A - 4x
 Block B - 2x
 Block A - 4x
- c) Monks Belt—Dk. Brown Weaving Wool
 Treadle No.
 3 - 6x
 Summer & Winter - Block B - 2x - rust weaving wool
 Monks Belt Treadle 3 6x
- d) Weft 3/2 Art. 1 blue
 Block A - 2x
 Treadle 2 - 5x
 Block A - 2x
- e) Weaving Wool - Rust
 Treadle 2 - 2x
 Treadle 3 - 2x
 Treadle 2 - 2x
 Summer & Winter Block B - Art. 121 Six Strand Floss Color-202 Tangerine
 Treadle 2 - 2x
 Treadle 3 - 2x
 Treadle 2 - 2x

- f) Monks Belt Weaving Wool
 - Treadle 2 - 4x
 - Treadle 3 - 4x
 - Treadle 2 - 4x
- *Summer & Winter Tangerine Floss
- g) Summer & Winter Block A 2x
 - Monks Belt - Treadle - Rust Wool
 - 2
 - 3
 - 2 *Reverse from

PROFILE DRAFT

Monks Belt and Summer and Winter
 Each square equals 2 threads
 See Illustration 6 & 7

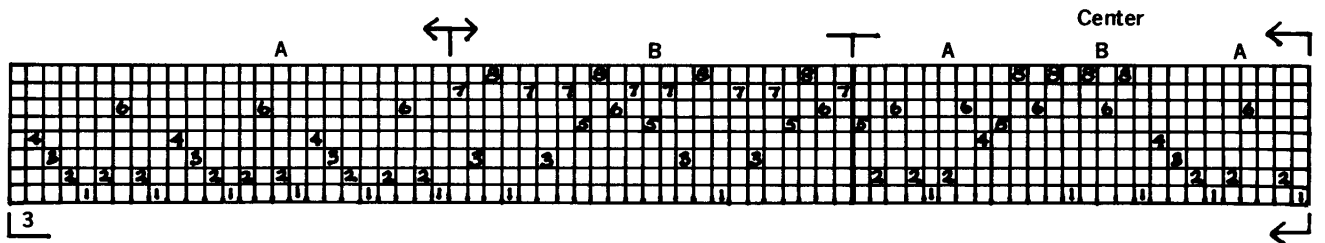
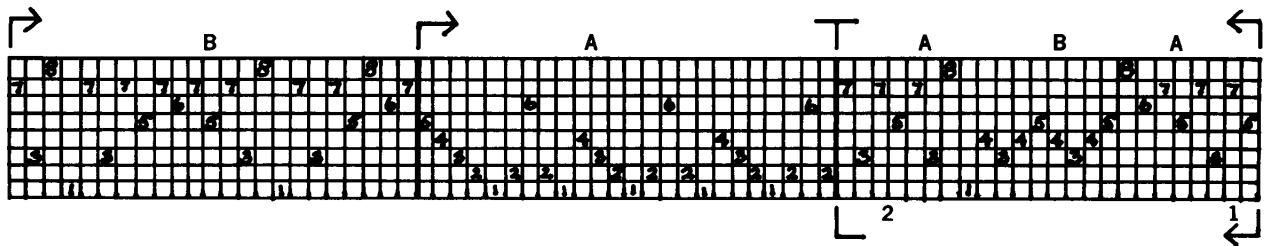
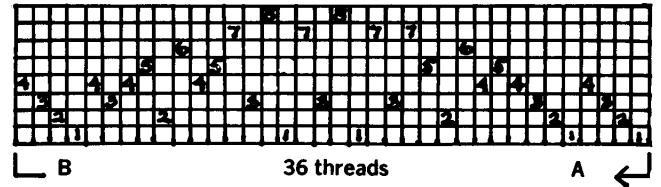
Right border and left border



Integrated Draft 3

Threading Draft
 Read Threadings from right to left.

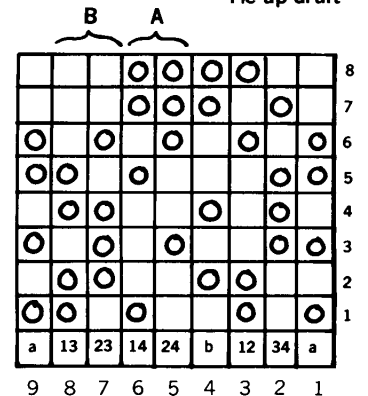
Right and left borders



THREADING ORDER

right selvageborder A to B
 1 to 3 as many times as desired
 end on 1 to 2
 left border - B to A

Tie-up draft



RUNNER



Illustration 6

Integrated draft no. 3

MATERIALS:

WARP: Size 20/2 Linen
 SETT: 24 epi 322 ends
 WEFTS: Lily Art. 111 Weaving Wool Color 143 Rust
 Color 124 Dark Brown

Used Double in the Bobbin

TABBY: 20/2 Linen Oyster

- a) 3" plain weave for hem
 1 row 2/2 leno, then 8 picks plain weave
- b) With Dark Brown Wool Treadle No. 3 - 6x
 2 - 4x
 3 - 6x
- c) With Rust Wool Block B 2x
 A 4x
 2 picks plain weave
- d) With Orange Floss Treadle No. 2 - 2x
 3 - 2x
 2 - 2x
 2 picks plain weave
 With Dark Brown Wool Block A - 4x
 With Rust Wool Block B - 2x
 Center plain weave 10" Then reverse weave parts
 (d, c, b, a)

RUNNER



Illustration 7

Integrated Draft No. 3

MATERIALS:

WARP: Size 20/2 Linen
 SETT: 24 epi 322 ends
 WEFT: Lily Art. 111 Weaving Wool Dk. Brown No. 124, Rust No. 143; use
 double in the bobbin - Art. 114 Size 3/2 Color 1455 Peacock
 3" plain weave - using 20/2 linen (for hem)
 2/2 leno; 8 picks plain weave

a) Dark Brown Treadle 3 - 7x
 Rust 2 - 4x

Dark Brown 3 - 7x
 2 picks plain weave
 Blue 3/2 Cotton Block B - 1x
 Repeat Part A - 2 times, end with Monks Belt, 6 picks plain weave
 Dark Brown Weaving Wool Block B - 1x
 Block A - 1x
 Treadle 2 - 8x
 Block A - 1x
 Block B - 1x
 Block A - 1x
 Treadle 2 - 8x
 Block A - 1x
 Block B - 1x

6 picks plain weave
 3/2 cotton - Block B - 1x
 10" plain weave for center - reverse motifs - (end with leno and 3" plain weave)

BRONSON AND OVERSHOT
 Susan Ross - from Josephine Estes
 Miniature Patterns for the Handweaver

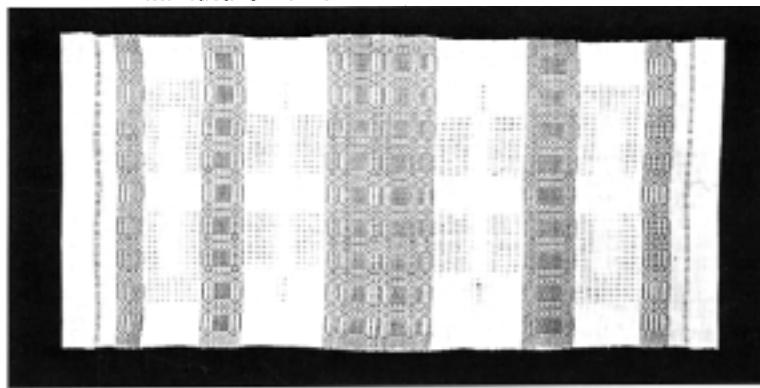
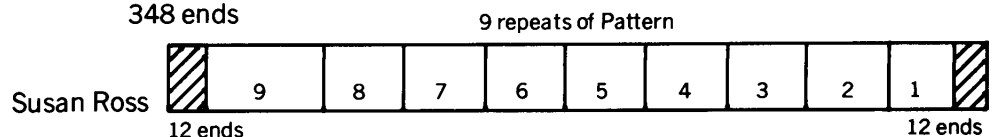


Illustration 8

WARP: Size 20/2 Linen
 SETT: 24 epi - 348 ends
 WEFT: Art. 121 - 6 strand floss - Tropic Orange 461

OVERSHOT
 9 repeats of "Susan Ross"
 36 ends x 9 — 324 ends
 2 selvages at 12 ends — 24 ends (twill)
 348

BRONSON
 Right selvages — 48 ends (plain weave)
 18 blocks x 6 — 108 ends
 plain weave center — 36 ends
 18 blocks x 6 — 108 ends
 Left selvage — 48 ends
 348 ends



BRONSON PROFILE
 each square represents
 12 ends



Bronson profile with plain weave center and selvages

Block A
 1 3 1 3 1 2
 Block B
 1 4 1 4 1 2
 Plain Weave 1 2

THE WOVEN QUILT



Illustration 9

MATERIALS:	WARP:	Lily Pearl Cotton, Article 114, Size 10/2 Natural
	SETT:	24 epi
	PATTERN WEFT:	Lily Pearl Cotton, Article 114, Size 5/2 Skipper Blue
	TABBY:	Same as warp
	QUILTING:	Lily Quilting Cotton

In the previous pages I have discussed the combining of two different four-harness drafts, for example, an Overshot and a Bronson draft. In this case instead of combining two or three different drafts in order to integrate them, or to be able to weave several projects of each of the different threadings. I used this system to create loom-controlled areas of design.

In THE WOVEN QUILT only one draft is used: "Rose in Dorn" from *A HANDWEAVER'S PATTERN BOOK* by Marguerite Davison. This draft is combined in three different forms in order to create the loom-controlled design and plain weave areas. This new draft, $A + B + C = D$ required thirteen harnesses.

I wove fifteen 18" by 18" squares for the top of the quilt.

For the three side panels, the same draft was combined in four different forms in order to create the loom-controlled design and plain weave areas. The narrow Rose Path border along the bottom of the panel and the blue warp-face band long the top edge of the panel did not contribute to the number of harnesses needed. In this case, $A + B + C + D = E$, and this necessitated the use of seventeen harnesses.

All the squares and three side panels were sewn together by machine. After the batting and unbleached muslin backing were basted in place, all the quilting was done by hand.

In both the squares and in the side panels there is a small area that was picked-up by hand. Since all the weaving was done wrong side up, this presented no difficulty.

NOTE: Eight squares woven using the Star-Fashion treadling
Seven squares woven using the Rose-Fashion treadling
Side panels woven using the Star-Fashion treadling.

BELDING LILY COMPANY 

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