



Shuttle Craft Guild      Virginia City, Montana  
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# PORTFOLIO



The Robbin's Egg Blue Sample is a Crepe weave in Fabri set at 24 ends per inch, 8-harness Twill draft. The tie-up is: 2-4-5-7, 3-4-6-8, 1-3-5-7, 1-4-6-8, 2-5-7-8, 1-3-6-7, 2-4-8, 1-3-5-8.

The Fancy Twill is on 6 harnesses, 18/2 worsted set at 30 ends per inch. The tie-up is: 1-3, 2-4, 3-5, 4-6, 5-1, 6-2.

Fancy, Double-Twill Afghan is woven on the same warp as the Robbin's Egg Blue Crepe. The sample is hidden not without reason. Although it illustrates the afghan discussed in the BULLETIN, it also illustrates a weaver's pitfall -- the use of an unknown material without pre-testing it for color fastness. Rich brown and bright red angora with gold metallic were



the weft. When completed the afghan was soft and sparkling, exactly right, except we decided to wash it to raise the fur-nap. Washing changed the colors to drab brown, purple-red, and mottled grey warp. With the



afghan ruined anyway, we were led to a further experiment. What would an automatic clothes dryer do to it? From this experiment we say, "Don't use your dryer for your best handwoven woollens. The angora shrank until the soft quality was lost and the gold metallic hidden from sight. So treat your lovely fabrics gently!

## SOURCES OF SUPPLIES FOR WEAVERS

All of the products recommended here have been thoroughly tested in the Shuttle Craft Guild Studio and found satisfactory and to meet with all advertised claims. The firms have been found to be reliable in all respects. In most cases, payment is required with the order, and shipping charges are added. Please mention the Shuttle Craft Guild when writing to these distributors.

### LOOMS

**The Macomber Ad-A-Harness.** Manufactured and distributed by L. W. Macomber, 166 Essex St., Saugus, Mass. An exceptionally efficient, strong, well made jack-type loom which folds conveniently. All looms made to hold 10 harnesses but may be purchased with 4 or more, also 12 and 16. Solid and sectional warp beams available and beam brake if desired. Widths: 32", 40", 48", 56". Also Tensioner and spool rack.

**The Gilmore.** Manufactured and distributed by E. E. Gilmore, 330 S. Commerce St., Stockton 34, Calif. An exceptionally strong, well made, Jack-type loom—the original pushup harness loom. 4 to 8 harnesses, folding or rigid, sectional warp beams. Widths: 22 to 56 inches. Also excellent shuttles, tensioners, and Inkle Looms.

**The Leclerc.** Manufactured by Nilus Leclerc Inc., L'Islet Station, Quebec, Canada. Distributed direct and through agents. The "tops" in 4-harness counter-balanced looms. Widths: 27", 36", 45", 54", 90". Also fine auxiliary equipment and Tapestry Looms.

**The Structo.** Manufactured by Structo Mfg. Co., Freeport, Ill. Distributed directly and through agents. A hand-operated 4 or 8 harness table loom of sturdy construction, equipped with solid warp beam and steel beam to hold Structo Ready-Warped Spools. Widths: 8", 20", 26". Stands available.

### GENERAL WEAVING SERVICES

**Searle Grain Farm Home Weaving Service,** 318 Grain Exchange, Winnipeg, Manitoba, Canada. A general service specializing in looms and materials, particularly imported materials: Irish, French and Canadian linens; Canadian rayons, U.S. and Canadian novelties, Egyptian cottons, Scotch, English and Australian wools.

**Hughes Fawcett, Inc.,** 115 Franklin St., New York 13, N.Y. A general service to handweavers, selling looms of many types, a wide selection of all kinds of materials, equipment of all types, and standard weaving books. Also certain specialties.

### MATERIALS

**Lily Mills Co.,** Handweaving Dept., Shelby, N.C. An exceptionally wide selection of cottons in many colors, fast dyes. Also weaving wools, linens, metallics and some novelties. Belt shuttles.

**Confessa Yarns,** 3-5 Bailey St., Ridgefield, Conn. Excellent source for a wide variety of specialty and novelty yarns at low prices. Samples of special offerings sent monthly. Also regular stock of fast-color carpet warp and linens. Searching service for that unusual yarn.

**Royal Society, Inc.,** 230 Fifth Ave., New York 1, N.Y. Highest quality standard tweed yarn in wide color range and heather mixtures, novelty flecked tweeds, and 2/18 worsted in 22 colors.

**Tinsel Trading Co.,** 7 W. 38th St., New York 18, N.Y. Metallic yarns, and metallic combinations in all types and colors, including the ever-useful supported metallics.

**The Weavers' Workshop,** Dodgeville, Wis. Those unusual, hard-to-get yarns such as spun silk and silk noils, Bernat Afghan, imported Irish linens, novelty wools, silks and linens, Bobbin Lace materials.

### PUBLICATIONS

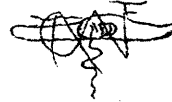
**Craft and Hobby Book Service,** Box 1931, Carmel, Calif. Almost all weaving books, foreign and domestic, in stock. Will order any others. Special searching service for out-of-print books. Also Art and Design books and books on other crafts.

**Handweaver And Craftsman,** 246 Fifth Ave., New York 1, N.Y. The all-inclusive periodical for all handweavers. Published quarterly. (Send them your news items too.) Mary Alice Smith, Editor.



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### THE TEXTURE TWILLS

Textures are timely, and twills are textures. Texture is fundamentally the manner of interlacement of warp and weft threads, but the common connotation of the word is fancy textures or texture contrasts. These texture contrasts, in their most sophisticated interpretation, are produced through a complex interlacement system rather than through combining different thread weights and types. While the 2-2, balanced 4-harness twill is the simplest of twill textures, this weave may be expanded and varied to form endless fancy textures, and the more harnesses there are involved the more complex may be the resulting textures.

The methods for varying the twill textures are: the changing of the threading draft, the changing of the treadle-harness tie-up system, the changing of the treadling rotation, or a combination of two of these. Most commonly the twill draft is retained and the changes are made in the tie-up or the treadling order.

In designing texture-emphasis weaves the weaver must keep in mind that there are two other unescapable elements to any textile, in addition to texture; these are color and pattern. In fancy twills where the texture is handled as the most important element, the qualities of color and pattern are secondary, but are used to enhance the texture. For instance, the use of weft of one color over warp of another color will draw attention to a complex interlacement of threads and add the illusion of third dimension, thereby increasing the texture contrast. And pattern is always

present in the arrangement of weft crossing warp, so that even the small figures made by twill interlacement are actually patterns, but of a small textural quality.

#### READING FANCY TWILL NOTATIONS

A wealth of information on the fancy twills which produce the texture effects is found in the technical books on textile designing. Such books as A HANDBOOK OF WEAVES by Oelsner translated by Dale, TEXTILE DESIGN AND COLOR by William Watson, FABRIC STRUCTURE by John H. Strong, WEAVE CONSTRUCTION AND CLOTH ANALYSIS by the International Correspondence School Staff, devote large sections to the fancy twill weaves. But since these books are written primarily for the trained power-loom designer, they present interpretation problems to the handweaver who has not gained the background for understanding them.

Most publications present the fancy twills as small diagrams made on squared paper with the pattern squares filled with black and the background left white. Two or more repeats of the draft and tie-up are usually given, though both of these are simply implied in the diagram. In fact, these little diagrams are often called "full drafts" because they indicate all of the elements: the draft, the tie-up, the treadling order, and the visual effect of the thread interlacement. In this comprehensive character of the diagrams lies the confusion to handweavers who are accustomed to having each element presented separately. The method for determining these factors follows.

The first step is to determine the length of the draft (the number of harnesses involved in the twill) by studying it horizontally to find the point where the full draft ends and the repeat starts. Then place the figure 1 above the first vertical space, 2 above the second vertical space, 3 above the third, and so

on until the end of the full pattern is reached. The figures will represent harness numbers in the twill draft, and may be represented in draft form.

The tie-up is determined in much the same manner. Examine the horizontal spaces of the diagram to determine the place where an exact pattern repeat starts. It is advisable to draw a horizontal line here, and also a vertical line indicating the end of the draft. The next step is to analyze each line in order, within the area marked off. Start with the top horizontal space and write down the figure which lies above every white square in the line. Progress down the diagram to the point where the repeat starts, writing down the figures above white squares for each line. A series of figures similar to this will result:

1:	2-3-6	
2:	1-2-3	This is for a 6-harness twill,
3:	1-2-4	#82 in the out-of-print pamphlet
4:	3-5-6	TWILLS, TWEEDS AND ALL WOOL
5:	4-5-6	FABRICS.
6:	1-4-5.	

The interpretation of this is that treadle 1 is tied to harnesses 2, 3 and 6, treadle 2 tied to harnesses 1, 2, and 3, and so on. This may be put into standard tie-up form if desired. The tie-up so determined will give the diagrammed pattern on a jack-type loom if the warp is white and the weft black. Identical results will be obtained from a black warp with a white weft on a sinking-shed loom, though sinking sheds are not commonly indicated for fancy or multiple-harness twills. The reverse effect occurs on the rising-shed if the indicated harnesses are left untied and the unnoted ones tied (white warp, black weft): treadle 1 tied to 1-4-5, treadle 2 tied to 4-5-6, and so on.

The treading order for the fancy twills is 1, 2, 3, 4, 5, 6, etc, for the number of treadles involved, repeated throughout. However, certain fancy twills utilize the same harness combination at more



than one place in the pattern, in which case an irregular treadling order may be used to reduce the number of treadles required. As with the plain twills, if a fancy twill is to be woven in a large piece it is advisable to rearrange the treadle tie-up so that the treadles may be "walked" in the order: 1,5,2,6,3,7,4,8.

Although any one of the four corners of a twill diagram may be selected as the one for making the draft and tie-up analysis, there are certain conventions in doing this which it is well for the weaver to know. The diagrams written for handweavers utilize the upper right-hand corner and read the harnesses in the conventional manner, right to left. The tie-ups are usually written from top to bottom, in the manner in which developments are made on paper. However, in the books written particularly for power-loom designing, the lower left-hand corner is usually selected for analysis and read from left to right and bottom to top. If a draft accompanies the power-loom diagram, it is commonly placed below, whereas the handloom draft lies above the diagram. This means that the handloom diagram shows the weft shots in the reverse direction, a convention followed to enable the draft writer to see his work as it develops on paper. Handweavers who use the Oelsner and Dale book will notice small lines at the left and under many diagrams. These lines indicate the draft and treadling analysis section. If they do not occur, it means that only one vertical and horizontal repeat is given.

Many of the European books for handweavers have extensive sections on the fancy twills and utilize a different system for indicating draft, tie-up and treadling order. The draft is written in the customary way, but the lines which define the draft are extended at either the right or the left to include the tie-up, and vertical divisions in the tie-up are extended down to allow the insertion of figures or symbols to show the treadling order. This is a form similar to that

used in the Davison A HANDWEAVER'S PATTERN BOOK, except that in most European books the tie-up is indicated by solid black squares so that it resembles a single-repeat diagram or development.

In some books, most particularly Oelsner and Dale, a twill is sometimes represented very simply by a series of figures which lie above and below a line. This system is feasible for only twills which have regular, unbroken progressions along a 45 degree diagonal line. The plain, 4-harness, balanced twill becomes:

$$\frac{2}{2}$$

which means 2 warp threads up and two down in echlon or overlapping order, around a circle diagram. The convention is useful for the multiple-harness twills of regular nature, an example for 8 harnesses being:

$$\frac{1 \quad 2}{2 \quad 3}$$

which means that each shot has 1 harness up, 2 down, 2 up and 3 down, in echlon (circular) progressive order. Treadle 1 is tied 1-4-5, treadle 2 tied 2-5-6; treadle 3 tied 3-6-7, treadle 4 tied 4-7-8, treadle 5 tied 5-8-1, treadle 6 tied 6-1-2, treadle 7 tied 7-2-3, treadle 8 tied 8-3-4.

The convention which will be followed here for most of the fancy twills is simply the list of treadle tie-ups, to be woven in order, repeated throughout. Diagrams for these may be made on squared paper by reversing the process explained above for taking the draft and tie-up off the diagram. A better way to make an illustration of the twills is to set up a narrow sample warp of about 60 ends of 4-ply knitting worsted set at 10 or 12 ends per inch and weave 3 or 4 inches of each tie-up with the same weft in a contrasting color. This sampling may be expanded by making a wider warp and threading half of it to straight twill and the other half to point twill, as many interesting weaves will appear on the point twill threading.

TYPES OF FANCY TWILLS

The fancy twills are commonly classified under a number of headings, according to the type of interlacement and the visual effect of the interlacement. Classifications differ in detail from one author to another, but on the whole they are divided into two main groups, Straight twills and Broken twills, each with several subdivisions.

**STRAIGHT TWILLS** are those which are threaded on the plain twill drafts for three or more harnesses.

Normal Diagonal Twills are the regular twills which weave to an unshaded 45 degree diagonal line.

The 4-harness variations are:  $\frac{2}{2}$ ,  $\frac{3}{1}$ ,  $\frac{1}{3}$ .

5-harness variations:  $\frac{1}{4}$ ,  $\frac{2}{3}$ ,  $\frac{3}{2}$ ,  $\frac{4}{1}$ .

6-harness variations:  $\frac{1}{5}$ ,  $\frac{2}{4}$ ,  $\frac{3}{3}$ ,  $\frac{4}{2}$ ,  $\frac{5}{1}$ .

7-harness variations:  $\frac{1}{6}$ ,  $\frac{2}{5}$ ,  $\frac{3}{4}$ ,  $\frac{4}{3}$ ,  $\frac{5}{2}$ ,  $\frac{6}{1}$ .

8-harness:  $\frac{1}{7}$ ,  $\frac{2}{6}$ ,  $\frac{3}{5}$ ,  $\frac{4}{4}$ ,  $\frac{5}{3}$ ,  $\frac{6}{2}$ ,  $\frac{7}{1}$ .

And so on for as many harnesses as desired.

Shaded Twills are those echlon (circular progression) twills on 5 or more harnesses which have one strong 45 degree diagonal line which is shaded by a secondary diagonal line or lines. The only 5-harness one is  $\frac{1}{1}$ .

6-harness variations:  $\frac{1}{1}$ ,  $\frac{1}{2}$ ,  $\frac{1}{1}$ .  
 $\frac{1}{3}$   $\frac{1}{2}$   $\frac{1}{2}$

7-harness variations:  $\frac{1}{1}$ ,  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{1}$ ,  $\frac{1}{2}$ .  
 $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{3}$   $\frac{2}{2}$

8-harness variations:  $\frac{1}{1}$ ,  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{1}$ ,  
 $\frac{1}{5}$   $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{4}$ ,

$\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{2}$ ,  $\frac{1}{1}$ ,  $\frac{1}{1}$ ,  $\frac{1}{1}$ ,  $\frac{1}{2}$ ,  $\frac{1}{1}$ .  
 $\frac{2}{3}$   $\frac{2}{2}$   $\frac{3}{2}$   $\frac{4}{2}$   $\frac{1}{1}$   $\frac{1}{3}$   $\frac{1}{1}$   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{2}{2}$

And so on for as many harnesses as desired. The Shaded twills often make fabrics with texture interest which far exceeds that of the Normal Diagonal twills, and in many cases the fabrics have the advantage of being harder surfaced and more crease resistant because of being more closely interwoven. Those with 1 and 2-thread skips are particularly desirable in this sense. The fabrics have tabby quality along with twill interest and may consequently be woven on wider than normal twill warp settings for lighter weights.

Spotted Twills are the twill weaves which contain an arrangement of small spots or figures and may or may not also have diagonal twill lines. These are usually given in diagram, or simply as treadle tie-ups. Following are a number of Spotted twill variations:

4-harness variations:

Treadle 1, 1-2	Treadle 1, 2-3-4	Treadle 1, 1-2
2, 1-3	2, 1-2-3	2, 1-2-3
3, 3-4	3, 4	3, 2-3-4
4, 2-4,	4, 1.	4, 3-4.
Treadle 1, 2-4	Treadle 1, 2-3-4	Treadle 1, 3-4
2, 3-4	2, 1-2-4	2, 2-3
3, 1-3	3, 2-3-4	3, 1-2
4, 2-4	4, 1	4, 3-4
5, 1-2	5, 3	5, 1-4
6, 1-3.	6, 1.	6, 1-2.

Direct experimenting on the loom, or on squared paper will reveal many more variations.

6-harness variations:

Tr 1, 2-4	Tr 1, 1-2-3	Tr 1, 1-2-4	Tr 1, 4-6
2, 1-3	2, 1-4-6	2, 1-2-5	2, 3-4-6
3, 4-6	3, 3-4-5	3, 3-4-6	3, 2-6
4, 3-5	4, 2-3-6	4, 1-3-4	4, 1-5-6
5, 2-6	5, 1-5-6	5, 2-5-6	5, 2-4
6, 1-5.	6, 2-4-5.	6, 3-5-6.	6, 1-2-3.

Tr 1, 1-2-3-5	Tr 1, 3-4-5	Tr 1, 1-6	Tr 1, 1-2-3
2, 1-2	2, 2-5	2, 3-4-6	2, 2-4-5
3, 1-3-4-5	3, 1-5-6	3, 2-3	3, 3-4-5
4, 3-4	4, 1-4	4, 2-5-6	4, 1-4-6
5, 1-3-5-6	5, 1-2-3	5, 4-5	5, 1-5-6
6, 5-6.	6, 3-6.	6, 1-2-4.	6, 2-3-6.

## 8-harness variations:

Tr 1, 3-6-8	Tr 1, 1-4-7	Tr 1, 1-2-6-8
2, 3-4-7-8	2, 3-4-5-8	2, 1-2-5-7
3, 2-5-8	3, 1-3-6	3, 2-3-4-8
4, 1-2-5-6	4, 2-5-6-7	4, 1-3-4-7
5, 2-4-7	5, 3-5-8	5, 2-4-5-6
6, 3-4-7-8	6, 1-4-7-8	6, 1-3-5-6
7, 1-4-6	7, 2-5-7	7, 1-2-3-5
8, 1-2-5-6.	8, 1-2-3-6.	8, 1-2-4-6.

Tr 1, 1-5-6-7	Tr 1, 2-5-8	Tr 1, 1-4-7-8
2, 3-5-7-8	2, 1-3-5-6-7	2, 2-3-7-8
3, 2-5-6-8	3, 2-4-7	3, 2-3-5-6
4, 4-6-7-8	4, 1-3-5-7-8	4, 1-4-5-6
5, 1-2-3-5	5, 1-4-6	5, 4-5-8
6, 1-3-4-7	6, 1-2-3-5-7	6, 3-6-7
7, 1-2-4-6	7, 3-6-8	7, 2-6-7
8, 2-3-4-8.	8, 1-3-4-5-7.	8, 1-5-8.

Tr 1, 1-2-3-7	Tr 1, 3-5-7-8	Tr 1, 2-3-4-6
2, 2-3-4-6	2, 2-5-6-8	2, 3-7
3, 1-3-4-5	3, 1-5-6-7	3, 4-8
4, 1-2-4-8	4, 4-6-7-8	4, 1-3-4-5
5, 1-5-7-8	5, 1-2-3-4	5, 2-3-4-6
6, 4-5-6-8	6, 2-3-4-8	6, 1-2-3-5-6-7
7, 3-5-6-7	7, 1-3-4-7	7, 1-2-4-5-6-8
8, 2-6-7-8.	8, 1-2-4-6.	8, 1-3-4-5.

Reclining Twills are those in which the angle of the twill line rises at less than 45 degrees, usually at  $22\frac{1}{2}$  degrees. They are made by progressing forward two warp ends on each weft shot, or for a 30 degree angle progressing forward 2 and 1 alternately. These arrangements

are little used by handweavers because the most desirable ones require a great many harnesses.

Steep Twills are those in which the progression is less than one warp end for each weft shot so that the twill angle is greater than 45 degrees. The most common angle is  $67\frac{1}{2}$  degrees, formed by a step forward of one warp end for each two weft shots. Included in the Steep twills are the so-called Combined Twills and Interlocking Twills which are made by selecting two different twill arrangements and alternating a shot on one with a shot on the other. These twills have the mechanical difficulty of requiring a great many treadles, though this barrier is not insuperable. Examples:

6-harness variations:

Tr 1, 1-2-3	Tr 1, 1-2-5	Tr 1, 3-4-6	Tr 1, 1-2-3-5
2, 3-4-6	2, 2-4	2, 3-5	2, 2-4
3, 2-3-4	3, 2-3-6	3, 1-4-5	3, 2-3-4-6
4, 1-4-5	4, 3-5	4, 4-6	4, 3-5
5, 3-4-5	5, 1-3-4	5, 2-5-6	5, 1-3-4-5
6, 2-5-6	6, 4-6	6, 1-5	6, 4-6
7, 4-5-6	7, 2-4-5	7, 1-3-6	7, 2-4-5-6
8, 1-3-6	8, 1-5	8, 2-6	8, 1-5
9, 1-5-6	9, 3-5-6	9, 1-2-4	9, 1-3-5-6
10, 1-2-4	10, 2-6	10, 1-3	10, 2-6
11, 1-2-6	11, 1-4-5	11, 2-3-5	11, 1-2-4-8
12, 2-3-5	12, 1-3	12, 2-4	12, 1-3

4-harness variations:

Tr 1, 2-4	Tr 1, 2-4	Tr 1, 2-4	Tr 1, 3-4	Tr 1, 3-4
2, 3-4	2, 3-4	2, 3	2, 4	2, 3
3, 1-4	3, 1-3	3, 1-3	3, 1-4	3, 1-4
4, 2-4	4, 1-4	4, 4	4, 1	4, 4
5, 1-2	5, 2-4	5, 2-4	5, 1-2	5, 1-2
6, 2-3	6, 1-2	6, 1	6, 2	6, 1
	7, 1-3	7, 1-3	7, 2-3	7, 2-3
	8, 2-3	8, 2	8, 3	8, 2



## 6-harness variations:

Tr 1, 1-2-5	Tr 1, 1-4	Tr 1, 1-2-6	Tr 1, 2-5
2, 1-2-4	2, 2-3-5	2, 4-6	2, 1-3
3, 1-3-4	3, 3-5-6	3, 2-3-4	3, 2-4
4, 2-5-6	4, 1-2-4	4, 3-4-5	4, 3-6
5, 3-5-6	5, 2-5-6	5, 1-3	5, 1-5
6, 3-4-6.	6, 1-3-4.	6, 1-5-6.	6, 4-6.

## 8-harness variations:

Tr 1, 1-4-6-7	Tr 1, 2-4-5-7	1, 1-3-4-6-7
2, 2-5-6-8	2, 3-4-6-8	2, 2-5-6-8
3, 3-5-7-8	3, 1-3-5-7	3, 1-4-7
4, 1-4-6-7	4, 1-4-6-8	4, 1-3-5-8
5, 2-3-5-8	5, 2-5-7-8	5, 2-4-6-8
6, 1-2-4-6	6, 1-3-6-7	6, 1,2,5,7
7, 1-3-4-7	7, 2-4-8	7, 1-3-6
8, 2-3-5-8.	8, 1-3-5-6.	8, 2-4-5-8.

Tr 1, 1-4-6-7	Tr 1, 1-3-5	Tr 1, 1-2-4-7
2, 2-4-7-8	2, 2-4-5-6-8	2, 2-4-5-8
3, 3-5-6-8	3, 1-3-5-7-8	3, 1-3-6-7
4, 1-4-6-7	4, 2-4-8	4, 1-2-4-7
5, 2-3-5-8	5, 1-5-7	5, 3-5-6-8
6, 1-2-4-7	6, 1-2-4-6-8	6, 2-3-5-7
7, 1-3-4-6	7, 1-3-4-5-7	7, 1-4-6-8
8, 2-3-5-8.	8, 4-6-8.	8, 3-5-6-8.

Tr 1, 1-2-5-6	Tr 1, 1-3-5-8	Tr 1, 1-3-4-7
2, 2-4-7-8	2, 2-4-6-7	2, 1-3-5-6
3, 3-5-6-8	3, 1-4-5-7	3, 2-4-7-8
4, 1-2-5-6	4, 2-3-6-8	4, 1-2-4-6
5, 3-4-7-8	5, 1-3-7-8	5, 3-5-7-8
6, 1-3-4-6	6, 2-4-5-8	6, 1-2-5-7
7, 2-5-7-8	7, 2-3-5-7	7, 3-4-6-8
8, 1-4-6-8.	8, 1-4-6-8.	8, 2-5-6-8.

All of the twill weaves given here should be woven according to the general twill rules: warp and weft identical and the same number of weft shots per inch as there are warp ends.



AN AFGHAN on DOUBLE FACED FANCY TWILL

The Double Faced twills offer a different problem from the twills which have been taken up here, and an introduction to them was given in the BULLETIN for May 1952. However, this unusually lovely, sparkly afghan was woven on the extra warp left after weaving a dress yardage on one of the 8-harness Crepe weaves, so it seems an appropriate project to give in this connection.

Warp was gold colored Fabri set at 24 ends per inch though any other fine worsted at a good tabby setting would be suitable. Since the weave produces a different color on each side of the afghan, two colors of weft yarn were used, red and brown, a soft sweater yarn considerably heavier than the warp. A third weft of fine, supported metallic in gold was used, article R-64 from Tinsel Trading Company. Borders at each end were made by inserting wide gold braid (also from Tinsel Trading Company) in tabby sheds with one half inch of the afghan weave between each braid, but this detail could be omitted.

The tie-up is as follows:	revised to:
Treadle 1, 1-2-3-4-6-8	1, 1-2-3-4-6-8
2, 2-3-4-5-6-8	2, 2-3-4-5-6-8
3, 2-4-5-6-7-8	3, 2-4-5-6-7-8
4, 2-4	4, 2-4
5, 4-8	5, 4-8
6, 2-8	6, 2-8
7, 4-6	7, 4-6
8, 6-8	8, 4-8*
(a) 9, 2-4-6-8	9, 6-8*
(b) 10, 1-3-5-7.	(b) 10, 1-3-5-7

Although the basic tie-up is the one given first, it was found that treading was complicated with this and errors were easy to make, so the change was made to simplify the treading. Treadles 8 and 9 were the only

ones changed, but this eliminated the a tabby so it was necessary to weave the narrow tabby heading, then change the tie-up on treadles 8 and 9 for weaving the afghan and changing back to tabby on treadle 9 for the other end. Of course the weaver who has that great convenience, more than the basic 10 treadles on an 8-harness loom, need not be concerned with the changes.

Weave: A few shots of tabby on a, b alternated, with either color, or with yarn like the warp, after leaving about 6 inches for fringe. Then on the revised tie-up weave, one shot on each treadle:

treadle 1, 2, 1 with color 1  
4, 5, 6 with color 2  
tabby b with gold metallic  
3, 2, 3 with color 1  
7, 8, 9 with color 2  
tabby b with gold metallic

Repeat throughout.

A warp of 36 to 40 inches in width makes the best afghan, but this colorful throw is still practical if woven on a 30 or 32 inch wide warp. Weave it at least 2 yards long and allow 6 to 8 inches for fringe at each end, or finish in any desired manner. A double woven hem as given in the BULLETIN for May 1952 would make an attractive finish, though the double hem requires a 4-treadle tie-up which would involve even more tie-up revision for the ends.

Border stripes may be made by reversing the colors where stripes are desired, or by changing one or both of the weft colors. One pleasing effect is gained by weaving the under side in a solid color and weaving the top side in harmonized color stripes, or in a spectrum arrangement of colors. The warp should be a neutral color which is between and harmonizes with both weft colors. The warp does not show strongly, but it tones both sides slightly. Beat very gently to give a soft fabric.

PORTFOLIO CONTENTS

The PORTFOLIO contains three samples, two of them woven on Robin's Egg blue Fabri, threaded to 8-harness twill, set at 24 ends per inch. One is woven in Crepe, the second 8-harness crepe given on page 11. The other is woven according to the Afghan directions. The third sample is white 18/2 worsted set at 30 ends per inch, threaded to 6-harness twill, woven  $\frac{1}{2}$  with oxford grey 18/2.  $\frac{1}{2}$

STYLES SHEETS

Styles sheet #29 gives a bag woven on 4-harness honeycomb. Sheet #30 gives handwoven Christmas ribbons.

SUMMARY and PROSPECTUS on TWILLS

Three articles have thus far been devoted to the twill weaves and to weaving wool yardages. The serious handweaver will have noticed that these articles have not been simply directions for weaving yardages. They have been an attempt to give a thorough and basic understanding of the twill weaves and their applications. The aim is to help the handweaver achieve the status of a textile designer rather than being simply a so-called shuttle-pusher. The highest accomplishment for the handweaver, as for an artist in any other field, is harmonious and appropriate self expression. Although every handweaver must start at the beginning, in the kindergarden of the craft one might say, each effort in planning textiles and in weaving them brings a little more understanding. Serious study of the basic principles of weaving and thoughtful handling of materials, along with an open mind toward trial and error, can eventually make an accomplished artist of any weaver, regardless of previous background. An understanding of the twill weaves will lay the foundation for understanding further techniques. Further articles on twills will follow. In January will come the Broken and Curved twills for upholstery and drapery.

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Every handweaver who has had only a little experience with looms will be as shocked as I am at an advertising statement which heads a leaflet on a loom which is being promoted these days in a manner never known before in the handweaving field. The statement in exact quotation is, "Due to the depth of the loom, there is little yarn waste in the starting and finishing of a warp. This feature alone pays for the loom. Too, it eliminates the unnecessary wide shed that proves so harsh to yarns."

This short statement covers a number of points, each one worthy of attention. The implications are completely misleading.

First, any loom user, at least the one who is familiar with good looms, knows that it is not the depth of the loom which controls the amount of warp wastage in the tie-ins to warp beam and cloth beam. The waste is controlled by three factors: the amount of space taken up by the harnesses and the beater when it is at rest. On checking a few of our studio looms I find that the distance from the front of the reed to the back of the 4th harness on the Leclerc loom is 6", on the Gilmore is  $5\frac{3}{4}$ ", on the Macomber is  $4\frac{1}{2}$ ", to the back of the 3th harness on the Gilmore is  $3\frac{1}{2}$ ", on the Macomber is 7", on the Missouri is 6". Thus, on these looms there is a potential saving of  $1\frac{1}{2}$ " on a total warp length between the widest and the narrowest which is certainly negligible. It is doubtful if any satisfactory loom could reduce this space much below the  $4\frac{1}{2}$ " inches, but even if this space is reduced to 3" in the loom mentioned, the warp saving over other available looms would be only  $1\frac{1}{2}$ " per warp, and this is the only way a loom can control warp waste.

The other two factors which control warp waste are up to the discretion and economy interests of the

weaver. These are the maximum extended positions of the tie-in rods or ropes on both beams and the size of the rods, if any, and the personal tie-in habits of the weaver. If the tie-in rods or ropes reach to the harnesses in the back and to the reed in front, then the weaver has complete control. And even if they do not reach that far, the weaver may use the tie-in method described and pictured in the January 1952 BULLETIN to extend the position to any point. Or it is a simple thing to add cords or replace cords to attain sufficient length. A series of cords without a tie-in rod, on the warp beam, makes for more economical tie-ins, and for the cloth beam rod a small wire (we use welding rods) substituted for a stick makes a further economy. If the weaver really wishes to be economical of warp, the tie-in method referred to above will save several inches on both ends.

The loom promotion leaflet says that warp saving can pay for the loom. How about that? A 24/2 cotton warp 36" wide, 35 per inch costs about 50¢ per yard, a 32" Fabri set at 30 per inch costs about \$1.50, an average tweed warp costs about \$1.00. If as much as 6" per warp is saved -- and this is more than the mere loom structure could account for -- the saving would run, on full width warps, from 5¢ to 25¢ per warp. How many warps would be required for \$150 or \$105?

As for the statement that the narrow depth eliminates a wide shed which is harsh to yarns. This seems to be simply an attempt to justify a poor shed. Actually, the lack of depth makes an adequate shed impossible, and any weaver knows the importance of a good shed. And when it comes to squeezing the last 2 inches from a warp, one learns to raise the harnesses only a little and insert the weft on a stick shuttle.

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A complete subject-matter index of 1952 BULLETINS and STYLES sheets will be sent with the January mailing.

*Harriet D Tidball*

## SOURCES OF SUPPLIES FOR WEAVERS

All of the products recommended here have been thoroughly tested in the Shuttle Craft Guild Studio and found satisfactory and to meet with all advertised claims. The firms have been found to be reliable in all respects. In most cases, payment is required with the order, and shipping charges are added. Please mention the Shuttle Craft Guild when writing to these distributors.

### LOOMS

**The Macomber Ad-A-Harness.** Manufactured and distributed by L. W. Macomber, 166 Essex St., Saugus, Mass. An exceptionally efficient, strong, well made jack-type loom which folds conveniently. All looms made to hold 10 harnesses but may be purchased with 4 or more, also 12 and 16. Solid and sectional warp beams available and beam brake if desired. Widths: 32", 40", 48", 56". Also Tensioner and spool rack.

**The Gilmore.** Manufactured and distributed by E. E. Gilmore, 330 S. Commerce St., Stockton 34, Calif. An exceptionally strong, well made, Jack-type loom—the original pushup harness loom. 4 to 8 harnesses, folding or rigid, sectional warp beams. Widths: 22 to 56 inches. Also excellent shuttles, tensioners, and Inkle Looms.

**The Leclerc.** Manufactured by Nilus Leclerc Inc., L'Islet Station, Quebec, Canada. Distributed direct and through agents. The "tops" in 4-harness counter-balanced looms. Widths: 27", 36", 45", 54", 90". Also fine auxiliary equipment and Tapestry Looms.

**The Structo.** Manufactured by Structo Mfg. Co., Freeport, Ill. Distributed directly and through agents. A hand-operated 4 or 8 harness table loom of sturdy construction, equipped with solid warp beam and steel beam to hold Structo Ready-Warped Spools. Widths: 8", 20", 26". Stands available.

### GENERAL WEAVING SERVICES

**Searle Grain Farm Home Weaving Service,** 318 Grain Exchange, Winnipeg, Manitoba, Canada. A general service specializing in looms and materials, particularly imported materials: Irish, French and Canadian linens; Canadian rayons, U.S. and Canadian novelties, Egyptian cottons, Scotch, English and Australian wools.

**Hughes Fawcett, Inc.,** 115 Franklin St., New York 13, N.Y. A general service to handweavers, selling looms of many types, a wide selection of all kinds of materials, equipment of all types, and standard weaving books. Also certain specialties.

### MATERIALS

**Lily Mills Co.,** Handweaving Dept., Shelby, N.C. An exceptionally wide selection of cottons in many colors, fast dyes. Also weaving wools, linens, metallics and some novelties. Belt shuttles.

**Contessa Yarns,** 3-5 Bailey St., Ridgefield, Conn. Excellent source for a wide variety of specialty and novelty yarns at low prices. Samples of special offerings sent monthly. Also regular stock of fast-color carpet warp and linens. Searching service for that unusual yarn.

**Royal Society, Inc.,** 230 Fifth Ave., New York 1, N.Y. Highest quality standard tweed yarn in wide color range and heather mixtures, novelty flecked tweeds, and 2/18 worsted in 22 colors.

**Tinsel Trading Co.,** 7 W. 38th St., New York 18, N.Y. Metallic yarns, and metallic combinations in all types and colors, including the ever-useful supported metallics.

**The Weavers' Workshop,** Dodgeville, Wis. Those unusual, hard-to-get yarns such as spun silk and silk noils, Bernat Afghan, imported Irish linens, novelty wools, silks and linens, Bobbin Lace materials.

### PUBLICATIONS

**Craft and Hobby Book Service,** Box 1931, Carmel, Calif. Almost all weaving books, foreign and domestic, in stock. Will order any others. Special searching service for out-of-print books. Also Art and Design books and books on other crafts.

**Handweaver And Craftsman,** 246 Fifth Ave., New York 1, N.Y. The all-inclusive periodical for all handweavers. Published quarterly. (Send them your news items too.) Mary Alice Smith, Editor.