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# THE WEAVER

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# Mattor

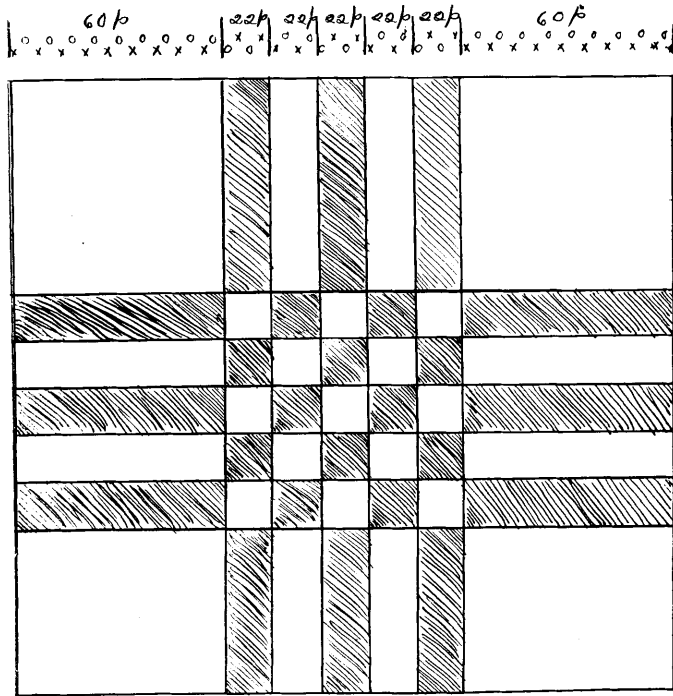
BY ROBERT FREDERIC HEARTZ

IN STUDYING the analysis and the fundamental construction of weaves, we learn that there are three basic weaves, the plain, twill and satin weaves; all other weaves are derivative weaves made by variations and combinations of these three weaves. Strictly speaking, a satin might be a derivative of a class of twills called broken crow, but because of the changed appearance of the woven cloth and its adaptability it is given a separate classification. In the plain weave classification there are rib weaves, basket weaves, fancy rib weaves, fancy basket weaves, figured rib weaves,

color in this type opens another interesting field of development. This is a plain weave for 2 harnesses, and yet some very interesting patterns can be woven on this principle.

In America hand-weavers have a type of rag rug, generally called "Log Cabin," that is woven on 2 harnesses. In the Scandinavian countries they have worked with more freedom in the use of materials, color and harnesses and have added a whole new field of possibilities in fabric, texture and design for the more advanced group of hand-weavers. In Illustration No. 11 is shown the texture and design for a weave of this type requiring 8 harnesses, and still it is only a two-shed fabric. It is possible with the 2-harness patterns to use many more than two colors. By experimenting with silks, linens, cottons, woolens and combinations of these materials, a large and interesting group of textures and fabrics suitable for table linens, cushions, draperies, and upholstery may be worked out.

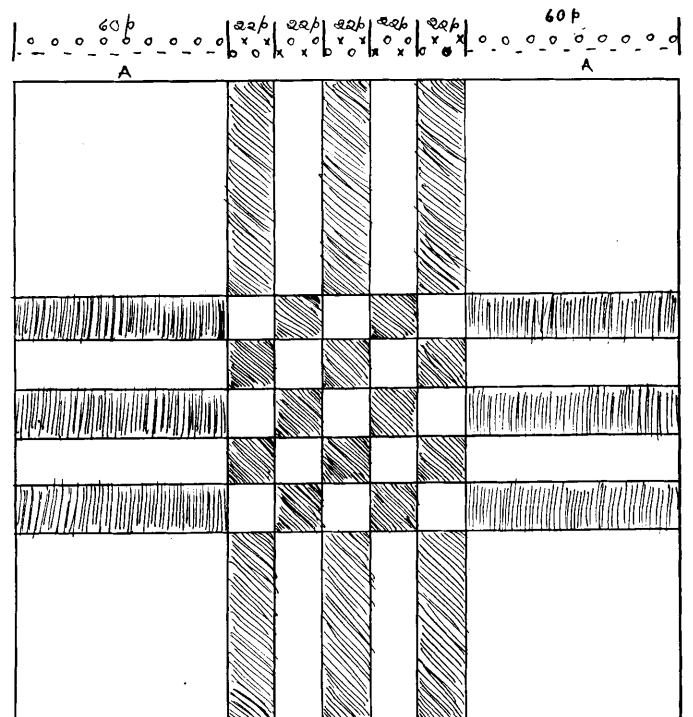
In the group of rugs called "Log Cabin" the regular carpet warp was used, set 24 ends per inch rather than the usual 10 or 12 ends that are ordinarily used for rag and roving rugs. By using two colors of warp drawn alternately light and dark and arranged in groups as in Draft No. 1, and woven by using alternate shots of fine and heavy weft, occasionally missing out on a shot of the fine weft, the pat-



Draft and Illustration No. I

figured basket weaves, oblique rib weaves and combinations of these different derivatives. In the twills there are regular twills, broken twills, steep twills or diagonals, reclining twills, curved twills, skip twills, corkscrew twills, entwining twills and combinations of these. In the satin group there are satins, double satins, granite weaves, damask. These three basic weaves are also combined in various ways with derivatives in the other groups, and make an endless possibility of effects that may be worked out.

In the class of plain weaves, almost the first possibility that develops is the introduction of color in the warp and weft pattern, after that the increasing of the proportion of warp or weft in the warp or weft flush group to build up a very definite rib effect which gives us another important class of textures. Rep is an important member of this group. The use of alternate shots of fine and heavy weft as well as



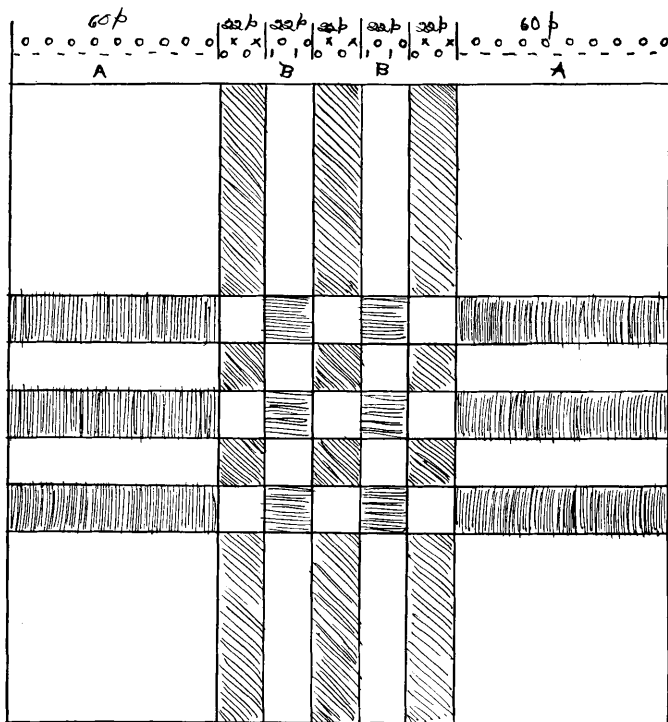
Draft and Illustration No. IA.

tern can be controlled and the pattern effect shown in Illustration No. 1 may be developed.

**Treadingling for Draft and Illustration No. 1:**

- 8 times fine weft for edge of piece.
- 1 shot heavy weft.
- 1 shot fine weft. Repeat this pair 60 times.
- Omit last shot of fine weft.
- 1 shot heavy weft.
- 1 shot fine weft. Repeat pair 24 times.
- Omit last shot of fine weft.
- 1 shot heavy weft.
- 1 shot fine weft. Repeat pair 24 times.
- Omit last shot of fine weft.
- 1 shot heavy weft.
- 1 shot fine weft. Repeat pair 24 times.
- Omit last shot of fine weft.
- 1 shot heavy weft.
- 1 shot fine weft. Repeat pair 24 times.
- Omit last shot of fine weft.
- 1 shot heavy weft.
- 1 shot fine weft. Repeat pair 24 times.
- Omit last shot of fine weft.
- 1 shot heavy weft.
- 1 shot fine weft. Repeat pair 60 times.
- 8 times fine weft for edge of piece.

The fine weft for the above treadingling draft is usually the same material as the warp and the heavy weft, for rugs the heavy cotton roving, or if rags are to be used they should be torn in strips 1" to 1½" in width, depending upon the weight of the material. The number of times that each



Draft and Illustration No. 1B.

pair of shots is repeated is also optional, the number of times each pair is repeated depending upon the number necessary to bring out the pattern in the proper proportion. The treadingling as given is for one repeat or square of the pattern; it may be woven any previously determined number of times to obtain a given length.

If in the No. 1 Draft the colors selected were blue and white, a blue and white irregular check would be woven. The colors are represented by having the crosses stand for the blue warp and the circles for the white. The draft arrangement may be further changed as in Draft No. 1A.

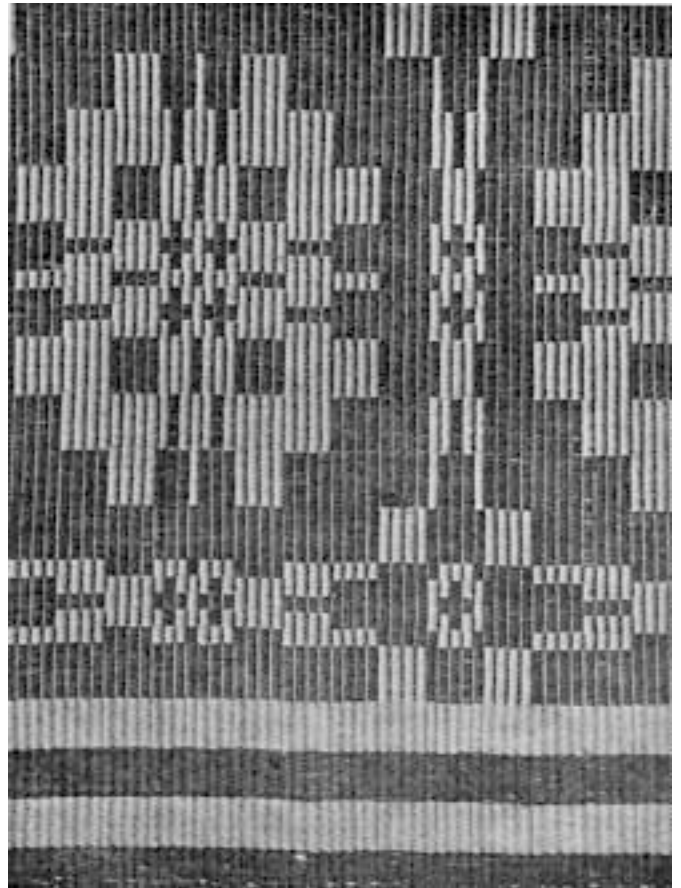
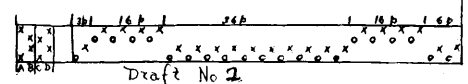
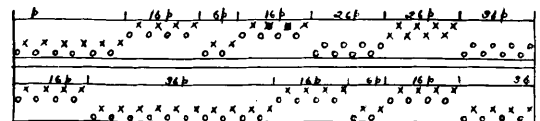
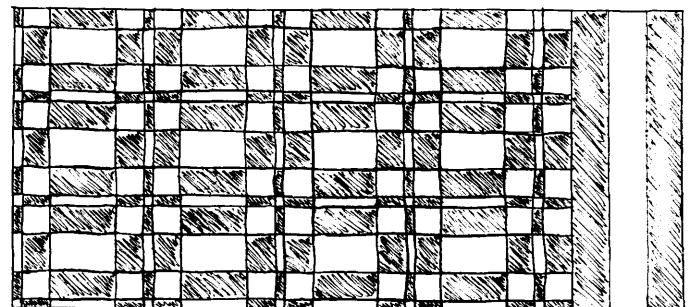
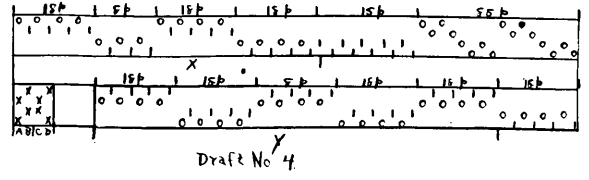
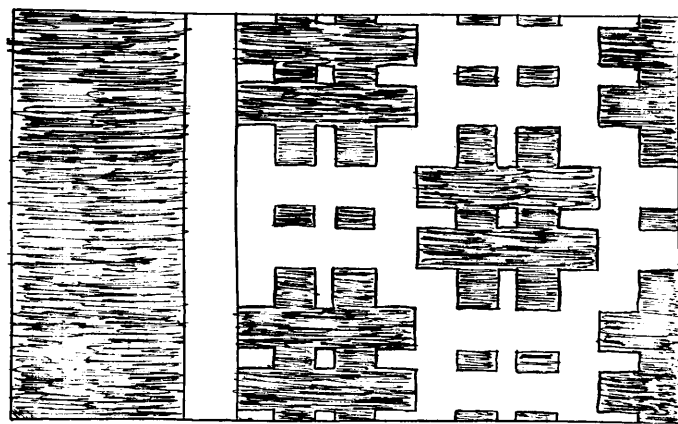
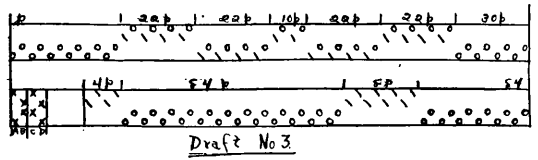
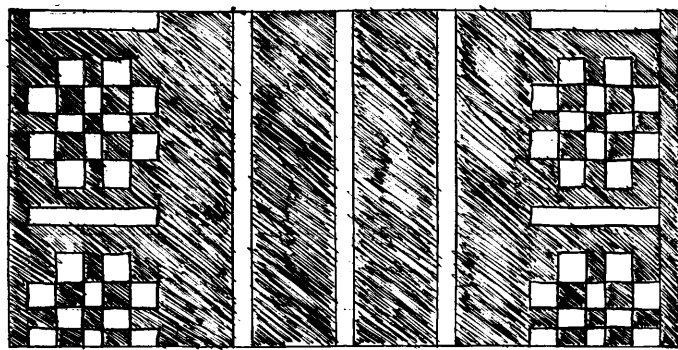


Illustration No. 2

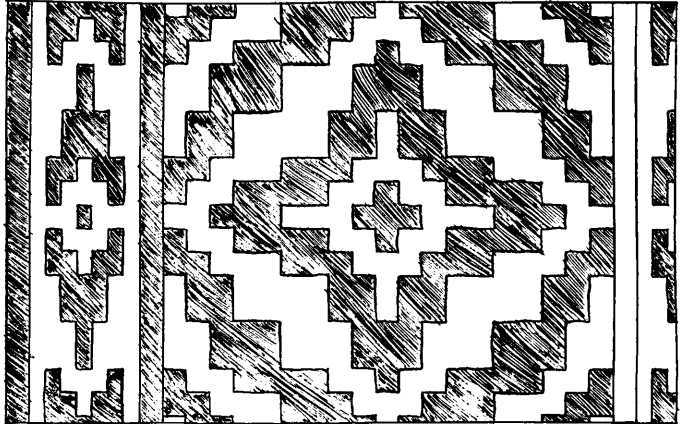
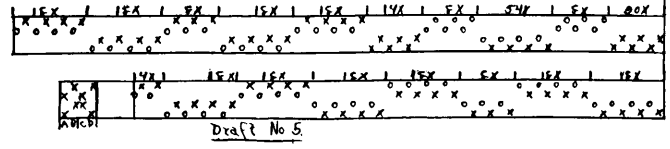
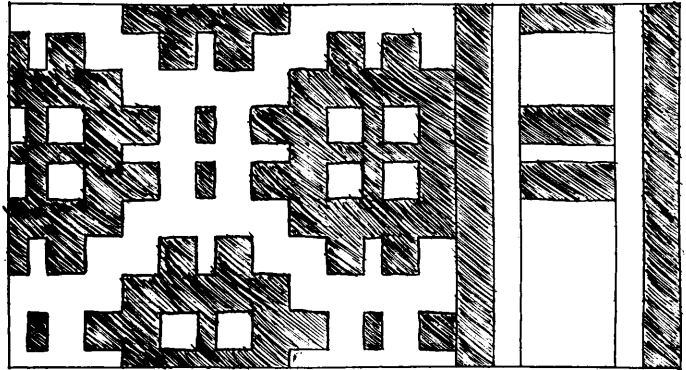


Draft No. 2

In the two large blocks "A," the crosses are changed to dashes to show a color change from blue to green. The color change in the pattern is suggested in Illustration No. 1A. Again referring to Draft No. 1, allowing the change in block A to stand, and making a further change by substituting orange in place of the blue, mark the change by short vertical lines and another color is introduced into the pattern plan. The woven result of this change is indicated in Illustration 1B; blue, green and orange areas on a white ground. It is possible to change the effect in still a different way by having the circles in the "B" blocks to represent orange. By a little study and experimentation an endless number of variations with four or even more color combinations may be worked out. By comparison and study of Draft and Illustrations Nos. 1 and 1A and 1B, which is an irregular check, it will be an easy matter to write the draft arrangements for any regular or irregular check, then to apply the color principle for still more varied results. By experimenting with different colors for fine and heavy wefts, another variety of textures and fabrics can be developed.



The following group of patterns and drafts are taken from several Danish, Finnish, Norwegian and Swedish books on hand-weaving and show the cleverness of the Scandinavian peoples in getting the most out of a comparatively simple basic principle or technique. We, here in America, hear much about the very superior work of these peoples. It is not that they are better craftspeople than we, but that they apply themselves more fully to their work, do more of their own preparation, give more thought to their problems, use more color, are not afraid of being original, nor to experiment. In studying the source of their weaves, materials,



designs and distribution, it is apparent that the older weavers had very little outside influence or opportunity to study other than their own work, yet they have left behind them some very outstanding pieces of weaving. In the olden days there was little exchange of patterns between the districts; the different Provinces and Parishes had their own type of weave for which they were noted, and that weave might hardly be known outside of that district. Some of the weaves today still are identified by the names of the provinces where they were once made. Today, however, with government interest and coöperation in the revival of

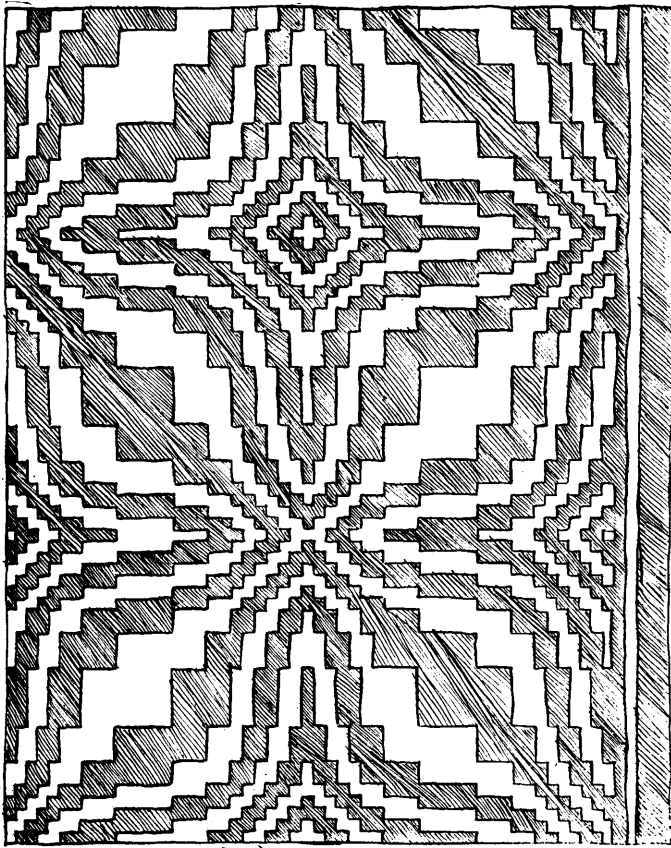
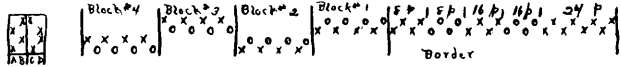


Illustration No. 7



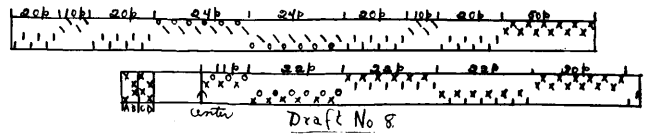
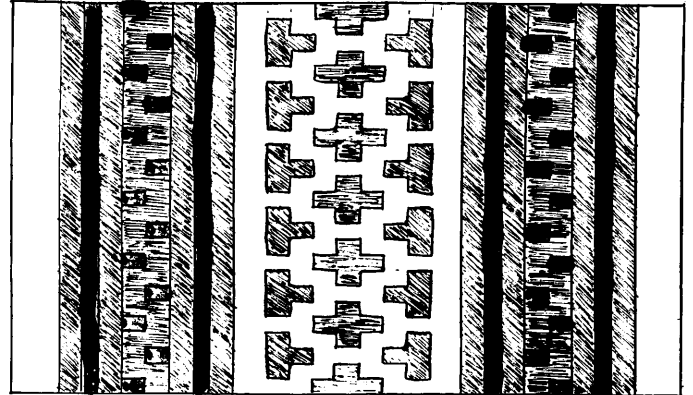
23 1 23 44 1 120 22 23 33 44 1 23 4 1 52 1 43 2 1 1 1 44 4 33 3 2 1 43 1  
 Border 1 23 1 23 44 1 1 22 22 23 33 44 1 23 4 1 52 1 43 2 1 1 1 44 4 33 3 2 1 43 1

Draft No. 7

in the reverse color combination. In the multiple color combinations they are reversible but not always in the exact reverse.

Treading for border of Draft No. 2:

Treadle sheds C and D alternately as for plain weaving, using alternate shots of fine and heavy weft. To change



Draft No. 8

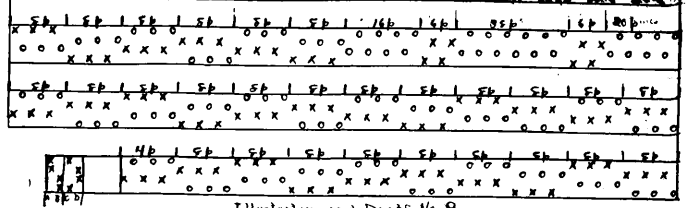
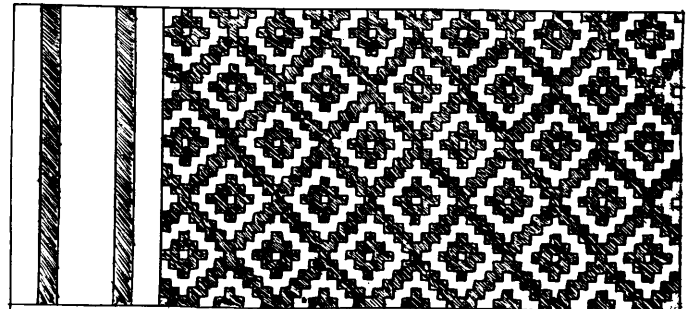
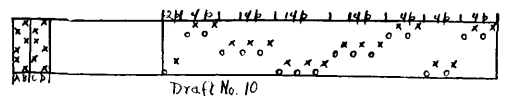
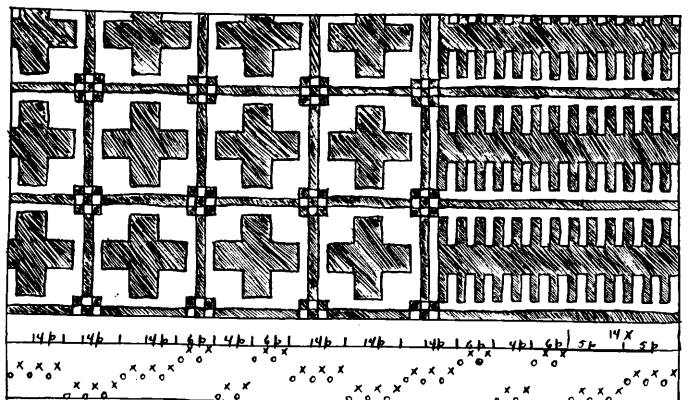


Illustration and Draft No. 9



Draft No. 10

the old peasant crafts and patterns, this is no longer true, as with the government aid there is a more general distribution of the knowledge of the crafts.

In planning and weaving some of the patterns in this group, it will be noticed that it might be possible to weave some of them with fewer harnesses, but they are given as originally written, as in their present form they allow for more variation in the border and color effects. It is a more difficult problem to get end borders, as the draft arrangements and method of fabric construction do not lend themselves readily to adaptations; side borders are much simpler and are planned in the drawing in drafts.

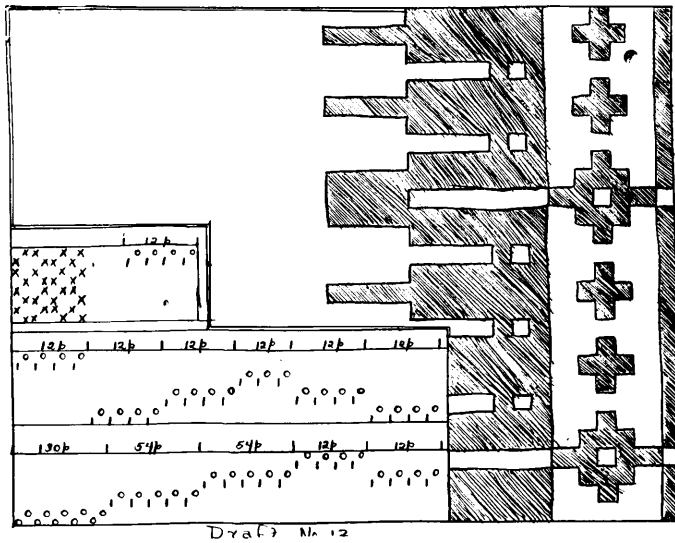
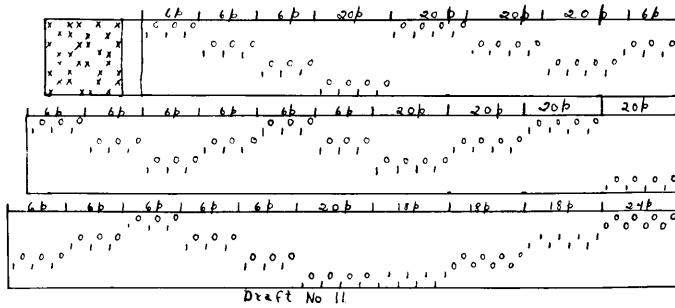
Draft and Illustration No. 2 is of a very simple checkerboard variation, with the addition of a simple border on the side. It is drawn in on 4 harnesses but could have been adapted for 2 harnesses, as it is woven on a 2-treadle tie-up. However, with this pattern arrangement on 4 harnesses it is possible with a more complete tie-up to weave this pattern with a solid border. There is also a chance for a play of much more than a two color combination here, as is true in all of these patterns if the principles laid out for Nos. 1, 1A, and 1B are applied to them. In the two-color fabrics the two colors are directly reversible, the patterns appearing

the color of the warp appearing on the face of the fabric it is only necessary to omit one shot of fine weft; the sequence of the treadling, however, is not changed throughout the width of the weaving of the border. The dropping of the one shot of fine weft makes the change from one color to the other.

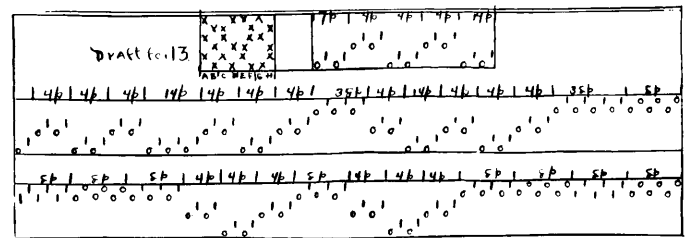
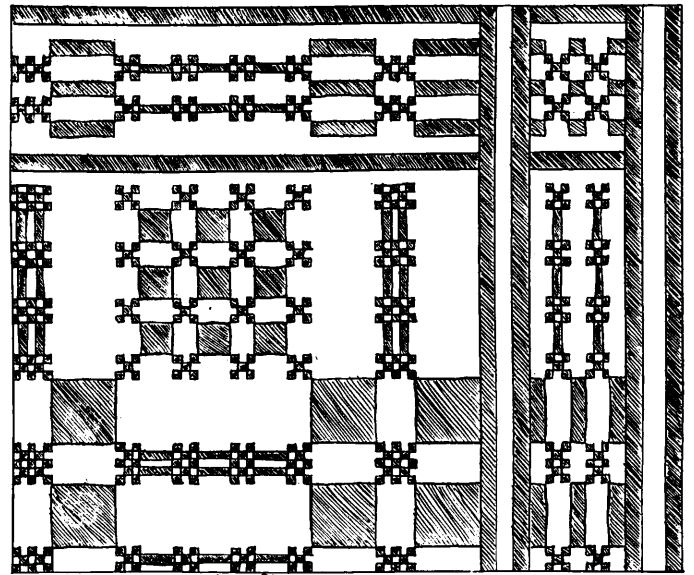
Treadling for the pattern:

Treadle sheds A and B alternately as for plain weaving, using alternate shots of fine and heavy weft, the dropping of the one shot of fine weft making the change from a light to a dark block.

The dropping of the one shot of fine weft is the principle used in developing the pattern in all of the different arrangements of this class of weaves, whether they are 2-harness or 10-harness patterns. The tie-ups accompanying

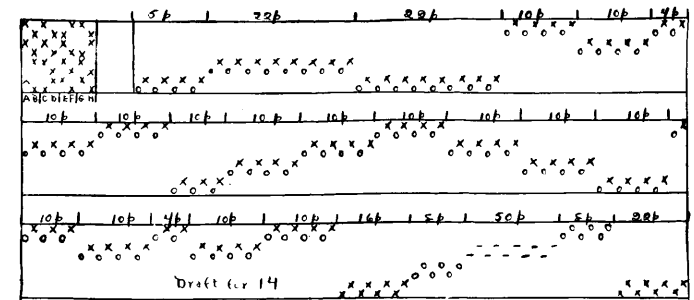
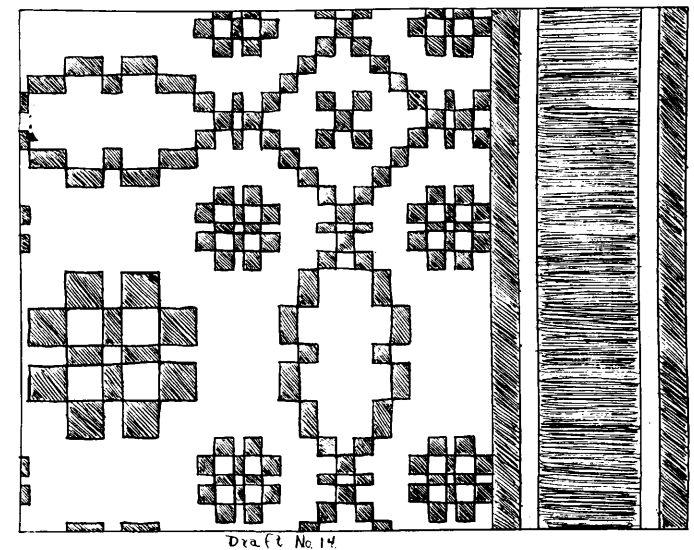


each drawing-in draft are given in pairs, one pair for each block of the pattern. The illustration and drafts are given together with the tie-ups to weave the different blocks of each pattern and, if the instructions for working out the pattern of Nos. 1, 1A and 1B are closely followed in the beginning there should be no difficulty experienced in working up the treadling drafts for all of the following group of patterns, even though some of them are 8- and 10-harness drafts. The tie-ups are all complete, and it is a case of setting up the loom according to the drawing-in draft, making the tie-up for that draft, and then to experiment with the treadling to develop the treadling for that pattern. It is also possible to work out different patterns than those given for each draft while experimenting to match the illus-



trations of each draft. It will be interesting to keep an experiment sheet for each one.

Draft No. 3 is an interesting piece for long runners and



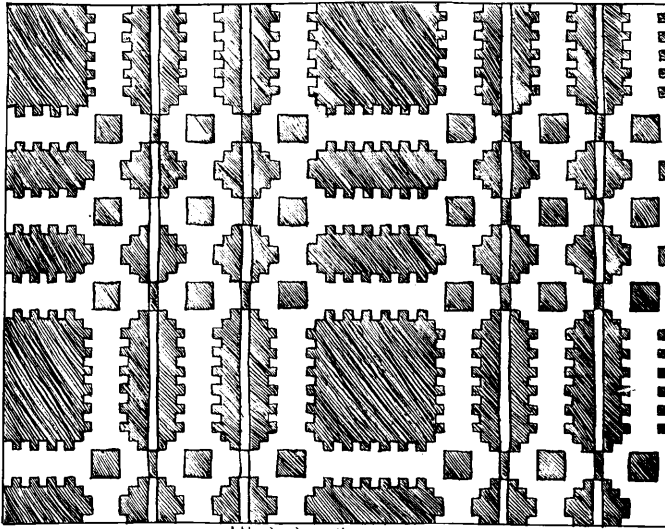
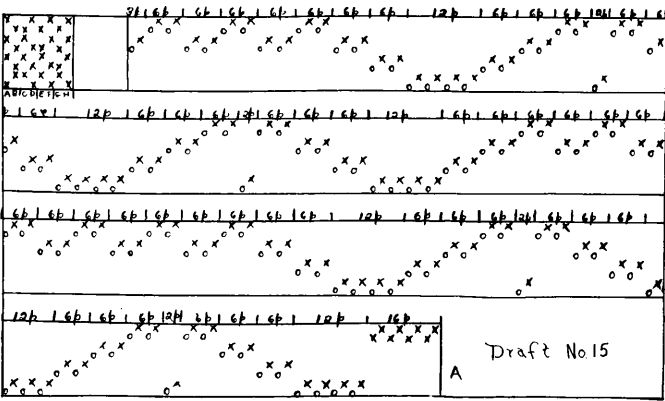


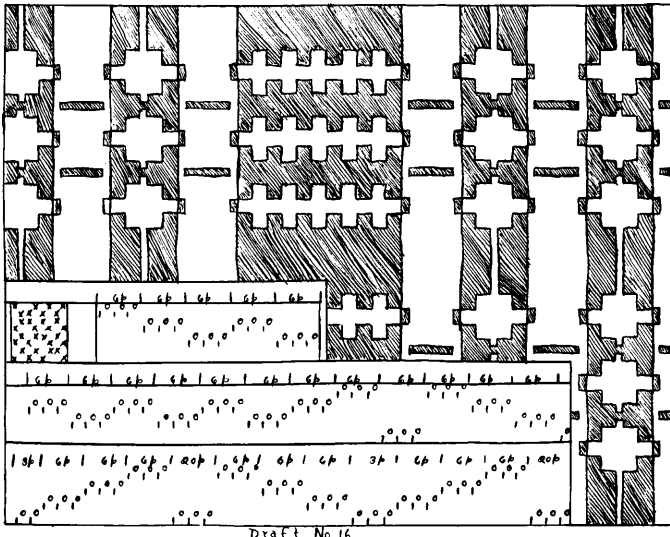
Illustration No. 12.



Draft No. 15

bag material; it might even be woven in a lighter weight material with the pattern border on one side only, and could then be used for side drapes. It cannot be woven with an end border.

Draft No. 4 will be very effective in a light-weight material for upholstery, pillow tops or bags, if worked without a border. This is a good pattern for a third color. It may be done by changing the circles in X block to crosses. The resultant fabric will be a spot weave with the two figure



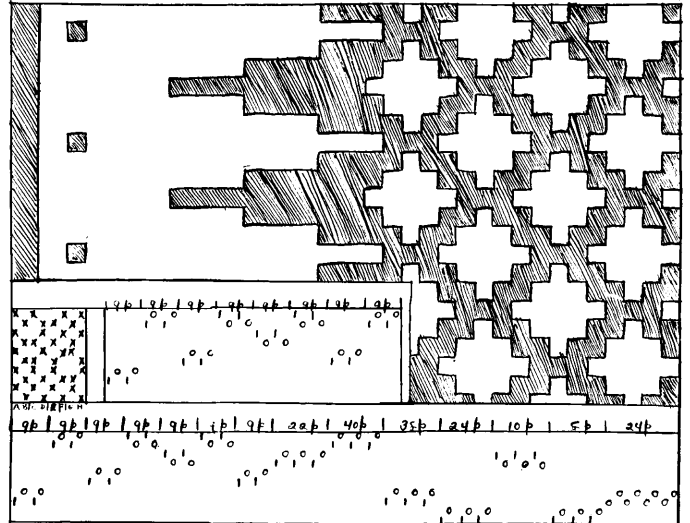
Draft No. 16

motives in two different colors on a plain ground. It is not adaptable for an end border.

Draft No. 5 is similar to No. 4.

Draft No. 6 is suitable for bags, pillows, upholstery and rugs. In very fine material it might be interesting for luncheon sets.

Draft No. 7. This is a much more interesting arrangement of a 4-harness pattern and, although it looks to be quite complicated, it is no more difficult than the preceding patterns if one will go a little more slowly in following out the details. Referring to the draft for this pattern, it is very much longer and so has been written on shorter method which, with a little study and comparison, will be quite simple to follow, and at the same time it suggests a shorter way to write all of these drafts. The border plan has been written out in full, but for the center part of the pattern the key or drawing-in drafts for the four different possible blocks are given; each different block is indicated by a number. At the end of the same line is the tie-up. Below the draft is a line of figures beginning with the border at the right side.



Draft No. 17

The complete pattern layout is given from border to border. The figure No. 1 indicates that the sequence of the key block No. 1 is repeated once; 2, that key block No. 2 is drawn in one repeat; 3, that key block No. 3 is drawn in once; 4 is one repeat of key block No. 4; 1, one more repeat of key block No. 1; 22 is two repeats of key block No. 2; 333 indicates three repeats of key block No. 3; 4444 indicates four repeats of key block No. 4, and so on for the complete width of the row of figures to the border for the left side. End borders are not practical. This pattern will be developed similarly to the treadling for the preceding patterns.

Draft No. 8. This draft is planned with a four-color scheme. It is interesting for long runners. It cannot be woven with a border.

Draft No. 9. This is a pattern with a small all-over effect. The arrangement of drawing through the harnesses is somewhat more scattered, but the tie-up is the same as for the preceding numbers, and the weaving is done in the same way.

(Continued on page 18)



# Old Coverlets I Have Known

BY CORNELIA STONE

WITH the hurried closing of a car door, I was on my way to see a dear old lady, who I had been told, owned a hand-woven coverlet. Hopes ran high that it might really be hand-woven and not one of the machine age, as so often they turn out to be.

With charming courtesy, I was received and then ensued an enchanting hour of early Illinois history, for the coverlet proved not only hand-woven, but also to have been woven not far from here, in a loom house that stood on the banks of the Iroquois River. But let Mrs. Cooper tell it in her own way:

"The material of which this coverlid was made was raised, carded, spun and dyed on the farm of Samuel Johnson (my mother's home), situated two and a half miles southwest (as the crow flies) from Aroma, now Aroma Park, Illinois, and was woven about the year 1849 in the home of one George Bass (colored), living about three miles south of our home, in the vicinity of Sugar Island, once supposed to become the 'Hub of the Universe'."

Mrs. Cooper told me that purslane was used to dye the blue yarns, but in her coverlet it had not held its color as well as the red, which is in perfect condition. "Black Bass," as he was called throughout the neighborhood, wove other "coverlids" for Mrs. Cooper's mother, as well as for many other neighbors.

Mrs. Cooper's coverlet, Draft No. 1, a variation of "Queen's Delight" has no border, and the treadling given is just as the coverlet is woven.

<i>Treadle</i>	<i>Times</i>	<i>Color</i>
1	8	Blue
2	4	Red
1	4	
2	4	Red
1	8	Blue
4	8	Red
3	8	Blue
1	2	Blue
3	8	Blue
4	8	Red
1	8	Blue
3	8	Blue
4	8	Red
2	2	Blue
4	8	Red
3	8	Blue
1	8	Blue
4	8	Red
3	8	Blue
1	2	Blue
3	8	Blue
4	8	Red

Repeat.

If no border is used, thread as follows: selvage 1, 2, 3, 4, 1, 2, 3 (7 threads), begin with thread 68 to end (125 threads), 5 repeats of the pattern (960 threads) and the first 130 threads, making 1,222 threads set at 30 to the inch.

If in reproducing this coverlet a border is desired, I would suggest the little diamond threading partly on opposites No. 4 as given in "Shuttle-Craft Book of American Hand-weaving," by Mary Meigs Atwater. This threading as given with Draft No. 1 has been rewritten to make the returns come on 1-2 and 3-4 blocks, as they do in the coverlet.

For a coverlet set 30 threads to the inch, thread as follows: selvage 4 threads, 14 repeats of border (336 threads), 4 repeats of pattern (768 threads), and the first 130 threads of pattern, making 1,238 threads in all.

Treadle border as follows:

<i>Treadle</i>	<i>Times</i>	<i>Color</i>
2	4	Red
3	4	Blue
2	4	Red
4	4	Red
1	4	Blue
4	4	Red

Repeat 14 times to make square corner. This will make the red predominate in the border as in the coverlet proper. A different color arrangement that might be used would be: Treadle 2-3-2 blue; 4-1-4 red.

Another old overshot coverlet that has come into my possession has been of interest to me because of the use of two old well-known patterns, "Double Bow-knot" and "Chariot Wheel." Often I have wished that I knew who the weaver had been, for the inspiration that caused her to combine these two threadings may in this age inspire some of us to try other combinations with the hopes that our choice may prove as harmonious. Had she been using the small chariot wheel in draperies or rugs, and, wanting a coverlet with greater variety worked out this plan to bring another design into the room and yet tie the coverlet to the other pieces so they would belong to each other? What romances can be woven around these old pieces, with the constant desire for the creating of something different from others seen or heard of, showing up here and there in the most unexpected ways.

This coverlet, Draft No. 2, is woven as drawn in, the wheel and small table on opposites at the center of the bow-knot, being woven in red, while the rest is blue. In writing this draft I have used 5 threads at the center of the bow-knot in order to make the bow-knot the same in the second half as the first. This coverlet, like the first, is woven of hand-spun and home-dyed yarn, so the colors have mellowed down to beautiful shades to delight the eye.

To thread for this pattern with no border, as in the original, selvage 1-2-3-4 twice, 1 once, making 9 threads; begin with the 79th thread to end of pattern (336), 2 repeats of pattern (828), and the first 103 threads, making 1,275 threads in all. Weave a heading wide enough for hem if desired, then treadle as follows:

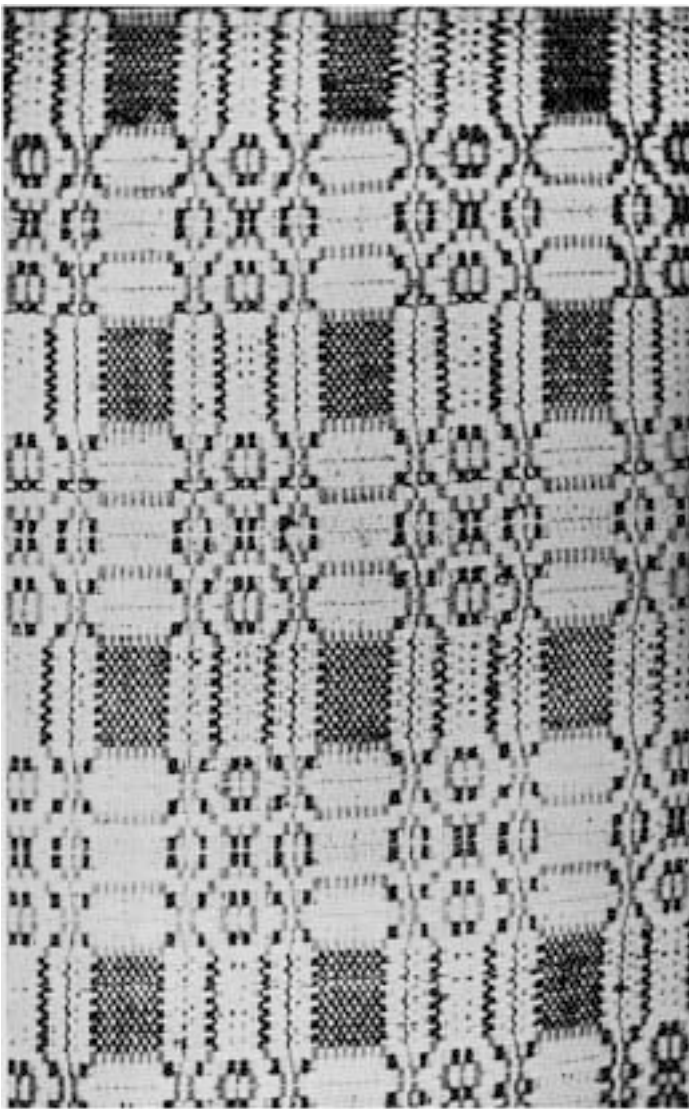


Illustration No. 1

Mrs. Cooper's old coverlet woven in 1849 by George Bass

Treadle	Times	
2	2	Wheel red
3	2	
4	6	
3	6	
4	2	
3	6	
4	6	7 } Table blue
3	2	
2	2	
1	8	
2	2	
1	8	
4	4	
3	4	1st half bow-knot blue
2	4	
1	6	
4	8	
3	10	
2	12	
1	12	
3	10	
2	8	
1	6	
4	6	Center bow-knot red
3	4	
1	4	
3	4	
1	4	
3	4	

4	6	2nd half bow-knot blue
1	6	
2	8	
3	10	
4	12	
1	12	
2	12	
3	10	
4	8	
1	6	
2	4	
3	4	
4	4	

Repeat to desired length, ending with wheel.

If one so desires, a border might be created by the use of the chariot-wheel separated by a small table, threading given. Thread as follows:

Selvage . . . . .	9
5 repeats of border . . . . .	330
Begin with 207th thread to end . . . . .	207
1 repeat of pattern . . . . .	414
First . . . . .	311

1,271

If two colors are used, weave the wheel red and the table blue. Treading for the border would be the same as for

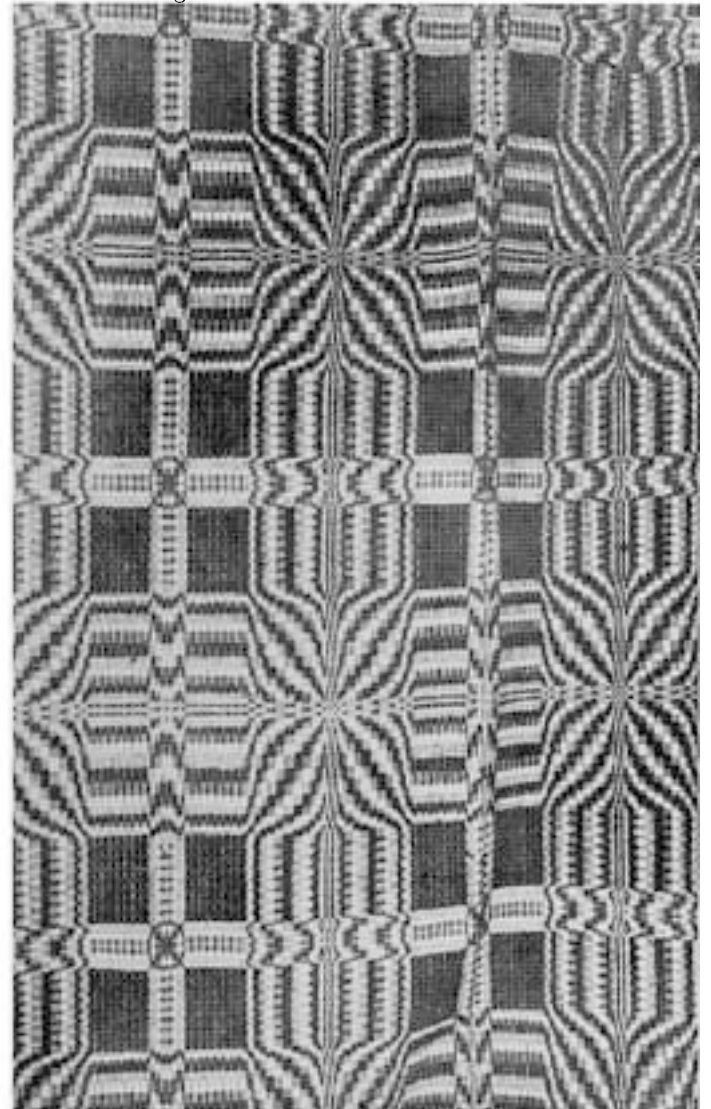


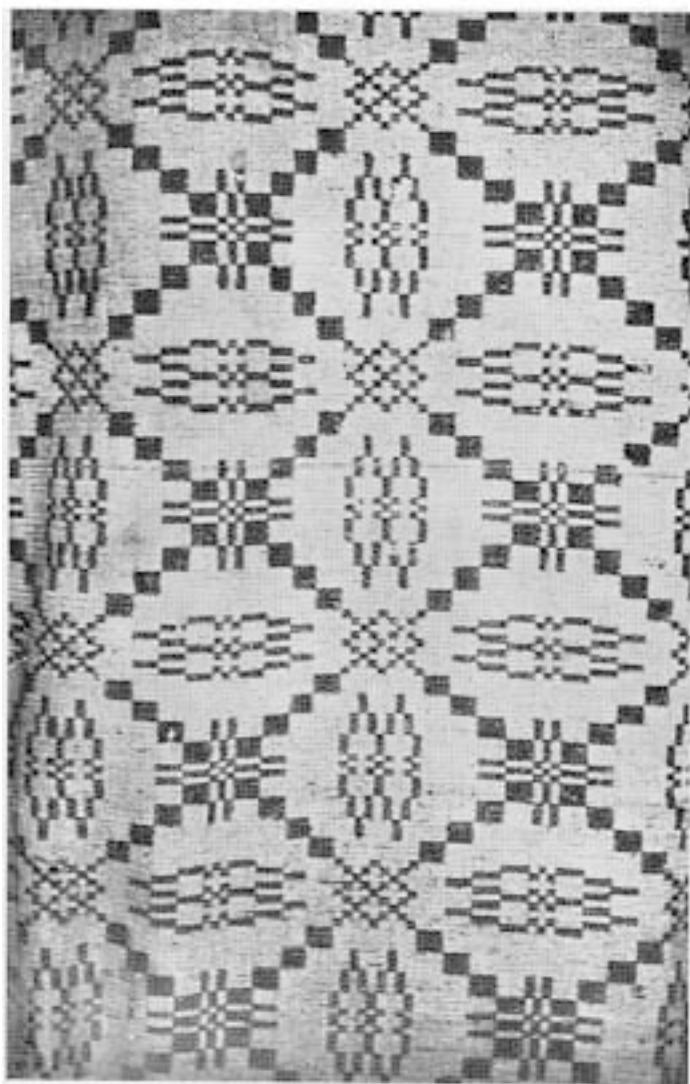
Illustration No. 2

"Bow-Knot and Chariot-Wheel," old coverlet in the possession of M. C. Stone

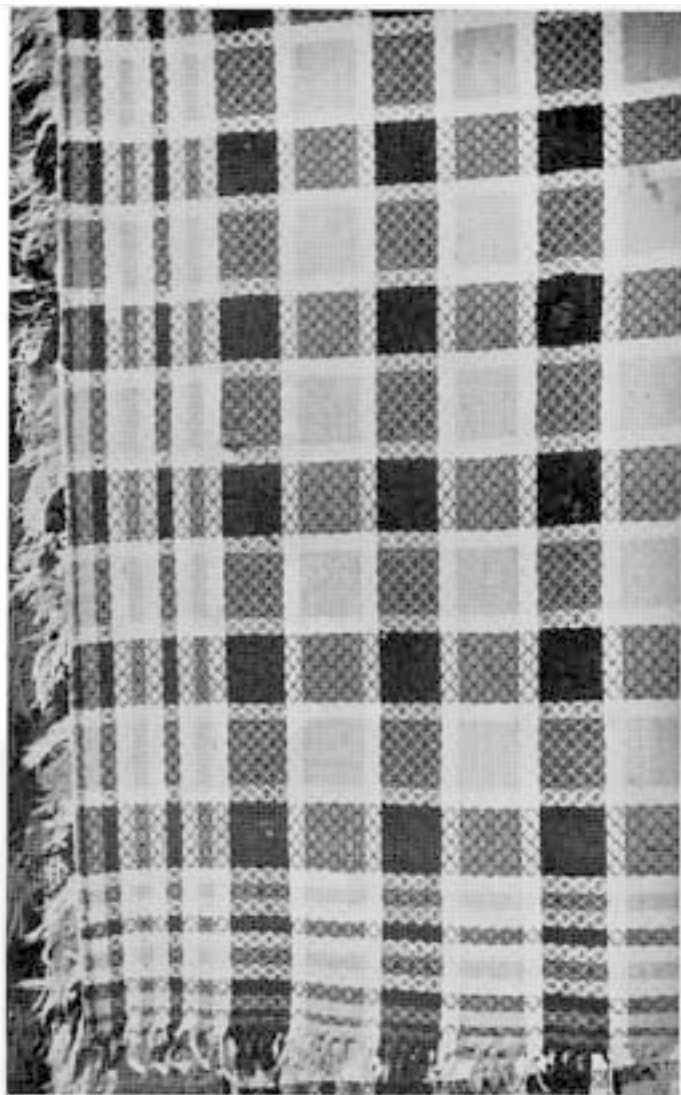
wheel with the table treadled 1-8 times; 2-2; 1-8. The wheel and table being woven 5 times to make a square corner, then begin the body of the coverlet at the beginning of the bow-knot and weave to desired length. The same tie-up is used for both drafts No. 1 and 2.

A friend of mine found at a country auction a quaint old book, and, on examining it, found tucked between its pages a folded heart-shaped piece of paper yellow with age. On it were these words: "Way to Cure Love." "Take of the Spirit of Indifference one ounce, of the powder of disdain twelve grains, of oil of absence and the spice of good advice three ounces; put them all into a large saucepan of Sound Reason with about two quarts of best hearts ease. Stir and boil them together for a considerable time and then strain it through a fine cloth of patience into a vessel of Prudence. Take one half pint of this mixture when going to bed and lay upon you as many coverlids of content as will give you a thorough sweat by closely observing these different times you will certainly be loved.

"The End Amen  
Even So Let It Be  
in the Year 1828."



*Illustration No. 3*  
"Fish in the Pond," old coverlet in Summer and Winter Weave



*Illustration No. 4*  
All-wool Blanket

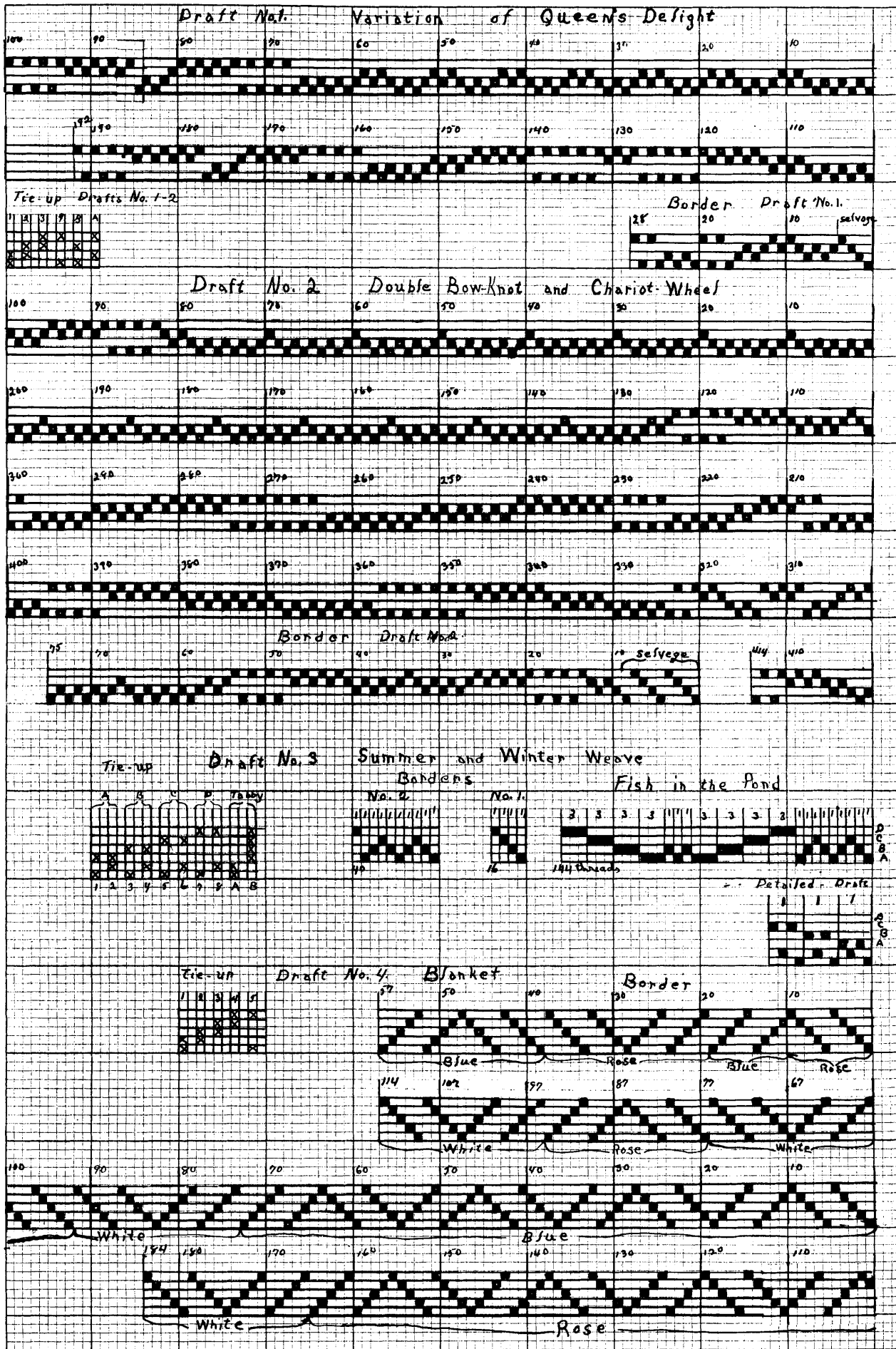
How many ills of mind and spirit the planning and weaving of a perfect coverlet can cure; and what peace and comfort can be brought to body and soul by the finished product.

For a Summer and Winter weave, I have selected a 6-harness threading, "Fish in the Pond" — what an intriguing name. Perhaps the person who created this design was an itinerant weaver and loved to stop by a pond to try the gentle art of angling for a bit of amusement, as well as to eke out his meal when of necessity it was eaten by the roadside. Whatever its origin, it is a delightful pattern. The draft (No. 3) for this pattern is written the short method. Just below it is a detailed draft of the first three units.

This coverlet was lacking in a border also, but I am including two suggestions for borders. First: a twill (short draft). If wishing to use homespun yarn for pattern thread, set 16/3 Egyptian cotton warp at 24 to the inch as follows:

16 repeats of border.....	256
5 repeats of pattern.....	720
First.....	20
	996

and use 24/3 Egyptian cotton for tabby.



The second border is a repetition of the first 10 blocks of the pattern. This will make the most desirable border and, if one wishes to make an extra nice coverlet in this threading, use for warp 24/3 Egyptian cotton at 30 to the inch, Fabri yarn for pattern and No. 20 Mercerized or 20/2 cotton for tabby. Thread as follows:

9 repeats of border . . . . .	360
6 repeats of pattern . . . . .	864
First 5 blocks . . . . .	20

1,244

Each unit is treadled as shown for Block A: Treadle 1, tabby A, treadle 2, tabby B, treadle 2, tabby A, treadle 1, tabby B.

Treadlings for coverlet:

<i>Twill Border</i>		<i>2nd Border</i>		<i>Body of Coverlet</i>
Block A — 1 unit	} 16 times	Block A — 1 unit	} 9 times	A — 1 unit
B — 1 “		B — 1 “		B — 1 “
C — 1 “		C — 1 “		C — 1 “
D — 1 “		D — 1 “		D — 3 “
				B — 3 “
				A — 3 “
				B — 1 unit
				A — 1 “
				B — 1 “
				A — 1 “
				B — 3 units
				C — 3 “
				D — 3 “
				Repeat.

For further details concerning Summer and Winter weaving I would refer you to Mrs. Atwater's book, spoken of near the beginning of this article.

The fourth coverlet, or, more strictly speaking, a blanket, is one of a number of very lovely ones that I have had the privilege of examining closely. This old blanket is woven in rose, blue and white. The wool is hand-spun and the colors are the lovely soft shades of the old vegetable dyes. The fringe on the sides was made separately and sewed on, but the colors exactly matched the woof threads in the blanket.

This threading, a 5-harness one, is varied slightly for the border, so I am giving both. The border, starting with rose, blue, rose, etc., uses 190 threads; the body of pattern begins with a blue block, followed by small white, large rose, and small white. The seam is in the middle of a blue block. Five repeats and the first 37 threads are required for the body of the blanket, making 1,147 threads in all, which were set 30 to the inch. The fine wool used in this all-wool blanket gives such a beautiful soft texture that it was a delight to handle.

Fabri yarn, or one even finer, would be suitable for this blanket.

Treadle as follows, each treadle once:

<i>Border</i>	<i>Con't</i>	<i>Con't</i>	<i>Con't</i>	<i>Con't</i>	<i>Con't</i>	
1	} Rose	1	} Blue	5	} White	
2		2		4		1
3		3		3		2
4		4		2		3
5		5		1		4
1	} Rose	1	} Blue	5	} White	
2		2		4		1
3		3		3		2
4		4		2		3
5		5		1		4
1	} Blue	1	} Rose	5	} White	
2		2		4		1
3		3		3		2
4		4		2		3
5		5		1		4
1	} Blue	1	} Rose	5	} White	
2		2		4		1
3		3		3		2
4		4		2		3
5		5		1		4

Body of blanket:

<i>Blue</i>	<i>Con't Blue</i>	<i>White</i>	<i>Con't Rose</i>	<i>Con't Rose</i>	<i>Con't White</i>
1	2	5	5	5	2
2	3	4	4	4	3
3	4	3	3	3	4
4	5	2	2	2	5
5	1	1	1	1	1
1	2	5	2	2	2
2	3	4	3	3	3
3	4	3	4	4	4
4	5	2	5	5	5
5	1	1	1	1	1
1	2	5	2	2	2
2	3	4	3	3	3
3	4	3	4	4	4
4	5	2	5	5	5
5	1	1	1	1	1
1	2	5	2	2	2
2	3	4	3	3	3
3	4	3	4	4	4
4	5	2	5	5	5
5	1	1	1	1	1
1	2	5	2	2	2
2	3	4	3	3	3
3	4	3	4	4	4
4	5	2	5	5	5
5	1	1	1	1	1
1	2	5	2	2	2
2	3	4	3	3	3
3	4	3	4	4	4
4	5	2	5	5	5
5	1	1	1	1	1
1	2	5	2	2	2
2	3	4	3	3	3
3	4	3	4	4	4
4	5	2	5	5	5
5	1	1	1	1	1
1	2	5	2	2	2
2	3	4	3	3	3
3	4	3	4	4	4
4	5	2	5	5	5
5	1	1	1	1	1
1	2	5	2	2	2
2	3	4	3	3	3
3	4	3	4	4	4
4	5	2	5	5	5
5	1	1	1	1	1

Repeat to desired length.

A border woven at each end would add to the beauty of the blanket. If this is desired, have a blue block at end of body of blanket and start treadling border from end (white block).

All of the tie-ups and treadlings are for looms with sinking harnesses.

# Flat Tapestry

BY E. N. GOODWIN

IN A preceding article, I said that, among our weavers, the knot tapestry and the flat tapestry were the best known varieties; I then considered the knot type in detail. I want now to discuss the flat type, the best known of all tapestry methods. Included in this flat type is the old Gothic, the high-water mark in tapestry weaving; the Gobelin, Aubusson, and other French weaves; the adapted or modified French tapestry; Kelim; and the Norwegian picture weaving, to mention only a few.

The distinguishing marks of Gothic and French tapestry are: (1) the strongly marked horizontal ribs, made by the warp; (2) the slits; (3) the hatchings, the name given to the pyramid-shaped shading, always at right angles to the ribs and the slits. In the old tapestries, slits were always used to enhance the modeling of a form. In the later tapestries, this artistic use has been in a measure lost sight of, and the slits used simply as a matter of convenience to save the time of interlocking where two colors meet in a straight line parallel to the warp. The hatchings are made by the weft threads, and are vertical as the tapestry hangs on the wall.

The flat tapestry is really a tabby weave, using a shed just as in any loom weaving; that is, alternate threads are raised, the weft passed under the raised threads and beaten down close to the preceding row, then the other threads are raised to permit the weft to be passed under them. On a loom, this raising and lowering of alternate threads is done by means of treadles or hand levers. Tapestry weaving differs from harness weaving in that the weft is put in loosely enough to completely cover the warp, and is pushed down into place with a fork, grattoir, or comb (see Diagram I) instead of with a beater. A beater is not used because the weft seldom goes across the full width of the loom in any one shot, so the weaving is at varying heights. A tapestry

loom is essentially a 2-harness loom without a beater, and usually has string heddles. For flat tapestry weaving it is quite possible to use a frame, similar to that used in knot tapestry, as described in a preceding article, but it is necessary to make a mechanism for changing the shed, and on a

simple frame this must be made anew for each rewarping; this seems to me too great a waste of time. There are several good, simple tapestry looms on the market, including a folding loom, if space must be considered, so why use a substitute which, at best, is only partially satisfactory?

The adapted or modified French tapestry is similar to the Gobelin and Aubusson, but is made without hatchings, and is well adapted to modern design. It is this adapted French method that I want to discuss first. (See Figure I.)

For a first piece of this tapestry, warp the loom with tire cord, a rather fine, tightly-twisted cord sold in the 5 and 10 cent stores as parcel-post twine, but much cheaper when bought in cones at a twine store. Set this



Figure I. Modified French "Adopted"

warp, or a softer warp of the same size if you prefer it, at 8 or 10 to the inch. Warp exactly as you would warp any 2- or 4-harness loom, and put in about an inch of plain weaving in twine; space the warp carefully (you have no need to keep the spaces) with an awl or knitting needle. The weft may be wound in a "spool" as in knot tapestry, or better, on a flute. (See Diagram IIA.) The method of weaving is as follows: Starting from the right, with the flute held lightly in the right hand, the end of yarn hanging down between the second and third fingers, pass the flute, end first, under several warp threads; the left hand lies flat on the warp, palm down, the thumb and first finger in the shed ready to take the flute from the right hand. Having passed the flute to the left hand, use the grattoir to push the weft in place, being sure that the left hand holds the flute so

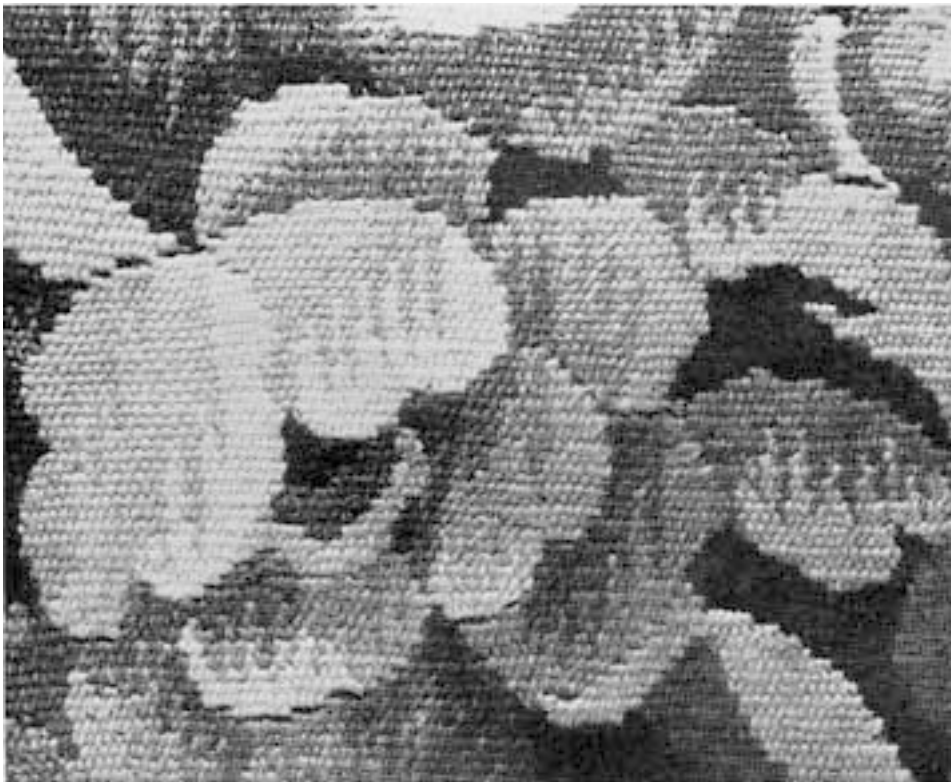
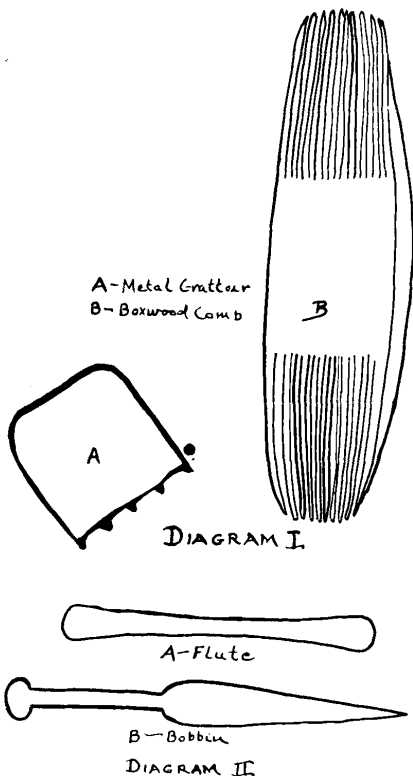


Figure II. French Tapestry — Detail

that the weft tension is just loose enough to let the weft cover the warp completely, but tight enough to make smooth work. The tension of the yarn from the flute must be controlled throughout, in all tapestry weaving. Return the flute to the right hand, and repeat the operation as many times as necessary to reach the left side of the warp. In doing plain tapestry, all in one color, it is entirely possible to pass the flute all the way across the warp before using the grattoir, but it is not advised for the beginner, for it invariably

results in a weft that is too tight, in which case the warp is not covered, and the edges are drawn in, — two very bad faults. The row from left to right is done in exactly the same way except that the left hand passes the flute, the right hand receives it, and the grattoir is used by the left hand. Do not let any possible awkwardness of the left hand deter you from using it as directed; persistent practice will cure the awkwardness. After five or six rows have been completed, look on the under side. (You are working on



the wrong side, so the under side is the right side.) A small loom can easily be turned to show the under side; if the loom is large, separate the warp threads a little and look at the right side of the work in a small mirror held under the warp. Do not attempt any design till your plain fabric is entirely satisfactory, — smooth, with warp well covered, and with edges keeping a straight line, neither drawn in, nor bulky with weft too loose over the outside threads. Unless for some special reason the weft is to be unusually close, the comb will not be needed for the plain weaving. This method is the basic one used for Kelim, French, and adapted French tapestry, and Norwegian tapestry, with variations to fit special requirements. It is the foundation technique of the old Gothic, of which all later flat tapestries are variations.

We are now ready for the design.

If the design has a decided right and left, reverse the design before weaving. Color it also; to reverse the design is much easier than weaving it with the wrong side next the warp. Place the design under the warp, with a *side* edge even with the last row of practice weaving (this is to have the warp threads horizontal in the finished piece), and with the top and bottom edges of the design parallel with the warp. The last warp thread on each side should coincide with the enclosing lines of the design. Pin carefully in place with several good-sized pins. The pattern should not require repinning throughout the weaving; when necessary to roll up the partly finished work, the pattern is rolled, too, and will be in correct position to continue weaving.

This is a “building” method as is the “Swedish,” so select for your starting point the part of the design which will serve as a foundation for overlapping forms; e.g. in Diagram III, 1 and 2 should be woven before 3 or 4. Follow the numbering; work 1 entire, then 2, then 3, and so on. Each form should be woven in a solid color, without shading, with a single strand of French tapestry or Germantown wool, and without interlocking. If the weaver prefers to interlock (exactly as in the “Swedish”) there is no objection, but it slows up the work and adds nothing to its beauty. My own practice is to interlock *only* on small pieces which have to be stretched in making up, as in the case of underarm bags that are heavily stiffened. The only time that interlocking is *required* is when a color is on one warp thread only. Then it must be interlocked on one side, as a single thread cannot be sewed satisfactorily. The finished piece is stretched and finished as directed in the article on knot tapestry, *after* the slits are sewed. The comb may be used in addition to the grattoir especially as an aid in shaping the forms.

### SEWING THE SLITS

With thumbtacks, fasten the completed piece, wrong side up, to an embroidery or other frame. With a strong thread — linen is good — of a neutral color, sew the slits together with buttonhole stitches about  $\frac{1}{4}$  inch apart; the stitch should catch the warp threads between the weft threads, and must be put in straight, not on a slant, so that the sewing threads will sink between the weft threads and will not show. Sew tightly and finish securely, but do not pucker. Do not use knots in the sewing thread.

### FRENCH TAPESTRY

In the true French tapestry, of which the Gobelin and Aubusson are the best-known types, the method of setting up the loom, putting in the weft, "building" the design, using the grattoir and comb, leaving the slits, and sewing are exactly the same as in the "adapted" French tapestry just described. The differences come in the wools used, and in the shading or hatchings. The shading is often very close, and for this a single coarse weft is not suitable. The weft should be fine — Bernat's English crewel is excellent — mixed in strands as follows: Suppose you are using a 5-strand of green, and you have but two shades only fairly close in coloring; wind flute No. 1 with 5 strands of the lighter green; flute No. 2 with 4 strands light and 1 dark; flute No. 3 with 3 strands light and 2 dark; No. 4 with 4 dark and 1 light; No. 5 with 5 dark. You thus have 5 closely-shaded flutes to work with instead of the original two.

### HATCHINGS — SAMPLER

Examine Figure II closely; it is a detail of a large piece, the flowers and leaves of which are full of hatchings, all shaped more or less like pyramids. Set your sample 10 to the inch; no design is needed. (See Diagram IV.) Starting from the right side, work part of the way across; change shed, and work back to the right-hand side; change shed and work toward the left again, but not so far as the first time, say 3 threads less; change shed, and return to the right; repeat this two or three times more, taking 3 threads less at the left each time; leave flute at the right. Now take another color; for practice work, it is best to use a strongly contrasting color instead of a shade as you would in a design. Starting the new color from the *left*, work up to the place where the first color turned, change the shed and return to the left side; this completes 2 rows; for the third row, weave as for the first row, and 3 threads more; this will bring the second color over 3 threads of the first color; return to the left; do not forget to change the shed every time you change the direction; continue in this way, each



Figure III. Norwegian Picture Weaving — Detail

row toward the right extending over 3 more threads of the first color till both colors have the same number of rows; then complete the pyramid in the second color by taking 3 threads fewer on each row toward the right. When the pyramid is complete, leave the flute at the left, pick up the flute at the right and make the pyramid with the first color in exactly the same way as the pyramid just finished. This method makes perfect symmetrical pyramids, decreasing toward the point, and increasing toward the base. Follow this with pyramids where 1 thread is added (or dropped according to direction), or where two or perhaps four or more are added, then try varying the number; add (or drop) 1; then 2; then 3; then 4, in the same pyramid; study the results to see what a different effect is obtained by changing the proportions of the pyramids.

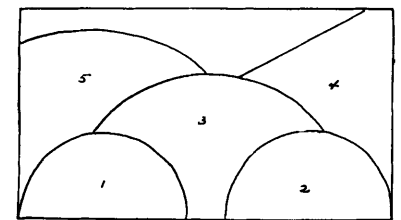


Diagram III

Follow this with double pyramids, bases together; then make the bases of the pyramids follow a curved line; continue the practice till the position of the pyramid makes no difference to you, one position being as easy as another. In actual practice, one sel-

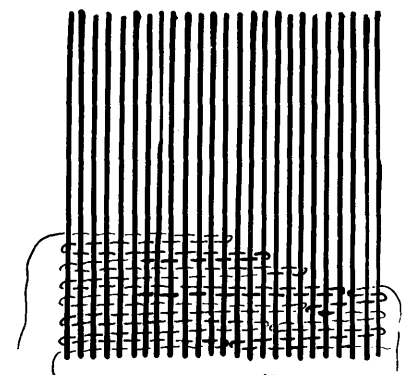


Diagram IV.



dom if ever counts the threads, but that is something that is a matter of judgment, formed by practice and in no other way. The main thing to watch is the shed. The shed *must* be the same over both colors, not closed over one and open over the other. It was for this reason that I emphasized that the two colors used in the first practice bit should start from opposite sides. There are other methods of hatching used, but the beginner in French tapestry will find that this one will answer all the needs of simple designs, and later one can work out other ways from any good piece of old tapestry.

After the sampler is made, for a first practice piece, use a simple flower and leaf copied from an old tapestry. Almost any museum has tapestries which have flowers and leaves in the borders or in the immediate foreground. Copy the simplest one *exactly*, drawing the hatchings just as they are as to position, shape, and size. You can make this copy in crayon or colored pencil, and then work it out carefully at home the exact size you want, — not too small. Make the background of a strongly contrasting color so that no mistakes will escape you.

#### NORWEGIAN PICTURE WEAVING

See Figure III. Norwegian picture weaving is woven

almost exactly like the French, except that it is interlocked from left to right; it is not interlocked when weaving in the opposite direction. I hesitate to mention this lovely tapestry, because its beauty depends so largely on the materials used. It should be made of hand-spun yarn, which has been hand-carded so that various colors can be blended before spinning. The yarn thus made is used either single twist (like "homespun") or two strands are twisted together. In either case it is a heavy yarn used in a single thread, not stranded as in French tapestry. Mixing the wool in the cards gives the softest possible shading effects. However, unless one is a hand-spinner and a great lover of color, do not attempt Norwegian picture weaving. It will mean disappointment, and why risk disappointment when there is a lifetime of joy in any one of the other tapestry methods.

The photographs for this article were made by Otto Hess of Brooklyn, N. Y., as were those for the knot tapestry.

NOTE. — It may be difficult to obtain the flutes, grattoir and box-wood comb; nearly all of them are imported. It is quite possible to use "spools" as in the knot tapestries, and a fork: or one may use the pointed bobbin shown at B on Diagram II, the top of which holds the yarn, the point taking the place of the grattoir. Necessarily, this substitution slows down the speed.

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## MATTOR

(Continued from page 9)

Drafts Nos. 10 and 13. An arrangement for 6 harnesses. The addition of one more pair of harnesses allows more freedom in design and color. The tie-up is for a 4-block design, but by experimenting with different tie-ups it is quite possible to build up a set of designs for this drawing in draft.

Drafts No. 11 through to No. 16 are a set of drafts in this weave, all of them arranged for 8-harness looms. Complete tie-ups are given, and they are woven in exactly the same way as the simpler drafts on 4 harnesses. The use of more harness frames opens up a bigger field of possibilities in design, color and textures for the weaver who, after doing one or more of the simpler of things in this weave, finds a growing interest and feeling for this texture. To me, in just assembling this material and in studying it and comparing the various drafts, I see possibilities of design, of textures and combinations that suggest themselves, but which would

require time and attention to just this one weave alone to bring them out.

Draft No. 17 is a set-up for 10 harnesses. It is possible to work up a set of drafts in this texture for 10, 12 or more harnesses but, as there are so few weavers who can and are equipped to work with them, none of them will be included. But for the weaver who works over the material here offered and who has the interest and equipment to carry on, the possibilities are there.

Material in this weave because of the closeness of the warp is somewhat stiffer than in some other fabrics and would require some experimenting with soft materials to work out a fabric that will drape and fold well. If this is done this will make an excellent weave for coat, dress materials, as well as for the softer material for drapes. The stiffness of the greater amount of this fabric will not detract from its desirability for upholstery, runners, pillows and rugs.



## A Handwoven Outfit BY JEAN PEROW PASMORE

THE outfit we wish to present includes a plaid hat and blouse, a blue coat and skirt, all woven by the author, using Bernat yarns. It was a pleasure to make, and has been delightful to wear. Still appearing fresh and new after a trip to the cleaners, you would never suspect that it was worn constantly through a spring and summer in California and a fall and spring in Chicago. Now it is all ready for an autumn and winter in the city of Washington. Brilliant sunshine and the thick winter smoke of cities have not robbed it of youth.

THE WEAVER

The colors have retained their original freshness. Lasting satisfaction comes from wearing things which have been fashioned with one's own hands, especially when the wearer knows the clothing is unique.

Weaving directions for coat and skirt:

Materials used: warp — Bernat's fabri No. 797; weft — Bernat's homespun No. 797.

Draft used: Swedish draft taken from an article by Ruby Harstine, published in *HANDICRAFTER*, January-February 1932.

18-dent reed, sleyed one thread per dent.

Treading: (2 and 3) 1; (1 and 4) 1; (2 and 3) 1; (1 and 4) 1.



A Swedish Pattern

Weaving directions for hat and blouse:

Materials used: Bernat's fabri for warp and weft; set 18 threads to inch; plain over and under weaving; plaid set-up.

Warp:

1 orange thread No. 14  
3 tartan red thread  
1 tartan yellow  
1 blue No. 795  
2 tartan red  
4 tartan green  
2 tartan red  
1 blue No. 795  
1 tartan yellow  
2 tartan red  
1 blue  
1 violet No. 773  
2 tartan red  
1 orange No. 14  
1 tartan yellow  
1 blue  
2 tartan red  
1 orange  
4 tartan red  
4 tartan green  
1 tartan red  
1 tartan green  
Repeat from first.

Throughout the plaid there is an interesting interplay of color and vibration.

Weft:

3 yellow green No. 614  
9 blue No. 795  
7 rose No. 735  
3 yellow green  
8 blue  
3 yellow green  
6 rose  
2 blue  
3 rose  
2 blue  
6 rose  
3 yellow green  
3 blue  
1 tartan red  
2 blue  
1 tartan red  
2 blue  
1 tartan red  
3 blue  
3 yellow green  
10 rose  
3 yellow green  
9 blue  
7 rose  
3 yellow green  
7 rose  
8 blue  
3 yellow green  
6 rose  
2 blue  
Repeat from first.

Finishing touches: Fringe which seems to be in keeping with handwoven articles was used whenever possible without having too much. At the neck of the coat, fringe was added, also at the top of the pockets. The blouse was fringed at the bottom, likewise the edge of the sleeves and front of the neck, giving quite a Robin Hood effect. The five spider web buttons made from fabri No. 797 used at the front of the blouse, and the plain blue fringed trimming band on the hat made from the suit material, hold the entire outfit together.

# Only Four Harnesses

BY JOHN H. CLAYTON

IN writing this article on some few of the smaller pieces of hand weaving, I have tried to keep in mind the fact that the majority of the weavers are doing their best to keep alive the traditional art and craft of our forbears, who were not equipped for the elaborate pieces of weaving put out by the professional weavers.

Our ancestors created a new art that was, and still is, peculiar to the American Colonial people, and it is fitting that we should revive and carry on that inspiring work that they endowed with life.

Only four harnesses — four are not very many, and yet, how many weavers can use four harnesses to their fullest extent? In addition to the four-harness overshot of colonial days, we have the plain diagonal, crêpe, crackle, basket, her-ringbone, diamond, diaper, rib, and all of the various combination weaves made by using two or more of the above in the same draft.

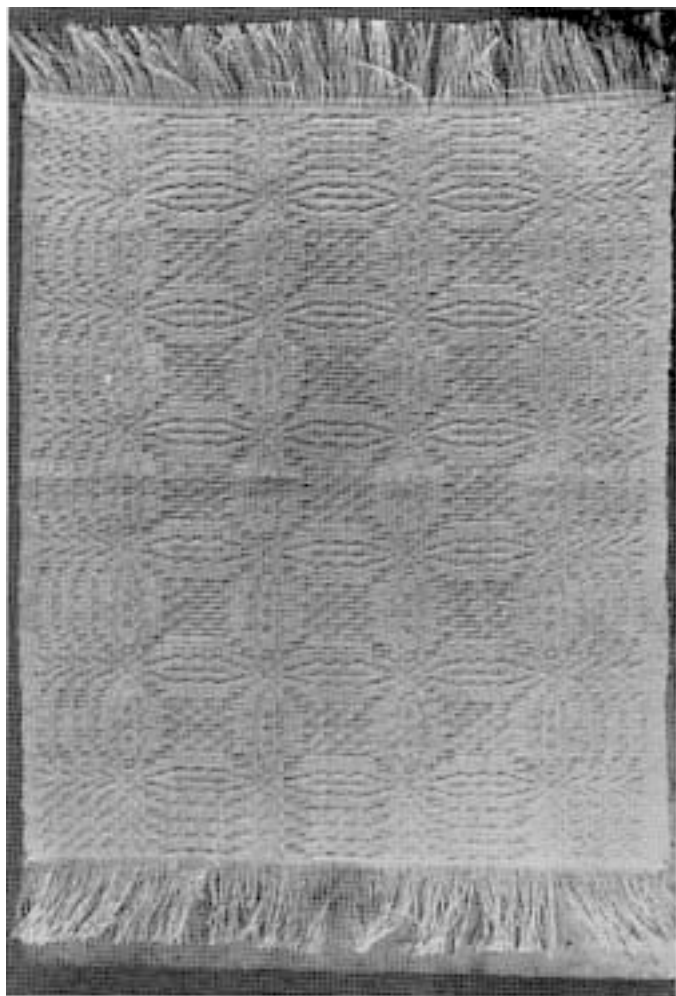
Only four harnesses — four are not very many, and are

we glad, when we set up our looms, that we do not have to follow a draft for ten, twelve or more harnesses, the intense concentration, the hours of time to produce a piece of weaving that is elaborate almost to the point of boredom.

Some of the following patterns may be familiar to many of you, as they are mostly of the old-time colonial patterns, but I sincerely hope that you may gain an inspiration from them, or from the technique employed, that will repay your reading of this.

Weavers must keep in mind the fact that the true beauty of their pieces cannot be fully brought out unless they use only the finest yarns that can be secured, and in fast and beautiful shades, as the most beautiful pattern written will look drab and ugly if not produced in the right type of yarn for that purpose, or a cheap yarn made to sell at a price, and not for its own beauty.

As our first piece, we will take the Orange Peel, shown in the accompanying picture and draft.



Orange Peel

Orange Peel. Draft and instructions. Draw in as shown on the accompanying draft, reading:

Selvage . . . . .	8
Border, 4x . . . . .	48
Pattern, A to B, 3x . . . . .	258
Pattern, A to C . . . . .	20
Border, 4x reversed . . . . .	48
Selvage . . . . .	8

Total of 390 warp ends sleyed 30 to the inch is 13 inches wide.

*Orange Peel*

Tabby 1-2, 3-4

31—2x }  
41—2x } 4x, border  
42—2x }

32 A

31

41

42

32

42

41

31

Weave border four times as written, then from A to B as many times as you require for the length, then put in from A to C, then border reversed.

32 C

42—3x

41—3x

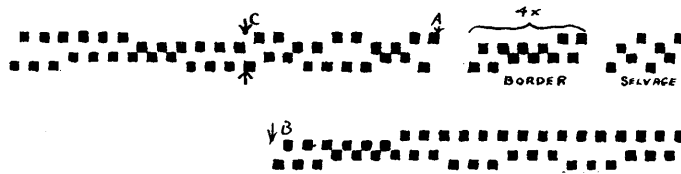
31—3x } 3x

32—3x }

31—3x

41—3x

42—3x B



ORANGE PEEL

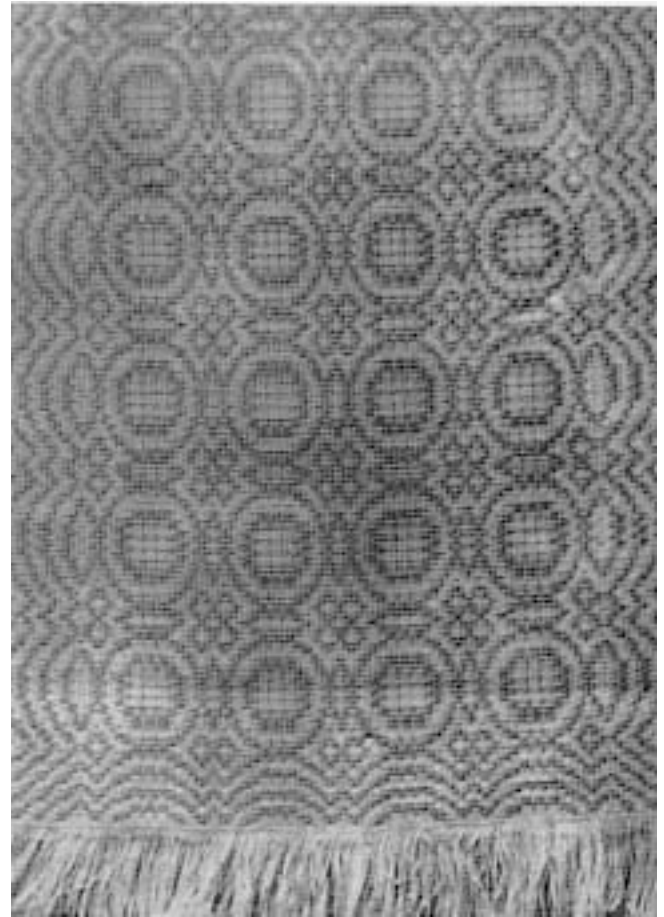
On the piece shown in the illustration, the warp was 20/3 white cotton, the tabby was 20/2 white cotton, and the filler or pattern thread was Bernat's linen floss, natural shade. This piece made a beautiful and very rich-looking place mat for the table. The warp was sleyed 30 threads to the inch, which gave a finished width of 12 inches, but it may be widened to 16 inches by merely adding one more repeat of the pattern from A to B, and one more repeat of the border on each side.

This piece has also been used woven in Bernat's Perle No. 10 white, sleyed at 24 to the inch with linen floss in color for the pattern yarn.

The piece labeled "Hope" was one of our first attempts at designing a pattern, and was so named because we had high hope that we should have a measure of success in our venture. We have been well rewarded by our efforts.

This was woven with Bernat's 24/3 natural Egyptian warp, sleyed at 30 to the inch, and using the same yarn for tabby. The pattern thread is Bernat's Vittora Strand, in the golden yellow shade, and is a very effective piece when used as a runner for an end or library table, and is also very good used as place mats for a table, with a runner in the 16-inch width.

We have woven the "Hope" pattern in so many different combinations of yarn, that it is hard to know which were the most attractive, but, judging from the orders received, the above combination was the most sought after. For the more formal room or setting, this is very rich and dignified when woven in Perle No. 20 Natural warp and Perleen 1009 or 1042 for the pattern.



Hope

Hope. Draw in as draft:

Selvage . . . . .	8
Border, 4x . . . . .	56
Pattern, A to B, 4x . . . . .	312
Pattern, B to C . . . . .	3
Border reversed . . . . .	56
Selvage . . . . .	8

Total of 443 warp ends sleyed 36 is 12¾ inches wide.

Hope

Tabby 1-3, 2-4

12—2x	} 6x, Border
14—2x	
34—2x	
23—2x	

12—2x	A
14—2x	
34—3x	
14—2x	

12—2x Weave border as indicated,  
 23—2x then pattern from A to B as  
 34—3x many times as necessary for  
 14—3x length, then add from A back-  
 12—3x wards to start.  
 14—1x  
 12—3x  
 14—1x  
 12—3x  
 14—3x  
 34—3x  
 23—2x  
 12—2x  
 14—2x  
 34—3x B



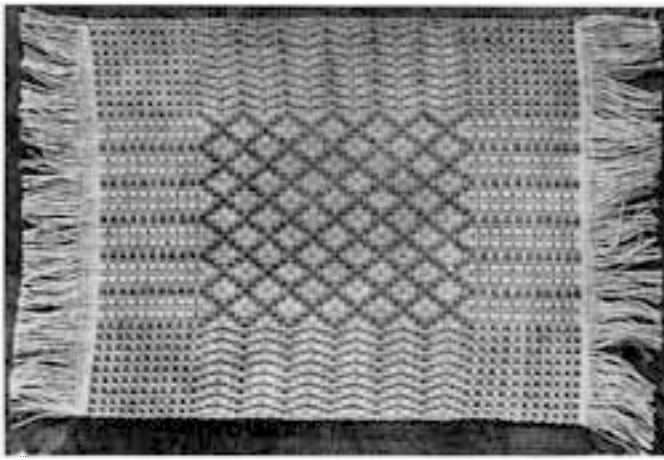
The pieces labeled "Diamond," "Maltese Cross," "Church Windows," are all rather well-known patterns, the "Maltese Cross" being copied from an old issue of the HANDICRAFTER which was "borrowed" by some weaver, and is not yet returned, therefore I regret that I cannot name the author of this very charming little pattern. The "Diamond" figures vary largely in all of the old colonial patterns, and the "Church Windows" is also an old classic.

All of these were woven in 20/3 white cotton with 20/2 for the binder, but some of you may get a suggestion from the pattern yarn used.

On the illustration of the "Maltese Cross" I used Vittora Strand, shade 22; on the "Diamond" I used Perleen, shade 1004; and on the "Church Windows," Weaving Special wool in shades 16 and 799.

These have also been made using 20/2 cotton in colors and winding two or sometimes three colors on a bobbin at one time, such as 25 and 34 together, 20 and 39 together, etc., also using two strands of contrasting color of Weaving Special wool wound on the same bobbin. Of the last, an especially good sellers has been shades 16 and 799.

These three pieces are all so nearly the same number of ends, that they are frequently put on a warp all at the same time, the required pieces woven, then the warp is drawn



*Diamond*

Diamond. Draw in as draft:

Selvage.....	8
Border, 6x.....	36
Pattern, 5x.....	100
A to C.....	3
Border reversed.....	36
Selvage.....	8

Total of 211 warp ends sleyed 30 to the inch is 7 inches wide.

*Diamond*

34—3x }  
12—1x } Border 8x

34—3x Weave the border as written,  
14—3x then the pattern as many times  
12—3x as necessary, then the border  
23—3x reversed.  
12—3x  
14—3x  
34—3x



*Maltese Cross*

Maltese Cross. Draw in as draft:

Border, 11x.....	44
Pattern, A to B, 2x.....	84
Pattern, A to C.....	37
Border reversed.....	44

Total of 209 warp ends sleyed 30 is 7 inches wide.

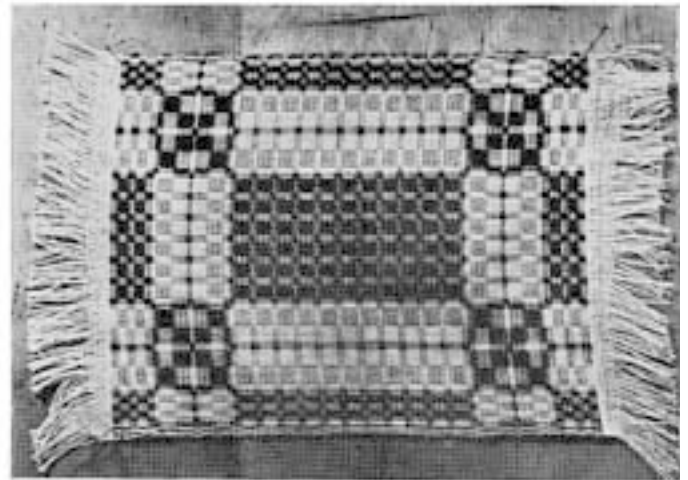


*Maltese Cross*  
Tabby 1-3, 2-4

14  
34  
23  
21

14—1x  
34—2x  
23—2x  
12—2x  
14—2x  
34—2x  
14—1x  
12—1x  
23—1x  
34—1x  
23—1x  
12—1x  
14—1x  
43—2x  
14—2x  
12—2x  
23—2x  
34—2x  
14—1x

Weave border as written and as deep as required, then weave pattern and repeat, then reverse border.



*Church Windows*

Church Windows. Draw in as draft:

Selvage.....	4
From 1 to 66.....	66
From 67 to 78, 6x.....	72
From 66 back to 1.....	66
Selvage.....	4

Total of 215 ends sleyed 30 is 7 1/4 inches wide.

*Church Windows*

34—3x }  
14—4x } 2x  
34—3x

23—2x A  
12—6x  
23—6x  
34—2x  
23—6x  
12—6x  
23—2x C

Weave border, then A to B, then from C back to A.

34—2x  
14—6x  
34—2x B



into one of the other patterns, thus saving quite a fair amount of warping.

The Rings and Flowers pattern shown is a very great favorite in some parts of the South, and in others it seems almost unknown, which seems rather strange, considering the utility of this design. We have used this same pattern in our studio for pillows, table scarfs, bedspreads, dress material, draperies, luncheon sets and several other uses that do not come to mind at present, so that you will readily understand why we call it a very versatile pattern.

Used with a Homespun filling over a 16/3 warp at 30 to the inch, this is very good for pillows and runners, while used with a 20/2 mercerized warp, natural, with a Perleen or Vittora Strand filler it makes an unusually attractive luncheon set or a dainty scarf for milady's dressing table. If a 24/3 natural warp is used at 30 to the inch, and a Fabri or Weaving Special filling, this will make a nice spring or fall dress.

Using a silk warp such as Bernat's Spun Silk, with Art silk as the filling, we have a piece that will harmonize in texture

Rings and Flowers. Draw in as draft:

Selvage.....	8
Border.....	42
Pattern, A to B, 4x.....	456
Pattern, A to C.....	63
Border reversed.....	42
Selvage.....	8

Total of 619 warp ends sleyed 30 gives a width of 20¾ inches.

<i>Rings and Flowers</i>	
23 } 3x	} Border
12 }	
14—2x	
34—2x	
23 } 3x	
12 }	
34—2x	
23 } 8x	
12 }	
14—2x	
34—2x	} Weave border as written, then weave pattern from start to end as many times as required, then weave in 14—2x; 34—2x. Put in border reversed.
23 } 3x	
12 }	
34—4x	
14—4x	
34—2x	
14—4x	
34—4x	
23 } 3x	
12 }	
34—2x	
14—2x	
23 } 3x	
12 }	
14—4x	
34—4x	
14—2x	
34—4x	
14—4x	
23 } 3x	
12 }	

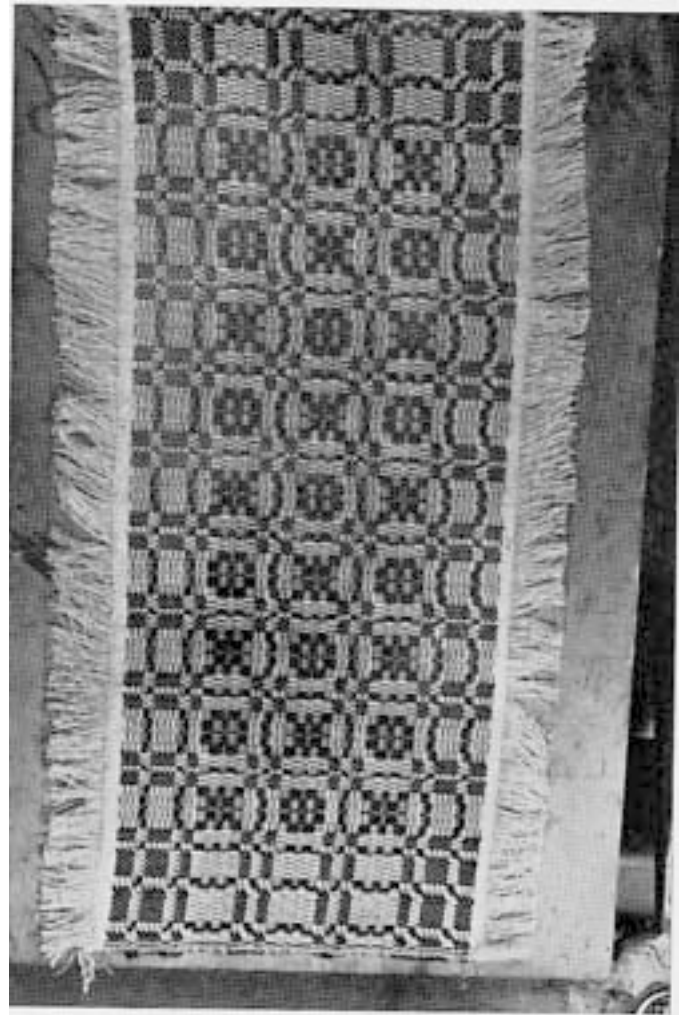
with a room that is filled with silk or satin, and where the colonial homespun would look out of place.

Pillows are always in demand, both large and small, heavy and light, and any of the above patterns can be used for a pillow in any of the yarn combinations, depending on the place in which it is to be used; and I also show one other pattern that has been used for a pillow. This particular one was woven on 16/4 white cotton at 24 to the inch, Bernat's Homespun for the filling yarn in 722 shade, which gave me a heavy yet handsome pillow for the living room.

For the baby sacque shown in the accompanying illustration, we wove the material 42 inches wide, plain tabby weave, from Bernat's Germantown in baby blue and baby pink or white. After washing and pressing, the goods was cut to the required shape and the edges crocheted, the pompons attached, and the result was a piece of infant's wear that any mother can well be proud of.

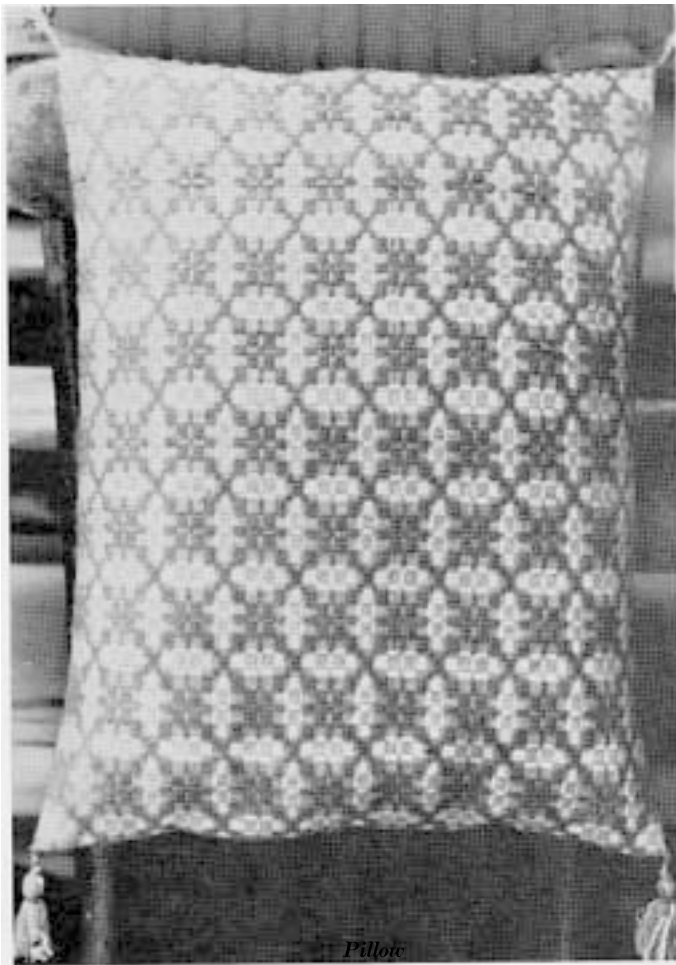
### TREADLING INSTRUCTIONS

Since many weavers have their own method of tying up a loom, I am giving these instructions written for the Structo



*Rings and Flowers*



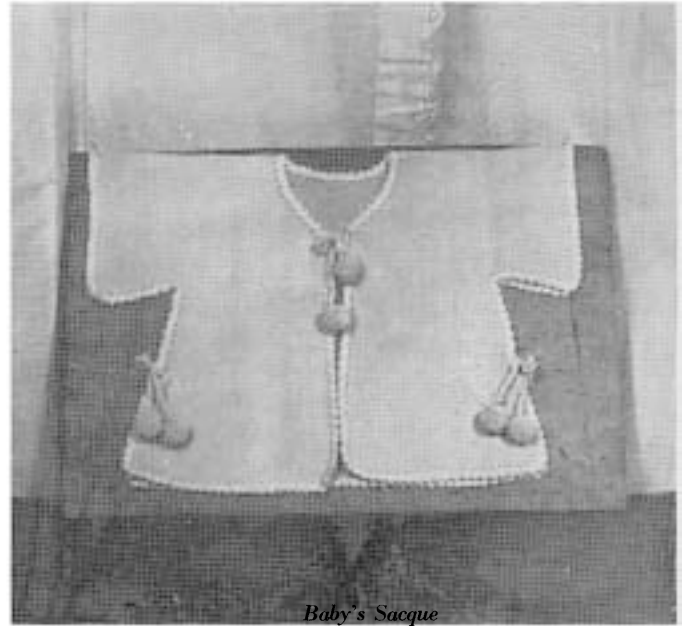
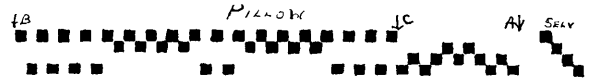


*Pillow*

Pillow:

Selvage.....	4
Pattern, A to B, 11x.....	506
Pattern, A to C.....	11
Selvage.....	4

Total of 525 warp ends sleyed 24 gives a width of 22 inches.  
On the pillow pattern, weave as drawn in.



*Baby's Sacque*

Baby sacque and blankets, weave as drawn in.

or similar looms, so please keep in mind that the numbers signify that the harnesses are to be lifted.

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# Questions and Answers

ADDRESS YOUR QUESTIONS TO MRS. MARY M. ATWATER, BASIN, MONTANA

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*Question No. 1.* What is "warp-dressing?" Where can one get it? And how is it used?

*Answer:* Warp-dressing is a material applied to a refractory warp to make it easier to weave. A "singles" linen warp should always be treated with warp-dressing, and any soft, fuzzy wool warp behaves better if dressed. There are several commercial warp-dressings on the market but as these have to be purchased in wholesale quantity they are not available to most hand-weavers. An entirely satisfactory warp-dressing may, however, be prepared very simply: Boil flax-seed in water—the exact proportions are unimportant—and use the jelly-like solution. This should be diluted, if very thick, down to about the consistency of thin starch. A very refractory warp requires a heavier dressing than an easier warp. If the warp-material is in skeins the easiest way to apply the dressing is to soak the skeins before warping. A warp-chain may be dressed in the same manner. If the warp is on spools and the sectional method of warping is used the dressing may be applied to the bout of warp as it is beamed. Or the dressing can be applied to a warp already on the loom, by simply dabbing it on with a sponge or cloth. When properly dressed a linen warp may be woven dry though it is better to keep it damp even when the dressing has been used.

*Question No. 2.* What is a good weave for an afghan?

*Answer:* I take it that by "afghan" is meant a light blanket for the couch or chaise longue. Such a piece can be made in many different ways. A pattern in overshot weaving is not desirable, however. In a general way, any of the standard linen weaves will prove satisfactory,—"Bird-Eye," "Goose-Eye," "Huck," "Ms and Os," "Bronson weave" and for those who have looms equipped with more than four harnesses, the double-face twill, the many variations on the eight-harness and ten-harness twill threadings, and many "fancy" fabric weaves. Plain tabby in the "Log Cabin" effect makes a very attractive blanket if effective color ar-

rangements are used. The chief charms of a piece of this type are in texture and color. A soft, rather coarse yarn should be used both for warp and weft. Plaid patterns in color are good. Or lengthwise, or cross-wise stripes of color, or a plain colored center with borders in contrasting colors. Germantown yarn is excellent for these pieces, and should be warped at 8 or 10 ends to the inch. The weft should be woven the same number of shots to the inch. These pieces should be lightly woven. Knitting yarns and various "fancy" yarns may also be used. For a more elaborate piece the Finnish double weave developed in finer yarns is excellent. The simple "marquissette" leno weave is also a possibility for these light blankets. For this I would suggest a warp of "Fabri" yarn set about 20 ends to the inch and weft of German-town.

*Question No. 3.* What is the best way to mend a broken warp-thread?

*Answer:* Do not attempt to tie the broken ends together. Attach a piece of warp-material to the broken end that comes from the warp-beam. Draw this through the empty heddle and the empty dent in the reed, and attach it to the web by winding it around a pin inserted in the fabric opposite the break. After the piece is taken from the loom the loose ends should be darned into the fabric with a needle. In overshot pattern weaving the knot in the warp may be woven in, as it usually does not show, but in a piece of tabby or fabric weaving the knot is bad. The following method is somewhat more troublesome than the process described above but avoids the knot and does not require darning in later. Take a length of warp-material and tie it to the back-beam, attaching it to a pin in the web as described. Weave till the broken end can also be brought into the fabric and weave a little way with both threads together; then drop the end tied to the back-beam. The loose ends may simply be clipped off when firmly woven in.



# The Scottish Tartan Plaids

BY MARY M. ATWATER

AMONG the handsomest of the fabrics we make are simple all-wool fabrics decorated with the cross-barred patterns in colors that are generally referred to as "plaids." The word "plaid" originally meant the wide shawl-like scarf that is a prominent part of the national costume of the Scottish Highlands. This garment is always woven in one of these cross-barred designs, the pattern indicating the clan or "sept" of the wearer, and sometimes his rank and occupation.

We have come to use the word plaid in a loose way for the pattern rather than the garment, and speak of "fancy" plaids, "French" plaids, and the like. For the sake of clearness, however, I shall in the following notes use the word in its ancient sense, and refer to the patterns by the word "tartan" which is the more specific word for the ancient Scottish designs.

It is impossible to consider the old patterns simply as decorative arrangements of color, for they mean so much more. They are symbols: they mean to us William Wallace and Robert Bruce, the lost cause of the Stuarts, the romance of Walter Scott, down to the grim heroisms of the world war, with the tartan-kilted "Ladies from Hell" sweeping into action to the skirl of bagpipes.

The earliest form of the Scottish Highland dress consisted of a single length of fabric — "twelve ells of tartan or six ells of double tartan, neatly pleated and fastened around the body with a belt, the lower part forming the kilt while the other half, being fixed to the shoulder by a brooch, hung down behind and thus formed the plaid." Later, plaid and kilt were made of separate pieces. The kilt made of "six ells of single tartan, which being pleated and sewn, was fixed around the waist with a strap, half a yard being left plain at either end, which crossed each other in front." The plaid consisted of four yards of tartan about a yard and a half wide, fringed across the ends. This is the modern form of the costume. The short stockings worn with this must also be in the tartan pattern, either made of fabric or knitted. They usually show the figure on the diagonal. For full dress the doublet worn under the plaid should be of velvet fastened with diamond-shaped silver buttons, or open over a waistcoat of scarlet or white cloth, or of tartan. The bonnet must be "broad and blue, and should bear the crest of the wearer's clan, with motto, and also the evergreen badge of the clan or sept." The shoes should be low-cut, with buckles uniform in ornament with the shoulder-clasp and other ornaments. In addition the equipment includes a "sporrán" or pouch of goat's-hair — black, gray or white — ornamented with tassels and a mounting showing the crest and the clan motto; also a brooch to fasten the plaid on the shoulder, a waist-belt, a sword-belt, a claymore or broadsword, a dirk (worn in the stocking), a pair of pistols and a powderhorn. The pattern of the tartan

must, of course, be the traditional pattern of the clan, though it is allowable to adopt the clan-tartan of one's mother.

For ordinary wear it is allowable to wear a tweed jacket and vest with tartan kilt and plaid, and if the clan has several patterns for special use it is allowable to wear a kilt, of "clan" tartan and a plaid of "hunting" tartan, or vice versa. For dress the "dress" tartan must be used throughout.

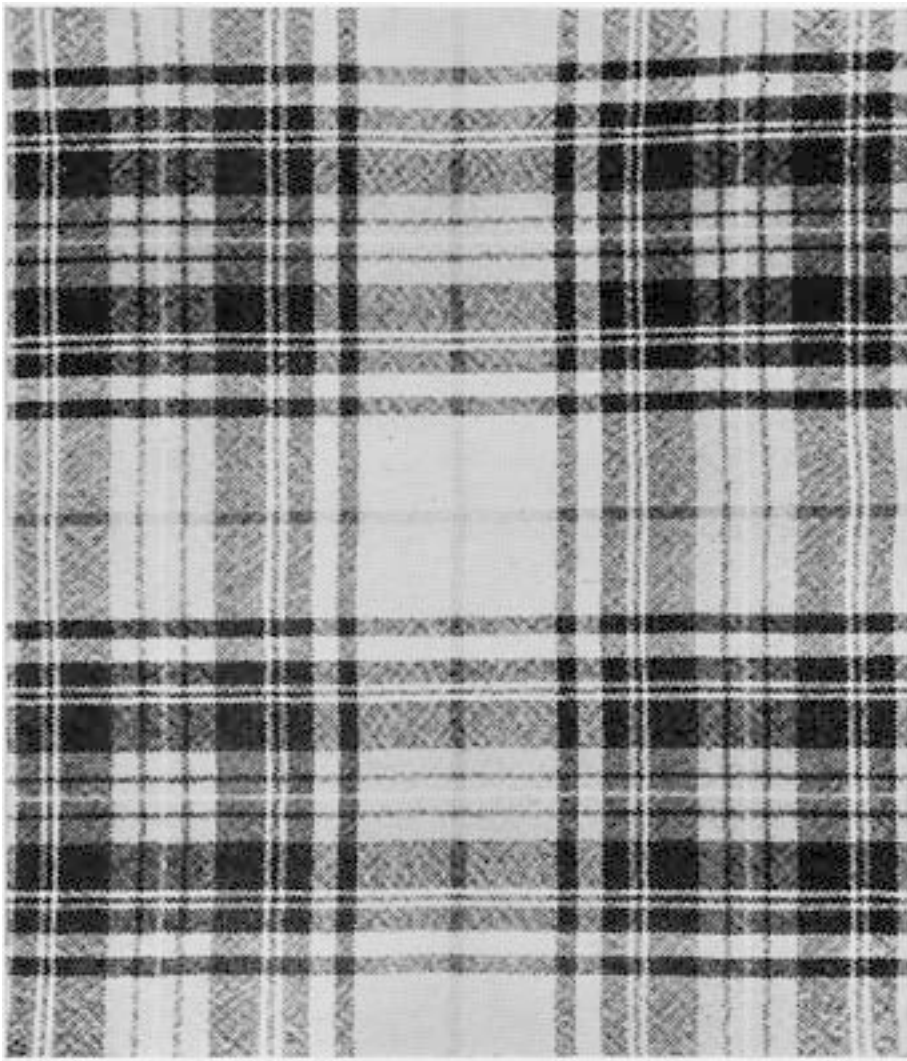
This is a barbaric and gorgeous costume, not in the least feminine in effect in spite of the skirt-like form of the kilt. I shall never forget seeing three authentic "Ladies from Hell" in attendance on a war-time exhibition in New York. The shortest was some six feet four of exceedingly rugged he-man, and all had a proud dignity and completeness that would have made them at home in any possible surroundings from battle and sudden death to the tea table and the ballroom. Enormously impressive.

Though we in this country cannot wear the traditional Highland costume with the sureness of right and in its completeness, many of us have at least a touch of Scotch in our ancestry and get particular pleasure from using the old traditional patterns in our weaving. Our own "he-men" delight in gorgeous trappings and brilliant colors as much as any savage — as witness the western cowboy in full regalia. Our men, I think, often suffer from the enforced sobriety of their conventional dress and have a real color hunger. So when we plan our weaving, why not make a tartan scarf for the head of the house? or a tartan shirt to wear on the next hunting trip into the woods? Believe me, it will be appreciated.

The tartan fabric should be of wool, and is usually woven in 2-2 twill. For scarves, dress-fabric and shirt-fabric, however, we in this country prefer the plain tabby weave, as this makes a fabric of lighter weight. The yarn used for warp and weft should be the same, though warp and weft may be of opposite twist if one prefers. For scarves and sports-shirts an excellent yarn is Bernat's "Fabri" which may be had specially dyed in the Scotch tartan colors. A warp-setting of 24 ends to the inch is the most satisfactory for the lighter weight fabrics in tabby weave. The same yarn set at 30 ends to the inch and woven in 2-2 twill gives a heavier cloth, desirable for skirts and for shirts for the winter hunting trip.

The colors used in the Scotch tartans are all strong, fairly dark, primary shades — a deep "royal" blue, a fairly dark bluish green, turkey red, and bright yellow. These colors, with black and white, are the chief shades used. In some plaids one finds a little light blue, and in some a dark, dull tan.

Black and white illustrations give very little idea of the effect of the tartan patterns, so I am giving brief descriptions that will aid in selection — when one wishes a pattern



The "Queen Victoria" or "Royal Stuart" Tartan

for a special use and does not care to be limited by the family tradition.

The sectional method of warping is impractical for any but the simplest patterns, such as the "Rob Roy" tartan, so that for these fabrics one must have recourse to the warping board. The warp should be made strictly in accordance with the "sett" or pattern, for as many repeats as required for width. In weaving the same arrangement of colors must be followed exactly, special pains being taken to weave exactly the same number of weft-shots to the inch as there are warp-ends to the inch in the reed. An allowance must, of course, be made for shrinkage, which is somewhat greater lengthwise than crosswise. The figures in the finished fabric must be neither long drawn out nor squatty, but exactly square. This is of first importance.

The Scotch weavers keep the sett of the pattern, not in words and figures on paper, but in colored yarns wound around a stick. It is a good idea to make up a sett of this kind for the pattern to be woven, as it is easier to follow, both in warping and weaving, than the written directions.

The simplest of the tartan patterns is the "Rob Roy" tartan. The famous Highland chieftain appears to have adopted this pattern after his family was outlawed and persecuted by the crown. He was a MacGregor, and, on

his mother's side, a Campbell. His tartan is entirely different from those of these clans. It consists of alternate red and black squares in a large, bold check. Warp and weave 48 threads red, 48 threads black, and repeat.

The clan MacGregor is very ancient and is mentioned in records of the early fifteenth century. The family came into conflict with the authorities when they refused to accept a crown charter for their lands but undertook to hold them by the ancient "right of the sword." King James VI sent a punitive expedition against them, but at the battle of Glenfruin in 1603 the MacGregors were victorious. The entire family was outlawed and the name absolutely proscribed after this battle, and in the next year the chief and many of his followers were executed at Edinburgh. In 1774 Parliament passed an act annulling the suppression of the name. The MacGregor tartan, the sett for which is given below, is a bold figure in green on a red ground, with a line of white through the center of the figure.

Sett of the MacGregor tartan:

72 threads, red	6 threads, white
24 " green	— center of figure
10 " red	2 " red
10 " green	10 " green
2 " red	10 " red
	24 " green

Repeat.

End, to balance, 72 threads, red.

Number of threads in each repeat, 170.

A simple red and black tartan, lighted with a touch of yellow, and very handsome in effect is the pattern of the Brodie family. The records of the family were destroyed when Lord Lewis Gordon burned Brodie House in 1645, but the family is very ancient.

Sett of the Brodie tartan:

6 threads, black	— center of red figure
68 " red	
32 " black	
4 " yellow	
32 " black	
8 " red	— center of black figure
32 " black	
4 " yellow	
32 " black	
68 " red	

Repeat.

End, to balance, 6 threads, black.

Number of threads in each repeat, 286.

Another simple pattern, this one in black and yellow with a touch of red, is the tartan of the clan MacLeod. The founder of this family was Leod, son of Olave, King of Man, and was born early in the thirteenth century. Much of the original land is still in the possession of this family and the seat of the chief is still in Dunvegan Castle, Skye. "The MacCrimmons, most famous of the Highland pipers, were for centuries the pipers of the MacLeods."

Sett of the MacLeod tartan:

6 threads, red — center of yellow figure  
 40 “ yellow  
 24 “ black  
 4 “ yellow  
 24 “ black — center of black figure  
 4 “ yellow  
 24 “ black  
 40 “ yellow

Repeat.

End, to balance, 6 threads, red.  
 Number of threads in one repeat, 166.

A more elaborate tartan, and a very beautiful one, is that of the Macbeth family.

The background of the Macbeth tartan is blue, with a lively figure in green, red, yellow, black and white.

Sett of the Macbeth tartan:

64 threads, blue	4 threads, red
8 “ yellow	2 “ black
8 “ black	12 “ red
2 “ white	20 “ green
4 “ blue	4 “ blue
2 “ white	2 “ white
4 “ blue	4 “ blue
20 “ green	2 “ white
12 “ red	8 “ black
2 “ black	8 “ yellow
4 “ red	
2 “ white —	
center of figure	

Repeat.  
 End, to balance, 64 threads, blue.  
 Number of threads in one repeat, 198.

Some of the large and powerful clans used several tartan patterns. Thus the tartans of the Stewart family include a “clan” tartan, a “dress” or “chieftan” tartan, a “hunting” tartan, and a special modification of the clan pattern known as the “Bonnie Prince Charlie” tartan. These are all very beautiful patterns and of particular historic interest. The hunting tartan is dark green in effect with the figure in black and blue, and with fine lines of red and yellow. The clan, and the Prince Charlie patterns are similar, differing only in the width of the red figure. The effect is chiefly red. The dress or chieftan pattern, sometimes called the “Royal Stuart” pattern, and sometimes the “Queen Victoria” tartan because it was the one used by the great queen, has a white background, with the figure in blue, green, red, yellow and black. This pattern is probably the most popular of all the tartan patterns. For sports shirts, scarves and dresses it is charming.

Sett of the clan Stewart tartan:

60 threads, red	16 threads, green
8 “ blue	8 “ red
12 “ black	2 “ blue
2 “ red	4 “ red
2 “ yellow	2 “ white — center
2 “ red	4 “ red
4 “ white	2 “ blue
2 “ red	8 “ red

16 threads, green	2 threads, yellow
2 “ red	2 “ red
4 “ white	12 “ black
2 “ red	8 “ blue

Repeat.

End, to balance, 60 threads, red.

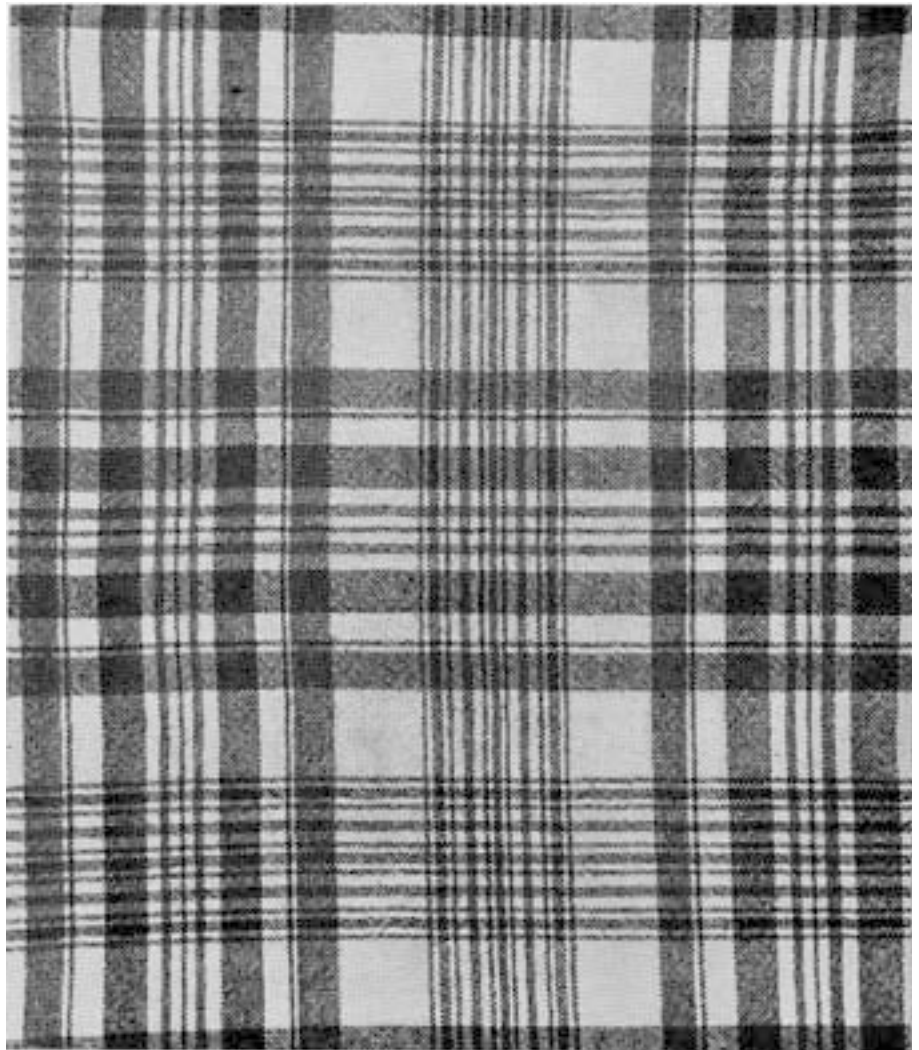
Number of threads in one repeat, 186.

For a larger figure, double the number of threads in each stripe of the sett.

For the Prince Charlie pattern make the wide red stripe of 30 instead of 60 threads. Pattern figure the same as above.

Sett of the Royal Stuart tartan:

4 threads, red
36 “ white
6 “ blue
8 “ white
8 “ green
2 “ yellow
2 “ green
2 “ white
16 “ green
8 “ red
2 “ green
4 “ red
2 “ white — center
4 “ red
2 “ green
8 “ red
16 “ green
2 “ white
2 “ green



Pattern “Murray of Tullibardine”

2 threads, yellow  
 8 “ green  
 8 “ white  
 6 “ blue  
 36 “ white  
 Repeat.  
 End, to balance, 4 threads, red.  
 Number of threads in one repeat, 194.

Sett of the Stuart “Hunting” tartan:

4 threads, yellow  
 22 “ green  
 6 “ black  
 4 “ green  
 12 “ black  
 4 “ green — center of first figure  
 12 “ black  
 4 “ green  
 6 “ black  
 22 “ green  
 4 “ red  
 22 “ green  
 12 “ black  
 2 “ green  
 2 “ black  
 2 “ green  
 2 “ black  
 2 “ green  
 12 “ blue  
 4 “ green — center of second figure  
 12 “ blue  
 2 “ green  
 2 “ black  
 2 “ green  
 2 “ black  
 2 “ green  
 12 “ black  
 22 “ green  
 Repeat.  
 End, to balance, 4 threads, red.  
 Number of threads in one repeat, 216.

A very somber pattern, all in dark green, dark blue and black, is the tartan adopted in 1739 for the famous “Black Watch” Highland regiment. The blue in this tartan is a dark navy shade.

Sett of the “Black Watch” tartan:

4 threads, black  
 20 “ green  
 20 “ black  
 20 “ blue  
 4 “ black  
 4 “ blue — center of first figure  
 4 “ black  
 20 “ blue  
 20 “ black  
 20 “ green  
 4 “ black  
 20 “ green  
 20 “ black  
 4 “ blue  
 4 “ black  
 4 “ blue  
 4 “ black  
 20 “ blue — center of second figure  
 4 “ black  
 4 “ blue  
 4 “ black  
 4 “ blue  
 20 “ black  
 20 “ green  
 Repeat.  
 End, to balance, 4 threads, black.  
 Number of threads in one repeat, 272.

A simple but very bright and effective pattern in red and white is the tartan of the Clan Menzies.

Sett of the Menzies tartan:

68 threads, red  
 8 “ white  
 8 “ red  
 8 “ white  
 16 “ red  
 4 “ white  
 2 “ red  
 24 “ white — center of figure  
 2 “ red  
 4 “ white  
 16 “ red  
 8 “ white  
 8 “ red  
 8 “ white  
 Repeat.  
 End, to balance, 68 threads, red.  
 Number of threads in one repeat, 184.

Murray of Tullibardine.

Sett of tartan:

2 threads, green  
 4 “ red  
 4 “ blue  
 6 “ red  
 16 “ green  
 10 “ red  
 2 “ green  
 2 “ red  
 14 “ blue  
 32 “ red  
 2 “ blue  
 2 “ red  
 4 “ green  
 2 “ red  
 2 “ blue  
 4 “ red  
 4 “ blue  
 4 “ red  
 4 “ blue  
 2 “ blue  
 2 “ red  
 4 “ blue — center  
 2 “ red  
 2 “ blue  
 4 “ red  
 4 “ blue  
 4 “ red  
 2 “ blue  
 2 “ red  
 4 “ green  
 2 “ red  
 2 “ blue  
 32 “ red  
 14 “ blue  
 2 “ red  
 2 “ green  
 10 “ red  
 16 “ green  
 6 “ red  
 4 “ blue  
 4 “ red  
 End, to balance, 2 threads, green.  
 Description: This is a handsome and lively pattern, chiefly red in effect.  
 Number of threads in one repeat, 242.

Douglas tartan — blue and green with a fine white line and a touch of black. Simple but effective.

Sett of the clan Douglas tartan:

4 threads, white  
 40 “ blue  
 40 “ green  
 4 “ blue  
 16 “ black — center  
 4 “ blue  
 40 “ green

40 threads, blue  
End, to balance, 4 threads, white.  
Number of threads in one repeat, 188.

Clan MacKay — blue, black, green.

Sett of the pattern:

4 threads, black  
26 “ green  
24 “ black  
4 “ green  
24 “ blue  
4 “ green — center  
24 “ blue  
4 “ green  
24 “ black  
26 “ green  
End, to balance, 4 threads, black.  
Number of threads in one repeat, 164.

Clan MacQueen — red and black with a touch of yellow.

Sett of the pattern:

4 threads, yellow  
44 “ black  
16 “ red  
4 “ black  
16 “ red  
4 “ black — center  
16 “ red

4 threads, black  
16 “ red  
44 “ black  
End, to balance, 4 threads, yellow.  
Number of threads in one repeat, 168.

These are only a few of the many tartan patterns, each with its history and its special interest for those of the name. The ones selected have been chosen to give a wide variety, — from the light and dainty “Queen Victoria” tartan to the dark and solemn “Black Watch.”

The tartan patterns can be used with handsome results for couch blankets and automobile robes. For this use a heavier yarn than Fabri should be used, of course. For a couch blanket, Shetland yarn set at 15 to the inch and woven in plain tabby or set at 18 to the inch and woven in twill will be found satisfactory. For an automobile blanket a heavy knitting yarn set at 10 or 12 to the inch is suggested.

Like other all-wool fabrics the tartans should be washed when taken from the loom, and pressed while still damp. This is usually the only finish required. If a fluffy, thick fabric is desired, use a fuzzy yarn and brush the finished cloth with a wire brush. If the fuzzy warp gives trouble — as it is likely to do — treat it with warp-dressing.

Now

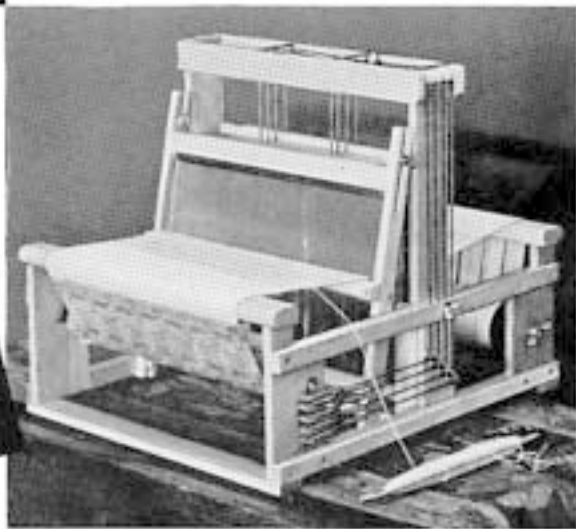
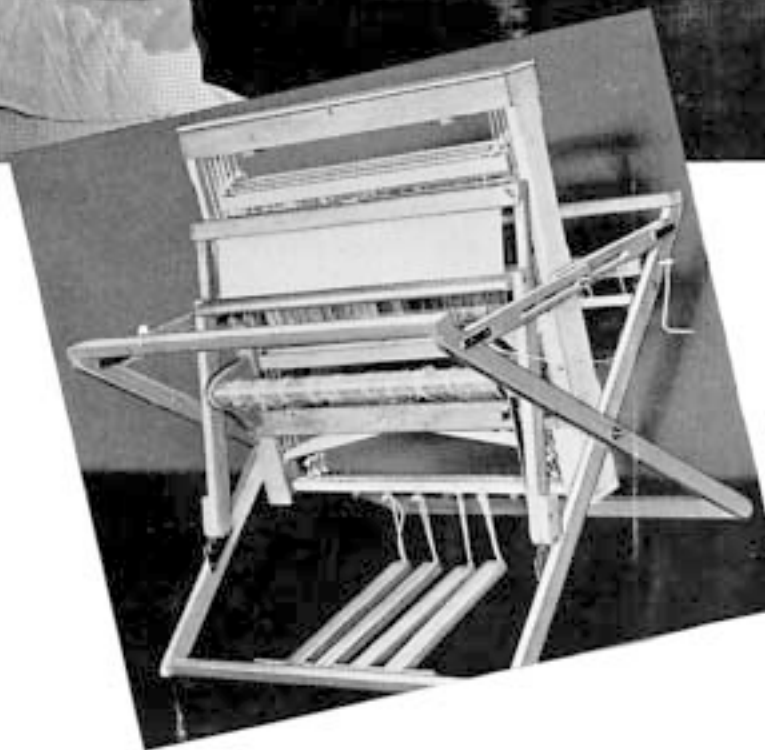
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