

handicrafter

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Warps and Wefts

BY MARY M. ATWATER

IN THE planning of a new fabric there are three main points to be decided—color, pattern, and texture. Of these texture is often the most difficult part of the problem, and for some fabrics—dress-fabrics especially—it is the most important of the three.

Texture depends on the quality of the warp and weft yarns used, their “count,” and the manner in which they are combined. And by this I mean not only the “weave” or plan of interlacing of warp and weft, but also the relative quantities of warp and weft, which depend on the setting of the warp in the reed and on the beat.

When a fabric fails to please, the cause of the failure—nine times out of ten—is an ill-judged setting of the warp. This is natural enough, because it is impossible to formulate rules, and without experience or a good collection of samples to fall back on there is no way to determine the most desirable warp-setting and beat without experiment. The same warp will produce fabrics of very different texture at different settings, and one may set out to make a light-weight dress fabric and find that what one has on the loom is a heavy material suitable for upholstery.

There are three main classes of fabrics, when considered from the point of view of relative values between warp and weft: Weft-face fabrics, in which the effect is entirely in the weft and the warp is covered; warp-face fabrics, in which the effect is in the warp and the weft is covered; and “fifty-fifty” fabrics, in which warp and weft play an equal part.

For weft-face fabrics the warp should be coarser than the weft and set far apart in the reed—so far apart that when the weft is thoroughly beaten up the warp will be completely covered. Tapestry is the outstanding fabric of this type.

Warp-face fabrics are exactly the reverse. In these the warp is finer than the weft and is set very close together—so close that it covers the weft completely. Card-woven textiles, a good deal of Ancient Egyptian weaving, and much primitive and savage weaving are examples of this. Modern textiles of the order are the Swedish warp-face mats we occasionally see.

The type-fabric of the third order is the plain tabby fabric, woven with exactly the same number of weft-shots to the inch as there are warp-ends to the inch in the setting. Most

of the linen weaves and the weaves used for dress-fabrics fall in this group.

The Colonial coverlet weaves are a hybrid form in which the tabby foundation is a fifty-fifty fabric overlaid by weft-floats of other material to make the pattern. Certain Italian fabrics are similar except that the pattern floats are in the warp instead of in the weft.

In planning a new fabric the best guide is a sample in the texture one wishes to produce—and failing that, experiment is necessary. To those who have not the time for experimental work the following “rule-of-thumb” suggestions, taken from my own experience, may prove helpful. But these must be considered suggestions only. I have no idea of laying down laws. The directions if followed will produce satisfactory fabrics of the kinds described, but other combinations of material, other settings, different textures, might be as good or better for some special purpose.

* * *

First, the classic “coverlet” fabric, made in overshot pattern weaving in wool with a foundation of cotton or linen. For this fabric—whether an actual coverlet or in runners, pillow-tops, hand-bags and the like—I find no warp as satisfactory as Egyptian cotton 24/3, set at 30 ends to the inch. Tabby, of course, like the warp. For pattern weft over this warp I prefer either “homespun,” handspun wool yarn, or Shetland worsted yarn. These combinations of material produce a fabric similar in texture to the ancient pieces.

A good deal of variation in beat is allowable in this weave. A close beat produces the firmer, handsomer fabric, and a light beat the softer fabric. The beat is largely a matter of taste, and depends to some extent on the purpose for which the fabric is to be used, but the beat should always be heavy enough to give the foundation tabby fabric the necessary firmness to hold the material together. If the beat is too light the fabric will pull apart and become quite distressing in appearance after a time.

A warp of ordinary 20/2 cotton may be used for coverlet fabric also. This is finer than 24/3 and should be set at 34 to the inch for best results. Warp of No. 20 Perle cotton at the same setting may be used, but not for strictly “period” pieces as the shine of mercerized cotton is a modernism.

For a coarser fabric 10/2 cotton warp or No. 10 Perle cotton set at 24 ends to the inch, woven in knitting yarn or Germantown, give good results.

Rugs are not now much made in this weave, but, if made, ordinary carpet warp at a setting of 15 ends to the inch is satisfactory.

The "summer-and-winter" weave requires a different relation of warp to weft. For a very beautiful light-weight fabric in this weave warp in Egyptian cotton at 30 ends to the inch, use a 20/2 cotton for tabby, and Fabri yarn for pattern weft. For a somewhat heavier fabric warp in 10/2 cotton at 24 ends to the inch, use 24/3 cotton for tabby and homespun or Shetland yarn for pattern weft. Other combinations of material are, of course, possible in this weave, but these seem to me the best. In fact they are to my mind perfect for this weave in its most conventional form. The beat should be just heavy enough to make the figures exactly symmetrical when woven "in pairs" according to the best usage.

Coverlet fabric is sometimes woven over a linen warp. This makes a heavier fabric, of course, and for a bed-cover the cotton foundation is to be preferred. If linen warp is used the warp-settings should be the same as for the linen fabrics to be described below.

* * *

The linen warps most commonly in use are No. 20 "singles," 40/2 and 40/3 "round" linens, and heavy linen floss.

Linens are usually woven in one or another of the "fifty-fifty" weaves, and the setting and beat should be very carefully considered. If the warp is set too close it is impossible to beat up the weft to the same number of weft shots to the inch, and an unpleasantly "warpy" effect results. If the warp is set too far apart and is woven with the same number of weft shots to the inch, an unsubstantial and open fabric results. This open fabric, of course, is what one wishes for curtains, but it is not desirable for towelling or table linen.

The warp I prefer for towelling—and, in fact, for most weaving in linen—is No. 20 singles. Bernat's Special No. 20 linen warp is excellent. Some weavers hesitate to use singles linen for warp because it tends to fuzz in the reed, and broken threads are apt to result. This difficulty can usually be overcome by keeping the warp thoroughly dampened during weaving, but treating the warp with a good warp-dressing is advised.

There are commercial warp-dressings on the market, but as these can ordinarily be purchased only in large quantities they are not generally available to hand-weavers. An excellent warp-dressing may be made by boiling flaxseed. Exact proportions are unimportant. The jelly-like product of the boiling should be diluted to the consistency of thin starch, and can be applied to the warp in various ways: If the warp-material is in skeins the skeins may be soaked in the solution before the warp is spooled. If the loom is warped from the warping-board the chain may be soaked in the solution

before beaming. If the warp is already on the loom the solution can be dabbed on the stretched part of the warp with a cloth or sponge. A thoroughly dressed linen warp can be woven dry, though it is better to weave it damp. Do not, however, weave part of a piece on a dry warp and part on a damp warp. The weft beats up much more firmly when the warp is damp than when it is dry. To keep the warp damp while the loom is not in use lay a wet bath towel over it, and always release the tension on the warp-beam when the loom is allowed to stand for some hours.

The setting I prefer for No. 20 linen warp is 36 ends to the inch, though for certain weaves—"Ms and Os," for instance—a setting of 38 is perhaps a little better. A 40/2 round linen, which has the same "count" should be given the same setting. The most satisfactory setting for 40/3 linen is 26 ends to the inch, for most purposes.

Round linens do not require dressing and can be woven dry, though they beat up better when kept damp during weaving—at least in a dry climate.

Heavy linen floss when used for both warp and weft makes a particularly beautiful heavy linen fabric. Large

towels in this material are handsome and serviceable. When used for warp a setting of 16 ends to the inch is best, though 15 to the inch is allowable. This linen makes gorgeous curtain material in lace-weave, at a warp-setting of 7½ or 8 ends to the inch.

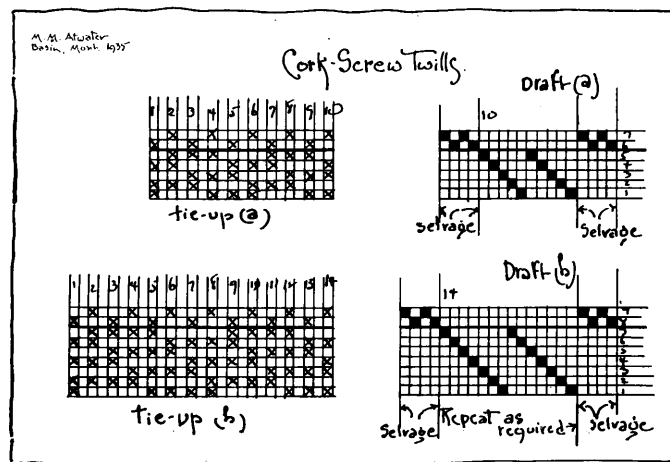
Linens should be well washed when taken from the loom. Soaking for several hours is desirable. Rub out well in hot soapsuds, rinse, wring, and iron while still quite wet, going over and over the fabric with the iron till it is thoroughly dry. This brings out the lustre of the fabric. Linen is improved by repeated washings.

* * *

All-wool fabrics—fabrics for clothing especially—are of much interest. Tweeds for sports wear and fine, filmy wool fabrics for dresses are much in demand. Many beautiful yarns are available, and it is sometimes difficult to select among them, and to determine just how to combine and weave them for the type of fabric desired.

There appears to be some confusion as to just what a "tweed" fabric is. Many fabrics are sometimes called "tweed" improperly. The word is derived from "twill,"—or, rather from the Scotch form, "tweel" or "tweeling,"—and the fabric itself appears to be of Scotch origin. It is a rough, soft, heavy fabric made of single-twist wool (not worsted) yarns, woven in one or another of the many forms of twill. It is a handsome and sturdy fabric, designed for hard service. It happens at the moment to be also very "smart."

The forms of twill commonly used for tweeds are the familiar 2-2 and 3-1 twills, "dornik" and "herringbone" and the "corkscrew" twills. As this last is particularly good for tweeds, and as it seems to be little known among American hand-weavers, I am giving the threading and tie-up for the five-harness and seven-harness corkscrew twills. The



tie-up for the five-harness pattern could be made to seven treadles—the first five as shown, with the ties to the two selvage harnesses omitted, and two additional treadles tied one to harness six and one to harness seven. In weaving on this tie-up it would be necessary to use both feet—one on the pattern treadle and one on the selvage treadle. In the same way the tie-up for treading (b) could be made to nine treadles—the first seven as shown on the draft, with the ties to the two back harnesses omitted, and two selvage treadles tied one to each of these back harnesses.

I use the two selvage harnesses to carry only the selvage threads for each edge of the web because it is difficult to make a good selvage in this weave in any other way. But these harnesses are not necessary to the weave and may be omitted if one chooses. In this case, of course, only five treadles for (a) and seven treadles for (b) are necessary. Special care must be taken with the edges. The treadles, of course, are to be woven in succession, one weft-shot on each treadle, and repeat. There is no tabby in this weave.

For tweeds the same yarn—a single-twist wool yarn—should be used for both warp and weft. These yarns differ somewhat in grist, but a warp-setting of 15 to the inch is satisfactory for all but very fine or very coarse yarns of this type. Exactness of setting is not as important for wool as for linen, because wool shrinks and fills up so much in the finishing process. A loosely woven fabric shrinks much more than a closely woven one, and a fabric of the same materials will, after washing, be of about the same texture whether the warp is set 14, 15, or 16 to the inch.

Warp and weft may be the same color, or different in color; “shepherd’s check” and plaid effects are all used for tweeds. A livelier fabric, however, results from using warp and weft different in color than from the use of a single shade for all yarns.

Commercial tweeds are made with yarns twisted in opposite directions for warp and weft, and this practice results in a smoother fabric than one in which all the yarns are either warp-twist or weft-twist. But as tweed is by nature a rough fabric, this makes little practical difference, and the hand-weaver often uses yarns all twisted the same way.

For a plain tabby fabric in hard-twisted worsted yarns, however, it is important to have warp and weft opposite in twist, unless one happens to like the “crêpe” effect that results from failing to follow this practice. For a lightly made fabric for dresses the crêpiness is not, in my opinion, objectionable, but for a closely woven suiting it is not attractive.

For a closely woven light-weight suiting in tabby weave my favorite yarn is Fabri, set at 30 ends to the inch. A setting in this yarn of 24 ends to the inch gives a lighter and softer fabric, suitable for dresses, and still with enough substance to have excellent wearing qualities. A setting of 20 to the inch is sometimes used, but this appears to me somewhat too open, even though the greater shrinkage tends to correct the fault. For a lighter weight fabric it is better to use a finer yarn.

Bernat’s “Fabricspun” yarn makes an excellent suiting in tabby weave, at a setting of 22 ends to the inch. Shetland yarn when used for warp is good at a setting of 15 or 16 to the inch.

For an extremely beautiful fine, light worsted fabric, with body enough to wear well, choose Bernat’s “Afghan” yarn, the warp set at 36 ends to the inch. A setting of 30 to the inch is also practical, and makes a soft and filmy fabric for summer dresses. The yarn, though fine and not hard-twisted, is strong and gives little trouble on the loom if the batten is used with discretion, but treatment with a light solution of warp-dressing makes it more manageable.

In a general way, any soft, fuzzy, weak or refractory warp behaves better if dressed, and by the use of warp-dressing many beautiful materials can be used successfully for warp that would be impossible without this treatment.

All-wool baby blankets and couch blankets are often made of Germantown yarn. For these pieces set the warp at 10 to the inch and beat lightly. Good weaves for the purpose are any of the linen weaves—“Ms and Os” and the Bronson weave are perhaps the best four-harness weaves to use. The double-face twill is excellent for all-wool blankets whether in fine or coarse yarns, but requires more than four harnesses, of course.

All the all-wool fabrics described are fifty-fifty fabrics, and much care should be taken in weaving to put in exactly the same number of weft-shots to the inch as there are warp-ends to the inch in the setting. A slight allowance should, however, be made to compensate the tension of the warp. That is to say, one actually weaves somewhat fewer weft-shots than would be indicated. The allowance to make depends on the closeness of the weave and on the stretch given the warp. In a general way, a wool warp should be woven at as slight a tension as possible, but, to make sure of the number of weft-shots, let off the tension and allow the warp to hang slack for a little while till the stretch has gone out of it. Then count the weft-shots in your weaving and you can judge whether you are beating too close or not close enough.

A wool warp—especially if made of soft yarns—should be woven off as rapidly as possible, and when the loom is left overnight or even for a few hours, the tension on the warp-beam should be released. Soft yarns pull apart if left at a stretch, and even when this does not happen much of the elasticity and “life” is taken out of them.

All-wool fabrics require thorough washing to give them finish, just as linens do. This applies to the finest and filmiest as well as to the sturdier fabrics, with the possible exception of the blankets in Germantown yarn.

There are, of course, many ways in which two kinds of yarn can be combined with good results. Many of the new and interesting “nub” and “flake” yarns are unsuitable for warp and should be woven over a warp of some other material. Fabri makes an excellent warp for many of these yarns. For instance, Fabri set at 24 to the inch woven in Bernat’s “Lorneau” makes a very beautiful fabric. The “nub” homespun is probably best over a plain homespun. Fabri, set at 30 ends to the inch and threaded double through the heddles, makes an excellent warp for a coat-fabric woven with a Shetland yarn for weft. Space is lacking to mention more of these combinations, but perhaps the notes supplied will prove of assistance, as warps of similar grist will usually work well at the settings suggested for the yarns mentioned.

Bedroom in "Right and Left" Crackle Weave

BY VEVA N. CARR

HAVING a weakness for plenty of light, living in a sunny climate and desiring at the same time to have a feeling of coolness about my room, I planned my walls and woodwork to be done in a rather deep cream; my spreads in shades of yellow, with curtains, rugs, linens, etc., in shades of green and violet combined with my yellows and creams.

Taking as a foundation the "Right and Left" Crackle Weave pattern illustrated in an article entitled "The New Crackle Weave" by Mary M. Atwater in the January-February, 1931, issue of THE HANDICRAFTER, I worked out the textile designs for my sunny bedroom.

No effort was made to save either time or material in the stringing of the various pieces. The work was planned entirely with a view of fitting each piece to its own particular place and use.

Spreads for twin beds were planned in three strips in order to make a figured border with a center in stripes, the border being done in a deeper shade of yellow than the center stripes.

Sufficient warp should be put on the loom to allow for all waste, and for either an extra bolster, or for additional length sufficient to cover the pillows. Personally, I prefer making the spread long enough to fold back over the pillows, in which case there should be a border on both ends of the spread. Illustration No. 1 shows a sample of the border of the spread.

Since I live in a tropical climate, I preferred a cotton spread and chose a No. 3 Perle cotton for my pattern threads, using a 24/3 Egyptian cotton set at 30 threads to the inch for the warp and tabby.

Using Draft (a), thread a selvage of 1, 2, 3, 4, and three repeats of the pattern, making 424 threads for the border strips. Sufficient warp should be allowed for cutting the two lengths to be woven, and great care taken to exactly match the figures of the center strip.

With the darker shade of yellow (or a very light orange), weave as follows:

(a) Treadle	2-3	6 shots
	1-4	6 "
	3-4	7 "
	2-3	6 "
	3-4	2 "
	2-3	2 "
	3-4	2 "
	2-3	6 "

(a) Treadle	3-4	7 shots
	1-4	6 "
	*2-3	6 "

Repeat from beginning

(b) Treadle	1-2	7 shots
	1-4	6 "
	1-2	2 "
	1-4	2 "
	1-2	2 "
	1-4	6 "
	1-2	7 "

CENTER STRIP

Thread 8 repeats of the pattern, then start at beginning and thread first 92 threads, making a total of 1,212 threads.

With the dark shade, treadle as above for the border (about 14 inches, or until the border is the same width as the side strips). There may be some difference as to the number of shots required, and great care should be exercised to exactly match the figures of the joining strips.

Then, with the light yellow thread, treadle 1-2 for about 80 inches. Make sure in starting the figured border of the dark thread at this point, that it will accurately join the figures of the side borders to which it will be sewed.

RUGS

I chose rug wool in two shades of violet for one of my rugs, and two shades of green for a second, using the dark shade doubled for the pattern wefts and the light shade single for the tabby. A No. 3 light golden tan Perle cotton was my choice for the warp, set at 15 threads to the inch.

Rug (a)

Thread selvage 1, 2, 3, 4	4 threads
Three repeats Draft (a)	420 "
From beginning 1st	87 "
Selvage 4, 3, 2, 1	4 "
	—
	515 "

Treadle 1-2 for about 5 inches; border treadled as Figure (a) of the spread, using about four shots per block; treadle 1-2 for about 45 inches; repeat (a) and treadle 1-2 for 5 inches.

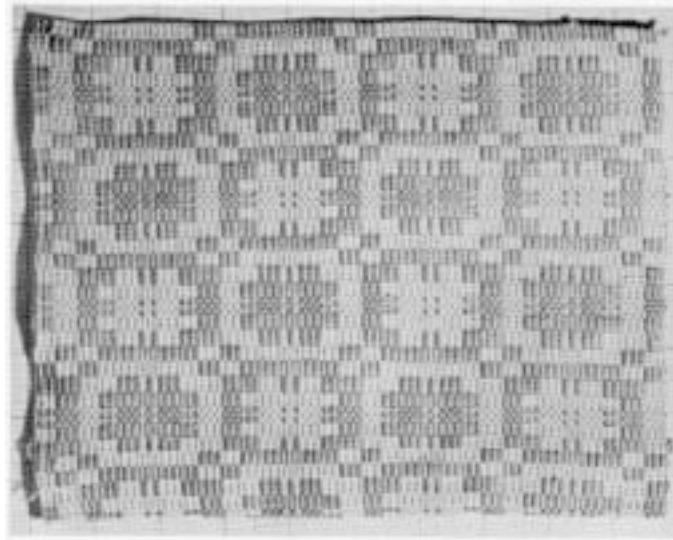


Illustration No. 1. Border for a Bed Spread.

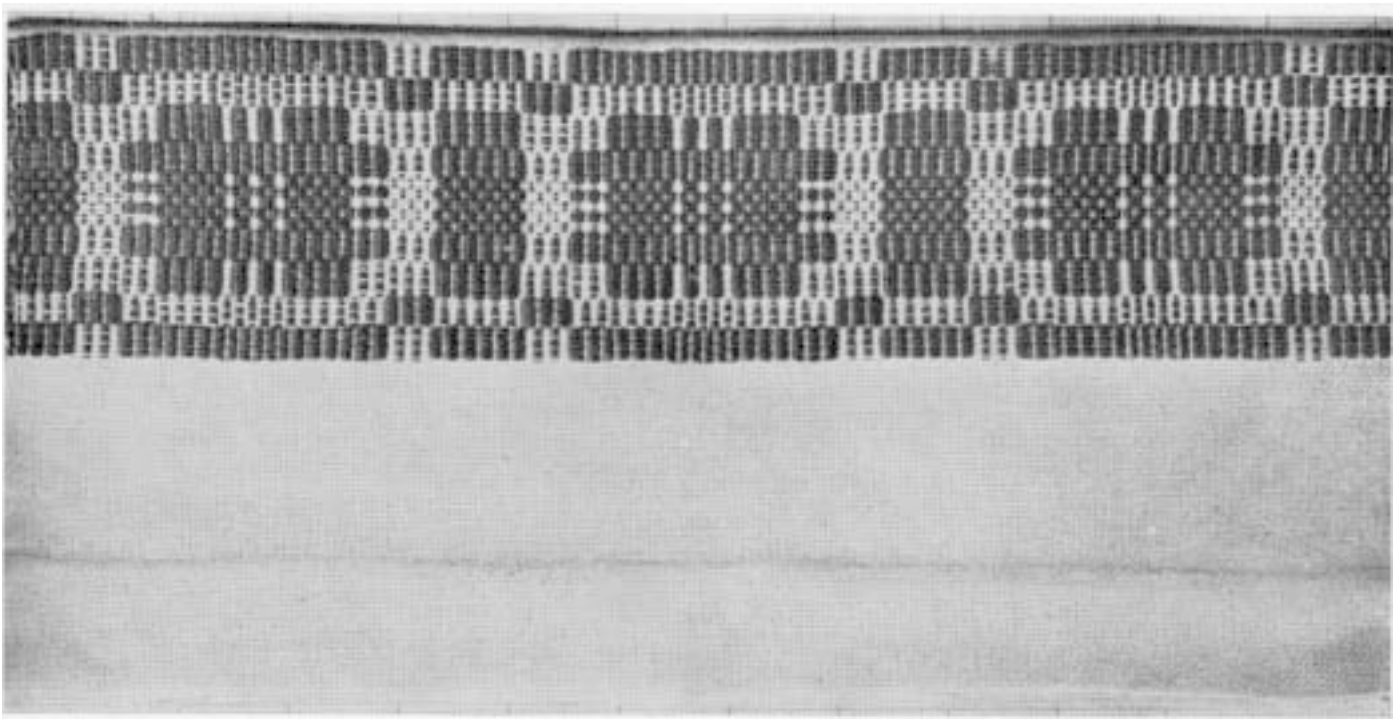


Illustration No. 2. Border for the curtains

Rug (b)

Thread selvage 1, 2, 3, 4	4 threads
Begin at 81 to end of Draft (a)	60 "
Two repeats of pattern	280 "
Start at beginning thread	11 "
	<hr/>
	355 "

repeats of the draft. The border is shown in Illustration No. 2.

Thread selvage 1, 2, 3, 4, 1	5 threads
Pattern 6 times	530 "
Start at beginning 1st	22 "
Selvage 4, 3, 2, 1	4 "
	<hr/>
	561 "

With dark thread weave about 2½ inches plain tabby for hem; about 3 inches of alternating light and dark, and

Treadle 2-3	4 shots dark shade doubled
1-4	4 "
3-4	5 "
1-4	4 "
2-3	4 "

Alternate dark and light for body of rug for desired length, and repeat border and hem.

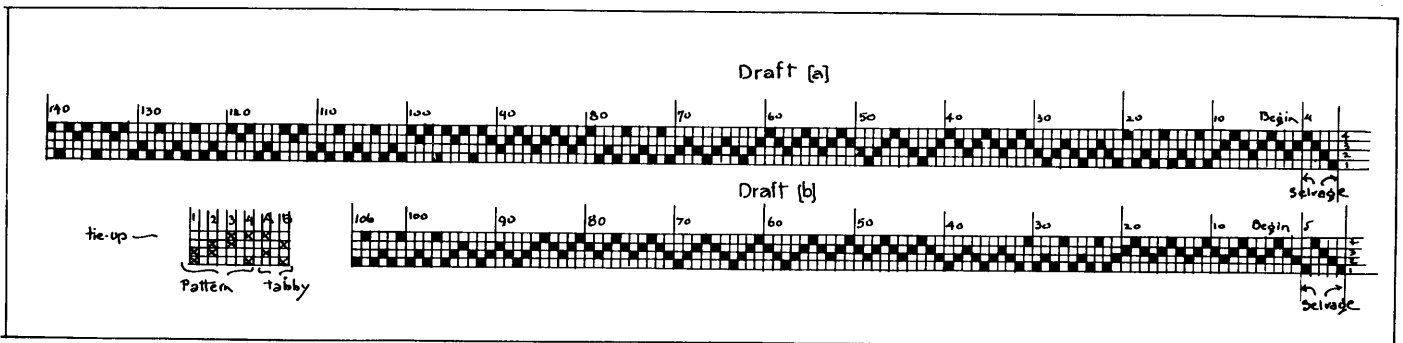
WINDOW DRAPERY

For the window draperies I enlarged the figure somewhat and used but one side of the pattern. Draft (b). By using a linen warp set at 24 threads to the inch, one threading resleyed at 36 to the inch made the dresser cover and some larger towels. Guest towels could be made by using fewer

The curtains, made on a white warp with a very pale yellow No. 10 Perle cotton weft with green borders, were woven with the pattern weft across the second repeat of the draft on one side, thus making a border and plain hem down the center of the window.

Weave in yellow tabby about 10 inches for lower edge and hem allowance, and treadle as follows:

(a) Treadle 2-3	4 shots
1-4	4 "
3-4	5 "
2-3	4 "
3-4	2 "
2-3	2 "
3-4	2 "



(a) Treadle	2-3	2 shots
	3-4	2 "
	2-3	4 "
	3-4	5 "
(b) Treadle	1-4	4 "
	2-3	4 "

For the lower border across the width of the curtain, drop the pattern thread at the beginning of the second repeat, throwing the tabby both ways between the pattern shots. This applies the entire length of the curtain. After the figure is completed, weave the center border by throwing pattern thread across the second repeat of the draft only and treadling from (a) to the end of the directions. Finish with a hem down the center and across the end of the curtain.

DRESSER SCARF

Same stringing as next above, set at 36 threads to the inch, as shown in Illustration No. 3.

With cream-colored tabby, weave about 4 inches plain; two shots of tabby in dark violet; three shots of cream.

Treadle	1-2 in Light violet	1 shot
	2-3 Dark	
	3-4 Light	
	1-4 Dark	
	Repeat three times	
	Cream tabby	3 shots
	Dark violet	2 "
	Cream	10 "
	2-3 Dark violet	8 "
	1-4 " "	8 "
	2-3 " "	4 "
	Reverse to beginning	

Center woven plain for desired length and the border and hem repeated. Finish with inch-and-quarter hem.

TOWELS

Towels were woven in several colors with contrasting borders, some of them being treadled as for the figure in the

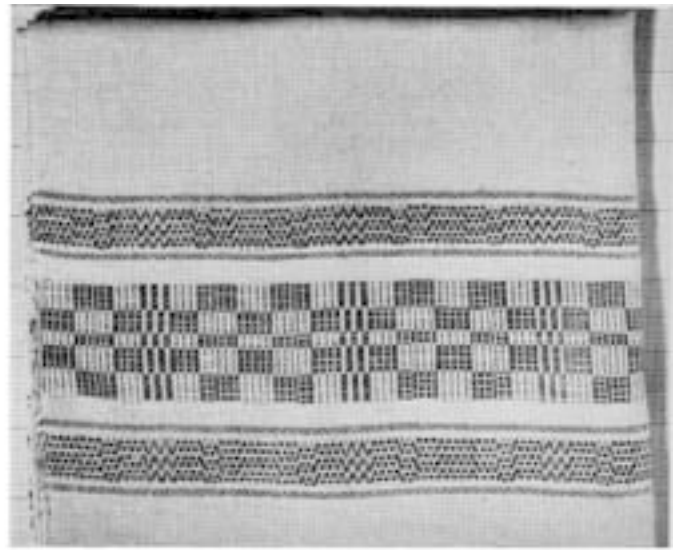


Illustration No. 3. Dresser Cover

spread. (See Illustration No. 4.) A second set was treadled as follows:

Plain yellow for 3 inches, allowing for a 3/4-inch hem.

Tabby	Black	1 shot	
"	Yellow	2 "	
3-4	Black	2 "	
1-4	"	1 "	
3-4	"	2 "	
Tabby	Yellow	2 "	
"	Black	1 "	
"	Yellow	2 "	
1-4	Green	4 "	
2-3	"	4 "	
1-4	"	4 "	Center of border
			Reverse

Weave plain center and repeat border and hem. Cream-colored towels were made with borders in two shades of violet, and in green and violet; green towels with yellow and violet, etc. Many variations as to color and treadling are possible, the treadlings above being given for the illustrated pieces.

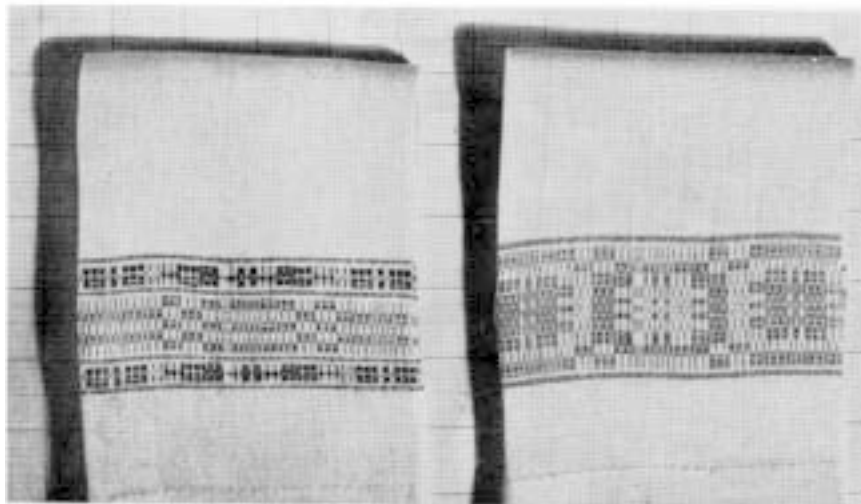


Illustration No. 4. Towels

Hand Weaving for the House

BY FLORENCE G. CROCKER

OF ALL the many ways in which hand-woven materials may be used with success, none is more fitting than for the furnishing of our houses. The fine qualities of hand-made textiles can be less readily duplicated by machine-made fabrics here than in other fields. In curtains, upholstery material, wall hangings, etc., lies a particularly fruitful place for hand-weaving; here are needed those things hardest to find in machine-made goods and that, therefore, repay the knowledge, skill and time that go into the making of a fine hand-done fabric.

Some years ago I had the interesting experience of weaving curtains for the living room of a newly finished house. The walls were a soft golden shade, refined and not obtrusive; the woodwork and beams of the "chapel" ceiling were the natural walnut with a wax finish; the whole a receptive background for the right amount of brilliance. It had not been possible to buy anything that would give the desired effect, as the curtains should harmonize with a beautiful old India shawl.

Matching the color was just a matter of selection from the Bernat crewel color line; a sample made with these crewels in shades of scarlet, prune, bronze green, dull blue and a cool gray, on a gold linen floss warp, could not be distinguished from the shawl the length of the room away. But a threading that would give the harmonious pattern was more difficult to find. I finally worked out an eight-heddle overshot draft that in the weaving gave a rich floral effect which successfully recalled the reverse-curves in the shawl pattern, and the curtains, when hung, took their proper place in the room most satisfactorily.

This experience was an outstanding example of the way in which hand-weaving is able to solve some of the more acute problems of interior decoration. This peculiar usefulness is clearly shown in the furnishings of carefully planned rooms where the architectural lines and structure are so complete that every detail must be in harmony; and not less does hand-weaving serve as nothing else can where pillows or other small articles of just the right color or colors "bring together" the many hues in a room that houses the varied furniture and ornaments accumulated through years of living and necessary for use or sentiment.

These things being so evident, just why hand-weaving is not more considered by interior decorators has puzzled me. Perhaps it is because the selection of textiles is often left with the idea of finding just the right thing at the last moment, too late for the weaver to make the necessary samples, so that the only resource is the variety of fine machine-made materials, regardless of the fact that they are less durable, and often more expensive, than hand-woven fabrics of much more exciting texture and color. Of course the weaver of such textiles must be sensitive about color and design, adaptable in carrying out the decorator's ideas, and equally of course samples are needed, more than the weaver usually has on hand.

With this thought of samples in mind, I have spent some

time recently working out a few pieces for such use. I have been using raw silk for most of them, for warp, and in many cases for weft, too; the material when finished is such a beautiful white and, though heavy, is soft enough to hang in the nicest folds when warp and weft are properly related. As warp this yarn is especially useful; it is quickly and easily handled; does not kink, fray or tangle; stands a lot of tension without breaking and shrinks very little when washed. This washing, by the way, is as necessary as for linen, and the ironing while damp brings out the soft lustre in the same way.

These samples made entirely of the raw silk in various combinations of plain weaves and twills are fabrics that should appeal to interior decorators whose favorite scheme is the all-white rooms now so popular but, believing that this beauty of texture and color could be retained and perhaps enhanced by a "shadow" pattern, a mere outline of color winding its way through the silk, I recalled in searching for the proper threading the eight-heddle draft which I had worked out for the richly colored curtains previously made. I found it had the possibilities I wanted, and I give the draft and a description of the use I have just made of it, in this silk material toned by the color of the pattern, believing that other weavers can make many interesting modifications of it.

The warp was raw silk of the finer "grist," about the equivalent of linen floss, set 20 to the inch and threaded according to diagram No. 1. The pattern weft was Bernat's Fabric spun in a medium mulberry shade, and for tabby I used the raw silk in a much heavier weight than the warp. Tabby of the same weight as the warp, woven once each way between pattern shots, would probably give about the same effect in spreading the pattern. The treadling can probably be followed from the illustration—the center panel of Illustration No. 3—as it is most simple, but I give it below for convenience:

Treadle 1	once	Treadle 1	twice
" 8	twice	" 2	"
" 7	"	" 3	"
" 6	"	" 4	"
" 5	"	" 5	"
" 4	"	" 6	"
" 3	"	" 7	"
" 2	"	" 8	"
" 1	"		
" 8	once		Repeat

If still less pattern is desired, either treadles 1 or 8, repeated for as many inches as required, making long stem-like lines connecting the flower forms—or half-flower figures—should work well.

Illustration No. 1 shows the same threading woven for a heavy border, to be used if and where the shadowy pattern needs some emphasis. This was done with Bernat's peasant wool in a brown that was so toned with blue as to be almost

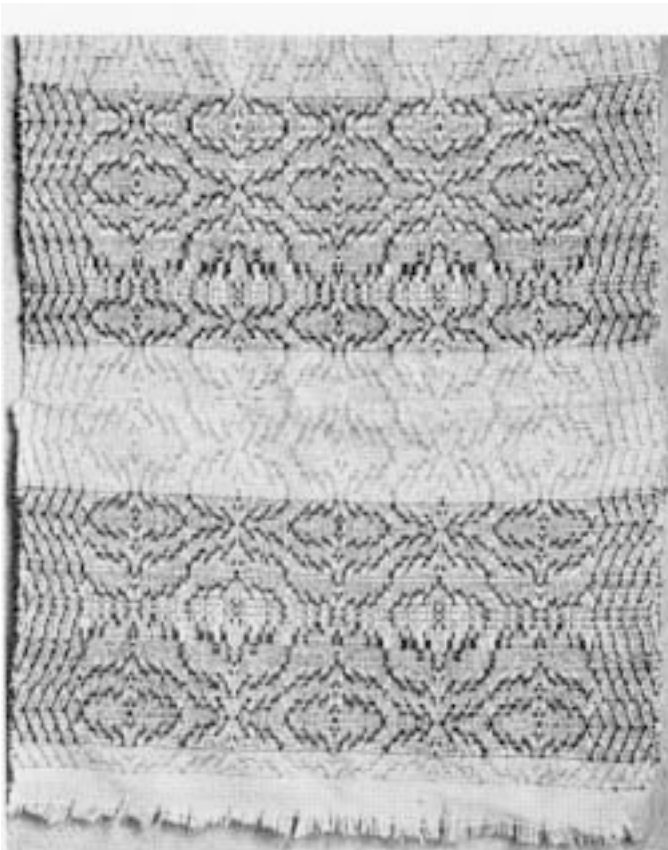


Illustration No. 1

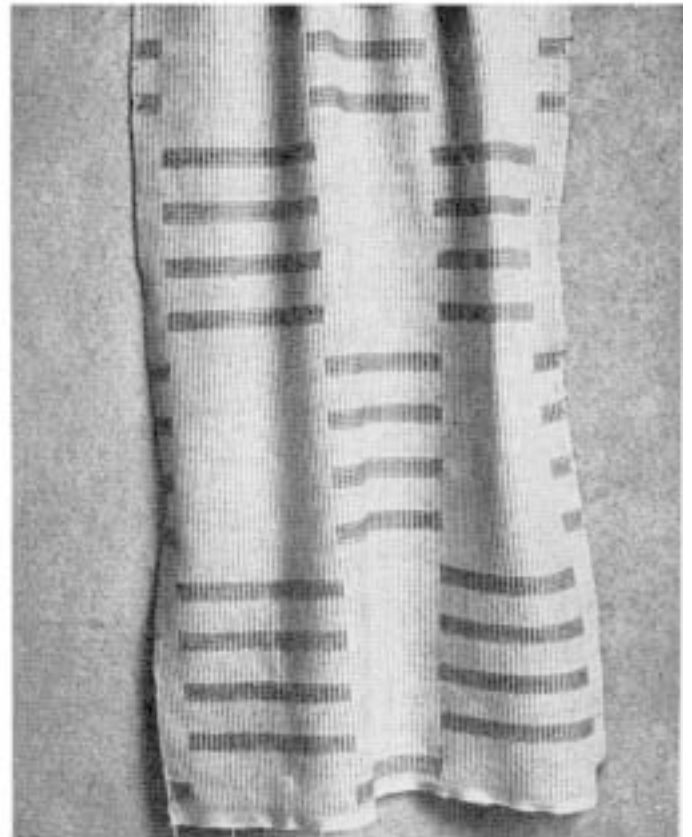
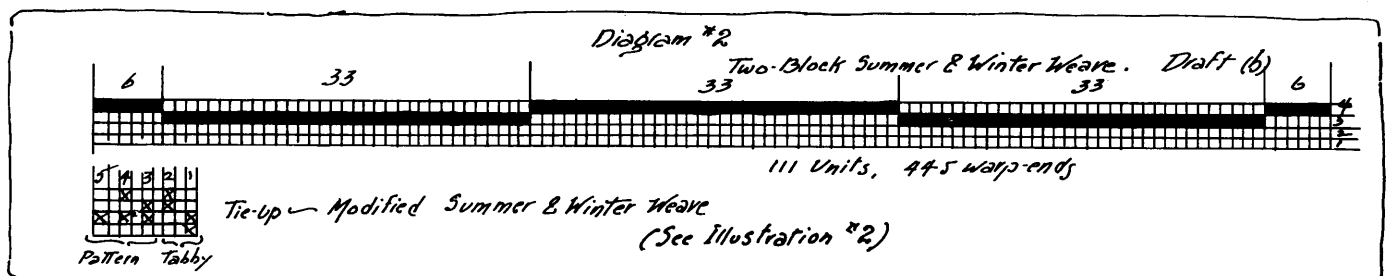
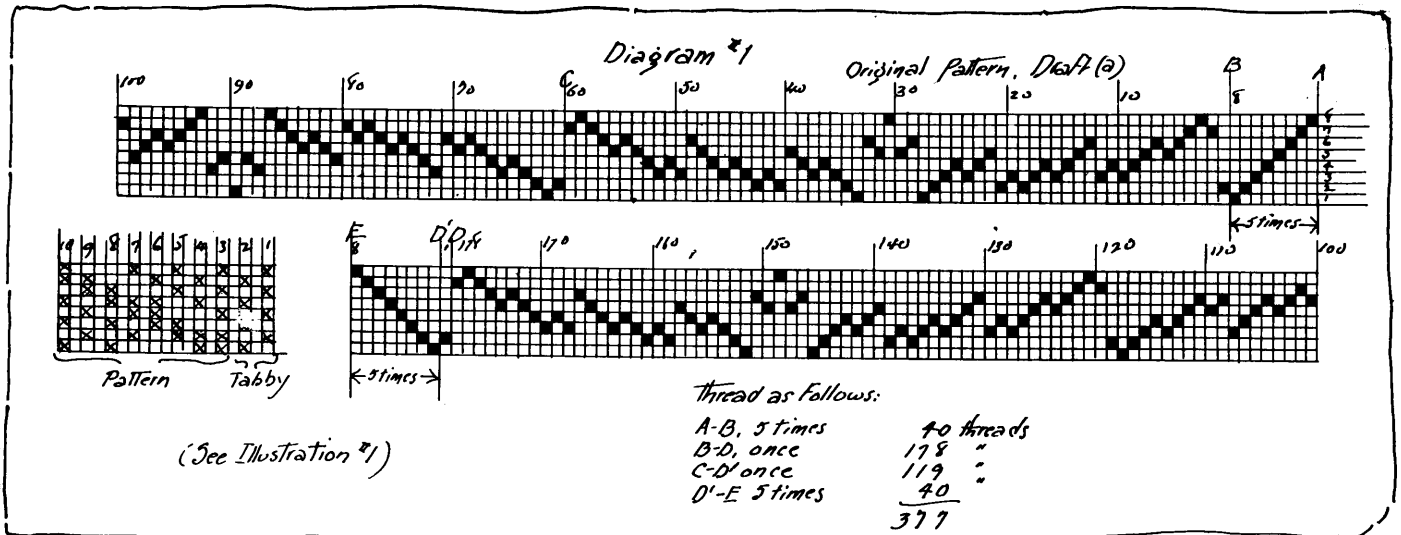


Illustration No. 2



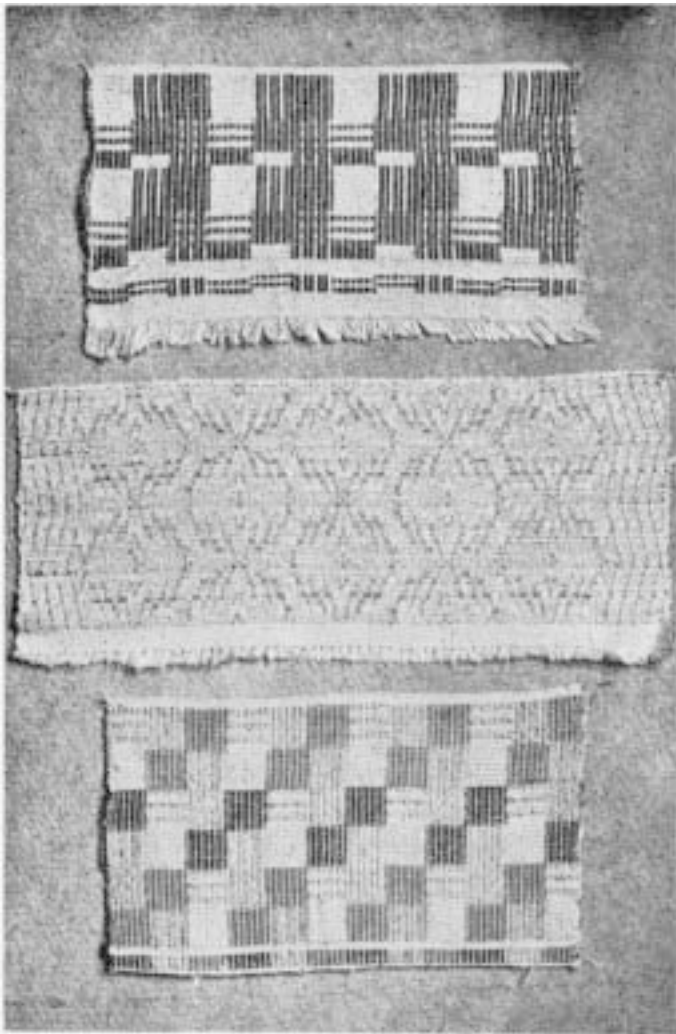
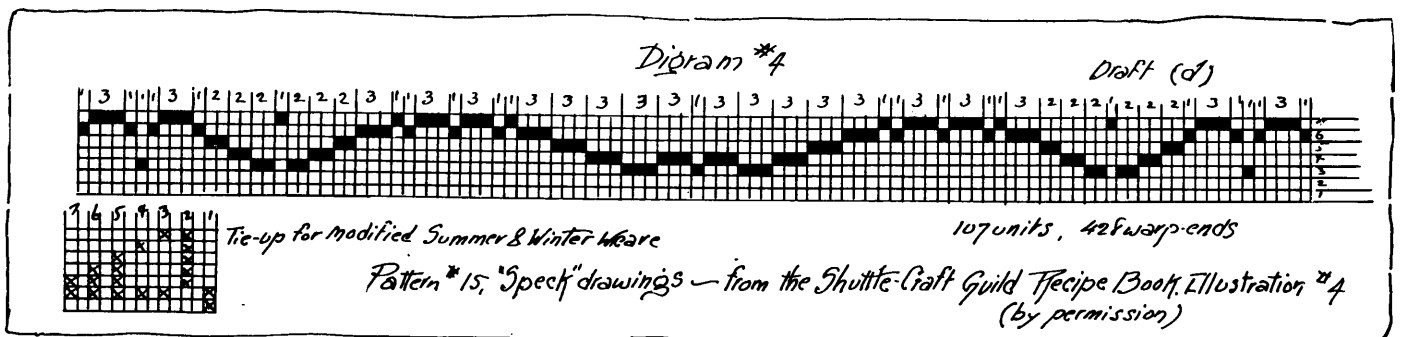
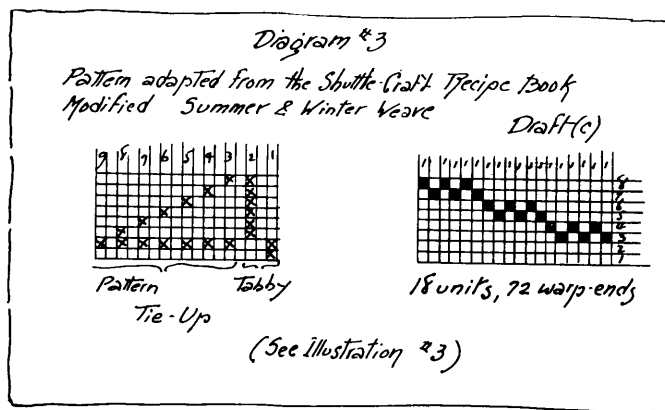


Illustration No. 3



Illustration No. 4



a dark mulberry, and formed a good contrast with the oyster white of the silk.

Done in the fine and coarse spun silk, with a very fine pattern weft (set, of course, much closer in the reed), it would find many uses and, though it is an overshot threading, the "skips" are not prohibitive of its use, even with the heavier warp, for curtains and some upholsterings.

Of course there is a wide range of color possibilities for this and other patterns that could be made to "sprangle" sufficiently—gold, silver, medium blues, greens and oranges with white, or light tones woven on a darker background—and either silk or linen could be used for the pattern weft, provided only that it be fine enough. Such patterns are harmonious with the furniture and architecture of rooms in any of the styles which have been affected by Persian motifs in textiles, *i.e.*, Italian, Spanish, old French or modified Oriental settings.

But hand-weaving is not confined to any one style, and has the versatility to carry out the effects of very different types of architecture and furnishings—its different techniques affording a wide scope. The summer and winter weave—for one—both in its usual and in its modified form, can be wrought into all manner of designs, can be as bold and as modernistic rectangular—or as fine and unobtrusive—as one pleases, making always a firm and durable fabric. And the crackle weave, also, is a dependable weave for upholstery and all kinds of furnishings. The piece illustrated in Illustration No. 2, suitable for davenport covering or rather heavy draperies, could have been done in either of these weaves. I used the modified summer and winter, following the threading in Diagram No. 2.

The warp is the finer raw silk, sleyed double in a nine-dent reed, and it is woven with Bernat crewel in a dull gold, wound double; tabby same as warp. Treading:

Treadle 5	16 ×	}	four times
" 4	8 ×		
Treadle 5	16 ×	}	" "
" 3	8 ×		

The pillow cover shown in Illustration No. 4 was designed in color and weave to accompany the striped sample. The threading is taken from the "Speck Book of Drawings," as given in Mrs. Mary M. Atwater's *The Shuttle-Craft Guild Recipe Book*, Series I, No. 13, Diagram No. 4. Warp same as the foregoing, but the weft colors are lighter and darker shades in the same sequence,—the light one a soft yellow and the dark a cinnamon brown. Tabby used for this piece is Perle cotton No. 20, in a dull gold, about the value of the gold weft in the other piece. The back of the pillow is woven in plain stripes, each stripe matching in width the corresponding pattern stripe on the face of the pillow. These colors sound rather vivid, but, modified by the dull white of the silk and in the proper surroundings, all this yellow, gold and red-brown is not too "hot."

The pattern is such a beautiful one I used it for another sample pillow cover, which is not illustrated, as it would not photograph; it is as silvery as the other is gold. In this one the heavy raw silk is used for the pattern shot, with a cool, bright green silk tabby for the lighter portions of the pattern and a dark blue silk tabby for the dark parts. The effect is frosty, the tabby shots being so modified by the white that they merely bring out the pattern without changing the silveriness of the surface. The pattern weft and the tabby

silks being coarse in proportion to the warp made an interesting change in the texture.

The other pieces illustrated, at top and bottom of Illustration No. 3, are done on a threading given on No. 22, Series III, of Mrs. Atwater's *The Shuttle-Craft Guild Recipe Book*, Diagram No. 3. The warp for these is also fine raw silk sleyed 16 to inch, the upper one woven: widest block in rust color, next in dusky pink and a bright rose for the narrow block, with a binder of Perle cotton No. 20 in silver gray. The lower piece was done in three shades of gray—crewel, wound double, for the middle and darker shades and a heavy silver gray silk for the lighter; tabby for this was also the fine gray mercerized cotton. With the three shuttles used for each pattern shot, the resulting fabric is thick, but it is not stiff nor unwieldy, and would make a most durable covering. A piece done like this gray one, except that the pattern weft, as well as the warp, was the raw silk, with the fine gray tabby, is also effective, the gray tabby toning it to a pale silver on the warp-face blocks.

But one need not have, of necessity, fine and expensive furnishings as a background for hand-woven textiles, nor expensive materials to work with; nothing could be more satisfactory in a simply furnished room than the semi-transparent curtains that can be made with mercerized cotton. We have some woven on the threading given on page 10 of the *HANDICRAFTER* for February, 1928, for which we used just the 14-thread center repeat for the entire width of the curtains, with the exception of plain 2-inch stripes at each edge and at 12 inches inside each edge; these stripes were warped in gold mercerized cotton, No. 5; natural mercerized, of the same size, being used for the balance of the warp. The same natural mercerized was used for weft, except for a band of gold about 14 inches from the top, with another gold band at the window sill, followed by a border in dull blue and a hem in gold. They are most practical and good-looking.

Still less expensive are some porch curtains now in the making. The warp for these is the ordinary cotton and jute mixture used in monk's cloth, threaded 24 to the inch—three to each heddle and dent, using an eight reed—and for weft a cotton filler in white. The threading is the simple twill, 1, 2, 3, 4, and the harnesses are tied one to each treadle, allowing reverse treading on a four-heddle loom.

Treading:			
2 & 3 & 4	once	}	Repeat for 7¼ inches
1 & 3 & 4	"		
1 & 2 & 4	"		
1 & 2 & 3	"		
4	"	}	" " 2½ "
3	"		
2	"		
1	"		

Repeat both blocks for length of curtain.

This reverses the twill both as to direction and as to warp and weft, and we hope the curtains will look as well when hung as they do on the loom. The porch walls are painted ivory, with dark green window trim, a panel above the windows in tile red, with a tile red stain on the window sills. The north windows look out on a very small park, which is mostly tall, old fir trees, and east to a snow-capped mountain, making it necessary that the curtains be quiet in color. In other situations, shots of bright color could be used effectively in the twill, and the material still be very inexpensive and quickly made.

New Techniques in Summer and Winter Weave

BY MARY M. ATWATER

THE summer-and-winter weave in its classic form is probably familiar to most readers of *THE HANDICRAFTER*—if not, detailed directions may be found elsewhere (in various articles that have appeared from time to time in *THE HANDICRAFTER* and in the *Shuttle-Craft Book of American Hand-Weaving*). In this article it is proposed to describe some ways of using this interesting old weave that do not appear to have been practised by the old-time weavers.

These new techniques were developed from an experiment in weaving a summer-and-winter threading “on opposites,” using a pattern color and a background color as weft, without a tabby.

Take, for instance, the simple two-block pattern shown in Diagram No. 1 (this is pattern 159, page 218 of the *Shuttle-Craft Book*). Treadle the first block of the pattern as follows:

Treadle 1, pattern color; treadle 3, background color.

Treadle 2, pattern color; treadle 4, background color.

Repeat as required to make the first block square. Weave the second block with exactly the same succession of shots, but reverse the colors.

A fairly coarse warp should be used for this weave, set further apart than for ordinary pattern weaving. The weft should be fine in comparison to the warp, and if well beaten up the warp will be entirely covered and a heavy double-face fabric will result—alike on both sides except that the colors will be reversed. A warp of No. 5 Perle cotton set not closer than 12 ends to the inch, with weft of Shetland yarn or material of similar weight, will give the effect described.

For this weave the warp should be kept stretched tighter than for ordinary weaving and great care must be taken not to narrow in the fabric unduly. In order to have a good edge it is advisable to thread several repeats of the twill threading—1, 2, 3, 4—as a selvage on each side of the piece.

Treadle pattern (b) as follows:

First block:

Treadle 1, pattern color; treadle 3, background.

Treadle 2, pattern; treadle 4, background.

Second block:

Treadle 5, pattern; treadle 7, background.

Treadle 6, pattern; treadle 8, background.

Third block:

Treadle 3, pattern; treadle 1, background.

Treadle 4, pattern; treadle 2, background.

The pattern is made up of these three blocks.

Three colors may be used in this pattern—two pattern colors and the background—the first block being in one pattern color and the other two blocks in a different shade for the pattern shots. If two pattern colors are used, however, the effect on the wrong side will be confused and the fabric will have to be used right side up exclusively.

If desired, a tabby may be woven with this weave, and adds to the stability of the fabric though it shows very little. A tabby shot should be woven after each pair of pattern shots.

In summer-and-winter weave each block of the threading can be woven independently of the others, and this makes it possible to produce very interesting color effects in some of the more elaborate pattern—those of six or eight blocks. A different color might be used for each block if desired, though as a rule it is advisable to limit the effect to three or four colors. For instance, two different colors may be used for the figures of the pattern and a third color for the background. To weave in this manner, weave a shot of each color and then a tabby. By this method two different figures may be woven at the same time, using different colors, and interesting shaded effects are possible. If each block of the pattern is woven on a pattern shed, with the warp set quite far apart and the weft well beaten up, an effect quite like tapestry may be produced—though on one side of the fabric only. The reverse side will have a confused effect due to the overlapping of the various colors. On a warp at the normal setting the background blocks need not be woven with a pattern shot unless desired.

When weaving a pattern of six or more blocks in a variety of colors, many more sheds are used than there are treadles on any ordinary loom. Of course there is no difficulty in making any shed desired on a loom such as the *Structo No. 750*, in which each harness is controlled by a single hand-lever. To get the same freedom of operation many Scandinavian looms are built with a set of raising cords—one for each harness—that pass over pulleys to the front of the loom where they pass through a board punched with keyhole shaped slots. Each cord is provided with a bead that will pass through the hole, but not through the narrow slot. The cords controlling the harnesses to be raised are drawn down and held in position by engaging the beads in the slots. Such a contrivance could be added to any large loom at small expense.

However, I find that by making a special tie-up, as shown on Diagram No. 2, even a large loom of the “jack” type can be operated without much difficulty through the foot-treadles. It is, of course, necessary to hold down several treadles at a time to produce the various sheds desired. Some of the sheds are somewhat difficult to find with the feet, and, if one of these difficult sheds is used a good deal in the pattern being woven, a special treadle may be tied to produce it.

In making a complete tie-up on a jack loom, each treadle is ordinarily tied to either raise or sink each harness. However, as in a loom of this type the warp lies flat on the shuttle-race when the loom is at rest, the sinking ties serve merely to prevent the sunk harnesses from rising. If the harnesses are weighted the sinking ties may be omitted. Some looms are built to operate in this manner—with rising ties only. I find that even on a large loom built with a double set of lamms it is possible to omit the sinking ties on most of the treadles. Making a complete tie-up to the two tabby treadles usually weights the harnesses sufficiently to keep them down. If additional weight should be required—with

a heavy warp—this can be provided in a simple manner by tying an additional treadle—(w) on the diagram—with a sinking tie to each harness. This treadle, of course, does not open a shed and is not used in weaving.

In the summer-and-winter weave as ordinarily woven, two different sheds are used for each block of the pattern. The weave can be simplified by using the same tie-harness for all pattern shots. This produces a ridged effect, different from the conventional texture of this weave, but entirely satisfactory. Each pattern shed may then be tied to the same tie-harness, as in the tie-up given. For elaborate color-effects this method is advised.

The large couch-cover shown in the illustration was woven in this manner. The warp of this piece is spun silk in black set at 30 ends to the inch, with tabby of the same material. The pattern is woven in rayon art-silk in an old gold shade in combination with homespun wool in a henna color. No background color was used. The pattern is "Botanical Garden" from the Shuttle-Craft Guild Recipe Book.

The treadling can be followed without difficulty from

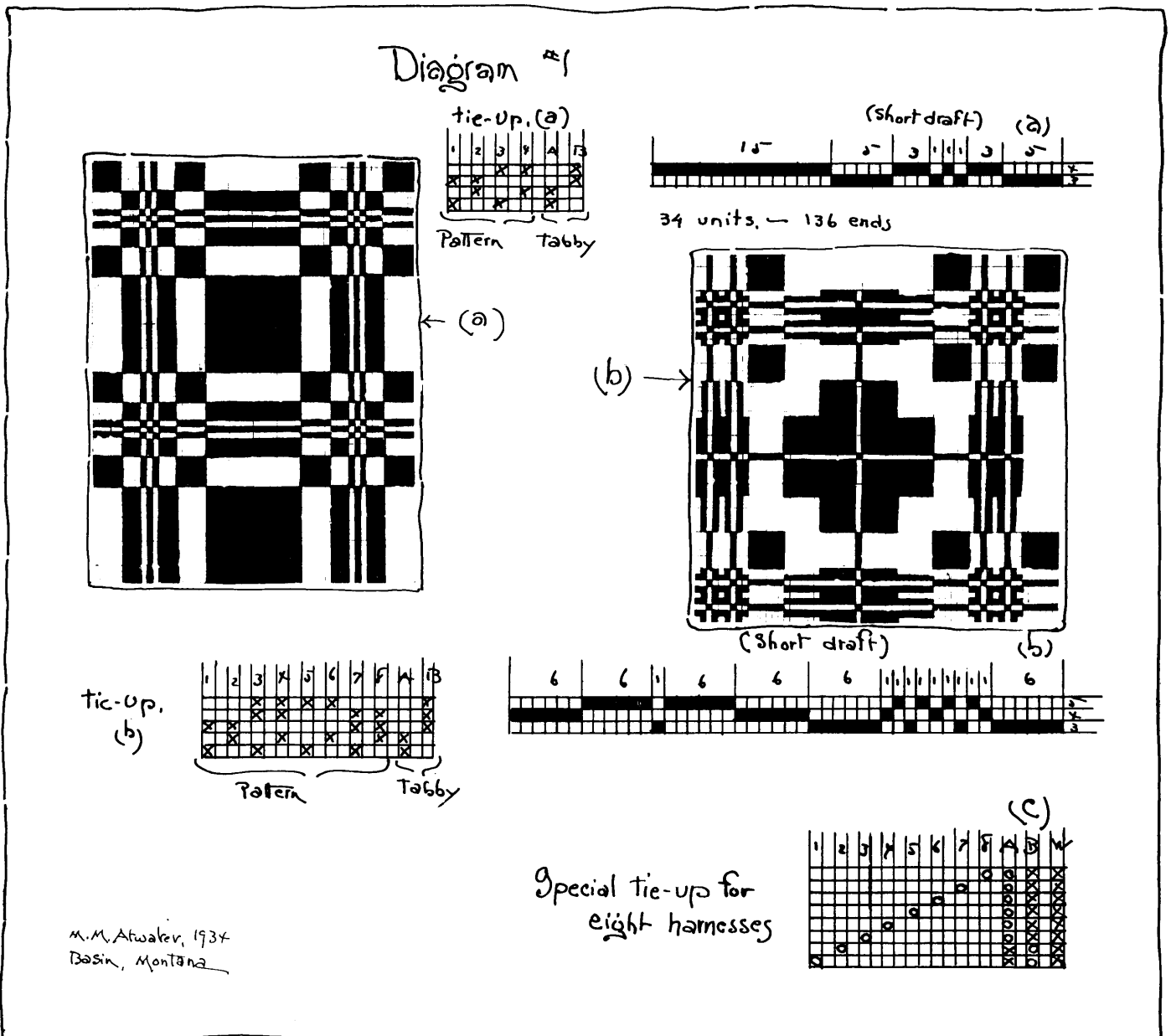
the diagram. In the diagram the blocks woven in rayon are indicated by shading and the blocks in wool by solid black. The perpendicular rulings indicate the pattern blocks.

The arrangement, it will be noted, is in fifteen sections. Of these the top and bottom borders and stripes 3, 5, 7, 9, 11 and 13 are similar, woven in rayon on treadle 1 with narrow interpolations in wool, on one or another of the pattern sheds. Sections 2, 6, 10 and 14 are narrow stripes in pattern work, all different, with three broad sections of pattern work at 4, 8 and 12. The background stripes separating the sections are woven on treadle 2, in rayon, which carries the side borders—not illustrated on the diagram.

Detailed treadling directions for section No. 2 are given below, to serve as a guide for the rest of the weaving. It will be found, however, that it is easier to weave by following the illustration than by following treadling directions.

Treadle 2, two double shots in rayon, or four single shots, with tabby between.

Blocks a and f, rayon, two double shots (or four single shots) with tabby. To weave blocks a and f, of course, raise



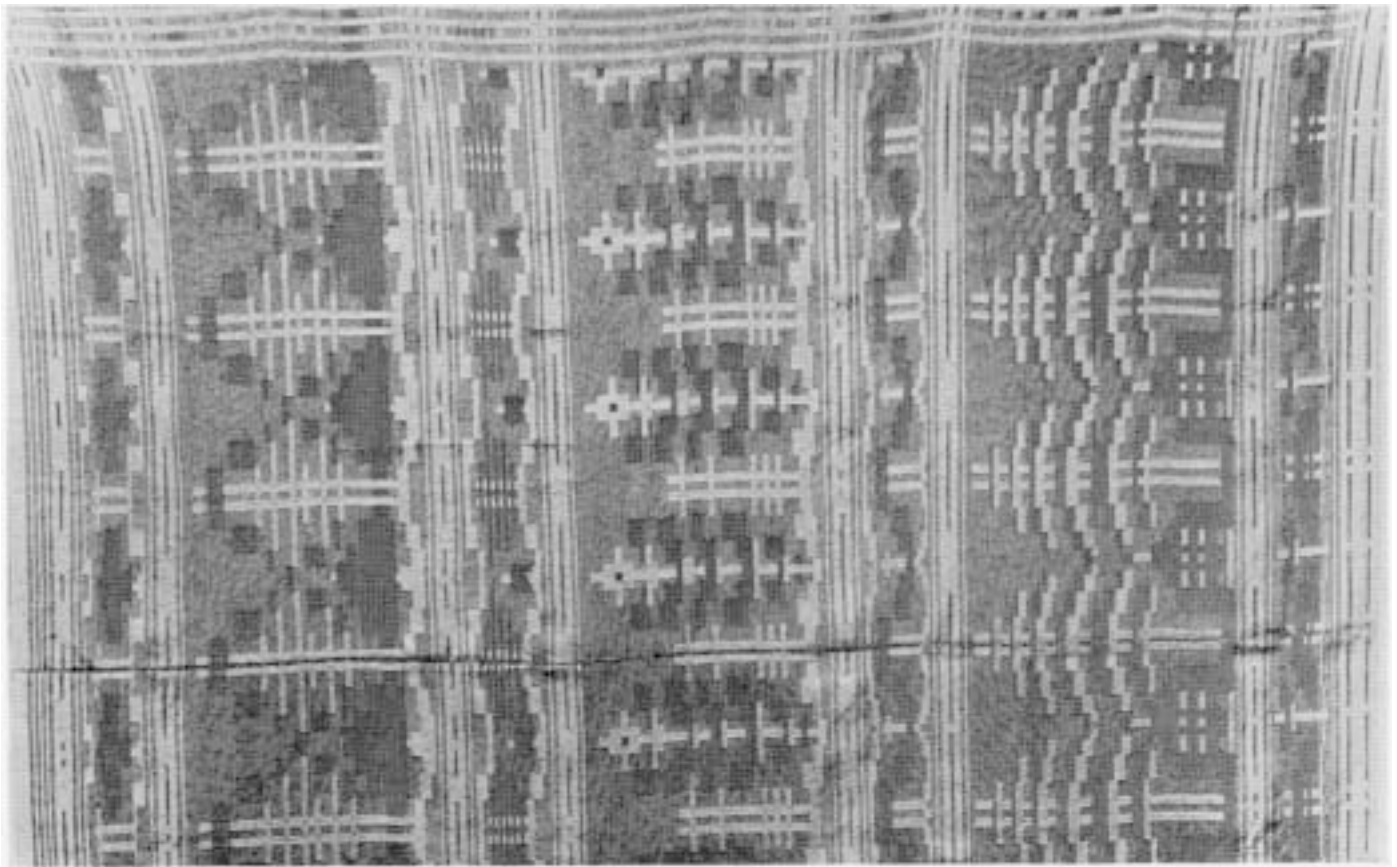


Illustration No. 1. The "Botanical Garden" Couch Cover

all the other pattern blocks by holding down treadles 4, 5, 6, and 7.

Blocks a, b, c and f, rayon, two double shots as above (treadles 6 and 7).

Blocks a, d, e and f, rayon, two double shots (treadles 4 and 5).

Blocks a and f, rayon, two double shots (treadles 4, 5, 6, 7).

Blocks c and d, wool; blocks a and f, rayon—four double shots of each. (Weave: wool shot, rayon shot, tabby, and repeat.)

Blocks c, d, e, f, wool; block a, rayon—two double shots.

Block d, wool; blocks a and f, rayon—two double shots.

Blocks d, e, f, wool; block a, rayon—four double shots.

Blocks e, f, wool; block a, rayon—two double shots.

Blocks e, f, wool; blocks a, b, rayon—two double shots.

Blocks a, b, c, wool; block f, rayon—four double shots.

Block c, wool; block a, rayon—four double shots.

Block a, rayon—four double shots.

Treadle 2, rayon—two double shots.

This completes section No. 2 of the design, and sufficiently illustrates the manner of weaving. If woven in single shots a single tabby shot should be thrown between pairs of pattern shots. The weaving may, however, be done more rapidly by using double strands of pattern weft as indicated. In this case both the A and B tabby shots should be thrown between the double shots of pattern weft. The effect is almost exactly the same as when weaving with single strands of pattern weft, as one of the tabby shots always slides under the pattern weft.

When woven as above it will be found that the background effect is different over the parts woven only in rayon from

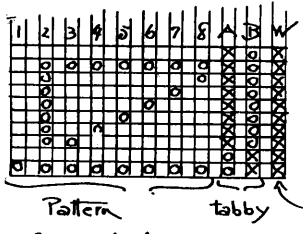
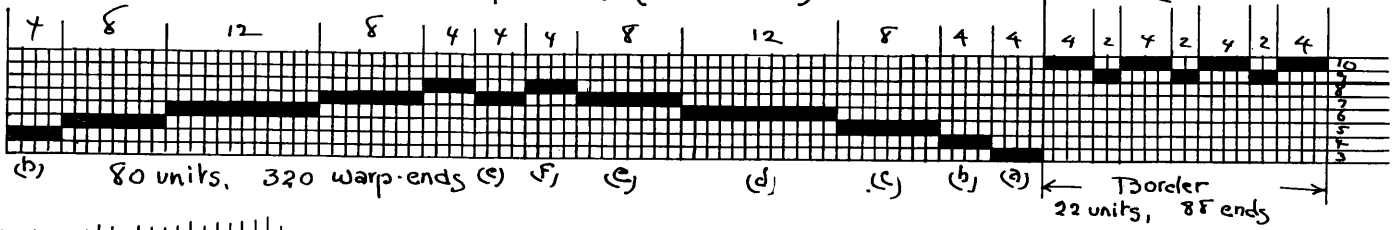
the parts woven in both colors. If this is found undesirable, tie an additional treadle to raise all the harnesses but harness No. 2—the same as treadle 2 with an additional tie to raise harness No. 10. Weave a wool shot on this treadle with all rayon shots when only rayon appears in the pattern, as in the first part of the treading as given above. This additional shot need not be used when rayon is woven for the plain stripes on treadle 1, as the ground is entirely covered.

A background color could be woven with this pattern if desired: weave the pattern blocks as indicated and weave the remaining blocks in the background color. If this is done the extra wool shots need not be woven. For instance, when weaving blocks a and f in rayon for the first line of the pattern, weave blocks b, c, d, and e in background color.

As is often the case in weaving, all this sounds far more complicated than it proves in practise on the loom.

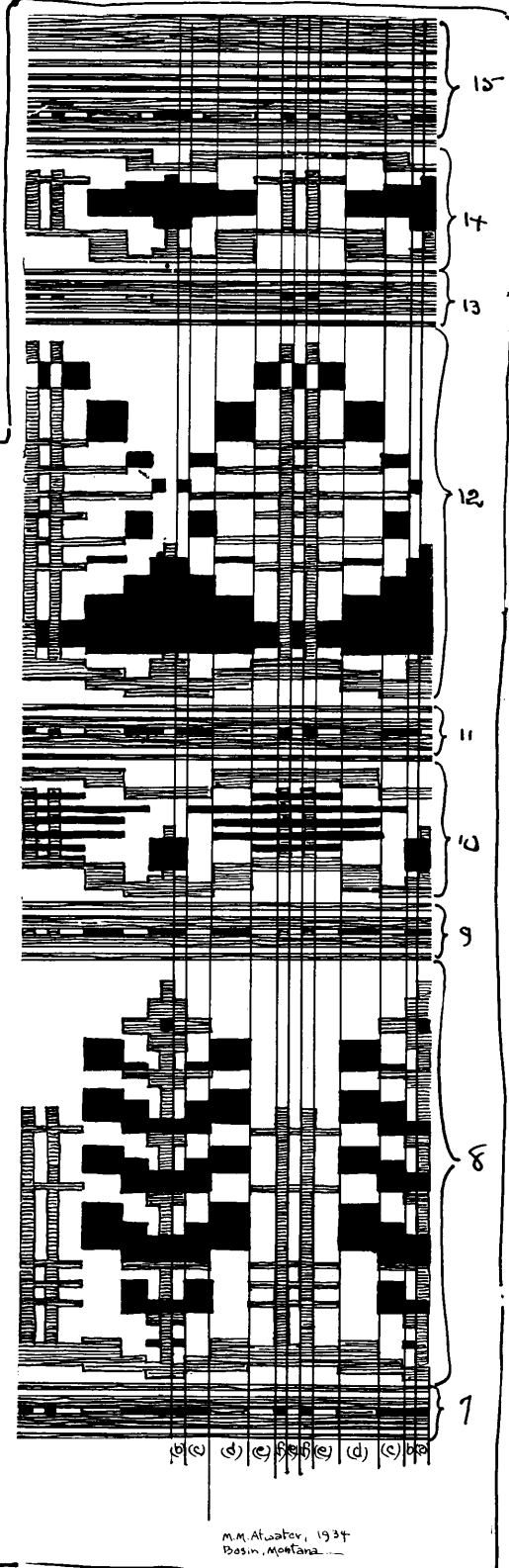
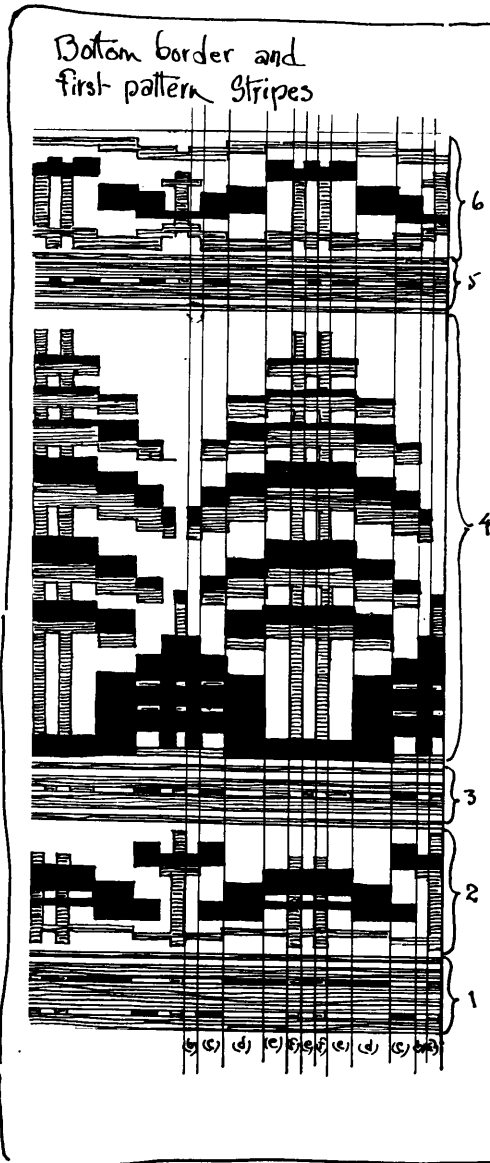
The "Botanical Garden" threading—like all simple arrangements of blocks in summer-and-winter weave—offers practically infinite possibilities for variation. It can be woven in entirely conventional "spot" patterns and symmetrical figures of the Colonial type, and in many colors. And whole forests of strange trees and rows of preposterous flowers can be produced. There are times when we enjoy following the old paths in a wholly conventional manner, and there are times when we like to give the imagination free play and produce something unlike anything ever seen before on sea or land. Weaving gives one the chance to express either mood in a nice solid fabric that will help to decorate life and make it more comfortable. There is something very satisfying about that.

"Botanical Garden" (short draft) Summer & Winter Weave



Pattern tabby Weight
 Special tie-up.
 o Raising ties
 x Sinking ties

Diagram #2 - threading and treadling of couch-cover. Parts of the design shown in solid black, woven in henna wool; shaded portions woven in gold rayon. Note the perpendicular ruling, which indicates the blocks of the pattern



M.M. Atwater, 1934
 Boz. in. Montana

The Willow Cottage Weavers

BY WALDON FAWCETT

DEPRECIATION of the dollar bids fair to become, for the hand-weaving crafts, not a controversial political question but a practical business stimulant. This is the conviction of Mr. M. B. Melendy, proprietor of Willow Cottage Weavers at Nantucket Island, Mass. Conviction that the upset in international exchange spells opportunity for creative loomsmen has come to Mr. Melendy abruptly as a result of recent experiences.

A representative of a leading producer of high-grade garments, who has always specialized in Scotch fabrics, recently journeyed to Nantucket, open to conversion to the Willow Cottage line. He explained that, with the dollar penalized in international trade, it is impossible to provide Scotch homespun suitings at prices within the range which discriminating tweed-wearers have been accustomed to pay. This incident was but one straw which indicates the direction of the wind. Under the New Deal, it is likely that Sweden must surrender to American hand-weavers a goodly share of that exportation to this country which, in one recent year, reached a valuation far in excess of a million dollars.

Handed, by the play of outside forces, this golden opportunity, the head of the Willow Cottage Weavers believes that complete realization of the benefits will hinge upon just one contingency,—viz., the responsibility of American hand-weavers for the education of the American public. Interlocked with this urge for missionary work to acquaint laymen with the characteristics, and the advantages of high-grade, hand-woven fabrics is the need for standardization of quality. Mr. Melendy, in common with other crusaders for integrity in hand-loomed textiles, bemoans the fact that the label "Hand-Woven" does not always signify that inherent virtue which a trusting public has been wont to impute.

Jealous for the pride of their craft, Mr. Melendy and his associates do not feel that this goal of standardized and conscientiously-maintained quality is by any means impossible of attainment. Virtually all the institutions now producing hand-woven fabrics on a commercial scale are loyal to high ideals, albeit the grades of their several products may not be standardized in uniformity. Mainly, it is the small producers, many of them newly-recruited and not yet conscious of their dependence upon quality-won good will, who are guilty of compromise with the traditions of the craft. Even without any attempt at craft organization or the benefit of any code authority, tacit agreements for quality maintenance may be expected to follow the sharpening of the public's powers of discrimination.

That the keeping of quality-faith is an excellent cornerstone on which to build an enterprise in hand-weaving is attested by the history of the Willow Cottage group and its progress from a single loom in 1921 to the present plant of twelve-throw shuttle 45-inch hand looms. Almost every handicraft venture is, of necessity, an intimate business. The Willow Cottage Weavers is conspicuously so, and thereby hangs an object lesson. The aid of advertising has been invoked now and again, but with indifferent success. Mainly

the present volume of production is a tribute to the cultivation of regular, continuing customers and to the persuasion of word-of-mouth recommendation.

Although there was an element of chance in his own choice, Master Weaver Melendy is thoroughly convinced of the superiority of the well-chosen resort as the site of a hand-weaving establishment. When he decided to turn his hobby, or avocation, of hand-weaving into a vocation, Mr. Melendy settled in Nantucket because he owned there a summer home known as Willow Cottage. If it were to be done over, his choice would be deliberate. Not that he assumes that just any old resort is a profitable setting for a loom, but rather that experience has proven the advantages of a community where a procession of transients from all parts of the country moves against a permanent background made up of a numerous colony, comprising persons of taste who have chosen the community as a place of retirement or for residence during the major portion of each year.

Successfully capitalized as the Nantucket scene has been, Nantucket is but a base of operations for the marketing of the product of the Willow Cottage looms. A "traveling exhibition" is sent on tour each year, visiting a number of cities and it is significant that, as a result of experience in conducting these forays, Mr. Melendy has a strong preference for the handicraft exhibition-sale staged in a vacant store room or other independent setting rather than in other more conventional environment. To the Willow Cottage shows visitors are drawn, not by conventional advertising, but by invitations mailed to hand-picked lists.

In addition to the direct—retail—attack via exhibition, a representative of the Willow Cottage Weavers periodically visits New York and other large cities to contact interior decorators and other quantity purchasers of upholstery fabrics, hangings, etc. Just here, if you please, is an opportune place to stress the versatility of the hand-woven line. On the one hand there is a consistent output of yardage for suits, dresses, coats and hats. Balancing this and contributing elasticity to the sales effort is a category of specialties comprising neckties, mufflers, bed spreads, bureau sets, dresser sets, runners, mats and scarves of various classes. In the third dimension, as the very backbone of the business, behold the production of upholstery fabrics,—a service that must, on occasion, respond to formidable volume demand, as when the notable dormitory at Cornell was to be outfitted. A service, also, that now and again faces severe exactions when original upholstery designs are needed to complement in pattern and color, period designs in furniture.

Design, by the by, is an asset for which the Melendy family have given of their time and substance. Fully 95 per cent of all designs are original and, inasmuch as no striking, distinctive design is continued for more than a single season, the rotation fixes the tempo of inspiration. In determination to keep in step with style trends, Mr. Melendy makes scouting expeditions to New York several times a year. There he gives particular attention to the slant of color preferences.

The leanings of the British colorists are taken into account, but principally it is French progress, colorwise, which is watched to give keys to the hand-loom production for the ensuing season. In the initial stages, Mrs. Melendy personally supervised the finishing of all the fabrics turned out by the Willow Cottage Weavers, and she now fashions the models which afford basis for the specifications for apparel fabrics.

Young women do the weaving at the Willow Cottage plant. All are trained at the establishment. The apprenticeship may, under exceptional circumstances, be so short as two months. Usually it is longer. During this period the operative is on weekly salary rather above the local standard. The rate is high also in comparison to that paid in some other similar establishments, but Mr. Melendy feels that he is repaid by the class of applicants attracted. Seasoned operatives are all on the piece-work basis, and to this plan of payment a fresh recruit is transferred so soon as her earnings exceed the basic wage. Some of the operatives have been engaged on these looms for periods up to ten years and have proficiency in proportion.

A conservative policy in sampling to consumers is followed by the Willow Cottage management simply because it is realized that too lavish sampling is one of the insidious leaks for a handicraft enterprise. Swatches are sent, of course,

to wholesale buyers, and complete outfits of samples are supplied to the direct saleswomen who are acting as exclusive agents for the fabrics in allotted territories,—a form of selling that is affording one of the most satisfactory methods of distribution open to the hand-woven line.

Price policies are most carefully maintained. Prices are revised semi-annually, in the spring and in the late autumn. Once fixed prices are not changed in the interim, even though, as has happened in some instances, there is a rise in the price of material or operating costs. In the average instance in which Willow Cottage fabrics are converted into wearing apparel, etc., no persuasion is needed to induce the garment-maker to carry forward, with his own, the Weavers' label. The Nantucket establishment does, however, supply certain garment manufacturers whose unalterable policy is to permit no identification save their own private brands. An earnest of the mounting distinction which attaches to high-grade hand-woven fabrics is found in the circumstance that not infrequently Mr. Melendy receives a commission to design and produce a special exclusive design in a quantity limited to a single dress or coat pattern. Likewise, for the sake of fabric design-control, such as is not possible in ordinary commercial channels, there have turned to him the designers of the smart fabric hats for women which are so much in vogue.

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