Shuttle Craft Guild Virginia City, Montana
Volume XXIX Number 11 November 1952

3-COLOR TWILL SAMPLER

Warp: Fabri at 28 per inch;
Weft: Fabri at 28 per inch;
Color sett: 2 Colonial blue,
2 Cocoa, 2 Gazelle;
Threading: 4-harness Twill;
Tie-up: Standard.

Border 1
Weft: Cocoa;
Treadle: 1,2,3,4,3,2,
repeat.

Border 2
Weft: Gazelle;
Treadle: a,1,b,3, repeat.

Border 3
Weft: 2 Colonial blue,
2 Gazelle,
2 Cocoa;
Treadle: a,b, repeat.

Border 4
Weft: 3 Gazelle,
2 Colonial blue;
Treadle: 1,2,3,4, repeat.

Border 5
Weft: 2 Cocoa,
2 Gazelle;
Treadle: 1,2,3,4, repeat.

Border 6
Weft: 3 Colonial blue,
3 Gazelle;
Treadle: 1,2,3,4, repeat.

Border 7
Weft: 2 Colonial blue,
2 Cocoa,
2 Gazelle;
Treadle: 1,2,3,4, repeat.

SOURCES OF SUPPLIES FOR WEAVERS

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

LOOMS

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

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

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

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GENERAL WEAVING SERVICES

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

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

MATERIALS

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

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

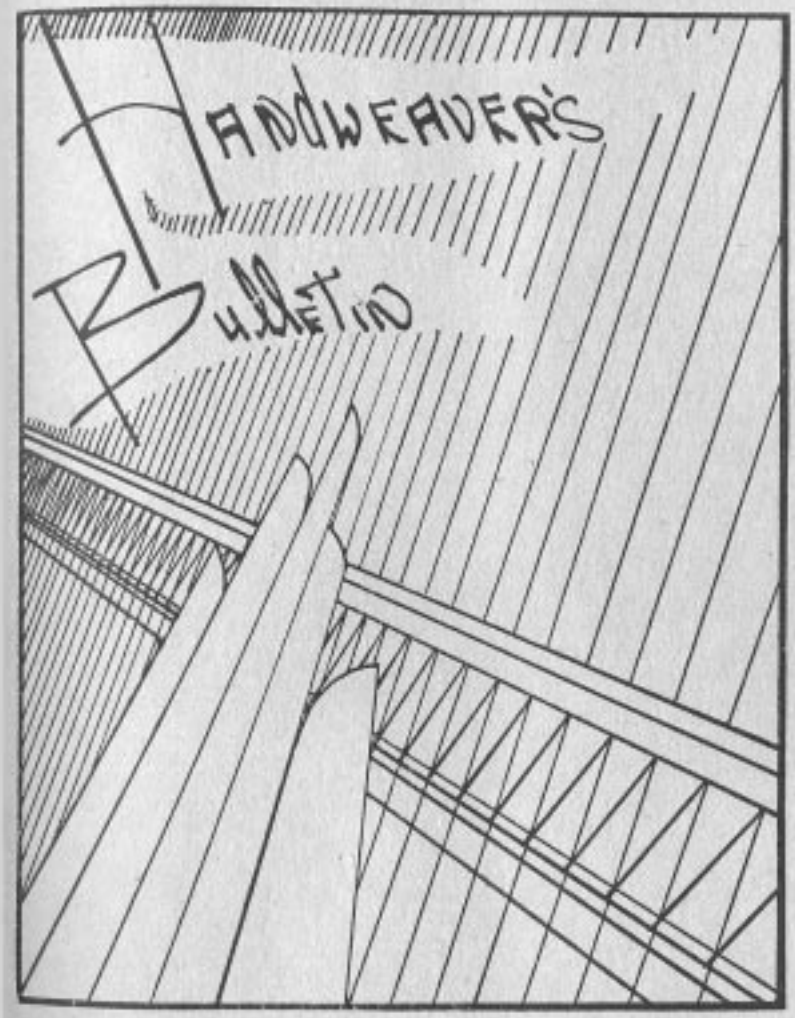
Tinsel Trading Co., 7 W. 36th St., New York 18, N.Y. Metallic yarns, and metallic combinations in all types and colors, including the ever-useful supported metallics.

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

PUBLICATIONS

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

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



Shuttle Craft Guild Virginia City, Montana
Volume XXIX Number 11 November 1952

The Shuttle Craft Guild
HANDWEAVER'S BULLETIN
Published monthly in
Virginia City, Montana, by
Harriet and Martin Tidball

THE TWILL WEAVE

Simplest threading for more than two harnesses, the Twill is a draft which has one thread on each harness, regardless of the number of harnesses employed. The basic 4-harness, 4-thread Twill is probably the most commonly used of all weaves, with the exception of Tabby, and it has the characteristic of any simple weave, extreme versatility.

The Twill Draft: "Should Twill be threaded 1,2,3,4, repeated, or 4,3,2,1, repeated?" is an oft' asked question. As far as the ultimate fabric is concerned, provided the treadle tie-up is correctly coordinated with the threading draft, it makes no difference which way the Twill is threaded. In fact it can be threaded: 1,3,2,4; 1,4,2,3; 4,2,1,3, or in any other arrangement of 4 threads on 4 harnesses which can be devised. The most common arrangements are 1,2,3,4 or 4,3,2,1, with 1,3,2,4 sometimes used when a Broken Twill is desired.

The logical draft is always the best one to use, as through starting with a logical foundation, a clear understanding of the process at hand may be achieved. Logic in a Twill draft, as with most techniques, starting with 1 and proceeding forward, means more than starting with 4 and moving backward. Confusion about this direction arises from the fact that there are three different ways in which drafts are written and interpreted. The handweaver's usual system is to write, read and thread a draft from right to left. The reason for this lies in the field of manual convenience by which the right hand is involved with threading the heddle and the unthreaded heddles and warp ends lie to the left, ready to be selected with the left hand. The left-handed weaver will find it more convenient to write, read and thread drafts from left to right.

The left to right movement is the one which is used in most cases for threading power looms, which

involve somewhat different mechanics from handlooms. Therefore a draft which appears to be written 4,3,2,1 when read from right to left may actually have originally have been written for the power loom, or may have been taken directly or indirectly from a power loom source, and is really a left to right 1,2,3,4 draft.

Another source of confusion arises from the third draft writing convention in which the top line of the draft is called harness 1, the lower section harness 4. This originates in an old European system of numbering harnesses in the direction in which threads emerge from the warp beam, with the back harness numbered 1, the front harness of a 4-harness loom numbered 4. But on this continent, and in fact almost everyplace now, the custom is to number harnesses from front to back so that harness 1 is nearest the weaver as he sits at the loom. Harness numbers on drafts logically correspond to those on the loom, so harness 1 is indicated by the lower space in the draft and harness 4 by the upper. Note the books in which drafts are generally started on the top harness line and seem to have a backward rhythm, and in most cases the sources of the drafts or the training or the author can be traced to either European or power loom sources.

Therefore, the safest conclusion to the problem of backward or forward motion in drafts is that the motion should be forward, but that the draft should conform to the customary drafting and draft-reading habits of the weaver. In most cases this means a right to left draft, with harness 1 indicated in the lowest section, numbered from bottom to top. The wise weaver will make a conversion before threading by rewriting the draft, a simple process. Merely assume that the top harness is numbered 1 and the bottom one 4, and convert this on drafting paper to the bottom space numbered 1 and the top 4. Or read the draft from left to right, but rewrite it to read from right to left.

The Twill Tie-Up: The common 4-harness Twill is known as the 4-harness Balanced Twill, the 2-2 Twill, or the 50-50 Twill. It is woven always with two adjacent harnesses up and two harnesses down, in four overlapping, successive combinations. Therefore in weaving Twill the loom is always balanced, with 2 harnesses up and 2 down, 50% of the warp threads up, 50% down.

Tie-ups are always written and read and made from left to right. Common practice places the first weft float of the Twill over the warp ends threaded on har-

nesses 1 and 2. To achieve this on the counter-balanced (sinking-shed) loom, the first treadle is tied to harnesses 1 and 2. If the loom is jack-type (rising-shed) the first treadle is tied to raise harnesses 3-4 to enable the weft to float over 1-2. In other words, the bottom shed on the first treadle should carry the warp ends threaded on harnesses 1 and 2. The Twill weave progresses by one warp end on each shot, produced by raising one harness forward and eliminating one harness backward on each succeeding treadle. This progression is in a circular motion: from 1 to 2 to 3 to 4 to 1 to 2, etc. Therefore the Twill tie-up for the 4-harness, Balanced Twill on a counter-balanced loom is treadle 1 tied to 1-2, treadle 2 to 2-3, treadle 3 to 3-4, treadle 4 to 4-1. The jack-type loom weaver must learn to think tie-ups in opposites, always connecting the idle harnesses of the counter-balanced tie-up. Therefore the sinking-shed order is: treadle 1 to 3-4, treadle 2 to 4-1, treadle 3 to 1-2, treadle 4 to 2-3. Conventional symbols for the two tie-up systems differ, as the sinking-shed tie-up is indicated by "x" in the tie-up draft and the rising-shed is indicated by "o". A thorough understanding of this simple tie-up system will lay the foundation for an understanding of tie-ups in all techniques.

The common treadling rhythm for the Twill is: treadle 1, 2, 3, 4, and repeat continuously, with one shot in each shed. Tie-up drafts are usually written for this order. However, in many of the European weaving books, and notably in the 1817 J and R Bronson book, the treadle order in the tie-up is given for "walking" the treadles in 1, 3, 2, 4, rotation with treadles 1 and 2 operated by the left foot, treadles 3 and 4 by the right foot. To accomplish this order on a 4-treadle weave one need merely tie the treadle 2 combination to treadle 3, and the treadle 3 combination to treadle 2. The reason for doing this is to increase the physical ease of weaving, reducing the fatigue, and for any long Twill project the weaver will find it advantageous to make the conversion. However, for the sake of discussion, all tie-ups will be considered in the 1, 2, 3, 4 order as they are customarily written.

With the first weft float passing over the 1-2 warp ends, the second over 2-3, the third over 3-4 and the fourth over 4-1, on a 1,2,3,4, right to left threading, the 45 degree diagonal line formed by the twill will extend from right to left, or form a left-hand twill. When following the same order on a warp threaded

from left to right, or 4,3,2,1 from right to left, the 45 degree twill line will extend from left to right, a right-handed twill. In this fact lies another point of discussion among handweavers, some of whom feel strongly that whereas the right-handed twill is characteristic of the power woven fabric, the stamp of a handwoven twill is the left-handed diagonal. This is of no great moment, as some weavers prefer the exact reproduction of the power woven fabric, while others reach for the hand-crafted touch. As a matter of fact, both right-handed and left-handed twills occur in both fabrics.

The direction of a twill line is changed in two manners. The twill may be treadled 4, 3, 2, 1 instead of 1, 2, 3, 4; or the tie-up order may be reversed and the 1, 2, 3, 4 treadling order retained.

DESIGNING TWILL FABRICS

Twill threadings are used for woolen and worsted yardages, as well as for many other types of fabrics. The basic texture of the material is emphasized when a single color is used for both warp and weft, whereas the Twill weave is emphasized if warp and weft are of different colors. In weaving tweeds it is customary to use two colors, and in one statement on Harris Tweed a note was found to the effect that Harris was woven with colored weft on a natural-white warp. Though this is no longer necessarily true, this was no doubt true when yarns were hand spun and vegetable dyed, since the undyed yarns would have been stronger than those which had been processed. In most cases the handweaver need not be concerned about this matter. But the two-color combination is desirable because it strengthens the weave and adds depth to the fabric. The selection of colors is largely a matter of preference and availability, but it should be kept in mind that strongly contrasting colors are to be avoided unless a greyed all-over effect is desired.

Color effects are sometimes introduced into tweed fabrics, and occasionally into worsteds, by the use of a weft yarn which contains flakes or nubs of colors. When woven as Tabby these fabrics are known as Homespun and Hopsacking in the Tabby fabric woven of tweed without nubs. The flake or nub yarns were at one time an economic measure and were used for the cheapest of materials. The yarn was made by spinning in all the

and sweepings from the spinning mill for a many colored yarn. Now the nub yarns are carefully designed and spun, and are used to add interest to an otherwise plain fabric. In most cases they are difficult to handle as warp because the nubs are pulled apart by the heddles and reed. If the warp is wide spaced, the reed is coarse, and the weave is tabby, nub yarn may be used for warp, but may require greasing. A warp arrangement of tweed with every third or fourth thread of nub yarn is easier to handle.

In some cases strongly contrasting color values for warp and weft are desired, where the twill line would give too strong a diagonal effect to the finished garment. This situation may be handled by weaving in Broken Twill. For a Broken Twill the warp may be threaded 1,3,2,4, and the tie-up and weaving order of the plain Twill retained, but the change of threading is not necessary. The change may be made by treadling in 1, 3, 2, 4 order, or by reversing the tie-ups for treadles 1 and 2.

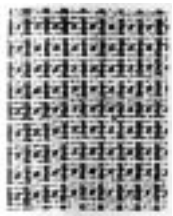
Twill with Tabby: A true Twill is woven on the four twill treadles, but there are special circumstances in which each twill shot may be preceded by a tabby shot. This is true if a very thick, heavy fabric is desired, though this type of overcoat fabric has been woven more successfully by Guild-member Mrs Alice MacDonald through using a Double-Faced Twill similar to the one given in the May 1952 BULLETIN. If the warp setting is too wide to produce a good Twill fabric, the tabby method may be employed. Guild-member Mrs I H Bell submitted as one of her Correspondence Course problems, a coat woven in wide-spaced Twill of rose colored tweed, with a very fine navy blue tweed as tabby. The tabby added body to the textile without greatly increasing the weight. Another circumstance is when the tabby is needed to achieve a special effect, as in the case of the evening coat material woven by Guild-member Dr Edward Gibbs for his wife. With warp and weft of soft, white Angora, a tabby of fine, supported copper-metallic made a fluffy fabric of good body, with a glint of metallic showing throughout. In all such twill with tabby fabrics the 45 degree twill line must be maintained, which means that the tabby is merely an added thread and that twice as many weft shots are thrown per inch as there are warp ends. Twill with tabby is not a common power-loom fabric but is a handweaver's expedient.

Another way to reduce a strong diagonal effect is to thread to a Herringbone Twill. The Herringbone is a forward movement of several twills, and then a return of the same number of twills threaded in the opposite direction. True Herringbone (also called Dornik) differs from the usual Point Twill in that one thread is removed from the draft at the point of each reverse so that weft will not pass over three warp end at the turning line with a consequent weakening of the fabric. Thus, the Herringbone draft is: 1,2,3,4, 1,2,3,4, 2,1, 4,3,2,1, 4,3, if 8 threads forward and 8 back are desired. For 6 forward and 6 back the order is: 1,2,3,4, 1,2, 4,3,2,1, 4,3. Herringbone may be threaded 12, 16, 18, as many forward as desired, with the same number of return threads. Fancy effects for sports clothes often employ a different number of threads on the return than on the forward.

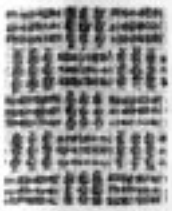
COLOR EFFECT WEAVES

The Color Effect Weaves, with their versatility and great charm, are too little used by the handweaver. The arrangements are appropriate to coarse or fine yarns, to woolens, worsteds and other materials. Color effects are produced by introducing 2 or 3 colors into warp and weft, not in stripe or plaid arrangement, but in 1, 2, 3, or sometimes 4-thread groups in simple successions. The Twill weave tends to break the continuity of colors, or to create new continuities, because the color changes show only when brought to the surface in warp or weft floats. A specific sequence of colors is set up in the warp, and this is woven throughout with the same, or with a different sequence of colors. Changes of effects are gained by starting a weft stripe on different treadles. Some of the Color Effect weaves are known by specific names, while others are simply "Fancy" effects.

Hairline: A Hairline is a continuous line the width of one thread, in either warp or weft. It may be woven in either Twill or Tabby, and the single-thread color changes may be regularly spaced or arranged in groups. A Hairline over-plaid has identical color arrangement in both warp and weft. A Hairline is often introduced at the turning point in a Herringbone.



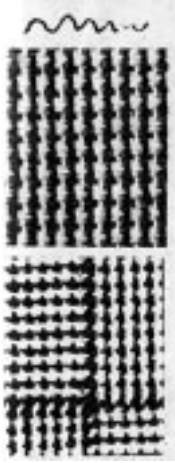
Hairline and Dot: The Tabby effect gained by arranging both warp and weft in the order of 3 light, 1 dark, or 3 dark, 1 light.



Log Cabin: The color effect gained in a Tabby fabric by alternating 2 colors in warp and weft. With a simple alternation across the entire warp, horizontal lines the width of a single thread are woven by weaving dark weft when the dark warp is up and light weft when the light warp is up. Vertical lines are woven when dark weft is thrown with light warp up and light weft thrown with dark warp up. Opposing horizontal and vertical lines are made by threading either 2 light or 2 dark ends together at specified intervals to shift the warp arrangement. By following the same order in weft colors, this may be woven as checks.

Dog-Tooth Check: This is a Tabby weave with color order of 2 dark, 2 light in both warp and weft. Small checks with spurs result.

Shepherd Check: The simplest of the 2-color twill weaves, made by arranging both warp and weft with 4 dark, 4 light. The usual spur arrangement is made by starting each color on treadle 1, but the design may be changed slightly by starting colors on a different treadle.

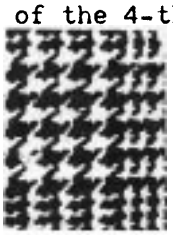


Broken Stripes: Woven on the Shepherd Check warp of 4 dark, 4 light, with a single color used throughout as weft.

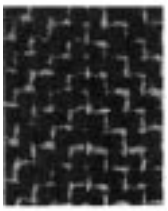
Two-Thread Stripes: This is the Twill effect which compares to the Log Cabin. The warp is threaded 2 dark, 2 light. Woven in Twill, the weft is also 2 dark, 2 light. If the first dark is woven with all light warp ends up, placing the first light with all dark warp ends up, the result is vertical serrated stripes. If this order is reversed, horizontal serrated stripes occur. An arrangement like Log Cabin Checks is made in one of two ways. If strongly outlined checks are desired, thread 4 light or 4 dark where the shift is desired. For an incon-

spicuous shift thread 1 dark, 1 light, or 1 light, 1 dark to make the change. The checks are woven by following the warp colors with the weft. If a simple weft alternation is maintained throughout, the effect is of broad, shadow stripes.

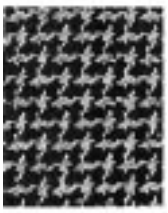
Glen Urquhart: This takes its name from one of the traditional Scotch District Checks. It is a combination of Shepherd Check and Two-Thread Checks. The threading is again plain Twill, but the color arrangement is 2 dark, 2 light for the desired stripe width, then 4 dark,4 light, as desired. The shifts may be made on either dark or light, or of dark on one side of the 4-thread check area and light on the other.



The weaving arrangement follows the warp color arrangement exactly, and forms a plaid figure which is strong and sporty. The contrast may be reduced by using two closely associated colors. There are many traditional Scotch arrangements for Glen Urquhart and Shepherd Checks which are available in the BULLETIN for November 1949.



Step Figures: The special interest of the Step Figures is in the emphasizing of the twill line by light and dark zig-zags. As the tendency of steps is to draw attention to the diagonal, they are often threaded on Herringbone or Point Twill, as illustrated. The effect is achieved by an uninterrupted alternation of 1 dark, 1 light in both warp and weft. For an unusual and more subdued effect, thread the warp with one pair of colors and weave with two different colors.



Fancy Step Figures: These are probably the most interesting of all the Color Effect Weaves, and may be produced in great variety. The first one illustrated achieves its character through an off-set arrangement of warp and weft, made by threading and weaving 3 dark, 3 light. The second illustration shows a more delicate effect gained by threading and weaving 3 dark, 2 light.

Broken Step Figures: A 3-color arrangement gives a color effect somewhat like a shaded Basket Weave. Thread 2 dark, 2 medium, 2 light, and weave in exactly the same manner. Variations are in

order in the weft arrangement. Weave with 3 dark, 3 light throughout. One of the handsomest effects on the 3-color warp is from weaving with 2 dark, 2 light, giving vertical lines separated by short horizontal ladder effects. The same warp gives a surprizing effect when woven with 1 dark, 1 light throughout. This is also good when woven in Tabby, somewhat like Log Cabin, with 1 dark, 1 light alternated for a short distance (perhaps a dozen shots) then shifted to 1 light, 1 dark for the same distance, and repeated. Of course any of these suggested effects may be reversed by setting the warp in the specific weft arrangement and weaving in the 3-color, 2-thread order. Experiment a bit with any of these effects to see which color should be thrown on the first treadle to give the most pleasing effect. In weaving any of the figures it is not necessary that the warp colors and the weft colors be identical. They may be quite different, though the values of light, medium and dark should be retained.

Within the 4-harness Twills some of the color effects may be heightened by applying different treadlings rather than weaving conventionally. Try substituting tabbys a and b for treadles 2 and 4, or 1 and 3. Or treadle Broken Twill following the 1,3,2,4, order. Or weave 1,2,3,4, 2,1,4,3, repeated. The trial and error method is always a good one for the imaginative handweaver. An entire new field of expression emerges when one uses the multiple-harness Twills in color arrangement, and especially when the Fancy Twill treadlings are employed. These will be taken up in a later Bulletin.

Is yours a walking loom? There are few looms indeed which do not inch across the floor as the weaver beats. The only way we can keep our looms in place is through 3/4" pegs set into holes which we have drilled into the hardwood floor, a solution which would provoke little enthusiasm among weavers. But we have been introduced recently to Loom Anchors which seem to do the job. Loom Anchors are a set of 4 adhesive pads which cling to the loom foot and the floor. A set may be secured for $2.00 (postpaid) from Mrs D H White, 2 Monroe Road, Wellesley Hills, Massachusetts. They seem to reduce loom noise too.

A TWILL COLOR-EFFECT GAMP

Draft developments are practically useless in indicating color effects and the only way to know what will happen with color effects is to try them. A Gamp arrangement is the easiest way to determine many, many variations, and a short Gamp warp is not difficult to set up. Students in the Shuttle Craft Guild Studio have woven these Gamps with enthusiasm, led on and on by finding several surprize effects in each section. We use Fabri set at 24 ends per inch, but any other woolen or worsted yarn at a suitable setting is adequate. Four colors, with two different medium shades, one used in some areas, the other in others, adds more color interest to the piece and enlarges the color effect potentialities. Arrange the colors thus:

2 dk, 2 lt, repeated for ----------	40 ends,
1 dk, 1 med, repeated for ----------	30 ends,
2 med, 2 lt, 2 med, 2 dk, for ------	38 ends,
4 dk, 4 med, repeated for ----------	40 ends,
3 dk, 3 lt, repeated for ----------	36 ends,
2 dk, 2 med, 2 lt, repeated for ----	36 ends,
4 dk, 4 med, 4 lt, 4 med, for ------	36 ends,
1 dk, 1 med, 1 dk, 1 med, 1 dk, 1 med, 1 dk, repeated for ----	35 ends.
Total warp ends ----------	291.

This gives a warp about 12 inches wide if set at 24 ends per inch. The blocks may be made larger, or further color arrangements may be added.

Weave the Gamp by following the warp color arrangement exactly. The easiest way to do this is to weave a square of the first section, throwing 2 dark then 2 light shots 10 times, following the Twill treadling; then weave 1 dark, 1 medium 15 times to square the second area. Progress to the third area, and so on through the entire sequence. When the 291st shot has been thrown, a perfectly square piece should have been woven, since the Twill Color Effect weaves require exactly as many weft ends per inch as there are warp ends. A diagonal line of squares, each one "woven as drawn in" is thus formed, extending from the lower right hand corner to the upper left. This diagonal is the reference line of the Gamp. But when the square is completed, there are still many other arrangements and weaves to try. Weave in Tabby, and in Log Cabin. Start colors on different treadles. Experiment with weft colors different from the warp. Experiment!

A BETTER WAY TO WARP Sectional Beams, an article by
Paul L Swisher, Scarborough-on-Hudson, New York

EUREKA! I have found, I believe, a highly satisfactory solution to one of the most troublesome problems encountered in the warping of a sectional beam.

In the literature on hand-loom weaving, much space is devoted to words of caution and precaution annet laying the warp into each 2-inch section with extreme care and evenness, so as to avoid "humping" in either the center or on the sides. Some strands pile atop those in preceding layers while others force themselves down between strands in the previous layers. The perfect warp pile should be perfectly flat. You can come mighty near achieving this result.

The basic idea involves only the shortening or narrowing of the space between the dowels, staples, pegs or whatever the dividers be that separate the individual warp sections.

With very few exceptions, all sectional warp beams are divided into what are invariably referred to as 2-inch sections. Actually, the pegs that serve as dividers are from 1/8" to 3/8" in diameter, which reduces the warp space to from 1-5/8" to 1-7/8".

The diameter of a single warp end (whether it be cotton, wool or linen) multiplied by the number of ends per section falls far short of equalling the space between the section dividers. To prove the point to your own satisfaction, wrap a piece of dowel with the number of turns required per bout in any warp material, wrapping so that each succeeding turn lies as closely to the preceding turn as possible. When finished, measure the section. You will find that all wrapped sections measure approximately 1" to 1-1/8", which is from 1/2" to 7/8" less than the so-called 2" sections afford in the way of warp space.

By reducing the individual warp sections to the aforementioned measurements, the warp ends are laid so closely together that there is no space or room for admitting strands from succeeding layers and neither is there space at the sides to allow ends to fall off the edges of the pile. The ultimate in perfection, obviously, would be to adjust the warp beam sections to the exact measurement of the warp material employed

in each succeeding project. Highly impracticable, of course. But a very close approach to said ideal condition can be achieved by simply reducing the space between the section dividers to whatever measurement you feel will be sufficient to handle the warp settings you contemplate using from time to time. On my own looms, after considerable experimenting, the warp beam sections have been reduced to 1-1/8" wide.

The space reduction can be achieved in one of several ways, according to the construction of the beam to be altered. On beams equipped with wooden dowels as dividers, either (a) add additional dowels, placing them to the right or left of the existing dividers, or (b) simply pull the present dividers, redrill the holes with a 7/8" bit and insert round end dowels to bring the warping space to 1-1/8". Most any woodworking shop will make the new dowels for less money than you would think. If the stock holding the section dividers is not sufficiently thick to accept 3/4" holes, or for some other reason the methods suggested are not satisfactory or practical in your case, remove the existing dividers and replace them with large staples of the desired width, centered accurately over the holes left by the removal of the present dividers.

Well, that's the story, fellow weavers, and I sincerely hope it will play the part of an aspirin to at least one of your warping "headaches."

What do you think of Mr Swisher's idea? He has been asked to publish it elsewhere but before other publication he wished to submit it to Guild members, as he has been a Shuttle Craft Guild member for over 10 years. "Applications for design patents on the above idea have been filed in both U S and Canada. Loom manuracturers, therefore, are cautioned against using this method of warp beam assembly without first arranging for proper clearance with Mr Swisher."

PORTFOLIO Contents: The November PORTFOLIO contains a "Sampler" woven of Fabri set at 28 ends per inch (14-dent reed) arranged in the following color order: 2 Cocoa, 2 Gazelle, 2 Colonial Blue. Separate PORTFOLIOS are $1.25 each. Annual subscription is $10.00. Back numbers (for 1952) are available at $1.00 each if 6 or more are ordered.

Harriet D Tidball