# Shuttle Craft Guild HANDWEAVER'S BULLETIN

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1956 Vol.XXXIII • No.10 OCTOBER The Shuttle Craft Guild HANDWEAVER'S BULLETIN Volume XXXIII, Number 8 October 1956



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An era in the handweaving world closed on September fifth with the death of the beloved and honored "Dean of American Handweaving", Mary Meigs Atwater. Mrs Atwater passed away suddenly at her home in Salt Lake City at the age of 78. She was born on February 28, 1878, in Rock Island, Illinois. Surviving are two daughters, Miss Alice Atwater of Salt Lake City, Mrs Elizabeth Atwater Beihl of Garneill, Montana, and a son Montgomery Meigs Atwater of Austria, as well as five grandchildren and three sisters. Mrs Atwater was one of the great geniuses of the textile field and her creative contributions to handweaving have had profound influence on the growth of interest and knowledge in the craft. To members of the Shuttle Craft Guild which she founded in 1922 and directed until 1946, her loss will be felt most keenly, but with gratification that she was active in the field until the end. In the September BULLETIN was her very preceptive account of the weavers' tour of Mexico for which she was hostess in August. A biographical sketch and notes on some of Mrs Atwater's original contributions in handweaving appear in the Winter 1952-53 issue of Handweaver And Craftsman.

#### TWILL and OVERSHOT PATTERN WEAVING

The new interest in pattern weaving, and the creative use of the seventy pattern drafts given in the August and September BULLETINS, brings about a need for an understanding of pattern weaving. Only copy work, which eventually leads to misues, can result if the weaver has no theoretical understanding of his technique. It was this very copy work -- the use of treadling directions without any knowledge of how they were derived, and the general lack of understanding of balance and symmetry -- which lead to the inappropriate uses of our pattern weaves twenty years ago, and consequently their practical abandonment as a medium of expression. Let us not permit that situation to happen again.

Most of the handloom techniques provide means for producing patterns, but the techniques with which we are here concerned are the EXTENDED POINT TWILL, the OVERSHOT, and the HYBRID (Overshot-Twill) techniques, all produced on four harnesses with a balanced tie-up. The foundation for these weaves is the Twill drafts:

4	L
4	4
3	3
2	2
	1

The <u>Plain Twill</u> is the simplest of all 4-harness threadings.

6		
. 4	1	4
3	3	3
2	2	2
	1	

The <u>Point Twill</u>, sometimes called Reverse or Return Twill, is obviously made by reversing the direction at the end of the original twill, to make a symmetrical pattern. The symmetry completes with the draft repeat.

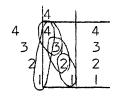
8	L
4 4	4
3 3	3
2 2	2
	1

The <u>Extended Point Twill</u> has infinite variation since threads can be added as desired and returns or reverses may be many. This is the simplest Extended Point Twill, commonly known as Rosepath

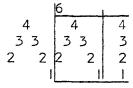
14	L
4 4 4	4
3 3 3	3
2 2 2 2	2
1 1 1	1

This draft will illustrate further the Extended Point Twill. For the sake of a label, it will be called SHUTTLE CRAFT - I. Drafting an Extended Point Twill pat-

pattern is simple. One need merely set down draft symbols on a 4-harness draft grid, in forward and backward directions, progressing always from an odd-numbered harness to an even-numbered harness, or from an even-numbered to an odd-numbered harness. Making a draft which will weave an agreeable pattern and one which will suit the function at hand is another matter, which will be taken up later.



The Twill theory is based on pairing adjacent threads in the draft. These pairs, or combinations, are known by letters and written as capital letters to distinguish them from harnesses or tabby com-



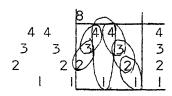
binations: A is harnesses I and 2,

B is harnesses 2 and 3,

C is harnesses 3 and 4, D is harnesses 4 and 1.

For a Plain Twill, there are always two threads in each combination. However, when a reverse of twill direction is made, a third thread is added

to the combination on which the direction reverse is made.



 4
 4
 4
 4
 4

 3
 3
 3
 3
 3

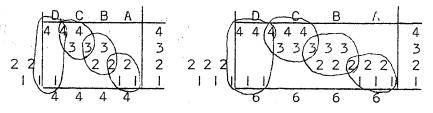
 2
 2
 2
 2
 2
 2
 2
 2

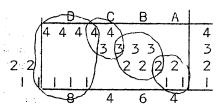
 1
 1
 1
 1
 1
 1
 1

Thus, there is an even number of threads in a straight succession block, an odd number in a reverse block, The

first and last threads of the draft combine on the repeat. A combination always includes an odd and an even numbered harness.

The expansion of the Twill drafts is made by enlarging the combinations through repeating them. This enlargement changes the two-thread twills into Pattern Blocks, a Block always having four or more threads. This expanded twill is known as the Overshot technique, in which all combinations or blocks have four or more threads. The only exception to this is the three-thread return combination which is used in the Overshot, but Overshot never contains two-thread twills. The rules of odds-and-evens continue to apply.

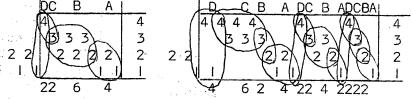




These drafts Illustrate the Ptain Twill expanded to four and six thread blocks, and the draft at left shows blocks of different sizes in the same draft. The block

size is limited only by practicality, since in the weaving, weft will float across the entire block.

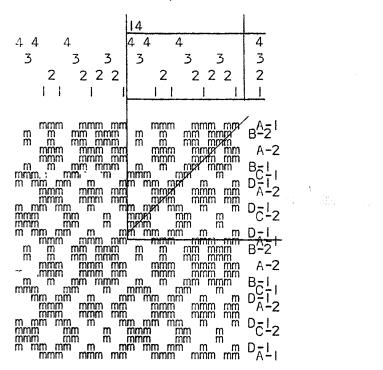
There is another type of draft which incorporates both twills and Overshot blocks. This is



known as the HYBRID (Twill-Overshot) Technique. Most of Miss Hayes' patterns are of the Hybrid technique, though a few are true Overshot and a few Extended Point Twills.

These example drafts, based on the plain Twill, are single-directional like the Twill, having no symmetry. A pattern is symmetrical when one half of it is the mirror image of the other half. The center point, or thread, is known as the Point of Symmetry. From the Point of Symmetry, the draft repeats itself in reverse. The draft labeled SHUTTLE CRAFT - I, will be used to illustrate the six types of pattern drafts: symmetrical and asymmetrical Extended Point Twill, symmetrical and asymmetrical Overshot, symmetrical and asymmetrical Hybrid. Complete, woven-as-drawn-in developments illustrate the various patterns formed.

SHUTTLE CRAFT - 1: Asymmetrical, Extended Point Twill



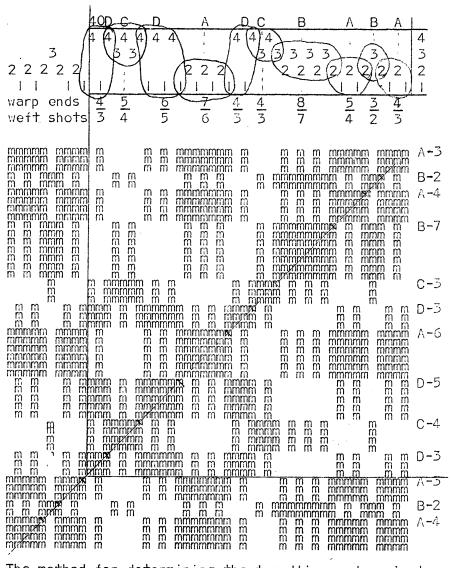
As with all woven-as-drawn-in developments, the pattern is formed by "weaving" the twills, or blocks, along a 45 degree diagonal line.

SHUTTLE CRAFT II: Symmetrical, Extended Point Twill

<b>*</b> /24	*	1
4 4 4	4 4 4 4	4
3 3 3 3	3 3	3 3 3
2 222222	2 2	2 2 2 2
		1 1 1
m <b>mm</b> mmm mmm mmm mmm mmm mmm m		mmm mm BAZI
m m mm mmm mmm m mmm mmm mmm mmm	m m m	mm mmm A-2
mmm mmm mmm		
mmm mm m m	rim mmm m	
mmm mmm mmm mmm mmm mmm	mmm mmm mmm mmm	mmm mm \\^-2
m m mm mmm mmm m mmm mmm m m m mmm mmm	mm mm mm min mm mm mmm m	$\frac{m}{m} \frac{m}{m} \frac{D_{c}!}{C-2}$
mmm mm m m mmm mm m m m mm mm m m	mm mann m mm man mm mar	m m m D-l
mmm mmm mmm mmm mmm mmm mmm	mmm mmm mmm mmm	mmm mm A-2
mmm mm mmm mmm mm mmm mm mmm mmm mmm mmm mmm mmm mmm mmm mmm	gan man man man gan manan m	m m m DC-1
m m mm mmm mmm ro		$\begin{array}{ccc} \text{mm} & \text{mmm} & \text{B} = 1 \\ \text{mmm} & \text{mm} & \text{A} = 2 \end{array}$
mina minim minim m manim mam min m m m mana minim mini m m		mmm mm mm B-2
mam mam mam mam m mam mam mam m m m mam ma	m m m	mm mmm B-2
mmm mmm mmm mmm mmm mmm mmm	mmm mmm	mm mmm A-2
m m mm mmm mmm m	m m m m	mm mmm B-1
minim	mm mm mm mm	mmm mm D∑17
mmm mmm mmm mmm	mmm mmm mmm mmm mm mm mm	mmm mm _ ' '. T
mmm mm m m	m <b>m mmm m</b> mm mmm m	m m C-23

The reversing point or Point of Symmetry here was taken as the 13th thread of the draft, since the use of the 14th thread would have placed a 5-end Overshot block in the center. The second Point of Symmetry falls on the first thread of the draft, as the draft is repeated. The weaving directions are given down the right-hand side of the draft development. They are given with block symbols and number of shots rather than harnesses, so that they may be used for either rising or sinking shed. A means 1-2 down, 3-4 up; B means 2-3 down, 4-1 up; C means 3-4 down, 1-2 up; D means 4-1 down, 2-3 up.

SHUTTLE CRAFT - III: Asymmetrical Overshot



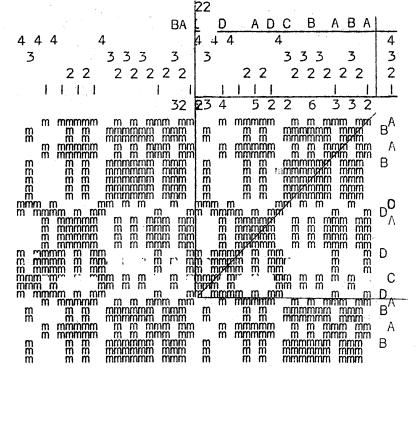
The method for determining the treadling orders is to take each block of the draft in order, count the number of warp ends, then subtract one, to arrive at the number of weft shots. Subtracting one, compensates for the common thread between blocks. Compare the draft, the figures blow it, and the treadling orders at right.

SHUTTLE CRAFT - IV: Symmetrical Overshot.

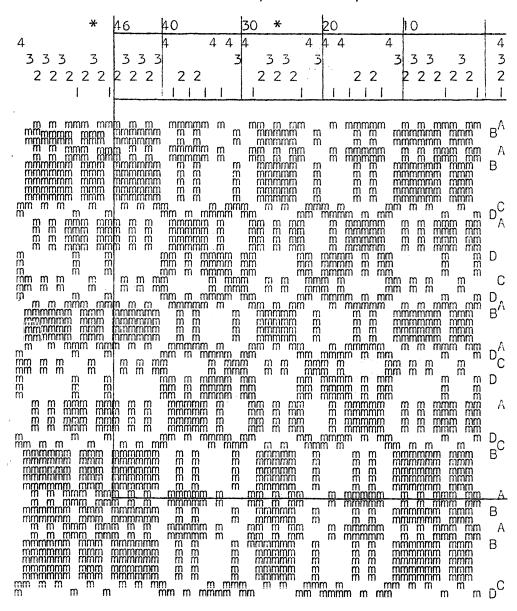
3					
50 *	<b>J</b> 40	30	20	10	
	4 4 4 4 4	4 4	4 4		4
3 3	3 3		3 3 3 3 3	3	3
22222	100	222	222	22222	2
1				1 1 1 1	1
material response					
	90	80	70	60	
		4 4	4 4	4 4 4 4 4	
	3 3	3 3 3 3		3 3	
	22222	222	222		
		'		1 1 1	

The development is not given because of space, but the miniature pattern, S C - VI will indicate design. Point of Symmetry is sixth thread of the repeat.

SHUTTLE CRAFT - V: Asymmetrical Hybrid.



SHUTTLE CRAFT - VI: Symmetrical Hybrid.



Drafts V and VI can be termed "Miniatures". A Miniature is a large pattern which is reduced proportionally (as far as possible) to preserve the original

configuration. Reductions can never be altogether proportional because of the irregular numbers of threads in blocks. Cnly true Overshot patterns can be reduced to miniatures, because the twills which Hybrid patterns contain cannot be further reduced. However, Hybrid drafts too are called Miniatures. The most familiar Hybrid Miniature pattern is the so-called Honeysuckle, so widely used a quarter century ago.

The draft and diagram on page 7, SHUTTLE CRAFT - III, Asymmetrical Overshot, contains all of the necessary information for weaving-as-drawn-in on paper. The 45° diagonal line, which should be drawn before the development is begun, is the accuracy check throughout. Notice that each new block starts exactly on the diagonal; and that the diagonal emerges from each block just one square to the right of the lower corner. Weaving on paper is a good way to express the drawing. Each horizontal line of the diagram represents one shot of pattern weft. On paper, "A" always represents opening the shed which brings harnesses I and 2 down, so all the threads placed on harnesses I and 2 are therefore covered with weft, the weft in this case being the ink which fills one square under each thread occurring on harnesses I and 2. The number of shots thrown, or lines developed in any particular block is determined by the size of the block on the diagonal line (or directly above it, on the draft). The tabby throughout is inferred, or one may consider it represented by the horizontal lines of the squarred paper on which the developing is done.

#### WEAVING-AS-DRAWN-IN

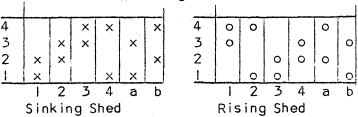
Weaving-as-drawn-in means weaving the pattern exactly as it is threaded, or drawn-in, through the heddles. This means proportion as well as configuration, so that if a woven pattern is viewed from the weft direction (selvage side) it appears exactly the same as when it is viewed from the warp direction. The name further carries the implication of accomplishing this pattern weaving without the help of any treadling or weaving directions, and without any necessary knowledge of the threaded pattern. The idea of sitting down at a loom with an unknown -> threading and weaving, without any directions, hesitations or errors, the exact pattern to which it is threaded, regardless of the pattern's complications, may sound a bit occult, but it is actually a simple method which thorough teachers give their weaving students in their first lessons. The weaver who is taught this way from the beginning, takes the method for granted. But the weaver who discovers it after having learned to weave from directions, feels that it is one of the major miracles of the loom.

The method for weaving-as-drawn-in corresponds closely to that for developing a symmetrical pattern on paper. In outline form the steps are:

- (1) Through trial and error (depressing each pattern treadle and examining the arrangement of the top-shed threads at the right-hand side) find which shed, or treadle, produces the block closest to the right-hand selvage. This block will appear as a gap in the top-warp threads. A card or strip of heavy paper placed in the shed and pushed against the fell will help one see the arrangement of the top-warp threads better.
- (2) Count the threads on the bottom-shed, directly under the top-shed gap which is closest to

the right-hand selvage. This gives the number of warp ends involved in the first pattern block. (On each side of the block there will be one warp end up, then one down which forms the half-tone. These half-tone threads are not part of the pattern block and must not be counted.)

- (3) Subtract one from the total number of warp ends in the block, and weave that many shots on the determined treadle with pattern weft, throwing a shot of tabby (on  $\underline{a}$  and  $\underline{b}$  alternately) before each pattern shot.
- (4) The next block to weave is the one which lies just to the left of this one and shares one thread with it. (The warp end which lies under the left-hand side of the just-woven block, will lie under the right-hand side of the new block.) Trial and error in finding the new block is reduced because the rule of odds-and-evens applies. If the first block was on an odd-numbered treadle, either lor 3, the next block will be on an even-numbered treadle, either 2 or 4. If the first block was on an even-numbered treadle, the next one will be on an odd-numbered treadle. Therefore, the next block must be on one of two treadles and only these need be tried. The new block is evident because of its one-thread overlap with the previous block.
- (5) Count the threads under this block, and subtract one to determine the number of shots to throw. Continue thus throughout



These are the "Standard Tie-Ups" used for this.

After a few blocks have been woven, the diagonal continuity of the blocks appears: an unbroken diagonal line extends from the lower right-hand through the upper left-hand corners of each block, and connects all blocks. This is, of course, an imaginary line, though the blocks themselves form a line. If the weaving is correct, -- exactly as many tabby shots per inch as there are warp ends, each tabby shot followed by a pattern shot, this diagonal line will be exactly 45 degrees. In other words, if the diagonal line is carried from the right selvage to the left selvage, an exact square will have been woven.

As soon as a few blocks are completed, it is a good idea to place a pin along the diagonal line, and perhaps keep adding pins as the imaginary line grows. This is simply a safety precaution which will keep the eye from straying from the correct diagonal to any other part of the woven design. The only place to watch in selecting each new block to weave is the diagonal line. If the block is selected from any other place in the weaving (often many secondary diagonals will develop automatically, according to the nature of the pattern) only an error will result.

It is a good idea to do one's first weaving—as-drawn-in on a coarse warp (10/2 cotton or coarser) just because blocks and individual threads show up more clearly. But the "tricks" of this are very easily mastered, and once mastered are never forgotten. It is easier than you may think and the person who has learned to weave-as-drawn-in never again needs or wants written weaving directions.

### OVERSHOT PROFILES

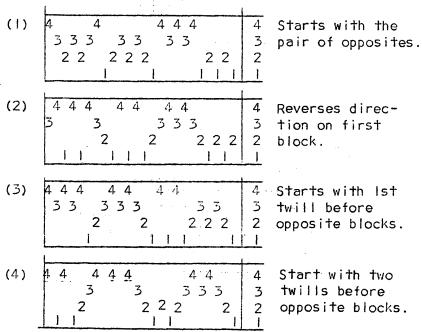
The profile of an Overshot (or Twill or Hybrid) pattern is not a draft, and must not be confused with the Profile Draft used for the techniques which fall into the Unit Class of Weaves.

The Overshot profile is the simplest outline of the pattern, made by weaving each of the four blocks in order. It shows the relationships between blocks, the groupings of blocks, and the proportions. It does not illustrate the full pattern: this can be shown only by a diagonal development. The profile may be developed from the draft, in the manner used to illustrate the Bertha Gray Hayes patterns #21 through #70 in the September BULLETIN, by drawing down each block in A-B-C-D order or D-C-B-A order (regardless of the arrangement of the first blocks of the draft). Or it may be woven on the loom by weaving a block (four shots, for instance) on treadle I, followed by blocks of the same size on treadles 2, 3, 4, in that order.

The careful weaver on approaching any new pattern threading will first weave the pattern profile. The woven profile may be set off, or outlined, by first throwing a pattern shot in the treadle I shed, then a shot in the treadle 3 shed, without a tabby between, and finishing the pattern in the same manner. This woven profile is a very simple reference from which the draft can be read as easily as from a written draft, and can save much note-taking. The easy directions for reading the draft from a woven profile will be given in the next BULLETIN.

## DRAFT FORMS for OVERSHOT

Strange as it may seem to the beginner in handweaving, a threading draft for any single pattern may be written in many different ways without making any change in the pattern itself. The person who weaves from written treadling directions is often entrapped by this very fact, whereas the person who weaves-as-drawn-in can handle any threading situation. This question of differing draft forms will become evident if the seventy drafts given in the August and September Shuttle Craft BULLETINS are compared with the original Bertha Gray Hayes drafts because all of the Shuttle Craft drafts were arrived at by analysis of woven samples, and will therefore differ from the drafts Miss Hayes gave, though the patterns will be The little 24-thread pattern TRELLIS (see PORTFOLIO Sample) can illustrate the draft differences. This pattern is composed of a pair of 5-thread "opposite" blocks and two identical 5-thread blocks separated by twills.



These twelve drafts, representing different starting points and different direction of the first block would all weave identically, as could be proved by setting down two draft repeats of each and making squared-paper developments. They all start on block A. It would be possible to draft each of these starting on block B for twelve more, and also on blocks C and D, for forty-eight variations. There are more, but this is enough. Then one could redraft all of these so that the tabbys fall on harnesses I-2 and 3-4, and again to tabby on 2-3 and 4-1. Obviously the form a draft takes is not the significant point. However, the careful drafter will always select a logical point in the pattern for starting a draft (these twelve variations all show logical starting points), will call the first block "A" (1,2) and will proce in a forward direction.

## SELVAGES

For all weaving techniques which are derived from the twill, including the Overshot, Extended Point Twill and Hybrid, the selvage is a twill. The direction of the twill selvage at the right should follow the direction of the first two threads of the draft, and the left selvage should follow the direction of the last two threads of the last block. One complete twill is the minimum selvage, but since the first two threads of the first block (or last block) automatically include themselves in the selvage, the minimum number of threads needed for a selvage is two. Thus for draft (I) the minimum selvage is threads 3, 4; for draft (2) the minimum selvage is 4, 3. If Hybrid drafts start with a twill perhaps none, or only one thread is needed; for draft (3) a thread on harness 4 will do the job, while no extra threads are required for draft (4). A selvage of more than six threads should be avoided with true Overshot, though more may be used with Hybrid drafts, though wider selvages are apt to give the appearance of a border rather than a selvage.

## NEW PUBLICATION of the BERTHA GRAY HAYES DRAFTS

The presentation of the seventy Bertha Gray Hayes patterns in the August and September BULLETINS though in the nature of a "happenstance of the moment", seems to have been more timely than was anticipated. At least, it appears that at this particular time, almost nine years after the death of Miss Hayes, the minds of two other people who prepare publications for handweavers, were on the same subject, and a third had already used some of the material this summer. This most certainly indicates a widely felt revival of interest in pattern weaving,

The many Shuttle Craft Guild members who have been particularly interested in these patterns will welcome a fuller presentation of the seventy patterns which is to appear this month. Mrs Osma Gallinger, Creative Crafts, East Berlin, Penna, will issue a BOOK OF BERTHA HAYES PATTERNS, "A valuable collection of the complete work of this creative American Weaver", which contains thirty diagrams and forty half-tone photographs of the seventy patterns. The book may be secured from Mrs Gallinger for \$3.00, postpaid. The drafts will be the original ones supplied by Miss Hayes, and will therefore differ from the ones in the BULLETINS though the patterns will be the same. (see page 15)

The Shuttle Craft Guild has prepared a special PORTFOLIO for non-PORTFOLIO subscribers, which includes the eight samples from Hayes patterns presented in August, September and October. As well as illustrating the pattern, each sample presents a different designing problem for pattern weaving, with special designing comments for each sample. Thus, this special PORTFOLIO is a general designing guide to pattern weaving. The price is \$3.50. Regular PORTFOLIO subscribers already have this material.

## NEW SHUTTLE CRAFT GUILD SYSTEM for 1957

Progress and change seem to go hand in hand, and since the Shuttle Craft Guild cannot stand still in its efforts to fill the increasing needs of handweavers for good instruction and weaving information, a change of the present set-up has become inevitable. Therefore, as of January I, 1957, Mr Boris Veren of the Craft and Hobby Book Service will become business manager of the Shuttle Craft Guild. Starting with that date the <u>business</u> address of the Guild will be Coast Route, Monterey, California. Mr Veren will handle exclusively all subscriptions and renewals and the sale of all Shuttle Craft Guild publications.

The separation of the business mechanics of the Guild from the research, writing, instructing and editorial work will make it possible to place more time and effort on the latter, with the purpose of improvement and increase in the Shuttle Craft Guild services. All subscribers will share in these benefits through the enlarged plans which we are making for the BULLETIN and PORTFOLIO for 1957.

To Guild members this shift will seem natural, and will probably be a convenience, since Mr Veren will continue handling the most complete line of books for the handweaver anywhere available. Mr Veren established the Craft and Hobby Book Service, as a mail-order business, in December 1946 and his record for intelligent book service in a handcraft has been unparalleled. He has earned the respect of the thousands of handweavers who deal with him, for his good business management, integrity and efficiency.

Until the end of 1956, the Shuttle Craft Guild address will continue to be Kelseyville, but after that date all orders and renewals will go to Monterey, California. The Shuttle Craft Guild will thereafter be "decentralized", and without a doubt more efficient.

Along with these plans for greater efficiency we are "stream lining" our studio equipment, which has become excessive, by selling several looms and other equipment. There are five looms -- 4, 6, 8 and 10-harness of top makes, all in top condition, which we shall sell, though someplace in northern California from where they could be picked up by truck is desired, and they would be a bargain. Another bit of loom availability information -- because of the recent death of a weaver, an unused 10-harness, double-beam Macomber is for sale by Mrs Franz Robuck, 1004 Clay St, La Porte, Indiana.

BOOK REVIEW - The English edition of MANUAL OF SWEDISH HAND WEAVING by Ulla Cyrus, translated by Viola Anderson, published by Charles T Branford Co, Boston, Mass, is a most welcome addition to the serious weaver's bookshelf. Not a beginner's book, even though it contains the usual section on loom dressing, this book gives foundation for many techniques in four-harness interpretations but stresses multiple-harness weaving. The text is clear and understandable, but not easy, because the subject matter is of a more advanced nature than that presented in most handweaving books. The scope in techniques is wide, and considering the diversity, astonishingly thorough. This book will help solve two major problems for the serious weaver who wishes to understand as well as to produce. First, it will be a key to the understanding of many other Scandinavian publications which are not available in translation. Second, because its system of draft and diagram presentation is similar to that used in the technical books for the "trade fabric" designer, a study of this book will help the weaver who has struggled unrewardingly with Watson, Oelsner and others. Although the text includes a splendid section on tapestry, brocade and pile weaving, the MANUAL OF SWEDISH HAND WEAVING will be particularly welcomed by the serious, multiple-harness weaver. It may be secured from Craft and Hobby Book Service, Coast Route, Monterey, Calif -- price, \$5.95.

These three samples illustrate the use of color in pattern weaving -- a matter which must be handled with great care because most patterns are best in a single color, on a different color background. See September BULLETIN for Drafts.

#### #21 - LINOLEUM

Designed to illustrate the elegance which can result from using warp and pattern weft of identical color, with a varigated tabby background. Warp of 20/2 mercerized set at 30 ends per inch, pattern weft 10/2 mercerized (both Lily Art 114), tabby 24/2 (Lily Art 314) in orange, old rose, light green, and jade, thrown in order. Many effective variations of the varigated background are possible, and interesting to work out. This was woven-as-drawn-in, but the samples were cut to emphasize the background rather than the pattern. With this type of color use, treadling variations are often more effective than woven-as-drawn-in patterns.

### #59 - THREE TIMES THREE

Warp again is 10/2 mercerized set at 24 per inch, tabby the same. Pattern weft is a pink nylon and an orange and gold novelty rayon. Woven-as-drawn-in, but sufficient shots omitted to permit perfect squaring (45° diagonal). Note the "wrong side" of this, which would make beautiful upholstery.

#### #62 - TRELLIS

Warp and tabby 24/2 cotton at 30 per inch, pattern weft Fabri. Woven to illustrate, at the bottom in green, this charming, quaint pattern, and at the top the introduction of multi-colors, with colors coordinated with the pattern. Interpreted from the name -- like a trellis covered with roses -- the large fabric was effective, but the point of emphasis was the color harmony rather than pattern. Color banding was avoided by using similar values in all colors except the green.

