




# Arrow-Lightning

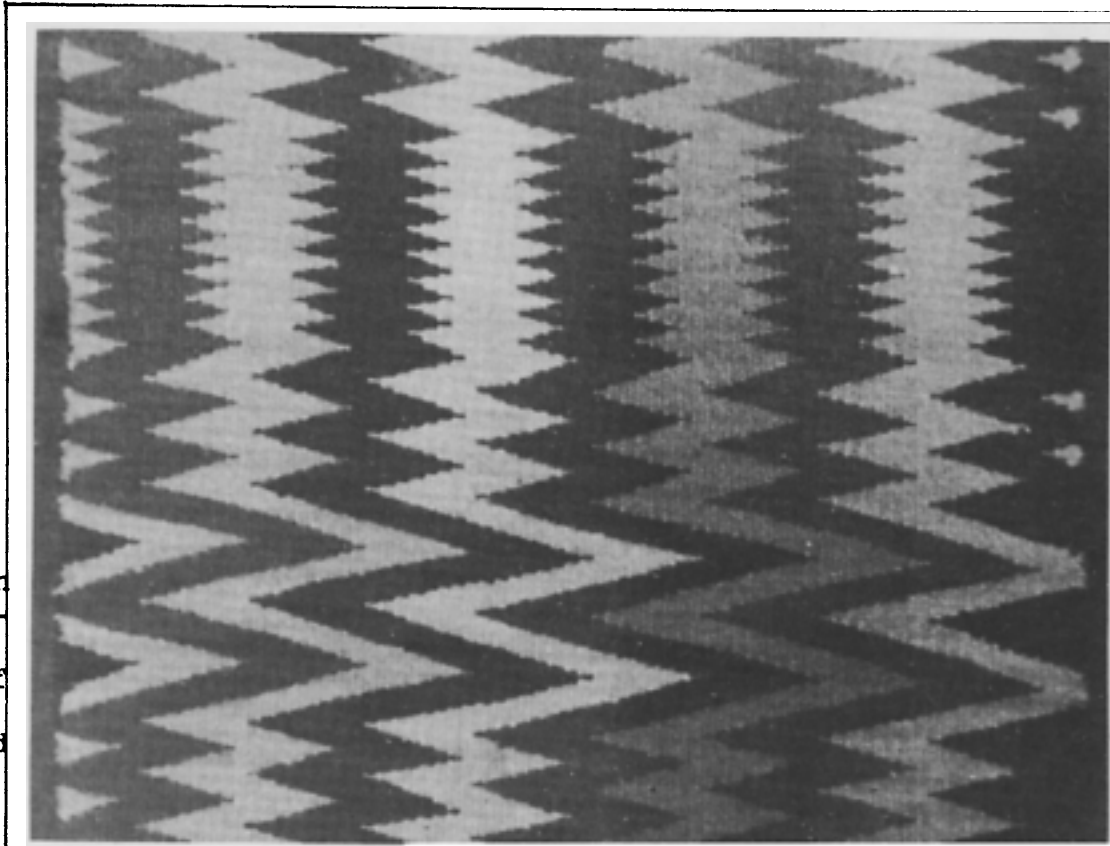
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Arrow and Lightning techniques are fundamentally Norwegian. They are classified as half-Gobelin tapestry weaves. Although, at first glance, these two techniques may seem extremely limited in execution, great variety of composite zigzag designs may be made, restricted only by the discretion of the weaver. Diversification of designs produced by the Lightning technique may be seen in Volume 2 of "Gammal Allmogesløjld Från Malmöhus Län". Since the text in this series is in Swedish, the Lightning weave is called "blixtvafda", and also "blixmonster", the Lightning Pattern.

Let us discuss the Arrow technique first. As far as I know, no description of Arrow technique has ever been published, either in the Scandinavian languages or our own English language. I think that the written material in this packet is the first time that any discussion of the Arrow weave has appeared in print. And yet it was the first Art Weaving technique taught me. I learned the technique from Mrs. Olivia Kindleberger, who wove the textile opposite---the handsome Aklae design, enriched by borders of the Arrow weave. Knowing the Arrow technique will make learning of the Aklae technique much easier.

The finished Arrow technique designs may resemble the forms of the Rhombus , the Rhomboid , or the Chevron . From the last form the technique gets its name. In the woven sample of the packet, only the first half of the chevron is made; the reversal is easily made by following instructions in this packet. The important part of the Arrow weave is given in the woven sample, duplicated three times, and also, of course, the first two beginning rows of weaving. The sample is mounted on the card with the wrong side facing the weaver---just as it was woven on the loom.

The Arrow technique is simply the construction of "steps" one beside each other, interlocked every other row, and the






No.1----LIGHTNING




No.2---Aklae with Arrow Border.

advancement of this step formation made on the row in which the interlocking does not take place. Therefore two distinct sheds are necessary to accomplish this technique. The same is true in the Lightning technique. No curved lines nor lines that simulate curves can be made in the real Arrow or Lightning techniques, such as can be made in Aklae, Flamskvåvnad, Norwegian Billedvevning, Norwegian Baldishol or true French tapestry techniques. The designs in Arrow and Lightning partake of

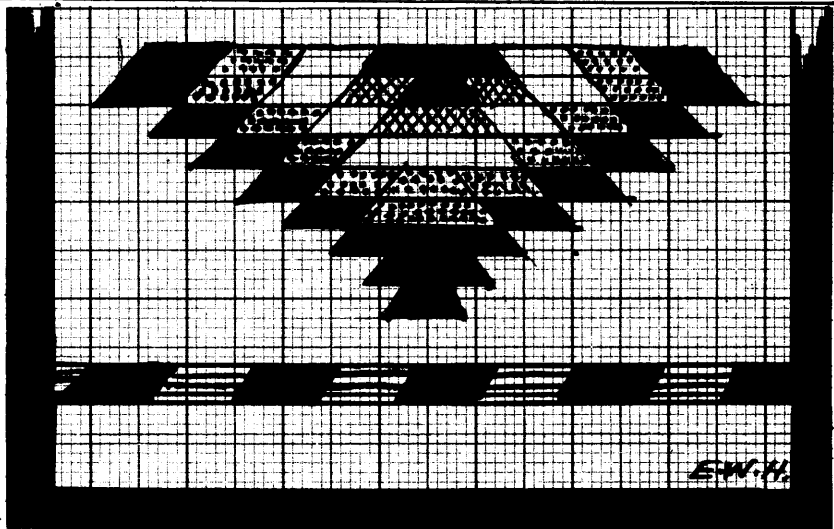
# arrow

diagonal lines or zigzags. However, it is possible to make formations with the Arrow technique foreign to the rhombus or rhomboid figures by this procedure: instead of making each pattern change a distinct advance of one warp thread to the right of the loom on each row, repeat the same pattern change for two, three, four or more rows, according to the design one wishes carried out. That is, instead of having the rows thus:  weave as  or 

or , or various progressions as the design goes upward. Only part of the design could be done in this manner, other parts in the regular Arrow technique. Such a design would have to be planned skillfully beforehand. But don't let that worry you now.

**DESIGNS:** The designs may be drawn on cross-section paper or plain paper. The design sheet is placed not behind the warp, but kept close at hand for ready reference. There may be combinations of Arrow, Lightning and Aklae in the same textile, or a textile may be woven of one of these techniques only. However,

I venture to say that a textile made entirely in the Arrow weave may prove uninteresting, unless some design, such as the design opposite were developed ----an arrangement of the rhomboid form for the central or main figure, with a composition of plain and striped areas. Of course, half of this design would be woven with the regular Arrow pattern change, while the other half would be woven, at the same time, in the same row, in the reversl weave. Then when the center of the design is reached, the design and the working process would be reversed. But only after having mastered both parts of the Arrow technique should such a design be attempted.



**THE LOOM:** Any loom may be used that makes two plain weave or tabby sheds. THE WARP MUST BE COMPLETELY COVERED. Therefore, a good reed batten is indispensable. The ideal loom to use is the Norwegian upright (Opstadvev) tapestry loom, worked by hand levers or foot treadles, with a reed that beats down the weft yarns clear across the woof. A picture of such a loom is in Halvorsen's book, HANDBOK I VEVNING, page 24 .

**WARP:** We are fortunate in being able to get the Cable twine warp in this country. This warp is used for Arrow, Lightning and Aklae techniques, as well as for Rollakan. Ederer, Inc., has two grists of the twine that will do nicely for our use, a 20/9 and a 14/6 twines. The Norwegians invariably use 12/6 mostly--sometimes 12/9--but either the 20/9 or 14/6 are suitable. Order the 20/9, preferably, in the Cable twist (right hand twist) rather than the left hand twist, which is called Hawser. The Cable twist is the softer of the two warps. Write Ederer, Inc., for samples and prices--address on Source of Supply sheet in Packet I. Ederer, Inc., will wind this twine on 4 ounce tubes for the packet readers. The price is reasonable, hardly more expensive than carpet warp. Carpet warp is all right for experimental warp.

**WEFT:** The weft wools used for Arrow and Lightning can be many. The ideal weft yarn is a three ply vegetable dyed wool yarn (made in both Norway and Sweden). A sample of the 3-ply Norwegian wool yarn is on the sample card. A 2-ply is also often used. The 2-ply makes a finer textured fabric, but takes longer to weave into a textile. It is advisable to use the Tapestry Yarn made by Emile Bernat & Co., Jamaica Plain, Massachusetts. This Tapestry Yarn is of excellent quality and comes in an extensive color range, producing a most satisfactory result. A textile from this Tapestry Yarn, however, does not possess the characteristic "homespunny" look that is desirable in this peasant Art Weaving techniques. Bernat's Peasant



had that "look", but it is no longer manufactured. Barlett's and Condon's two ply Knitting Yarn may be used, but the color range is sadly lacking. These two yarns may be successfully dyed with vegetable dyes or even "drug store" dyes (Tintex, Rit, etc.). When "drug store" dyes are used put a pinch of gray into the dye bath to soften the harsh chemical colors. Some Scandinavian weavers use a great deal of heather type yarns----different colors of fleece spun into the yarn strand. St. Stephens Woolen Mill, St. Stephen, New Brunswick, Canada, produces this type of yarns. Their 2/8 cut can be nicely used in half-tapestry weaves, if the weaver is not too demanding about his colors. Some brands of yarns are lacking in Rust color. Rust color is almost indispensable for Art Weaving techniques.

Also the Persian Rug Yarn is a good substitute for these techniques, even though the yarn has that sheen -----but Persian Rug Yarn does come in beautiful colors.

SET-UP FOR ARROW TECHNIQUE.

Warp: 20/9 Ederer's Cable "Fine Yarn Cotton Twine".

Weft: Bernat's Tapestry or other wool yarn mentioned above.

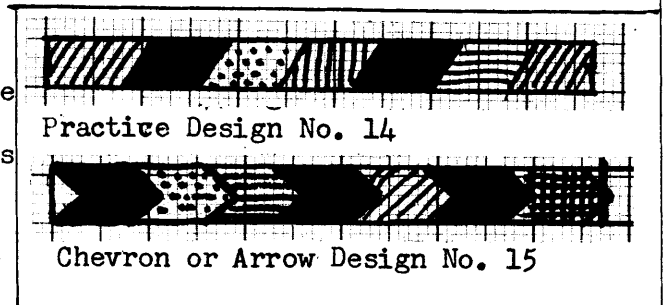
(If cotton weft yarn is compulsory, use Lily's Tulip 4 Strand Filler)

Reed: 8 dents to the inch.

Threading & Sleying: One thread through each heddle and each reed dent.

THE WEAVING PROCESS: ARROW TECHNIQUE,

As has been mentioned, two sheds are necessary in the Arrow Technique. No.1 is called the "Pattern Shed" and No.2 shed is called the "Interlocking Shed". The Pattern Shed is the shed that has the extreme warp thread at the left of the loom on top of the shed, while the Interlocking Shed is the shed that has the extreme warp thread on the bottom of the shed---at the left of the loom. On an upright loom these "extreme" warp threads would be called "front" and "back" warp threads.

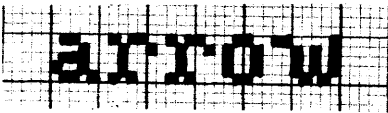


In the Arrow technique the weaver starts with the Pattern Shed. This is important! The bobbins are laid in this shed from the right to left of the loom, each bobbin covering its allotted warp space. The Interlocking Shed takes the opposite direction---from left to right of the loom. The Pattern Shed is the one---and the only one---in which any pattern changes are made. The Interlocking Shed performs just that function---it is the shed in which the different bobbins are interlocked. The Lightning technique is an exception. No interlocking takes place in the Lightning technique.

For practice work, have as many handwound bobbins (directions on folder) as there are units of design in your plan. Let us follow the weaving of Figure 4 above. Have 112 warp threads (or more if you care to extend the design--8 front and 8 back warp threads for each rhomboid figure). 112 warp threads will give seven units of 16 threads each---8 top and 8 bottom warp threads, with 2 selvage bobbins and 5 main body design bobbins. If the design were followed correctly (figure 4) there would have to be added another bobbin, after two rows of weaving had been done, but for simplicity, at first, take the bobbin at the left of the loom clear out to the selvage threads each time. Tie in your bobbin ends as shown in figure 5. The ends may be left hanging, if desired, and darned in beside a warp thread later. First, weave a small heading, about 1/2 inch, ending on the Interlocking Shed.

Get the No.1 or Pattern Shed and lay in your bobbins from right of each unit through the shed to the left of each unit---that is, each bobbin will go under 8 warp top threads. The first bobbin will have the bobbin hanging at the left selvage and the end of the bobbin yarn will be projecting about one inch on top of the weaving, between the 8th and 9th top warp threads. The second bobbin (from left hand side of loom) will be hanging from the space between the 8th and 9th warp threads, and the end will be projecting from the space between the 16th and the 17th warp threads. See Figure 6. Follow this procedure across the loom---each bobbin laid under eight top warp threads.

NO WEFT IS BEATEN DOWN UNTIL A ROW IS FULLY COMPLETED CLEAR ACROSS THE LOOM. Then, and then only, is it advisable to beat down the units of weft yarns.



Since one usually employs the Arrow and Lightning techniques as borders and border combinations, as well as combinations of the lightning zigzags for the main body of the textile, it would be well---should one wish it---to have your loom threaded for one of the larger designs given in the packet, and after some practice work on both the Arrow and Lightning techniques, weave a heading of one inch and let the heading serve as a plain bottom border for your larger textile---border best of Black yarn.

Should the bobbin ends give the weaver any trouble---and they undoubtedly will---tack the ends down onto the fabric with a small piece of Scotch tape. These ends seem to have a persistent determination to get tangled into the weft yarn---your vocabulary, after a time, becomes inadequate, so resort to the Scotch tape.

When the weft yarn is laid in the shed, allow the part that goes in back of the eight warp threads to form a curved line or "arc". See Figure 8. This "arc" is necessary, just as the weft in overshot weaving is put in the shed on a diagonal line---to allow for the excess yarn that is needful to cover the warp, after the weft is beaten down. Ordinarily, the weft will assume this "arc" formation itself---if not pulled tightly---after both the end of the yarn and the bobbin are hanging from the fabric. The height of this curved line can only be determined by experience. It must be just enough so that the warp will be, at any time, not "pulled in at the waist". One will find that the longer the unit of design, the higher this arc or curve will be.

After the row of bobbins has been out in on the Pattern Shed (Fig.6) beat down the row of weft yarns with the beater, once; change the shed to the Interlocking Shed and beat again.

The weaver now has the No.2 shed or the Interlocking Shed. It is well, in this technique, to work always from the left side of the loom. Now, picking up the first bobbin at the left of the loom, bring the bobbin through the Interlocking Shed and out between the 8th and 9th warp threads; (remember the "arc"!) pick up the second bobbin; bring it up over the weft thread of the first bobbin (See Figure 7.) and into the shed, through the shed toward the right side of loom, and out between warp threads 16 and 17. That is the interlocking process and must be completed clear across the loom.

Notice that there is a vacant warp thread between each bobbin end and the bobbin lying next to it in Figure 6. This is as it should be. But on the Interlocking Shed in Figure 7, the bobbin from the left and the interlocking by the next bobbin is done between only two warp threads. Before your two rows of weft bobbins are beaten down, these two rows should resemble the two bottom rows on Figure 13. Now beat down the weft; change shed and beat again.

You now have the Pattern Shed---and now comes the Pattern Change. First look at Figure 13, on the next page, carefully. Pictured there is the first row "A" on the Pattern Shed, second row "B" on the Interlocking Shed and the third row "C" of the first bobbin on the Pattern Shed. We are now to do "X". Bring the bobbin back one warp thread. It must be

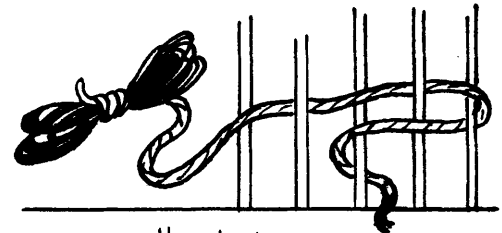


Fig.5. Tying in the yarn ends.

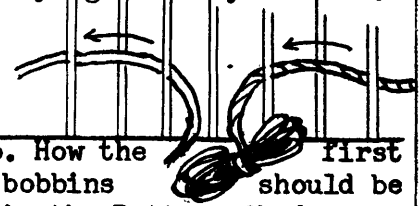


Fig.6. How the first row of bobbins should be placed in the Pattern Shed.

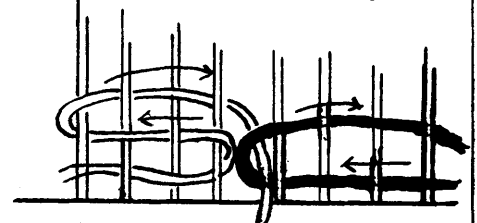


Fig.7. The interlocking process.

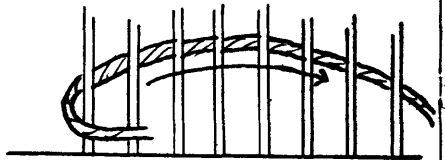


Fig.8. What is meant by the "arc" or curve.

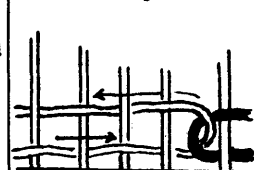


Fig.9 RIGHT Pattern Shed

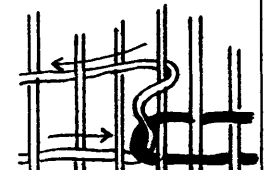


Fig.10-WRONG Pattern Shed

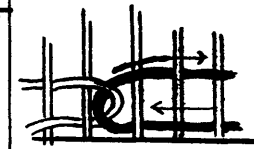


Fig.11-RIGHT Interlocking Shed.



Fig.12-WRONG Interlocking Shed.





On the Pattern Shed, J,K,L,M and R are front warp threads. E,F and T are back warp threads. When E and F, and F and T are pulled out, you are making the Interlocking Shed, really.

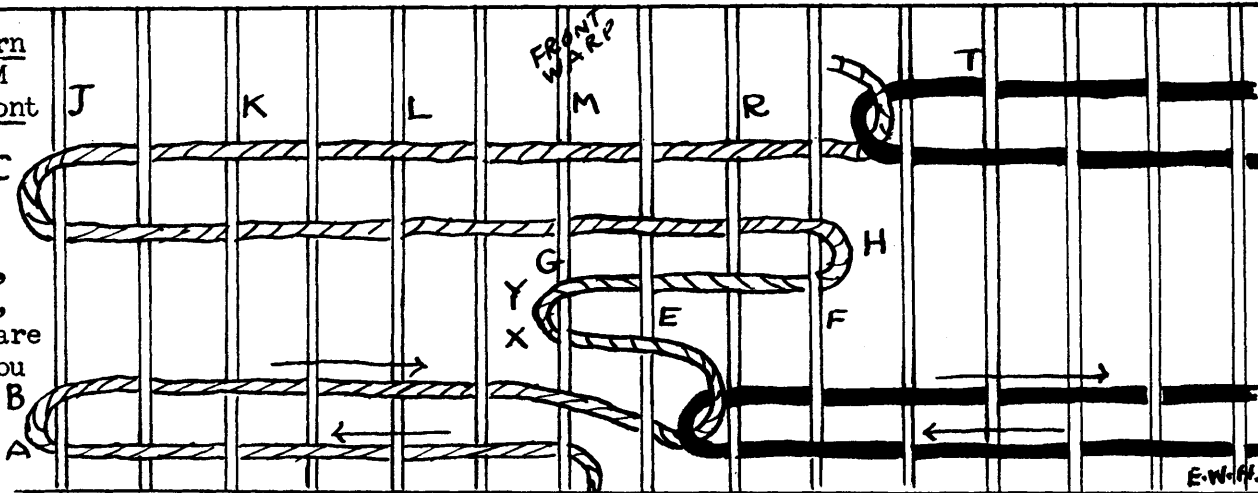


Figure 13. HOW THE PATTERN CHANGE IS MADE. Only 4 top warp threads are used.

"M" not "R". (Glance at Figures 9 and 10 and see what not to do.) Next pick up the two back warp threads "E" and "F"----first "E", then "F"----with the index finger of the left hand; (the middle finger may suit some weavers better) pull the two warp threads up through the top threads of the Pattern Shed----thus making a shed on top of your Pattern Shed----; put in the bobbin and through this two-warp-thread shed from the left to right direction (using the right hand to hold the bobbin, while the left hand is holding up the two warp threads) at a place nearer the weaver than are your left hand fingers holding the two warp threads. When the weaver has put through the bobbin to "H", let the two warp threads fly back into place. The Pattern Shed is still formed---or should be. (Keep the loops or turns at "G" and "H" just so---neither too loose or too tight. ) Next pick up on the middle finger of the left hand, the warp threads "R", "M", "L", "K", and all others out to the selvage, and put your bobbin through this "enlarged" Pattern Shed out to the selvage edge. This takes care of your Bobbin No.1. Do the same with all the other bobbins as directed above. Your No.2 bobbin will come out beside the loop "H". Then the row of Pattern Changes is beaten down. (No, this seemingly extra amount of yarn at "X" and "Y" will not show---after the weft is beaten down.) After beating with the reed, change the shed to the Interlocking Shed; beat again.

After the above row is beaten down, and have the Interlocking Shed, bring the bobbins through the several sheds---starting at left of loom----and interlock the weft yarn threads, just as was done in the second row of this process. Beat and change to Pattern Shed.

On this next shed, the warp thread "R" will be used instead of "M" as you are advancing one more "step" to the right, and "F" and "T" will be the two back warp that are brought out to the top of your weaving. There is this to remember, however. Your selvage bobbin, in this particular practice work, will cover a different number of warp threads going and coming---because no new bobbin was added on the third row of the weaving---but, the bobbins in the main body of your design (bobbins Nos.2,3,4,5, and 6) will always go through 8 warp threads on both the Pattern and Interlocking Sheds. The small practice design No. 14 shows these two selvage units as not being strictly a rhomboid shape.

A design unit need not have just 8 warp threads, i.e., 8 front and 8 back warp threads; a unit of design may have any number of warp threads, but it is well not to have a unit with less than 4 front warp and 4 back warp threads. So as not to be confused, I shall explain the drawing of Figure No.13. I have drawn four front and four back warp threads to permit clearness and save space. When beginning your practice piece, each unit will have 8 front and 8 back warp threads, and "R" will be 9th warp thread in your weaving, instead of fifth, as pictured. Also, when you use bobbin No.2, you will have only 8 front warp threads to pick up on the third row. On the third row in this practice piece, the first bobbin will go the space of 9 threads, because of the selvage unit, and because a new bobbin was not added, which would be really No.1-A. Should one wish to add the new bobbin, refer to



Figure 3, on the LIGHTNING sheet of weaving processes.

Refer to the woven sample; pull apart the weft threads and examine the pattern change on the third row. The samples are stapled on the card wrong side out, as all these half-gobelin tapestry weaves are woven from the wrong side.

Your next shed, the Interlocking Shed, will have the same procedure as row No.2. The first bobbin is interlocked with bobbin No.2, No.2 goes through 8 warp threads and is interlocked with bobbin No.3, and so on clear across the loom. In regard to the selvage bobbin at the right side of the loom: No pattern change is made with this right hand selvage bobbin. On the Pattern Shed it is just put through the shed to the place where the 6th bobbin is lying, but the 7th or selvage bobbin is interlocked each time on the Interlocking Shed.

TO REVERSE THE PROCESS AND THUS FORM A CHEVRON.

Refer to Figure 16. To reverse the Arrow in order to form a Chevron design, weave as many "steps" in the first half of the design, to the right of the loom, as desired, ending on the Interlocking Shed. (This is important!) Change to the Pattern Shed, and without making the Pattern Change, bring the bobbin back through the Pattern Shed toward the left of the loom for 9 warp threads, i.e., for 9 front warp threads (call this "V"); change to the Interlocking Shed (after beating); interlock the weft threads and put each bobbin through the shed toward the right of the loom for 8 warp threads. (call this "W"). Repeat "V" and "W" until the second half of the Chevron or Arrow design equals the length of the first half of the design. This process will happen to bobbins 2,3,4,5 and 6. In case of the selvage bobbins, 1 and 7, have them come in each time to meet the main bobbins and return again to the outer selvage threads. This will form a clean cut arrow or chevron. An arrow form may be created with the Lightning technique also, but the form takes a different angle. To tie off any bobbin just slip knot the weft strand around a warp thread--Figure 17. Or if preferred, the end may be left hanging, without making the slip knot. I prefer the knot.

When the weaver has mastered the Pattern Change, the Interlocking Process and the Reversal Procedure, the weaver will be able to master the most important technique of this series, the Aklae technique (the author's opinion) much more quickly.

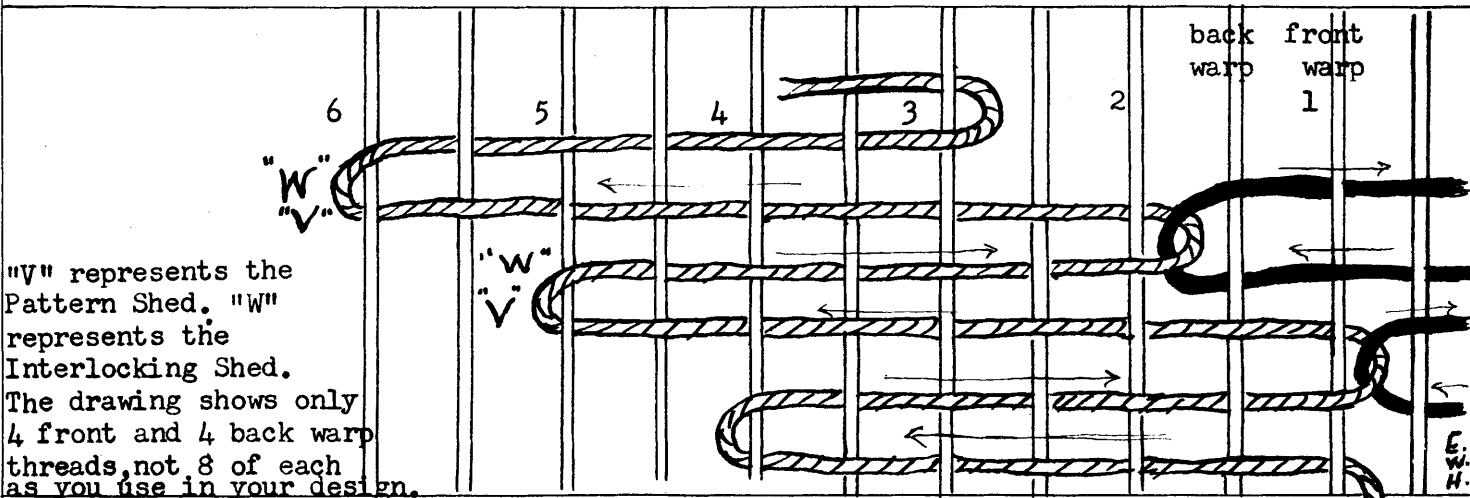


Figure 16. The REVERSAL PROCESS OF THE ARROW TECHNIQUE.



Figure 17. Always tie this slip knot on the Pattern Shed.

Suggested First Order Of TAPESTRY YARN

Order only from Emile Bernat & Sons, 89 Bickford St., Jamaica Plain, Massachusetts. Write this company for current prices. Always order a substitute color. You are more sure of getting quantity ordered. 4 ounces of each of the colors suggested: Rust, 645 or 644; Green, 865 or 615; Blue, 854 or 554; Antique Black, 806 or Black, 807; Gold-Yellow, 993 or 703; Wood Brown (Tan), 623 or 622; Cream, 557 (or White, 801 only as a substitute). Tapestry Yarn has 950 yds. to lb. The trade name given this yarn is "Tapestry Wool".

# Lightning

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Lightning weave (Lynildbordvevning-Norwegian, Blixtväfvt-Swedish) is an entirely different technique from the Arrow technique. Our own American Indian designs resemble greatly these Lightning designs, but while the American Indian textiles have the interlocking around a single warp thread, no interlocking at all takes place in the Lightning weave. In the Swedish Malmöhus weavings, where a great many textiles are made in the Lightning weave, we find a reflection of the "Skybragd" or Northern Lights, so we are told. This revelation, then makes us wonder if this Lightning weave is not a reflection of that same aurora borealis---the shooting spikes of color into the heavens and their diffusion into one another.

The warp in this weave is entirely covered by the weft, and the weaving is done from the back of the work. There are several techniques (I know of three) by which this Lightning weave may be done. I studied the technique from two different Norwegian teachers and each did the weave differently. Then a third technique appears in Halvorsen's HANDBOK I VEVNING. The third I do not care for, but will try to give a satisfactory exposition of two of the techniques. It is sometimes well to raise the back of the loom, a horizontal loom, of course, so that the work can be more readily seen. Some weavers prefer to use several strands of single ply yarn for the weft bobbins, but I have found that single ply yarns get easily tangled when releasing the yarn from the bobbins, therefore, the 3 ply vegetable wool is best---or as we must use, at present, Bernat's Tapestry Yarn. The warp and reed set-up is the same as for Arrow technique.

On this page the weaver may see an illustration from GAMMAL ALLMÖGESLÖJD FRÅN MALMÖHUS LAN, Volume 3. It is interesting to note that represented in this weaving are four of the techniques that may be learned from the PACKETS. Row 1, at the top of the weaving, is Dukegång; rows 2, 4, 6 and 8 are Half-Krabba; rows 3, 7 and 9 are Aklæ or Rollakan, and the middle row No. 5 is the Lightning weave.

## Working Process for Experimental Piece, Figure 2.

Any loom making two sheds of plain tabby may be used. 144 warp threads of 20/9 Cotton Twine is required; this gives eight sections of 16 threads each---8 top and 8 bottom warp threads--- with eight warp threads (4 top and 4 bottom) for each selvage border. Since this border is not of the Lightning technique, but really Aklæ, there must be interlocking with the border bobbin and the first Lightning bobbin on the left of the loom, and interlocking of the 8th Lightning bobbin and the selvage bobbin at the right of the loom. Wind your bobbins, then make a heading first of Black yarn for an inch or so. The side borders will be about one inch wide, therefore have your bottom and top headings of corresponding height. End your bottom border on the Pattern Shed.

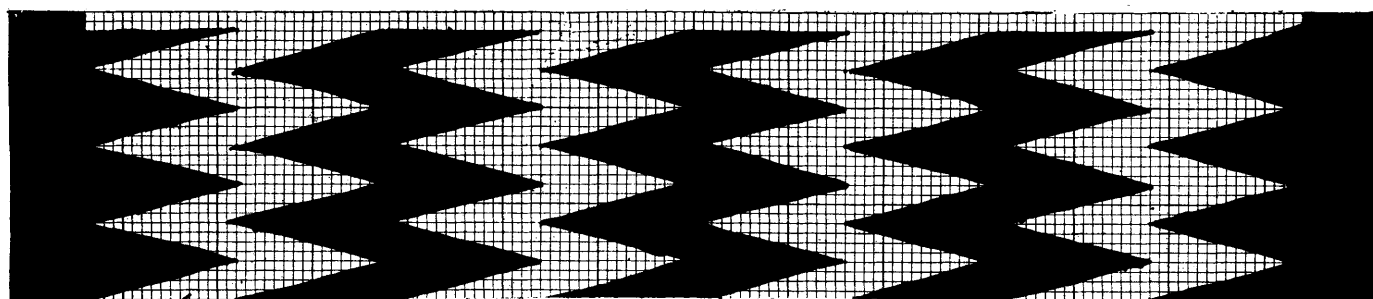
Your first or beginning shed will then be the Interlocking shed. The Lightning weave begins on this different shed than the arrow. The last warp thread on the left of



An ancient wall hanging, from Gammal Allmosgeslöjd Från Malmöhus Lan, Volume 3. Owned by Anna Piper.

# Lightning

the loom is at the back or on the bottom of the shed. Now that you have the Interlocking Shed, insert the Black bobbin at the left selvage for four top warp threads---the bobbin going in the left-to-right direction. The bobbin end will be clear out at the left hand selvage, and the bobbin itself will hang between the 4th and 5th top warp threads. Put in your first zigzag bobbin. The end of this bobbin will be between the 4th and 5th top warp threads in the same opening as the Black border bobbin is hanging, and the zigzag bobbin will be carried through the shed for the distance of eight top warp threads. The bobbin will come out between the 12th and 13th top warp threads. Repeat this process for the rest of the sections of eight warp threads with the zigzag bobbins (8 zigzag bobbins in all). There should be left at the selvage four top and four bottom warp threads for the right side border. Put the Black bobbin through these. The end of this bobbin should be between the 68th and the 69th top warp threads, and the Black bobbin will hang out at the right hand selvage. There should, now, be a bobbin and an end of the next bobbin hanging between the same two warp threads throughout the width of the weaving. Don'T forget the "arc" or curve, please!



ANTIQUE BLUE RUST TAN LEAF GREEN BLUE RUST TAN GREEN BLUE BLACK  
BLACK 855 645 623 615 855 645 623 615 855

EXPERIMENTAL DESIGN \*\*\*\*\*PATTERN NO.1\*\*\*\*\* COLOR KEY IN TAPESTRY YARN  
8 UNITS OF 16 WARP THREADS EACH (8 front and 8 back)-- 2 Side Borders of 8 Threads Each.

Interlocking of the border bobbins on this first row is not necessary. Change the shed and beat well. You now have the Pattern Shed. Starting at the right of the loom, bring your Black bobbin through the shed toward the left, for four top warp threads. But on this Pattern Shed your zigzag bobbins will be put in the shed for a distance of only seven top warp threads, instead of 8, as you did on the Interlocking Shed. This vacant top thread is left vacant, so that on the next shed the design will advance one step forward, or over that vacant warp thread. This makes your progression, and forms your Lightning design. Put all your zigzag bobbins in the shed for seven threads toward the left of the loom. When you come to the left Black border bobbin, you put it through the four top warp threads out to the left edge. Your zigzag will be going diagonally to the right, while your side border will be going upwards in a straight line. Figure No.2. Change your shed and beat well.

You now have the Interlocking Shed. The next step is as follows: Starting at the left Black border bobbin, bring it through the four top warp threads, or to where your first zigzag bobbin is hanging----or I had better say, what was your first zigzag bobbin, for now a new bobbin must be added, or a gap will result. This new one we shall call No.A-1. It will be the new Blue bobbin. Refer to the large drawing, Fig.3, in order to do this. Part "A" of Figure 3 shows this. One cannot interlock here, but take your second original, or next, bobbin and put it through 8 warp threads, covering the vacant warp thread left from the preceding row. Continue this across the web until you come to the right hand selvage, take the Black border bobbin, bring it up over the already hanging 9th (now) zigzag bobbin and thru the 4 border warp threads. You have interlocked this last border bobbin. See part "C", figure 3. (About the newly added bobbin refer also to paragraph 2, under "Suggestions".) Change the shed and beat well.

You again have the Pattern Shed. Repeat as you did for the other Pattern Shed above. Keep the border always the distance of 4 top warp threads and insert the zigzag bobbins for a distance of seven top warp threads. This process continues until the points of the zigzags are as long as one desires. I would suggest, at first, for the length of your point, that you go in the right direction on your diagonal for the distance of 8 warp threads. Also, when you go in the reverse direction of your diagonal, toward the left, that you

# Lightning

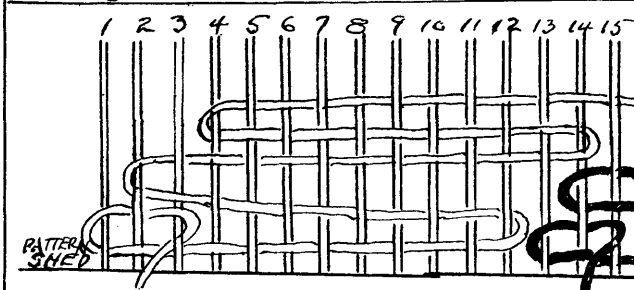
go for a distance of 8 top warp threads. Refer to Figure No.1 for this. After the new bobbin was added (no interlocking took place because the small open space would be covered when the weft has been beaten down), the new bobbin on the third interlocking shed will have to be interlocked with the left hand border bobbin, and on each row of the Interlocking Shed thereafter. Should a bobbin run out at the right hand side, refer to "Suggestions", paragraph 3. This should complete the first half of the Lightning technique.

## THE REVERSAL OF THE LIGHTNING PROCESS.

The woven sample, mounted with the wrong side out, shows both the advancing and the reversal processes. When the ends are clipped from the wrong side of your weaving the wrong side should look almost as presentable as the right side. Carefully look at Figure 6 on the large sheet. (Figures 4 and 5 tell their story, also.) After the last weft shot has been put in on the Interlocking Shed in the left-to-right direction---having made your zigzag points as long as desired----change your shed to the Pattern shed, and beat, of course. You now interlock the border bobbins with the adjoining bobbin as you did before, but upon the first inserting of the zigzag bobbins from right-to-left direction, you go through the Pattern Shed for a distance of 8 warp threads. This will appear to be a double row of weaving. See Figure 6. But this prepares you so that you can reverse the direction of your zigzag. On the next shed, the Interlocking Shed, you put the bobbins in for a distance of seven top warp threads. (Reversing the zigzag requires reversing the technical process.) Incidentally, you are on the first or Pattern Shed of the second half of your design. Put in all the zigzag bobbins for the distance of 8 top warp threads, and your border bobbins for 4 top warp threads. Change the shed and beat. On the returning shed, which will be the Interlocking Shed, you interlock your borders as usual, but put the zigzag bobbins through the Interlocking Shed for a distance of seven threads only. Figure 6. Repeat this process until the second half of the zigzag equals the first half of the zigzag.

If you wish to continue the zigzag pattern, take eight warp threads on your Interlocking Shed---having ended on the Pattern Shed---and take seven on your Pattern Shed, just as you did in the very beginning. That is the one way to do the Lightning technique. It sounds complicated telling it, but it's really quite simple.

I do not fully approve of the method about which I am to tell you, because in all these half-Gobelin techniques the acceptable method is not to go back around a warp thread. This about-to-be-told method does just that. The process is this: Begin with the Pattern Shed. Take six front and six back warp threads (or as many as one wishes), and tie in the ends above the first row, not below. (A good chance to practice standing on your head.) See Figure below. Pattern Shed is numbered 1, 3, 5, 7, 9 and 11. First Row: Take weft through



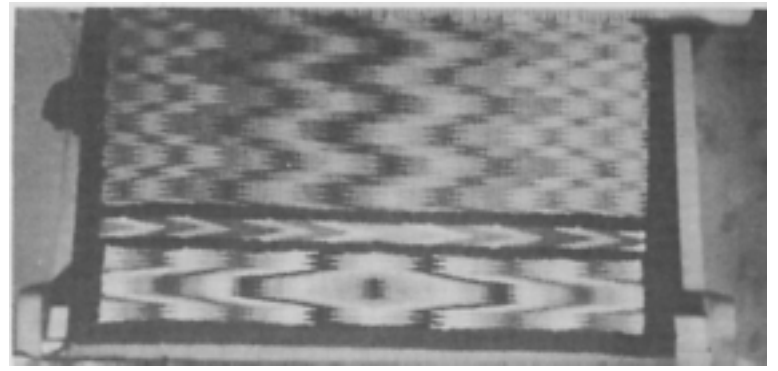
six top warp threads from left to right (after tying) then change shed to Interlocking Shed. Second Row: Right to left, turn weft bobbin back around the 12th warp thread (which will be the first thread on the right hand side of the design unit). Take this bobbin back under six top warp threads. This will leave a space open on the bottom warp, No. 1 thread of Pattern Shed, on which the bobbin to left of this immediate unit will advance on the next row.

Change shed to Pattern Shed. Third Row: Bobbin is put through this Pattern Shed in regular way (not turned round back of warp thread)---in front of the warp thread---and go 6 warp threads (always under 6 warp threads). This will advance the weft yarn one thread to right. Continue this process until the length of zigzag point is woven---as long as one wishes it. to reverse the zigzag, go back on Pattern Shed for 6 warp threads--from right to left direction---but in reversal of the zigzag, the weft is put back around the warp thread on the left-to-right direction (to gain a step forward), and on the right-to-left direction the weft thread is put in the shed in the regular way, i.e., by not putting it back around a warp thread. Try this method. You may like it. But the one first given carries through a process that is done throughout the techniques, by most Scandinavian weavers.



# Lightning

-4-



A brief description of Pattern 2 is as follows: the heading is put in as usual. The number of bobbins used to begin with should be, at least, 11. There are 160 warp threads in the design. The first part of the design is the same as for the experimental piece, 8 top and 8 bottom warp threads. As many of these zigzags may be woven as desired. After these have been woven you will advance in the same way as in the experimental piece until the point of the long diagonals is reached. These points extend for a distance of 32 warp threads---16 top and 16 bottom. Reverse the direction of the zigzag when ready to do so, and weave as many of these as is desired. The next zigzag (medium size one) is the same as the first zigzag made. Weave the required number, then reverse in the right-to-left direction to get your small zigzags. The small ones cover a distance of 8 warp threads---4 top and 4 bottom.

The small zigzag may answer for the main part of your weaving, with the medium and large size zigzag patterns for a border. The large and medium size zigzags take up about 18 inches of weaving. With two of these 18 inch areas and the middle of about 9 inches, the woven textile should measure about 18 x 46 inches.

Pattern 3 above is more difficult to weave, that is, the bottom and top borders are. The body of the textile is a progression of 4 top warp threads, making the advancing shed of 3 top warp threads. The bottom border shown in the photograph is not easy. One, while working on the left half of the design, is always one step ahead on the right half of the design. One half is done on the Pattern Shed, while the same row on the other half is done on the opposite, or Interlocking Shed. In other words, one is advancing on the right side, while in the same row on the left half, one is reversing. The weave makes a beautiful textile, but I would advise anyone to, first, master the rudiments of the Lightning process, before attempting this pattern.

## SUGGESTIONS\*\*\*FROM MY OWN EXPERIENCE IN WEAVING LIGHTNING TECHNIQUE.

1. If, after planning your design, you find that there is an uneven number of warp threads left on each side of the loom for your borders---as 4 top and 3 bottom---you will find that the weft will have to <sup>be</sup> wrapped around the last selvage warp thread of the uneven number---when that shed is uppermost or on top. This is to keep the weft out at the edge of the weaving. This same annoyance happens in overshot weaving also.

2. Adding a new Bobbin. Add a new bobbin on the Interlocking Shed only. Add a new bobbin when one top and one bottom warp threads are left vacant, and then the bobbin is added on the left-to-right direction shed. Figure 3 "A" shows this process. This bobbin need not be interlocked, until the next Interlocking Shed, if it's next to a border bobbin. This same principle applies also to the process of adding a new bobbins at the right hand selvage.

3. To drop a bobbin. Weave as far as you can with your bobbin; suppose it is a Tan color bobbin, and on the left of it is a Green color bobbin. After the Green bobbin is out through the shed from right to left---suppose through 8 top warp threads---there will be two warp threads (one top and one bottom) that must be taken care of by your Tan bobbin. Put the Tan bobbin through the one and one threads shed, and tie it off with a slip knot, on this shed, as the two warp threads (one top and one bottom) must be left for the Green bobbin to advance on its return. This applies to either direction of weft bobbins---Fig, No. 5, "A".

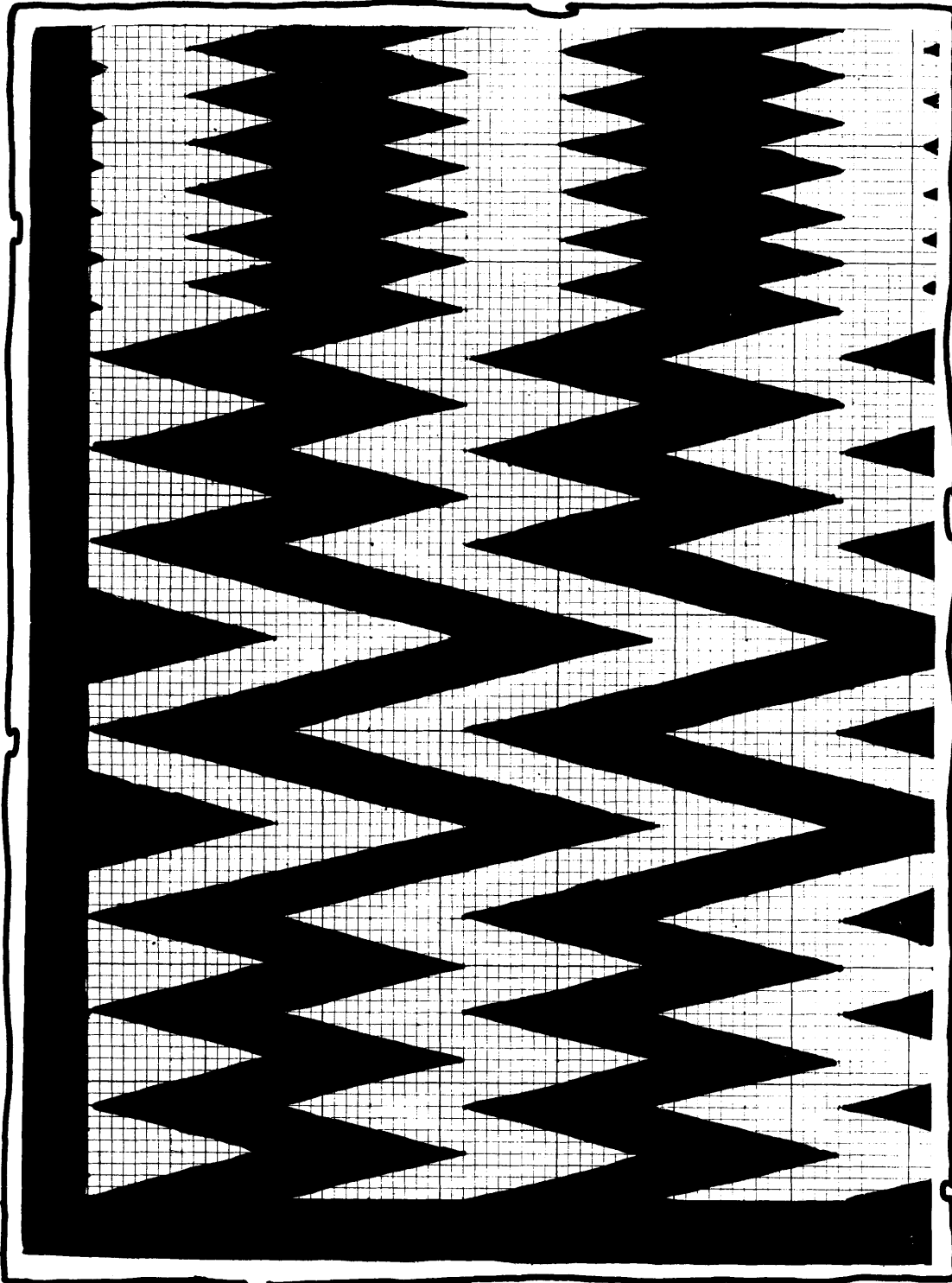
4. Use 20 to the inch cross section paper. It gives a better idea about your design.

5. Start working at the right side when bobbins are pointing toward the right; from left side when bobbins are pointing toward the left. Interlock border bobbins first.

6. Explanations of Pattern drawings. In Figure 6 the reversal places appear to be not in the same row (A, B and C). In the real weaving they will be. Pattern 2 <sup>shows</sup> but 3 units of the design. The photograph, Figure 1, on Arrow first page shows the full width of the pattern. Pattern No. 3 shows only half of the design. The photograph on this page shows full width of the design. Color keys are at the bottom of the pattern designs.



PATTERN NO. 2 — FROM ILLUSTRATION NO. 1



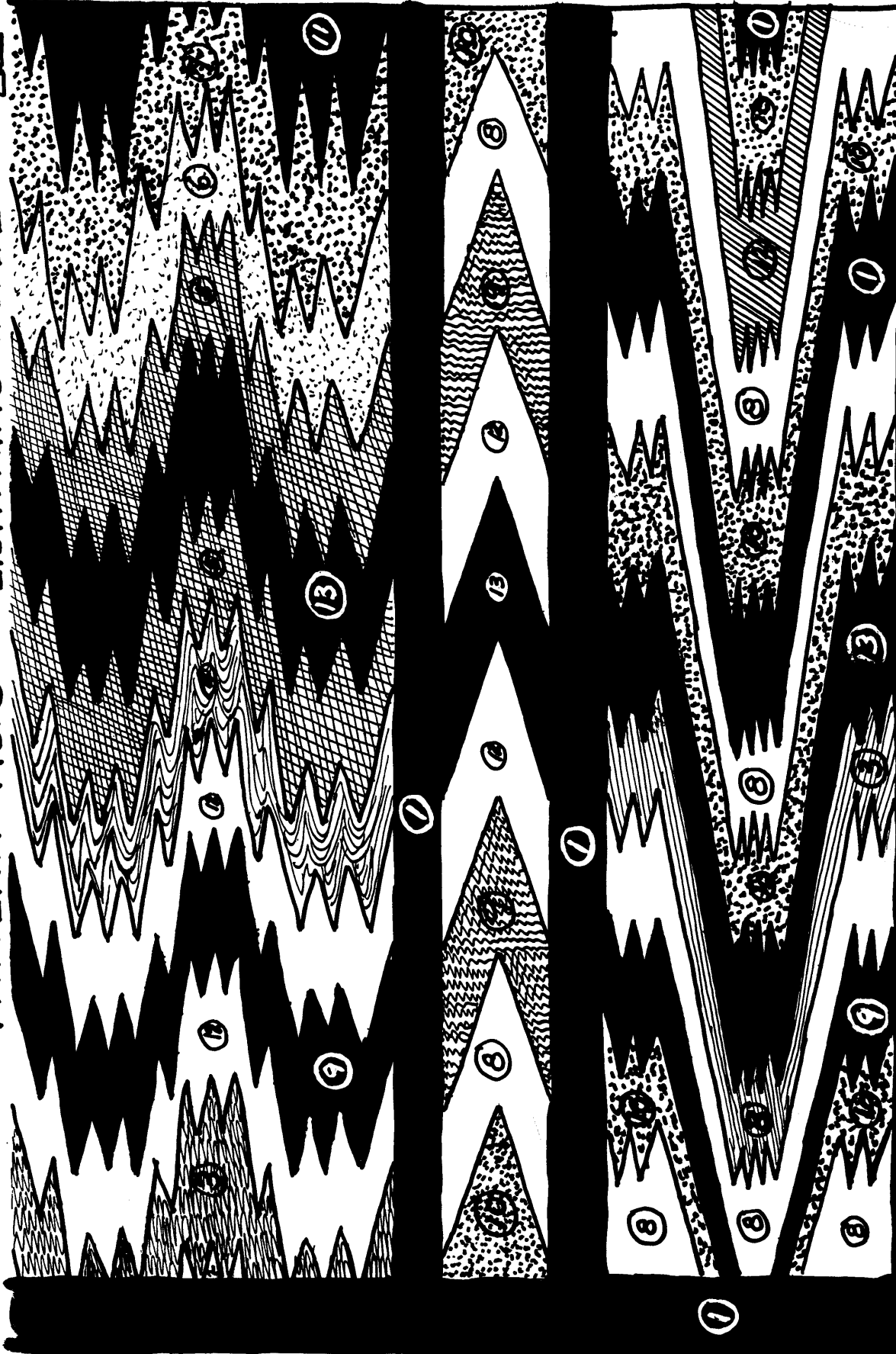
COLOR KEY IN BERNAT'S TAPESTRY WOOL EWY

ONLY TWO UNITS OF THE DESIGN ARE SHOWN. THE TEXTILE  
MAY CONSIST OF AS MANY UNITS AS DESIRED. NINE UNITS ARE USED  
IN THE ILLUSTRATION WITH COLORS IN ORDER AS FOLLOWS:

NATURAL-NO. 557 BRICK RED-NO. 645 NATURAL-NO. 557 LEAF GREEN-NO. 615  
GOLD-NO. 994 WOOD BROWN-NO. 627 LEAF GREEN NO. 613 RED-NO. 767 NATURAL

EW

PATTERN NO. 3 LIGHTNING WEAVE



COLOR KEY  
 1-BLACK 2-BROWN 3-TAN 4-MER BLUE 5 GREEN BLUE 6-ROSE 7 MAROON 8-WHITE CENTER  
 9-GREY-GREEN 10-RUST 11-MAHOGANY 12-GOLD 13-PK BLUE

# LIGHTNING WEAVE TECHNIQUE — (LYNILD BORD VEYNING)

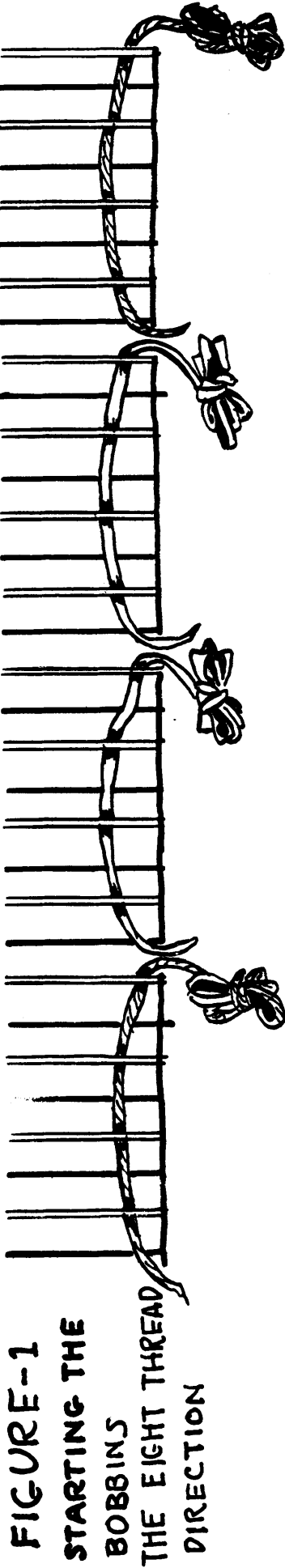


FIGURE-1  
STARTING THE  
BOBBINS  
THE EIGHT THREAD  
DIRECTION

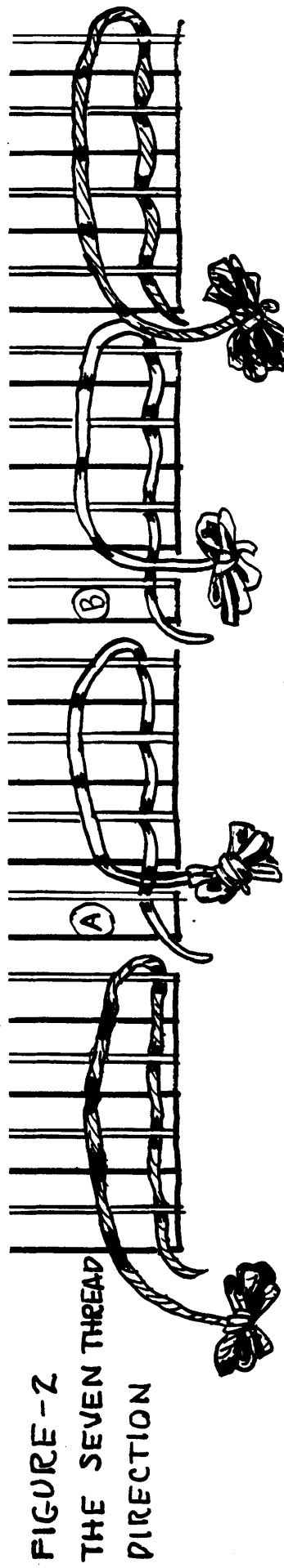


FIGURE-2  
THE SEVEN THREAD  
DIRECTION

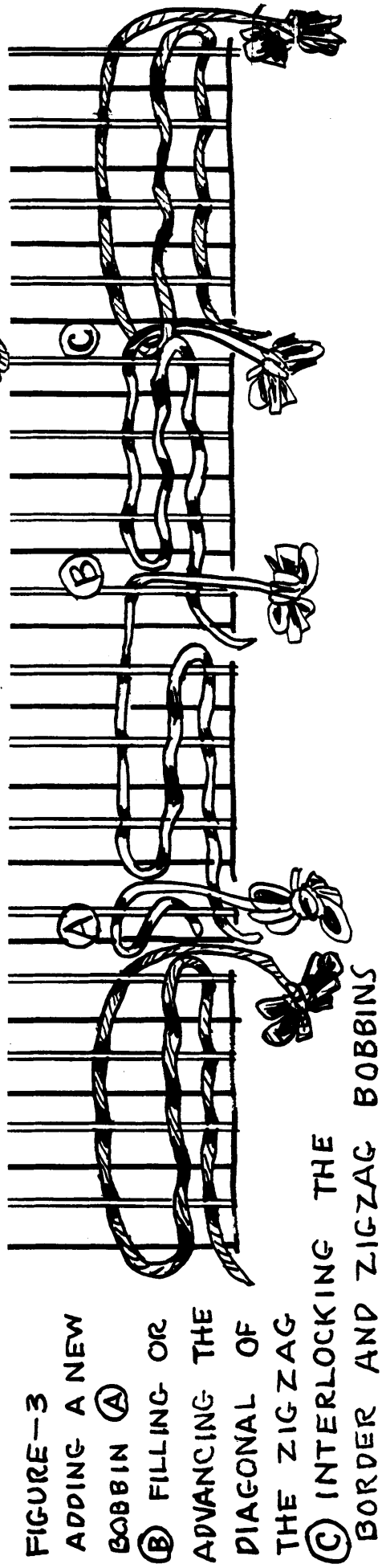


FIGURE-3  
ADDING A NEW  
BOBBIN (A)  
(B) FILLING OR  
ADVANCING THE  
DIAGONAL OF  
THE ZIG-ZAG  
(C) INTERLOCKING THE  
BORDER AND ZIG-ZAG  
BOBBINS

THE DRAWINGS ARE EXAGGERATED TO MAKE THE TECHNIQUE MORE CLEAR.  
FOR LACK OF SPACE 4 FRONT WARP THREADS ARE USED IN THE DRAWINGS  
INSTEAD OF 8 ON THE INTERLOCKING SHED, AND THE WEFT IS PUT THROUGH  
3 WARP THREADS ON THE PATTERN SHED INSTEAD OF 7. †

FIGURE - 4

SHOWING VACANT

WARP THREADS

FILLED (A)



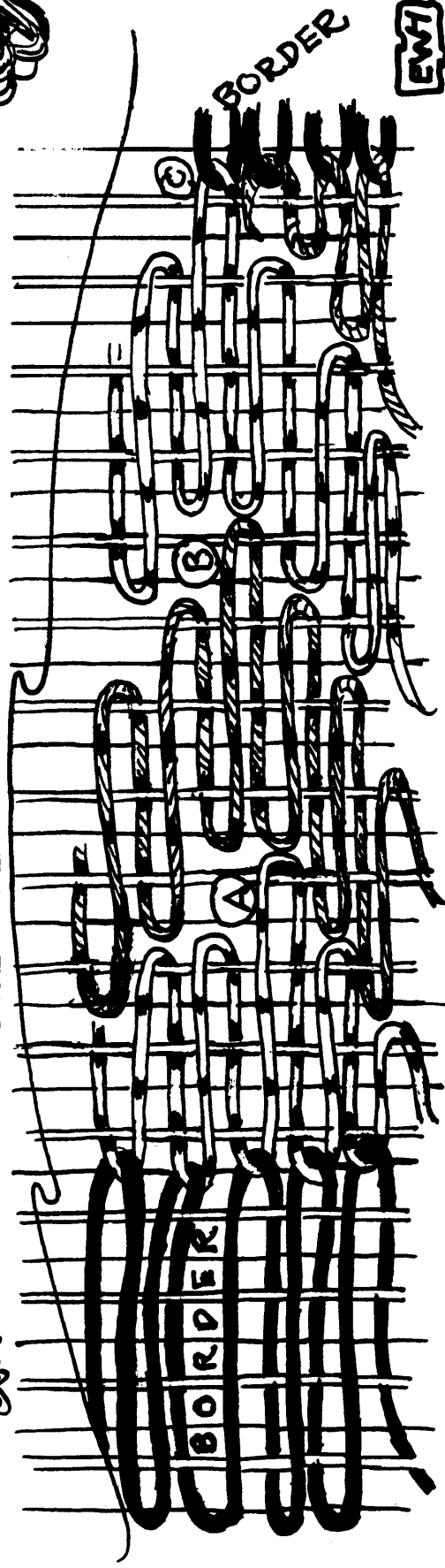
FIGURE - 5

(A) DROPPING

A BOBBIN



FIGURE 6



REVERSING THE DIAGONAL OR SECOND HALF OF THE ZIGZAG

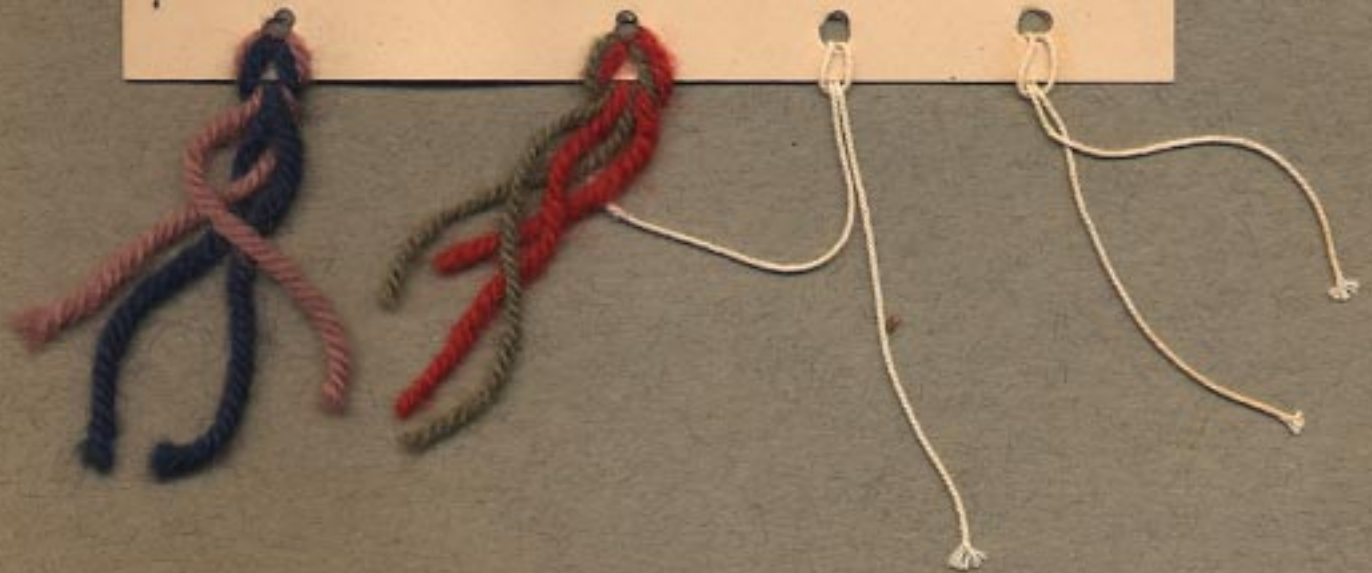
(A) (B) AND (C) SHOW WHERE THE REVERSAL TAKES PLACE



SAMPLE OF  
AKLAE  
Homecraft Weaving Service

YARNS USED FOR THESE WEAVES

Bernat's Tapestry	3-Ply Vegetable Dyed	20/9	14/6
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# Aklæe

Norwegian Aklæe (pronounced aw-kli) is the most regal of all the half-tapestry techniques. Pictured in the illustrations, Nos. 1 through 8, are excellent examples of modern Norwegian textiles in the Aklæe technique. All these textiles were designed by Else Poulsson, and were used through the courtesy of Den Norske Husflidforening of Oslo, Norway. Nos. 1, 2 and 3 are wall hangings; Nos. 4, 5 and 6 are cushions, and 7 and 8 are table runners. Nos. 4, 5 and 8 would be good designs to "transcribe" onto cross section paper for beginners. Particularly handsome is Illustration No. 1, "The Skiers".

In Aklæe one can create both in form and color any design that can be put on graph paper. In creating a design, in any type of weaving, strive for that which is characteristically distinctive to that type of weaving. Instead of working with a few colored threads, as is often the case in our American weaving, one has the opportunity to work with as many colors as a painter might use on his palette. One is not inhibited in the design by the harness of the loom, but only inhibited by the extent to which the design fits onto the graph paper. No curve can be simulated as in real tapestry, but an approximation of curved lines can be reached as is shown in the illustration of the Viking, Illustration No. 10. In this design, designed by Gene Johnson and woven by the author, each square on the graph paper represented one warp thread.

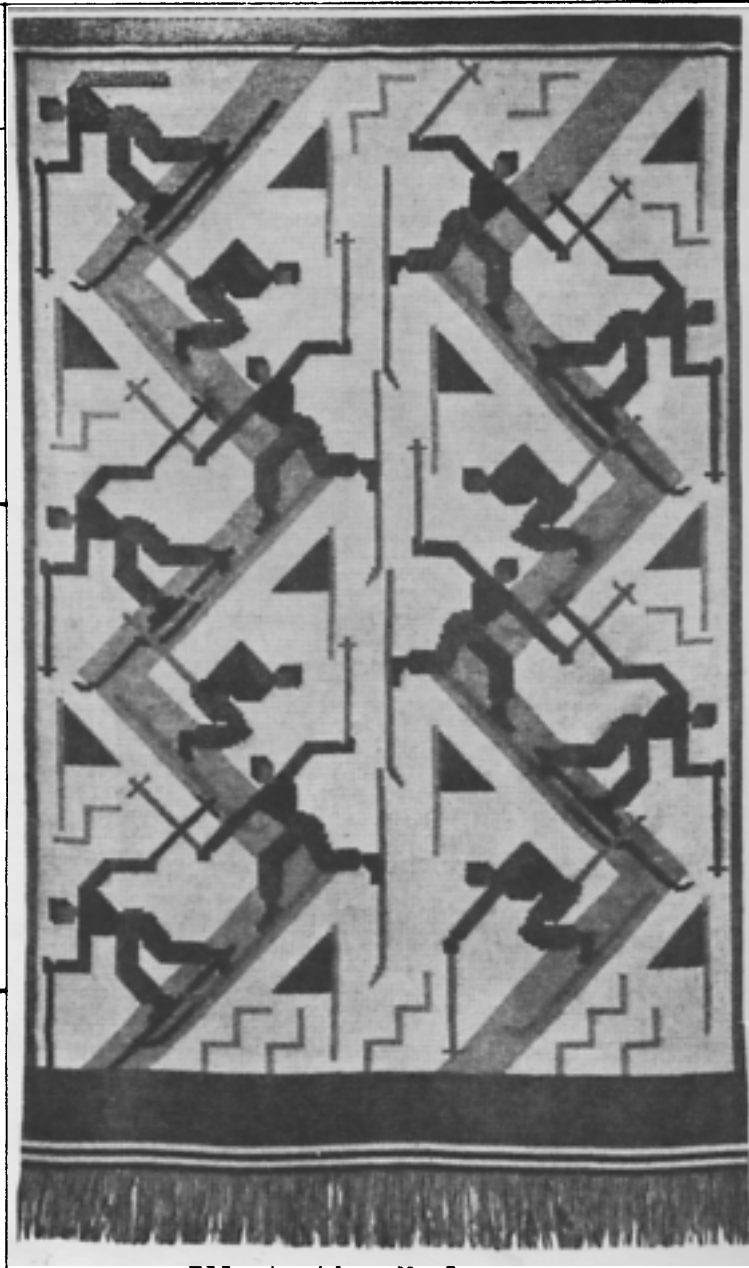


Illustration No. 1--"The Skiers"

The loom, warp and weft yarns are the same as described for the Arrow and Lightning techniques in Packet IV. Use cross section paper with 8 squares to the inch, as a No. 8 reed is used in the weaving. I would suggest that a beginner put his design on a four to the inch graph paper so that the design can be more easily followed. This is not absolutely necessary, of course. Let each square on your graph paper represent your smallest unit of warp threads, i. e., two warp threads to a square or four warp threads to a square, etc. The usual unit of warp threads is four--two front and two back. This unit can be clearly represented by one square on the graph paper. The "set-up" for Aklæe is given under Pattern 1.

I know of no better or satisfying design for a beginner to start on than the one given in Pattern 1, Illustration 9. So let us try it. First, wind bobbins of Rust, Tan, Buff, Green, Blue, White and Black. As in Arrow, two sheds are necessary, No. 1 or the Pattern Shed, and No. 2 or the Interlocking Shed. Get the Pattern Shed--this is the one with the extreme left hand warp thread on top of the shed, and the last right hand warp thread on the bottom of the shed. The bobbins on the Pattern Shed run in the direction of right to left of the loom. The bobbins returning on the Interlocking Shed run in the left to right direction.

The first bobbin--starting from the right of the unit---is put in the shed from the right to left as far as the unit of design requires. If the unit of design is eight warp threads--4 front and 4 back---the left hand pulls out the four front warp threads; the right hand inserts the bobbin; the first and second fingers of the left hand catch the bobbin,



---the third and fourth fingers of the left hand are still holding out the the four warp threads, and the bobbin is pulled through until the yarn is within two inches of the end of the thread, Figure 1. The bobbin is held in the left hand and the weft thread in the shed is pushed up the warp so that the end may be tied, Fig. 2. The "tie" is this: the right hand takes the end of the weft thread; turns it under the back warp thread that is on the right of your unit; brings the yarn around over the next front warp thread, which lies to the left of the back warp thread just used, then over the next back warp thread, around it and out to the front. All this is pushed down with the fingers to the already finished work---regardless of what that "already finished" work is. This tying-in must always be done when a bobbin is added, and is an important step to know. All the suggestions given herein are for speed, and not as though you were going to weave a 4 inch square doily. When the unit of design covers only two warp threads, tie in a yarn end as in Fig. 4.

When an end is to be tied off, proceed as follows: Allow the end to be long enough to carry through the Interlocking Shed---say two inches---so that it can be tied off in the Pattern Shed, Fig. 11. The end is tied to a front warp thread in the Pattern Shed by a slip knot. This knot is pulled rather tightly. Tying the ends will surely make the finished product more secure. This same tying off of ends applies also to tying off a bobbin no longer needed in the design. The reason the end is tied off in the Pattern Shed is because the yarn weft has been interlocked in the previous shed, and, consequently, no slit will be left in the weaving. Some weavers object to this slip knot; they let the end hang, but when the ends are clipped off---as is the custom---the end may slip out of the weaving and look unsightly.

When all the bobbins have been put in on this first shed, you will find that there is one warp thread that appears to be empty between the two front warp threads---where one bobbin ends and the next one begins---but this must always be apparent throughout the weaving, Fig. 9. If this empty back warp thread does not show, then you have made a mistake of putting a bobbin back around a front thread instead of placing the weft forward in the shed, Figures 12a and 12b show this. If this is done your work will be ruined. When the bobbins are brought back from the left of loom to the right, on the Interlocking Shed, the weft thread will appear as in Fig. 10. The weft thread brought through the Interlocking Shed will fall beside the thread already there on the previous Pattern Shed---with no back warp thread between the two weft yarns. Figures 12c and 12d show the correct and incorrect method of laying the weft in the Interlocking Shed. One must be extremely watchful of this, at first.

All weft yarn is put in the shed, observing the "arc" formation which was dealt with at length in the Arrow & Lightning packet, Packet IV. Do not permit any excess loop to form where the bobbins are interlocked, as your work will look messy. On the Pattern shed a slight pull is given each bobbin as it is put in the shed so that the design will have a straight vertical edge between each pattern unit---but not enough pull so that any of the warp threads will be pulled from their normal position.

Let us now get back to our experimentl piece.

The set-up follows:



Illustration No. 2 "Comedy"

**SET-UP FOR THE EXPERIMENTAL PIECE, Pattern 1.**

(For all Aklae work, use the set-up below.)

Warp: Ederer's 20/9 or 14/6 Fine Yarn Cotton Twine.

Weft: Bernat's Tapestry Wool.

Reed: 8 dents to the inch--one thread through each heddle and each dent of the reed.

No. of Warp Threads: 116, with 29 squares in design. For finer looking textiles, a 20/6 twine could be used with a No. 10 reed, but, to begin with, use the No. 8 reed and the 20/9 warp.

(A temporary heading should, of course, be woven first to give a foundation to your work.)

On your Pattern shed, lay in your first row of design bobbins in the manner described on page 1. Your bottom border of Black (or use medium Blue, if you prefer) goes clear across the web, but instead of putting in this border like a tabby weave, divide the 116 warp threads into 3 sections---18, 18 and 22 front warp threads. Lay in the 3 bobbins and tie the ends, as described on page 1, beginning at the LEFT of the loom, counting to the right for 18 front warp. Put this first bobbin in the shed by taking the bobbin between the 18th and 19th warp threads, and taking the bobbin out to the left selvage. The end of the bobbin will be between the 18th and the 19th warp threads and the bobbin will hang at the left hand selvage. The direction, please remember, on this Pattern Shed is that the weft goes from the Right to the Left of the loom. Put in your second bobbin between the 36th and 37th warp threads, through the shed so that the end of the bobbin will be between the 36th and 37th warp threads and your bobbin will hang from between the 18th and 19th threads. Put the No. 3 bobbin in from the right hand selvage, so that the bobbin will hang between the 36th and 37th threads and the end of the bobbin out at the right selvage. Figure 9.

Let the weft of these bobbins lie loosely in the shed (a large "arc"); beat; change the shed and beat again. You now have the Interlocking Shed. Interlock the weft yarn as the bobbins are put through the Interlocking Shed---from Left to Right of loom. When the yarn is put through the Interlocking Shed, allow a large "arc", as this space, at present, is wide. Bobbin 1 is brought through, (Fig. 10), and bobbin No. 2 is brought up over the bobbin No. 1 yarn, then bobbin No. 2 is put through the shed. Do the same with No. 3 bobbin. To complete one row of a design unit, the weft must be taken through the two sheds: once from Right to Left, and once from Left to Right. Fig. 5. Beat; change your shed, and beat again. (All warp must be covered.) You now have the Pattern Shed. Continue the above two processes for about 16 rows, two shots each, (16 shots on the Pattern Shed and 16 shots on the Interlocking Shed), clear across the loom. This should give you the bottom border, or the

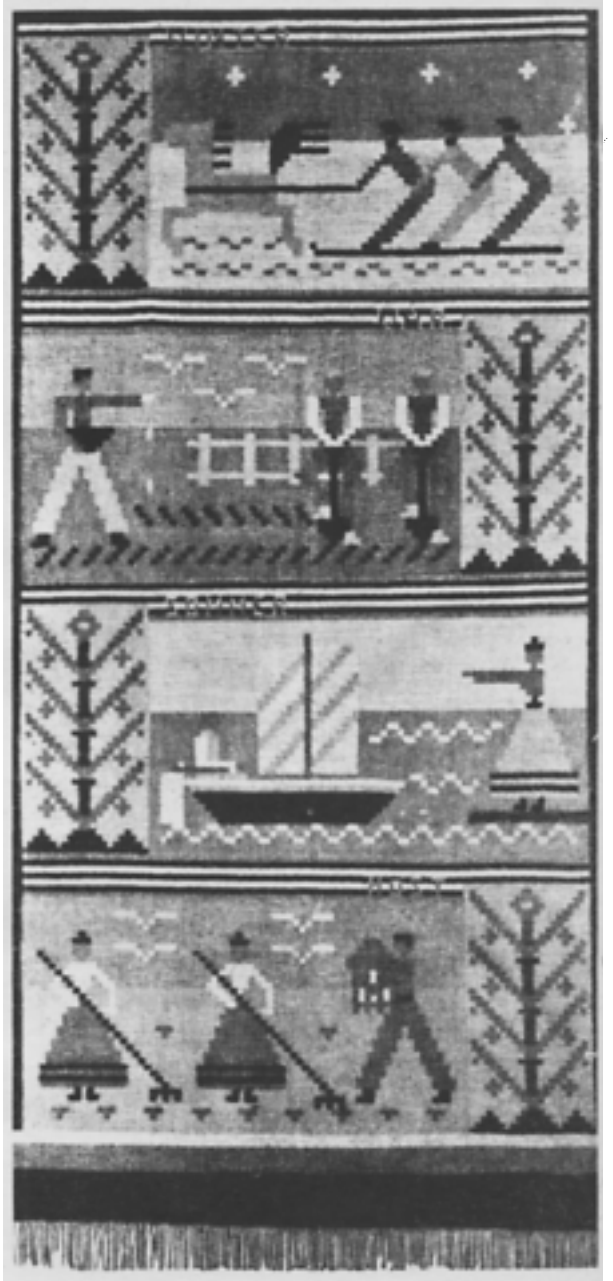


Illustration No. 3--"Four Seasons"

squaring of two blocks or squares on your pattern design. All blocks on your design must be squared, or the design will be out of proportion.

Tie off Bobbins 1 and 2. Bobbin No. 3 is in place for the right-hand side upright border. Discard one bobbin and tie in the other one at the left side of the loom for your left-hand side upright border.

On this new Pattern Shed, allow 8 warp threads---4 top and 4 bottom---for each side border. The left-hand side border, after weft is put in the shed will have the bobbin hanging at the left selvage, while the border bobbin at the right side

of the loom will hang from between 8th and 9th warp, from the right selvage. Now take 3 Rust color bobbins. Divide the 50 top warp threads into three sections or divisions, 17 and 17 and 16 top warp threads. This takes care of 100 warp threads in the 25 squares of design, 50 top and 50 bottom threads, that the Rust color is to cover. Tie in these 3 Rust color bobbins as you did at first. You now have 5 bobbins to work with,-----left to right, you have Black, Rust, Rust, Rust and Black. If you have put all 5 bobbins through the Pattern Shed---as you did on the very first row of weaving---you are ready to beat. Change the shed and beat again. You now have the Interlocking Shed. (Checking: on the last Pattern Shed, you should have had a Black bobbin hanging from the left selvage; a Rust bobbin hanging from between the 4th and 5th top warp; a Rust bobbin hanging from between the 21st and 22nd warp threads; a Rust hanging from between the 38th and 39th warp threads, and a Black bobbin hanging from between the 54th and 55th top warp threads.)

Now, starting at the left of the loom, bring the 5 bobbins, one at a time, through the Interlocking Shed and interlock them with the bobbin<sup>is</sup> lying at the unit of design spacing---the Black with the second bobbin of Rust, the second bobbin of Rust with the third bobbin of Rust, and so on, until the 5 bobbins are interlocked. This completes the first row of the third square of design. Continue with these 5 bobbins for 8 double shots of weft, in order to complete the third block or square of the design. After beating each time a row is woven, and for 8 double rows, change your shed to the Pattern Shed. Tie off Rust bobbins 1 and 2, but let Rust No. 3, hang on the right.

The Pattern Shed is now open. Put the Left hand Black bobbin through the shed out to the left selvage. Tie a Rust bobbin in behind 2 top warp threads (there are 4 warp threads in this Rust color unit). Now a new Tan color bobbin must be added, at the left of the design. This Tan bobbin takes care of 2 squares of design. Tan bobbin will be going in the right to left direction. Next, a new Blue bobbin is tied in to take care of the 2 Blue squares on the design. A White bobbin is tied in next for the space of 4 top warp threads. Then comes a space of 11 squares of Buff color. These 11 squares will mean the space of 22 top and 22 bottom warp threads. A White bobbin is tied in next for a distance of 4 top warp threads; next a Blue bobbin for a distance of 4 top warp threads, and then a Tan bobbin for the distance of 4 top warp threads. The Rust bobbin is already on the loom at this point. Bring the Rust bobbin for a distance of 2 top warp threads, or to where the Tan bobbin was tied in. And finally the Black bobbin for the remaining 4 top warp threads is brought through the shed to where the Rust bobbin begins.

Beat and change your shed. You now have the Interlocking Shed. Starting at the left of the loom, bring each bobbin through the shed to where the next bobbin lies, interlocking each as it meets the other. Beat and change the shed. This will complete one row of the weaving for this combination of design squares. Repeat this process until 8 double shots are complete. (Sometimes the yarn used will need more or less double shots to square a design square. The design block squared will appear higher than wider, but as the weft is beaten down the block



Illustration No. 4

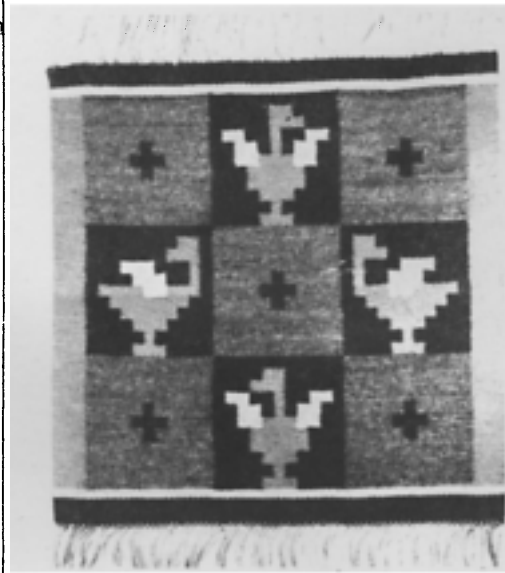


Illustration No. 5

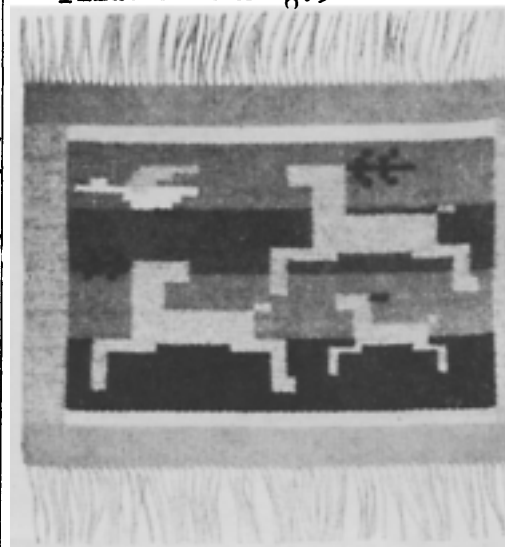


Illustration No. 6

# Aklae

will become a more squared form.) After beating down the rows and finally changing the shed to the Pattern Shed you are ready to weave the fifth block of the design. But before we go on, look first carefully at the drawings of Figures 6, 7 and 8. In this fifth design block we encounter the most important step in Aklae weaving. It is the ingenious method used by the Norwegians in making a design change. If you have mastered the ARROW technique, then you have already learned part of this unique method. The method is this: in making a design change in the weaving, that is, if you wish to advance a White weft thread over to the right for, say, four warp threads, and this advancing falls over a Black unit of four warp threads, the following process takes place. In Fig. 6 consider the space of 8 warp threads lying between "X" and "Z". "A" is the white weft thread and "B" is the black weft thread---already put into the weaving. At "Y" the interlocking had taken place from the previous shed. You now have treadled for the Pattern Shed. ALL PATTERN CHANGES MUST TAKE PLACE ON THE PATTERN SHED.

The white thread "A" is put back one front warp thread in the Pattern Shed---that is, to the left---then brought around this same top or front warp thread. Then using the fingers of the left hand, you will pull out three BACK warp threads, clear out in front or on top of the shed you now have (the drawing represents these back warp threads as black broken lines) and the white weft yarn "A" is put in back of these three back warp threads toward the right of the loom. This makes the white weft "A" lie in front of the original top or front warp threads. You then the three back warp threads return to their places. The white weft yarn "A" is now caught by the last back warp thread. This advances the white block design four warp threads---two back and two front warp threads. This white bobbin of weft yarn must now be brought back toward the left, to its original unit block which is between the space of four warp threads of "X" and "Y". The three back warp threads were pulled out because the first one belonged to the old unit of design and the other two to the new advancing unit.

What was really done was making the Interlocking Shed by pulling out the warp threads with the fingers, instead of changing the entire shed, for the width of the weaving, by using the treadle. (Use the treadle and see this.) Your white bobbin now covers the space of "X" to "Z".

If the Black block ends in the design, you will already have slip-knotted the end and cut it off, leaving about an inch of yarn hanging. But if the Black block advances in the design, then the same process must be followed as was described for the advancement of the White unit. And, in this case, the Black unit must be advanced before the White unit is advanced.

Should the unit of design advance toward the left of the loom, the method outlined in Figure 7 is used. The unit of black is between "Y" and "Z", and the unit of white is between "Y" and "X". If you wish the black weft yarn "B" to go from "Z" to "X", then you just lay the black weft thread in the Pattern Shed, back toward the left from "Z" to "X". This makes a unit of black over 8 top or front warp threads. If the white unit ends after having completed its height in the weaving or design, then the white yarn "A" is slip-knotted and cut off, but if the white part of the design continues toward the left, then the white weft yarn "A" must first be taken back to where it belongs before the process with the black yarn "B" is carried out. This is shown in Figure 8. You will find, in a case like this that you will have 2 weft yarns in the same shed for a certain distance (white and black), But this is all right. However, unless---in a case like this---you change the white first, your weft yarns will lie in the shed in a white-black-white order. This will cause a mixture of color, which is undesirable. Therefore, the order in the shed must be white weft-white weft-black weft. This occurs where the colors overlap in the same shed.

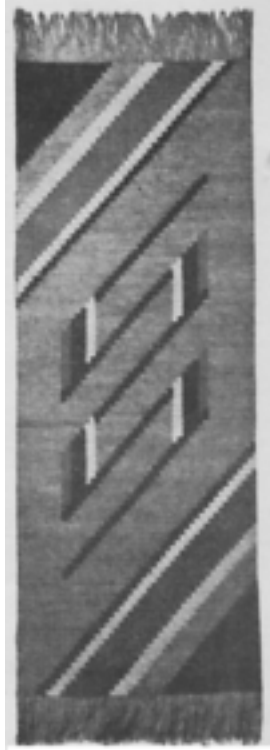


Illustration No.7



Illustration No.8



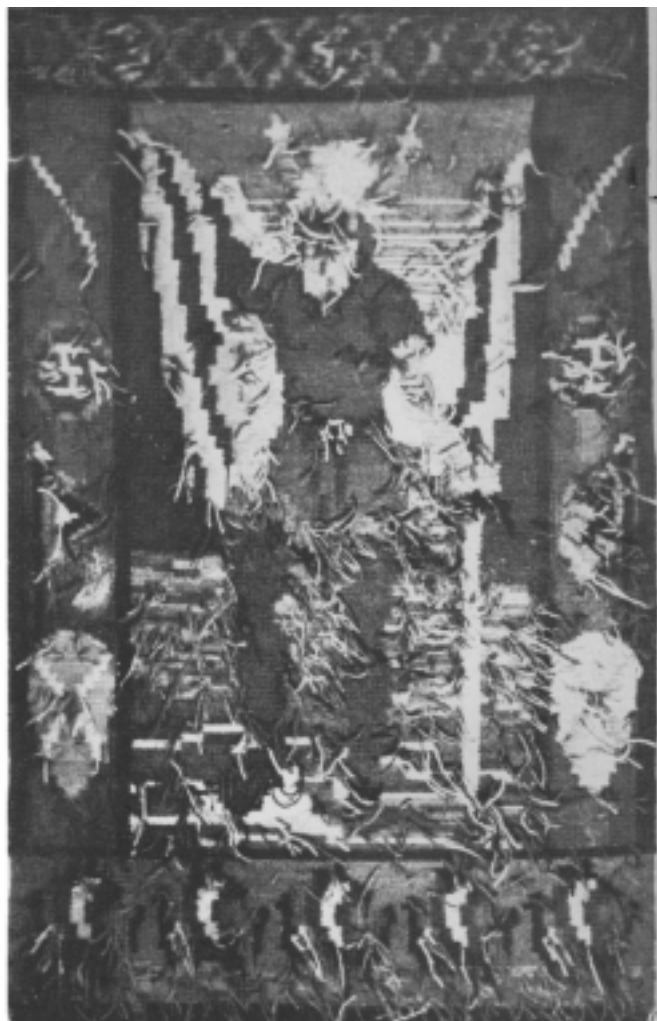
If the design advances toward the right and toward the left, both methods of advancing just described are employed. These few "secrets" of the working technique make the Norwegian process desirable over any other technique for this particular result which the right side of the textile gives. It is unwise to advance on the Pattern Shed for more than 5 back warp threads (this means advancing the design for 4 top and 4 bottom warp threads---one back warp thread belongs to the old unit). There will be too much overlapping of weft yarn ; this not only looks bad, but, also, makes it difficult to square the block. Rather than advance too far, tie off, and cut off the bobbin, and tie the bobbin in again at the right, in the place where you wish to begin or advance the unit of design.

In Rollakan (Swedish) one interlocks on both sheds, and instead of using the ingenious method of the Norwegian technique discussed above one takes the bobbin yarn, puts the bobbin in where needed---whether this is advancing a unit to the left or to the right. In the Norwegian, all working processes are hidden within the warp sheds; in Swedish Rollakan all working technique as seen on the wrong side, which makes the textile made in the Rollakan technique unusable on the wrong side.

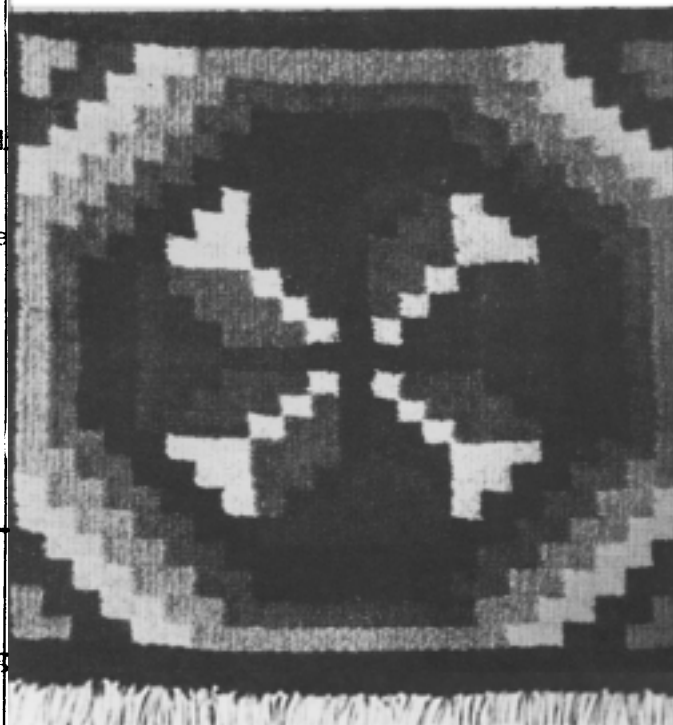
Another method used in Norway is similar to our American Indian weaving. No interlocking takes place, but the weft is wrapped around the back warp threads. Some bobbins are going in one direction and some in another. This might seem simpler to some, but when one has learned the real "ingenious method", one feels as though he were "standing high in his boots". I know the three methods, but I prefer the first one discussed above because when one learns it one really has something. And it is really easy to learn.

The following notes, from experience, will prove beneficial to the beginner of the Aklae technique:

1. Tapestry Wool requires from 8 to 10 double shots of weft to square a block---8 on the Pattern Shed and 8 on the Interlocking Shed. The number of shots depends on the weaver.
2. You change design only on the Pattern Shed.
3. After an inch or so of design has been woven, the ends may be cut off. Pull the end, after having been tied, up away from the web to snip it off.
4. It saves time and is easier to work from the left side of the loom toward the right, regardless on which shed you are working.
5. It is well to draw a line through each row of



"The Viking" No.10--Woven by the author. Designed by Gene Johnson.



No.11--Lightning and Aklae--Designed and woven by the author.

squares on the cross section paper when you have finished that particular row.

6.If possible,do not leave the loom until you have finished all the units of color in a full row. If necessary to do so, stick the bobbin,to be used next,between the warp threads so that you will know where you stopped.

7.It takes one shot of weft to the right and one shot of weft to the left to cover the warp threads. When you go toward the left on the Pattern Shed, you must return toward the right on the Interlocking Shed in order to complete a row of weaving.

8.In making design changes---either to the left or to the right---do the furthestmost advancing one first.This will eliminate a great deal of confusion to the beginner.

9.To acquire speed: when a bobbin is caught--coming from left to right--by the right hand,speed is gained by holding that bobbin and putting it in place while the left hand picks up the next bobbin and interlocks . The right hand lets go of the bobbin it was holding in order to pull out the top warp threads,so that the left hand can pass, through the shed thus made,the bobbin which it holds. The right hand ,after letting go of the back warp, takes the bobbin as it comes through the shed----and the same process is repeated for the width of the weaving.

10. Wrap bobbins about 20 times (20 figure "3's") Do not have them too bulky. Try to place bobbins in their right order when brought through the different sheds.

11. A new weft thread may be tied in anywhere in the weaving on the Pattern shed,as long as it is tied by the method given in Figure 2. When tying-off an end,pull the weft yarn rather tight around the top warp thread,otherwise a bulky loop will show. When this is done and a new bobbin of the same color is added to that unit, you may either tie the end (the new one) over the end that you have just slip-knotted or tie the new end beside the slip knot. The reed will beat down what might seem,at first, a bulky mass.

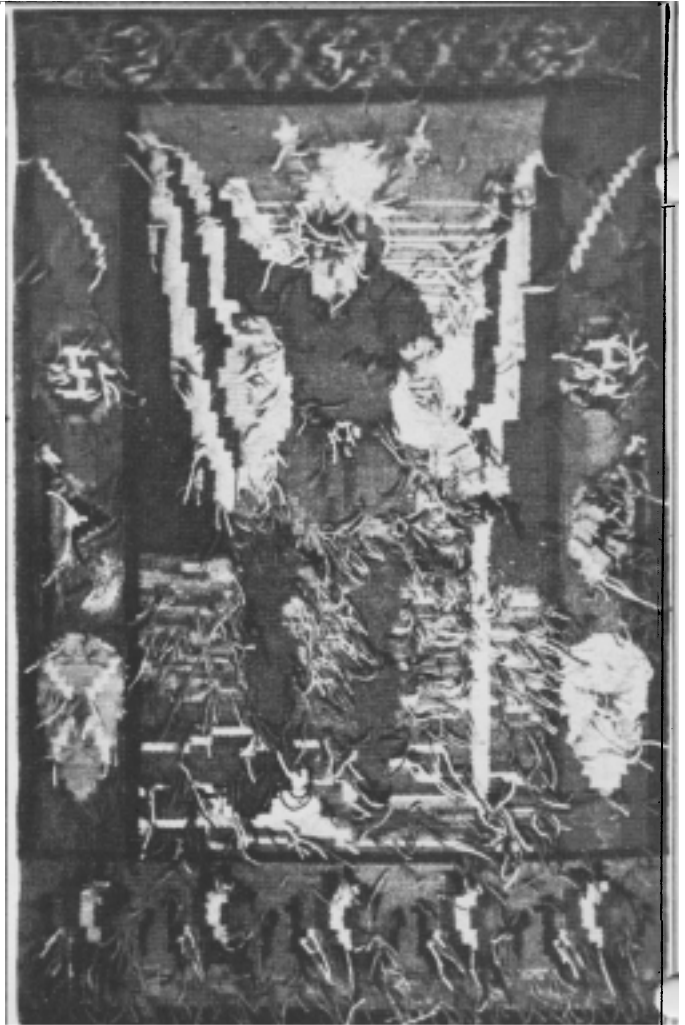
12. If the yarn gets entangled in the bobbin,use patience to untangle it.

13. Adjust a white cloth under the warp threads for the entire width of the weaving,in case the continual looking at the warp has a tendency to strain the eyes.

14. Each unit of design requires a separate bobbin

15.Clip off the ends that hang from the weaving very closely----but not too closely,or you may be minus a warp thread.

Let's hope that many of the packet readers will master this Aklae technique. It is a grand weave to know, and some of the most beautiful work in Art Weaving is produced by this technique.



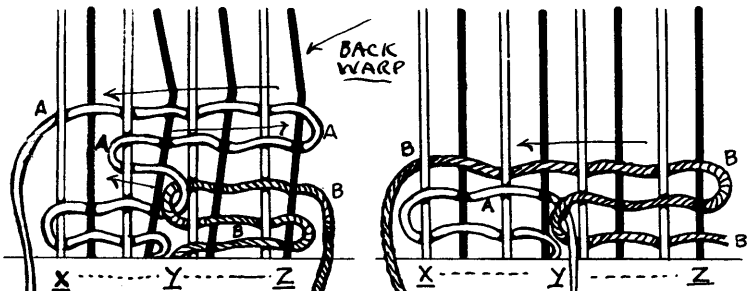
"The Viking" with the ends left on to show what the working side is like.



Illus. No.9-Experimental Piece.

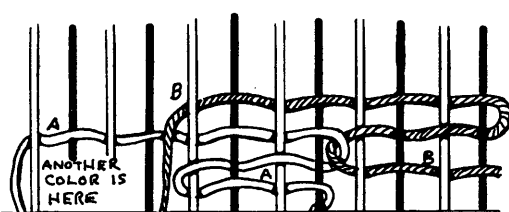


# NORWEGIAN ÅKLÆE



**FIGURE 6**  
Change of Design Unit on Pattern Shed Advancing toward Right  
White lines are the FRONT warp  
Black lines are the BACK warp

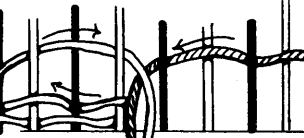
**FIGURE 7**  
Change of Design Unit on Pattern Shed Going Back toward Left



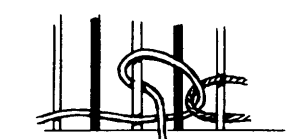
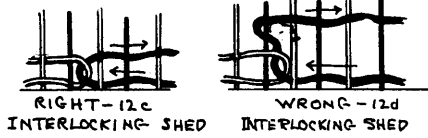
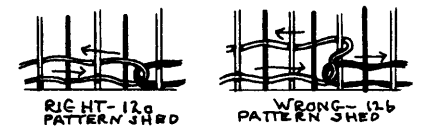
**FIGURE 8**  
When Two Colors Make a Change in the Design—Going Back toward Left on PATTERN Shed



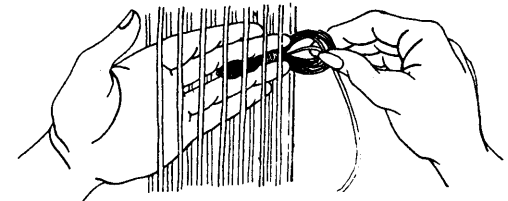
**FIGURE 9**  
As Weft Threads look on PATTERN Shed



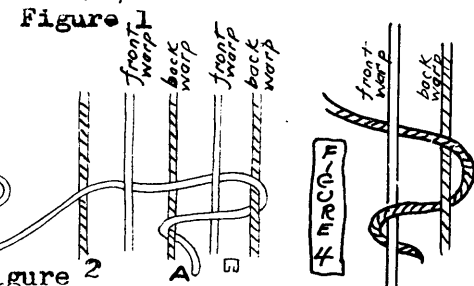
**FIGURE 10**  
As Weft Threads look on INTERLOCKING Shed



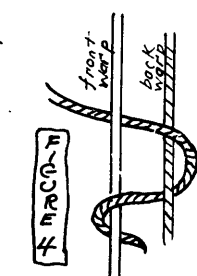
**FIGURE 11-Slip Knot Tie**



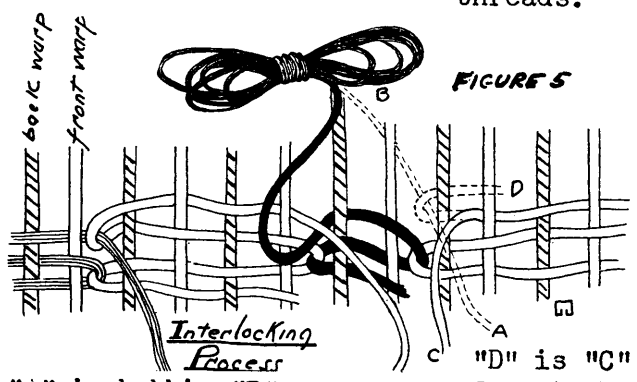
Catching the bobbin as it passed through the warp  
Index and middle fingers are more often used



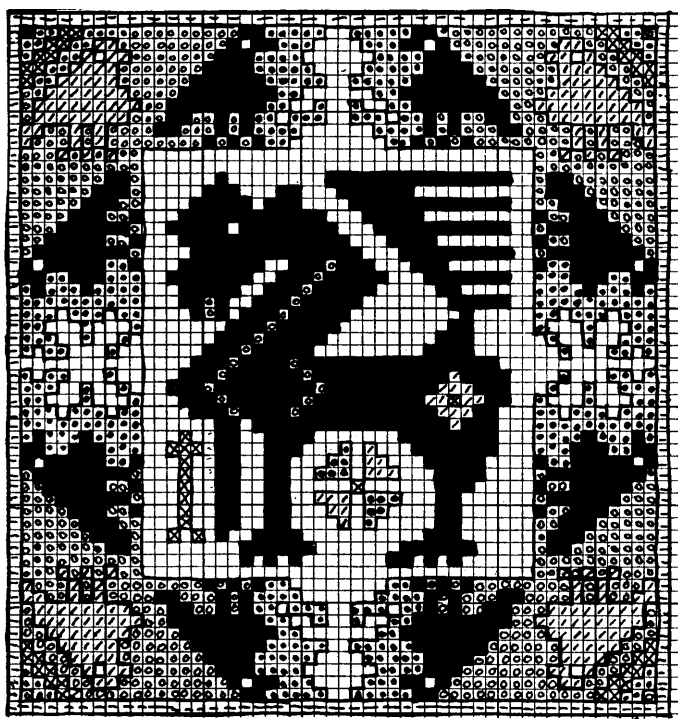
**Figure 2**  
Tying-in an end on three warp threads



Tying-in on two warp threads.



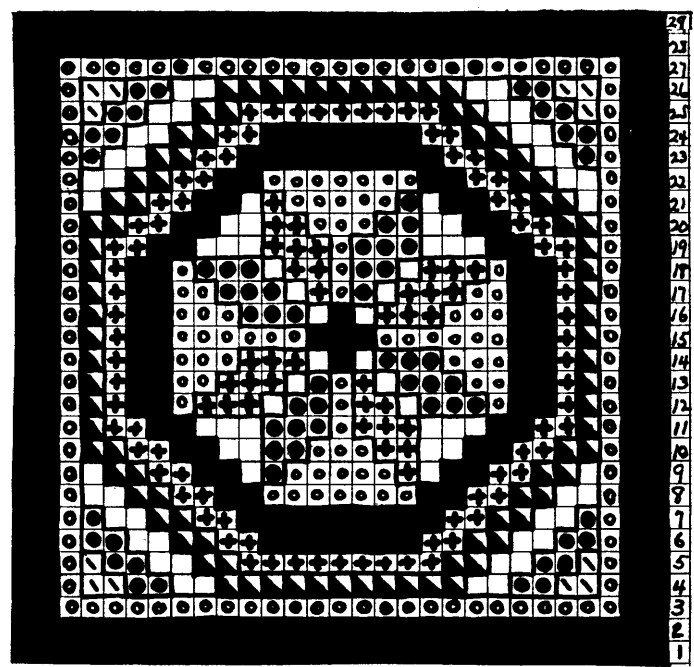
**FIGURE 5**  
"A" is bobbin "B" after it has been interlocked by bobbin "C"  
"D" is "C" after it has been interlocked by bobbin "B"



**PATTERN NO. 2**

FRENCH TAPESTRY WOOL-108 WARP THREADS-1 SQUARE=2 WARP THREADS  
 ■ Y. RED-823 ■ OL. GREEN-683 ■ YEL. GOLD-943 ■ POW. BLUE-655  
 □ CREAM-557 ■ ANTO. BLACK-806 ■ SAGE GREEN-894

A nice design. Finished textile measures about 13 x 17 inches.



**PATTERN NO. 1**

Experimental Pattern. An outside Blue border makes an attractive textile. Two of these patterns together makes a nice runner.  
 ■ RUST-845 ■ TAN-904 ■ GREEN-615  
 ■ BUFF-901 ■ BLUE-855 □ WHITE ■ BLACK-806  
 Substitute other colors, if desired.

# TABBY TALK

E. W. Dickman

So well do I like this technique that I consider this Aklae Packet worth the price of the entire series of packets. Following is an explanation of the woven Aklae sample. Only 3 double shots were woven for each square instead of the 7 to 10 double shots ordinarily required to square the units of design. Four warp threads, two front and two back, were used for the three units of color, Yellow, Rust and Blue---when the weaving was begun. Please turn your samples on the wrong side, with the Yellow unit to the bottom, left. The bobbin ends were left on, purposely. These ends are usually clipped off, however. The analysis follows:

R	B	NEW Color
R		B
R	B	
Y	R	B

Design for Sample

ROW 1. Three color bobbins were tied in; woven three double shots high, and the Yellow bobbin tied off---with a slip knot.  
 ROW 2. The Rust color was advanced one square to the left, and the Blue color was advanced one square to the left, while the Blue color also remained within the original Blue square unit. The Blue now covers two units of design. This part of the design was woven 3 double shots high.  
 ROW 3. The Rust color now, by the "ingenious method" was advanced one square to the right, and also remained within the previous Rust color square. This unit was woven 3 double shots high. Blue covers one square.  
 ROW 4. The Rust color was put in the Pattern Shed to the first square to the left; the Blue color was put through to meet the Rust color (advancing one square to the left); a new color bobbin was tied in on the four remaining warp threads on the right of the design. All were woven 3 double shots high, and tied off with a slip knot. In some designs the Rust color (refer to Row 3) may go farther than just one square to the right and/or left, but the process is the same. Do not go too far to the right or left with any one color. Rather, tie in a new bobbin. May I suggest that the beginning weaver weave a row of these sample designs for practice, permitting eight warp threads of black between each design unit. The "black" wool yarn in your woven sample is yarn, natural color, from Norwegian black sheep. It looks black, but isn't. It gives a pleasing affect.

## BERNAT'S TAPESTRY WOOL AND WOOLSPUN.

The Bernat company has gone wholesale, therefore, unfortunately, this firm cannot supply individuals. It's a long story, but I fear we must use someone's else yarn for art weaving. Small skeins of the Tapestry Wool may be had at department needle-point counters, but this makes the price formidable. The 4 ounce skein is not handled by any retail business establishment, so I am informed. Therefore, these suggestions:

Bartlett's HARMONY GRADE 2-ply yarn will do nicely for this work, with a money saving of about 60%. The yarn sells for 60¢ a 4 ounce skein. As I have mentioned before, the Bartlett yarn has a cheaper appearance than the imported art weaving yarn, yet it more nearly approaches the texture of the peasant art weaving wools. Your color sense may be shocked by the color selection in the swatch of sample yarns sent out by this company, but if you sort out the yellow, rust, medium blue, white, black, tan and one of the greens, separately, the affect is not too bad. (Bartlett Mills, Harmony, Maine.)

Caribou Woolen Mills, Caribou, Maine, has a rather good one-ply yarn similar to WOOLSPUN, but I have found that all colors are not fast to water. This company seem to be willing to replace any yarn that has not been "sufficiently rinsed".

My attention has been called to the catalogue of Frederick Herrschner, 33 S. Wabash Avenue, Chicago, 3, Illinois (I call it a fancy-work place), but in their catalogue are listed two TAPESTRY WOOL yarns, a Bucilla, in 1.7 ounce skeins and Herrschners Brand in 40 yd. skeins, at 69¢ and 25¢ respectively. I do not know about these yarns, but they would stand investigation. I have sent for a few skeins to see what they are. Ask for Catalogue No. 72.

SPECIAL NOTICE: I have been able to get a few pounds of imported single-ply Swedish yarn, vegetable dyed by hand in this country---from a Swedish friend of mine---that I will let Packet readers (ONLY) have in small amounts. (Sorry, I cannot mail any to Canada.) I intend to sort the colors into bundles of about 1/2 pound to sell for \$3.75 a bundle, prepaid. The bundle will contain an assortment of colors, adaptable to Rosengang, Dukegang, Krabba, etc., that will make a sizeable piece of weaving, or can be used for laid in work in spot weaving. The yarn is fine, so should go a long way. The yardage? I do not know. The skeins---for the

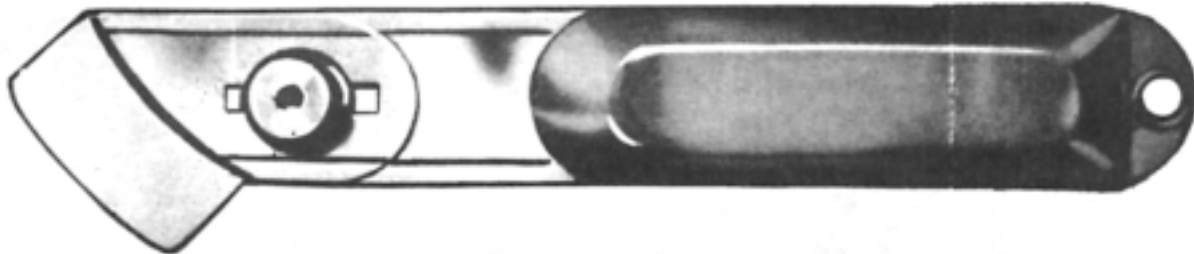
benefit of the weaver who has not used hand dyed wools—are not the neatly twisted ones one gets from large production establishments, but rather unsightly. But the quality and the soft color tones are there. For the most part the skeins are unevenly dyed, which gives a pleasing affect in the finished work. The price may seem exorbitant, but it will be a rare opportunity for those interested. Yarn of this type sold in England, 15 years ago, for more than the above price—including postage and duty. Please do not write me about this yarn, for it will be useless, as the supply, I know, will be exhausted before a reply could reach you. The yarn will be sold only under these conditions: All sales are final and no repeat orders may be had in any of the colors received. Please understand this. First come, First served.

**JUST RECEIVED!**

After waiting two years, the new edition, enlarged in size and content, of Cariline Halvorsen's HANDBOK I VEVIING, has arrived. The text is in Norwegian, but I consider this book the best of any Scandinavian weaving books. Its 182 8x10 pages are profusely illustrated and packed full of unusual weaving drafts. This is the 8th edition of this valuable book. It retains most of the drafts of other editions with several new ones added. The price of the book is \$4.75, postage and packing included in the price.

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THE NEW AMERICAN MADE CARTON KNIFE that can be used successfully for Flossa and Rya making is pictured below. The "protector" is on the opposite side from those on the Swedish knife, but with 5 extra blades, this inconvenience can be overlooked for \$1.50, postage paid. The knife is shown actual size, is made entirely of polished steel, lacquered to prevent rust. It is well worth the price and will last a life time. Orders filled promptly. No C.O.D's.



Flossa metal guage bars may be had from Mr. Garnett January, Loom Craft Studio, Wilmington, Ohio. Write him for prices, but do not order less than a 27" length.

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Does anyone have a Bernat Folding Floor Loom for sale? If so, please give me details and price. I shall appreciate it. Thank you!

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**OTHER BOOKS RECOMMENDED FOR YOUR STUDY AND INSTRUCTION . Postage paid during January.**

- |  |        |                           |        |
|--|--------|---------------------------|--------|
| Basic Swedish Word List (new supply) .....       | \$1.00 | Key to Weaving—Black..... | \$5.00 |
| Shuttle-Craft Book of American Hand Weaving..... | 4.00   | Home Weaving—Beriau.....  | 3.75   |
| Handweavers Pattern Book—Davison.....            | 6.50   | I Vävstolen, Vols. I & II |        |
| Handicrafts of the Southern Highlands.....       | 3.50   | Special, Both for.....    | 1.75   |
| Homecrafts in Sweden—Sterner.....                | 4.75   | Den Store Vävbok...Block  |        |
| Vävbok—Sigrid Palmgren.....                      | 3.50   | Special for.....          | 11.50  |

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**PLEASE NOTICE!** Do not send money for Packet 8. I appreciate your courtesies, but I know it will be some time before it is ready, and I do not want to keep records of the advanced money. I will notify Packet readers when the folio of designs, Packet 8, is ready.

I hope to have Packet VI, "Dukegång", ready to mail by March 1.

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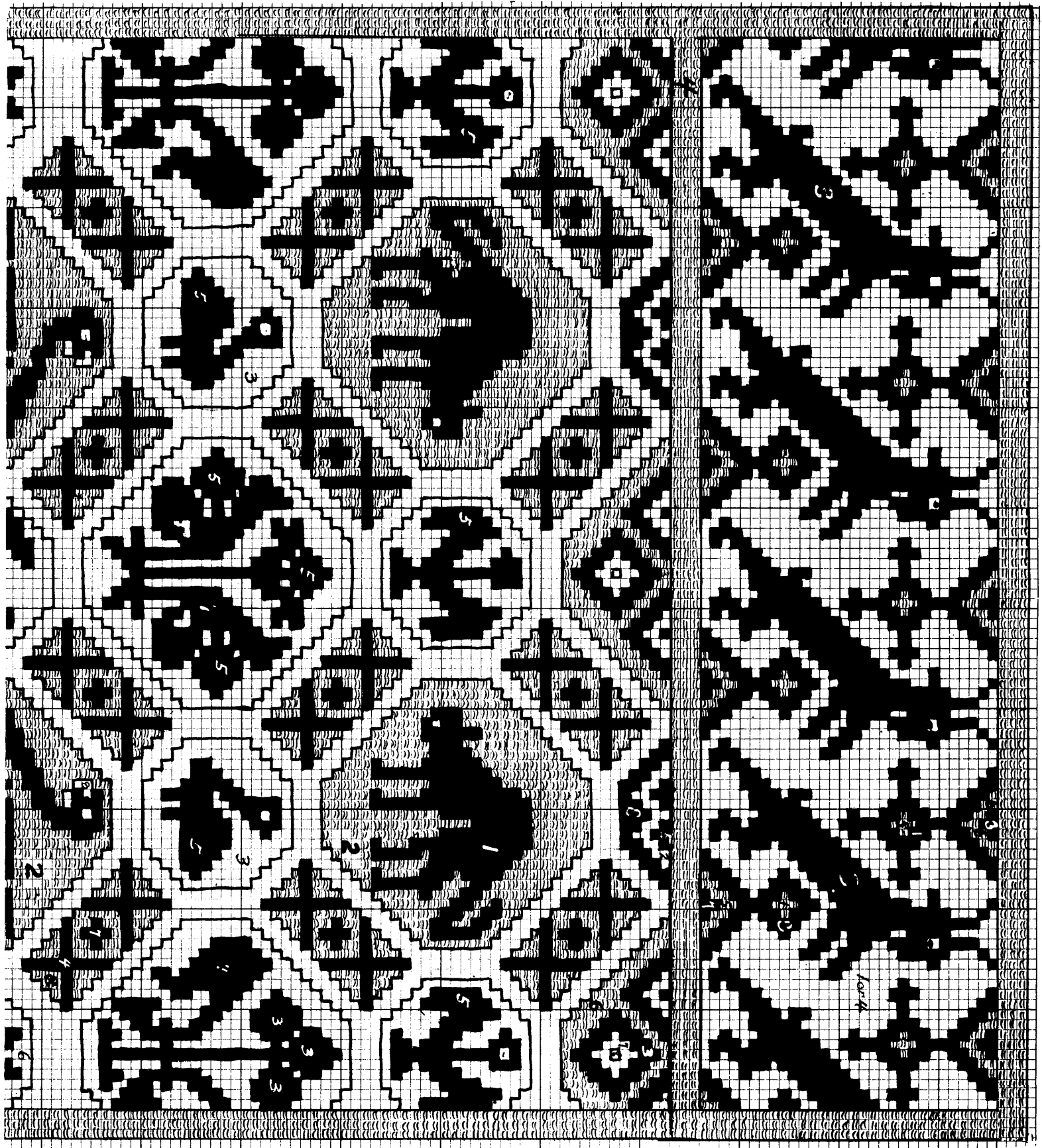
MAY I WISH YOU A RICH AND FULL NEW YEAR OF WEAVING PLEASURE, AND THE JOYOUSNESS THAT COMES FROM WORK WELL DONE.

Elmer W. Hickman

An unusual design, Scandinavian in character, containing 113 squares. Use either 226 warp threads or 452 warp threads. The design may be cut down or added to, if desired. It would be best to have the "sprancing goat" for a bottom border as well as a top border. Color suggestions in Bernat's TAPERSTY WOOL - Blue, 854; 2-Green, 865; 3-Rust, 645; 4-Black, 806; 5-Yellow, 703; 6-Gold, 994; 7-It. Green, 612; 8-Blue, 854; 9-Tan, 623.



EW7







Sample of  
**DUKEGANG**  
Homecraft Weaving Service

YARNS USED TO WEAVE SAMPLES

Single Woolspun	10-2, 16-4 Cotton	Single Vegetable Dyed	3-Ply Vegetable Dyed	Carpet Warp	12-6 Twine	12-2 Linen
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# Dukegang

Dukegang is accepted usually as being pronouncedly Swedish in character. It isn't, however, for not only do other Scandinavian countries employ this technique to enhance their textiles, but, also, remnants of cloth woven in this technique have been found in ancient Egypt. I suppose that the identification of Dukegang with the Swedish people is the result of their textiles being more widely publicised, both commercially and photographically, than those of the other peoples of Scandinavia. The Norwegians call this technique, "Sjonbragd", and is described in Halvorsen's book, HANDBOK I VEVING.

There are, at least, three ways of doing Dukegang:

1. On a two harness loom with the use of sticks and long eyed string heddles. The sticks with the long eyed heddles are placed in back of the two front harnesses, in order to raise the pattern shed. This is similar to the Upphamta technique. But this method is an ancient and troublesome one, and much too slow for us moderns.
2. The "pick-up" method is another way. The design is picked up on a pick-up stick. This method is all right if only spots of design are required, and if one does not particularly value one's eyesight, but this method is entirely too laborious if any great amount of work is planned.
3. The third method, which is described in this Packet, is an extremely engaging process for Dukegang, not only for Art weaving, but also as a technique with which to decorate the web of any plain weave.

Dukegang is a laid-in technique. The technique combines a plain shuttle weave with an inlaid design. When the plain shuttle weave forms the entire background with only the design laid in (or picked up) the process is called "Half-Dukegang". When the background as well as the design is laid in (on the pattern shed) the process is called "Whole Dukegang". In illustration No. 1, the bottom border is woven in Half-Dukegang and the section above the bottom border (the large star) is woven in the Whole Dukegang technique. When the Half-Dukegang technique is used the design is raised above the background surface. The tabby weave, in either process, holds securely the weft shots (or laid-in units)

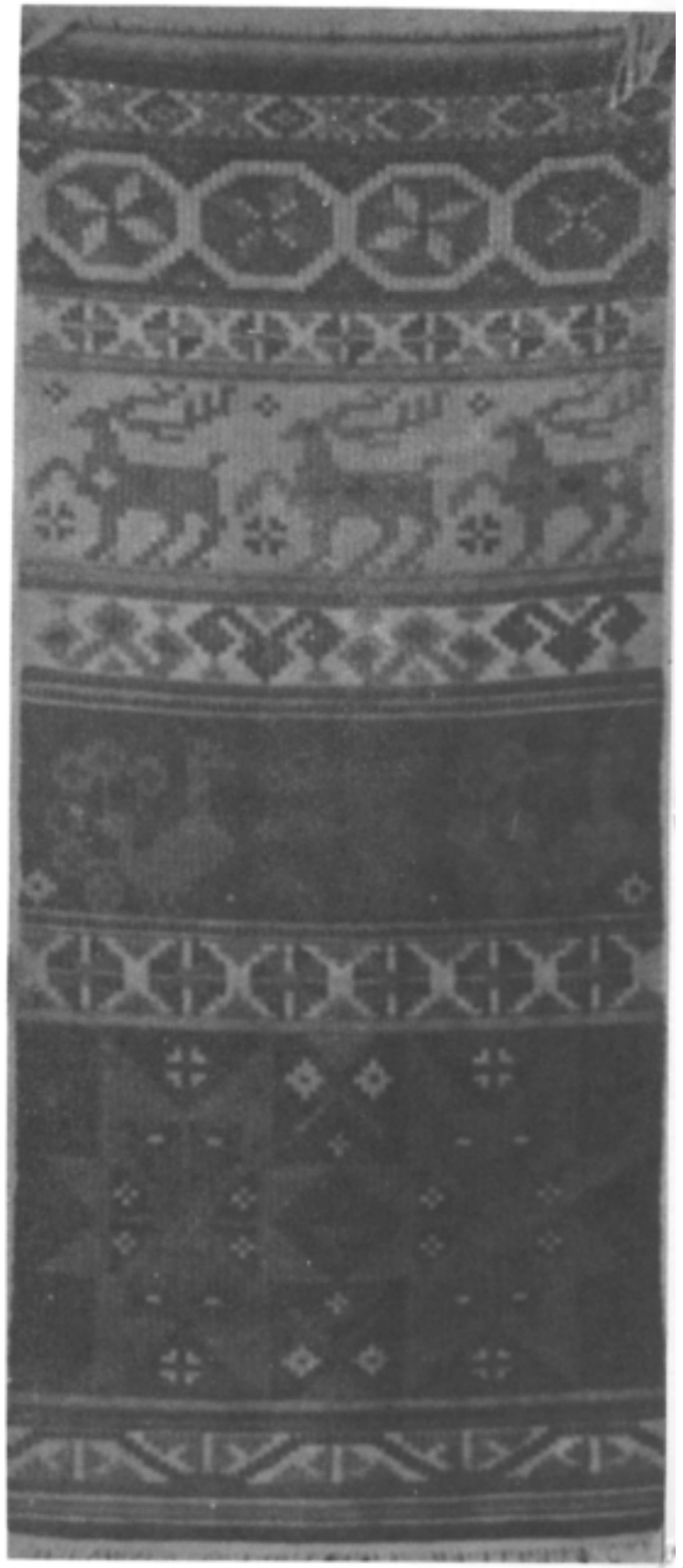


ILLUSTRATION NO. 1

Adapted from Ancient sources and woven by the author.

# Dukegang

-2-

of the design. In other words, the tabby weave an Half-Dukegang, not only holds in the laid-in design units, but also forms the background fabric, while in Whole Dukegang the tabby acts as a binder, only. This is because the background is laid in with separate bobbins just as though it were part of the main design.

The word "Dukegang", freely translated, means "cloth paths", which is fairly appropriate.

The working process, comparatively simple, requires only careful observation while one is working at the loom. This "careful observation" is necessary to determine that all units of design are put into place and put in the right places. The web—when one has mastered the technique—builds more quickly than either the Lightning or Aklae weaves. The work is done from the wrong side of the weaving, and a convenient size mirror is needed, at times, to hold under the finished work in order to see that it is being done correctly.

One very easily can make mistakes in weaving Dukegang; therefore, no better "repair tool" can be had than the lowly bobby pin. And the helpful use of this hair pin is this: should one miss laying in a row or shot of a design unit, and it is found only later—after several rows of the weaving has been put in—the bobby pin is serviceable to insert the omitted row. With the weft slipped into the head of the bobby pin, lay in the design row between the tabby shots and through the correct sheds (like darning it in)—the already woven work having been pushed up on the warp, so that one can get at the vacant place. This will save taking out the finished work, which is always disagreeable to do.

The colors in Dukegang may be as lavish as one wishes, but it is better to use the more subdued tones, when the entire weaving is done in the Dukegang technique. Harsh primary colors should be shunned. Different tints and shades of one color, such as brown, with accents of rust, gold and aqua blue make good color schemes.

The designs employed are worked out on cross section paper. Each square of the paper represents the group of three threads that is formed by the pattern treadle, and the lines on the cross section paper may represent the single warp thread that is on the bottom shed. (Refer to draft and tie-up.) Great opportunity is offered the weaver who wished to create his own designs, but for those who do not care to do so, no disgrace is reflected on one's character, should he wish to copy or adapt designs that have already been developed. The finished product done in the Dukegang technique looks like a series of long vertical columns or paths with an interval of one warp thread between each series. This path effect happens because the design is always put in on the same



SHOWING IN DETAIL THE RIGHT SIDE OF THE WEAVING.



SHOWING IN DETAIL THE WORKING SIDE OF THE DUKEGANG TECHNIQUE.

# Dukegang

-3-

treading combination of three warp threads on top of the shed, and one warp thread on the bottom of the shed. These three warp threads are completely covered by the weft yarn, while the interval of one warp thread is but partly covered by the tabby weft yarn. Because the warp shows on this interval, the warp should be a good grade yarn. Warp set too closely in the reed will prove awkward with which to work, yet the warp must be one of strength.

A good weft yarn to use for Dukegang is, of course, the single-ply imported vegetable dyed yarn, as well as Woopspun, wound double; Caribou and Condon one-ply wound, either double or triple on the bobbins, serve well; Fabri and Shetland, wound, preferably, triple on the bobbins would do nicely. If Fabri is used one is sure to get colors that are more near the vegetable dye colors. The tabby when used singly as a binder can be the same as the cotton warp. But when the background is formed by the wool yarn weft, it is better to use a fine wool such as Fabri or Shetland. If one does not care to use an expensive yarn like Fabri, then get Thomas Hodgson & Sons', Inc., (Concord, New Hampshire) 2/18 WEAVING WOOL, or Lilly Mills' 2/18 Wool yarn. Both yarns have a nice color selection. Hodgson's yarn was priced at \$3.50 a pound. Most of us know that Lilly Mills is an excellent company to deal with, and I might add that Hodgson's is also, and are very considerate of the small amount buyer.

A four harness loom, either table or floor, counterbalanced or "jack" type, may be used for Dukegang. The pattern drafts ordinarily used are "Rosepath" and plain "Twill". When the Rosepath threading is used the main design may be broken by stripes of Rosepath pattern, if so desired. Twill does not permit such an interesting pattern stripe.

## THE SET-UP.

LOOM; Floor Loom—3 Treadles

Table Loom—4 Levers

WARP: 10/2 Mercerized Cotton or plain cotton,  
16/3 or 16/4 cotton or No.10 Perle cotton.

WEFT: Refer to paragraph above.

REED: No. 12 reed for 10/2 and No.10 Perle,  
No. 15 reed for 16/3 or 24/3—threaded singly through heddles and reed dents. Sometimes a 16/2 cotton is used for warp and threaded 2 threads through each heddle and each dent, through a No. 10 or No. 12 reed, 16/4 in No.12.

We shall assume that the loom is threaded. On a "Jack" type loom the pattern shed will be formed by pressing down Levers 2,3, and 4, or the treadle or treadles that raise harnesses 2,3 and 4. On the Counter-balanced loom Harness 1 pulled down will leave the three-threads group on top of the shed. This applies to Rosepath or Twill. One shed only is used for the pattern units, with 1&3 and 2&4 for the tabby sheds. Have your tabby thread on a shuttle of some sort and the pattern thread—whether for laid-in design units or for laid-in background—in bobbins wound in the manner described on the flap of this Packet.

In winding a bobbin with two strands of weft yarn, pull out from the skein, which has been put on a swift, for about 12 feet, double the thread over, but instead of doub-

ling the thread throughout the entire length, begin to wind the doubled strand around the thumb and index finger, and the length that you pulled out will double with that coming from the swift. Break off the yarn when it becomes even with the length originally pulled out. Merely a suggestion, but a good time saver.

Weave about 8 shots of tabby, beginning on the 1&3 shed from the right and, of course, on the 2&4 shed from the left. This is necessary so that the warp threads at the selvages will be caught. Now get the pattern shed—groups of three warp on top with one warp thread on the bottom. Hereafter, this shed will be designated as "three-threads group". The design bobbins are put in from left to right; i.e., the end of the weft yarn will be on the left of the design unit and the bobbin proper on the right of the design unit. THIS IS IMPORTANT!

Given on the "technical" sheet are various drafts and tie-ups. You will notice that some have more than three threads on the top of the pattern shed and more than one thread on the bottom of this shed. When more than three threads are desired on top of the pattern shed, a finer warp must be used, such as 20/2, 30/2 or 40/2, or the skips will be too long to be practical. These "foreign" drafts are used

# Dukegang

when a finer textured fabric is desired. When drafts of this sort are used Dukegang is taken out of the Art Weaving category and becomes Swedish Embroidery Weaving. (Kate Van Cleve and Myra L. Davis advocated the Swedish Embroidery Weaving for years and years, back as far as 1932, in their THE WEAVER'S QUARTERLY—some of which are still available from Miss Kate Van Cleve, 14 Marshall Street, Brookline, Mass.) Of course, fine weft yarns in cottons, linens or wools are employed to balance the grist of the fine warp for tabby, and weft threads such as Six Strand, Linen Floss or a fine wool yarn used for the pattern designs. Of course, the same technique is used for these finer threads, and the same threadings and set-ups. Plate 1.

When inserting the bobbins, the "three-threads group" of warp threads are picked up on the middle finger of the left hand when the bobbin is coming from the right-to-left direction, the right hand passes the bobbin through the shed, and the bobbin is caught by the middle finger and thumb of the left hand. Just the reverse happens when the bobbin is coming from the left-to-right direction: the "3-threads group" is held up by the middle finger of the right hand, the bobbin is passed through the shed with the left hand, and the bobbin is caught by the middle finger and thumb of the right hand, releasing the "three-threads group" of warp threads, and pulling the bobbins thru. ALL BOBBINS AT ALL TIMES MUST BE GOING IN THE SAME DIRECTION! This is very important.

Put all the bobbins through the "3-threads groups" as far as they go in the units of design; Beat; change the shed by the 1&3 treadling, throw a shot of tabby, beat; change the shed by the 2&4 treadling, insert tabby, beat. Change the shed now to the pattern shed, and put in all the bobbins from the right-to-left direction as far as the units of design go. This row, of course, will cover the same warp threads as the first row of design weft. NO INTERLOCKING TAKES PLACE IN THIS WEAVE. The tabby holds all weft in place. Again follow the design row with two shots of tabby.

You continue these two processes—a pattern row from left to right, followed by two tabby shots, and a pattern row for right to left followed by two tabby shots—until your blocks of design are high enough—or squared. It takes three or four shots of pattern weft to square a block of design. It would be well, at first, to use pattern weft yarn that requires four rows to

square a block of design, so that the design change can always be made on the left-to-right direction shed—the shed that you began with. A weaver may not be able always to do this, as the warp may be set closer or further apart in the reed, requiring less shots or more weft shots, respectively. These two processes are all there is to the Dukegang technique. The technique is simple as A B C, but often as complicated as a dictionary. The weaving in Illustration No. 1 (one of the nicest things the author has done) was woven with imported vegetable dyed wool of a fine grist, consequently, it was necessary to use three strands in the bobbins, only three shots of weft were required to square the blocks, and the change in the design came on alternating sheds. This made the following of the design rather intricate.

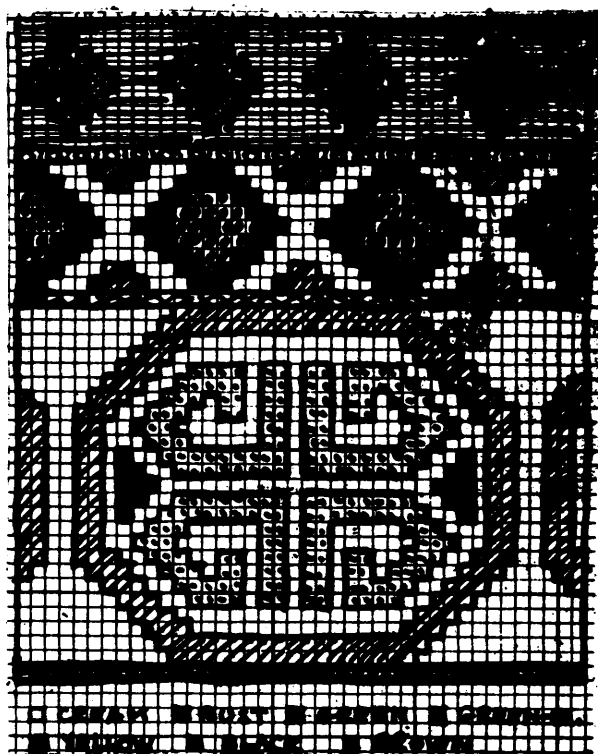


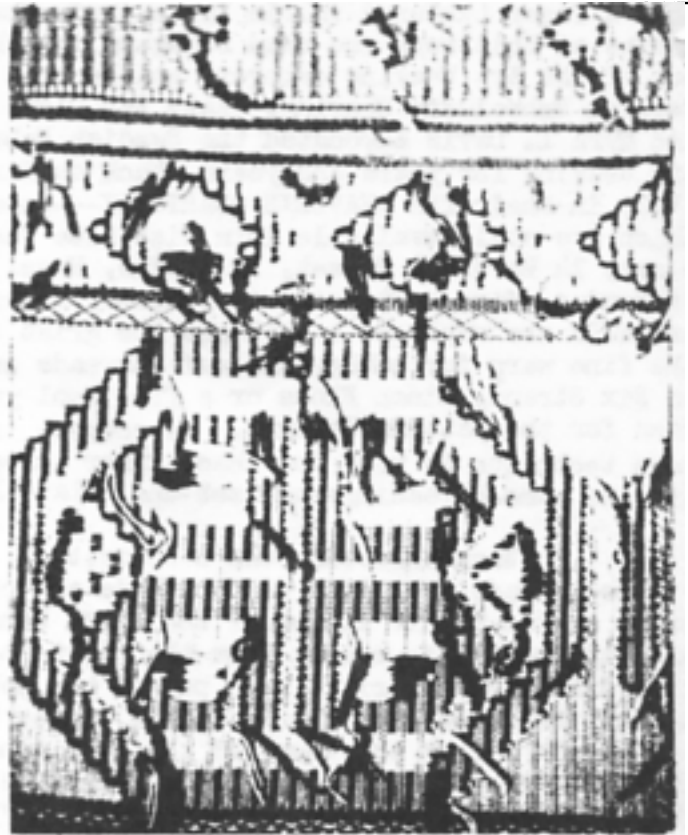
PLATE NO. 3  
EXPERIMENTAL DESIGN

In order to help you with difficulties that may arise, the following list of suggestions is offered:

1. When the bobbins are first put in, whether at the beginning or when a new color bobbin is added, the ends of the yarn are tied as in Figure M. It is necessary that



EXPERIMENTAL PIECE— SHOWING USUABLE SIDE



SHOWING THE WORKING SIDE

the ends of the yarn point downward. When one wishes to tie-in a yarn end, push the main part of the bobbin upwards in the warp threads, and tie-in the end on the middle thread of the "three-threads group". Pull the knot tight and push it down to the already finished work, remembering to keep the three warp threads evenly spaced, after you have pulled the knot down.

2. If a unit of design is too long so that the bobbin cannot be put through the shed conveniently, use two bobbins of that color, dividing the unit, for each bobbin.

3. When putting the bobbins in the shed on the right-to-left direction start at the left of the loom, and vice versa.

4. If the weft color advances a unit to the left, take the bobbin and skip back and up over the unit of "three-threads group" to the advancing opening and put weft bobbin through the shed. (Figure X—the same process was done in Monk's Belt, Packet I.)

5. If the color advances to the right, your weft will be carried over the unit or units to the part of the design where it is to be put in the shed. The units that do not change in the design should be put in the shed before those are put in that do change. Figure Y. For example: it is best to put in first the A and C bobbins

before bobbin B. This will permit bobbin B to come over the C weft thread, otherwise if B were changed first, bobbin C would catch around the weft thread B. (This would be interlocking which is not good in this particular technique.) All weft threads must hang free after they are put through the shed and not caught by any other weft thread. In changing units of design pull the weft tightly enough over the back of the advancing threads so that the skip-over is not loose. Reserve the "arc" when the weft thread is put in the shed. Refer to previous packets concerning this "arc".

6. Be sure the tabby does not pull in the selvage warp threads. Use the horizontal line for the tabby throw as one does in Colonial weaving. Pull the selvage edges out with the thumb and first finger before beating, so that there is sufficient yarn to allow for the take-up of weft in beating. This is particularly necessary in this type of weaving because the pattern shots are so much thicker than generally used in Colonial weaving.

7. If you put in four shots of pattern weft to square a block of design—and a "block" means the small square on the cross section paper—your changes will all take place on the same direction shed (left to



# Dukegang

right) with which the work was originally begun. But if you need an odd number of shots ---as three or five---your pattern change will take place on the second shed with which you began---in alternate rows. As mentioned before, it would be best to square the blocks with an even number of weft shots.

8. When feeding a single-ply wool yarn from the bobbins, do not pull too hard---it breaks easily.

9. To tie off a bobbin, slip the bobbin around the middle thread of the "three-threads group" with a slip knot, and cut off the weft thread about  $1\frac{1}{2}$  inches from the work. Fig. Z.

10. If you wish your work to be extremely neat on the wrong side, use a bobbin for each unit of design, regardless of colors. But if the skip, say, Yellow to Yellow is not too long, one bobbin will suffice. Fig. E. That is, if in the design is a yellow one, then a blue one, then a yellow one, one yellow bobbin can be used for the two yellow units. This is done by putting in the yellow bobbin under the first yellow "three-threads group", skipping over the blue color unit, and putting in the yellow weft in the other yellow color unit. The yellow yarn will be pushed down in back of the blue weft (after the blue weft has been put in) when beaten down by the beater. The drawing at "E" is exaggerated to show this more clearly. The same applies when the weft is going in either direction. It isn't well to skip over more than three units of design.

11. Pick up the three threads always in each group, instead of, as might happen, two.

12. Don't make bobbins too bulky. They are not easy to work with. 18 or 20 wrappings around the thumb and finger are sufficient.

13. Make a habit of working only a certain distance between the front cloth beam and the beater. When wind the work onto the cloth beam. This will help keep not only a more even width throughout the weaving but also allow a larger shed in which to work. This latter is especially true on small looms.

14. While working at the loom keep a good tight tension on the warp at all times.

15. Watch the under side in your mirror to see if you have picked up all the design units, and if you have put the weft under then correctly. (Refer to No. 11, above.) If, after you have put in your tabby, you see that all the bobbins are not hanging in the same direction, you will then know that you have neglected to fill that row as the design had indicated. If, for any reason, you discover that a pattern thread has been

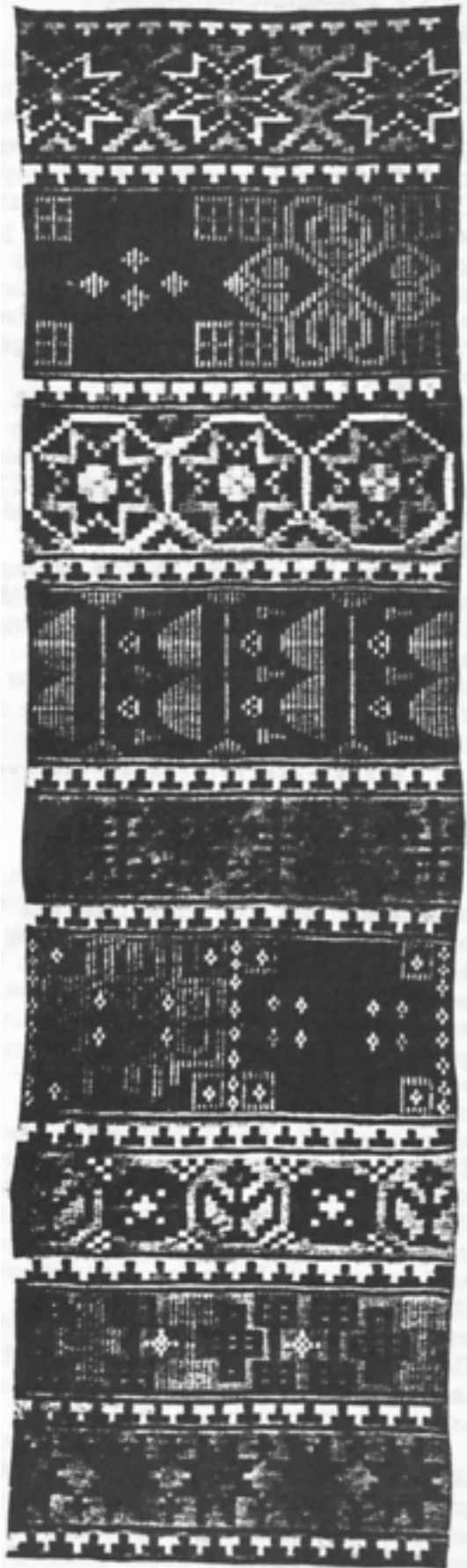


Illustration above from Vol. 3, GAMMAL ALLMOGESLOJD FRAN MALMOHUS LAN. The 2nd, 4th, 6th and 8th sections are woven in DUKEGANG---other sections in AKIAE.

omitted several rows back, use the bobby pin to darn in the missing shot or shots.

16. In turning your bobbins to put in the next pattern shed—after the tabby is in—allow enough weft thread, at the turning, so that the warp threads will not be pulled in. Figure. G. The group of three warp threads must remain equally spaced throughout the length of the weaving. You will have great difficulty with this at the selvages. They are bound to pull in somewhat.

17. You should have a convenient place to lay your tabby shuttle when not in use, since it is lying idle a longer time than in weaving of the Colonial type. This will allow free use of the width of the web while working with the bobbins.

18. When the sides, at the selvages, become lower than the main body of the weaving, fill in the depressions by building up with weft yarn as in Figure F. This will often happen when the background is made with the tabby and only the design is done in the Dukegang technique.

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### THE EXPERIMENTAL PIECE.

In Plate No. 3 and Illustrations Nos. 3A and 3B, you will find all the necessary steps to learn the Dukegang process. At the beginning, starting at the bottom of the design, the large design as well as the background are "laid-in". Refer to the set-up given in this Packet for the warp, reed number, etc. In the middle border the design is laid in, but the background is made with tabby weaving, the tabby being one strand of the weft yarn used. The narrow stripes or borders are done on the Rosepath treadling. The top border has the design laid in; the background is Brown Shetland tabby, while a Gold color metal thread (this process is nice for purses and bags, etc., ) is put in on the Lever No. 1 shed of a "Jack" type, Floor or table, loom. On a Counterbalanced loom get the shed produced by drawing down harnesses 2, 3, and 4.

The warp consists of 160 warp threads. In the piece woven in the photograph, I used heavy 20/9 twine with 10/2 brown mercerized thread, doubled, for tabby so that the textile would photograph more clearly. But it is better to use a warp as suggested in the "set-up". Weave a plain heading for about 3/4 of an inch. The first small border is made by a Rosepath design in the center with plain tabby on either side.

Weft colors are : Cream, Lt. Yell.

(Green, Black, Rust, Blue-green (Aqua).

The Dukegang technique then begins by getting the pattern shed (three threads up, however your loom is "tied-up"). The Cream colored weft yarn is put in from the left side of the loom for eleven blocks, (refer to draft), or through eleven groups of "three-threads"; Green is put through 17 groups of "three-threads"; the Cream colored weft is put in the shed from that point out to the right hand selvage. After these three bobbins have been put in and tied, two tabby shots are thrown—the first shot on the 1&3 shed from the right, and, of course, the other tabby shot on the 2&4 shed from the left. This is repeated for four rows of pattern design. This should square the blocks.

Then the pattern changes. The Green advances one "three-threads group" to the right and one "three-threads group" to the left. Four shots of this are done in the same manner as above—pattern shot followed by two tabby shots.

In the third row the Green again advances one group to the left and one to right. A new light Yellow bobbin is added and tied in from the left to right on the 13th group, proceeding through the shed for 15 "three-threads groups". The new Yellow bobbin is in the center of the design and the Green bobbin is on either side of it for 3 "three-threads groups". A new Green bobbin will have to be added to use on one side of the Yellow. You will now have bobbins in this order: Cream, Green, Yellow, Green, Cream. Proceed with this for 4 shots, alternating with two tabby shots. Follow the Experimental Design for the next row—advancing with the Green on the right and the left of the center; advancing with the center color on the right and left. Of course, the Cream color bobbins on the sides are decreasing. Four shots are taken as before, with two tabby shots following.

On the fifth row of the design new bobbins will be added. Then your bobbins will be under the "threads groups" in this order: from left to right, Cream, through 7; Green, through 3; Yellow, through 2; Rust, through 4; Yellow, through 1; Rust, through 2; Center Yellow, through 1; Rust, through 2; Yellow, through 1; Rust, through 4; Yellow, through 2; Green, through 3; Cream, through 8.

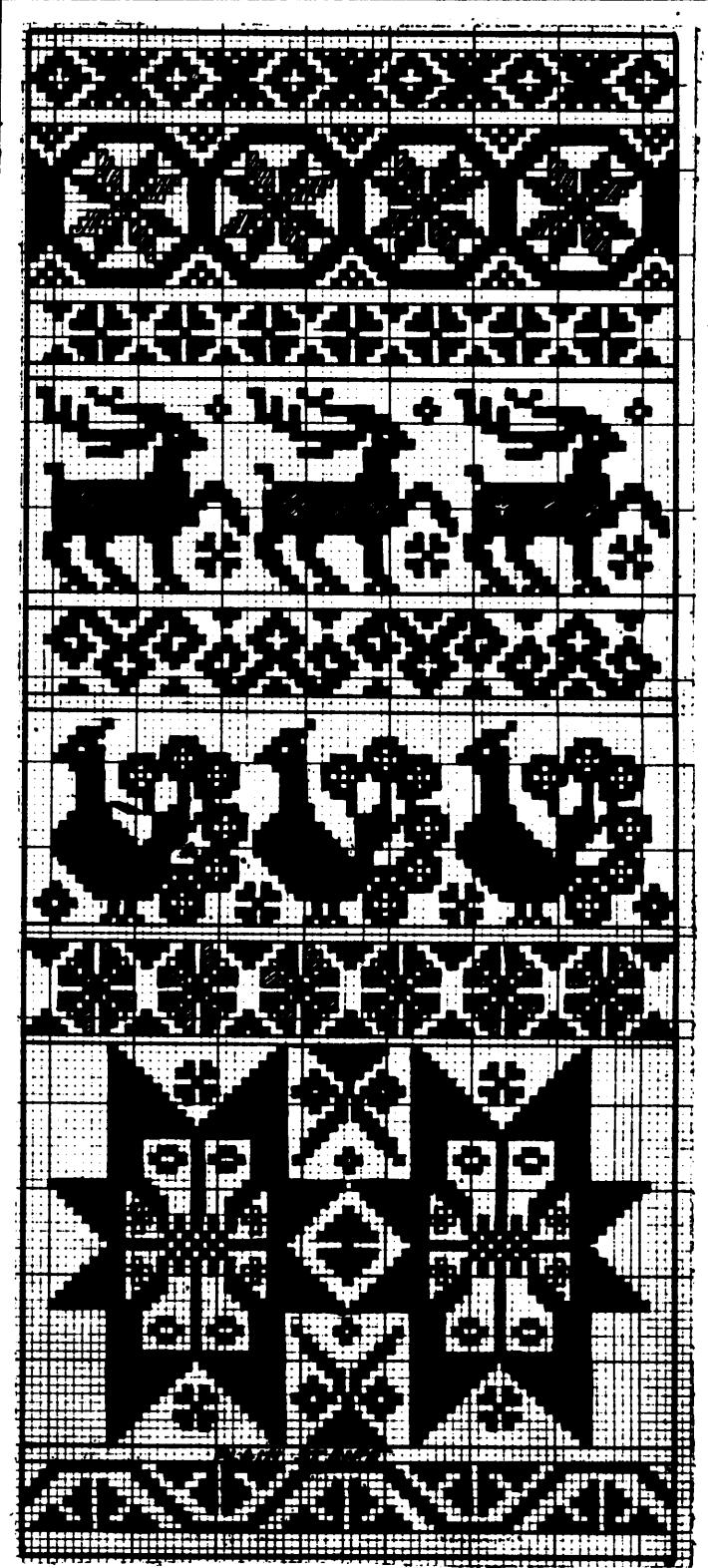
The small center side triangles are

are Black. When you get this far you should have no trouble going through the entire design, being careful to follow the design on Plate 3.

A little help with the middle border: a Black bobbin is tied in under two "three-threads groups"; skip three groups; Green is put in under four groups; skip three groups; Black bobbin goes under three groups; skip three groups; Green is put in under four groups; skip three groups; Green is put in under four groups; skip three groups; Black is put in under two groups. Change to the 1&3 shed and beat hard. Then throw your Cream tabby wool; change shed (2&4) and beat; throw your Cream tabby wool and beat. This is continued for four pattern rows, followed by two tabby shots of the Cream color wool.

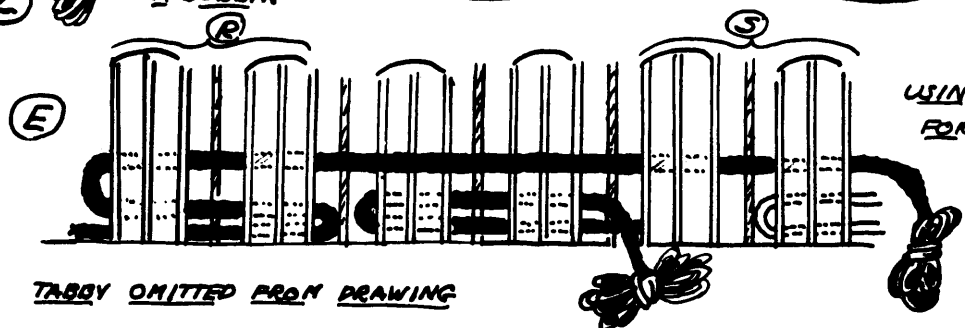
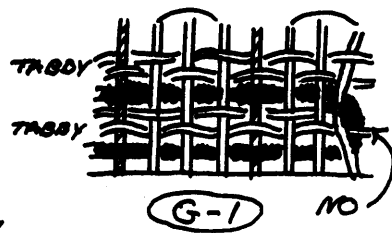
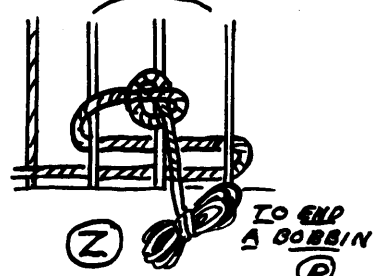
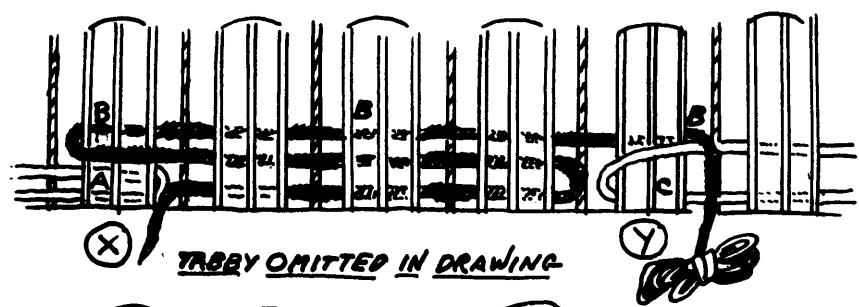
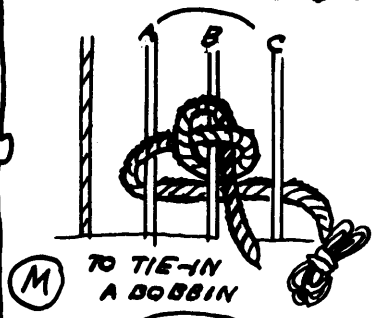
In the next row a Blue-Green bobbin is added to the center of the figures; your Black edging of the figures advances to the right and to the left, and your Green figure—the one between the diamond shape figures—decreases to two groups. Follow the design from now on, and you will surely make it.

The top border, as has been said, has a Gold color thread on the one shed. To insert it, proceed thus: pattern shot is put in; Gold color thread follows this on the shed produced by Lever 1 or Treadles 2,3,4 (together) shed on counterbalanced loom; two shots of tabby (Brown Shetland or two strands of Fabri or similar thickness of a weft wool) follow this tinsel thread. The figures are Yellow with Black centers. The Gold color thread can be effectively used if desired, with several tones of Brown, and Black for bags, runners and hangings. If the colors are not carefully chosen when the tinsel thread is used, the effect may prove "cheap". Eleven years ago in THE WEAVER I wrote, "The use of this tinsel thread is nothing more than a novelty; I, myself, would rather discourage the use of it." But today, with the customs changing I would write: since there is a vogue for metal or tinsel threads, the use of them may prove to be a sales point. One must forget one's art, advance with the times, and go commercial. Try Dukegang. You will like it!



The illustration above is the design for the textile on page 1. There are 77 squares in the design. Colors of backgrounds from bottom to top are: Gobelin Blue, Red-Brown, Lt. Apple Green and Gob. Blue. In the main large designs are: Green-Tan, Med. Blue, Rust, high lighted by Yellow. All main colors are carried over into main designs, thus pulling together the color scheme. Only the small intervening borders are done in "Half-Dukegang". Main designs in "Whole Dukegang".

# SWEDISH DUKAGÅNG



TABBY OMITTED FROM DRAWING



IN THE ABOVE, DOTTED LINES ARE USED TO SHOW THE WEFT UNDER THE "THREE-THREADS GROUPS" SO THAT THE SKETCHES WILL BE MORE READILY UNDERSTOOD

THESE SKETCHES SHOW THE WORKING SIDE OF THE WEAVING.

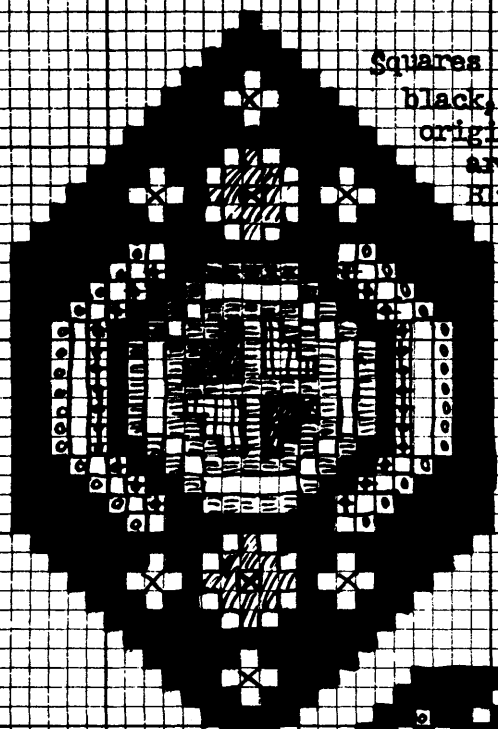
EVH

	TTP	TTP	TTP	ROSENGANG	TTP
"a" shows	2 threads up and 1 between	"b"	"a"		TIE-UP
"b"	5 " " " 1 "				
"c"	6 " " " 2 "			TWILL	TIE-UP

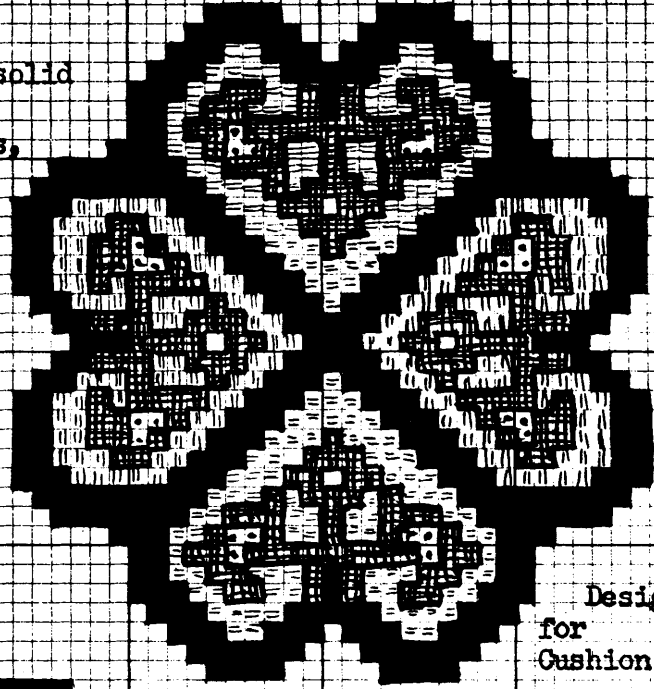
## DRAFTS AND TREADLING

"ROSE-PATH" AND TWILL ARE MOSTLY USED THE OTHER DRAFTS "a", "b", "c" ARE USED FOR FINER "SET-UPS"

Squares in solid black, on originals, are Blue.

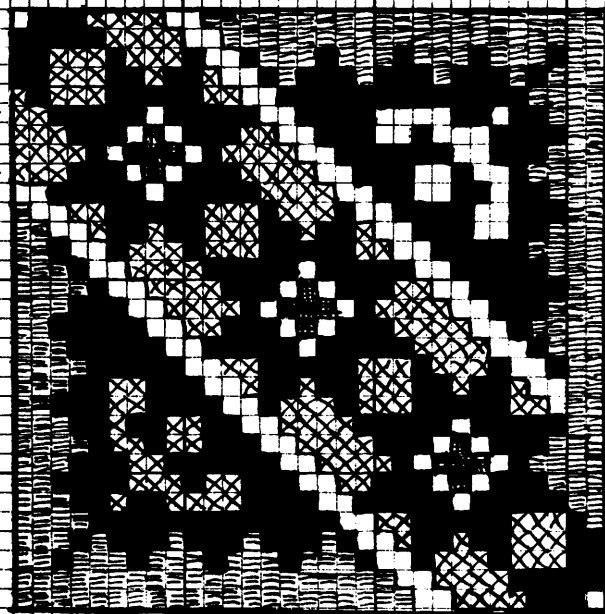


A nice design for hand bags.



Design for Cushion

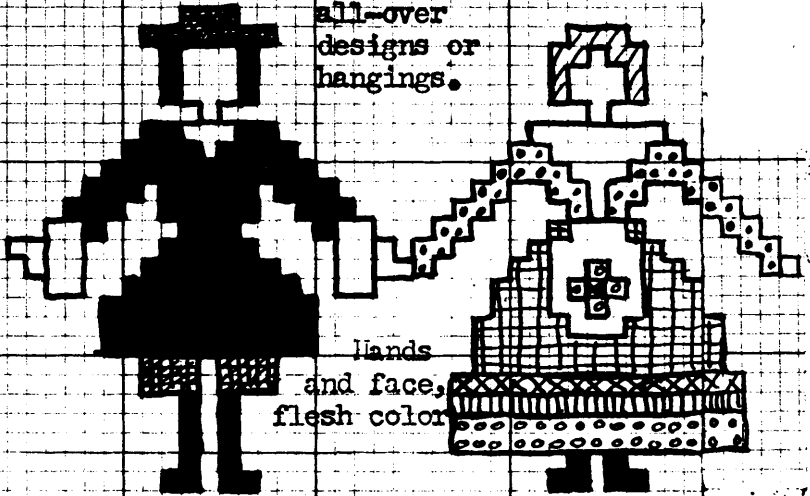
THESE DESIGNS ADAPTED FROM KUNSTVAEVNING I ALMOESTIL (1890) by Maria Collin



Hanging or Cushion

Color changes are designated in the squares, but choice of color is left to the weaver.

These designs may be used for "spots", all-over designs or hangings.

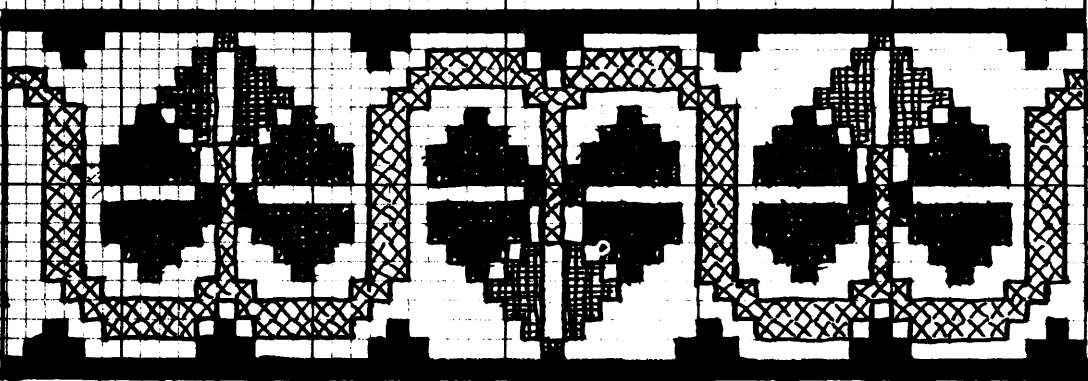


Hands and face, flesh color

Border design.

An Attractive Border.

- Blue
- Tan
- Scarlet
- Maroon
- Sage Green
- Cob. Blue
- White





# TABBY TALK

Now that I have gotten over the "affect" of the mistakes in the last TABBY TALK I can proceed to split more infinitives and slaughter the English language with added experience. Such mistakes, especially when one knows better ( I have an A.B. in English and Philosophy, and an M.A. in Fine Arts), mollify one's existence. I could have blamed the errors on my typist—but I have no typist. Have to do all this typeing with two fingers. It is gracious to have good friends at such times. And I have two such good weaver friends——George and Mary Yates——who help me assemble the Packets, and that makes me feel good. Then Mary and George find grammatical errors, and that makes me feel bad. Well, such is life!

Only one more Packet to go!!! Then I want to experiment with some shuttle weaves for my own enjoyment, with the hope that in these experiments I may develop something of value for another series of Packets——but that will take many months before I am ready to even release the information about them. Perhaps some of the Packet readers have weaves that they would like to share with others——weaves that are unusual. I should be most happy to know about them. If they are used, proper credit will be given you.

Another larger shipment of bobbin winders, shuttles have come from Sweden. The prices on these items are: Bobbin Winder, \$4.50; Umbrella Swift, \$3.75; Miniature Shuttle, \$1.75; Double Bobbin Shuttle, \$2.50; Open Bottom Shuttle, \$1.75. 5% must be added for packing and postage in order to have it filled. No C.O.D's.

Oscar Beriau's new and enlarged edition of HOME WEAVING has arrived. The pages on "How to Build a Loom" have been eliminated and replaced with pages of new weaving drafts, together with interesting "texture" weaves and some new ideas. The volume is excellent. To Packet readers the volume may be had for \$5.25, by my having it mailed direct from the Canadian publisher.

The vegetable dyed wool mailed out recently will, when woven, and when soiled, have to be dry cleaned. I noticed an excess amount of dye on the yarn while re-skeining it. This was gone all too soon. Which convinces me that I should get a couple of big enamel dish pans next Spring and get some dyed for the weavers who want it.

I have often wondered if all Packet readers know of the many valuable pamphlets put out by Mrs. Osma Gallinger, Creative Crafts, Guernsey, Pennsylvania. There is a wealth of weaving information in these and other publications that Mrs. Gallinger issues. Write Mrs. Gallinger for information about these.

And recently, I discovered a fascinating, quaint New England magazine of about 80 pages called YANKEE. It is chock full of handcraft advertisements from small firms. The advertising rates are reasonable, which assure a market for the individual advertiser. 10¢ will bring you a copy from the publisher——YANKEE, Dublin, New Hampshire.

Has anyone a Lane Loom, 27 inch or a 32 inch or 21 inch Hammett Loom for sale? If so, please send me information and price. Thanks!

I have received the Bucilla Tapestry yarn and the other brand that I mentioned in the last Packet. The Bucilla yarn is a beautiful product. The Herrscher brand is inferior in quality. If you are hesitant about buying these expensive tapestry yarns, use a less expensive yarn rather than deprive yourself the pleasure of these Art Weaving techniques. I think that you will find the rug yarn from Berberian or Paternayan Bros. quite satisfactory. The yarn from both firms is the same yarn. Addresses are on the supply sheet.

May I repeat: do not send money for the Eighth Packet.....I do not wish this extra bookkeeping. I hope to have Packet VII ready by May 1.

Success with your Art Weaving!

P.S. Sorry, I am not available for lectures.

I prefer to devote any extra time to weaving.





Sample of  
 KRABBASNAR and  
 HALF KRABBA  
 Homecraft Weaving Service

YARNS USED TO WEAVE SAMPLES

Single Woolspun	10-2, 16-4 Cotton	Single Vegetable Dyed	3-Ply Vegetable Dyed	Carpet Warp	12-16 Twine	12-2 Linen
●	●	●	●	●	●	●



# Krabba-Half-Krabba

"Ain't that BEAUTIFUL!" And this grammatically incorrect statement gave me the idea upon which to build this packet on Krabbasnar and Half-Krabba. As I have succeeded, with great difficulty, from indulging in stories, "clever chit-chat", anecdotes and irrelevant material in the previous packets, I know that you will forgive me if I tell a story here, especially to make a point.

Last Fall my coal man had just unloaded the coal brought me and came to the back door with the bill. I asked him in while I wrote a check for him. In order to appreciate this story I must tell you that this person was a perfect counterpart for "Mr. Five by Four", a veritable modern Hercules. I proceeded to write the check, wholly unaware of what was to come. The man who had followed me into the living room, face besmirched with coal dust, ventured, after a pause, with this opening remark.

"Hear you're goin' weave rugs here." (A remark most weavers "delight" to hear.)

"Well, yes and no," I replied. "The things I weave are something like rugs, but are mostly made to hang on walls."

This did not impress the gentlemen, so I thought that would end the episode. But, after a little while came, "Got any here I can see?"

"Yes," I replied, "that's one right there on the wall." (It was the Dukagang hanging, pictured on page 1 of Packet VI.)

"Umh-umh," rather impressed.

I, obviously, eager to have my choicest efforts appreciated, pointed out another one. (This was the "Viking" on page 6 of the Aklae Packet.)

This one got a little better response and approval with a double "Um-m-h. Um-m-m-h." There was a decidedly rising inflection on the second one.

I thought that I had shown my best wares, and was on the verge of dismissing the subject, when, for some unknown reason, pointed out the piece of Krabbasnar and Half-Krabba, illustrated on page 1 of this Packet. "There's another one on the wall behind you," I said, unconcerned.

The man turned, gazed at the hanging a few seconds, and forthwith came this startling exclamation, "Ain't that beautiful", with such sincerity, that I felt obligated to explain (the man being a farmer, too) that the yarns were dyed with onion skins, walnut husks and madder root.

"No---is that so?" in great amazement, "I'll have to tell my mother and sister about that."

I told the man that I considered his compliment the nicest one that weaving had ever received. He didn't realize why.

And this same piece of Krabba invariably (much to my chagrin) walks off with the same flattering honors when seen by most everyone. But my chagrin is always lessened (I want people to like the Aklae weavings) when I realize that it isn't the techniques of Krabba and Half-Krabba used in the hanging, but the combination of yarn colors that really makes the textile.

Because this piece of weaving is so attractive, I thought it wise to describe the textile in detail for this packet.



DESIGNED AND WOVEN BY THE AUTHOR

# Krabba - half-krabba

-2-

Krabbasnar and Half-Krabba are so-called "embroidery weaves". Often a person will ask if the design, which is decidedly raised above the background, isn't embroidered on the cloth.

Krabbasnar, sometimes called Hel-Krabba (Whole Krabba), nevertheless is a rightfully much used pattern weave, and these techniques are done in practically every province in Sweden. In Norway, the Krabba technique is called "Vest foldteknikk"----I suppose this means western country (Sweden) technique.

The name "Krabbasnar" ,says one authority, means a "crab snare", because the weft wools are caught around or ensnared in the warp threads. Another authority says the name means "very slow process"----and that appeals to the author, for no phrase ever possessed more truth than the last interpretation. (This was readily discovered by the author while weaving 450 samples for the packet.) And, I suppose, following suit , the name Half-Krabba means "half as slow" as "very slow". That is rather true, although the Half-Krabba technique goes much more quickly than does Krabbasnar. I do not mean to belittle these two techniques, for both are distinguished techniques, producing handsome effects in the finished work,if done correctly.



DESIGNED AND WOVEN  
by SARA MATTSSON- ANLIOT

Both techniques are good not only to enrich the all-over surface of a fabric, but also useful for decorative spots. Krabba, at once, impresses one as the more intricate working process, in comparison with Half-Krabba, yet even Half-Krabba designs done alone are sufficiently interesting on any suitable piece of weaving. Textiles done entirely in Krabba are to be seen, but the process is usually done in stripes, with either a plain background between the stripes, or a plain background between stripes of Whole Krabba and stripes of Half-Krabba. Also may be seen textiles combining stripes of Krabba, Half-Krabba, Dukagang, Aklae and Lightning . Should one wish to combine Krabba and Dukagang in one piece of weaving the loom should be threaded with Twill or Rosepath.

I might mention----just in passing---- that this is the first time, to my knowledge, that any instructions have been offered in print in English on the Krabbasnar and Half-Krabba techniques. Just to show how futile it would be to try learning the working process from any of the Scandinavian books, I am giving a very liberal translation from one book, Mary Block ---DEN STORA VAVBOK, page 147. (The big weaving book.)

Passing over the first ten lines, which extol the many virtues of Krabbasnar together with the information that it is a picked-up weave of so many threads according to the pattern----the pattern lies loosely on the surface of the web, with binder threads between----pattern units must be not too long, thus permitting the weft threads to be exposed to wear and tear, etc. A twill threading is given in this book, with a regular tabby tie-up. This would make the Half-Krabba technique the same difficult problem as the Krabbasnar technique, as one can readily see after having read the instructions in this packet.

Beginning with line 11:

"Tabby is usually two harness or reps (twill). Weaving is arranged accordingly,



# Krabba-half-krabba

-3-

in general, so one weaves on two harness or twill and adorns this with stripes or figures in wholekrabba. When one comes, at length, to begin weaving, one shall begin by letting go the treadles (closed shed). One takes the bobbin of yarn, in turn and order, and fastens thread to right of respective pattern figures, and then the bobbin is put through the warp to left under so many warp threads---as pattern denotes----then pulled or pushed up through the warp again, (bringing bobbin to surface of shed). Then one puts in some tabby, the number (of shots) depending on the distance one wishes between the pattern lay-ins. Let go the tabby treadles and go on with the pattern, etc. With wholekrabba comes the right side below!"





This is about the gist of the instructions. On the next page is given Half-Krabba, with no threading draft and no definite instructions for weaving, except that two harnesses are used, with one thread through each heddle and one thread through each dent of the reed.

It is interesting to examine the instructions above, but I doubt that a weaver could go ahead with the working process. This particular "translation" is more complete than most of the other books I have at hand, except, perhaps for the paragraph given in Hulda Peters' VAVBOK, page 69.

It is interesting, too, I believe, to know what these Scandinavian texts contain. If one asks a Scandinavian to translate some of the text for you, they usually read a few lines, throw up their hands in dismay and exclaim, "Ugh, sech vurds." (Did I hear you say that you would like to be able to translate these texts. Well, you can. Just do as I do. Get your foreign dictionary, thumb through it for several hours for practically every word, piece together the meanings found, using your knowledge of weaving terms, and you have a result. Some people are under the impression that the author is a Scandinavian. No, I am as American as Tom Sawyer. The nearest I have ever been to Sweden was the studio of Sara Mattsson-Anliot in Cleveland, Ohio, and the nearest I have ever been to Norway was when I studied with the late Mrs. Marie Astrup-Kalstad, in Brooklyn, New York.)

In case some of you think that "teacher" has gone care free on his last Packet, as teachers are wont to do on the last day of school, just turn to the next pages, for there you will find your homework of the most intricate type awaiting your undivided attention, and all the concentration possible.

## THE DESIGNS.

The designs of Krabba and Half-Krabba, as seen in most Scandinavian textiles, are somewhat duplicative, triangular shapes for the Whole Krabba, while in Half-Krabba designs the customary shapes are diamonds or "V" shapes formed with units of small crosses built upon three warp threads, with intervals of three warp threads between as this:  Conventional flowers or "posies" are often woven, composed of the same crosses, used separately or grouped together as  with "stalks" done in a succession of the crosses, and branches, done either in  the Krabba technique or with the crosses in Half-Krabba technique. The illustration  on page 1, shows these formations.

## THE WARP.

Warp for these techniques certainly can be diverse. Some Swedish Texts recommend 12/2 linen, set at 12 to the inch; others recommend finer warp. The 12/2 linen, while also durable and suitable to Art Weaving techniques, can be more easily picked up than a finer warp thread. In the textile pictured in Illustration 1 of this packet, the author used a 10/2 medium brown mercerized cotton, threaded two through a heddle and two through each dent of the 15 dent reed. I believe this was the warp on the loom at the time and was the easiest and quickest way out. The two warp threads through a heddle, however, made a nice working surface, for the two threads remained flat and gave a nice flat fabric, and a rather loosely woven one. (In all Art Weaving techniques the weft should not be beaten down so hard that a stiff textile results. The finished fabric should be rather limped.)

The warp, if possible, should be a colored warp relative to the weft colors---not



# Krabba—Half-Krabba

detracting, by discoloration or greying—to the weft colors employed in the background weft or wefts. That is, if your color scheme is composed of blues, greens, with accents of crimson or/and gold, use warp of not-too-bright blue; or if your color scheme is browns, tans, rust, gold, with, perhaps, an accent of aqua blue or burnt orange, use a warp of light tan or gold color. In the sample which accompanies this Packet, a 16/4 cotton warp was used, set 12 dents to the inch. This warp was used purposely in order to show Packet readers more easily the techniques. These techniques give a more elegant appearance if a fine warp is used. I think that even Lily's Art 7/4 warp (10/3) would make beautiful warp, especially the Ming Gold color, set at 12 to the inch. The warp in any case should show in the finished work.

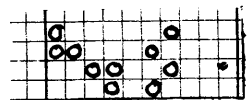


## THE WEFT.

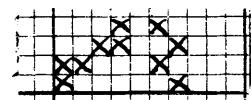
The weft yarn most adaptable for these techniques is shown on the sample card. Preferably, a one ply yarn should be used, one strand wound on your shuttle bobbins for the tabby background and three strands wound into your pattern weft bobbins for your design units. The bobbins for the patterns are wound according to the instructions on the cover of this packet. Fabri, wound 3 strands in your bobbins would prove successful, and the colors are good. The Cartercraft Studios, 62 West Union Street, Pasadena, 1, California, has a 16/2 Wool yarn in an assortment of beautiful colors. The Cartercraft yarn would 4 strands in the bobbins (or 3 may do) would be excellent. Condon's or Caribou yarns—except for the limited color range—would serve well, three strands in a bobbin. Regardless which brand of weft yarn is used, only one strand is wound on your tabby bobbins. For those weavers who have to use cottons, rather than wools, I would suggest Lily's Art. 9/4—Six Strand Filler—wound triple in the bobbins. This same cotton filler would be best, also, for any of the other Art Weaving, where the single-ply wool is recommended.

CUSHION—Designed by Else Poulsson.  
From DEN NORSKE HUSFLIDFORENING.

## The SET-UP.



1234 AB—Rising Shed



1234 AB—Sinking Shed

Warp: 12/2 Linen, 10/3 or 16/3 cotton, preferably mercerized.

Weft: Single ply Wool, similar to sample on card.

Threading and Sleying: One through a heddle and one through a reed dent.

12 dent reed for 12/2 and 10/3. 15 dent for 16/3 warp.

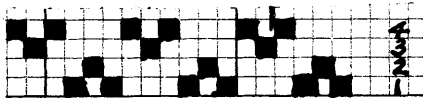
The difference in the two techniques is this: In Krabbasnar, each square on the cross section paper represents one single warp thread and one shot or lay-in of pattern weft. In Half-Krabba, one square on cross section paper represents three warp threads (grouped together)——and three weft threads high of the pattern weft. In other words, a square on the cross section paper represents, in Half-Krabba, a squared block on the paper itself; while in Krabbasnar, or Whole Krabba, the square represents one single line of pattern only.

In Krabbasnar technique it is customary for designs to cover two or more warp threads for each unit of width of pattern; that is, for each line or row of weft laid in, but, regardless of the number of warp threads in the unit combination——two, three, four, and advisedly, not more than five——your design will advance only one warp thread each time the pattern changes. Assuming the pattern unit starts with three warp threads your work will resemble the figures on page "Krabbasnar Guides".

These two techniques are "laid-in" weaves. When I learned these techniques I had to pick up each warp thread in Krabba to advance the design. The same was necessary for the Half-Krabba technique also. Remembering about this as being mighty trying and uncomfortable,

# Krabba - Half-Krabba

-----although this is usually the recommended procedure----- I was determined to devise some less laborious and trying process before this packet went to press. Most Swedish books suggest a Twill or Plain Weave threading. These are all right for Krabba, but when both Krabba and Half-Krabba are wanted in the same textile a threading can be used that will make the Half-Krabba comparatively simple, as well as form a guide for the development of the intricate Krabba designs. For this reason I have chosen an old Finnish draft. The Finnish small draft below not only answers our need, but also gives us our regular tabby treadling of 1&3 and 2&4. This is the draft:



The Tie-up is on page 4.

Please notice that by depressing Harnesses 1 and 2, three warp threads are brought on top of the shed, and three are on the bottom of the shed. A similar shed formation is accomplished by depressing Harnesses 3 and 4-----according to the type of loom used. These are the two sheds to weave the Half-Krabba patterns.

For our Krabba "guide" I have devised the following working process. (This is really very simple when one sees it at the loom, but seems terribly complicated while telling it.) Assuming that your Krabba design---Whole Krabba, please remember---starts by covering the space of three warp threads in width (See Krabba Guide sheet), your first advance in the design will be to take in the next or fourth warp thread. Rather than pick out every fourth warp thread---clear across the weaving---insert the very first weft bobbin under the beginning three warp threads, and bring to the top of the shed---by depressing or raising harnesses---Harness 2 or 3 alone. A single warp thread will appear at intervals of every sixth thread. This sixth thread is your Krabba guide. This sixth thread will tell you---for each similar pattern across the web---how far to the right or left of this sixth warp thread your advancing will be laid-in. This is to be done, of course, after the method outlined in the drawings on the "Guide " sheet. If this practice of the sixth warp thread is followed, mistakes will be lessened greatly.

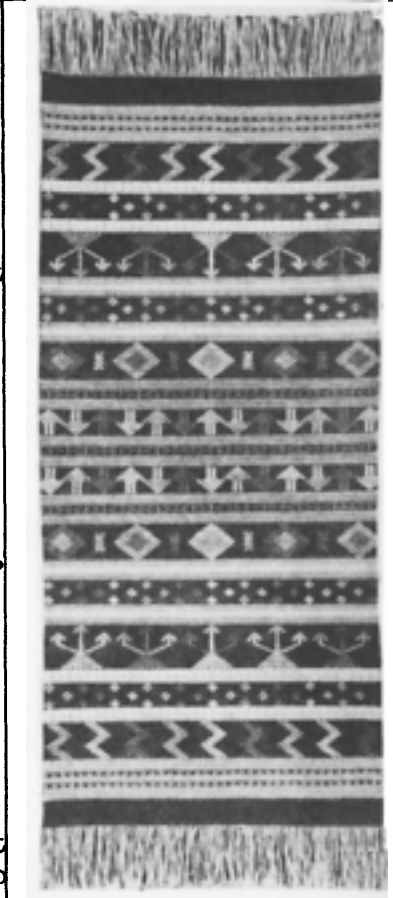


TABLE RUNNER IN KRABBA AND HALF-KRABBA. From Den Norske Husflidforening

If you will refer to the guide sheet, you will find 8 warp threads in the final development, Figures 6, one advancing to the right and one shows the weft advancing to the left of the loom. These eight threads include two of the "every sixth warp threads", and by these eight threads are formed six combinations, namely: A,B,C,D,E and F. The longer lines show the sixth warp threads and the shorter lines show the warp threads on either side of these sixth warp threads. These six combinations, then, will help the weaver determine where his next in-lays are put, rather than fumble around in a maze of warp threads on a closed shed.

At the start, in this particular case, the weaver will put the first bobbin under a designated place on the design; let us say, threads 6-1-2. The next advancement in the design will take in thread 3, but drop the "6" thread. (You will notice that the weft thread -----after the tabby has been put in---see Figure 3 on top row---is brought up over thread "6" and inserted under threads "1,2 and 3".) This (in Krabbasnar) accounts for two squares on the cross section paper. The third step will be woven on threads "2,3 and 4", taking your bobbin weft up over thread "4" and brought under threads "2,3 and 4". The only shed on your loom is the one with every sixth thread on top of the weaving. The weaver will have to reach down and bring to the surface the other warp threads in question at a particular design change. This is much easier, however, than doing Krabba on an entirely closed shed -----as is the custom. The other lay-ins may be followed from the drawings. Ordinarily, three tabby shots are put in after each pattern lay-in, and three tabby shots is the most

# Krabba - half-Krabba

-6-

advisable. In the sample accompanying this Packet, both Krabbasnar and Half-Krabba techniques are represented. The first row shows Half-Krabba technique, with the three units of pattern and the intervening space of three warp threads in between the units. The second row shows Half-Krabba, but on this row, six warp threads have been taken into consideration. The weaving of this row is accomplished thus: the weft bobbin is put under the three threads, grouped together, on top of the shed; then the weaver pulls up the three beside the top shed three to the surface of the warp and slips the weft bobbin under these three also (making the bobbin come under 6 warp threads) and the weaver then lets the three warp threads from the bottom of the shed fall back into place. This step isn't called for too often in a design. Next, the Krabbasnar technique is shown. There are four rows representing a branch (and these would be accounted for by four squares on the cross section paper) built diagonally to the foremost design composed of a "cross". This cross is again in Half-Krabba, with one three-threads group used for the bottom on one shed combination (either 1&2 or 3&4) and the next square is done on the opposite shed formation from the row just preceding; the last small square of the cross is done on the shed formed to make the first small square of the cross.

In the event that any weaver would prefer to pick up the Krabbasnar (and perhaps, also, the Half-Krabba) designs on a closed shed, either with a pick-up stick, or just by the fingering method, the guide chart of "every sixth thread" will help to check on the result of each row--after one has laid in all the pattern unit rows. That process would even have been a welcome suggestion to the author at the time he learned the techniques.

The pattern for the hanging in Illustration 1, will be found at the back of this Packet. You will readily see that the design for the bottom stripe or border in Krabbasnar seems out of proportion to the two borders above it; that is, on the cross section paper. This deranged looking sheet of designs is compulsory because the bottom border of Krabbasnar (pronounced, by the way, Krab-bass-nar) requires one square on the cross section paper to represent one single warp thread, but the two designs above are represented as 3 warp threads for one square. The line "R" running through the three design borders indicates where the top border and the middle border will come in the actual weaving in comparison with the bottom border. All bobbins are tied in with a slip knot, having bobbin end pointing downward.

In weaving the hanging refer to the photograph in Illustration 1 to determine the number of design units to be placed in your weaving width. The hanging has 309 warp threads (618 threads if threaded double through heddles as well as reed). A No. 15 dent reed was used, single sleyed. The first "X" figure on the left of the textile (wrong side up, of course) starts on the fourth warp thread, leaving 3 warp threads between the first figure and the selvage. On the opposite side of the textile, or right selvage, two threads are left. Naturally your designs should be placed so that they will be evenly spaced, and so that as near an even number of warp threads will be at each side of the complete design; that is, from the beginning and ending, out to each selvage, respectively.

In the bottom border, as has been mentioned, one weft bobbin will suffice for the two "legs" of the "X" figure. In the second design of this same border (which somewhat resembled a crab) a single bobbin is all that is needed to weave this part of the figure:



"X" FIGURE

It is better to use two bobbins for the side units-----  
Three shots of single ply yarn is used for tabby between each lay-in unit. All the background stripes are plain tabby weave (with one strand of wool weft yarn), except the two small bands on either side of



SIDE UNITS

middle stripe or border. This is woven with one strand of wool weft by treadling such treadles as will make alternating sheds with Harness 1 alone, and Harness 4, alone. Where "white" squares appear on the design sheet, the weft is skipped overtop of the warp threads.

The middle stripe or border is set in 20 warp threads from the selvage, beginning on the 21st warp thread. I have designed the "branches" on the cross section paper in the Half-Krabba formation, rather than having to do them by the Krabbasnar method, as in the or-

# Krabba-half-Krabba

iginal hanging. However, if a weaver prefers, the "branches may be woven in the Whole Krabba technique. In such a case, there are 9 pattern rows of Krabba between the bottom of the figure and the small crosses. There are also 9 Krabba rows that extend from the center "stalk" diagonally up to the larger groups of crosses on either side of this first design. The Krabba lines in the center of the second design unit, connecting the upper and lower figures, have 12 pattern rows in them. Disregard, by the way, the number of squares on the design sheet from the edge of the paper to where the middle border begins----just remember the distance is 20 warp threads. (Although there are 20 squares, each square in this Half-Krabba technique should actually represent 3 warp threads.) The upper and lower figures in the second design in this middle border are woven as was described the rows of the second square on your sample in this Packet. There are 15 warp threads between the closest parts of any of the two designs in this border.

The top border is entirely Half-Krabba technique. The first square of the first unit begins with the third warp thread from the left hand selvage, with 9 warp threads between each unit at the very bottom of the border. This top border is the simplest to do, and could very well become the bottom border, should one wish to begin with the less intricate technique of Half-Krabba. The original bottom border could then be used at the top of the hanging.

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## NOTES ON THESE KRABBA TECHNIQUES.

1. Start on 1&2 on a sinking shed loom and on 3&4 on a rising shed loom. (This isn't always compulsory, however.) It matters not which tabby shed is put in first, after a design row has been laid in. But it is obvious that if three tabby shots are used as, 1&3, 2&4, 1&3, the next time the tabby is put in must be on these sheds: 2&4, 1&3, 2&4.
2. Lay in all bobbins from right to left direction---the end of yarn being on the right of the pattern unit, and the bobbin proper will hang from the left of the unit. This must be always, regardless of which direction your design unit builds.
3. All bobbins must, at all times, be going in the same direction.
- 4.- When bobbins point toward the left selvage, start working pattern rows from the right side of the loom, and vice versa. Speed is gained thereby.
5. It takes 3 "lay-ins" to square a block in the Half-Krabba technique. It takes but one "lay-in" for each pattern change in Whole Krabba technique.
6. If selvages are not the same height as web proper, build these selvages with back and forth tabby shots---on the two tabby sheds---as far in as the nearest pattern unit, but always end on the same shed before you began this selvage building. It is simply "darning" with the shuttle in order to raise the selvage edges evenly with the weaving proper.
7. The finished textile should be soft and flexible, not "stiff as a board"; so beat lightly---on any ordinary loom---allowing the warp to show through the weft.
8. If you are in doubt about having put in all the bobbins in their correct places in the warp, raise Harness 2 or 3 and compare the placement of your "lay-in" wefts.

I fear the colors of the original hanging cannot be duplicated exactly----having checked the colors with several firm's yarn color cards, but match them as well as possible and you will be sure of an exquisite result. Last, but not least, I see that the headings at the top and bottom of the hanging are woven with No. 5 Perle cotton, gold in color. And as has been mentioned before the warp was a 10/2 mercerized cotton. I did forget to call your attention to one thing: the method of bringing the weft bobbins up over the warp to put in a new shed---when a pattern change is made---is the same principle as followed in the Monk's Belt working process in Packet I. And may I add this: The best of success to you in all these Art Weaving techniques, and trust that they will give you hours of endless enjoyment. They are not difficult; they are easy to do. There is no deep dark secret about them. All one needs is to experiment with them and soon they will dawn upon you as being something very elementary, for most weavers in the Scandinavian countries learn these Art Weaving techniques, then proceed to the "more intricate weaving of overshot".

# "TABBY" TALK

by  
*E. W. Nielsen*

First, I must tell you that Thyra Fjellangers, 5921—8th Avenue, Brooklyn, New York assures me that they can now furnish the new Halvorsen's HANDBOK I VEVING for \$3.50, plus postage. I imagine the increased demand for this book has brought down the price. So order the book from this firm and save money. Bonniers of New York City supply me with this book and their price is the one I have asked.

I have decided to discontinue handling books and weaving accessories and devote my time to experimental weaving with the hope that, through my experiments, I shall be able to produce a new series of Packets. Therefore, I am closing out the books I have on hand at greatly reduced prices. The list of reduced price books follows:

\*\*\*\*\*

3 copies HANDICRAFT OF THE SOUTHERN HIGHLANDS—	was \$3.50	.....now.....	\$2.79
3 copies SHUTTLE-CRAFT BOOK OF AMERICAN HAND WEAVING—	was \$1.00	.....now.....	\$2.98
4 copies HOMECRAFTS IN SWEDEN (English text—no weaving drafts)—	was \$4.75	.....	\$3.79
2 copies Worst's FOOT POWER LOOM WEAVING—	was \$6.00	.....now.....	\$1.49
2 copies Black's KEY TO WEAVING—	was \$5.00	.....now.....	\$3.79
10 copies Basic Word List—	was \$1.00	.....now.....	.69
3 copies Pa. GERMAN HOME WEAVING—	was \$1.00	.....now.....	.79
1 copy WEAVING LESSONS FOR HAND LOOMS, Snow & Peasley.....	was \$3.50	.....now.....	\$1.98
1 copy Eva Odlund's VAVBOK (excellent Swedish book).....	was \$1.50	.....now.....	\$.98

Please add 10¢ for postage and packing for each of the above books.

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Please understand that the above prices are close-out prices and are not to be expected from other book suppliers. When the above stock is gone, there will be no more books at the above reduced prices.

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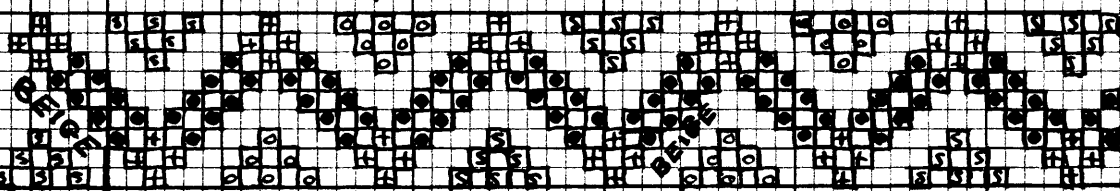
The supply of imported weaving accessories from Sweden is about gone, and I think it advisable not to order any more until the next series of Packets. I shall endeavor to get an eighth Packet together for the Scandinavian Art Weaving series, but that will be some time yet; and, of course, Packet readers will be notified about it.

The publishing of the Packets has been a delightful project and I wish to express my sincere thanks to Packet readers for their friendliness, patience and cooperation during the past eleven months while the project was being developed. By your kindnesses I have been made to feel that there are still, in this hectic world of our, nice people like I used to know in the not too long ago. My thanks, too, especially to Mrs. Harriet C. Douglas and Mrs. Mary Sandin for their help in making the Packets known to weavers. And, finally, my great appreciation to those two old young "stand-bys", Mary and George Yates, who not only helped me with the task of assembling the Packets, but who were really responsible for the Packets being published. It was they who said, after learning the Art Weaving techniques, that something should be done to give these interesting techniques to other weavers. Thus was born the Packets. What good they will do will have to be determined by you.

The new Packets? Well, I realize more and more that there is a need for contemporary weaves—call them structural, textural, functional, or what you will— weaves that are adaptable to our modern living. I do not mean the silly textiles woven with cockleburrs or "chore girls", but weaves that may be "crazy", but acceptable and likable for our daily use. When you get down in the dumps and do not know whether or not you are thinking sanely about your weaving, get Volume VI, No. 3, July-Aug., 1941 of THE WEAVER and read Mrs. Atwater's "It's Pretty—But Is It Art". It's a "classic come back" and a once-and-for-all answer to inapt theorists. The article gives one a lift, for the advice comes from an expert craftswoman and artist. If the new Packets become a reality, I promise the weaves will be acceptable and not questionable.



FOR TOP BORDER, REVERSE BOTTOM BORDER



BEIGE 1 1/2"

BUFF 1 1/2"

LT. BROWN 1/2"

RUST 3/4"

MED. BROWN 3/4"

DK. BROWN 1 1/2"



MED. BROWN

BEIGE

DK. BROWN



BEIGE 2"  
APPROX.  
BEIGE

CENTER  
TAUPE 1"

BEIGE 1 3/4"

APPROXIMATELY

DK. BROWN

BEIGE

MED. BROWN



DK. BROWN 1 1/2"



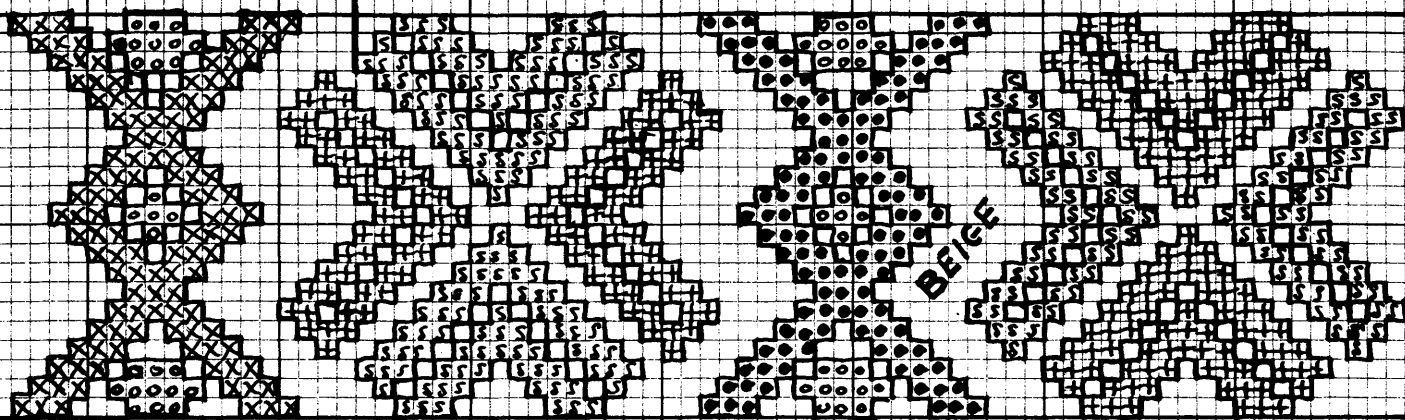
MED. BROWN 3/4"

RUST 3/4"

LT. BROWN 1/2"

BUFF 1/2"

BEIGE 1/2"



BEIGE 1/2"

BUFF 1/2"

LT. BROWN 1/2"

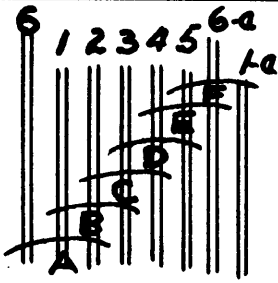
RUST 3/4"

MED. BROWN 3/4"

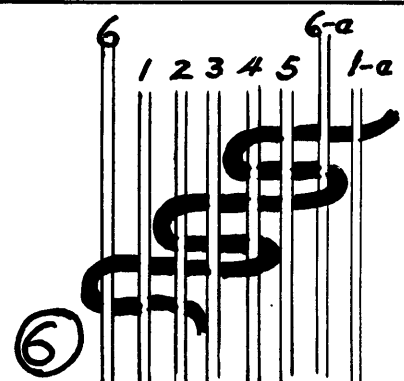
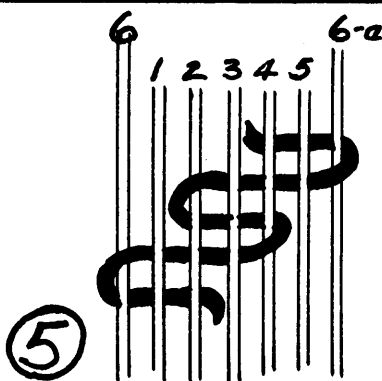
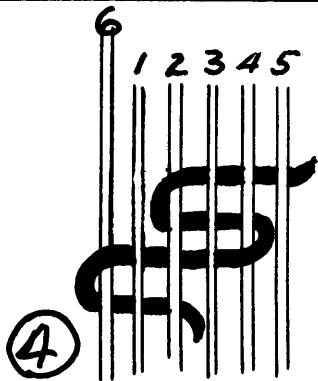
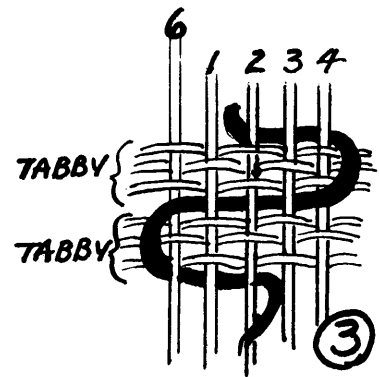
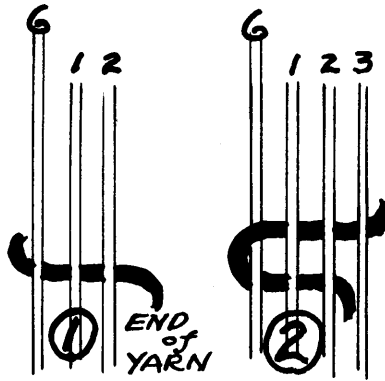
DARK BROWN 1 1/2"

- o LIGHT RUST    o DARK BROWN
- BEIGE        s BUFF
- h LT. BROWN    e TAUPE
- h MED. BROWN

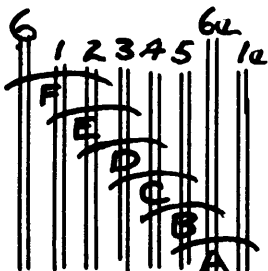
**KRABBASNAR GUIDES - E.W.HICKMAN-1949**  
 DESIGN BUILT from LEFT TO RIGHT DIRECTION



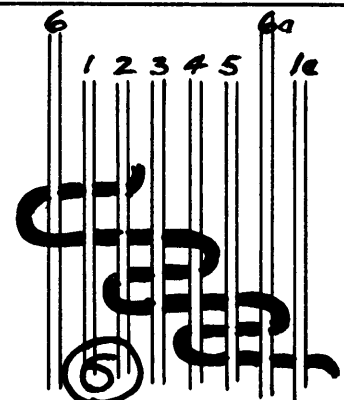
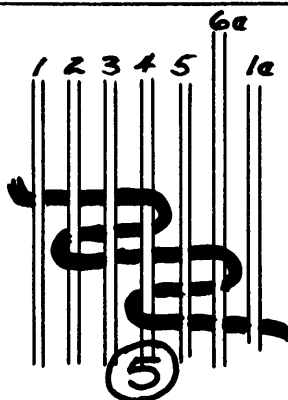
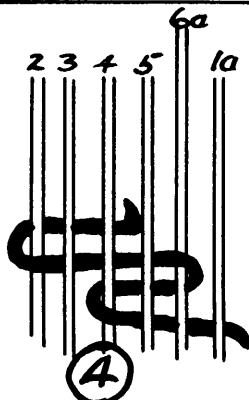
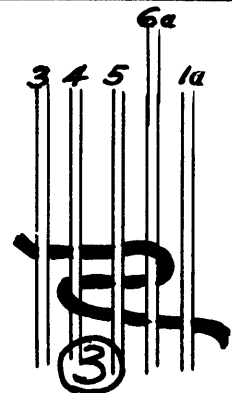
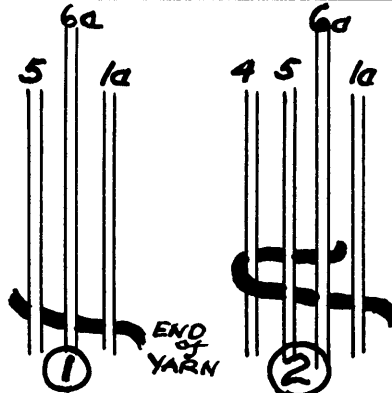
- A = 6-1-2
- B = 1-2-3
- C = 2-3-4
- D = 3-4-5
- E = 4-5-6-a
- F = 5-6a-1a



DESIGN BUILT from RIGHT TO LEFT DIRECTION



- A = 1a-6a-5
- B = 6a-5-4
- C = 5-4-3
- D = 4-3-2
- E = 3-2-1
- F = 2-1-6



THREE SHOTS OF TABBY GO BETWEEN EACH PATTERN INLAY  
 THIS IS SHOWN IN NO.3-TOP ROW.

