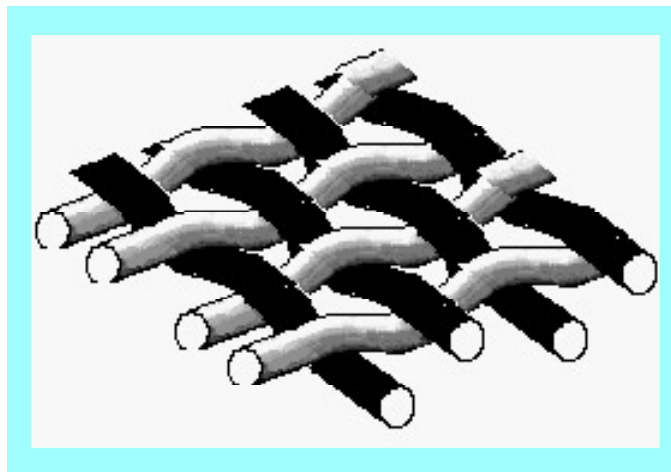


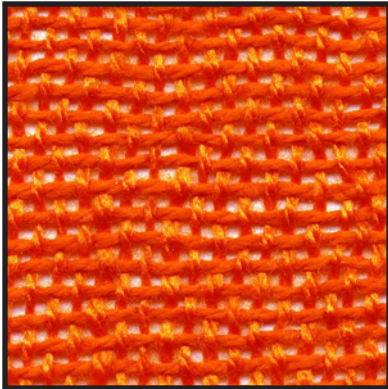
# PLAIN WEAVE

“A weave in which every thread alternately passes over and under the threads of the other system, and in which each thread weaves exactly opposite to the adjoining threads. Plain weave gives the simplest form of interlacing but it is used more than any other weave. It gives a greater number of intersections per unit space than any other weave and, other factors being equal, will give a stronger fabric. A great many ways of ornamenting and varying the weave are used; e.g., by using threads of different color, material, count or twist. Common examples of plain weave fabrics are sheeting, lawn, muslin, chiffon, etc. Other names for the plain weave are: tabby, calico, taffeta, etc.”

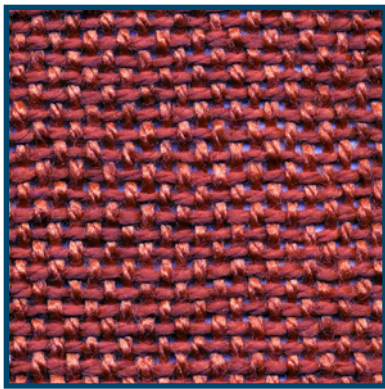
*Callaway Textile Dictionary*  
*First Edition 1947*



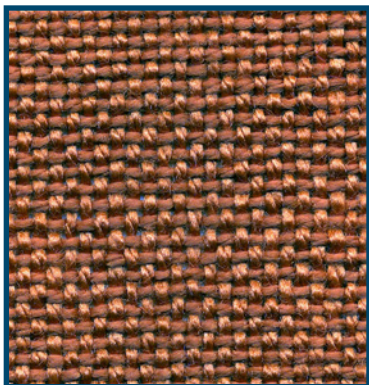
Plain Weave woven as drawn in or dented:  
number of weft shots=number of warp ends per inch  
Sampling from COE project done in 1976



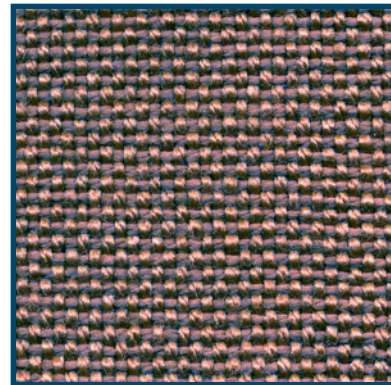
Woven with 3/2 trevira, set at 8 ends per inch.  
An extremely gauzy fabric resulted lacking in  
stability and body.



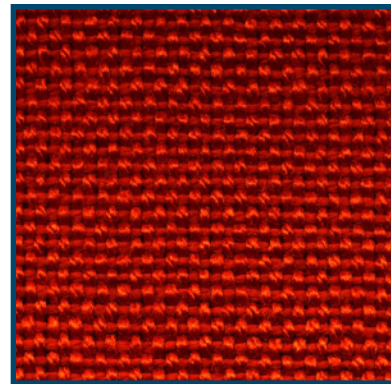
Woven with 3/2 trevira, set at 10 ends per inch.  
This fairly loose weave is useful for letting the light  
come through and for a lighter weight fabric.



Woven with 3/2 trevira, set at 12 ends per inch.  
This sample has more body and would produce a  
heavier fabric.

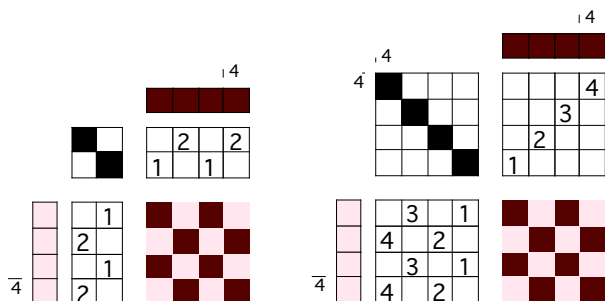


Woven with 3/2 trevira, set at 15 ends per inch.  
A very firm fabric probably the best choice of set for  
an average fabric.



Woven with 3/2 trevira, set at 16 ends per inch.  
This fabric is beginning to have a warp faced appear-  
ance and take on a boardy feel.

Plain weave is popularly called tabby by many weavers. The American Heritage Dictionary describes plain weave as *a weave in which the filling threads and the warp threads interlace alternately, forming a checker-board pattern.*

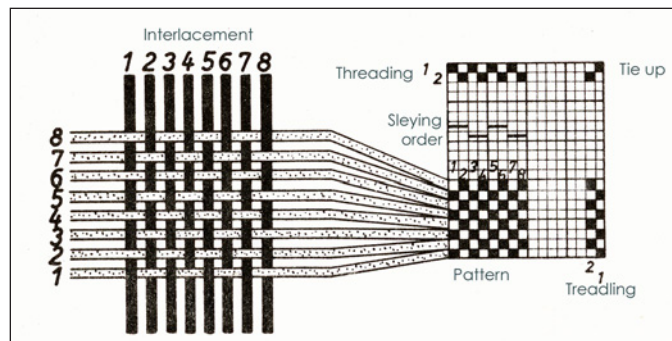


The diagrams above show plain weave formed by using only two shafts or sheds which are mainly found on a rigid heddle loom or a simple loom with only two shafts. The diagram on the right above is a plain weave structure threaded on four shafts and treadled or used on a dobby, table or electronic loom. The treadles would be shown as they would be tied up in the diagram above (treadles shown in black squares and used in the sequence shown in the treadling area.)

Note that color bars appear above the threading or warp area and to the side of the treadling or weft area. In most computer weaving programs this is how color is depicted. If the color area is shown in black, convention dictates that black indicates warp and white indicates weft but this does not always hold true. Similarly, few programs show numerals in their draw down diagrams but the norm is black squares in both warp and weft. A good program will allow the diagram to be read from top to bottom or vice versa. Although many of the older conventions used in weaving show the top to bottom method, this will not be successful if figures or lineal designs are used as they will appear upside down as the weaving progresses. A man standing on his head is rather unusual!

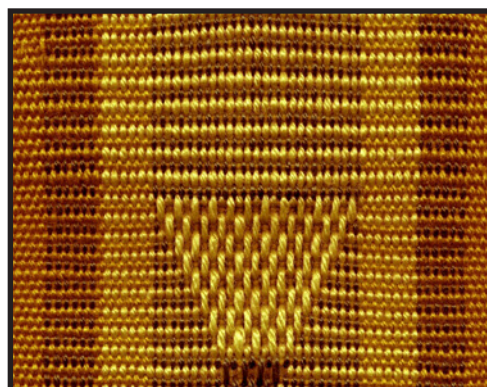
While many weavers still thread from right to left (probably because the loom is situated with light coming from the right or because it seems easier to thread heddles from right to left), this is not how most of us read. The weaving industry and most modern weavers look at a diagram reading from left to right. When

threading, it does not matter if it is done from the center out to the sides, from left to right or from right to left as long as it appears on the loom as shown in the diagram. Plain weave does not have a preference for direction, but pattern weaving if not symmetrical must be done according to the diagram or it will not be successful.

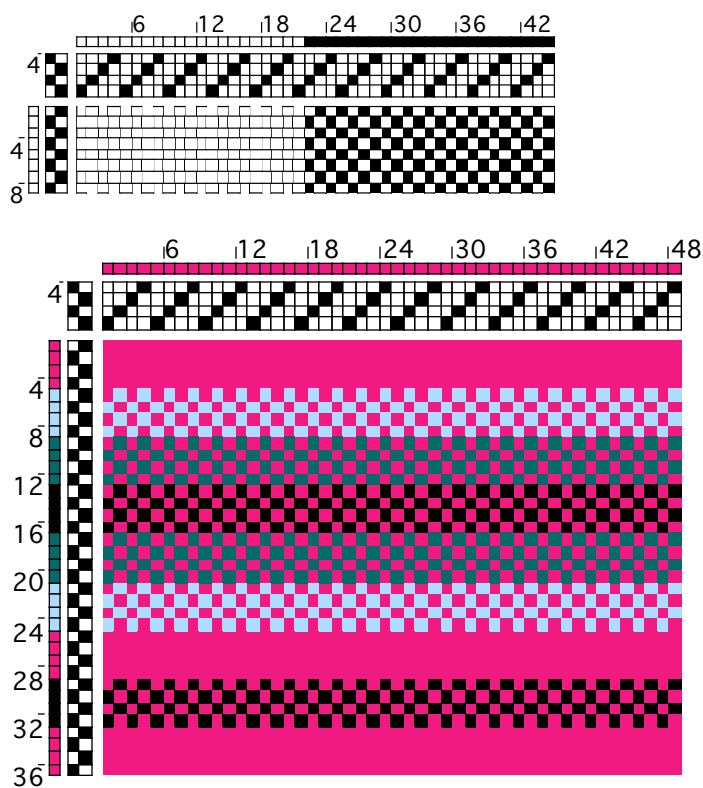


Relationship between the diagram and the actual thread interlacement (note the black squares or vertical bars indicate warp)

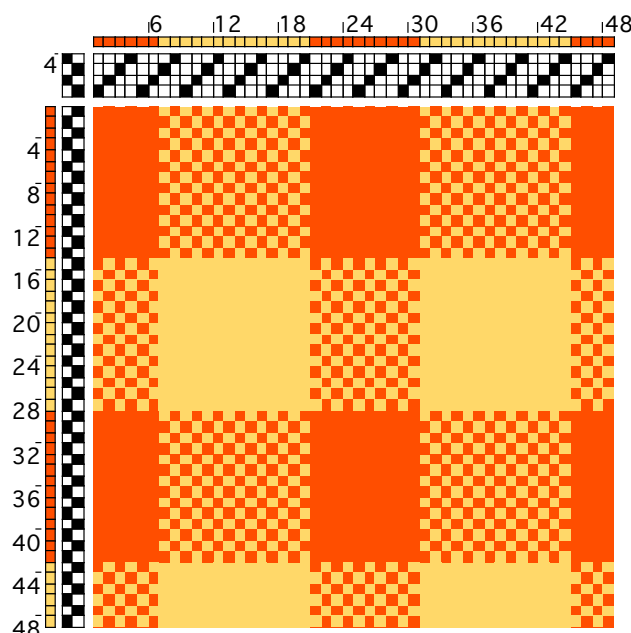
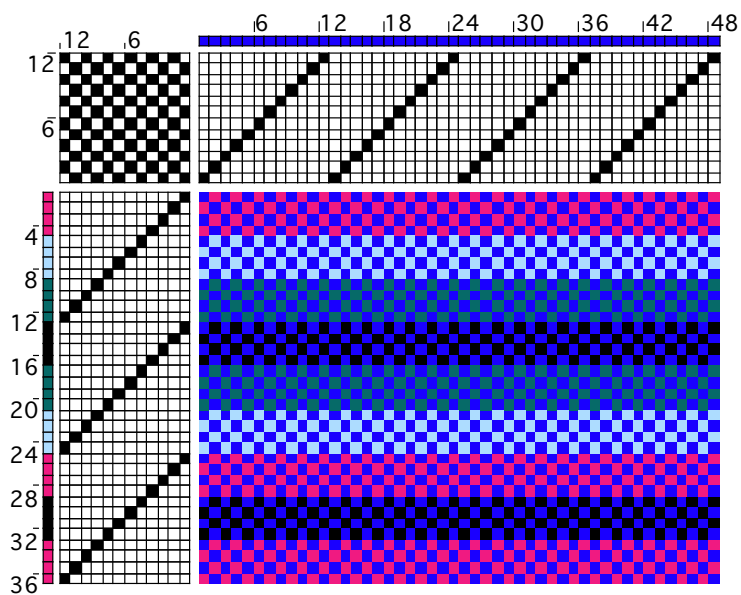
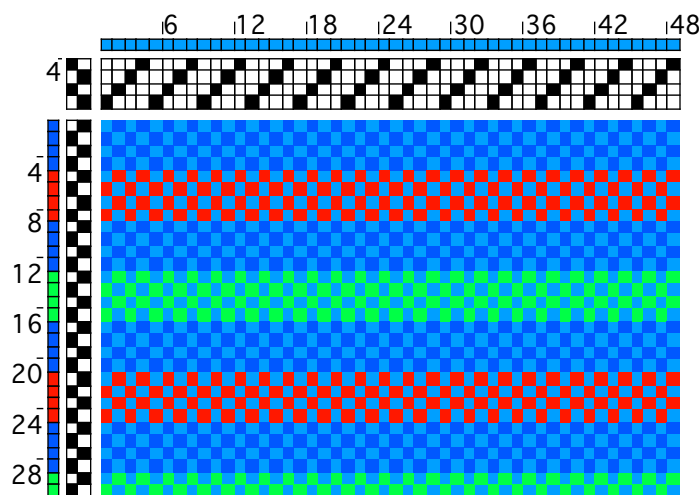
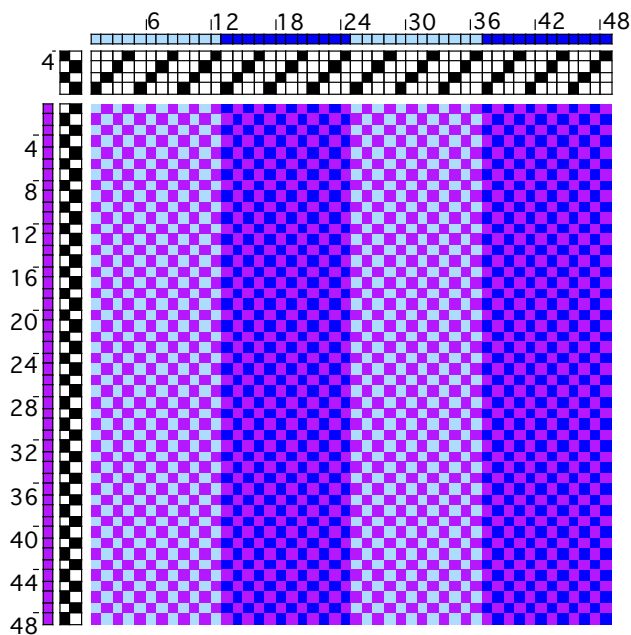
When reading old European weaving books, the word *leinwand* meaning linen is used to indicate plain weave. Another reference to plain weave is from the Hayufa Technology & Trade Company where, in addition to their Plain and Twill Weave wire, they weave wire called Hollander (Dutch) Weave where the warp wires remain straight while the weft wires are plain woven to lie as close as possible against each other in "linen" weave.



Warp faced plain weave with pick up areas



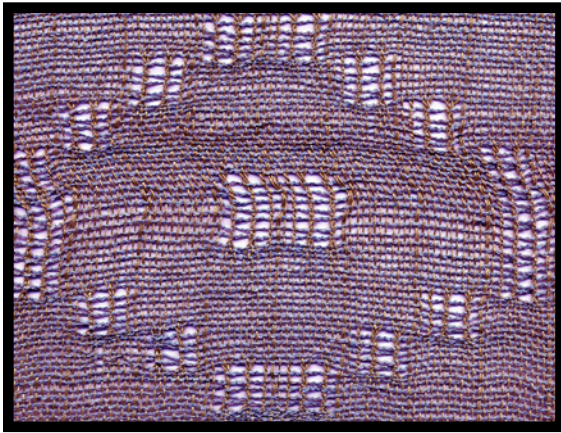
All of these plain weave drawdowns could be done on two shafts but the examples show that they can also be done on four or more even numbers of shafts. The tie up in the upper left corner will always have to show every other shaft being lifted for the first weft shot and opposite shafts being lifted for the second weft shot. This is repeated throughout the weaving. The color bars show the sequence of colors to be used for both the warp and the weft. The numbers on top and beside the bars give the number of threads of each color to be used. Of course, substitution for the colors can be made at any time.



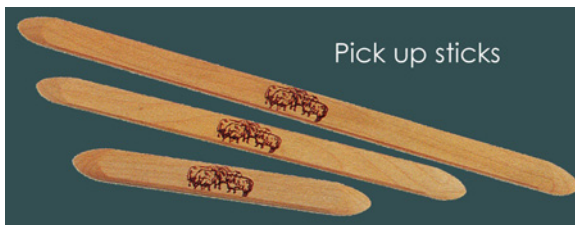


## Plain Weave Ornamentation

A knowledge of hand manipulated weaving on plain weave background gives the opportunity of enhancing design without the need of many shafts.



This [leno variation](#) was done with 20/2 linen warp and weft set at 12 ends per inch. It has been reduced from its original size. It is a process of crossing warp threads by hand or with a pick up stick and fixing the position with a weft thread.



The pattern above has been laid in on a plain weave ground of 20/2 linen warp and weft with Bernat Krysta. It has been reduced in size. This method requires picking up the warp threads and is easier done if four shafts are used.



Embroidering on the loom or while the weaving progresses gives the fabric a stabilizing effects as the warp is under tension. Weft bouquets such as the Danish Medallion can be done on the plain weave. This was done in 40/2 linen warp and weft with embellishment in silk and crêpe yarn. Reduced in size.

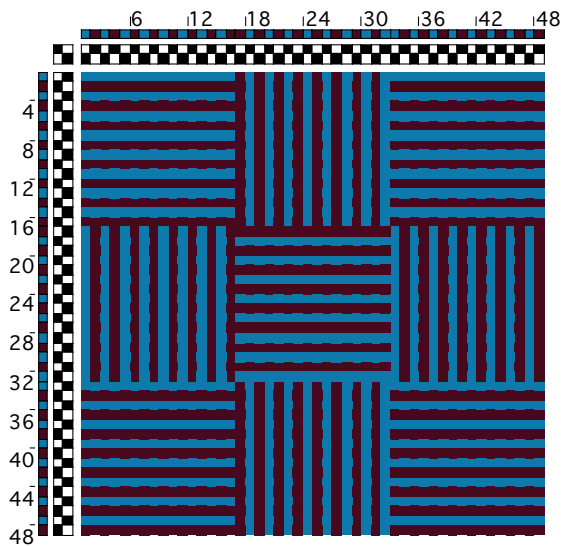


More lace done on the loom in this sample is Spanish lace made by interchanging sheds in plain weave and working the yarn back and forth over a group of warp threads. This is 20/2 linen warp and weft with various fancy yarns for hand manipulated work. Reduced in size.

*Samples scanned from work done for the COE in Handweaving by Eleanor Best*

## Shadow Weaves or Log Cabin Patterns

Many different patterns can be woven in plain weave by varying the color sequence in warp and weft. Usually this is done by interrupting the color sequence by doubling one of the colors, then proceeding with another sequence of colors and then doubling the colors and returning the original sequence to form the break in the weaving pattern. By weaving the entire warp sequence of colors as drawn in, sections of the pattern form “blocks” in the overall pattern.

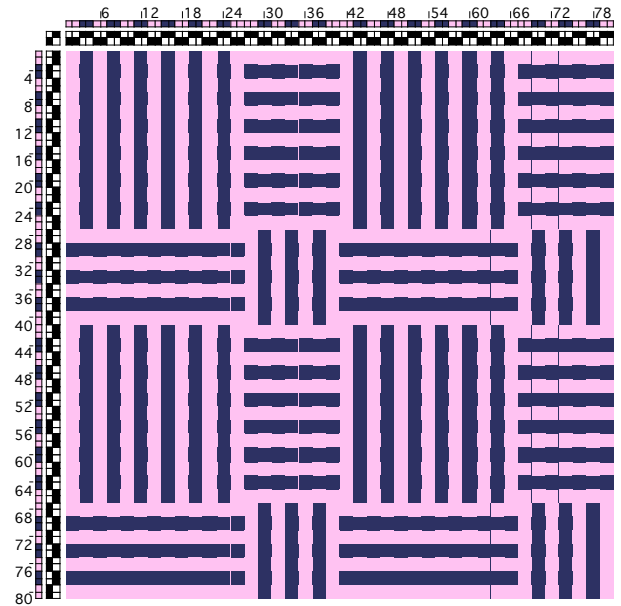


In the design above, the maroon threads are repeated in warp threads, 16 and 17 and the teal, threads in 32 and 33. The weft threads are done in the same order as the warp threads, but note that the treadling is done in a sequence beginning at the top and working down.

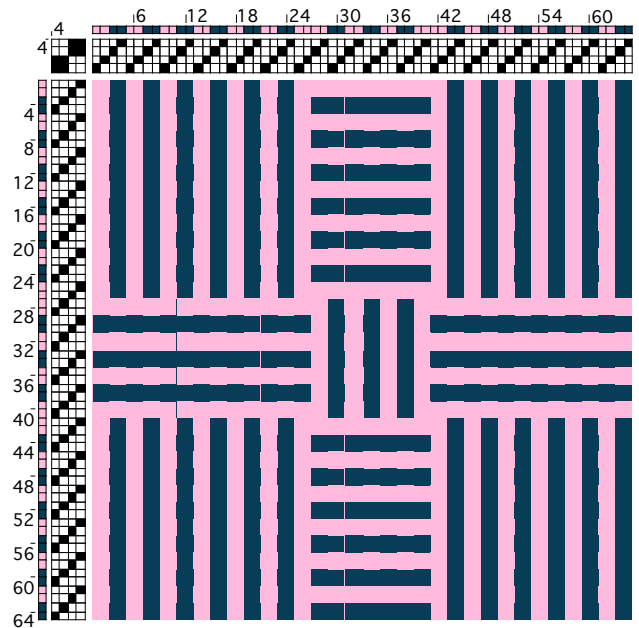
Computer programs vary in the way that they handle the information in their drawdowns. Some work from the right side to the left, while others start at the left and proceed to the right. In the same manner some work from the bottom to the top in the treadling while others start at the top and work down.

A good program will allow you to start where you wish usually by changing the preferences found within the program to your choice.

The two draw downs in the next column are essentially the same as far as the patterns go (threads 66 to 78

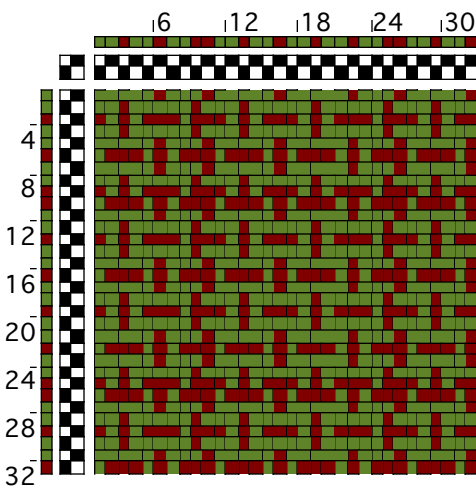
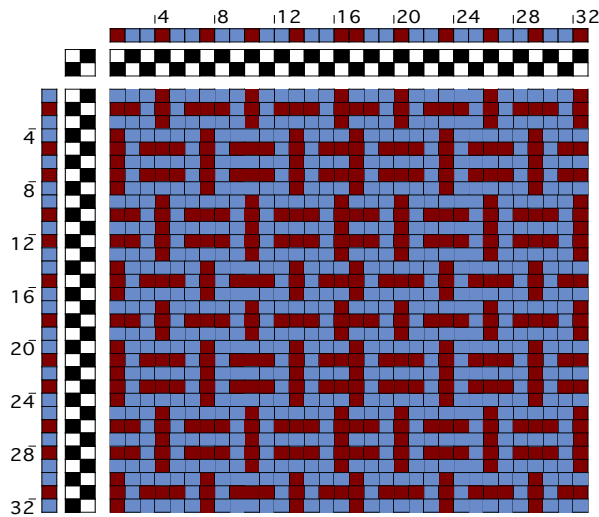


of the second repeat have been omitted in the repeat of the draw down below.) The main difference is that



one of the draw downs has been prepared for two shaft plain weaving while the other is arranged for four shaft plain weaving. Adjacent heddles are used in the top draw down for each color but progressive heddles in a straight draw are used to thread the lower diagram. A change occurs in the tie ups of the two draw downs when the second one weaves with shafts one and two together followed by three and four together so that two weft threads have to be thrown in the same shed. To do this the weft thread should be caught on each side around the outside warp threads otherwise they would just pull through and not remain in the shed.

not in selection of weft sequence to change the effect as seen below.

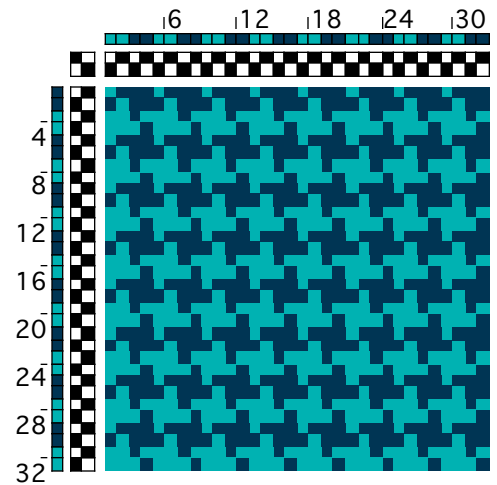
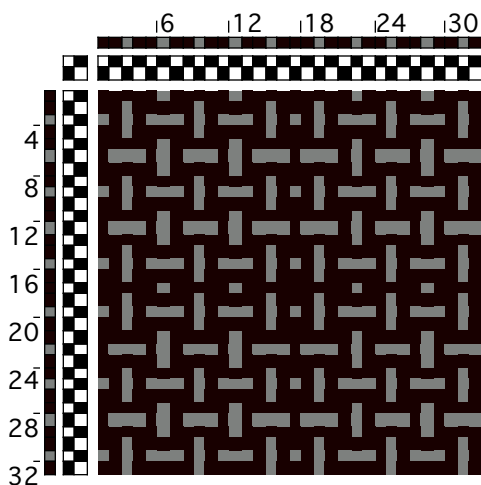


Color plays an important part in a successful plain weave fabric. In general, contrasting colors will produce the most dramatic effects. If the shades

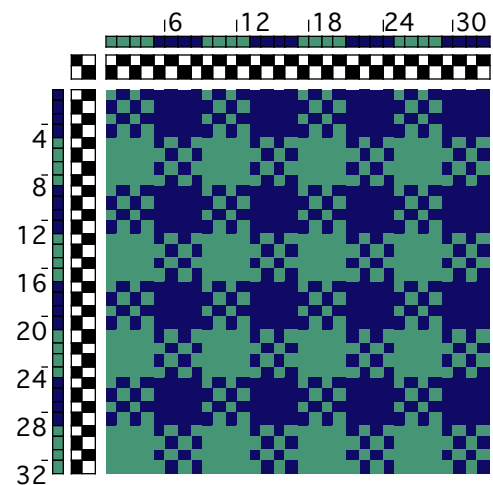
of the yarn are too close, the result may be too subtle to warrant the work in producing a handwoven fabric.

Some experimenting may be necessary to produce a special effect as the one seen here in

black and grey. The grey areas seem to be outlined by the black and give the pattern an interlocking effect.

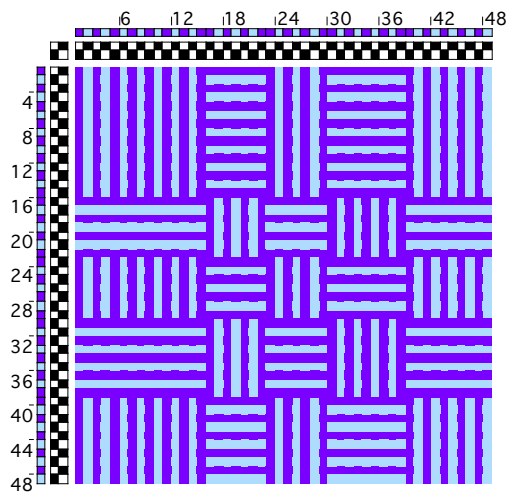


By interchanging the warp with the weft colors in different numerical groups, the results may vary in the overall appearance of the design. The above design has alternating two light and two darkwarps with two dark and two light wefts, while the design below does the same except with four threads each.



All of the drawdowns found on these pages have been taken from the CD entitled *Books and WIFs* by Eleanor Best. The book used in these designs is *Patterns for Color*.

WeaveMaker MI and SwiftWeave were used for the drawdowns done on the computer in WIF format. This means that WIF files are compatible with programs supporting this system.



All of the examples done in two shafts can be done in four shafts on a straight threading of 1,2,3,4. Just make sure that the threads follow the correct color order and

that the tie up produces sheds for plain weave (usually 13 and 24.)

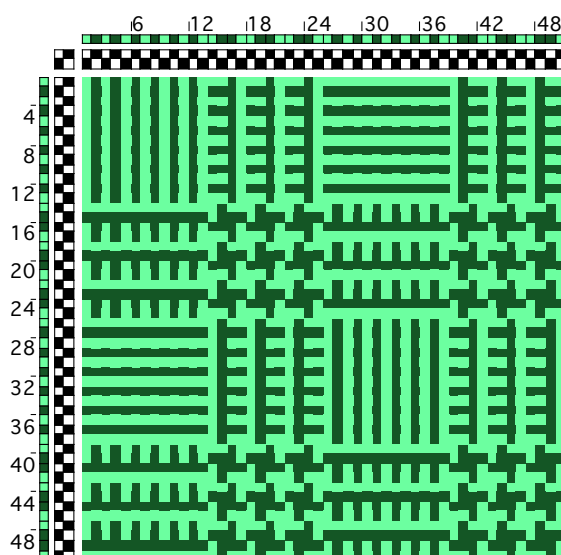
So far the drawdowns have been in groups of light, dark, light dark etc., then reversed to dark light.

The next combination of color groups is done in groups of three lights, three darks or more threads in each group as desired. Color effects begin to form

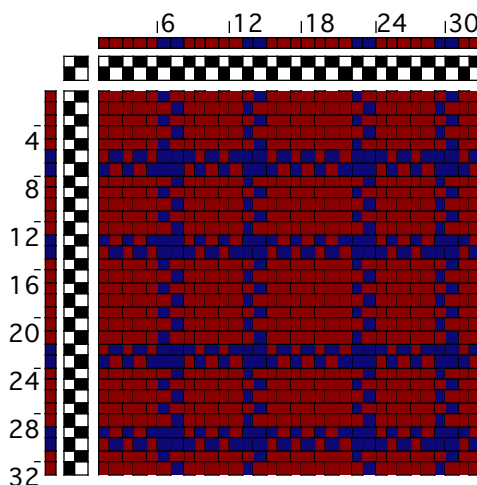
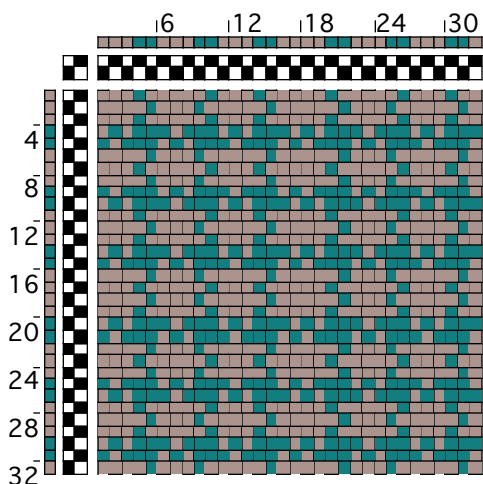
when odd numbers of threads are used or interchanged

with odd and even numbers. the variety in this type of designing can be endless.

In Scotland, the Lowland people adopted various

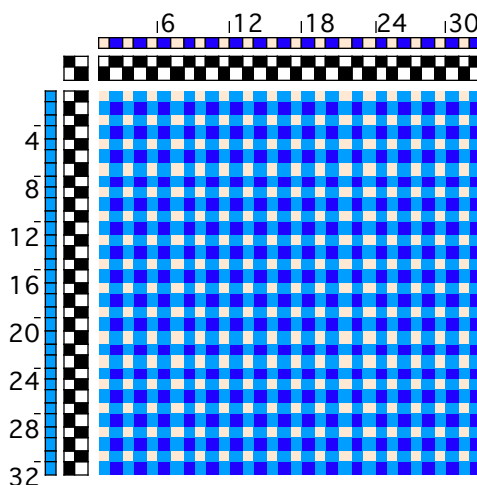
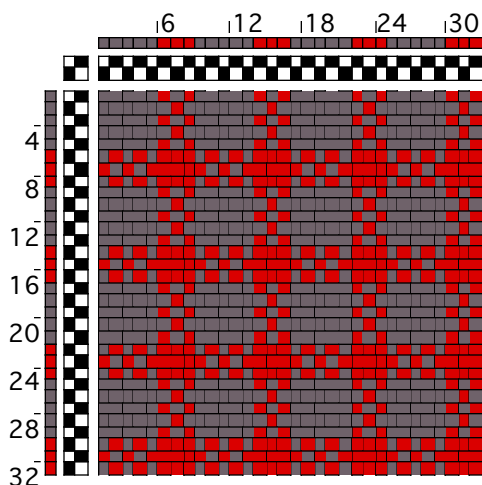


designs and color combinations to be used as estate “uniforms.” The colors were usually muted to blend in with the countryside while hunting and some were “copyrighted” as to pattern and colors. See literature on Scottish Distric Checks for detailed information on this subject.



Other color combinations used a check within a check to produce an illusion of complexity. Others used only the warp for color design while weaving the weft with a solid color.

Instead of weaving the warp as drawn in, it may be reversed in color but





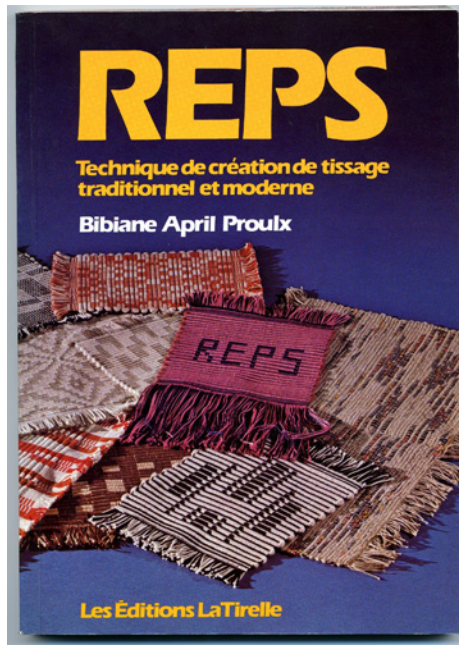
## Warp face plain weave

A whole study of Rep weaves can be found in Bibiane April Proulx' book *Reps*. Although it is written in French, the diagrams and pictures should be sufficient to understand and proceed with the methods used.

Determining the warp set in rep weaves requires that the warp be the dominant feature of the weave so it must be set close enough to cover the weft. This means that the weft will push up the warp threads to form ridges which can be either large or small according to the size of the weft thread used. Many of the patterns can be varied by using a mixture of sizes of weft. Pick up (as seen on page 2) can add to the scope of the patterning.

Another method of weaving plain weave is to use an inkle loom on which you must raise and lower the two sheds using a sword or stick. The shed is formed by threading the warp alternately through heddles and then manipulating the shed by pushing up or down as

the plain weave is formed. A stick or sword is used to form the shed and then to pack the weft down as the shed is closed. Many wonderful colors can be put into the warp and in addition, pick up methods may be used to augment the design.



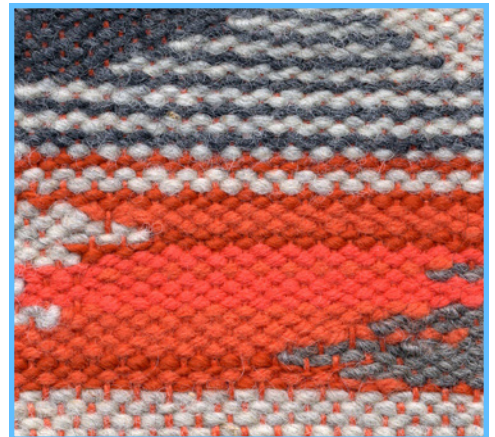
## Weft face plain weave

Weft face plain weave is most often found in rugs and tapestries. The warp is widely spaced, strong and will become covered by the weft. the choice of weft yarn

is crucial to the success of covering the warp—it should be the right thickness and soft enough to pack down well. Experimentation will be necessary to find the best yarn.



The sample found to the right shows several techniques that do not have the weft passing from selvage to selvage but being worked into shapes and joined with the background.



This form of tapestry is called hatching and the alternating grey and white stripes show a form of blending, all of which give a great amount of versatility for designing free form tapestry.



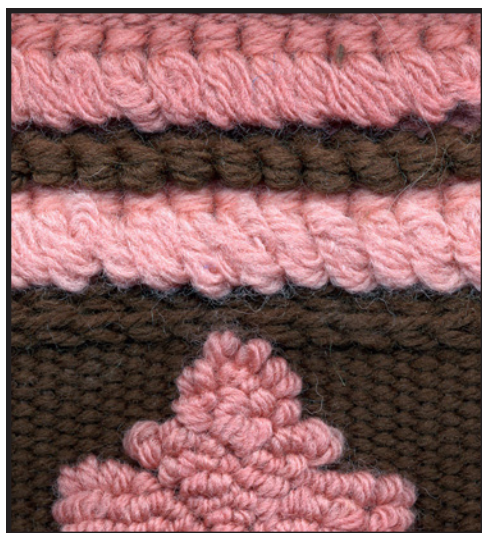




A plain weave ground can be used as the base for knotted, looped and other types of raised textured effects such as those used in rugs and wall hangings. The picture above

shows pile constructions which can be trimmed or left long for shag appearance.

To the right is a looped technique which usually give a slightly tighter more compact appearance. The loops may be varied in height or shaded with several colors for ornamental appearance. Note the “knitted” effect of twining yarn around warp threads for a raised cable view.



Another possibility for using plain weave is to space the warp in the reed by leaving empty dents and by cramming other warp threads so that several threads are placed in one dent. The fabric can then be woven with a plain weave or woven as sleyed by using spacers to separate the weft threads.

### ***Embroidery on the Loom***

A form of ornamentation that is rarely used with plain weave is a combination of pick up (not necessary if more shafts are used) and needle weaving. Yarn can be threaded through the skips in the picked up areas and traced in a path around the skipped areas. The pattern can be “invented” to suit if the path of the threaded yarn is varied.

Embroidery techniques like pulled threads, hemstitching, insertion of shi shi mirrors and so on can be used to decorate plain weave. Usually these effects should be used in small quantities, such as the triangular corner of hemstitching at the bottom of the sample on the right.



Borders or inserts for clothing can add the touch

that makes the fabrics or garments a success. Planning for the ornamentation should be done before the weaving begins as it may need to be placed in strategic areas to become most effective.



Most of these applications will be for the advanced weaver as the learning curve in mastery of the stitches, placement in the fabric and color application will be needed to achieve a well coordinated textile.

Many more applications can be applied to plain weave so let the imagination roam freely in your weaving. New threads combined with old threads may produce some exciting results.

*Try the new elastic threads combined with the old mercerized cottons to produce a seersucker effect—pull some threads to gather the fabric—don't be afraid to try something new. We all have some stunning successes and sadly, some failures that are only fit for the trash can!*