Supplementary Warp

A supplementary warp is just that—an extra warp—that weaves in on the top of the background fabric or below depending on how it is treadled. This means that the fabric may have double thickness depending on where the supplementary warp comes in the pattern. The weight of the background threads is usually slightly finer than the supplementary warp threads as they serve to give a decorative effect whether by color or texture.

The double thickness requires a larger space to contain the extra threads, much like a double weave, so a coarser reed works better than crowding the threads too close together in a reed designed for finer threads. For example, a thread set at 15 ends per inch would have 30 ends with the supplementary ends added, so it might be better to use a 10 dent reed with 3 ends per dent rather than a 15 dent reed at 2 ends per dent. Experiment to see how easily the threads pass up and down in the reed and remember that you may be taking the supplementary threads below the background threads and bringing them up again so they need to pass without too much friction.

The advantage of putting the warp pattern threads in with the background threads is that only one shuttle is needed to weave the fabric. This saves weaving time and eliminates all of the joins needed when putting in weft stripes, not to mention not having to worry about having to match seams when the stripes have not been maintained at an even spacing.

The sample pictured shows an ornamental use of supplementary warp which has only been woven in in places where the design features needed to be "tacked down." It does show very clearly how an extra warp can be integrated with a plain weave but remain a separate entity. The sample is handspun and dyed and is an good example of what to do with handspun yarns that need to be shown to their best advantage.

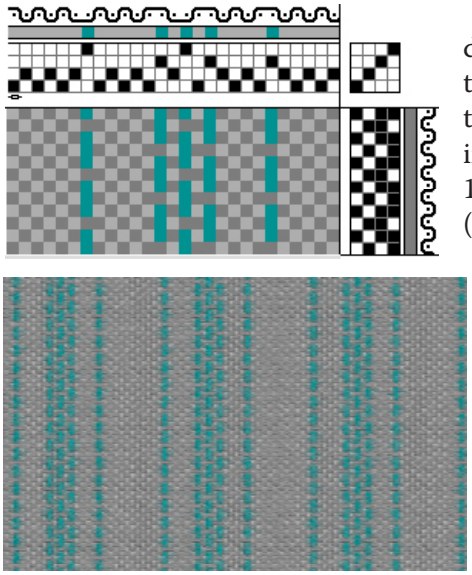
Choose yarns that will work the best for the project that you have in mind. For a dramatic effect but one that does not require that the warp threads be tied down frequently, use fancy yarns—for a utilitarian use, choose smoother, stronger yarns that do not have as much difference in weight as the background warp yarns.

Most looms can be used for working with a supplementary warp as the extra warp can be weighted on the back of the loom and a second beam is not necessary. The extra warp will usually take up at a greater rate than the background warp so the tension will not be the same for both sets. A lidded plastic bottle with a handle on it is the most convenient way to put weight on the warp as the weight can be adjusted by how much water that needs to be used in the bottle to give the correct tension. The bottle can be attached to the warp by making a cord loop which goes around the handle and then is half hitched to the knotted warp. This

method allows adjustment when necessary as the warp is woven off.

It may be necessary to divide the warp into sections if it is too bulky or if the warp is too wide for one section.

Extra length of supplementary warp is necessary for the extra take up, so allow for this when calculating the yardage. If the warp is taken off the loom by knotting it every yard or less then the knots can be used to anchor the warp to the cord on the bottle. *A chain warp will often slip and the tension will be lost.* The background warp is put on the loom in the usual manner chosen by the weaver. It is threaded through the heddles on shafts 1 & 2, but the heddles for the pattern threads are left empty so that the supplementary warp can be put on later. Remember to leave empty heddles for the supplementary warp between the filled heddles of the ground weave.



Using the drawdown to the left, the threading would be 1,2,1,2,1,2 (ground) 4 empty, 1,2,1,2,1 (ground), 3 empty, 2 (ground), 4 empty, 1 (ground), empty, 2,1,2,1 (ground), 3 empty, 2,1,2,1,2 (ground)

When the supplementary warp pattern warps have been threaded through the empty heddles and the cloth woven, the appearance will be as in the sample showing three repeats.

Care must be taken when threading the empty heddles as the threads must not cross and the threads should come straight through to or from the reed for sleying or threading. The supplementary warp threads should be sleyed and tied on the front bar before weighting or they will slip back through and become unthreaded.

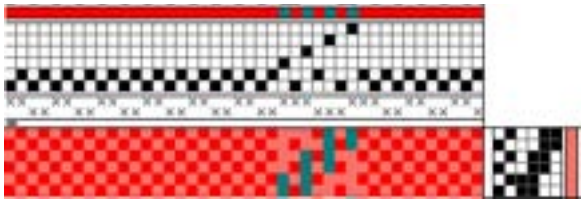
An alternate method of threading the loom for supplementary warp is to make the warp including the ground and supplementary threads in the order that they will be sleyed and threaded. Raise shafts 3 and 4 so the warps can be separated more easily. Continue to sley and thread from front to back. Tie the ground threads on the back rod but leave the supplementary threads free. In an alternating motion wind on the ground warp and pull the supplementary threads back but tie overhand knots as the warp is pulled through so that it is stabilized and does not become too long.

It is best to separate the supplementary warp from the background warp to eliminate friction or tangling. To do this raise the supplementary warp on the back beam by placing a stick or rod over a couple of blocks (½ to 1″ is enough) and tape them down securely. If you have access to a wood working area, make a separator bar that will act as a means of keeping the warps apart. The picture shows a method made with a dowel, screws and U-shaped pieces of wood.

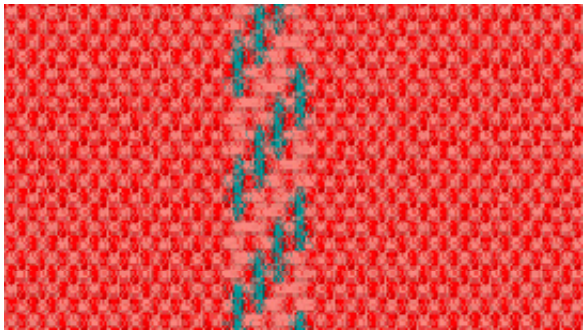
The circled area shows the cord that was made by loop-

ing it through the handle of the bottle (or a large screw topped water bottle) and then knotting it so that a complete loop was made. The loop was then half hitched to the top knot in the warp.

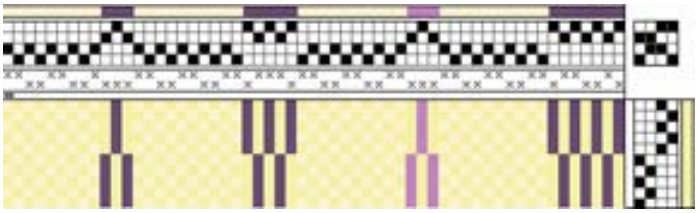
The red arrow is pointing to the amount of water that was needed for the weight of this project.



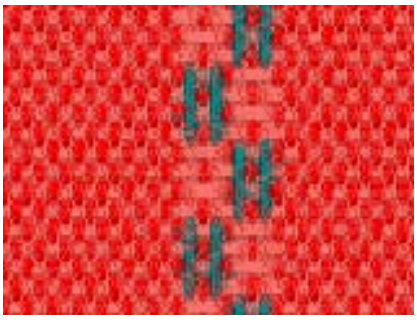
1 34
234
1 45
2 45
1 56
2 56

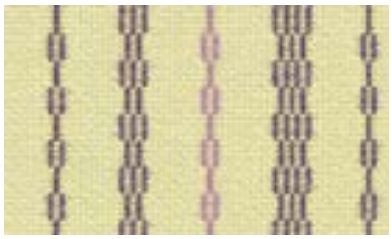


There are many choices that can be made for designing a supplementary warp project. The simplest (excluding a two shaft loom) is to have a four shaft loom with the ground warp on shafts one and two. The supplementary warp is distributed on shafts three and four according to the design. Note that the sample to the left has only one supplementary warp thread, followed by warps in three, four, and three and ending with one on three. The pattern threads should always be followed by a ground warp on either shaft one or two (usually alternating to keep the ground tabby.) This does not always hold true if multiple pattern threads are grouped together as in the sample given below. One of the important things to remember is that the sleying will be varied as the background threads must be integrated with the supplementary warp. Notice that the drawdowns show small x's below the threading. Two or more x's in a row indicate that all of those threads go through one dent. When the x's shift down, the threads all go in the next dent and so on. Once again, it is important to make sure the warp threads do not cross over when the shed is made as the threads will hang up—then be held down or together and will not produce a clear shed.

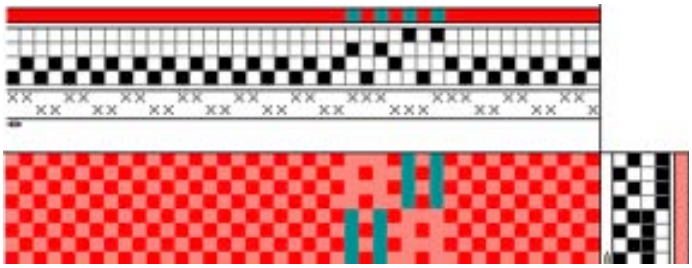


1 3
23
1 3
23
1 4
2 4
1 4
2 4





13,23,13,23,13
24,14,24,14



The method used to warp the loom is optional, but experience has resulted in the front to back method being easier to manage if the warp was made with the supplemental warp being inserted at the same time as the ground warp was being wound. It was then easier to keep track of the sleying and prevent crossed threads. When the back to front method was used and the supplementary warp inserted into the empty heddles, it was much harder to keep the threads from crossing.

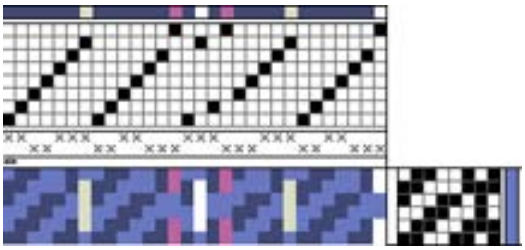
Versatility of patterning depends on how many shafts that are available or if hand manipulation is planned. The four shaft patterns are restricted to two pattern selections as two shafts are reserved

for the ground. In the six shaft version shown in the right column, two patterns can be woven by changing the treadling or liftplan. Six shafts were used with two for ground and four left for the patterning. (See *Handwoven* March/April 2003, *Confetti Napkins* by Barbara Walker)

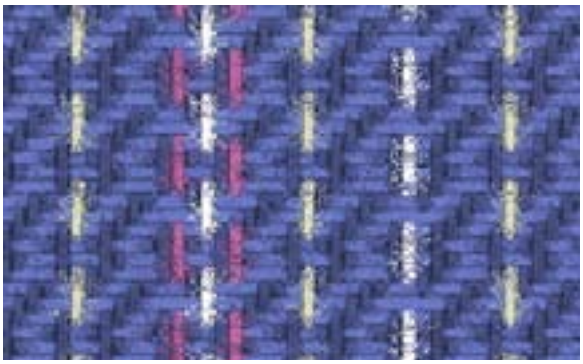
Mary Alice Donceel designed the eight shaft version using microwaved dyed silk bouclé, natural silk bouclé and a 5/2 silk for warp with a hand dyed 20/2 silk. A different approach was made by allocating the first six shafts for the ground and two for the pattern. This meant that the ground could have a six shaft twill pattern interspersed with a two shaft shift for the pattern on shafts seven and eight. This approach is a challenge for the threading process and another for choosing the liftplan as there were two elements to be considered—the ground twill pattern and the pattern shifts on the two remaining shafts.

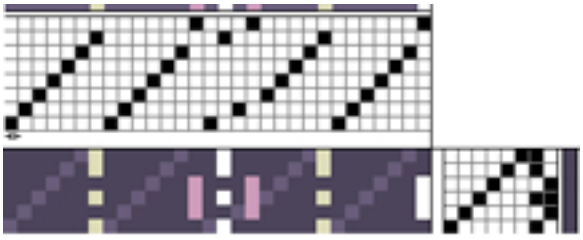
Mary Alice's pattern with the four step twill broken by a two step variation combined with a varied treadling so the warp skips would be staggered.

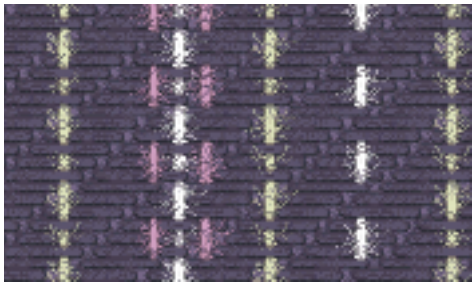
In the darker version of the same pattern threading, the twill line is straight 5/1 and the supplementary warp patterning is staggered in a different pattern.



23	6	8	
12		678	
1	45	7	
	34		7
23		6	8
12	56	8	







Do you have a finer thread that you like very much but it is too fine for the project you have in mind? Try doubling this thread and using it as one thread. For example two strands of 20/2 would make a 10/2 weight or two of 10/2 would equal a 5/2. When winding the warp, just keep the two strands together and think of them as one. The pattern threads of the supplementary warp may be as thick as you wish as long as they pass through the heddles and reed with ease. Try combining different weights or different textures as well as different colors for an effective supplementary warp. If you have a rope maker, you might consider making a fine rope of the combined threads.

Program for Weaving Indiana by Mary Alice Donceel and Sara Schultz assisted by Eleanor Best —May 2005