

“Weave as Drawn In”

BY MARY M. ATWATER

WHY do American hand-weavers insist on written treadling directions? This is one of the mysteries. Treadling directions are simply a bad habit. They are entirely unnecessary; they slow up the process of weaving; they cannot possibly be written so that they are correct for all combinations of material; they increase the chance of mistakes. Swedish weaving books do not contain these long lists of treadles, and neither do English weaving books, or — as far as I know — any weaving books at all except those published in America.

Of course for elaborate figures in the eight-harness and ten-harness weaves one must have a guide to the weaving, but this should be in the form of a diagram of the figure to be produced. For the simple four-harness overshot weave even this is not required.

I do not mean to say that treadling should be hit-and-miss, or that there is not a correct normal way to weave each pattern. It is true that any pattern may be treadled in a variety of ways to suit the weaver's fancy, but for each threading there is one definite treadling that produces the figure in symmetrical form, as it was designed. This method is to weave the pattern “as drawn in,” which means to weave it in the order of the threading.

How is this done?

Nothing could be simpler. Take, for instance, the draft given in Diagram No. 1, — the threading for a simple little star-figure often encountered in four-harness weaving. For clearness of illustration the separate “blocks” of which the pattern is composed have been outlined and numbered. Reading the draft from right to left, as is customary, the first block is a small block on the 1-2 shed. Begin by weaving this block with the number of pattern shots on the 1-2 shed that may be required to make it square. In a coarse yarn two shots will be enough, in a finer weft three or more shots may be required. Next is a block of four threads on the 2-3 shed, followed by one on the 3-4 shed and one on the 1-4 shed, all of the same size. The fifth block is on the 1-2 shed again, but it is larger than the first block and should be woven square with a larger number of weft-shots, — three to six, according to the material used. The sixth block is on the 2-3 shed, like the second block, but is one thread wider than the second block and may require one more shot of weft to make it square. Then we have a little three-thread block on the 1-2 shed, which is the center of the figure.

There is nothing complicated about this, and anyone can write treadling directions from the threading draft with perfect ease, — but why write them at all? It is far simpler just to develop the pattern as it comes up on the loom.

A weaver of considerable experience once told me of a sad experience. Someone, she said, had sent her a loom all set up and threaded, but had failed to send treadling directions or a threading draft. After spending hours checking over the heddles in an effort to determine the threading, this weaver told me, she finally gave it up, — took out the threading and re-threaded the loom. When I asked her why she did not find out what the pattern was by *weaving* it, she was frankly sceptical that this was possible. But a few minutes at the loom made the thing clear to her. I wish I might hope that

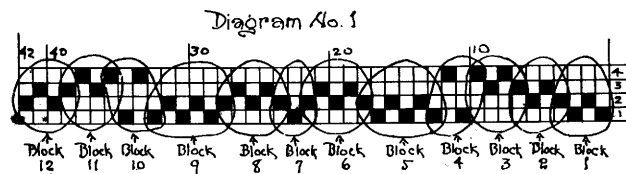
everyone who reads these notes will try the experiment for himself or herself and so be free from the nuisance of treadling directions forever — to the great improvement in speed and accuracy of weaving.

This is how it goes (I am speaking here of four-harness overshot patterns): Suppose you have a loom all threaded and tied in and ready for weaving. If someone else has done the threading and you have no idea what the pattern may be, so much the better. No threading draft or sample showing the pattern, no diagram of the figure, and of course no treadling directions. You know this: that there are six possible sheds, made by sinking two of the four harnesses and raising the other two. These sheds are: 1-2, 2-3, 3-4, 1-4, 2-4 and 1-3. Two of these sheds are reserved for the plain weave or “tabby” and the other four produce “skips” of which the pattern is composed.

Most drafts are so written that the tabby sheds are the 1-3 and 2-4 combinations. This is not invariable, however, as some ancient drafts are written with the tabby on 1-2 and 3-4, while a very few tabby on 1-4 and 2-3. The first thing to do is to find the tabby sheds. Open the 1-3 shed, — if it picks up alternate threads all across the warp it is a tabby shed, of course, and your pattern has the familiar 1-3, 2-4 tabby. If, however, 1-3 proves to be a pattern shed, try the 1-2 combination; if this also proves to be a pattern shed the tabby will, of course, be on 1-4 and 2-3.

Having established the tabby combinations you will know that the other four sheds make your pattern. For the sake of illustration we will suppose that you have the 1-3 and 2-4 tabby. The pattern sheds will then be 1-2, 2-3, 3-4 and 1-4. Try these four sheds till you find the one that corresponds to the first block of the pattern — that is to say, the one that makes a skip next to the selvage on the right-hand side. Suppose it proves to be the 1-2 shed: weave this first block with enough weft-shots on the 1-2 shed to make the block square.

As we know, in overshot weaving each block overlaps the one on each side of it by one thread; that is to say the last thread of the first block is the first thread of the second block. The two blocks that overlap a block on the 1-2 shed are, therefore, the 2-3 and 1-4 blocks. It is easy enough to determine which of these sheds makes the second block of the pattern, simply by opening first one and then the other of these sheds and observing which produces a skip that overlaps the first block. Say this proves to be the 2-3 shed: weave the second block square with the number of weft-shots required to produce the effect. The second block may be the same size as the first block or may be larger or smaller. Pay attention only to the size of the block as produced next to the first block and do not worry about the size of other blocks on the same shed.



Having woven the second block square, find the shed for the third block. This will be either a return to the 1-2 shed or will be a block on the 3-4 shed. Weave this square as before. If the block was on the 3-4 shed the following block will be either a return to 2-3 or else a block on the only shed left unwoven — the 1-4 shed.

Having come so far the weaver will observe a diagonal line running from the lower right-hand corner of the weaving through the blocks woven. This diagonal line runs through all these patterns when they are woven "as drawn in." It provides a useful guide to correct weaving. If the diagonal runs at too steep an angle, the figures are being woven with too many shots over the blocks and will be too high for their width; if the angle of the diagonal is too flat, not enough weft-shots are being woven and the figures will be squatty. If the diagonal breaks off, the wrong block has been woven at that point. If the diagonal runs true and straight, the pattern has been correctly treadled.

If the pattern is a very large and complicated figure the weaver may at times become confused as to which block on a particular shed is the one to be "squared." The diagonal is the guide. The block to be squared is the one that continues the diagonal.

This may sound complicated, as set down in words, but the process as carried out on the loom is really extremely simple and a child can do it. Having done it once, no weaver will ever again have any hesitation in weaving an overshot threading in the normal manner, and without treadling directions or other guide. The first time one carries through this process it seems almost magical — the way in which the whole of a complicated figure comes up on the loom. It is a charming bit of geometry.

In the same manner a draft may be "woven" on cross-section paper with a heavy pen, and one may thus prove an unfamiliar draft and have a look at the pattern without the trouble of threading it into the loom and weaving it. Many weavers make a practise of developing in this way any draft they plan to use. Any mistake in the draft will show up on the paper, and one may judge whether the pattern is pleasing and adapted to the purpose in mind. In this way much time may be saved and disappointments avoided.

To "weave" a draft on paper proceed as follows: first set down the draft across the top of the paper, putting in a repeat and a half or at least several blocks past the repeat. If a draft is faulty the mistake is more apt to occur at the point of repeat than anywhere else and, unless this is tested, it may escape notice. Diagram No. 2 shows a development of the draft given on Diagram No. 1 and illustrates the method of weaving on paper. This is exactly like weaving on the loom except that the pattern develops from the top downward instead of from the bottom upward, as in weaving on the loom. Cross-section paper ruled 16x16 to the inch is the best for this work, if one has good eyesight. A coarser ruling, 10x10 to the inch, is easier on the eyes but clumsier to handle, as it makes the drawing much larger and coarser. The figure as shown on the drawing will, of course, be much larger than when woven in fine material. On the 16x16 paper it will be almost twice the size of a woven figure on warp set at 30 ends to the inch, and on 10x10 paper it will be three times the size of the woven figure. To judge of the effect, pin the drawing to the wall and look at it from a distance.

In making these drawings it is always advisable to indicate not only the skips that compose the pattern, but also the half-tone blocks, that play a large part in the effect of a piece

of overshot weaving. The half-tone blocks are those over which the pattern weft tabbies, and in a pattern written in the regular manner one of these half-tone blocks occurs on either side of every pattern block. On the drawing the half-tone is indicated by rows of dots. A study of Diagram No. 2 will make this clear.

The best tool to use for this weaving on paper is a Payzant lettering pen, and the ink used should be regular drawing ink. The work can be done in crayon or even in pencil, but this is apt to become messy, and pen and ink are greatly to be preferred. If a mistake is made in the drawing it is not necessary to erase; simply cut a piece of cross-section paper to fit over the mistake and paste it down. The drawing can then be continued as though nothing had happened.

Something should be said about patterns not woven "as drawn in." Of course every threading can be woven in a number of ways, according to the fancy of the weaver. All these special treadlings are variations, and in order to reproduce them it is necessary to have either treadling directions or a picture or sample of the pattern. For most of these variations there is no rule and they are entirely individual. However, there are a few standard variations that can be made in the weaving of many overshot patterns. One of these is the Italian method of weaving "on opposites." This style of weaving produces a thicker, softer fabric than the standard method of treadling — with alternate shots of pattern and tabby — and gives some interesting color effects. The process is as follows: Use two weft-threads of the same kind and weight but different in color, as white and blue. Use the darker shade for the pattern-shots and the lighter shade for the background. Treadle a pattern block on the 1-2 shed this way:

1-2, pattern color
 2-3, background color
 1-2, pattern
 1-4, background. Repeat these four shots to square the block
 End: 1-2, pattern

Weave a 2-3 block this way:

2-3, pattern color
 3-4, background color
 2-3, pattern color
 1-2, background color. Repeat as required
 End: 2-3, pattern color

Weave a block on the 3-4 shed:

3-4, pattern color
 1-4, background
 3-4, pattern
 2-3, background. Repeat as required
 End: 3-4, pattern color

Weave a 1-4 pattern block:

1-4, pattern color
 1-2, background
 1-4, pattern
 3-4, background. Repeat as required
 End: 1-4, pattern color.

If there are no very long skips in the pattern used, it is not necessary to weave a tabby with this. If, however, there are very large blocks in the pattern it is advisable to put in an occasional tabby shot in a fine thread, after each four shots of the weave. This gives firmness and prevents the warp-threads from drawing together under the long blocks.

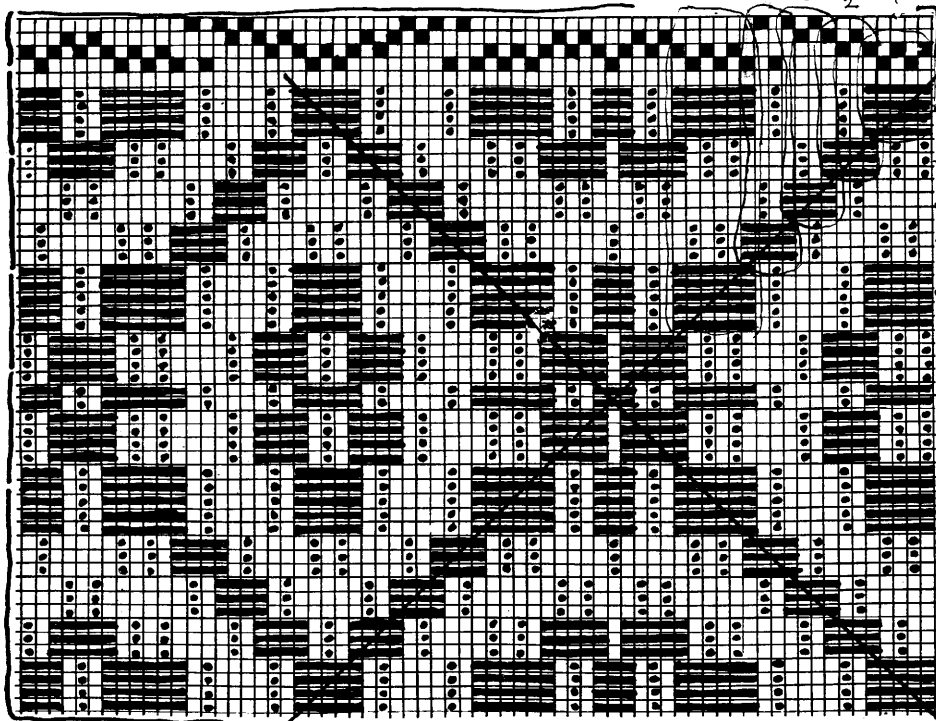
Three colors can be used in this weave, — the darkest shade for the pattern shots and the other two alternately for the background.

This method of weaving is very effective for patterns in the

Diagram No. 2

Pattern woven "As-Drawn-In"

(a)

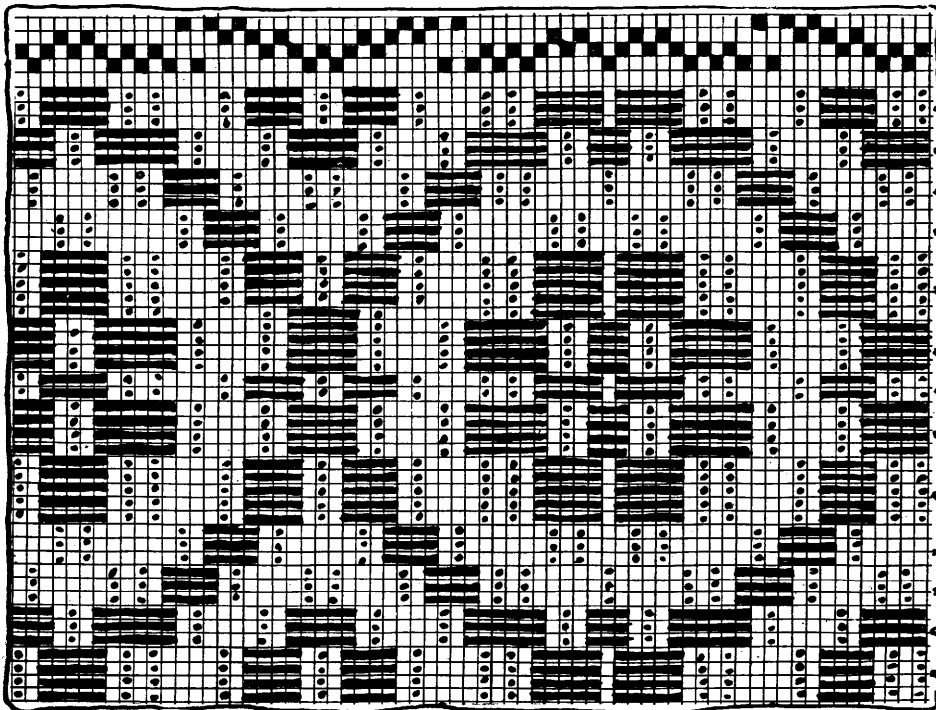


- ← Block No. 1, 1-2, 4 times
- ← " " 2, 2-3, 3 "
- ← " " 3, 3-4, 3 "
- ← " " 4, 1-4, 3 "
- ← " " 5, 1-2, 5 "
- ← " " 6, 2-3, 4, "
- ← " " 7, 1-2, 2 "
- ← " " 8, 2-3, 4, "
- ← " " 9, 1-2, 5 "
- ← " " 10, 1-4, 3 "
- ← " " 11, 3-4, 3 "
- ← " " 12, 2-3, 3 "
- ← " " 1, 1-2, 4 "

Note the diagonals

Pattern woven "Rose-Fashion"

(b)



- ← Block No. 2, 2-3, 4, times
- ← " " 1, 1-2, 3 "
- ← " " 4, 1-4, 3 "
- ← " " 3, 3-4, 3 "
- ← " " 6, 2-3, 5 "
- ← " " 5, 1-2, 4 "
- ← " " 7, 2-3, 2 "
- ← " " 9, 1-2, 4 "
- ← " " 8, 2-3, 5 "
- ← " " 11, 3-4, 3 "
- ← " " 10, 1-4, 3 "
- ← " " 1, 1-2, 3 "
- ← " " 12, 2-3, 4 "

M.M. Atwater, 1937

THE WEAVER

popular “crackle weave” and, as there are no long skips in this weave, the supplementary tabby shots are not required.

An important variation from the “as drawn in” system of treadling is to weave “rose-fashion,” to produce rose-figures instead of the familiar star-forms. There are many patterns that do not lend themselves to this variation, but any pattern that contains a star-figure can be woven “rose-fashion” as well. Sometimes the variation is so much used that it acquires a special name of its own. For instance, the same threading will produce the pattern known as “Lovers’ Knot” when woven “as drawn in,” and becomes “Whig Rose” when woven rose-fashion.

It is impossible to formulate a general rule for producing the rose-fashion variation, that will fit all patterns, but the effect depends on reversing the order of each pair of blocks of which the pattern is composed. In most patterns there are two figures, each made up of two blocks. In the pattern given on Diagram No. 1 the star-figure is composed of five blocks on the 1-2 and 2-3 sheds. In weaving this figure “as drawn in” we weave a 1-2 block first, followed by a 2-3 block, the small 1-2 block at the center of the figure, then 2-3 again and finally 1-2. To weave a rose instead of a star, reverse this order. That is, weave the 2-3 block first, then the 1-2 block, the small center block on 2-3, then 1-2 again, ending on 2-3. (See (b), Diagram No. 2.)

It is advisable to work out this variation on paper before attempting to weave an elaborate pattern rose-fashion, as otherwise it may develop some surprises. When done correctly the figures should be symmetrical and will take exactly the same number of weft-shots as are required for weaving “as drawn in.”

There is one class of overshot patterns that may present certain difficulties to beginners. I refer to patterns in which the figure, or part of the figure, is written on sheds that do not overlap. We call these patterns “written on opposites.”

The most familiar threading of this type is the famous “Monk’s Belt” pattern. In weaving this pattern only two pattern sheds are used, — the 1-2 and 3-4 sheds. These sheds are, as we say, “opposite.” That is: on the 1-2 shed harnesses 1-2 are sunk while harnesses 3-4 rise. The 3-4 shed is the exact reverse of this. There are a number of other patterns — “Lasting Beauty,” “Sugar-Loaf,” “Queen’s Patch” — that are similar in structure and are woven in the same manner, on two pattern sheds only.

There are also a number of patterns in which one figure or a part of a figure is on “opposite” sheds. A peculiar sparkle is given to an otherwise uninteresting pattern by this trick of the draft-writer.

But as it is impossible to pass from one block to its opposite

without passing through an intermediate shed, in a four-block pattern of this type we find a system of small “accidental” two-thread blocks. In developing such a pattern strictly “as drawn in,” each of these small blocks should be woven with a single shot of weft. This is entirely correct, and some of the old patterns “on opposites” are usually woven in this manner, but as a rule the small “accidental” connecting block is ignored in the treadling.

Diagram No. 3 shows a small figure similar to the one on Diagram No. 1, but written partly on opposites. The little two-thread “accidental” blocks are marked on the draft. In treadling these may be woven with a single weft-shot or may be omitted.

This article is intended to answer in detail the questions about treadling that are asked most frequently, and to relieve weavers of the nuisance of following written directions for treadling. I should like to say again that I hope every weaver who happens to read these notes, and who has been relying on written lists of treadlings, will make the experiment of weaving without directions as described. The practical advantages in this method of weaving are many. For one thing, it makes no difference in what order the treadles are tied, or whether the loom used happens to operate with a rising shed instead of a sinking shed, — one weaves the block as it occurs on the loom, no matter what levers or treadles are used to make the desired shed. There is, therefore, no necessity to transpose treadlings written for one type of loom and one system of tie-up in order to weave the pattern on a loom of different operation. For those who use the Structo loom this is particularly important, as most treadlings are written for treadle looms that operate with a sinking shed and, when followed on a Structo loom, produce the fabric wrong side up.

The improvement in accuracy is important on any kind of loom. As noted, written directions cannot be made to fit all combinations of material and if followed as written, in a heavy weft, will produce a figure much too long-drawn-out, while if woven in a fine weft the figures will be squatty. It is also easy to lose the place in a long list of treadlings and so make an unsightly mistake that may ruin an important piece of work. By weaving along the diagonal mistakes cannot occur.

The saving in weaving time is obvious. One may weave right along without stopping to refer to the directions.

Treadling directions for the more elaborate patterns woven on six and eight or more harnesses are even more impractical than for patterns in the overshot weave. It is true that these patterns are rarely woven strictly “as drawn in” and a guide is required, but this guide should take the form of a diagram of the figure, and the weaver will find it far easier to weave to reproduce the pattern illustrated than to follow the long and complicated set of treadling directions that would be necessary if the thing were written out in detail.

To those who do not believe that one can weave more quickly, more easily and more accurately without treadling directions than with them, all I can say is: Try it. A few minutes at the loom will prove convincing.

