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Practical

# WEAVING

## Suggestions

VOL. VIII NO. 1

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### Trouble Shooting For The Hand Weaver

Electricians, radio repairmen, mechanics, and other technical workers have what is called a "trouble-shooters guide" to assist them in their work. These little technical notebooks list common break downs and prescribe remedies for them. This is by way of being a Trouble Shooters Guide for The Hand Weaver. It is not an all inclusive one needless to say, that would take a mighty thick volume. However there are a number of difficulties which seem to occur again and again especially for the beginner and reference to the many letters which come to the desk of the hand weaving consultant has been the method of selecting those chosen for discussion here. We are using the question and answer procedure as being the simplest way of getting into the matter and here they are. We know you experienced weavers will not need this

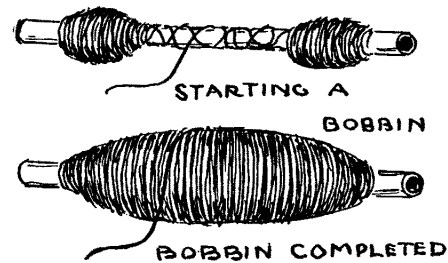
help like the tyro does but perhaps you may find something new here, or maybe you can tell us of a better way. Have a look.

#### Why Do I Have So Much Warp Breakage In Weaving?

Lady, you asked one there. First, look to the quality of the thread you are using for warp. Never buy cheap warp. In any work as exacting as hand weaving do not compromise and be sure you are using **warp** thread. Generally this will mean a plied yarn, and practically always with more turns to the inch than a yarn made for use only as a filler.

The commonest cause of excessive warp breakage is faulty warping procedure. First of all if you are a beginner don't try to warp

too many ends at a time—two is enough until you've had a little more experience, then perhaps four. Yes we know about the gals who use ten and twelve — we've seen the warps and we still stick to our statement above. A few experts get along with a large number of ends, most weavers don't. Second, keep the warp yarn at as nearly the same tension as possible while winding on the reel or bars. Lay warp threads on successively in order on the pegs of reel and bar—don't pile 'em up. Make all your warp in one splurge—don't make a part of it up and leave on the reel or bars until next day. **Allow no knots in the warp except at the end peg.** Next watch your beaming. If beaming from a chain don't try to hold all the warp in one bunch, divide it into sections, have two helpers or at least have the holder divide into two handfuls. Be certain the "holders" keep the same tension as nearly as possible on the warp throughout all the beaming. Keep your hands off the warp as much as possible, straighten out tangles only when absolutely necessary. Use a tension box for sectional beaming and don't pile the warp in the center of the section—avoid this by taking hold of the warp as it comes from the tensioner, and swing it from side to side of the section while winding. Don't try to put too much warp on a warp beam, and under no circumstances try to put one on wider than the capacity of the loom. Spread the warp on the beam a little wider than the woven width of the web you are going to weave but not narrower. Then lastly, the warp may have lost its elasticity, become brittle. Especially this is a likelihood with wool warp and with linen. Be certain to release the tension on the warp **every time** you leave the loom. With wool warps weave the whole thing up in as reasonably a short time as possible—don't leave the warp on the loom for months at a time. Then be careful in drawing in the heddles to select your threads in exact order as laid up in the warp—if you



have not tried to warp too many ends at a time and have properly secured your lease or taped the ends in sectional warping you can do this job right, and it's very important. Those twisted warp threads are a prime cause of warp breakage.

### Now Why Do The Selvedge Threads Break So Much?

Practically always due to poor technique in weaving. More often than not pulling the edges in as one weaves, narrowing the web so that the reed cuts the edges. How to avoid this? First wind bobbins very carefully — ends first, middle section filled in last and don't run back down over the ends in winding. If the bobbin unwinds freely this will help more than any one thing in keeping good even edges. **Keep your fingers away from the selvedges!** Let the tension of the weft unwinding from the bobbin regulate the selvedge. As the shuttle emerges from the shed, remove your foot from the treadles and let the shed drop down on the tail of the shuttle. As you pull the shuttle out the warp holds the weft at a diagonal across the web and there is a greater length than if it laid straight across; more yarn allowed for crimpage and the edges aren't pulled in so much. Better learn to do it this way.

### Why Those Scalloped Edges and Those Loops Just Inside The Selvedge?

Sometimes because the warp along the

edge is not tied at the same tension as inside the web; if so, regulate this, but most often its because of pulling the edges in unevenly—remedy as above for broken edges.

## Why Does A Selvedge Thread Fail To Weave In On Some Twills?

Because of the fact that there are skips of several threads over the weft; there is no way to get a plain tabby selvedge except by threading in an extra pair of harnesses to carry the selvedge, and this isn't very feasible in most instances. You can take the shuttle each time and pass it around the edge thread, or you can use two shuttles carrying the same weft thread and lay them down in order as used, one behind the other. In plain four harness twill you can just discard the offending thread, unless you are reversing the twill in your weaving—this will just bring it up on the other side. In treading the usual twill on four frames, that is 1-2, 2-3, 3-4, and 1-4, when reversing instead of starting back 3-4, 2-3, 1-2, and 1-4, just leave out the shot on 3-4, as in the Dornick threading—2-3, 1-2, 1-4, 3-4, etc.

## Why Are There Lengthwise or Warp "Skips" In The Web?

Because the shuttle passed under a thread or group of threads instead of over them as it should and that will always be due to the fact that some of the warp threads are not being brought clear to the top or clear to the bottom of the shed. Check and see if any frames are not being pulled up or down far enough—on looms with pulleys, the pulley cord may be out of the groove, or the cords from frame to lam or lam to treadle may be too loose or broken entirely. Perhaps you have not tied in all warp threads at the same ten-

sion; correct any errors of this sort by re-tying. Perhaps some warp threads have loosened up because they have pulled down between other warp ends or slid off a hump made on warping. This goes back to your warping method, use plenty of paper or shed sticks in warping and in sectional beaming distribute the warp flatly across the section, don't hump it up. Well if its already done, you'll just have to retie to the front apron to equalize the tension, perhaps even have to take off every other woven piece as you go and retie until this warp is woven off.

## Should One Use Double Selvedge Threads To Stop Breakage At Edges?

Generally this is a bad practice. It tends to make a "rope" edge. Sometimes on certain kinds of rugs this is used and sometimes in weaving mats with grasses or reeds as weft. Occasionally a cotton warp is used when weaving with a single linen warp, occasionally in wool a plied yarn is used for selvedge when a single homespun type wool is used for warp.

## Why Are There Weft Skips or Floots Where They Don't Belong?

Check to see if the warp is drawn in the correct sequence. You may have to take the warp out to the nearest edge and re-draw but look it over carefully first and see if you can't correct the error otherwise. Sometimes you have just transposed a couple of heddles and you can draw out two neighboring threads and interchange them. Sometimes you can correct the error just by setting in another heddle to get a warp end on the correct frame. There are metal heddles available you know that you can just snap into place

anywhere on any heddle bar to make such corrections but if you don't have one handy "tie-in" an extra heddle. Get a piece of carpet warp or any yarn of similar weight, double it and loop the doubled end over the bottom heddle bar of the frame. Bring the two ends of the cord up and tie a square knot with them exactly even with the bottom of the regular heddle eye. Now tie another even with the top of the heddle eye. Bring both ends up and tie to the top heddle bar.

If warp threads are crossed between the heddles and the reed, take them out and insert in the correct order in the dents. Maybe its the shed that's bad—too tight or too loose. We told you what to do under warp breakage. Might be the threads along the edges are not as tight as in the rest of the warp so the shuttle passes over or under groups incorrectly. Correct the tension by re-tying. Maybe you don't throw the shuttle right. Do this with a flip of the wrist and almost no arm movement. Lay the point of the shuttle on the floor of the shed and against the face of the reed, then push it off with your forefinger. See the illustration that accompanies this text. Watch the unwinding of the bobbin too, if badly wound it may hold the shuttle back and make it jump or dip. See if you are depressing the treadles enough so that the floor of the shed is level—no threads sticking up. Check the frame cords, lam cords and treadle cords.

### What Makes The Weft Break In Two Just Inside The Selvedge?

Quite often because the warp is at too great a tension. Ease it off. Might be because you are narrowing the web in too much as you weave. Lay the weft in at a diagonal and let the pull on the bobbin set the selvedge as we explained before.

### What Makes Those Light And Dark Streaks In The Body Of The Woven Piece?

Of course it's because the weft is beaten in more closely in spots than elsewhere — variation in amount of weft thrown to the top. One of the chief causes is weaving too closely to the reed before rolling up and starting again. Most weavers, on most fabrics, with most looms should not try to weave up closer than four inches from the face of the reed when it lays back in the rest position. You may have left out too much warp when rolling up. Don't roll the fel (weaving edge) back closer than about four inches from the front edge of the breast beam. To sum up, don't try to maintain too long a weaving stretch, weave through about a space of three or four inches on the average hand loom then move the fel back. The tension on the warp will have more to do with keeping an even texture than anything else—if you make a definite effort to do so you can regulate this very accurately every time you weave. There is some possibility of not bringing in the batten with the same force each time but if you weave with rhythm, a regular cadence, this will take care of itself automatically—learn to do this. You will find also that it will generally tend toward evener work if you pull the batten in only once and that on the closed shed. This has been proven by actual test in the work of hundreds of hand weavers.

### Why In Overshot Patterns Does The Pattern Thread Not Catch At The Edge – Slides In Several Threads?

Generally because you have not threaded a correct selvedge. Check this. It may be the way in which you are handling the tabby

thread. Try laying the shuttle carrying the tabby bobbin, behind the one carrying the pattern bobbin each time after it has been passed through the shed.

### Is There Any Simple Way To Center The Warp On The Loom No Matter How Wide It Is?

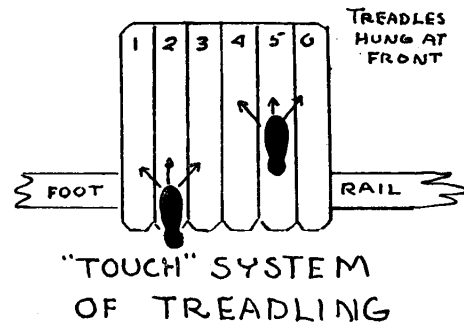
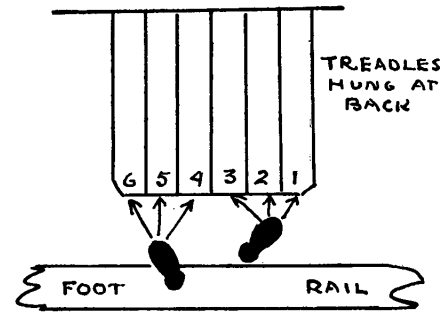
Several things you can do about this. Mark the center heddle on each frame. You'll have to count to find it the first time, then tie a colored thread through the top loop or dab a little colored enamel or lacquer on it. Next mark the heddle middle way between the center and the outside edges in the same way. Measure to find the center of the breast beam, the shuttle race, and back beam, and with a three cornered file mark a line on the inside edge of each. If you dab a little red enamel into the groove it will show up better. Mark the center of the cloth beam and the warp beam too. If you use a cloth apron on these beams as you should, just stitch a colored thread at the proper point. Now for each of your reeds, locate the center and tie a colored thread through the center dent and around the top bar of the reed.

### When Tying Groups Of Warp Ends To The Front Apron In Preparation For Weaving, How Can One Keep The Knots From Slipping And Letting Off The Tension?

Bring the two ends around the group of threads before tying, like this.

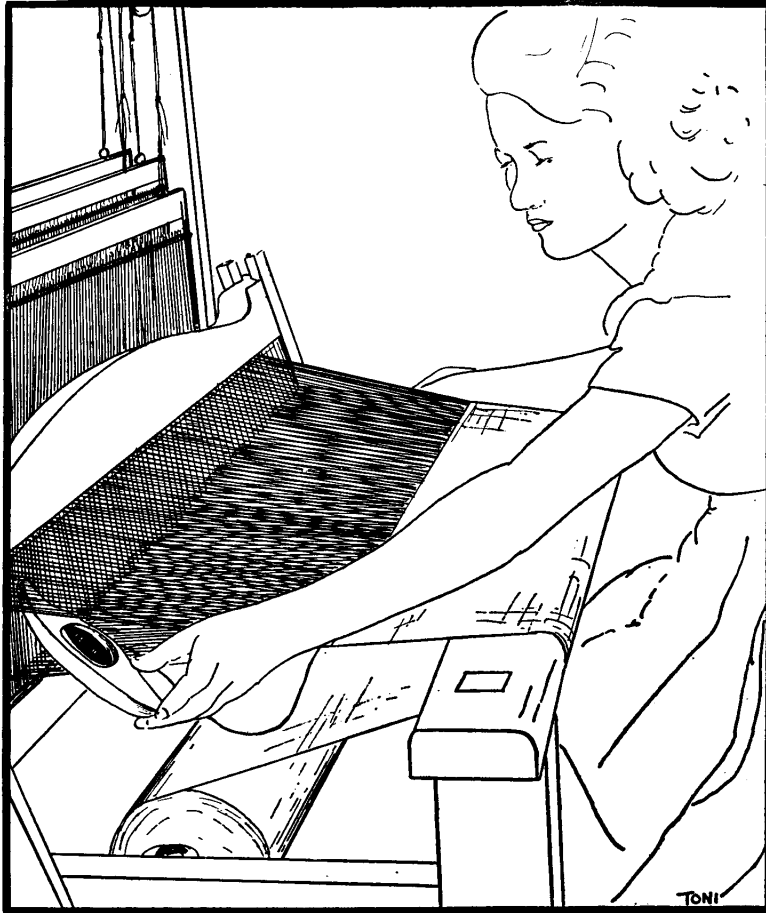
### What Can I Do To Increase My Speed In Weaving?

Several things, but keep in mind always that you do not want to sacrifice quality to quantity. The only way you can ever learn to weave rapidly and accurately is to develop a



regular rhythm or cadence in your weaving. You can by making a definite effort develop this quickly and without acquiring bad habits if you will first analyze the movements of the parts of loom and then execute each movement everytime in a definite way and exact sequence. You must perform three movements, in three different planes and at three different speeds and synchronize these. The frames must be raised and lowered at one rate of speed, the shuttle must be thrown from side to side of the loom at another speed and the batten must be moved from front to back at a third speed. These actions are performed in the above order. No matter how slow it seems at first if you will follow the exact directions as given below and keep repeating them we will practically guarantee that you will reach your optimum in speed and accuracy. We make this strong statement because this system has been used to teach thousands of persons to weave.

In treadling use both feet. Have tabby treadles in center. Use the right foot to depress the right half of the treadles, the left



the wrist give the shuttle a start across the shed. As it reaches the other side grasp the shuttle with the other hand and in the same position as when thrown, **forefinger on end, thumb on top, other fingers underneath.** Your hand should be right at the selvage and catch the shuttle as it emerges. Just at that instant remove your foot from the treadle and bring it back to rest position. This lays the weft thread at a diagonal. Pull the shuttle out about eighteen inches or two feet from the web and at the same time pull the batten in with the other hand. Note that both feet are off the treadles and at rest, that the shed is closed on the weft thread. **Just at the moment that the reed hits the fel or weaving edge move the cor-**

rect foot to depress the left half. If treadles are hung at front of loom keep the idle foot at back of treadle. Place the other on the correct treadle and push **forward** and down firmly. If treadles are hung at back of loom, place idle foot on the front foot rail, place the other foot on the **tip end** of the correct treadle and depress firmly. On this type of loom use treadle spacers to keep front end of treadles two inches apart.

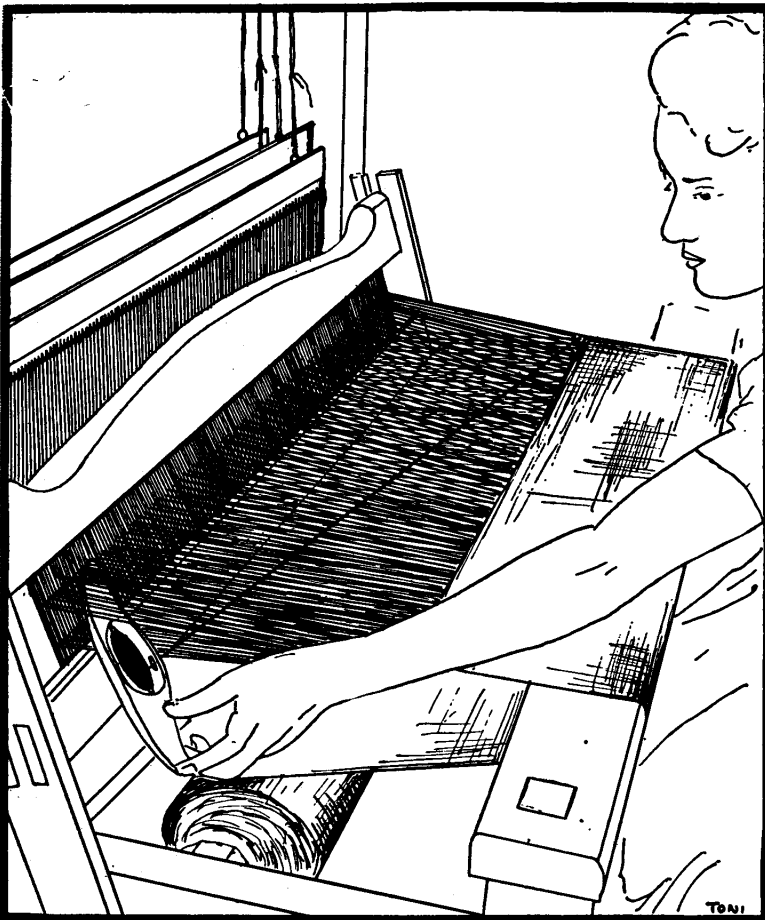
When the shed is properly opened hold the shuttle ready for the pick or throw — **thumb on top, forefinger on the point at the end, other three fingers supporting from below.** Place the forward tip of shuttle against the face of the reed, which is in the rest position—way back. Let the front edge of the shuttle bottom rest on the floor of the shed. With a push of the forefinger and flip of

the correct foot into position on the next treadle and as it is depressed move the batten back into rest position—these two movements are simultaneous. Now repeat the movements in order. Note these things which may be different from the method you have been using. **Each foot has a definite place and operates definite treadles—touch system. Shuttle is thrown when shed is open a widest point, batten is farthest back. Shed closes on the tail of the shuttle and the weft is caught in a diagonal between the layers of warp. Batten is pulled in smartly with wrist action, once only and with the shed closed, both feet at rest. As batten is pushed back shed is opened at the same time.** Summed up briefly:

1. Open Shed.
2. Throw shuttle and catch it.
3. Drop shed on emerging shuttle.

4. Pull batten in briskly.
5. Push batten back and open shed of new throw.

We realize that this is quite different from the weaving procedure followed by many hand weavers. Many weavers feel that it is necessary in order to get a good close texture to pull the batten in at least twice, one of these times on the open shed. Others use three batten strokes. The texture you want can be obtained **almost** always by simply adjusting the tension on the warp—try it out and see. Don't condemn this weaving method until you have actually given it a conscientious trial for quite a time—remember you may have been using your present method for years. We do not say this is the only successful way to weave but we **know** that it will develop accurate, rapid weaving habits and we **know** the end product will be as fine as can be produced by any methods. This is a matter of record in hundreds of cases.



## If There Is No Treadling Draft Given How Do I Proceed To Weave the Pattern Which Has Been Drawn In On The Loom?

One can always weave the draft **as drawn in**. This is called also, weaving on the diagonal. The method is simple. If in drawing in the first pairs of threads are inserted in say frames one and two, then the first thread woven is laid in the one and two shed, just depress the treadle carrying these two frames. If this threaded combination is repeated several times one lays in several threads in this shed—enough to build up a pattern “square”. This might be the same number of times the combination was threaded or more or less depending upon tension of the warp and the size of the weft. Of course in overshot weaves, a tabby binder is laid in after each pattern shot. If the second threading combination should be on frames 2 and 3 then the next pattern threads to be laid in would be in this 2-3 shed etc. Some patterns of course are not woven as drawn in—are variations on the threading, but one can easily work these out by following a picture of the pattern or from a piece of weaving.

That's just a start of course, lots of other questions arise but you will recognize that many of them go back to the fundamental difficulties we've listed. We lay no claims to divine revelation or super weaving intelligence in the remedies we have suggested. It may well be that you have some better suggestion yourself. If you do, won't you tell us about it? We'd really like to know all the answers we can, and we expect to be learning until that day when the shuttle falls from our aged and toil worn fingers.



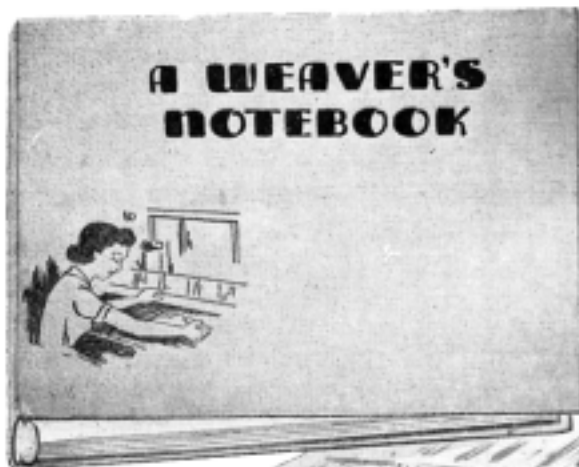


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