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UNUSUAL YARNS • 2

We have finished with natural (that is not spun) vegetable materials. Now the classification of other, out-of-the-way yarns is much more difficult. If we were publishing a periodical for spinners we would probably dwell at length on all sorts of fur-bearing animals, but such information would be hardly of any use to weavers. What remains falls into several classes which can be taken in any order: ribbons, metal, plastics, beads, quills, feathers. We shall start with ribbons because most of them are woven and thus resemble in behaviour standard textiles.

RIBBON should be the most obvious, the most logical yarn for many projects. Not only that for its weight it is stronger than any yarn spun from the same fibers, but being strong it is at the same time very soft, it is already flat (no need for processing), and has a definite width (no problem with the sett of warp).

Small samples of ribbon fabrics made on a frame loom do not present any difficulties. We wind the ribbon around the frame, leaving narrow spaces (1/32") between warp ends, and taking care not to twist it. The weft is wound on a small flat shuttle again without twisting. The shed is open with a very smooth picking stick or very large needle, but not with half-heddles or heddle-reed. Beating must be done very carefully; the beater (comb) should have the same sett as the warp. Or we can beat on a changed shed with a dull knife or a ruler, like in an inkle loom.

But when we try to do the same on a full size loom, either floor, or table, everything goes wrong. The ribbon gets twisted during warping, then beaming, threading, and even during weaving. The weft is not only twisted, but also crushed.

And we must remember that every twist in warp or weft is a mistake which cannot be just left there; it must be corrected, unless of course we want a hit-and-miss effect; then there are no difficulties whatsoever, but it is doubtful whether we shall like it.

Therefore we shall be concerned only with fabrics made of flat-lying ribbon in both directions. We shall take as an example a ribbon $1/6$ " wide, and we shall describe all weaving operations in logical order.

Warping. Probably on a bet one could make a ribbon warp with standard equipment: a reel, or a mill, taking only one end at a time and being extremely careful about the crosses. But it would be an experience not easy to forget.

By far the easiest method is sectional warping. If our sections are 2" wide we need only 10 bobbins on the rack. These bobbins must be prepared beforehand, unless we can buy ribbon already made into bobbins. Making the bobbins means simply that we wind them very carefully, so as not to twist the ribbon.

The bobbins should be placed on the rack one above another if possible; at any rate all in one vertical section of the rack.

The normal raddle of the sectional equipment will be useless. We must make a makeshift raddle by driving 11 nails (1" finishing) in a piece of wood about $3/4$ " x $1\frac{1}{2}$ " x 4", which can be attached to the tension box or directly to the slabstock in front of the section to be warped. The nails are driven in a straight row $1/5$ " apart.

When warping, it is safer to separate layers of warp with heavy paper. Strips $1-15/16$ " wide should be prepared in advance.

Threading. Normal flat steel or wire heddles will have a tendency to fold or crush the ribbon. Very heavy cord heddles will be much better because the knot is wide enough to support the whole width of the ribbon. We could also try to bend the eyes of wire heddles into rectangles about $1/4$ " wide, but it will be a slow operation.

Sleying. We must order a reed No.5, because this number is seldom in stock. In threading and sleying we can follow one of two methods: either do the threading without a hook using only our fingers, or use the hook and disregard the fact that the first few inches of the ribbon will be crumpled.

Tying-in. A/ If the threading was done without a hook we proceed as follows. We take a flat stick (an odd lease rod) slightly longer than the width of the warp, and tie its both ends to the breast piece so that the stick lies flat. Then glue the warp ends one by one to the stick (use fast drying glue). The stick should be marked every 1/5 of an inch for an easier spreading of the warp. When the glue is dry we lace the stick to the apron.

B/ If the threading was done with a hook, we do not try to keep the ends flat or straight. We tie them as usual in bunches and lace to the apron. To straighten out the warp before weaving we open one tabby shed and insert a flat stick. Then, starting at one edge we untwist the warp end by end, checking each end all the way to the warp beam.

Heading. Take any soft and heavy yarn and weave an inch or so. Do not pull the edges in.

Weaving. This is the worst part of it. We must use a flat shuttle preferably of the same length as the width of warp; with very wide warps: as half of the width. This makes unwinding of the weft easier. After throwing the shuttle we straighten the ribbon. It should lie flat and straight at a small angle to the fell. This is because even with fine ribbon there is still some take-up, and if we stretched the weft tight and parallel to the fabric, we would have pulled-in edges.

The real difficulties start now.

Beating. If we beat very lightly so as not to crush the ribbon, the weft will be too widely spaced. If we beat hard then the weft will be crumpled.

One way of getting over this snag is to experiment with different tensions of warp from very slack to very tight, with different types of beating (light, hard, fast, slow, pressing), and with different sizes of shed. If none of this helps we shall proceed as follows:

Throw the shuttle and straighten the weft. Close the shed to prevent twisting, but do not change it completely. Beat so as to bring the weft as close to the fabric as necessary even if it gets crushed. Keep the shed closed. Now grasp firmly the edge on the side from which the weft was thrown between the index and the thumb. Grasp

also the free weft on the other side. Pull very hard and fast. This should flatten the ribbon. Change the shed and press the beater very gently.

If even this trick does not work, there is only one thing left: sectional beating. We make a small comb by pushing 5 pins through a piece of heavy cardboard or a sliver of soft wood. The pins should be spaced $2/5$ of an inch and should be all in one row.

Now, after the ribbon has been brought as close to the fabric as possible without crushing it, we insert the pins into the ribbon, close to its lower edge, and between the warp ends; only the point should penetrate the fabric. Then we pull forward very gently. This must be repeated in every section, that is every two inches all across the fabric.

A completely different approach to the problem would be to make the ribbon stiffer, by starching it or impregnating with wax. Then normal beating would be sufficient. The starch could be removed later on by washing, and the wax by dry cleaning.

So far we were dealing with a comparatively narrow ribbon. A still narrower one, $1/8$ " set at 6 ends per inch would be easier to work with. But if we try wider ribbons, $1/4$ " or more, the difficulties will multiply. Then we shall have to make special heddles, either by bending the eyes of wire heddles, or by replacing eyes with mails. The mails are small metal or plastic disks. They have a horizontal slit in the centre (for the ribbon) and two holes, one above and one below the slit for the cord loops. But making the mails at home would be extremely difficult.

The threading should be only plain (1234). We use four shafts but in most cases we shall weave only tabby. Very effective patterns can be woven by alternating colours in both warp and weft. With very narrow and comparatively stiff ribbon we can experiment in 2:2 twill, or better twill mixed with tabby.

Regardless of the difficulties weaving of ribbons is worth trying. A good fabric of this type always attracts attention, and incidentally sells very well too.
