

LESSONS OF DRAFTING

ANALYSIS • I

We have already described one method of analyzing fabrics and patterns in the 2-nd and 3-rd issue of MW (1952). Now we shall take up this subject again and discuss it more thoroughly.

The object of analysis of the cloth or pattern or both is:

1. To be able to reconstruct from a sample of a fabric complete directions for weaving, i.e. threading, tie-up, treadling yarn used, sett of warp, sleying, number of picks per inch, and in certain cases - finishing. The ultimate object may be either to copy the sample, or to change it and adapt the draft to our requirements.

2. To adapt to handweaving drafts from books about industrial weaving. These "drafts" in most cases contain only the draw-down (as for instance in Oelsner), sometimes the threading (e.g. Reed), but not the tie-up and treadling.

3. To create our own fabrics. Our imagination can supply the picture of the fabric, from which a draw-down can be made, and then analysed.

In each case before we can start the analysis, we must have a complete draw-down (compare the 2-nd lesson of drafting of at least one repeat both in the threading and treadling.

Thus the first step to be taken is to establish one repeat in both directions, i.e. the number of ends and picks which form a unit repeated such a number of times as to produce the necessary width and length of the cloth.

In case of an actual sample of cloth we start by inserting two pins in the fabric crossing each other at right angle: one parallel to the weft and the other - to the warp. This point can be selected at random, unless the structure of the fabric is so obvious that certain points will suggest themselves as the best place to start with.

Now we examine one after another all the warp ends to the right of the starting point, until we come to another warp-end which is not only woven exactly as the first one, but has the same relationship to the one on the left and another on the right. Now we can reasonably assume that we came to the beginning of the next repeat. To make sure we compare not only the first end of the first repeat with the first end of the second, but we do the same with all remaining ends. If even one of them is different, then what we thought to be the second repeat is still a continuation of the first.

Fortunately, with the exception of accidental threading drafts, the repeats are fairly obvious at a glance, because they

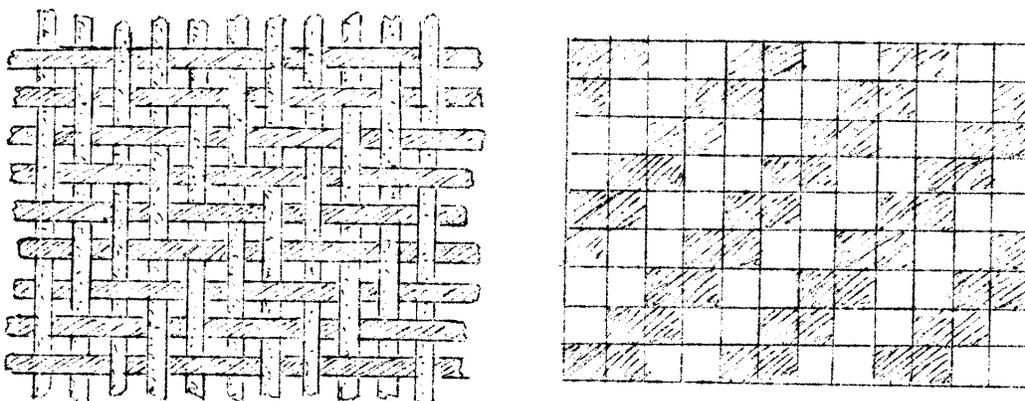
produce a sort of "rhythm" in the composition of the fabric, and they can be picked out even by a complete beginner. At any rate, when in doubt, take more than what you think is one repeat. It will mean more work later on, but the repeat will show during the analysis.

When trying to find one repeat, we may be puzzled by its size. The length of one repeat may be anything from 2 to 500, and sometimes even more, but this length does not indicate much as yet. For instance a repeat 500 ends long may be still woven on 2 frames, and another only 12 ends long may require 12 frames. We should not jump to any conclusions at this stage.

As soon as we have found the repeat in threading we insert another pin along the warp between the last end of the first repeat and the first end of the second repeat. Then we start looking for the repeat in treading exactly in the same way as we did for the threading: we examine one after another all the picks of weft below the one marked with a pin in our starting point, until we come to a repetition. We take a fourth pin and insert it parallel to the weft at the end of the repeat.

These four pins outline one repeat in both directions. If we want to, we may use four more pins to mark all four corners, but this is hardly necessary except in case of a very large repeat.

What we have now between the marking pins must be drawn on graph paper. We disregard the actual colours of the yarn, and make the drawing as if all the weft were black, and all the warp - white. We disregard also the count of yarn at this stage. Whether the warp is fine and the weft heavy, whether there are more than one kind of yarn in warp or in weft - we still use only one space between the lines of the paper to mark one warp end, or one shot of weft, as in the drawing below:



First we outline with pencil on the graph-paper a rectangle with as many squares in the horizontal direction as there are ends in one repeat of threading, and with as many squares in the vertical direction as there are picks of weft. There should be plenty of space above the rectangle, and also to the right.

Now we look at the first (highest) pick of weft and draw it in the first (highest) line of the space reserved for the draw-down. When it comes over a warp end we mark the corresponding

square black. If it is below the warp we leave the square white. In this way, pick after pick of weft we fill the whole draw-down. We must be very careful when doing it: a single mistake means one more harness-frame, and of course it remains a mistake which will be repeated over and over again if we actually use the draft for weaving.

When a sample of cloth does not show very well the warp and weft, the only way to make the draw-down is to cut out a piece of the sample (more than one repeat) and with a pin pull out one pick of weft after another. When one pick of weft is detached from the fabric but still remains between the warp ends it is quite easy to count the "unders" and "overs" and to mark them on the draw-down. A magnifying glass is a great help.

COMPOUND SLEYING.

The proper time to think about sleying is not when the warp is already made, but when we start figuring it out. The first step in any weaving project is to decide on the yarn to be used. The second - on the weave. Then we turn to the selection of the sett of warp. Whether we use formulas (as in the article in this issue of MW) or graphs, or somebody else's advice - the number of ends per inch is never so definite as not to allow certain deviations one way or another. If not for this fact, the life of a weaver would be a misery.

Fortunately we can always change a little the sett to suit our means, but the question is how much we can change this number.

If the number is accurate i.e. found from a formula, or taken from a recipe, we can change it both ways by about 5%. For instance if the theoretical sett is 19, then we can take either 18 or 20, but not 16 or 24. But if we have a sett like 37, then there is no choice except 36, because neither 35, 37, 38, or 39 can be sleyed in the usual way.

When the sett of warp is found in the graphs giving only the lowest possible number of ends per inch, then whatever correction we make must go only up, never down. The graphs cannot be very accurate - one more reason to keep on the safe side. Thus we do not correct the found number for a smaller one, but we can go up by about 10%. Thus if we found a sett of 25, we can go up to 27½, which in this case means 27 (3 ends in No.9 reed).

But there are cases when we cannot find a satisfactory way of plain sleying even with a complete selection of reeds such as: 5,6,8,9,10,12,14,15,16,18,20 and 24. For instance a formula gives us 13 ends per inch. Even with 5% both ways we can only have 13 and nothing else. If the quality of the fabric does not allow greater deviation than 5% then the thing simply cannot be done. With a smaller selection of reeds there are many quite common setts which cannot be used. What do we do then?