

FABRIC ANALYSIS.

(Continued from December issue.)

How to Pick Out the Weave from a Sample.

The instrument required for picking-out is a strong needle, having a fairly sharp point, also a handle which will permit a convenient grasping of it, like you would hold a pencil. In few instances a pick-glass (as previously explained) may be found of help, which however for woolens and the average worsted samples will be of little assistance, and when picking out over your fingers remains the better way.

With silk fabrics and higher textured cotton goods one of the previously referred to magnifying glasses becomes a necessity. The sample, if using the dissecting microscope, is then secured by the two spring clips to the stage of the microscope; this arrangement then takes the place of your left hand in connection with the common picking-out process. You then proceed with the picking-out needle, in your right hand, in the usual manner.

Having decided which is the warp and which the filling in a sample, it now remains to consider whether it is more advisable to pick the filling out of the warp-threads or vice versa the warp out of the filling. In a great many instances the latter will be the advisable plan, obtaining in some instances the formation of the weave quicker, like for instance a diagonal, a corkscrew, or similar weaves, and where the interlacing of 2 or 3 warp-threads at the most will indicate the complete repeat of the weave we deal with. At the same time the changes of the interlacing (of such fabrics handled this way) will come in bunches of 2, 3, 4 or more ends, whereas if picked the other way, any number of close interlacing like 1 up 1 down or 1 up 2 down would occur, and which on account of twisting around each other are hard to designate as to their proper rotation in the sample.

Picking the filling out of the warp-threads again has the advantage that the latter are in most instances of a harder twist, hence will resist the wear caused by the picking out process more satisfactory. The subject will be dealt with afterwards more in detail, the first object being to give rules of how to proceed to pick out the weave, and for which purpose we will consider picking the filling out of the warp; this at the same time explains picking-out of the warp from the filling by placing the sample in the proper position.

Loosen with your picking-out needle, and take out with the help of the latter, your fingers or a forcep, a number of picks, so that the warp-threads form a fringe about one-fourth inch free of any filling. Provided you have a large sample given, you may pick-out a few more picks, since you will be then less liable to make mistakes in dissecting, more particularly if a beginner.



FORCEPS.

The best picking-out needle to use is a common heavy crocheting needle, of which file the hook away—adding in place of it a fairly fine point, but not too fine since the latter might catch in the core of your threads in the sample you handle.

Should your sample contain a fancy thread, if possible prepare it so *this* thread will be the initial thread for starting to pick out.

Next, liberate, in the same way, on the left hand side of the sample, a few warp-threads from the filling, so that the latter ends also protrude singly from the structure, the same as the warp-threads do, in order to get a good start for the picking out.

It will always be advisable, when dealing with fabrics interlaced with a rather complicated weave, to have a sample sufficiently large to contain at least two repeats of the weave so as to be able to verify your analysis.

A sample may again be larger than needed for picking-out the weave and when handling such a sample (pick for pick, throughout its entire width) would only retard the work for the designer; again a portion of the sample may be needed for reference by the dyer, the finisher, the office, the commission house, etc., and when then with such a large sample, after ascertaining size needed for the pick-out, you

then cut with your scissors at those places warp and filling-ways into the sample, and thus protect that portion of sample not actually needed, from having warp or filling pulled out of its structure.

Fig. 1 is given to illustrate how to prepare the sample. *A, B, C* and *D* is the size of sample submitted. *e*, the cut made into the filling threads, to preserve the right hand portion of the sample. *f*, the cut made into warp-threads, to preserve lower portion of sample. *s*, the place where the first warp-thread and first pick meet, *i. e.*, the starting point for your picking-out.

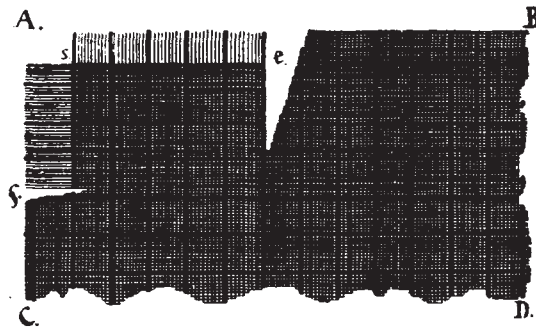


Fig. 1

Illustration also shows how warp and filling ends have been liberated, to obtain its required condition for convenient picking out, showing also a fancy (heavy) end as the initial warp-thread to come under consideration when picking-out. This is not necessary to be done with the filling and where we may start with any pick, since we can indicate details of any pick taken out, on the point paper in its proper place.

The filling thread, lying first in the sample, is then carefully loosened (with the point of the needle) from its hold in the woven structure and pushed slightly, say about $\frac{1}{8}$ part of an inch, forward, into the loosely protruding fringe of warp-threads, after having previously drawn the sample tightly over the point of your left index finger, using the thumb and middle finger to assist in keeping the sample in place. Fig. 2 is given to illustrate the procedure, showing a different sample from that used in Fig. 1.

The warp-threads are then examined singly, with the needle, from left to right, as to whether they lie over or under the thus loosened pick.

Such of the threads as lie over the filling are indicated by a cross, or any other mark, upon the design paper (which you had placed conveniently on the table or desk before you) in the space (squares) intended. Push the warp-threads, as they are examined by you, slightly to the left, carefully under the point of the thumb, where they must be held out of the way. Proceed in this manner with a sufficient number of warp-threads, until two repeats of the interlacing of the filling thread (pick) are obtained.

In order to avoid errors, it is advisable to mark, by a dot, in its respective square on the design paper, such warp-threads as are lying under the filling. For example: suppose that in taking out a pick, we found the position of the warp-threads to be as follows:

4 down 2 up, 2 down 3 up, 1 down 1 up, etc., then the recording on the design paper must be performed every time when the number of up-lying threads have been pushed under the thumb, and as indicated herewith by commas: $\dots xx, \dots xxx, \dots x$, etc.; in other words, note on your design paper each and every change as you pick out. Do not try and keep several changes in your mind, since it is apt to mislead you—do not trust to memory—and thus prevent mistakes. The work may progress somewhat slower in this manner, but the result will be more reliable, and to keep any possible errors out of your weave record is what you are after. It will save you the trouble of having to go all over your work again, and which will be the case provided you slight your work in the first place.

When all the warp-threads lying above and below the first pick have been carefully recorded on the design paper, before removing said pick, examine said record carefully and see where the repeat of the weave will come in. If theory tells you that there is a chance for an error, go over your

work again. Starting your first pick right will go a long way towards simplifying the rest of the pick-out to you.

There is a chance, that in connection with complicated weaves, the repeat is larger than it appears at a first glance, and when mistakes are prevented by carefully ascertaining the proper repeat of the weave.

When the repeat of the weave has been finally established, in connection with fancy colorings in the warp, indicate them on top of your record on your design paper, up to the end of the first repeat, and see that the coloring of the warp in the second, etc., repeat corresponds to that of the first repeat, otherwise keep a record of it.

Repeat of weave and repeat of the warp pattern (dressing) do not always correspond, sometimes one repeat of the warp pattern covers 2 or more repeats of the weave, again, the reverse may be the case, and when then the complete design, *i. e.*, effect does not show until both (warp pattern and weave) repeat simultaneously.

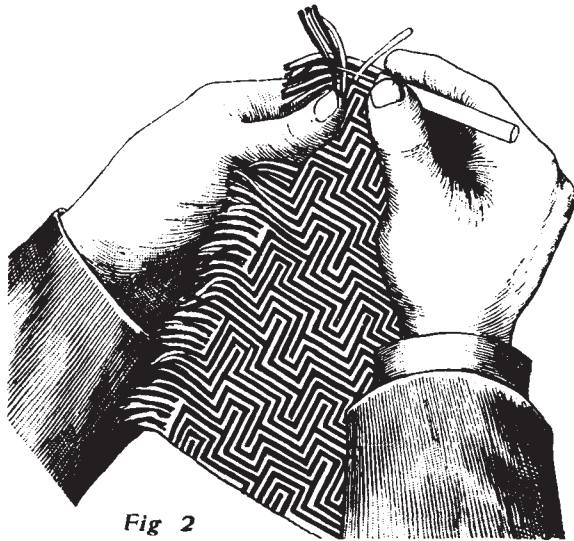


Fig 2

Having ascertained and recorded the interlacing of the first pick, the same is carefully liberated from its fringe of warp-threads and the procedure repeated with the next pick in the same manner; continue in this way, pick for pick, until you find the pick which will correspond, with reference to its interlacing, to the first pick.

Here, however, is where the novice, not versed in weave-formation, may come in trouble, for the fact that in connection with derivative weaves, duplicate picks, either single, or in sets of 2 or more picks, often occur, previously to obtaining the complete repeat of your weave. This will make no trouble to the experienced designer, he will know from theory at once the number of picks when the final repeat will occur, thus clearly demonstrating the advantage of theory and practice going hand in hand. Alone, either is grasping its way in the dark, combined they simplify your work, and make the latter a pleasure.

If dealing with a soft-spun filling yarn be careful in raising the pick, to avoid breaking the thread; also be careful that after the interlacing of a pick has been ascertained, the same is entirely removed, so that no small pieces of the thread remain in the fringed part of the warp, since this might lead to trouble or mistakes when examining the next pick.

Some designers use forceps for drawing the picked-out threads from the protruding fringe of the sample that holds it; forceps are not apt to split the threads like using the needle for this purpose.

Cases will occur in practical work where the sample submitted does not contain one complete repeat of the weave. In this instance pick out the interlacing of the amount of sample furnished to the best of your ability and construct the remaining part of the weave from theory; easy to say, — but often lots of trouble to the designer.

As will be readily understood, when dealing with our foundation weaves, plain twills or satins, or our standard derivative weaves, like broken twills, skip twills, diagonals, rib weaves, basket weaves, etc., 2 or 3 ends picked out and recorded, will be all that is needed, the balance of the repeat of the weave being then readily made out by theory.

In connection with any kind of pick-out which refers

to the use of two or more colors, or counts of yarns, in warp or filling, or both, be sure to note on your pick-out plan, *i. e.*, design paper the particular color or count of the thread under consideration — it will save you trouble afterwards, and prevent any chances of mistakes in the weaver-room. A good plan to observe is to save the threads thus drawn out of the sample for ascertaining kind and quality of stock used; as guides for the carder, spinner, dyer, or finisher, as the case may require.

Some designers, in order to facilitate their work, place the sample when in their hand, upon a white back-ground if of a dark color, or upon a black back-ground if dealing with a light colored sample. This back-ground (paper) is then put around the index finger of your left hand, and held there underneath the fabric to be analyzed.

(To be continued.)

PRACTICAL HINTS ON THE COTTON SPINNING MULE.

By Alex. Henry.

The Straps: How to make a Driver Drive.

Being sure that the mule is in square, and other things running right, we can now turn our attention with advantage to the straps. As there is nothing in the world to be gained by glossing matters over, let us say here and straight, that the spinner who attempts to get good spinning with straps that rip the carriage away from the rollers, is simply attempting the impossible. We all know, however reluctant we are to admit it, that what are commonly called tight straps tend to make bad spinning.

The reason for this is apparent to everybody, because tight counter straps overpower the rimbands and prevent them doing their work, especially at the commencement of each run, with the result that the yarn is considerably weakened through the carriage jumping out, with the further disastrous result of snarls, soft ends, snapped ends, and ends broken in the winding.

If the straps are too keen, the remedy is plain to everybody; but let it be said here that slack straps are sometimes just as disastrous as tight ones, because, offering no resistance on the drums, they are whipped across by the starting mechanism with a result as faulty as when the straps are tight.

What we require is a strap of medium tension, offering a fair resistance to the face of the pulleys. Of course we cannot very well tell a spinner how to get a strap of medium tension, only his own common sense and experience will tell him that, but we can offer a decent hint how to get a good face on one, and that is by using a dressing of crocus powder and black lead, in equal parts (weight), made into a very thick paste with castor oil. This should be used very sparingly, and should always be applied with ordinary tallow, and no second application should ever be put on a belt so long as any trace of the first can be seen, for why any spinner daubs his straps as though he were tarring a house end is beyond our comprehension; yet such is the case. If any spinner, plagued with slipping straps, will use this dressing with discretion, he will find that it will prove a very great advantage and help, his straps will last longer, they will not require constant tightening, and his production will be greater.

Of course, we shall always meet with a spinner who wants a thousand more than anybody else, and we are very much afraid that these men, by their indirect influence on their fellow workers, are responsible for a vast amount of bad spinning which is so prevalent. Our advice to strap tighteners is: If your straps are doing their work, leave them alone.