

# CHENILLE

or Twice Woven Fabric.

Chenille (literally "caterpillar") is a weave which gives a very heavy pile fabric. It may be made as heavy as wanted - even inches thick, but it cannot be made very light. Consequently we use this technique most often to make rugs.

The pile is in the weft. But it does not mean that the weft is made into pile, as in corduroy. Here the weft itself already has a pile. The weft is composed of a "core" or a bunch of several very fine and strong threads, which are interwoven at right angles with comparatively short pieces of soft, heavy yarn (fig.1). These short pieces will form pile later on. Their length may be from one quarter of an inch to one inch or even more.

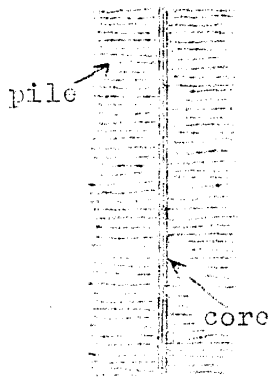


Fig.1

This weft is called also "chenille", because of its likeness to a caterpillar. It may be flat as in fig.1, or twisted so that it becomes completely round with the pile pointing in all directions, and the core completely invisible.

The round variety can be bought in different sizes and colours, or it can be woven at home. The flat chenille weft is usually hand-woven.

Whichever of these wefts we use, the final weaving of chenille fabric is done on a heavy, but very open warp. Since the warp is (or should be) completely covered with weft, there is no point in using any other weave but tabby. We shall speak later about the exceptions. Binder is used optionally.

It is worth while, first - before we shall start describing different weaving operations in detail, to consider the texture of chenille fabrics. Fig.2 A shows a cross-section of a fabric woven with flat chenille weft. "W" - is the warp, "P" - pile, "B" - binder, and "C" - core. Here all the pile is either above or below the warp. The fabric may be very thick, but will have a comparatively smooth surface on both sides, as long as the length of pile in the weft is reasonably uniform.

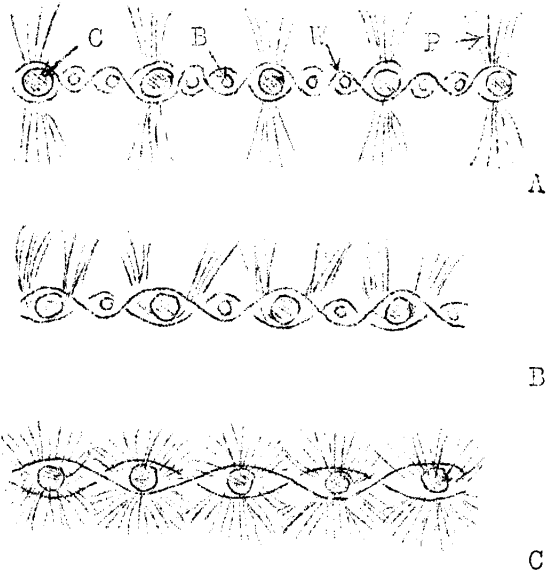


Fig.2

If we can manage to get all the pile on one side of the fabric (by methods described later), then the fabric looks as in fig. 2 B. The surface will not be quite so smooth, but there is the obvious economy of material for the pile - 50% to be exact.

When we use round chenille weft it is impossible to get all the pile out of the shed (fig.2 C). Some of it will be crushed by the batten, and interwoven with the warp. What effect has this on the fabric? First of all the shots of weft will not be woven as closely as in the first two cases. Then they will keep to a certain extent their cylindrical shape, so that the fabric will be ribbed in the direction of the weft.

The last kind of chenille (the round weft) is the fastest in weaving, the first (flat) comes next, and the second (pile on one side) is the slowest.

Thus if the woven piece is an imitation of a knotted rug we must use either the first (fig.2 A), or the second (fig.2 B) method. If it is "just chenille" then the third one will be the most economical.

We may mention here that there is a fourth possibility: if we start with the first method, but weave it rather fast and carelessly, then a part of the pile gets imprisoned in the shed and the resulting texture is very uneven, so that in places the warp will show, and the pile will be of varying length. However this "method" is not justified since it gives results inferior to the third one (round chenille) and is not any faster.

It was necessary to make this survey of chenille fabrics, because the choice of weft to work with, depends on the final effect desired.

#### Chenille Weft.

As we mentioned already, certain varieties of chenille weft can be found on the market. These are usually rather fine, and not suitable for heavy rugs. And in any case we are more interested in the weft which we can make at home. The latter has many advantages, and one of them is, that hand-woven chenille weft is the only suitable for pattern rugs.

The weaving itself of chenille weft is comparatively simple. But before we start, we must plan very carefully. The first consideration is the thickness of the rug, or the length of the pile. Then the yarn to be used. Finally the quality of the fabric.

Let us suppose that we are weaving a rug with pile 1" long, all in one colour. Wool for the pile. Quality as good as we can make it.

We have to be a little careful about the yarn for the pile, because we shall need large quantities of it. The wool does not need to be high grade (it is cut into short pieces anyway), but the colour must be fast, or at least not fading. Whether it is "boil-proof" or not is immaterial - nobody boils rugs. Thus, good "domestic" wool for about £ 2.- a pound is the best proposition.

For the first warp - the one which later becomes the "core" of the chenille weft - we can use either fine cotton, or single linen. Linen is much better - first it does not slip easily, making the core more compact, - second it does not pull the edges in, which is particularly important in pattern rugs weaving. But of course one must be familiar with handling of single linen warps (MW No.1). If it is linen - No.18 to 25 will be the best. Cotton No.16/2 to 20/2 will do. Never use mercerized cotton for this purpose. Colour should be neutral: natural for linen, beige or grey for cotton. Or it may be the same as the colour of the pile.

Now we figure out our warp. We s' all weave several strands of chenille weft at the same time. The wider the first warp - the more weft can be made. If the pile is 1 inch long on each side of the core, then each strand of weft is 2" wide. We shall use 8 or 10 warp ends for the core, so the warp will have as many ends as strands of weft multiplied by 8 or 10. Let's make it 10 in the present case.

The threading is plain: 1,2,3,4. The sleying is different however: we sley 10 ends in one dent of a No.12 reed, then skip 23 dents, then again pass 10 ends in one dent, skip 23 dents, and so on. These 10 ends of warp in one dent will form the core of the weft.

The length of the warp depends on the quantity of chenille-weft required. If for instance we intend to weave a rug 30 by 50 inches, and there are 4 shots of pile weft per inch, the total length of weft is:  $30 \times 50 \times 4 = 6000" = 500$  feet.

Now, if we have the first warp 24 inches wide, it means that we are going to weave 13 strands of the chenille weft at once (see

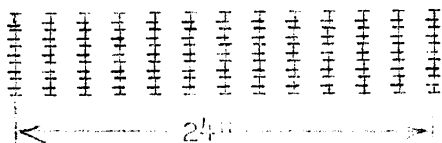


Fig.3

fig.3). However, the first and the last strand will be useless, since they will have the pile on one side only. This leaves us 11 strands. To find out the length of our warp we divide now 500 by 11 which gives about 46 feet. We must add as usual about

10% for the take-up and about 2 feet for the wastage:  $46 + 5 + 2 = 53$  feet. This is the total length of our warp.

The warp being beamed, threaded, and sleyed we can start weaving the pile weft. First however we have to decide on the number of threads of the pile yarn to be used. We can of course use it singly. The pile weft will be very flat and the pile quite strong. But the weaving of the chenille weft (the first weaving), as well as the weaving of the rug will be rather slow. If we use two, three, or more threads for the pile weft, the first weaving will be much faster, and the second weaving not only faster, but easier as well. With wool 2/4 (1120 yds/lb) we can use as many as 8 threads together. Here as everywhere else the same principle applies: the faster and easier the work - the poorer the quality.

For single or double wool we can use plain shuttles. For heavier pile-weft larger shuttles will be better, because they hold more weft. In any case we cannot weave without certain precautions

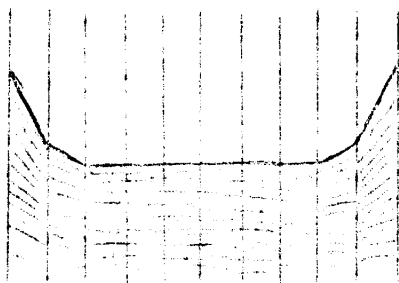


Fig.4

being taken. The weft cannot turn tightly around the first and last strand of warp. If it does it will climb very rapidly on both edges (fig.4). The beating will be difficult, and eventually the ends will start breaking. For this reason we shall have to leave fringe or loops about 1 or 2 inches long - on both sides. They do not need to be even. The fastest way of making them is to catch the weft around the little finger just before throwing the shuttle, and hold the hand close to the edge, as long as

the shuttle is in motion. When it stops we release the fringe and beat.

We may notice that groups of warp sleyed each in one dent spread a little when the weaving continues, particularly the first and the last end. This effect is of course not desirable. The more the warp spreads, the more difficult will be the second weaving. To prevent spreading we select yarns which stick to each other by

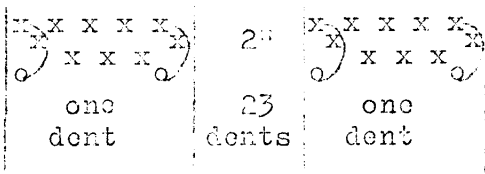


Fig.5

friction. Thus we must avoid smooth and slippery yarns, particularly for warp. Rayon or mercerized cotton are out of question. Single cotton No.10 instead of 20/2 would be preferable, and single linen still better.

The first and last pair of warp ends in each group can be woven in leno, as in fig.5. In theory this method is very satisfactory, but in practice crossing of warp ends in such a close setting is not so easy. It is worth trying however. In this case we would not use linen because of the tension necessary to open the leno shed.

Once the whole warp is finished, we do all we can to avoid handling the web (we can hardly call it "fabric"). We roll it tight and keep it rolled until we are ready for cutting. We put the roll on a chair on one side of the table, unroll a yard or so and spread it flat on the table. With sharp, long scissors we cut all strands

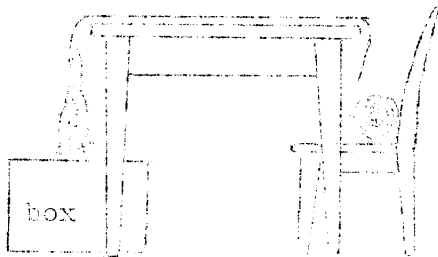


Fig.6

of chenille weft, exactly half way between the cores (groups of warp). Then we move the web forward, letting the cut chenille hang from the table and collect on the floor, and repeat the cutting. Of course one cut is only as long as the table is wide. The chenille weft on the floor will not tangle unless we shall step on it. We proceed with cutting until the whole web is finished.

In result we shall have 11 strands of pile weft, each about 46 feet long. These strands of weft should be immediately after cutting rolled tight on pieces of heavy cardboard, and kept until needed.

Another method of preserving the pile weft is to put a large cardboard box under the table (fig.6) before cutting, and let the weft drop in this box. One should not try to arrange the weft in the box in any way - it should stay there the way it has fallen. Then the box can be closed and kept until the second warp is ready, and the pile weft needed for weaving.

The weft woven in leno as in fig.5 is much more resistant and does not need to be handled so carefully.

When weaving the final article, a rug in our case, the warp should be very open. We can use carpet warp or linen No.4 or 6 (or 8/2 to 12/2) set at about 8 ends per inch. Since there is no take-up on the weft (or hardly any), there is also hardly any tendency to pull in the edges, and the warp may be of the same width as the finished rug.

The weft is wound on flat shuttles. One should try to get as much of the weft on the shuttle as possible. Thus large shuttles are indicated. The shuttle is passed through the shed. Then the weft

is straightened, so that half of the pile points up and the other - down. We beat very slowly observing the pile. If it has a tendency to twist and consequently to be beaten into the shed instead of projecting outside, we may use a comb to straighten it up. Still better method consists on using a flat stick about half as wide as the chenille weft (1" in our case), about 1/8" thick, and as long or longer than the width of the warp. We keep the warp at a very low tension, and beat first through this stick (fig.7), so that the pile will get

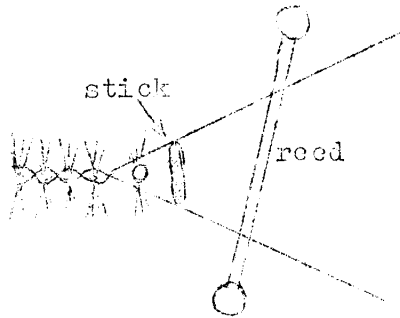


Fig.7

through the warp on both sides. Then we remove the stick and beat again, this time hard.

If we want all the pile on one side, the only way to do it is to comb the pile upward. We use the stick again but this time we keep it flat under the pile weft (fig.8) to prevent the pile from getting through the lower layer of warp in the shed. With the stick in the shed we comb the pile until all of it points upwards. Then we remove the stick and beat. Here we shall

succeed only with comparatively long pile. A short one will return to its natural downward direction as soon as the stick is removed.

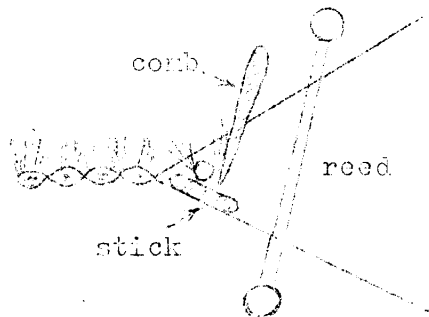


Fig.8

The third method of weaving (with a round weft) does not require so much attention. First we establish by experiment the length of weft our shuttle can carry. Then we measure and cut this length from our stock of chenille. We attach one end to a doorknob, a nail, or anything at all, and then twist the other end until the whole length is more or less round. Then we wind it on the shuttle. The weaving itself is as simple as any one-shuttle weaving, and of course quite fast, but the result not so good.

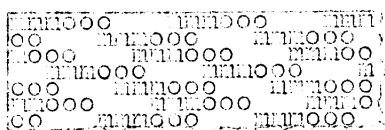
Binder may be used in the first two cases (pile on both sides, or on one side only), but not in case of round weft, or commercial chenille which is nearly always round.

The purpose of the binder is not to reinforce the fabric - it is quite strong without binder, but to spread the pile farther apart. Consequently fine binder is out of place. It should be as heavy as the yarn for the pile (but used singly), and of the same colour. The obvious conclusion is to use the same yarn for pile and for binder. The number of shots of the binder between rows of pile depends on how thick or thin our pile is supposed to be. It can be found out only by experiment.

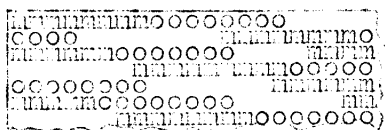
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So far we have been discussing rugs of one colour only. But several colours can be introduced without changing anything in the process. For instance when weaving the first warp, we can change the colour of the pile weft from time to time. Let us say that we shall alternate three colours, either quite irregularly or every inch or so.

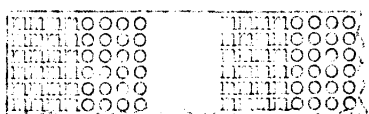
The result in the second weaving will be hit and miss. The rug will have a mottled appearance. The colours will be more or less evenly distributed all over the fabric, as



A



B



C

Fig. 9

in fig. 9 A. However if we change colours in the first weaving only every 6 or 12 inches, the rug will have a general appearance of striped fabric (as in fig. 9 B). The longer the same colour is used in the first weaving, the more striped is the rug. To get solid stripes all across the rug, we have to keep weaving the same colour for a distance at least as long as the width of the rug.

We can have vertical stripes also, but these must be planned. For instance if our rug is 30 inches wide we may change the colours in the first weaving every 5 inches. On a space of 30 inches we shall have each colour repeated twice. But we shall have to reverse the order of colours every 30 inches, because in the second

weaving the direction of the weft is also reversed every 30 inches. Thus we shall have: black, red, white, black, red, white (5 inches of each), and then: white, red, black, white, red, black. In this way the black will always be under black, red - under red and so on.

From this stage there is only one step to the pattern rugs; rugs woven in chenille in practically any pattern. But here the technique must be slightly different. Instead of a continuous chenille weft, we use only short pieces of weft - each as long as the rug is wide. We shall speak about this method in the next issue of MW.

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## FROM THE CLASSICS

### CHENILLE - by C.G. Gilroy (1844).

The ingenious Alexander Buchannan, of Paisley, Scotland, invented this beautiful fabric, about the year 1820. It derives its beauty and lustre from the peculiar mode of preparing the weft, and the manner in which the colours are afterwards arranged; in so much that a pattern which would require a large harness, as an imitation shawl, can be woven without any other apparatus than a ground mounting and two treadles.

It appears to us, that no person who is unacquainted with weaving can have any idea of the variety and ingenuity of its processes; and even some individuals who consider themselves masters of the art, know, comparatively, very little about it. Notwithstanding the apparent perfection of the methods employed in producing some of the fancy textures which we have already described, yet, we have to record improvements of immense importance upon several of them.

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