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FIGURED VELVETS FROM SIMPLE LOOMS: VELVET PICK-UP AND RELATED TECHNIQUES FOR HANDWEAVERS

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Much historical velvet was designed to be figural, often in elaborate curvilinear floral motifs, and multiple colours. These complex patterns could be efficiently designed for and executed on the available drawlooms and their successors, the jacquard looms. Faced with such complexity, and the unavailability of jacquard looms and drawlooms, few handweavers have attempted to add velvet technique to their repertoire. However, the basic principles and weave structures of velvet are relatively simple and can be executed on simpler handlooms. Pick-up techniques and simple loom modifications make figured velvet accessible for weavers without access to complex jacquard velvet looms, allowing them to explore velvet techniques, including some of the design potential that historical textiles did not exploit.

Figured Velvet Design Basics

In velvet weaving, a supplementary pile warp, held on a separately tensioned second back beam, is evenly distributed across the width of a foundation cloth warp. The foundation cloth can be a plain, twill or satin weave, or a modified version of one of these. The simplest velvet with a plain weave foundation can be made on a four-shaft loom. If desired, the plain weave can be modified to sandwich the pile ends between two foundation ends on shaft 1, by entering the ends in a [1-pile-1-2] pattern repeat (Fig. 1). In the treadling, the rod pick is always sandwiched between two foundation weft picks in the same shed, 1 before and 1 following the insertion of the rod (Fig. 1). This is fixed down by the next foundation shot in the opposing shed, and locked in place with the subsequent shot.

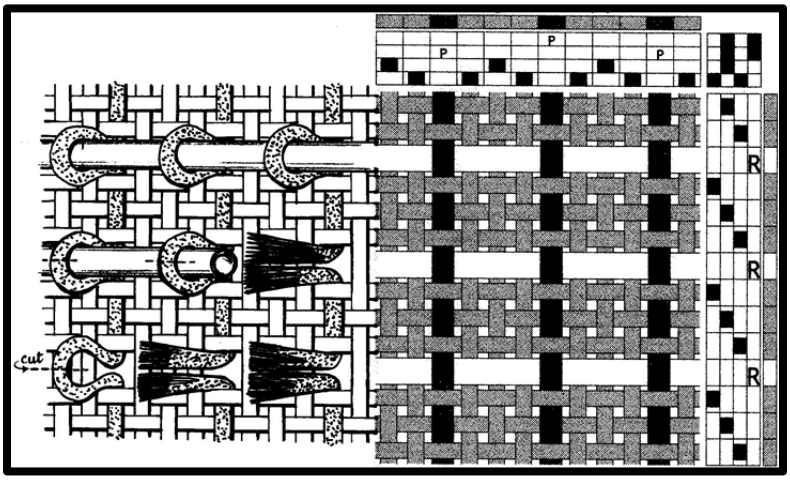

Figure 1. *Basic Velvet Structure. This diagram relates the visual appearance of basic velvet with its loom notation recording a 4-shaft weaving plan in which the pile loops will be sandwiched by both warp and weft threads (Landry, 1997).*

Velvet pile can be fast, or not fast. Fast means the pile warp ends are interwoven into the foundation cloth between pile rows, so they will not pull out. The pile ends are lifted together with the foundation warp for the second foundation weft shot between pile rows. Not fast means the pile ends float unsecured on the reverse, beneath the foundation cloth, when not pulled up through the foundation cloth into pile loops on the face. The pile warps are held in place solely by the closely packed density of the warp and the drawing together of the two picks sandwiching the pile loop. This method is less secure, but it means that a voided area of exposed foundation cloth will not show the dotted effect characteristic of a fast pile.

Unfortunately, unsecured loops can pull out even during the weaving process if the tension on the pile ends is too strong.

Figured velvets require each thread to be tensioning individually, or according to shafts, because most designs will take up the pile ends at different rates, using up some ends more rapidly than others. Weighted bobbins held on a frame below the loom, each with their own tiny counterbalanced weight, was the traditional solution for this problem in European velvet weaving. Gravity weighting is another, simpler option. If there is room, small weights can be attached below the pile warp beam where the warp leaves contact with the beam. This method is fine for a voided design with a single pile warp.
If there is room behind the loom, the warp can be weighted in the space between the foundation warp and the pile warp (Fig. 2). This allows multi-coloured warps to be stored on a single back beam, but separated in the weighting. When the pile ends rise to nearly straight, the warp is advanced from the back beam, so the weights all drop lower again.

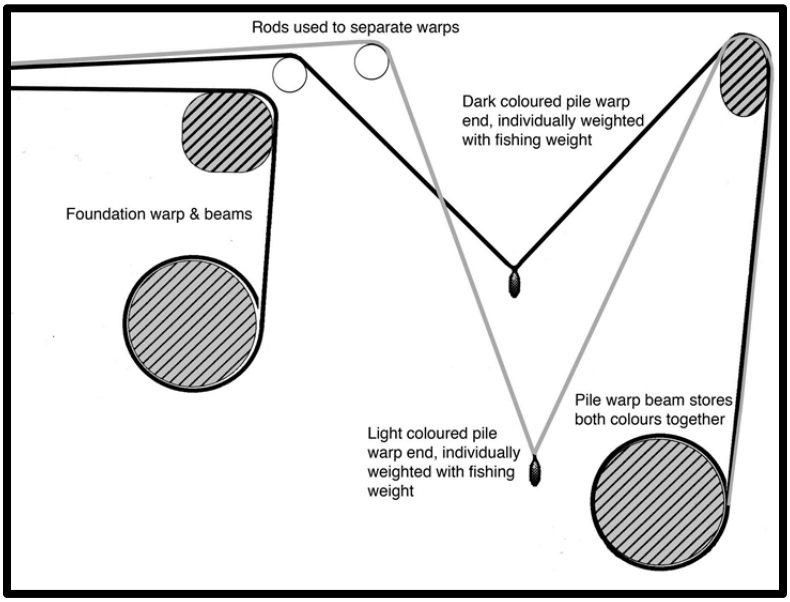

Figure 2. *Individual gravity-weighting on loom with two separated beams, side view. By backing a second loom frame up to the back of a 4-shaft handloom, I obtained space to set up a widely-spaced two-colour warp. Both colours of the pile warp can be stored together, and occasionally wound forward when one of the warp ends is completely straight. The warp ends drooping the lowest have been taken up the least.*

Velvet structures do not beat in square. Designs will elongate if this is not accounted for. Sampling will be needed to determine just what proportions your particular structure will yield. For example, my current project has a ratio of 19 pile ends / inch to 10 rows of pile / inch. Both counts can be varied for different densities of pile. When designing the figure, use a grid based on the actual ratio of pile ends/inch and rows/inch of the materials being used. Alternately, a grid of the correct ratio can be superimposed on the design as a guide.

Infinite Palette of Texture and Tone

Velvet weaving makes it possible to achieve many textural and colour effects with little change to the basic weave structure. These are accomplished through variations and combinations of the several technical options. Simple velvet has several independent dimensions to vary:

a) ends or rows per inch;
b) uncut loops or cut pile, whose combination is known as ciselé velvet;
c) different heights of pile, whose combination is known as high and low, or alto-basso, velvet;

d) skipped pile ends or areas of exposed foundation cloth, known as voided velvet;
e) floats of supplementary weft covering exposed foundation cloth, known as brocaded velvet;
f) striped pile warps or ikat dyed pile ends;
g) contrasting pile materials.

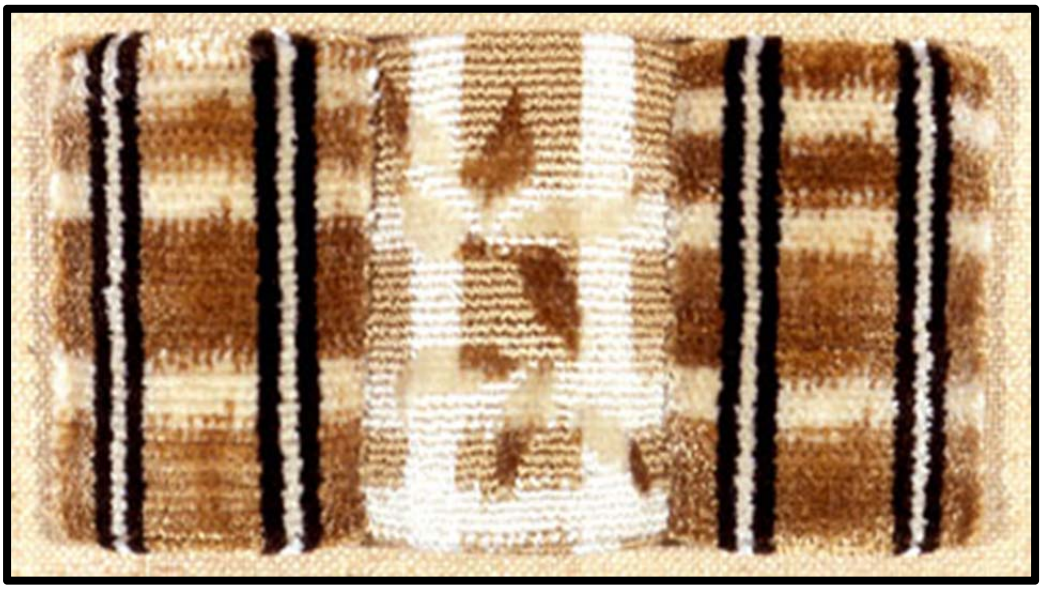

Figure 3. *Silk ciselé ikat velvet, 1996 (15.9 x 8.9 cm). Contrast palette includes colour and light contrast between cut and uncut loops, selectively cut using a stencil (leaf motif in centre), and the different effects of solid striped pile warp and ikat (space-dyed) pile warps.*

Ciselé pile is one of the most common and easily accomplished figural effects. The figural motif or pattern is created by contrasting cut pile ends with uncut loops. It requires only a solid pile warp set-up mounted and tensioned on a single pile beam. Ciselé effects are especially effective in silk because of the marked contrast between very shiny loops and the deep matte colour of cut silk ends. The easiest effects are alternating bands of cut and uncut rows across the whole width. More organic designs can be made by spontaneously selecting the loops to cut, like drawing with the knife on a field of loops. More consistent designs can be cut using stencils as a cutting guide (see Fig. 3).

Ikat dyed warps allow for intermediate shades of mixed colour, especially where the cut fibres can blend freely. Striped warps give a more crisp design and colours remain distinct. Warps with graduated stripes can provide more subtle colour changes (see Fig. 3).

In voided velvet, the figural motif is created by contrasting cut or uncut pile with areas devoid of pile, where the flat foundation cloth is exposed. The voided areas will appear wherever the ends are skipped, producing spaces on the pick-up stick and/or pile rod. If the pile is fast, the skipped pile ends will be woven into the foundation cloth. If these pile ends are of a contrasting colour, they will show as tiny spots in the foundation cloth weave.

When the skips are narrow or small, voided velvet has the appearance of being incised with the figural design. If the skips are only one end wide, they may be imperceptible or look like errors rather than a design element. The designer must determine the best balance between the voided and pile areas to achieve a satisfying effect. Figure 4 shows a loom-controlled, twill-based voided cotton velvet made on a 16 shaft loom, using 4 shafts for the twill foundation cloth, and the remaining 12 shafts for the pile pattern. The twill texture of the foundation cloth adds another subtle dimension to the final effect.

Figure 4. *Cotton voided velvet on twill foundation, 1996. Loom controlled voided velvet executed on 16 shaft loom. This sample was the most satisfactory balance of voided and pile areas for this twill-based 12 shaft pile pattern.*

The textural palette of velvet weaving can yield many variations, through changing the density of picking up pile ends by tiny regular skips, by staggering skips or by changes in the direction or density of lines, as in hatching patterns (Fig. 5). Contrasting of hatching effects can be very effective in monochrome figural cloth. Choosing different materials adds more variation to the palette, because each material reflects or absorbs the light differently. The visual effects in voided velvet are very dependent on light, and therefore shift in different lighting conditions. The relief effects of voided and high-low velvets are enhanced by the quality of the shadows created by light playing across the surface.

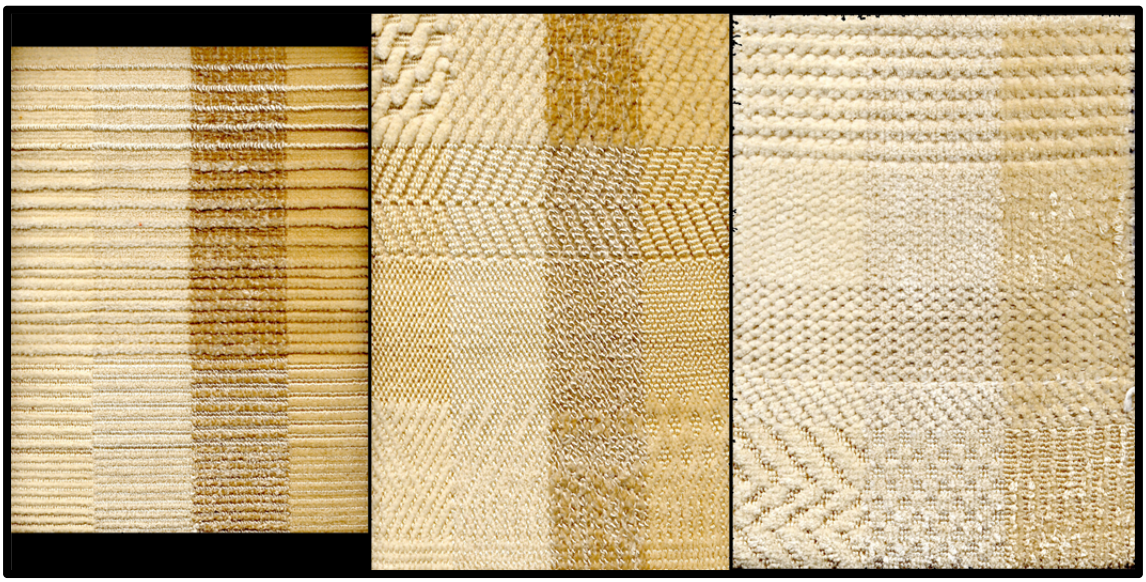

Figure 5. *Palette of various simple effects in divers materials and methods all executed on 4 shafts using cotton and silk stripes of pile.*

Voided foundation areas can dull or unattractive, especially in fast velvets with differently coloured pile making unattractive spots. Voids can be enhanced by the use of contrasting warp or weft faced weaves with long floats or supplementary pattern floats, creating a brocade effect. Many historical velvets were designed with a very shiny metallic brocade float or silk satin weave to contrast the light-absorbing matte pile.

Different heights of pile can be achieved using different sizes of rods or bars, but this will only work for rows. For other kinds of figuration in two heights, two rods, one above the other are used. The first rod is used to pick up all the pile ends across, usually a loom-controlled lift. The second rod is used to pick up only the pile ends that will be higher. This is similar to the pick-up for voided work. The pick-up can be loom-controlled when enough shafts are available, but there is no limit on picking up pile ends by hand, and any design can be accomplished. For efficiency, a combination of loom lifting and hand picking can extend the figural possibilities. Pile pick-up is usually quick, because the pile warp ends are generally thicker and less dense in the reed than are the foundation ends. The second rod, with the picked up loops, rolls on top of the first when the foundation wefts are beaten in.

In cutting high-low pile, the most common approach is to cut only the high pile, on the top (second) rod that has the picked-up design row. However, if both heights are to be cut, the top loops are cut first and their rod removed. This is followed by a second pass of the knife, cutting the remaining lower loops and removing their rod. Complex historical velvets often combine high-low pile with areas of void. In such cases the uncut loops are often used to outline the areas of cut pile, which creates a gradation of both colour and of height.

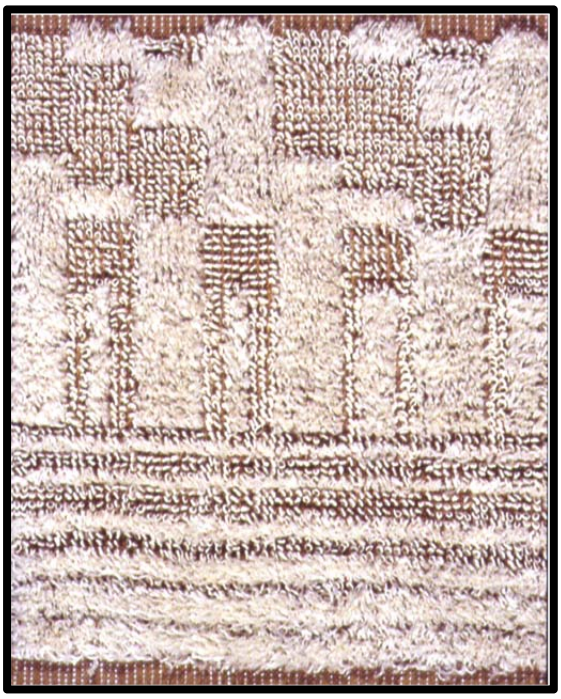

Figure 6. *Sparsely set linen high and low ciselé pile on dark ground.*

In the design of the picked-up sparse linen velvet in Figure 6, four pile ends were treated as a unit or block. The pick up was always a multiple of four end, so the four pile ends could be weighted together as a unit and the pick-up was quick to do. However, this unit approach makes for a stepped or blocky motif. A smoother figural effect would require each pile end to be individually weighted. Use of the contrasting dark background against a sparse light pile made an interesting effect.

Two-colour & Counterchange Figured Velvet

The use of two contrasting colours makes it possible to make a freeform motif or block design with a uniform pile surface, with a total of 3 possible colours possible on a 4 shaft loom. Depending on the number of pattern shafts available, block designs, based on warp stripes, may be loom controlled; free-

form designs will require hand pick-up. The simplest method for hand-picked designs on 4 shafts, is to mount one colour on shaft 3, and the contrasting colour on shaft 4. Then the appropriate shaft can easily be raised to pick up the colours as desired. Although it is most common to think one's design in terms of only the two contrasting colours, a mix of the two colours is also available. The only drawback to using the mixed colour as a third colour in the design is that it will yield a thicker pile, unless the mix is created by some kind of staggered pick-up. The parallel contrasting pile ends are entered one after the other in the threading, running parallel to each other as pairs in the same "channel". They are bunched beside each and treated as though one pile thread in the reed. The weaver has only to choose whichever of the two colours is needed from each pile pair to make a uniform pile design, while the unused end will float hidden on the back.

Different materials can be used just like different colours, for textural contrast. For example, I have used linen as the contrast against a silk background. The design was based on spaced squares, so the contrasting linen was added only where it needed to appear in the design. The stiffness of the cut linen and the linen loops made for a subtle visual effect, but was markedly distinctive to the touch in contrast to the softness of the cut silk pile background.

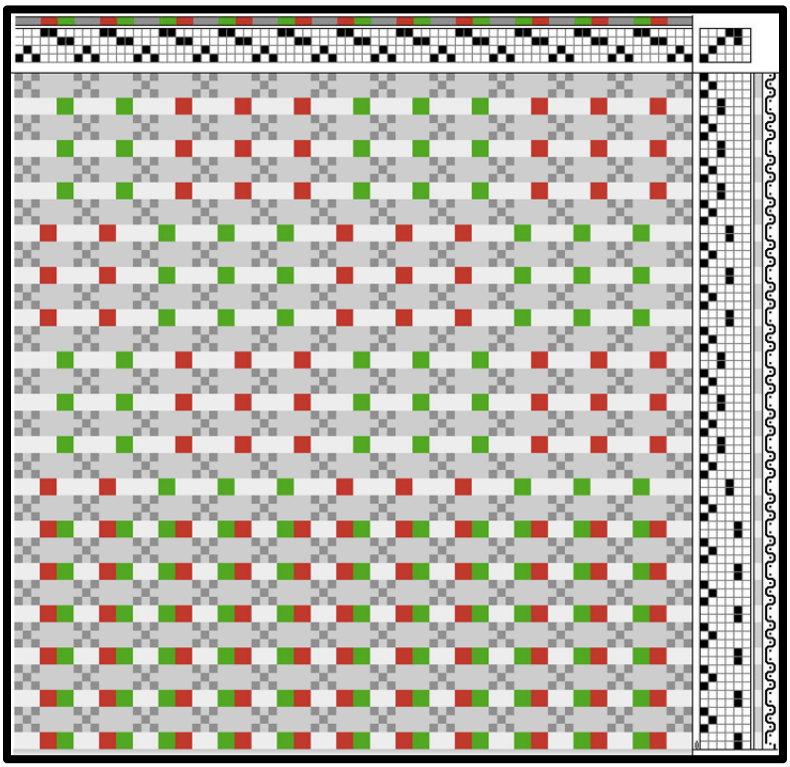

Figure 7. *Weave plan for loom-controlled counterchange in two colours. Note the checkerboard effect. The proportions of the colour units can be varied as desired to produce different designs.*

Alternating striped pile warps organised in the "log cabin" method of colour organisation permits loom-controlled effects in block patterns. The colour order is RG RG RG GR GR GR, with each colour alternating in groups between shafts three and four, producing two mirror image reversed striped pile warps. I call this alternation "COUNTERCHANGE". This loom set-up is shown in the diagram in Figure 7, using contrasting colours red and green for the pile. The proportions can be altered as desired, as shown by the wool sample in Figure 8a.

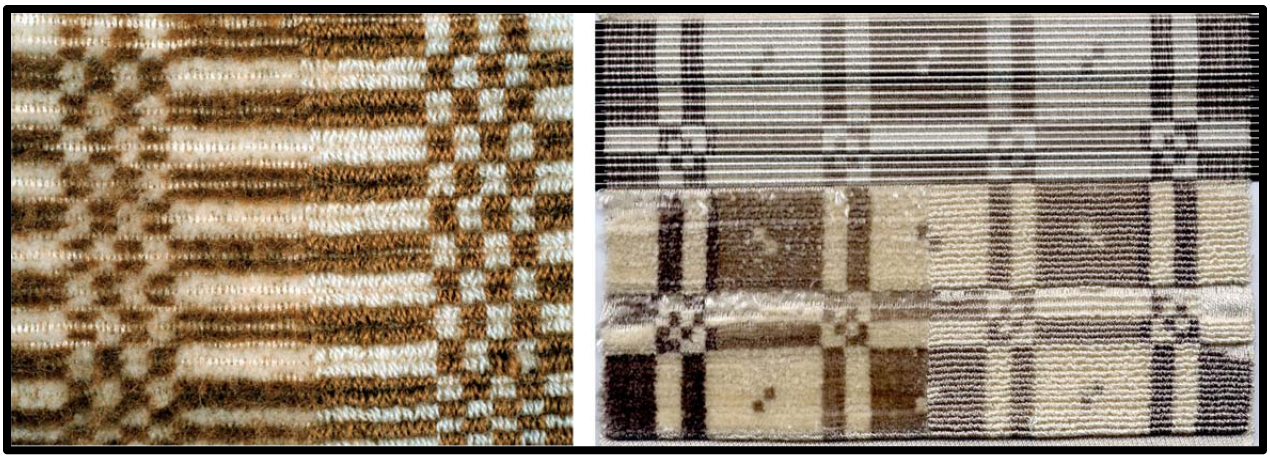

Figure 8a, left, *Loom-controlled wool counterchange velvet woven on 4 shaft loom using the "log cabin" arrangement.* ***Figure 8b, right,*** *Silk velvet showing the extension of the "log cabin" arrangement to 8 pile pattern shafts, completely loom controlled and woven on a 16 shaft loom. The rods have been left in at the top. Note the darker colour of the design on the left side where the loops have been cut, by contrast with the right side where loops have not been cut.*

Figure 8b shows a more elaborate counterchange block pattern was made by extending the "log cabin" organisation to 8 shafts on a 16 shaft dobby loom. In addition, the shade of the grey pile ends was graded from lighter to darker at the side edges. The flaws are due to the pile warp pulling out of the satin foundation structure as weaving progressed, indicating the satin structure needed to be more tightly set or woven, or the foundation weft needed to be fatter, softer, and stickier. Since this foundation is completely concealed by the pile, a plain weave structure a better, simplest choice.

Figure 9. *This wool ciselé velvet combines loom controlled counterchange patterning with pick-up.*

Normally it is most convenient to organise freeform pick-up warps with one colour on shaft three and the other colour on shaft four. However, even if the colours are ordered in counterchange fashion for other parts of the design, pick-up can be used to interrupt the set pattern and work spontaneous motifs. The method is the same for both. Using the round rods (or shafts) to hold the two warp options up, it is quick and easy to pick up whichever colour is desired for as many ends are needed to do the pattern. Then the round rods are removed, and the velvet rod is inserted in the shed made by the pick-up stick. The velvet in Figure 9 combines a loom controlled counterchange block pattern with a picked up motif and selective

cutting. The uncut loops have a lighter, shinier surface, like beading. The colour difference between cut and uncut areas would be even more dramatic in silk. Each end of each colour must be weighted individually because freeform designs will inevitably result in uneven take-up.

Polychrome Figured Velvet - More than two colours

The same principle used for two colours can be extended to more colours. A three-colour velvet on 5 shafts can yield as many as 7 colours when the combinations are factored in. R, G, Y, R+G, G+Y, R+Y, and R+G+Y. Cutting makes the mix more blended to the eye. The effect of mixing resembles a pointillist painting by Seurat, and works on the same visual principles. Again, the colours are organised to run side by side in the same "channel" between foundation warps. This makes for a very crammed warp, and requires more attention to clearing the sheds. For convenience, the simplest arrangement is to assign one colour only to each of the back three shafts, to be easily lifted as needed when picking up the design.

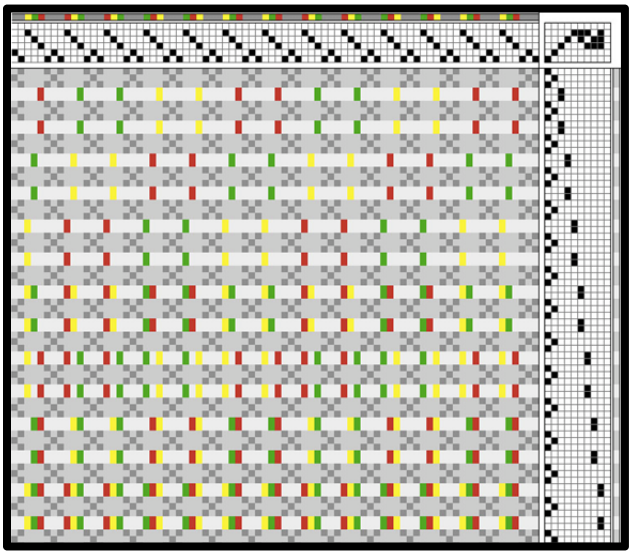

Figure 10. *The principle of counterchange involves a periodical shifting of the colour order among the pattern shafts. This weave plan shows the seven colour combinations that can be achieved with loom control on a minimum of 5 shafts.*

However, the three colours can also be shifted to different shafts in counterchange fashion for loom-controlled block patterns (Fig. 10), again yielding the seven possible colour combinations, and with the accompanying issues of differing densities of pile in areas of mixed colours, which may become problematic. Staggering the mixed colour pick-up while maintaining the mix would alleviate this problem, but only at the cost of a return to hand pick-up methods. Similarly the principle could be shifted to using 4 or more colours, but the same issues would arise.

Traditionally, polychrome velvet designs use only the pure colours of the ends, rather than mixing. However, judiciously applied, there is no reason to avoid mixing of two colours to extend the visual palette, so long as the weaver is aware of the density issues and able to accommodate them satisfactorily.

All images, diagrams, and woven works are the work of Wendy Landry.

Bibliography

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