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MASTER WEAVER

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HANDWEAVING MADE EASY.

We have yarns "easy" to work with, looms working by magic, books, which teach weaving in a few easy lessons, shuttles practically self-propelled, and many such beautiful things - at least in advertising.

Frankly, when I read these ads I feel insulted. Do I want to learn a hobby which does not require any mental or manual skill?

One can design a loom which will eliminate nearly all cooperation of the weaver. Such a loom may be excellent for industrial handweaving, or for occupational therapy; it may be a blessing for the sick. But if its greatest asset is that it is fit for feeble-minded, then it is hardly worth while to try to sell it to the craftsmen.

All "easy" things whether looms, yarns, books, or teachers have their limitations. If they are really easy, then they cannot give much satisfaction to the consumer, because by mechanising and simplifying the otherwise very complex craft, all possibility of creativeness will be eliminated.

There is a fundamental mistake made by those who use the argument of "easiness" in advertising. They forget that the whole tendency of our modern life is to make the mechanical part of it "easy". Easier cooking, cleaning, washing, heating, and all other chores. This tendency is legitimate because of the shortage of domestic help. But crafts are not chores! Just the contrary - they are healthy reaction against the easiness, the mechanical easiness of our every day's life. We are craftsmen because we are fed up with pressing buttons, and calling the electrician whenever the button does not work. At the same time we find satisfaction in creating, and nobody can create with half-automatic gadgets, and ready-to-use recipes.

What we are after is to fight and overcome difficulties. Not artificial difficulties such as making toasts on an open fire, but real problems intrinsically connected with the craft.

This would-be easiness of weaving has a very demoralising effect on beginners. After they hear so much about it, they are extremely disappointed with themselves and develop an inferiority complex, never suspecting that the advertising is not always gospel truth.

When teaching we should be quite outspoken on this point. Handweaving is anything but easy. The apparent easiness with which an experienced weaver throws the shuttle 60 times a minute has been acquired during years of work, and on hundreds if not thousands of yards of warp. The analysis "at a glance" of a fabric is the result of long and serious studies. The ability of combining colours and yarns into a practical and pleasing texture is either a gift, or the fruit of painstaking research. Good edges do not "just happen".

Handweaving is one of the most exacting hobbies. And no wonder. Such as it is now - it is the final product of work of millions of craftsmen during thousands of years. Lucky as we are to inherit the fruit of their experience, we cannot hope to assimilate all this knowledge and skill in a few easy lessons.

CODED WEAVING.

When we do not feel like making special threading drafts, we can still weave coded messages on any draft which gives 4 different blocks of pattern. This means any 4-frame twill, plain, diamond, dornick, herringbone, then any overshoot, crackle, and even summer-and-winter, but always woven with binder.

Instead of the length of floats, we use here the number of the block. The picks of weft remain as before. Since however the numbers of blocks are completely arbitrary, the clue to these numbers must be given in each woven piece. We do this in the first horizontal border. The first pick of pattern weft means the 1-st block, the second pick - the 2-nd block, and so on. We shall show later on on a draft how this works out.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | - | A | B | C | D | E | F | G |
| 2 | - | H | I | J | K | L | M | N |
| 3 | - | O | P | Q | R | S | T | U |
| 4 | - | V | W | X | Y | Z | - | - |

Fig.1

The code is given in Fig.1. The rows (horizontal) are the blocks; the columns (vertical) are the number of picks. One pick of pattern weft does not mean anything (first column), except at the beginning, where it shows the order or numbers of blocks.

The letter "A" is the first block used twice, "Z" is the fourth block used 6 times.

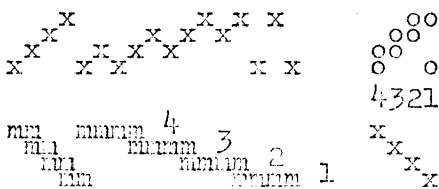


Fig.2

Let's suppose that we have the threading draft shown in fig.2. We start the border repeating several times the same treading with only one shot of weft on each treadle. The first shot will be the first block for the whole message. In our case treadle No.1 will be used for block No.1 (in a draw-down the first pick of weft is the lowest one, as in actual weaving). Then treadle 2 for block 2, tr.3 for

block 3, and tr.4 for block 4. We could start on any other treadle as well, but once this order is established it gives the clue to the whole message and therefore cannot be changed.

The importance of preserving this order becomes obvious when we try to read the message. Since we have only the woven piece we have no idea what tie-up and treading were used, but we know that the first pick of pattern weft is No.1 (fig.2) and that it shall have the same number whenever it is repeated all through the coded text. Thus when reading we must refer always to the first four picks of weft in the border.

Let's make our message: "MERRY XMAS". The first letter "M" is according to the Code: block 2, picks 7. The second "E" - block 1, picks 6. The whole text will be:

M E R R Y - X M A S

Block No.: 2 1 3 3 4 4 4 2 1 3

Picks: 7 6 5 5 5 7 4 7 2 6

When two letters are on the same block they must be spaced with one shot of weft on a different block. Thus the complete treading directions will be as follows:

block No.: 2 1 3 2 3 4 1 4 1 4 2 1 3

picks: 7 6 5 1 5 5 1 7 1 4 7 2 6

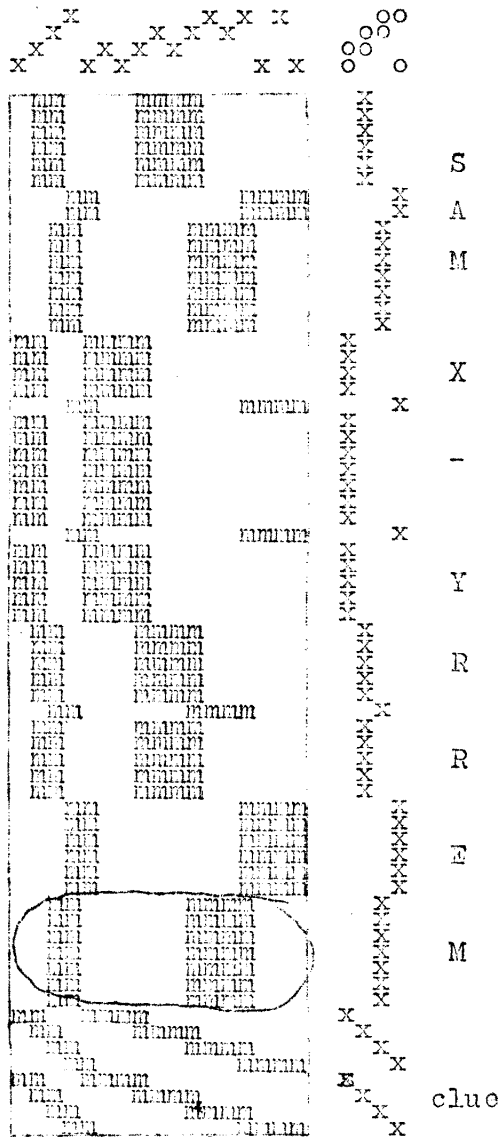


Fig. 3

Fig. 3 shows the message after weaving, except for the binder. The text is here upside down, and the clue at the bottom. When reading it will be easier to turn the piece right side up, with the border on top.

When reading we take a piece of paper, and mark in one row the number of the block and in the next the number of picks. The first letter of the text is concealed in the block of pattern which has more than one pick of weft. In our case it is the block circled on the draw-down. Looking at the border we can see that this is the same block as the 2-nd pick of weft in the border. Then the number of the block is 2. It has 7 picks. We look in the Code (fig.1) and find the letter "M". The next block is identical with the first shot of weft in the border therefore the number of block is one. It has 6 picks, and the code gives the letter "E". And so on.

It is obvious that with this system of coding, we do not need to look at the whole woven piece. The first inch or so, or for that matter any part of the fabric taken vertically will give the answer. We may even after weaving cut the the cloth into several narrow vertical stripes - each of them will contain the whole message.

Very narrow fabrics such as book marks may be used here, and this is one more advantage of this method when compared with the first one.

THE THIRD DIMENSION

Fashions in handweaving last much longer than fashions in general. Weaving is either a profession, or a serious hobby, and when we speak about modern tendencies in handweaving, we mean rather general trends, than short lived fashions.

The revival of handicrafts brought us first the colonial weaving. Very logically because that was the last stage of handweaving before it was obliterated by the industrial power weaving. And this period (we might call it Second Colonial) lasted for decades. Then there was not too strong an attempt at introducing Scandinavian techniques. It was never a great success because it would require a high technical knowledge, as well as good weaving equipment not so easy to find on our hemisphere. Finally there came the so called "texture" weaving - a reaction against both Colonial and Scandinavian weaving - a return to the simplicity of the Stone Age. It would not be so bad if it were a honest regression into the childhood of textiles - but unfortunately it took hold not only of the primitive weaving materials, but of the most elaborate modern yarns used by the industry, as well. The resulting confusion is killing the otherwise perhaps legitimate trend. And judging by the results, the end of the "texture" weaving is nothing to be deplored.

Where are we heading now?

It seems that we are trying to salvage the best parts of Colonial, Scandinavian, continental, and even "texture" weaving, adapt these to our modern requirements, and use this material as starting point in our search for new ways in handweaving.

We certainly reject the experiments with unsuitable yarns. We are not so keen on flashy metallics, cellophane, dog's hair, mosses, and corn husks as we were a few years ago. Evidently we are growing up.

But still there is something which we try to retain from the period of experiments with "textures". What was so different in "texture" weaving were not fancy yarns, but the stress on the third dimension - the something which does not show on the draw-down.

When we weave a napkin, we do not want it too rough - for purely practical reasons. On the other hand we do not want it too smooth - not as smooth as oil-cloth for instance. A place-mat may be smooth or not - it may be very rough indeed. A towel, particularly a bath towel must be rough. And so on. Well, the difference between "smoothness" and "roughness" is that in the first case we try to weave a two-dimensional fabric, and in the second case - a three dimensional one.

From purely geometrical point of view every fabric has three dimensions: length, width, and thickness. But if the weaver tries to make the surface of the fabric as uniform as possible, we may speak about a piece of weaving as if it had only two dimensions.

The third dimension comes into prominence when we try to make the texture of the fabric its most outstanding feature. Each fabric has a texture, and any kind of weaving is texture weaving. But it is only when we try to make the texture as uneven as we can, whether the unevenness will be rythmic or irregular, whether it will be obtained

by appropriate weaves, or by the use of yarns of different grist, or of special uneven yarns - that we can speak about 3D fabrics.

We shall not discuss here special yarns such as bouclé, chenille and so. They are a separate subject which we may take up some day. From the point of view of the weaver they are the easiest to work with, provided that the craftsman has good taste, and some artistic background. There are certain technical difficulties particularly when these yarns are used in warp, but otherwise the weaving itself is rather tedious and uneventful. And certainly it does not require much knowledge of weaving, which is perhaps the reason why such yarns are popular among the beginners.

Their serious advantage (apart of the easiness of handling them) is that they produce a texture which is at the same time irregular in detail, but very uniform in the all over effect. Something like a wall finished in rough mortar: there is no regularity in texture, everything seems to be completely haphazard, but still one square foot of mortar looks exactly like any other square foot. Higher mathematics explain this phenomenon on the probability basis.

Their psychological disadvantage is that half or more of the creative work has been already done by the spinner, or rather by the spinning mill.

The second class of 3-D weaving uses plain yarns but of very different count. For instance let's mix in warp and weft candelwick and 16/2 cotton, with the latter prevailing in a ratio 1:20 or thereabout. We shall mix the two counts more or less irregularly as in the warping plan on fig.1.

We shall use the same sequence for the weft. The general effect will be of "regular irregularity". The fabric can be woven as tabby, or broken twill, or sabinet, or in one of the higher weaves such as huck, lace (all lace but no tabby), leno, and so on.

30A, 1B, 20A, 1B, 6A, 1B,
 12A, 1B, 24A, 1B, 8A, 1B,
 12A, 1B, 12A, 1B, 4A, 1B.
 One repeat of warping plan,
 A - 16/2, B - candelwick.

Fig.1.

Pattern weaves such as colonial overshoot, summer-and-winter, crackle, turned twills, etc - should be avoided. The combination of classical patterns with irregular 3-D effect would be rather unpleasant. But one can experiment cautiously with dissymmetrical patterns in very subdued colours in such weaves as modern overshoot, or summer-and-winter.

Among the 4-frame weaves turned overshoot presents interesting possibilities. Here the heavy yarn may be emphasized by being used in floats instead of being left in the ground weave.

A draft for this weave is shown on fig.2.

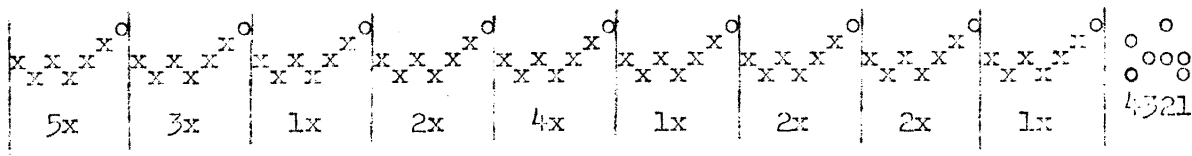


Fig.2

The draft gives only one repeat of threading. Fine yarn is marked "x", and the heavy one - "o". The treadling may be: 4,3,4,3,4,2 - it will

produce floats of 5 in the heavy yarn only. To get similar floats in weft we use from time to time treadle 1 with heavy yarn. The spacing of the heavy weft should be as irregular as of the warp.

Another weave which gives even better results is turned swivel (see MW 16). Instead of coloured yarn we use the heavy yarn both in warp and in weft. We shall discuss this possibility in a separate article

Finally we have weaves which give us three-dimensional effect regardless of the yarn used. We can enumerate here: corded weaves, crepe, waffle, halkrus, pile weaves. These are 3-D weaves by their nature. But many pattern weaves will give similar effect provided that we do not use them as pattern weaves. Fig.3 gives an example of one

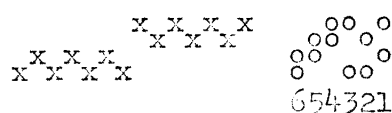


Fig.3

repeat of overshoot without any pattern. The treadling may be:

- 1-st. 1626162614241424,
- 2-nd. 46464646461464646462,
- 3-rd. 6161616142424242.

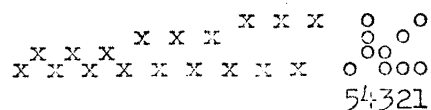


Fig.4

In each of these treadlings the yarn used on tabby treadles is the same as the yarn for pattern treadles.

In fig.4 we have an example of All-Over-Spot weave, treated as a texture weave. The treadling:

- 1-st. 534353425242514151, 2-nd. 53435242534351415242514154.

Then there are such weaves as huckabacks, M's-and-O's, plain, or turned. As long as we do not try to design a pattern, but use one basic repeat of threading and treadling, the result is only texture, in the proper meaning of this word.

With a higher number of frames the texture grows more and more interesting. For instance a variation of waffle on 8 frames, although woven entirely of the same yarn both for warp and weft, gives an illusion of three different counts being used (fig.5)

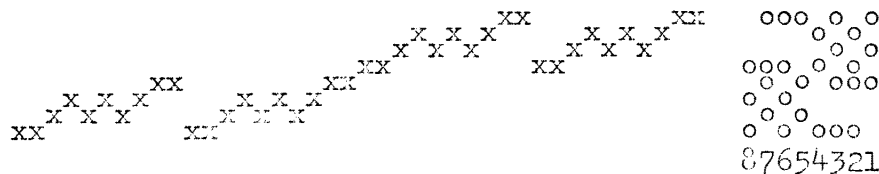


Fig.5

treadling: 1123232344112323234455676767885567676788. The sett of warp should be very close one - about twice the sett required for plain tabby for the same count of yarn. For instance with 8/2 cotton it will be about 40 ends per inch.

But from our point of view all these weaves have one disadvantage: they give three-dimensional weaving, but much too regular, too monotonous. Our "irregular irregularity" is just not there.

To get this irregular texture with weaves which have different basic units, we mix these units more or less at random. For instance in case of huckaback we have three possible units: 6x6, 10x10, and 14x14. We may alternate them both in threading and treadling as in Fig.6.

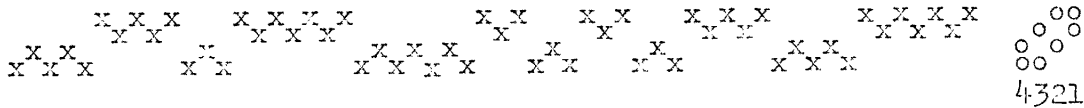


Fig.6

the treading may follow the threading e.g.: 24242313132423131313
242424231324231324231313242423131313.

To get a more complete impression of irregular texture we can mix different weaves in the same draft (fig.7). We have here Huck, Spot, M's+O's, and Overshot. Since the greatest part of the fabric will be woven in purely accidental manner, a draw-down is a necessity here.

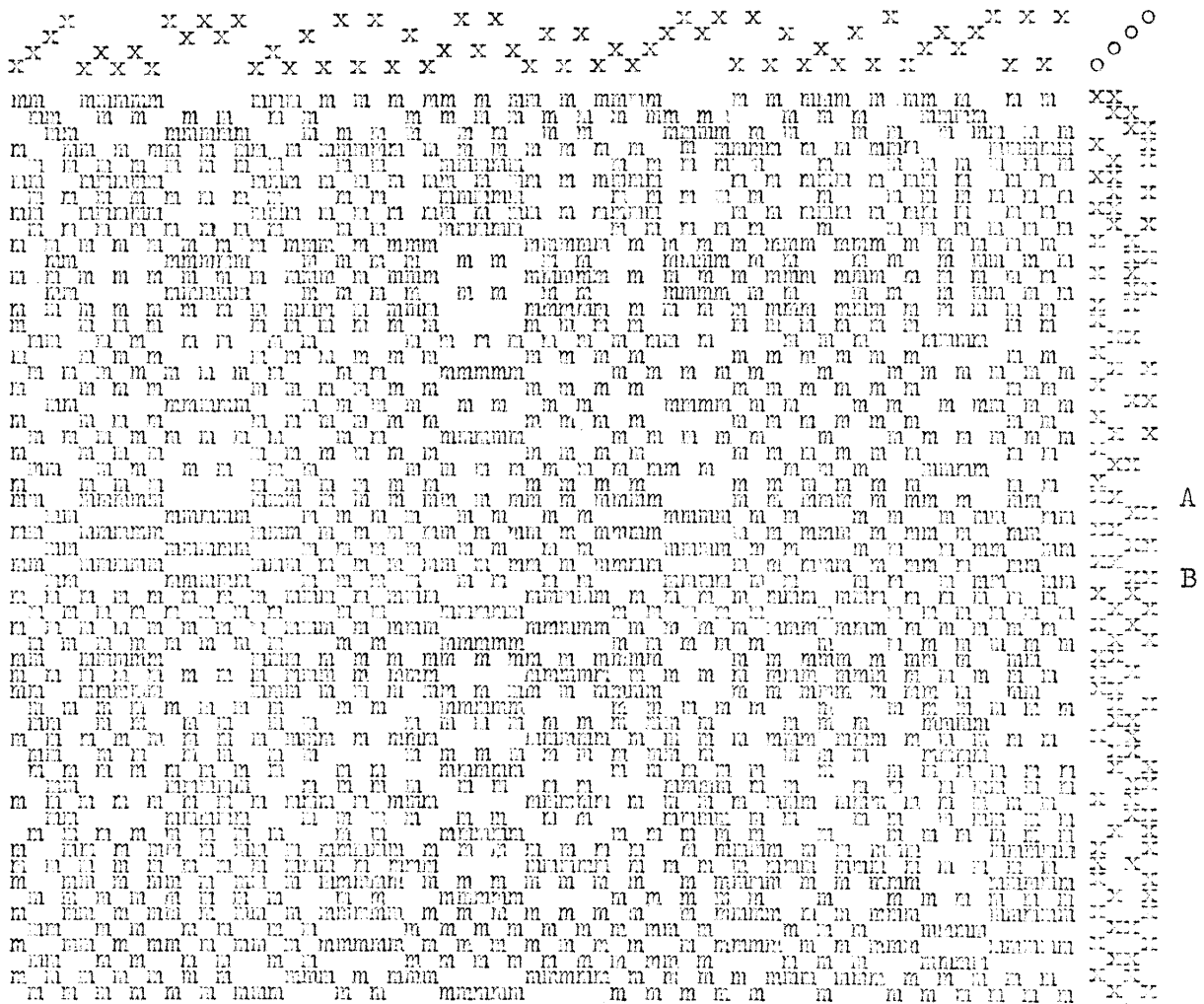


Fig.7

When we examine this draw-down we notice immediately that the all over effect is satisfactory except for the horizontal stripe between A and B. This stripe will run across the whole fabric and will have a distinctly different texture. Thus we shall have to eliminate it by crossing out a part of the treading (2 or 4 out of 6 picks).

When mixing different weaves in one draft, the treading may become a real problem. We may need as many as 14 treadles for a 4-frame

loom. Or otherwise just two tabby sheds (1-3, and 2-4) and a direct tie-up. Such a combination of 6 treadles gives all 14 sheds by using two treadles at a time. Still this is not a convenient solution, except for making samples.

A compromise may be reached with a standard tie-up, such as on fig.8. But then either a series of draw-downs or better a number of samples should be made before finding the best treading. What we have to avoid is: 1-st long floats in warp (there won't be any long floats in weft - the threading draft takes care of them), 2-nd too conspicuous vertical or horizontal stripes. In case of the draft on fig.6, the following treading gives good results: 646453536262515161212121.

The draft on fig.7 is only an illustration how we should proceed when trying to design a new texture weave. It is pure research: first paper work, then experimenting on the loom. The draft is only the beginning. Many 3-D weaves are a failure unless they are woven on a very closely set warp. The reason is obvious - the third dimension must be built with some additional material, and we have to supply this extra yarn when warping and weaving. - Else we shall have only an untidy but otherwise rather flat fabric.

Pile weaves are by definition 3 dimensional, because in addition to the warp and weft (in the ground) they have the pile which is more or less perpendicular to the ground weave. The irregularity of texture means here irregular length of the pile. This can be achieved in many ways. However, the whole subject is so complex that we cannot discuss it here.

Probably the only technique which does not require special equipment is the chenille (twice woven fabric). The irregularity of texture here is no problem.

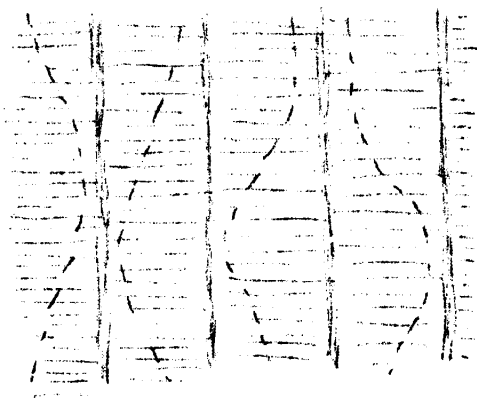


Fig.9

We make the first warp as usual. We can use for the weft (which becomes pile in the second weaving) either one kind of yarn, or two or more of a different count. But when it comes to cutting the stripes of chenille, instead of making the cut in a straight line half way between the two cores (strands of warp), we cut as on fig.9, following wavy and irregular lines. In the second weaving this weft may be used flat, or twisted. The result will be similar in both cases. The length of pile will vary in a completely haphazard way.

We hope that these few examples of 3-D weaving prove that after all there is such a thing as "texture" weaving, but that it is not as simple as many weavers think, and that it requires more than two tabby sheds and an assortment of strange yarns.

DRAFTING.

As we mentioned in the last lesson, there are several ways of treading which give several symmetrical patterns from the same threading draft. We have described only one of them - corresponding to the term "woven-as-drawn-in" (or "tromp as writ"). This first method of treading is based on a diagonal (or diagonals) crossing the woven piece. We shall call a treading draft which produces such a diagonal: Basic Treading Draft. It is basic because all other treading drafts will be derived from it. Even if we do not intend to weave the pattern corresponding to the Basic draft, we must figure out the treading, to be able to find other variations of symmetrical patterns.

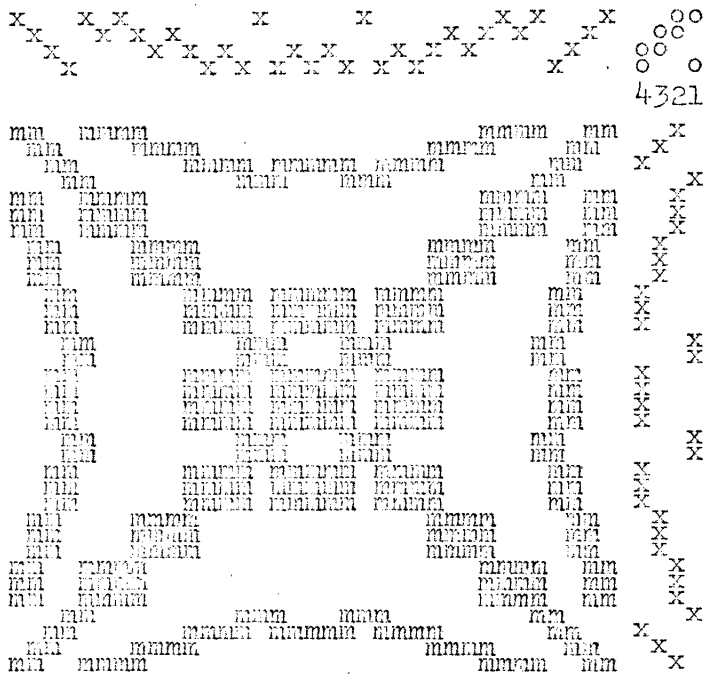


Fig.1

roads: treadle No.2 - once, treadle No.3 - once and so on.

In all variations of pattern the number of picks remains unchanged. We change only the treadles.

For instance in the second variation (the first is the Basic) called Rose-fashion weaving in colonial times, we replace treadle 1 by treadle 4, tr.2 by tr.3, tr.3 by tr.2, and tr.4 by tr.1. WE DO NOT CHANGE THE TIE-UP, neither on the draft or on the loom, but instead of using for the first pick of weft treadle No.2; we shall use No.3, for the second: instead of No.3 - No.2 and so on. Our whole treading draft will be as follows: 3-1x, 2-1x, 1-1x, 4-1x, 3-3x, 2-3x, 1-3x, 4-2x, 1-4x, 4-2x, 1-3x, 2-3x, 3-3x, 4-1x, 1-1x, 2-1x, 3-1x. Fig.2 shows the draw-down of the second variation of the pattern.

We found the treading in the usual way on fig.1. The draw-down shows the corresponding pattern. We omitted here both the binder and the tabby ties in the pattern weft (single squares on the draw-down). Thus the draft shows the floats only. This is done so, because the pattern is much clearer when drawn in this way (compare with the last draft in lesson 3).

The treading draft can be expressed in a numerical form: 2-1x, 3-1x, 4-1x, 1-1x, 2-3x, 3-3x, 4-3x, 1-2x, 4-4x, 1-2x, 4-3x, 3-3x, 2-3x, 1-1x, 4-1x, 3-1x, 2-1x. The first number means the treadle, the second - the number of picks. Thus the draft

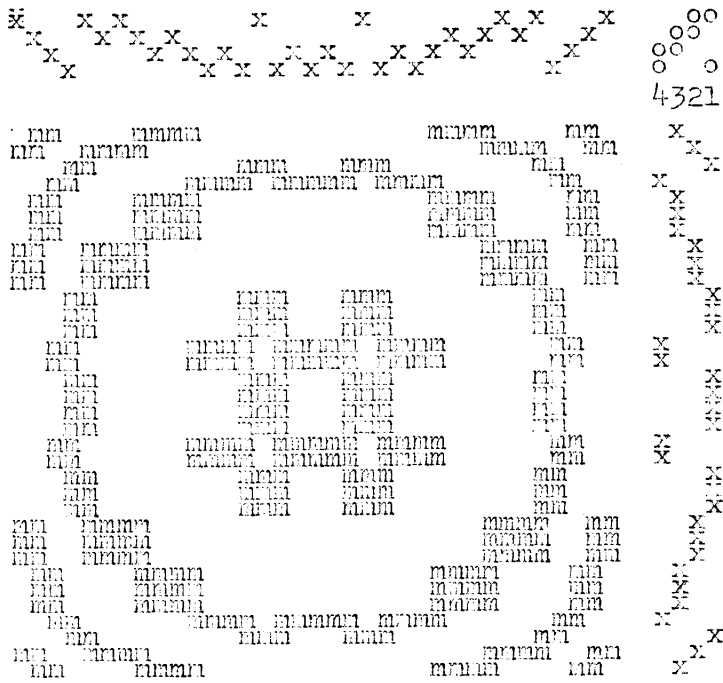


Fig. 2

The pattern here although symmetrical is completely different, and what is more - it has no diagonal. Because of this lack of a diagonal we cannot find the second variation of the treading right away, but we have to start with the basic treading.

When comparing both treading drafts: the basic, and the "rose", we shall notice that the second looks very much like the first only so to speak "turned over", or as its reflection in a mirror. On this resemblance between the two drafts is based another method of finding the second variation of the treading.

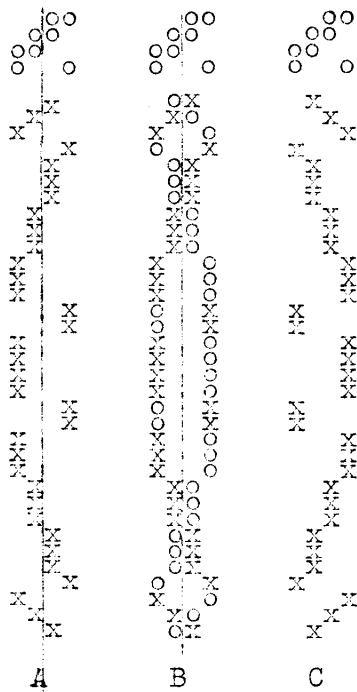


Fig. 3

First we draw a vertical line through the center of the basic draft (Fig. 3A). Then we transfer the treading marks from one side of the line to the other (fig. 3B). We use either different colour or different symbols for this second set of marks. Finally we erase the first treading, or copy the new treading marks on a new draft (fig. 3C).

Exactly the same result would give a reversed tie-up (12, 23, 34, 41 instead of 41, 34, 23, 12) with the first treading. But it would not be a very practical solution, when actual weaving is in question.

Many students confuse the changing of treading marks with changing of the numbers of treads. They try to count the treads from left to right instead of from right to left, and are rather puzzled that they still get the same basic pattern. Or they change both the treading draft and the tie-up, which again gives the original basic pattern. Or they try to find the diagonal in the second variation.

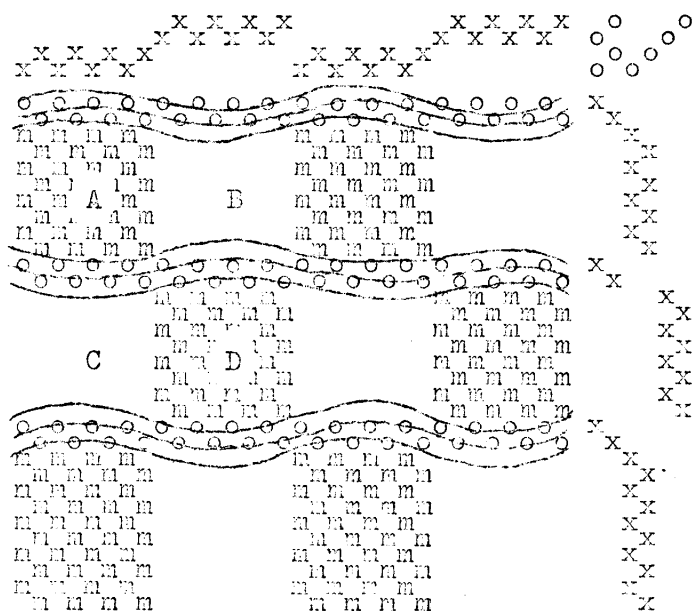
We must remind such students over and over, that the only thing which is changed - is the order in which the treads are used.

HÄLKIRUS

or Gagneffkrus, or Spotsväv, or Lacey Weave, or Honeycomb.

Strangely enough this weave with so many names, has none in English. In colonial times it has been called Honey Comb. Since then however the industrial weaving adopted Honeycomb as a synonym of Waffle. So if we want to call Halkrus by the name of honeycomb, we must add Colonial, or nobody will know what we are talking about. The Lacey Weave has been proposed about 15 years ago, but so far nobody accepted it.

Halkrus belongs to the class of "distorted weft". We had already one example of this kind of weaving in the Cannelé (IR/ 11). In this group of weaves the weft follows a more or less wavy line, although it runs straight on the draw-down. In Cannelé the weft is pulled in two different directions by alternate floats in warp. In the halkrus the pattern weft is pushed to one side or the other. In Cannelé the ground is uniform, in halkrus the ground is distorted.



What is the origin of this distortion. Let's have a look at a typical halkrus draft (fig.1). Each repeat can be divided into four approximately square areas. Two of these Quarters (A and D) are woven in tabby, and the other two (B and C) - not woven at all.

When we beat, the tabby areas offer a resistance to the batten but the other areas so to speak - collapse. Thus the heavy weft (on tabby treadles) will be always pushed toward the center of C and B and away from the center of A and D.

Fig.1

The draft on fig.1 has only two blocks of pattern. but four blocks can be woven as well (fig.2). In case of four blocks we shall have three different textures of the fabric: tabby (A), unwoven (D), and partly woven (C). The curve of the pattern weft will be much more irregular than in the first case.

The classical way of weaving halkrus requires two shots of pattern weft - one in each tabby shed. This weft is much heavier than the weft for the ground. It may be of the same colour as the rest of the fabric or of a contrasting one. The blocks of pattern may be squared one after another, thus giving a pattern similar to the corresponding pattern in overshot. Of course any overshot draft may be used for weaving halkrus, provided that the tie-up is changed.

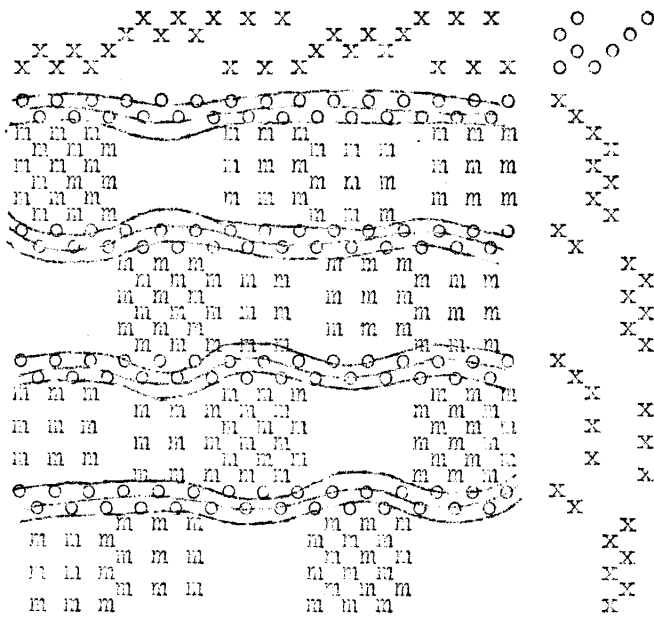


Fig.2

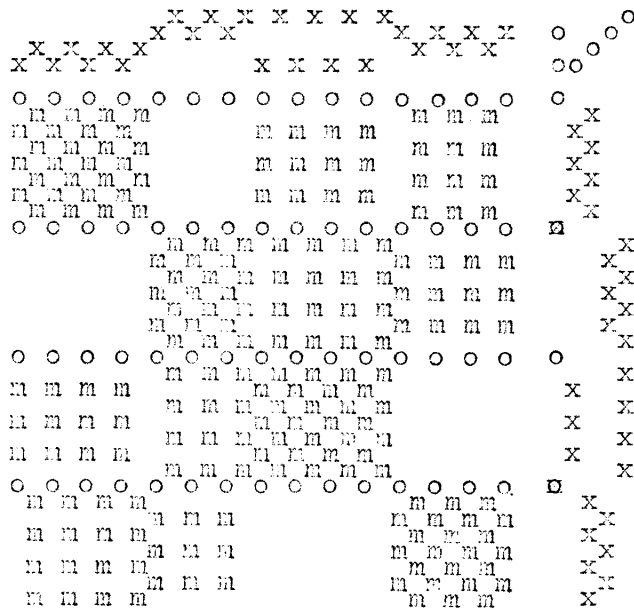


Fig.3

When very fine texture is required halkrus may be woven on plain twill threading (fig.4 and 5). The weft used on tabby sheds should not be very heavy - it may be the same as used for the ground.

Modern treatment of the same weave is slightly different. First of all we do not try to square the pattern. For that matter we do not try to show the pattern at all. The blocks will be used more or less at random, or always in the same order.

Then we shall use only one shot of very heavy pattern weft, always in the same tabby shed. Fig.3 shows an example of a modern version of halkrus.

As threading draft can serve any large overshot draft, but still better is to design a special draft, with the four blocks of very different sizes

All fabrics woven in halkrus can be used only on one side, as long as the blocks of pattern are fairly large. This is because the weft will have long floats at the back of the fabric.

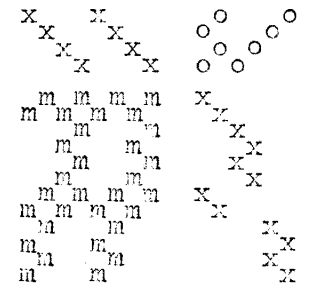


Fig.4

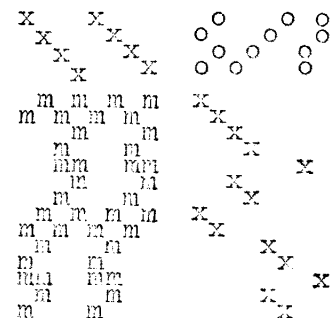


Fig.5