

MASTER
WEAVER

BULLETIN FOR HANDWEAVERS



JANUARY

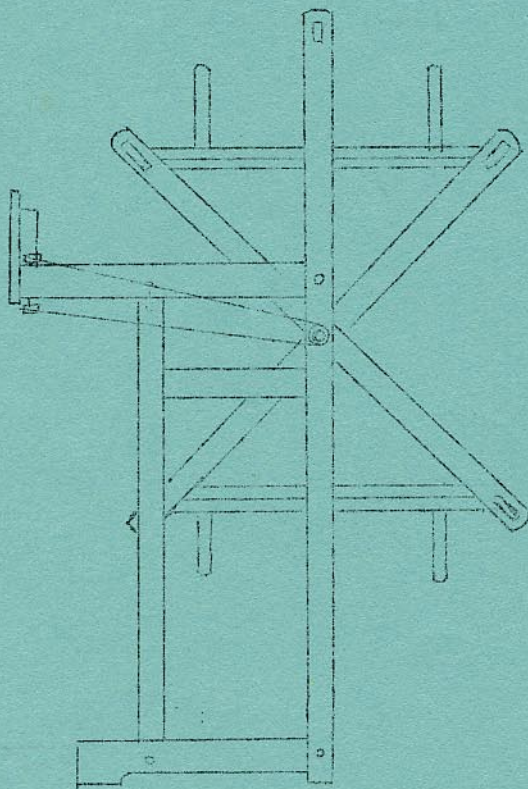
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MASTER WEAVER

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January, 1954

No. 13

PROBLEMS

We have already said nearly all we had to say about so called "texture weaving" (MW,4). But this particular problem is only a part of a larger one: it is our attitude to the weaving in general.

Thousands of years ago - we probably will never learn exactly when - somebody somehow got the idea of opening a "shed" of a primitive frame loom, instead of inserting the weft by a laborious process of picking up the ends of warp. We can imagine with what joy this early inventor started putting into his shed all kinds of most inappropriate objects: twigs, rushes, grass, leaves, perhaps leather thongs, split wood, bark, seaweeds, and what not. Some of these materials might have been roughly spun, most - probably not.

It took millenia to eliminate worthless "textiles", so that only few remained: silk, flax, cotton, wool and their cousins, like hemp, ramie etc in the flax group, and the yarns spun from the hair of different animals in the wool group.

If nothing else survived it is not because weavers of those remote epochs were prejudiced, or superstitious, but because they had enough time, measured in centuries, to find out that everything else turned out to be unsatisfactory from one point of view or another. Some materials did not stand the tension, or the torsion, or the friction, other - the heat, or sunshine, or moisture, or cold. Some desintegrated in time without any particular reason, some became stiff or brittle, or mouldy, or acquired unpleasant colouring.

Then followed centuries of most satisfactory achievements in hand weaving. No new weaving materials were introduced until the quite recent invention of artificial fibers. Then we have a comparatively short period of mechanical weaving, which did not go very far from the primitive methods, with the only exception of speed, but which for nearly a century did not use anything but the most conservative yarns.

And now after thousands of years we start the whole story all over again. We rebel against the wisdom accumulated by hundreds of generations of craftsmen, and do exactly the same what the first weavers did long before the time of Swiss Lake dwellers. We try to force into the shed anything at all, as long as it will stay there.

We discussed already the "whys" of this movement, and this is not the point we are trying to make. We are entitled to experiment, even if there is not much chance that the experiments will bring us anything but a very temporary sense of achievement. We pay for it, and if we like it, who can stop us? Even if the dissenters call it our second childhood, some of us may enjoy it. The peril is not here.

It is when the experiments stop half way, or not even half way, and then on this meagre experience we base production - that the things become really bad. As if a child who learns cooking by the hit and miss method insisted ^{on} his half-baked products of pure chance being commercialised.

Unfortunately this is exactly what happens in "texture" hand weaving, and not only in texture. In traditional weaving we already have seen the same trend only too often. The famous weavers who never have threaded their looms to anything but honeysuckle are proverbial, but how many stick to one weave and pattern, not even their own, produce it by hundreds of yards, and sell?

It seems that many weavers go only so far in their development, then become rigid, and instead of learning more or giving up the whole thing, they go on producing and selling. This rigidity seems to be much worse a symptom, than an indiscriminate orgy of mixing together all possible textiles, colours, and weaves.

It is rather obvious why one would expect the "texture" weavers to be less rigid than the others. By the very definition they are the rebels against the tradition, and they should go on experimenting until they hit on something really better, really valuable. So it is rather disappointing, when one sees them producing the same unfortunate combinations of novelty yarns in endless warps, in atrocious colours, to the not too sincere delight of not too discriminating customers. The very brilliant exceptions from this rule make the general level look still worse.

A similar or at least analogous situation exists in dyeing. We are all only too familiar with the alleged superiority of vegetable dyes over all other, particularly synthetic ones, which many craftsmen persist in calling "anilin dyes". No such superiority exists of course - it is pure superstition which originated a century ago, and as all superstitions had some meaning at the time when it started. The first synthetic dyes (some of them being derivatives of anilin) were really poor substitutes for the commercial vegetable ones. But since then every vegetable dye (and not only vegetable) has been duplicated by the synthetic processes. And it is not the colour which is duplicated - it is the substance itself, which is absolutely identical with the original dye. Thus the synthetic dyes have all properties, not only colour, exactly the same as the vegetable ones, and besides there are thousands of artificial dyes never created by nature.

It is entirely different question, whether the good synthetic dyes (not the drugstore variety) are easy to get particularly in small quantities. No, they are not, and we can blame for this fact the chemical industry, but never the dyes themselves.

Thus, since we cannot get good and easy-to-apply dyes from the industry, we condemn the whole chemistry and return to the nature. We boil tons of weeds (it takes about a pound of natural dyeing substance for a pound of yarn, when a pound of artificial dye can last a craftsman for generations), strip whole trees of bark, dig for rare roots on the new moon, collect patiently blossoms, fruit and what not, and get in result the famous "subdued", "pastel", "inimitable" shades - hardly ever a definite colour.

Does not the whole approach remind us of the "texture" weaving. Again we repeat what has been done thousands of years ago. We gloat

over dyes which have been rejected as useless by the Pharaohs. And how do we know that what we "discover" has any real value? That the dye did not fade since last Xmas - well, it still may do so next spring. But then most vegetable dyes with few commercial exceptions do fade. The argument that the Egyptian textiles conserved a remarkable freshness of colour is not such a good one - these textiles have been preserved in ideal conditions: complete darkness and complete absence of humidity.

What we really like about old dyes is precisely the fact that they were far from being perfect. First the dyeing was not even, producing the well known effect of "ripples". Then they faded and became "subdued", but they were not so in the first place. Finally the fading was not even: it was more pronounced on the surface than in the depth of the fabric.

The two first effects are easily duplicated, and we can buy yarns both unevenly dyed and "faded". The third can be duplicated by artificial means too, but as far as we know, not on a commercial scale.

And here again we stop half-way in our experiments with dyes, without even reaching the level of old commercial vegetable dyeing.

One more example of "rigidity" is the equipment we are using. Although handlooms of all possible types have been developed as early as the 18-th century, and all we have to do is to select the proper model, we insist on going through the whole history of the weaving loom all over again. We make improvements and inventions which would look childish to a medieval weaver. We build by the thousand looms which are absolutely useless, and what is the limit - we kind of like them.

Not that there is no room for certain changes in construction of looms such as used in commercial handweaving two centuries ago. Due to the different requirements there is. But strangely enough we do very little in this direction. Instead we rake our brains in order to replace wood with metal pipes for the sake of originality, to change the old and efficient shedding motion into a cross between Jacquard and a Swiss music box so as to make weaving next to impossible, to make looms very low - as if the space above the loom could be used for anything except hanging a mobile, to make the harness either so heavy that it will resist anybody but the strongest weaver, or so light that it won't open any shed.

The same applies to the warping equipment and other accessories.

We can understand that worthless equipment may find its way to the market particularly when it is kind of a surplus, which simply has to be sold, but why on earth so called discriminating weavers buy all this rubbish, and why do they think or pretend to think that they are satisfied with it?

The answer to all these questions is simple if a little discouraging: we do not know enough about our trade. We do not know enough about textiles - and hence our failure in texture weaving, we do not know anything about chemistry and this explains our pathetic attempts at dyeing, we do not know enough about colour and design and produce atrocities by the ton, we know too little about the theory of weaving and stick unnecessarily to a few selected at random "easy" weaves, finally we know next to nothing about the mechanics of weaving and we get stuck with equipment which does not meet any requirements whatsoever.

We do not imply that a hobbyist should spend years on studying textiles, chemistry, mechanics, mathematics and art - but he should have some knowledge of all these, and a profound knowledge of his own line: chemistry if he experiments with dyes, artistic background - if he designs fabrics, mechanics - if he makes looms. On the other hand there should be in every group of weavers somebody who can help the members with problems not directly connected with their specialty. For instance a tapestry weaver, probably an artist by education or at least temperament, does not need to know all about looms but he should be in position to consult somebody who is an expert. There is simply no short cut here. To become real craftsmen we must learn more about weaving, and since we cannot learn all, we must rely on experts. An individual cannot always reach an expert when he is in trouble, but a weavers' guild can make it easier for him. First by securing the help and cooperation of local talents amateur, or professional, then by inviting experts from other weaving centers.

What an average weaver should learn about weaving in general?

First he should master the principles of working of at least one type of hand loom - the type of course which he is likely to use in the future. He should know it thoroughly, its faults as well as its merits, and what is more, he should gradually correct all the faults.

Next come the yarns. Their composition, count, twist, chemical and physical properties, and applications.

Only then the theory of weaving. It does not need to go beyond the scope of interest and the technical possibilities of the weaver, but within these limits it should be mastered to a high degree. It is not enough to read a draft, make a draw-down or even to find different variations of treadling. A creative craftsman must be able to make his own drafts, transcribe patterns from one technique into another, even produce variations of weaves, should such a necessity arise. Not that there is the slightest possibility of discovering a new weave, but we cannot rely on collections of recipes, when we are faced with a problem of designing a fabric with definite physical properties.

Every weaver should have some kind of artistic background, inborn or acquired. Inborn for instance by being brought up in some particular tradition of folk art. Acquired by studying painting (not necessarily to the point of becoming an artist painter), or the history of decorative textiles, or decorative art in general.

Those are the minimum requirements. They should be followed by a deep study of the one particular line of weaving in which we should like to specialise. The narrower this specialty the more chance we have to become outstanding weavers, the more satisfaction we shall have from our work, and the less risk of becoming "rigid" before reaching a high degree of creativity.

Compare: "Why do we weave?" (MW 1), "Master Weavers" (MW 3), "What about texture?" (MW 4), "Craft or Business" (MW 10).

TURNED LACE

f o r f o u r f r a m e s.

By "turning" a weave we mean changing the direction of floats, without otherwise affecting the properties of the woven fabric. In cases when the floats are running in the same direction on both sides of the fabric the turning may have as its only object - to make the weaving easier or faster, in this case the whole draft is turned i.e. the treading draft replaces the threading and vice versa. Or a part of the draft is turned, so that floats will run in two directions on the same side.

When the floats are horizontal on one side and vertical on the other - part of them may be turned, without turning the draft - simply by changing the tie-up. Here as before the fabric will have on the same side floats running in both horizontal and vertical direction.

Although any weave can be turned partially or completely, there is not always much reason to do so. Such weaves as basket, 2:2 twill, waffle, huckaback lace, can be turned easily but without much result since they already had floats in both directions. Then other weaves such as overshot, crackle etc. can be partially turned only by considerably increasing the number of heddle-frames. However there are a few weaves which are quite easy to turn, without adding any extra frames.

We have already described (MW 2) one example of turned spot weave. We shall now enlarge upon it, and apply this principle to the case of turned lace.

When we have a weave which produces vertical floats on one side and horizontal ones in the same place on the other side, the easiest way to turn it is to replace in the

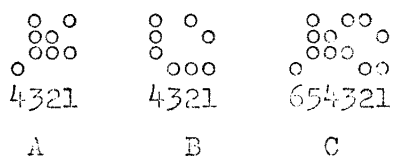


Fig.1

tie-up all ties for sinking shed by ties for rising shed and vice versa. In case of a simple tie-up for spot-lace (fig.1), the draft A will give vertical floats (on a counterbalanced loom), and B - horizontal floats. If the threading and treading drafts remain the same we shall have in both

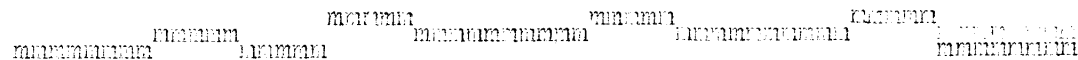
cases the same fabric, only reversed in weaving, However if we combine both tie-ups into one (C) we can weave at will either horizontal or vertical floats on the same side. Treadles 3 and 4 in tie-ups A and B are really the same tabby treadles only in different position, and they become 5 and 6 in the new tie-up C. Treadles 1 and 2 produce in combination with tabby 5 - horizontal floats, and 3 and 4 with tabby 6 - vertical ones (fig.2).

This way of weaving turned lace is best for patterns where the two blocks are woven separately, not in combination. Fig.3 shows a profile suitable for this technique. Of course it does not need to be symmetrical. The point is that the blocks should touch each other - otherwise the pattern will be too flimsy. The tabby is reserved for the borders only.

If we want to have more lace in the woven piece, we can combine the blocks, but then one block should have horizontal and the other vertical floats in the same row, as in fig.4. To be exact they are not

As an example of a complete project in turned lace we can take the following one. Single linen for both warp and weft. Warp set at 28 to 30 ends per inch for No.14 linen. Total no. of ends 366.

Profile:



units: $\begin{matrix} x & x & x & x \\ x & x & x & x \end{matrix}$; $\begin{matrix} x & x \\ x & x \end{matrix} x$; $\begin{matrix} x & x \\ x & x \end{matrix} x$;

Treading to square the pattern: 65 - 24 times, 232365 - 5 times, 65 - 15 times, 6 - once, 414156 - 5x, 5 - once, 232365 - 10x, 6 - once, 414156 - 5x, 5 - once, 232365 - 10x, 6 once, 414156 - 5x, 56 - 24x. Beat harder when weaving plain tably on 5 and 6.

Compare: "How not to weave linen" (MW.1).

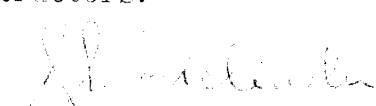
FROM THE EDITOR

Starting with the coring issue (March) we shall publish in every number of Master Weaver two pages of what we consider to be model lessons of drafting by correspondence. We shall start at the very beginning, and continue to the level, where the student becomes independent and can go on with his education byhimself.

This series may seem rather incongruous with our general trend of writing only for advanced weavers. However these Lessons in Drafting are not meant for the students at all. They are for the instructors, of which we have a large number among our subscribers. For this reason we have already published a few articles about the Problems in Teaching.

There is nothing to prevent a beginner from learning the drafting from this new series, even if his rate of progress will be rather slow (6 lessons a year).

We wish to assure our readers that we do not intend to lower the level of our periodical. We are very proud that only the "elite" of the weaving world read it, and we are quite happy with the present circulation. The only reason for starting these elementary lessons is to satisfy the needs of teachers and instructors.


(S.A. Bielinski)

TWO-HARNNESS METHOD

Weaving with two harnesses (two sets of heddle-frames) at the same time is a method which can be used in connection with nearly all pattern weaves. Its advantage is that the total number of frames is comparatively low, so that multiblock patterns can be woven without recourse to special shedding machines such as dobbies, jacquards etc. For instance 5 block damask would require 25 frames and as many or more treadles in a single harness loom, but only 10 frames and 5 treadles in a two harness one.

This is the main advantage. Incidentally there are other:

1. The threading is very simple.
2. The weave can be changed without re-threading the loom, sometimes even without changing the tie-up.
3. All possible variations of a most involved pattern can be woven on the same simple tie-up.

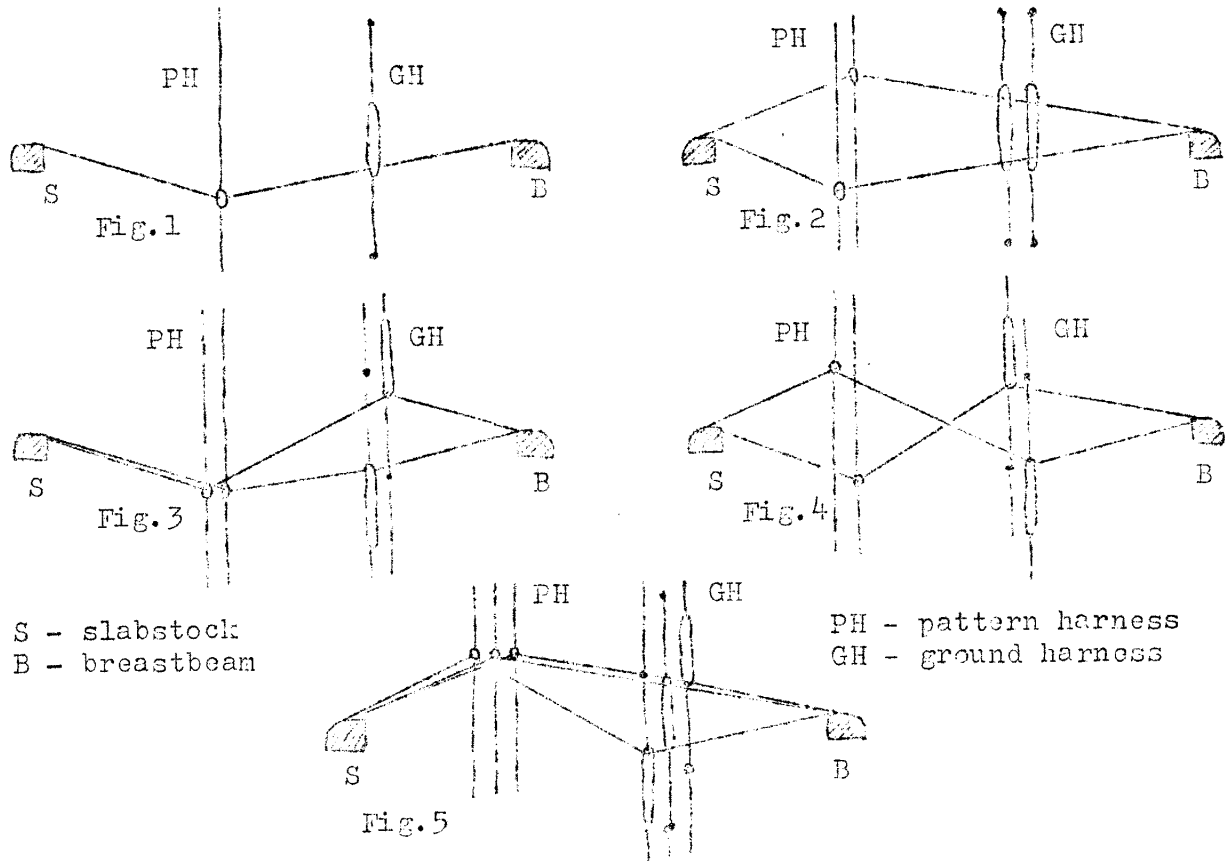
The disadvantages are:

1. The method requires a special loom. Only very few looms for single harness can be converted into two-harness ones.
2. The setting up of the loom and its adjusting is difficult.
3. The method works best with elastic yarns such as wool or cotton. The less elastic the yarn, the longer (from slabstock to breastbeam) must be the loom.
4. The wastage in warp is slightly higher than usual.

The loom frame has all the essential parts of a single-harness loom, but it has much more space in the back (i.e. between the batten and the slabstock). This is because in this space we have two instead of one harness. The front harness hangs close to the batten and it has usually 4 or 5 frames. It is called ground harness. It may be of a counterbalanced type with a shed regulator, or a double tie-up jack type. Single tie-up jack type is not to be recommended. This first or ground harness is operated by treadles. The frames are about 3" higher than usual and they have long eye heddles. The length of eyes is 3" or thereabouts.

The second, back, or pattern harness hangs at a distance of at least 12" from the first, and not less from the slabstock. This distance is a very important factor, on which depends the performance of the loom. With such yarns as single linen it may even twice as much. This second or pattern harness has heddles with short eyes, but the heddles are much longer than the standard ones. The length of these heddles depends on the distance from the heddle to the batten, the larger this distance - the longer the heddle. The number of frames in the back harness is equal to the number of blocks in the pattern woven, with the exception of double weaves, where it is twice the number of the blocks. The frames are operated by hand. They are sunk in normal position and raised when in operation.

Each warp end is threaded both through the back and through the front harness (fig.1). The frames of the back harness can have only two positions: raised or sunk. But the frames in the front harness have three positions: raised, sunk or neutral (half way between raised and sunk). This third position is the one which makes all the difference between plain weaving and the two-harness method.



In fig.2 the front heddles are neutral, when one of the pattern heddles is raised, and the other sunk. We can see that the shed is opened by the action of the pattern harness only - the ground harness does not work. In fig.3 the situation is just the opposite: although both pattern heddles are sunk, the shed is opened by the front harness only - the position of the pattern harness has no influence on the shed. The same phenomenon is illustrated in fig.4. Here the pattern heddles are working actually in the opposite direction to the front heddles, but the final effect is as if only the ground harness were working. Finally in fig.5 we have a case where the shed is opened by the combined effort of both harnesses. The lower part of the shed is sunk by the action of the ground harness - the corresponding warp end passes through the raised pattern heddle (a) and then through the sunk ground heddle (A). The upper part of the shed is raised partly because ground heddle C is raised, and partly because heddle B is in neutral position, but pattern heddle (b) is raised. Thus the end A will be sunk and the end C raised independently from the action of the pattern harness, but the end B may be either sunk or raised, according to the position of pattern heddle (b). If this heddle is sunk we shall have two ends down and one up in our shed; if it is raised - two ends up and one down, which may for instance change 1:2 twill into 2:1 twill.

One of the obvious applications of the two-harness method is to perform two entirely different weaves on the same fabric. Since each harness may be threaded quite independently from the other, we have no difficulty in doing it. One weave is done when all ground

heddles are in neutral position, and the other when all of them are either sunk or raised, but not neutral. The first weave is threaded on the pattern harness, the second on the ground harness. In practice however this method is seldom used for this particular purpose.

The main object of the two-harness method is to weave the ground on the front harness, whatever the ground may be, and the pattern on the back harness. For instance if we have 3:1 twill in the ground

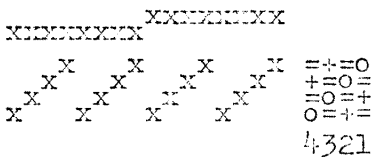


Fig. 6

(fig.6) it can be turned into 1:3 twill by raising some portions of the pattern harness. Consequently the pattern will appear in 1:3 twill on the background of 3:1 twill.

The tie-up here has three kinds of ties: "0" for sinking shed, "+" for raising one, and "=" for neutral.

In practice, for instance with a counterbalanced harness, "0" are normal ties, "+" similar ties but about 3" longer, and "=" - no ties at all. Thus when we depress treadle 1, frames 1 and 3 are in neutral position, frame 2 is raised and 4 - sunk. The position of warp ends in heddles 1 and 3 depends then on pattern harness. The latter has all heddles sunk when not in operation so that finally ends 1, 3, and 4 would be sunk and 2 - raised. With treadle 2, frames: 2, 3 and 4 will be sunk, with 3 - 1, 2, 3, and with 4 - 1, 2, 4. All this as long as the pattern heddles are down. The loom will work then as if it had the tie-up for 3:1 twill (fig.7). But if we raise all pattern heddles, the warp ends threaded through ground heddles 1 and 3 in case of treadle 1, - 2 and 4 for treadle 2 and so on will raise also, and the loom will work as if it had a tie-up for 1:3 twill (fig.8). Thus by sinking or raising the whole pattern harness we can weave either 1:3 or 3:1 twill. Finally if we raise only part of the back harness, the fabric will be woven partly in one and partly in the other twill. For instance in fig. 6 we can raise frame A in pattern harness. Then the left hand part of the fabric will be woven in 1:3, and the right hand part in 3:1 twill.

As we mentioned before, the pattern harness is seldom operated with treadles. Usually it hangs on cords from pulleys. These cords can be pulled from the front of the loom. One or more pattern frames are selected and pulled up; then the handles are fixed in slots or other arrangements of this sort for the duration of one block of pattern.

The warp ends are threaded singly through the ground harness, but usually in groups of 4 or 8 through the pattern heddles. One group should contain one or more full units of the weave. In double weaving however both harnesses must be threaded singly. Each block of pattern has two pattern frames - one for each layer of the fabric.

2. Drafting.

Because of the complexity of this method it is advisable at least in the beginning to work out all problems in form of draw-downs. The draw-down for two-harness method is made in a slightly different way than in case of single-harness loom. In fig.9 we have the pattern



Fig. 7



Fig. 8

harness (3 frames) at the top of the draft, then the 4 frames of the ground harness below. The top right hand corner of the tie-up draft is for the pattern frames, the lower left hand - for the ground. The tie-up for

are in the neutral position. The third line of the draw-down has pattern frames 1,3,5,6 sunk, which means that below these frames the warp ends threaded through ground frames 1 and 3 will be sunk - the remaining ones are raised. In the second part (from "b" to "c") pattern frames 1,2,4,6 are sunk, which produces floats in warp corresponding to the pattern frames 3 and 5. Finally from "c" to "d" similar floats will be formed below pattern frames 4 and 6.

Thus the drawing down of drafts for two harness looms has two stages: first we mark down all the warp ends which are sunk by the ground harness, because these will be sunk regardless of the position of the pattern harness. Then row by row we fill in the ends which in the ground harness have neutral position, and which at the same time are sunk by the pattern harness.

In the articles to follow we shall discuss typical weaves which are best adapted to this method, and finally the application of the method to the construction of a draw-loom, where each pattern heddle can be operated independently.

FROM THE CLASSICS

John Murphy - "Treatise on the Art of Weaving".

Taste.

Since taste therefore is essential in every department of fancy weaving, as well as in other works of genius, while at the same time it is so very difficult to distinguish between a good taste and one of an inferior kind, it would be of use here to inquire what is the standard by which the different tastes of men might be compared, so as to discriminate between the true and the false. As this, however, would lead to a discussion, which, to some might appear foreign to the present undertaking, I shall content myself with quoting a few remarks on taste from Dr. Blair, referring the reader who wishes more information on this subject, to the second, third, and fifth of his lectures on Rhetoric and the Belles Lettres. "Taste," says he, "is the power of receiving pleasure from the beauties of nature and art." - "Nothing that belongs to human nature is more general than the relish of beauty of one kind or other, of what is orderly, proportioned, grand, harmonious, new, or sprightly." - "But although none be wholly devoid of this faculty, yet the degrees in which it is possessed are widely different. In some men only the feeble glimmerings of taste appear, the beauties which they relish are of the coarsest kind, and of these they have but a weak and confused impression; while in others, taste rises to an acute discernment, and a lively enjoyment of the most refined beauties. In general we may observe, that in the powers and pleasures of taste, there is more remarkable inequality among men than is usually found in point of common sense, reason, and judgment."
