

MASTER

WEAVER

BULLETIN FOR HANDWEAVERS

HANDICRAFTS

FULFORD • QUEBEC • CANADA

---

# MASTER WEAVER

---

\* Z - H A N D I C R A F T S \* F U L F O R D \* Q U E B E C \* C A N A D A \*

---

July, 1955

No.22

## COLOUR AND DESIGN

As long as we live in a society, we must judge our work by the standards of the environment. It does not need to be a majority of the people around us - it may be even a small minority, but there must be a group which appreciates and approves our efforts.

Thus the first condition of being creative is to appeal to somebody else besides the author. Although we can always say that only the posterity will appreciate us, but as a rule the posterity appreciates geniuses, and even not all of them.

In weaving we cannot depend on our creativeness finding an outlet in the direction of purely technical progress. We have not the slightest chance to compete with the textile industry, equipped with laboratories, scientists, and money. Therefore we must direct our efforts to the design, colour, and texture. What do these three terms mean?

Colour is the easiest to define: it is the combination of colours used in any particular piece of weaving.

Texture is the three-dimensional structure of the fabric. Its depth, or thickness, the length of floats, the roughness or smoothness of its surface, its firmness or softness.

Design originally meant pattern both in colour and in texture or in one of them. For instance - damask has pattern in texture only, when swivel or inlay has it in colour only. Overshot may have pattern in both. But at the present "design" does not mean "pattern" any more, and is often used to embrace all three terms: pattern, colour, texture.

Creative work in hand-weaving is impossible without some knowledge of all these factors. We take it for granted that a weaver is familiar with yarns and weaves. From purely mechanical point of view yarns and weaves produce texture. But unless the weaver has a certain knowledge of designing, his textures will be either traditional, or accidental.

\*\*\*\*\*

Is there any alternative? Can purely technical approach to weaving be creative or at least constructive? Can we discover new weaves, or improve old ones? If the weaver is unfamiliar with industrial weaving he can amuse himself by discovering all by himself things which had been discovered centuries ago. Or he can adapt industrial discoveries to hand-weaving. This is done all the time, and undoubtedly there are possibilities in this direction. But nearly in all cases they will be re-discoveries. We should always keep in mind the fact, that industrial hand-weaving preceded the power loom by thousands of years, and what was not invented during this period is hardly worth inventing.

Then there is the possibility of improving the hand-weaving equipment, taking ideas partly from power looms, and partly from forgotten hand-weaving techniques of the 18-th century. This combined with our new materials, such as alloys, plastics, and new tools, may produce interesting results, but they cannot revolutionise hand-weaving. Still here is something to work upon for a mechanically minded weaver. Adaptation is also creativeness.

This is then an extreme case of purely mechanical creativity.

Another extreme case would be a designer familiar with colour, texture, and pattern, but without any knowledge of weaving. It seems at least in theory that such an artist could design textiles and leave to the expert weavers the translation of his projects into fabrics. Even in practice such designers existed. Elaborate tapestries were often copies of paintings, and very faithful copies, too. In this case the "designer" has nothing to do with weaving. But when we look at these masterpieces we do not admire so much their beauty as the patience of weavers. We may even come to the conclusion that there is something incongruous in this particular combination of design and technique, something like building grandfather clocks with matches. We do not feel the same about earlier tapestries where the pattern follows the medium, where certain lines and angles are avoided and other accentuated according to the properties of the yarn and the weave used.

It seems therefore that exactly as our mechanical genius could not really improve a loom unless he were a weaver, the designer cannot succeed unless he is well acquainted with methods and materials used in weaving. What we are trying to prove is, that to be creative in weaving, one must be a weaver first, whether he wants to build looms, or to design rugs.

This principle applies to all crafts. Every medium, whether metal, wood, clay, leather, stone, or fiber responds best to such treatment which takes into account its physical properties. This is true not only from the esthetical point of view but from a practical one as well. A good piece of pottery may be copied in metal, but not only the finished product will be too heavy for practical use, also its making will be too difficult and expensive - simply because it cannot be made on a potter's wheel. The same piece of pottery copied in wood on a lathe will be too brittle - at the best it will be a cheap and useless imitation. Real metal work cannot be copied in anything else, and the same applies to leather, and of course to vegetal or animal fibers.

Metal should be cast or wrought; clay thrown on a wheel, or modelled in fingers, but not in moulds; wood - carved, sawn, chiselled, but not turned on the lathe which does not heed the grain; and fibers should be spun and woven - woven in a most natural way.

Therefore a textile designer must know textiles. But at the same time a weaver should be a designer. If he is not, his craftsman's conscience will limit his activities to copying other craftsmen's designs, and copying may be a hobby, but it is not creativeness.

How then does one become a designer?

\*\*\*\*\*

We know that there are born designers. Those are found often among more or less primitive cultures, whether peasants of Eastern Europe or American Indians. They do not need to be actually peasants or Indians. If they are brought up in such an environment even when belonging to another social strata, they seem to integrate this cultural background to a point, where they can besides copying the familiar folklore patterns create new ones as well, still remaining within the boundaries of the traditional craft. This is probably what is meant by the American expression: "he has a European background".

Their skill is acquired unconsciously, and although good craftsmen, they are seldom good teachers of designing. Their knowledge cannot be expressed in intellectual terms - a condition necessary for successful teaching.

\*\*\*\*\*

The opposite class of designers are the "made" ones. Those who acquired the art of designing by study. How good they are, depends very much on how good were their teachers. And here again the teacher must be both good craftsman and good teacher. A good teacher is not one who forces the student to see the form and colour the teacher's way, but one who gives his pupil enough understanding to develop his own individual way of seeing and interpreting what he perceives.

\*\*\*\*\*

Is there half-way between these opposites? There certainly is - but there is good as well as bad half-way. If somebody has already a cultural background, he will gain enormously by studying - because his unconscious approach to the craft will turn into a conscious one, which will enable him to teach.

But on the other hand, somebody without such a background may find studies too long and too exacting. He will turn therefore to "easy" methods, formulas, 10 lessons of designing for five dollars, and art appreciation courses by correspondence. Needless to say that his chances of success are limited.

\*\*\*\*\*

Let's then go back to the sense of colour and form acquired by tradition and surroundings. A closer inspection of folklore art

and crafts is very revealing. They flourish in communities which are rather poor and isolated. These two factors force the craftsmen to use the local raw materials only; clay, fibers, pigments. Therefore they are limited in their choice of medium and colour. This limitation is the best challenge for an untrained artist. Although the creative process is slow, often measured in generations, the outcome is near perfection. It does not belong to any period or style, it is ageless and hardly ever out of place.

It is easy to demonstrate that this perfection is due to the limitations. Once an isolated community is "discovered" either by tourists or by industry, once the local craftsmen get hold of cheap materials, dyes, or methods of production - the old creative process is abandoned, and replaced by childish orgy of form and colour. The potential Japanese sculptor makes photo cameras out of old tin cans, the Slovak peasants produce indian totem poles, imitate wrought iron in wood, and leather in plastics. If this were all, we could blame the tourist who would rather buy a dozen articles fifty cents each, than spend five dollars on one honest piece of handicraft. What actually happens is that the "super-craftsman" with ten centuries of tradition behind him starts buying cheap, vulgar, mass-produced articles for his own use, and apparently he likes them. Undoubtedly part of his conversion is due to purely economical factors, but to the lack of discrimination also.

What happens to a poor community discovered by the "civilisation" happens also to a craftsman who left the community. He will be nearly always influenced by his new surroundings, and if he works in his old craft at all, he will adapt it to the new life in a most unhappy way. This happens to all immigrants, unless they settle in the new country in large and again isolated groups.

Therefore: from very deep psychological, cultural, and even geographical reasons one should stick to his own cultural background when creating - that is, unless one is trained in designing.

\*\*\*\*\*

What is this training? It may be taken up in form of regular studies in a school of designing, or as apprenticeship under the guidance of a well known designer. But few of us can afford to change our whole pattern of life for this sake alone. How else can we do it?

In weaving for instance, since it is an essentially two-dimensional craft, study of painting is most helpful. Particularly where the colour is concerned. Learn the principles governing the distribution of colours on a given area. What is the general scheme, what is the background, and what are accents. Learn the rules of composition. What is rhythm - so important in weaving. These rules may be disregarded later on by a real artist, but to disregard them one must first know them by heart.

The next step is obviously study of the weaving itself. How the limitations of the weaving techniques influence the choice of form in creating a design. Why geometrically perfect curves are undesirable. Why gradual transitions from one colour to another

are out of place. Why in certain tapestries even straight vertical lines are avoided. In short, how and why the medium governs the pattern, and what are the results of going against the grain of a fabric.

The third stage is to observe other designers of the past and present starting with primitive cultures; how did they react to the challenge, and how did they solve the conflict between human nature striving for freedom of expression and the limitations imposed by the warp and weft.

The final result will depend entirely on the psychological make up of the craftsman. Where one will try to impose his will on the reluctant fabric, another will surrender to the charming rules of his craft. The first will be slightly modernistic, the second more traditional, but in both cases there will be plenty of freedom left for the expression of their urge to create.

\*\*\*\*\*

Since one cannot acquire a cultural background, and since study of designing means a lot of work, there are many people who hope to find an easier way. Many of those honestly believe that everything, even human emotions can be reduced to formulas, rules, graphs, and tables. Therefore all one has to do, is to learn the rules and keep the tables handy. This idea did not emanate from lazy morons - just the contrary: it was shared by many humble geniuses.

Leonardo da Vinci made serious attempts to express the colours in painting in formulas. Not only to classify colours according to their composition or proportion of different pigments in every shade, but also to establish a relationship between his standardised colours and the painted object. He was right in his own opinion because his paintings made according to the rules were quite successful. Unfortunately his students could not get much profit from this mechanised approach to the art.

To mention only one more painter, Van Gogh would often make a charcoal sketch from nature, and indicate the colours only by the commercial name of the paint to be used. He produced masterpieces in this way, but it is needless to say that his method is not universal. Anyone can get a copy of Van Gogh's sketches with the paint clearly marked. Anyone can buy the necessary paints and fill the empty spaces. Still the painting will not be the same as Van Gogh's.

Oswald tried to find general formulas for colour combinations. Formulas are not too involved and they are quite convincing. They could even help to explain why beautiful paintings are beautiful. Still they will not help a physicist who perfectly understood this theory, to paint. What is worse they do not explain why we do appreciate colour schemes, which according to Oswald's rules should be repelling. On the other hand his classification of colours is unique and is widely used.

Why did they fail? Probably there are too many factors to be taken into consideration. Not only form and colour, but the psychology of both the artist and the consumer. Since the latter

change, the rules should change also.

The search for ready formulas may lead to an extreme, which we could call "accidentalism". This happens when we doubt in our own resources, and try to find a solution as far as the pattern is concerned in mathematical equations, music, or words transcribed into weaving drafts. This may be an amusing pastime, particularly when written messages are woven into a fabric. We have published two articles on this subject. But such attempts cannot have any artistic value. From time to time by sheer accident we may find an interesting pattern produced by this method, but this does not mean that we can depend on it as on a source of artistic inspiration.

There is a faint possibility of purely mathematical formulas (not words, or music) producing correct patterns i.e. correct from the point of view of technical requirements. For instance there is a set of rules of drafting "new" colonial patterns. They can be made to order, and they will pass casual inspection. But they will never be as good as the genuine designs, and they will never bring anything new into this branch of weaving.

Both rhythm and its opposite: hit-and-miss can be expressed in mathematical terms, but they are both only secondary accessories of a design. Therefore there is little hope of finding a solution in this direction. Perhaps an electronic brain could give it, but let us hope not. This would be the end of all crafts.

\*\*\*\*\*

We realise that our approach to the problem of creativeness in designing was rather negative so far. And we made it clear why. Nobody can learn designing from a lecture or an article. However we shall try to illustrate our point of view with practical examples taken from our own and other craftsmen experience in the next issue.

\*\*\*\*\*  
\*\*\*\*\*  
\*\*\*

## FROM THE CLASSICS.

Clinton G. Gilroy, New York, 1844.

"A thorough knowledge of the Art of Weaving, in all its varieties, is the gradual result of indefatigable exertion, and cannot be acquired, except by a long course of practical application in those parts of the world where it is best understood.

Many of our American weavers already possess sufficient skill and dexterity in several branches of this, the most complex of all arts, to prove dangerous rivals to those similarly engaged in other parts of the globe; but the field for improvement is still very extensive. In every quarter of this vast country men of scientific genius are busy in applying those elementary and speculative principles, which were formerly confined to the closet of the philosopher, to the grand purpose of social improvement. The great chain which connects theory with the useful arts, is rapidly extending, and it is impossible to anticipate what may be the result."

\*\*\*\*\*

# DRAFTS FOR 8 FRAMES.

Most handweavers take it for granted that each draft should be woven on a possibly smallest number of harness-frames. In industrial weaving just the opposite attitude seems to prevail: that the warp ends should be distributed uniformly on a rather large number of frames.

Both points of view are justified. If we have a four-frame loom, then obviously we should like to get as much out of it as possible. We do not aim at speed, and we have seldom to face a problem of threading more than 50 warp ends per inch. Therefore we crowd half of the warp on one frame quite often (Bronson, spot, swivel) regardless of the friction between the warp and the heddles it produces. But the industry works with much closer setts of warp, and can not afford to have warp ends broken by friction. And of course the number of harness-frames hardly matters in power weaving. Just the contrary: with a high number of frames the threading may be much simpler than with a low one.

A weaver who has a multi-harness loom is in a position to afford the industrial outlook on many weaving problems. When he has for instance a draft for four or five frames, he will use intelligently all eight, and he may get better results particularly with fine yarn. Better, because there will be less friction, less possibility of broken ends, and more balanced treadling. This is true of course only on the condition that the eight-frame loom is properly built and not too heavy in operation.

Besides this, there is another factor, which may be important in certain circumstances. Any threading on 8 frames gives more variations of weave or pattern than the same threading on four harness-frames. The change of the tie-up is always easier than re-threading of the loom.

To demonstrate what can be done with 8 frames we shall take up two problems: 1-st how to transcribe four frame drafts into better balanced eight-frame ones, and 2-nd: what can be done with plain sequence threading on 8 frames.

## 1. Four frame drafts.

Let us take as an example a Bronson Lace. A draft for 4 frames:

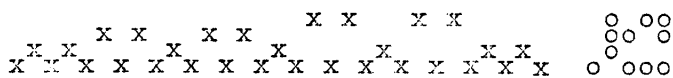


Fig.1

will look on eight frames as follows:

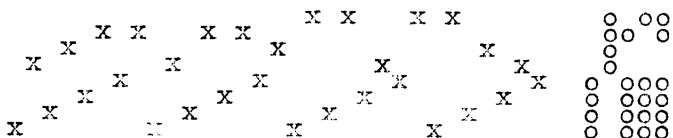
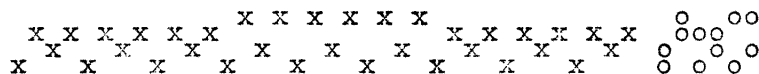


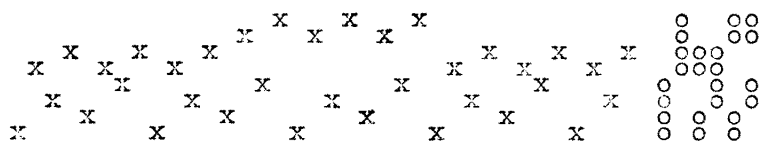
Fig.2



Since as a rule there is quite a lot of tabby ground on such a draft, and therefore the frame No.2 has more heddles than 3 or 4, we are justified in distributing these heddles on two frames: 5 and 6. Frame No.1 which originally carried half of the warp is now replaced with four frames: 1,2,3, and 4. Thus the warp is as evenly distributed on the eight frames as possible.

A draft for Summer-and-Winter can be still easier converted into an 8 frame one. Each frame is replaced by two. E.g.:

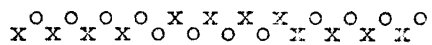

 changes into:

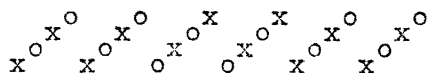

 Fig.3

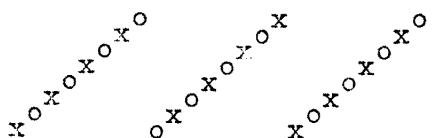
The same method of replacing one frame by two may be used in case of pattern twills, crackle, overshot, etc. - where the frames carry about the same number of heddles. However nothing is gained here unless the sett of warp is so high that the frames are overcrowded, and that there is too much friction.

Thus such weaves as Bronson, spot, swivel, dropped tabby, cannele, etc., are always easier to weave if transcribed from four into eight frames. Other weaves should be transcribed only when the sett of warp is rather high (above 40 per inch).

A high sett of warp does not mean necessarily fine yarn. For instance two-block rep weave theoretically can be woven on two frames, but even on four frames the sheds may not open too easily particularly on jack-type looms. Therefore there is every reason, if we have an eight-frame loom, to use all eight frames. Thus a theoretical but very impractical draft:


 becomes practical on 4 frames:


 and still easier to weave on 8:

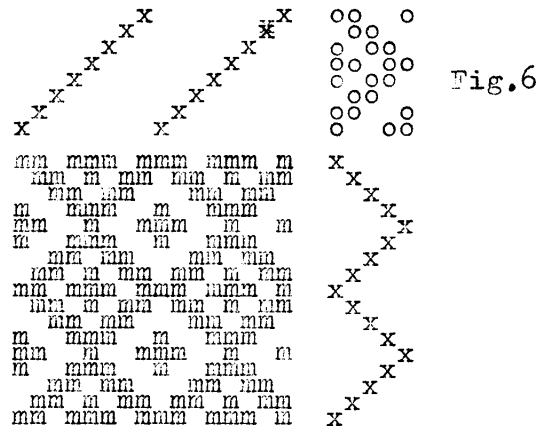
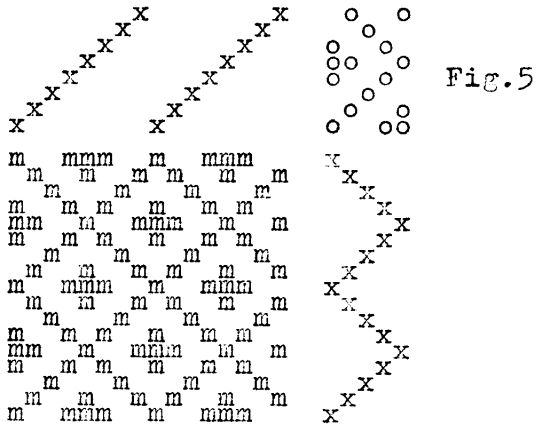

 Fig.4.

In the last case we can really cover the weft with warp without any difficulty.

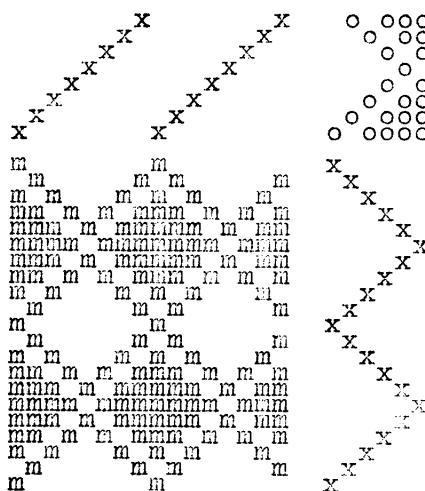
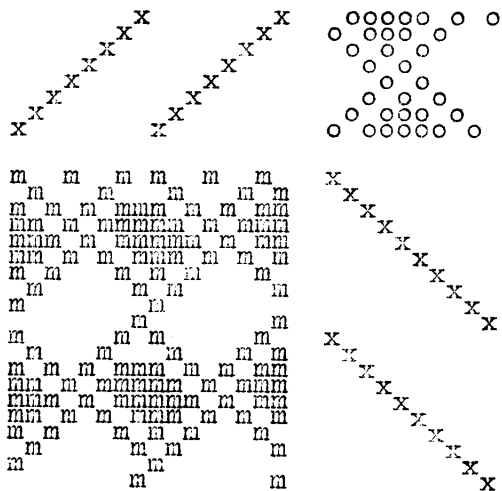
The same applies of course to such weaves as overshot, crackle, or summer-and-winter when they are "turned", i.e. woven with colours and pattern in warp, when a closely set warp is required, to double weaves for four frames (circular, double width, etc), quilt weaves and so on. Here again threading on eight frames will be often much easier than on four.

2. Drafts for more than 4 frames.

Another advantage of eight frames shows when we transcribe drafts originally meant for 5 frames. Not only that the frames are less crowded but in most cases we can use plain sequence threading. Here are two examples of 5 frame diamond twill which would require a herringbone threading on 5 frames, but may be threaded in sequence on eight:

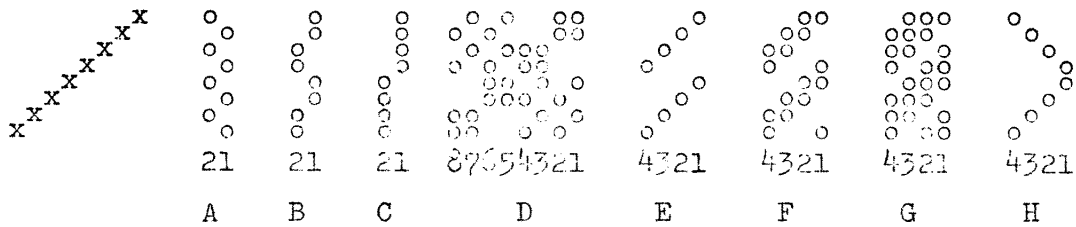


This applies not only to twills, but to many other weaves. As an example can serve the 5-frame waffle, often considered to be

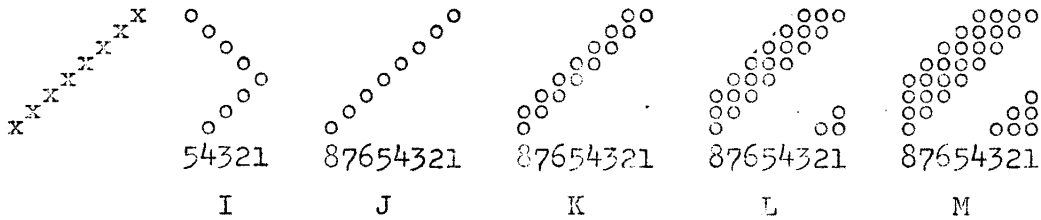


the "perfect" waffle (fig.8). On the other hand we can weave on the same threading another waffle, which could not be written on less than eight frames (fig.7).

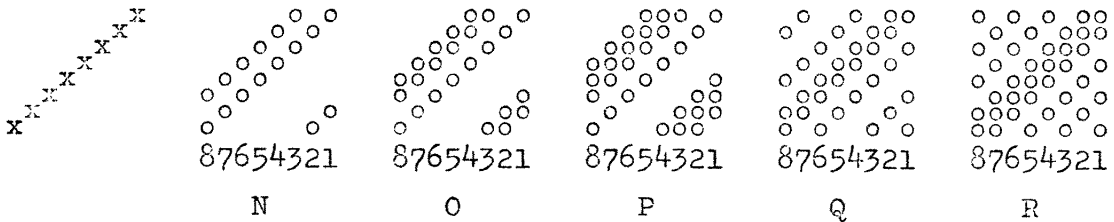
We cannot discuss here all the drafts written originally for 8 frames, because their number is astronomical. However we are giving on the next page typical tie-ups for several basic weaves, as well as for some 8 frame twills. The idea of these basic tie-ups is to enable the weaver to use them in combined tie-ups when for instance tabby, basket, and twill are used in the same piece of weaving. All the tie-ups are for plain threading: 12345678 or 87654321.



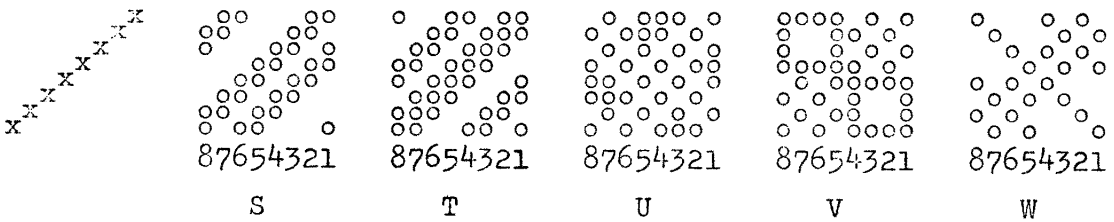
A - tabby; B - 2:2 basket weave; C - 4:4 basket weave; D - mixed basket and tabby (treading: 12345678); E - 1:3 twill; F - 2:2 twill; G - 3:1 twill; H - diamond twill.



I - diamond twill; J - 1:7 twill (this can be woven as plain or broken, or even satin: 85274163); K - 2:6 twill; L - 3:5 twill; M - 4:4 twill.



N - 1:1:1:5 twill; O - 1:1:2:4 twill; P - 1:1:3:3 twill; Q - 1:1:2:1:1:2 twill; R - 1:1:1:1:1:3 twill (diagonal of floats of 3 on a background of tabby).



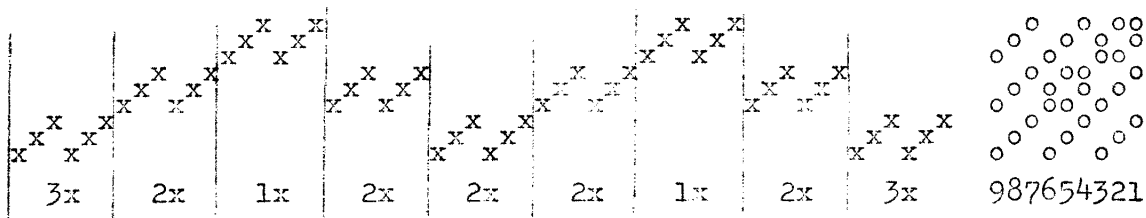
S - 1:2:3:2 twill; T - 1:3:2:2 twill; U - pattern twill; V - alternate squares of tabby and floats; W - alternate squares of 1:3 twill and tabby.

The drafts: J, K, L, M, N, O, P, Q, R, S and T can be woven as biased or broken twills. Drafts U, V and W should have plain treading, but in case of V and W corded fabrics may be woven also. W should give crepe effect when treadled: 13245768.

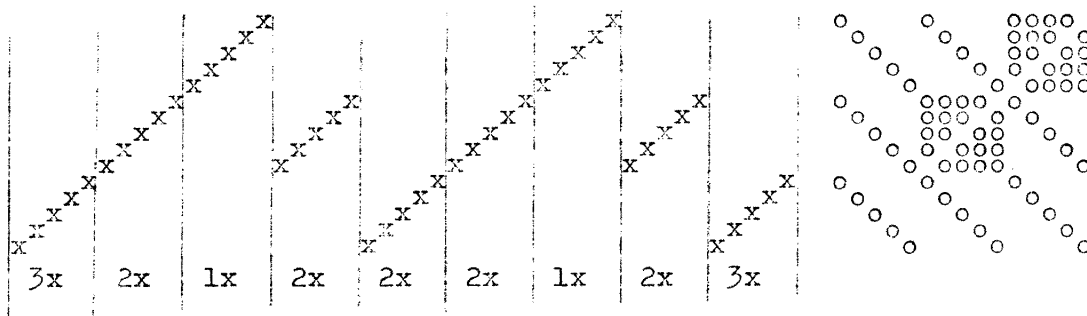
\*\*\*\*\*

# DRAFTING.

The profile used in the last lesson (page 12) can be further developed into 1:2 turned twill:



or damask:



In each case one square ("n") of the profile is replaced with one of the units of the weave. What are these units, and how many are there in each case? And how to recognise which unit goes on which line of the profile? The answer to the last question is the easiest: in most cases it does not matter, but as a rule we take for the lowest line of the profile the units written on the harness-frames with the lowest numbers.

The number of units for each weave depends only on the number of harness-frames which we can use. Summer-and-Winter has 2 units with 4 frames, but 10 with 12 frames. Damask has 2 units with 10 frames, and 5 with 25 frames. And so on.

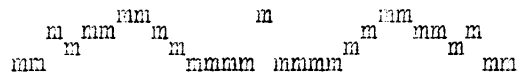
Here are examples of units of a few weaves:

- Summer-and-Winter: 1-st unit - 1323, 2-nd - 1424, 3-rd - 1525, 4-th - 1626, 5-th - 1727, 6-th - 1828, etc.
- Triple Spot Weave: 1) 142434, 2) 152535, 3) 162636, 4) 172737, 5) 182838.
- Huckaback 6 x 6: 1) 121212, 2) 131242, 3) 151262, 4) 171282.
- " " 10 x 10: 1) 1212121212, 2) 1313124242, 3) 1515126262, 4) 1717128282.
- Bronson Lace, a/: 1) 1212, 2) 1312, 3) 1412, 4) 1512, 5) 1612, 6) 1712, 7) 1812.

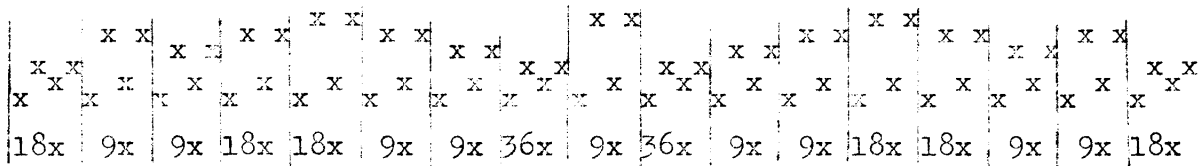
- Bronson Lace, b/: 1) 121212, 2) 131312, 3) 141412, 4) 151512,  
 5) 161612, 6) 171712, 7) 181812.
- " " " c/: 1) 12121212, 2) 13131312, 3) 14141412, 4) 15151512  
 5) 16161612, 6) 17171712, 7) 18181812.
- Dimity (1:2): 1) 123, 2) 456, 3) 789, 4) 10,11,12.
- Dornick, 1:3 turned twill, and double tabby weaves have the same  
 units: 1) 1234, 2) 5678, 3) 9,10,11,12.
- Damask (1:4): 1) 12345, 2) 6789,10, 3) 11,12,13,14,15.

A complete list of all weaves which have units would fill pages, particularly that as we have seen above, some weaves have units of different length (Bronson, huckaback).

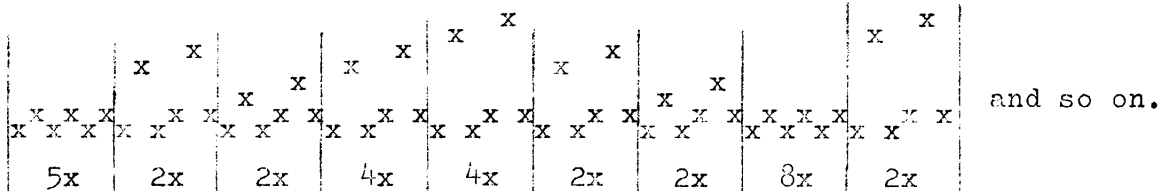
In all this cases the units must be used in full. However very often we use two or more units for one square of the profile. For instance the following profile:



has only 29 squares. If we replace each square by one unit of summer-and-winter, then the total number of warp ends will be 116, or hardly 4 inches if the warp is set 30 ends per inch. If we use the same profile for a 12 inch warp, we must take 3 units per square. If the warp is 36" wide - 9 units per square etc. Since the practical threading draft is always condensed, it will remain of the same length regardless of the width of the woven fabric. E.g.:



The best way to fit a profile into a woven piece is to figure out first the number of warp-ends required. If the woven piece is 15 inches wide and made of 8/2 cotton, it should have about 24 ends per inch, or 360 ends. Our profile has 29 squares. If the weave selected is 6x6 huckaback lace, then taking one unit per square we would have only 174 ends. Taking two units gives us 348 ends. The remaining 12 ends will go into the border - 6 ends on each side. Thus the threading draft, or rather one half of it will look as follows (read from the left):



In the next lesson we shall see what can be done about weaves which have no definite units.

INDIVIDUAL WEAVING LESSONS

at

Z - H A N D I C R A F T S  
Fulford, Quebec, Canada.

A unique way of learning weaving

You can spend your vacations in the country near a summer resort and study weaving at the same time. You can bring your family (except children). You can buy a loom (duty free), and you can take it with you or have it sent later on.

Teaching adapted to the requirements of every weaver.

LESSONS: 2 hrs of theory, 6 hrs of weaving a day, 5½ days a week.

Beginners: plain weaving, basket, twills, overshot, free weaves; draft reading, developping, squaring.

Advanced: crackle, summer-and-winter, bound weaves; spot weaves: lace, bronson, double, turned, paper spots; huckaback and its variations: lace, waffle, turned huck, M's-&-O's, honeycomb, corded fabrics; theory of overshot, short drafts, transcribing.

Seniors: turned twills: dimity, dornick, damasks; satins, fancy twills, swivel weave, clasped wefts; double weaves: double cloth, patterns in d.w., quilt weaves; pile weaves: weft pile (corduroy, chenille, tufted weave), warp pile (velvet), patterns in chenille rugs; cross weaves: gauze, leno, pickets; free weaves; pattern harness; draw loom; analysis of fabrics, composition of patterns.

TERMS: Room and board (two persons to a room, three meals a day), instruction, and weaving - \$ 35 per week per person. No extra charges for yarn, unless the weaver wishes to keep the articles woven during the training.

LOCATION: Eastern Townships, Quebec. Picturesque tourist district of wide renown. Hilly country, pleasant surroundings, good roads. The studio and living quarters are located in a large farm house, 1 mile from the station of Fulford (CPR line: Montreal - Sherbrooke), 65 miles from Montreal, 35 from Newport, Vt., 2½ from Brome Lake (boats to rent, fishing), ¼ of a mile from the village, ¼ of a mile from the river.

RESERVATIONS: Only a very limited number of weavers may be accommodated. Make your reservations (from Sunday to Sunday) early. Write or phone:

Z - HANDICRAFTS, FULFORD, QUE., CANADA.

Phone: WATERLOO 192-j-1.