be used. In our example on fig.17 the stitching takes place on frame no.4. The heddles on this frame are then distributed on two frames and only one of them is used for stitching (fig.19). The treadle is as before the stitching treadle. When an additional frame is used, the stitches may be as far apart as desired. In fig.19 every other heddle is transferred from the frame 4 to the frame 5. But if we transfer to the stitching frame only every third, or forth etc. heddle - the stitches will be much farther apart.

The above remarks form just an outline of the theory of double weaves. We shall discuss in the coming issues the joining of unequal fabrics, patterns in double weaves, and a few simple tissue weaves.

**************

MODERN PATTERNS

IN TRADITIONAL WEAVES.

This article should form a logical sequence to the one about textures (MW - No.4). Since quite a large part of handweavers either are not interested, or do not qualify to work with textures, and still they have too much creativeness to limit their weaving activities to copying, they would be quite justified if they turned their attention to patterns.

In traditional weaving we can see two approaches to the problem of patterns. One consists on subjecting the pattern to the weave used - the best examples are diamond twill, and overshot. Here the pattern is an accidental result of the properties of the weave itself. The other is to gain complete freedom of design by either very painstaking methods of weaving (tapestry), or by a very elaborate equipment (the draw loom).

We still weave overshot in the traditional way. We still make tapestries. The draw-loom has practically disappeared, and although we hope that it will eventually take an important place in modern handweaving, we shall leave it aside for the time being. For different reasons we shall not speak about the tapestry weaving either. One cannot learn from books or articles how to make good tapestries any more than learn painting.

But there are several pattern weaves which at least give us a certain amount of freedom in pattern composition such as spot weaves and turned twills, huckaback and its derivates, cross weaves, and many other. They are all traditional weaves inasmuch as they were known and used for centuries, but so far little attempt has been made to adapt these weaves to modern patterns.

Now what is a modern pattern? Since most of our hand-weaving is not intended to be an "objet d'art", but usually serves a very definite purpose, and must harmonise with our modern life, modern interior, and modern dress, we can at least get some hints about those patterns from the general trends in decoration.

When discussing "modernity" we should not confound it with fashion. The latter is seasonal, when the trends we speak about last for decades. The crafts are always leading and not following the
fashion. They follow only their own line of development, conditioned by the whole of our cultural life, but not by the speculations of a group of tailors or businessmen.

It seems that the characteristics of modern as opposed to traditional are two: simplicity, and freedom from symmetry. A third not so obvious but very important is the submission of pattern to the material, but not to the technique. In other words the pattern must suit the medium or material, then the technique must suit the pattern, but not the other way around as it was often the case in traditional weaving. Secondary traits such as a certain boldness in form as well as in colour, harshness of texture, and lack of "neatness" in design are of secondary importance.

Well, what the simplicity and the lack of symmetry mean in practice? The lack of symmetry is the easiest – it is not a rule, but an absence of rules. The simplicity is more difficult. First of all a pattern which is simple is not always the one which is easy to weave. The circle is one of the simplest elements of pattern, but to weave it with any degree of accuracy one requires a draw-loom. Thus the pattern should be not only simple but adapted to the material used. Since our materials of which we build the pattern are the warp and the weft, one running vertically and the other horizontally – the patterns best adapted will be ones composed exclusively of vertical and horizontal lines. This condition leaves us still quite a large margin for creativeness. The examples of patterns shown below are just a few suggestions for the weaver, to indicate the direction in which he might experiment rather, than anything worth copying. They are arranged according to the number of blocks in each pattern.

![Fig.1 1 block + ground patterns.](image1)

![Fig.2 2 blocks + ground patterns.](image2)

All these patterns have a border of plain ground around the pattern. This is because many weaves such as lace, huckaback, leno would not give good edges if the pattern extended to the very border. Other weaves however do not require such a precaution, for instance summer-and-winter, danask, swivel, double weaves. Then any of the above patterns may look as in fig.2, which is about the same as fig. 4c without borders. For some reason or other this kind of treatment
makes the pattern look more "modern" than before, and incidentally with many weaves it reduces the number of heddle-frames necessary to weave the pattern.

Fig. 3 3, and 4 blocks + ground.

Fig. 4 5 blocks + ground

Fig. 5 5, 6, 7, and 9 blocks

The patterns given in figs: 1, 2, 3, 4, and 5 have their profiles drawn underneath. This is to indicate how one should proceed when making one's own patterns of this kind. The pattern is first drawn on graph paper, then analysed (see "Analysis of Patterns" MW no. 3) to get the graphical short draft (profile). The latter is then developed into a full threading draft (see "Short Drafts", MW no. 4) by replacing each square of the profile with a certain number of units of the weave used. The number of units per each square depends on the size of the article woven, and the sett of warp. The total number of warp ends is divided by the number of ends in one unit. This gives us the total number of units. Then this in turn is divided by the number of squares in the profile (11 in our patterns),
to find out the approximate number of units per square. Then the total number of warp ends or the pattern must be so adjusted as to have a full number of units (not a fraction) per square.

For instance if we use the pattern on fig.6 to make napkins in summer—and—winter with 2/16 cotton, we shall need about 400 ends. Since the profile has 11 squares, each square will have 36 ends or 9 units. Fig.7 shows the development of the profile into the full draft.

The tie-up may be as in "a" if the loom has 12 treadles, or "b" if it has only 10. In the second case two treadles are used simultaneously for the pattern, and one for the binder.

As another example let us take the pattern "a" on fig.7, and weave a bridge table cover 45 by 45 inches in 1:2 turned twill (density), using 2/8 cotton. We shall have 363 units (of three ends each) or 33 units per square of the profile. The draft will be:

This way of representing the threading draft makes the comparison with the profile easier, although the draft may be written in a still simpler way (fig.9). The tie-up is rather large but really very simple (compare "The Logic of Tie-Ups" M.V., i.e.3). The treadles will be used in groups of three starting from the left. To square the pattern the following treadling will be used: 12, 11, 10 - 33x; 9, 8, 7 - 99x; 6, 5, 4 - 132x; 3, 2, 1 - 66x; 12, 11, 10 - 33x.

The ground does not always count as an additional block of pattern. In lace, or huckaback the tabby ground is woven on the same heddle frames as the pattern, but in other weaves it has to be threaded as a unit of weave.

Finally there are weaves without units, where the situation is not so simple, and where special technique must be resorted to if one wants to "modernise" them. Particularly interesting from this point of view is overshot, and we shall discuss it in the nearest future.