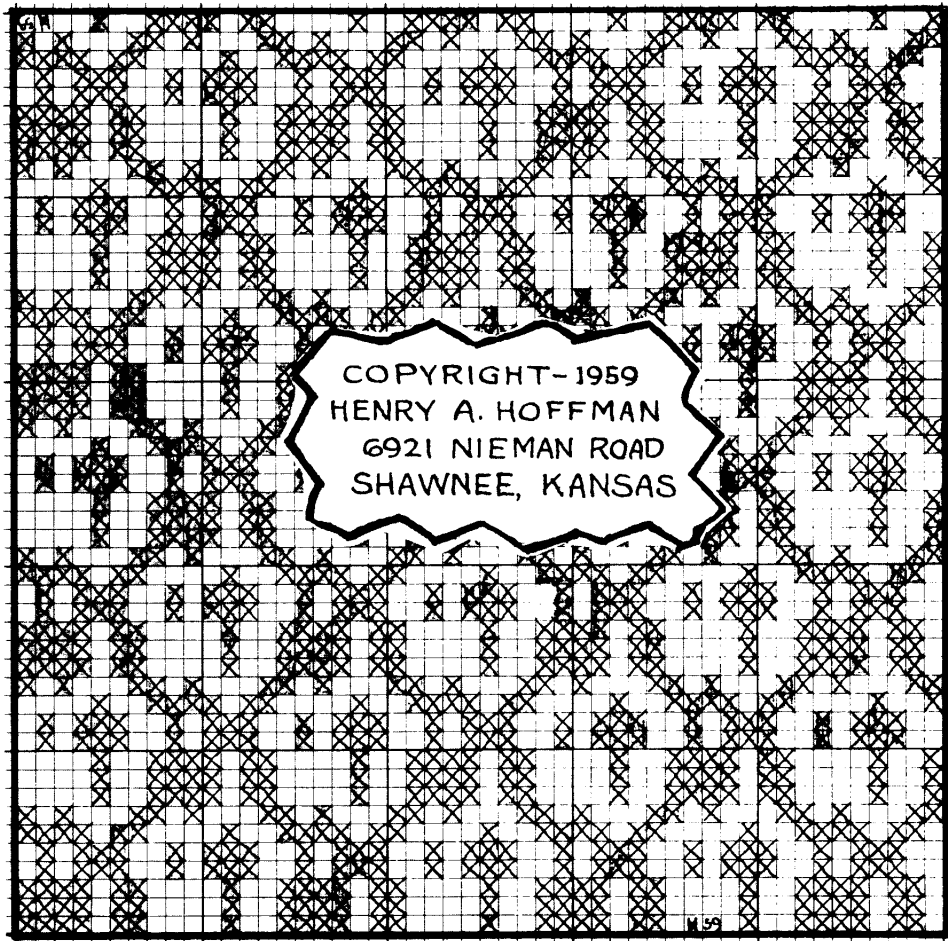


WEAVING ON PAPER
OR
DRAW-DOWN MADE EASY



A DIFFERENT APPROACH TO PATTERN DRAFTING
THRU THE USE OF MINIATURE HARNESSSES OR TEMPLETS

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FOREWORD

This Monograph is presented for the hobby weaver who would like to know how to do a "draw-down" or draft development quickly and accurately, whenever needed, and at the same time enjoy doing it. After all, hobby weaving is supposed to be fun - there is no reason why weaving on paper should not be the same.

One may have occasion to prove an old draft, try out an unfamiliar one, experiment with different treadling of a pattern, blend two drafts to see what happens or draw down an original design of your own. All of this is much easier, in every way, when done on paper, than on the loom.

Here are a few ideas and suggestions which should make any draft development a little less formidable. This approach applies to any of the techniques, regardless of the number of harnesses, - if you have a draft, the tie-up and the treadling, the draft development of this particular combination will evolve easily and accurately.

The method and procedure explained and demonstrated here has been used on four harness draft developments of two hundred threads covering an area of twenty square inches, with ease and accuracy and within a reasonable time - much, much less time than it would require to put a sample warp of the same pattern on a loom.

But it is for the small draft and special problems, needing a quick on the spot solution, that this method proves its worth. Plates showing the steps in the procedure, also, sample and specimen draft developments of the various basic techniques are included to explain and demonstrate the method and its flexibility. The templets or miniature harnesses used in each development are attached to the plates. In a slight departure from the conventional, all threads in the draft space, on the templets and in the developments are indicated by the familiar cross-stitch cross - it is easier to do, takes less time and errors and corrections are handled quickly. The completed development has a distinctly pleasing appearance and may be filled in or colored, as desired, later. All cross-section paper used in this account is black instead of the usual blue or green because this was necessary in order to print. The thread symbols are shaded for special emphasis.

Seeing is believing - prove this for yourself - select a favorite draft, or any draft, lay it out according to Plate I, follow the brief instructions - imagine you are operating a miniature loom, use the templets as if they were real harnesses and follow the treadling sequences - you can see the pattern evolving - you are weaving on paper.

HENRY A. HOFFMAN

Shawnee, Kansas
July, 1959

PLATE I
TYPICAL LAYOUT

DRAFT SPACE- FOUR OR MORE HARNESSES-LONG ENOUGH FOR MORE THAN ONE DRAFT

ALLOW THREE SPACES-HARNESSES THREAD NUMBERS ARE WRITTEN IN CENTER SPACE

THIS SPACE IS FOR DEVELOPMENT OF THE DRAFT AND CORRESPONDS TO THE WEB ON THE LOOM. IT SHOULD BE EXACTLY THE SAME LENGTH AS THE DRAFT ABOVE AND SQUARE. THE LAYOUT, HARNESSES AND DEVELOPMENT SHOULD ALL BE DONE IN PENCIL-THEN FINISHED AS DESIRED.

USE THESE THREE SPACES FOR LISTING THE HARNESSES IN THE ORDER IN WHICH THEY ARE TO BE USED (THE TREADING) BEGIN AT TOP-

THIS IS A TEMPLET OR MINIATURE HARNESSES-FOR ACCURACY IT MUST BE MADE OF THE SAME CROSS SECTION PAPER AS USED FOR DRAFT DEVELOPMENT-FOR EASE AND CONVENIENCE IN HANDLING-BOTH EDGES ARE USED.

DRAW-DOWN --*-- A DIFFERENT APPROACH

... X ... XX | X ... XX | X ... XX | X ...

There is comparatively little written or published material available to the hobby weaver on how to produce a draft development. Of the material that is obtainable, most of it is not easy to understand and is clumsy to do. As a result, very few hobby weavers derive any satisfaction in doing a "draw-down"; they would rather take time and material to warp a sample threading on their loom.

The standard texts on weaving do give some space to the theory and importance of draft development or weaving on paper, but to date no one has devised a way in which it can be done so that either a beginner or an experienced weaver is able to produce an accurate development quickly, when necessary. The same can be said of the method called "to weave as drawn in" or "tromp as writ". While many skilled weavers can "weave as drawn in" on a loom already warped, no one has shown how simply this can be done on paper.

Because our weaving today is creative rather than from pressure of necessity and because we consider handweaving an art, it becomes more essential now than ever that we understand the different weaving techniques in order to be able to use our looms to the greatest advantage. It is also most important, that we be able to develop our ideas on paper before going to all the trouble of putting them on the loom.

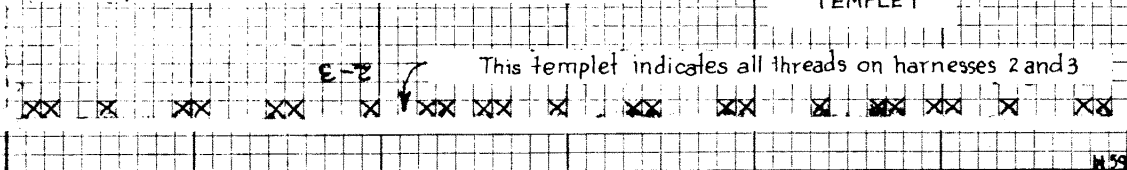
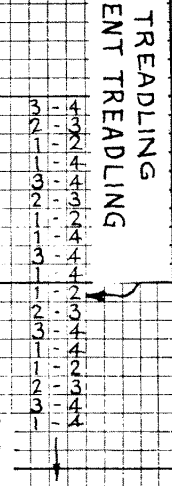
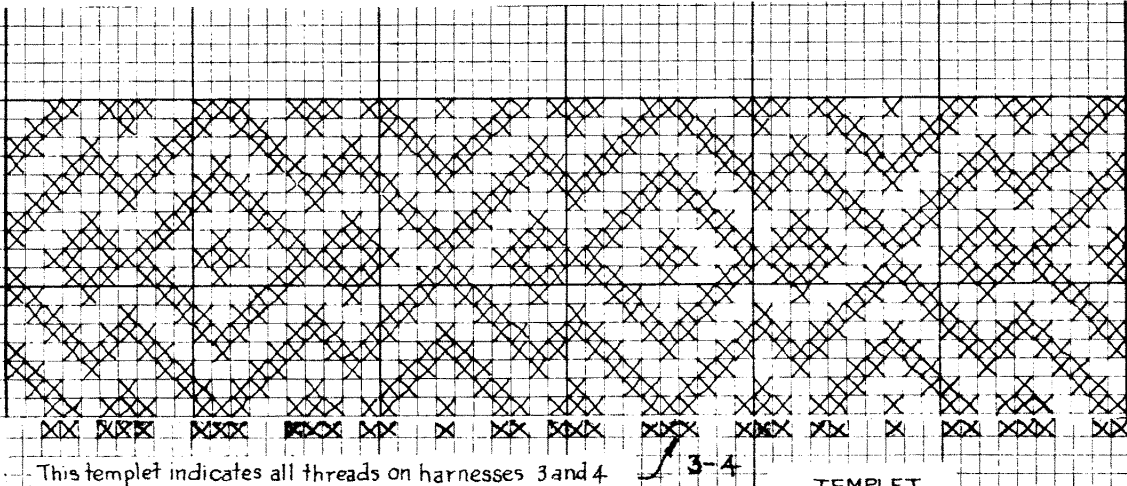
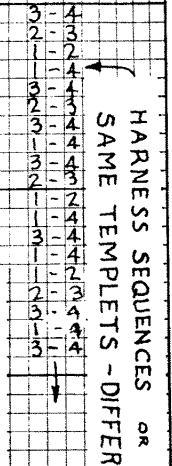
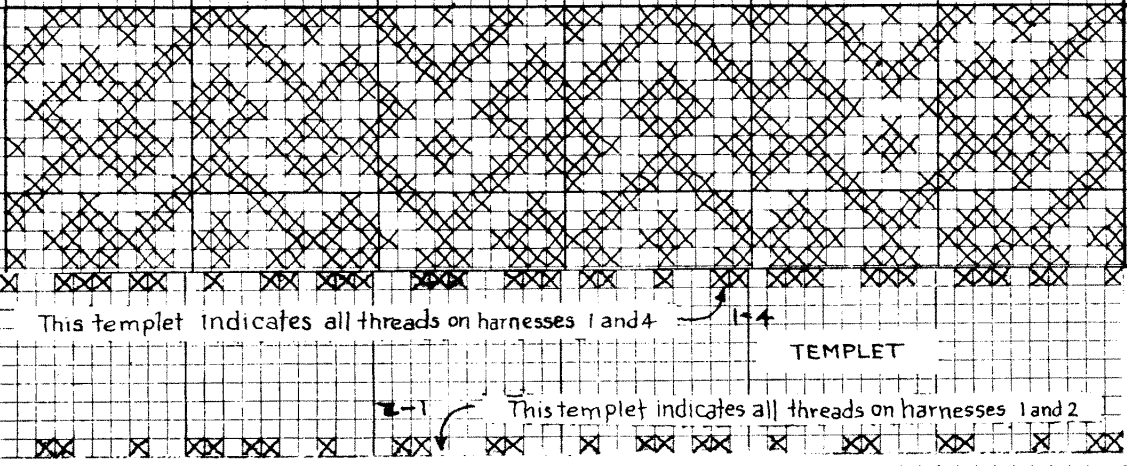
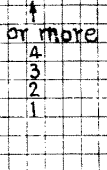
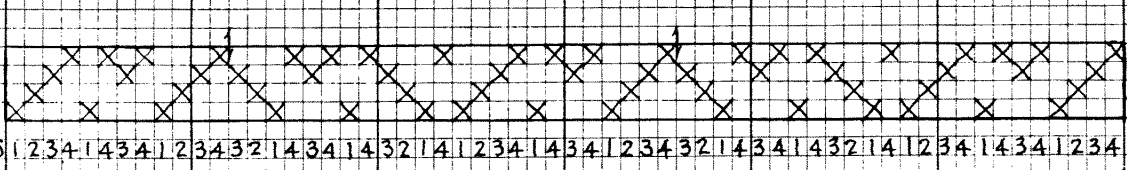
Whether we are creating a draft or copying it from some source, it is still a draft, and as you may not be sure which way a frog will jump by looking at it, neither can you tell what a draft will produce by looking at it; you have to try it some way and the best way to do so is on paper. It can be a creative process or a screening job; if it does not please you on paper, you can safely assume it will not please you when woven on the loom.

Weaving on paper is exactly what the words imply - it is a way of producing a sort of enlarged facsimile of a pattern, on cross-section paper, by arranging arbitrary symbols in the same order in which the pattern threads appear in the woven fabric or textile, except that in most cases the tabby or plain weave threads are omitted, unless they are included in the tie-up as a part of or necessary to the technique being used in the development.

Draft developments have traditionally been done on cross-section paper; if you do not have some, it might be well to acquire a small supply of 10 to the inch, in shades of blue or green (is not available in black), in the ledger or heavier weight, which is supplied in pads of 50, in 8-1/2" x 11" size. This size is suitable for any draft up to 60 threads-

PLATE II

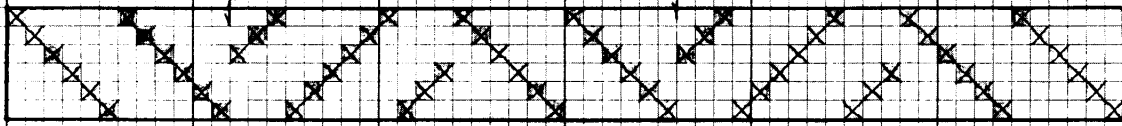
GOTHIC CROSS TWILL



STANDARD TIE-UP
TREADLE AS SHOWN

PLATE IV

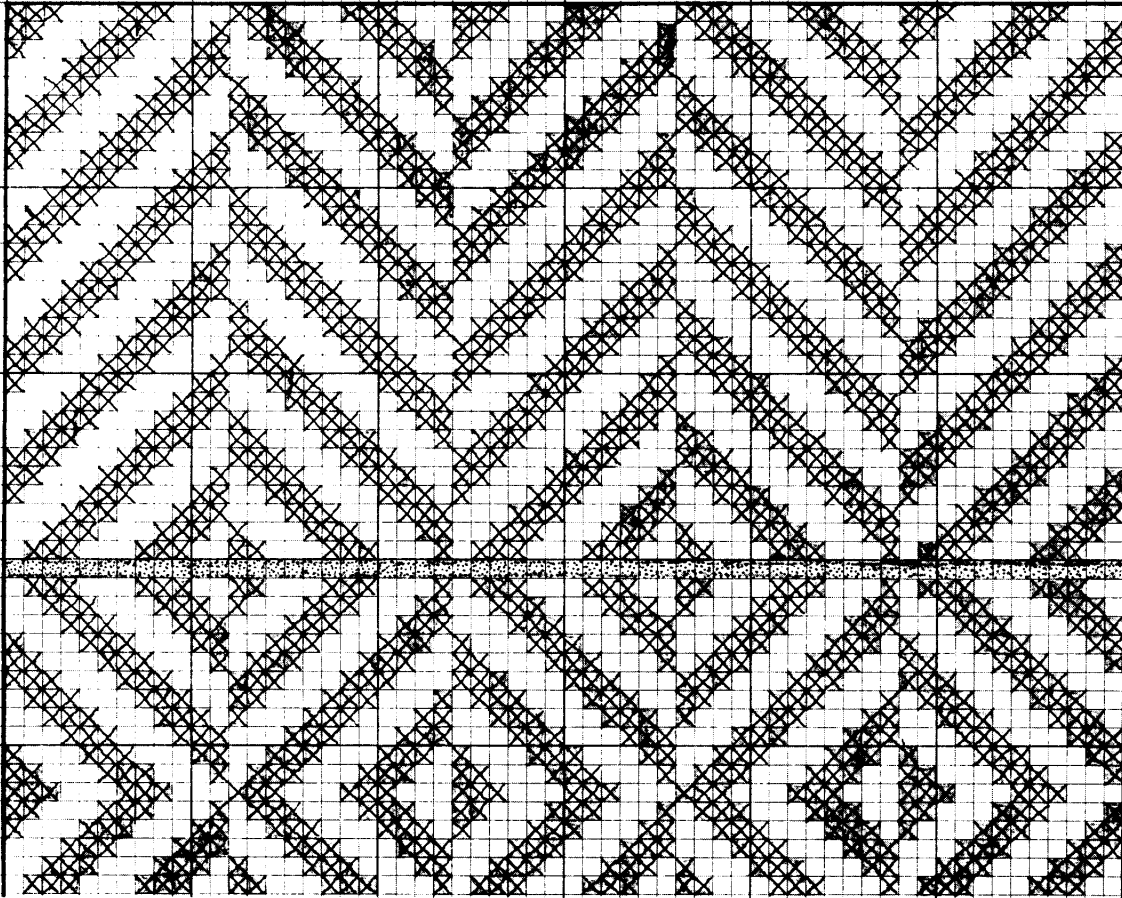
SIX HARNESS DORNIK HERRINGBONE TWILL



6
5
4
3
2
1

654321654321456123456123654321654321456123456123654321654321

Treadle Harness No.

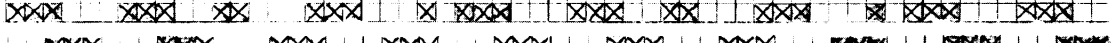


1	4-5-6
2	1-5-6
3	1-2-6
4	1-2-3
5	2-3-4
6	3-4-5
1	4-5-6
2	1-5-6
3	1-2-6
4	1-2-3
5	2-3-4
6	3-4-5
1	4-5-6
2	1-5-6
3	1-2-6
4	1-2-3
5	2-3-4
6	3-4-5
1	4-5-6
2	1-5-6
3	1-2-6
4	1-2-3
5	2-3-4
6	3-4-5



NO. 6 3-4-5

TEMPLT

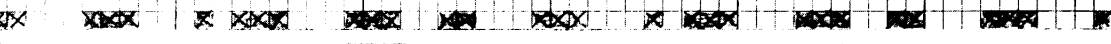


NO. 5 2-3-4

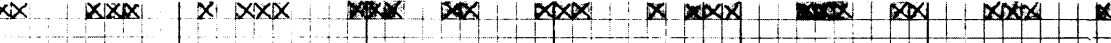
Tie-up indicated on each templet

NO. 4 1-2-3

TEMPLT

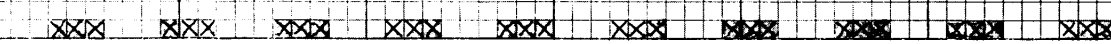


NO. 3 1-2-6



NO. 2 1-5-6

TEMPLT



NO. 1 4-5-6

if a larger size is needed, two or more sheets may be pasted together, as required. It is more satisfactory to use a sheet size that will allow enough space for more than one complete draft of the pattern. This will enable one to see what happens at the spot where the pattern repeats. You should have a piece of cardboard or light plywood or a small drawing board for mounting the cross-section paper and some drafting or scotch tape for attaching the cross-section paper to the board, several soft lead pencils, either wood or mechanical, unless you prefer to work in ink, a soft rubber eraser and a ruler or straight edge of suitable length. These items can be obtained at any art store or school supply counter.

THE LAYOUT

At Plate I is shown a proposed typical layout, which could be followed when making any development. This is the first thing to do after mounting the cross-section paper - for neatness, the layout outline, regardless of its size, should be centered on the sheet. The dimensions of the layout will vary with the draft, but, as a general rule it will be found that a six inch draft space, for whatever number of harnesses the draft calls for and a six inch web space will be sufficient to start with. This area will contain four 15 thread repeats, three 20 thread repeats, two 30 thread repeats and one and one half 40 thread repeats and only one 60 thread draft. For larger drafts, the length of the draft space must be increased and the web area enlarged to correspond. The web area is always the square of the draft space.

The draft selected for development should be carefully copied in the draft space as many times as it will go - always work from right to left. In the center line of the three lines of spaces directly below and next to the draft, beginning at the right, write the harness number of every thread symbol directly below it, so that the harness numbers will be in the exact same order as the thread symbols in the draft above. Carefully check these two steps before proceeding.

If a treadling schedule accompanies the draft, the next step is to copy the sequences in their proper order, beginning at the right of web space, as shown in Plate I, at the top and continuing to the bottom of the web. These sequences may be written as treadle numbers or as a combination of harness numbers. If you are doing an original design, you would prepare and list a series of treadling sequences; in-as-much as you do not know what your design is going to do it would be well to list only enough to assure you that you are on the right track-if not, you can erase and start over or make corrections and changes. Bear in mind, if you change the tie-up, you must change or correct the templets or make new ones.

If the pattern is "over-shot" and you want a draft development "as drawn in", and if the tie-up is "standard", all that is necessary is to list the treadling sequences "as drawn in". These treadling sequences are arrived at in the following manner: Refer to

the line of harness numbers just below the draft space, Plate III, a portion of which, beginning at the right, is: - 2 1 2 3 2 1 2 3 4 1 2 3 - standard tie-up. Beginning at the right, the first two harness numbers are 2 - 3; this is the first treading sequence; the second and third numbers are 1 - 2; this is the second sequence; the third and four numbers are 1-4 and the fifth and sixth are 3 - 4; the next three sequences are, 2 - 3; 1 - 2; 1 - 2. Recapping - the first seven sequences involve the movement, manipulation or treading of harnesses: 2-3; 1-2; 1-4; 3-4; 2-3; 1-2 & 1-2. These should be listed in three columns of spaces to the right of the web, from top to bottom, in exactly the same order as combined from right to left in the row of harness numbers below the draft. You will recall that in the "overshot" weave, the blocks overlap by one thread; in the method presented here, the harness numbers overlap in the same manner. In proceeding from right to left, the last harness number of the preceding pair is the first number of the succeeding pair - sounds harder to understand than it is. For instance, list the first six harness numbers from Plate III, 2-3-4-1-2-3; circle the first pair, 2-3-4-1-2-3 for a treading sequence; then circle the last harness number of the preceding pair (2) and the next number, to the right, for the succeeding pair (1), 2-3-4-1-2-3; then the last harness number of the preceding pair (1) and the next number, to the right, for the succeeding pair (4), 2-3-4-1-2-3 and so on across the entire line of harness numbers, listing the combinations as treading sequences along the right of the web space. It is not necessary to circle every pair - only enough to learn the rule. The rule of the "diagonal" in weaving "overshot" "as drawn in" is one of co-ordinates. In moving from right to left along the line of harness numbers, in regular progression of similar units, and from top to bottom, at right angles, same progression and units, the blocks or main figures of the pattern must follow a diagonal.

THE TEMPLETS OR MINIATURE HARNESSSES

In this method of draft development you will encounter an innovation, i.e. the use of templets. The templets or miniature harnessses are small pieces of cross-section paper of same material and exactly the same length as the draft space. They are labeled to correspond to the tie-up being used and show the position of every pattern thread on each harness involved in the tie-up. Experience has confirmed that a width of one inch is sufficient, that both edges may be used, permitting two tie-ups for each templet. Thus, if a standard four harness tie-up is being used, one templet would be labeled "1-2" along one edge and "1-4" along the opposite edge; another templet would be marked "2-3" along one edge and "3-4" on the opposite edge. These two templets, when completed will indicate or point out the exact position of every pattern thread in the web which will evolve when these templets are manipulated and maneuvered according to a schedule of treading sequences.

The next step is to copy or spot the location of these pattern thread symbols onto the templets. This is done by placing one edge of the templet directly beneath the row of harness numbers so that each and every small square of the templet registers exactly with each

and every small square under the draft space and the ends of the templets are directly below the ends of the draft space. For instance, if the 1-4 templet or tie-up is being completed, align this edge just beneath the row of harness numbers and with a soft sharp pencil make a neat cross-stitch cross in the first row of squares under every 1 (one) and 4 (four) numbered thread symbol; be sure to keep templet firmly aligned. Repeat for the edge labeled 1-2, but copy only 1 (one) and 2 (two) thread symbols, to finish this templet. Complete the other templet in the same manner, copying 2 and 3 and 3 and 4. When both templets have been completed, every thread symbol in the draft can be moved about in accordance with any treadling sequence desired. Proceed in the same manner to construct templets for any number of harnesses or combination of tie-ups.

By referring to Plate III, an "overshot" miniature by Josephine Estes, one can see three variations of the same draft, done by the method described here, using the same templets, only the treadling sequences have been changed, demonstrating how easily different designs may be produced from the same draft.

Now, for Operation - Weaving on Paper. The layout has been made, the treadling sequences are in place and the templets have been completed.

Refer to Plate II; the harnesses indicated by the first treadling sequence are 3-4. Select the templet, one edge of which is marked 3-4; place it so this edge is just below and adjacent to the first (top) row of squares, so that squares of the templet and web, line up, register and co-incide. With a sharp soft pencil, place a neat cross-stitch cross in every square of the web directly above every 3 and 4 symbol on the templet - in other words, carefully transfer these thread symbols from the templet to the web. This is the first line or "shot" of the pattern. The next sequence is 2-3; turn the same templet to the 2-3 edge. Place this edge just below the second line of squares so that it registers and transfer all 2 & 3 thread symbols to the web. This is the second line or "shot." Continue in this manner to the bottom of the web space or as desired.

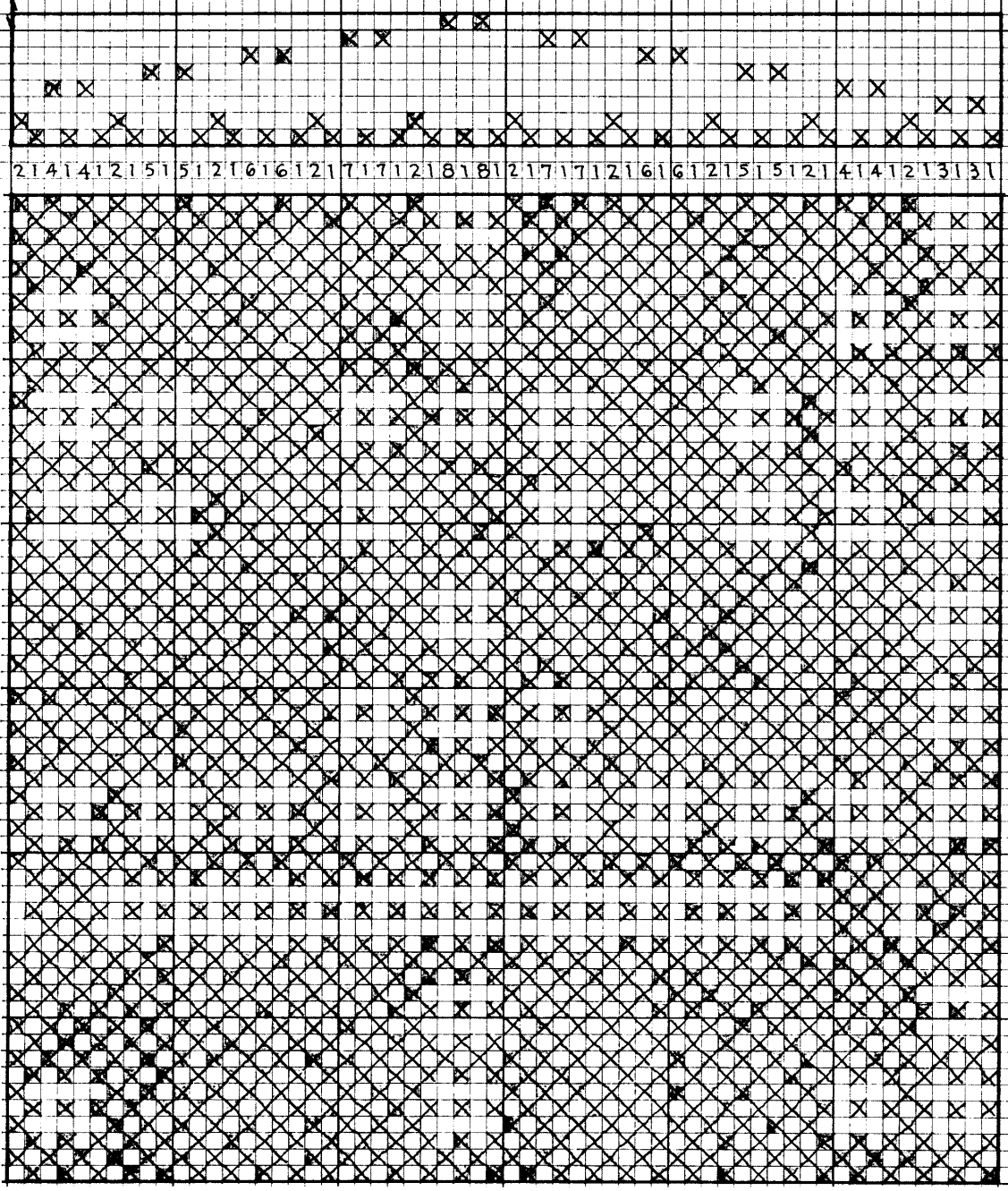
The method may seem slow at first, but speed will come with practice. Errors of omission and commission are inevitable, but are readily detected. If one exercises care in the preparatory work and the manipulation of the templets, the pattern embodied in the draft space and propelled by the treadling sequences, will evolve with almost absolute accuracy, regardless of the number of threads, harnesses or the technique. Weave on paper just like you would on the loom, bearing in mind that each technique has its own peculiar idiosyncrasies. It is very revealing how much can be learned about the techniques by weaving them on paper; no matter how complicated the tie-up, it can be handled by means of the templets, and there is no end of the exploring that can be done with these small slips of cross-section paper.

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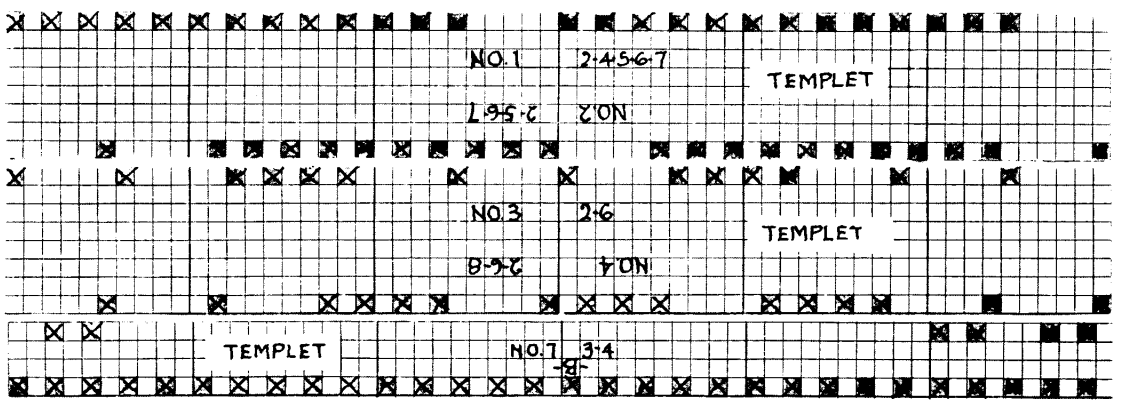
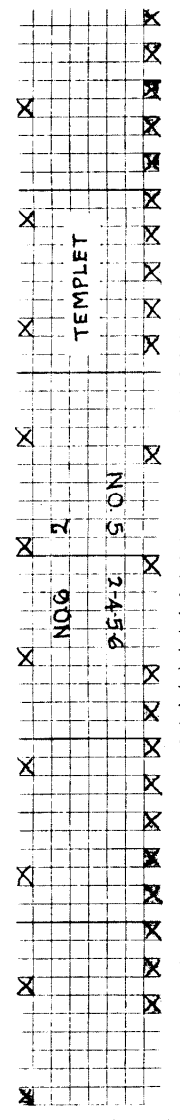
PLATE VII

DRAFT USED BY PERMISSION OF MACMILLAN BOOK CO. NEW YORK, N.Y.

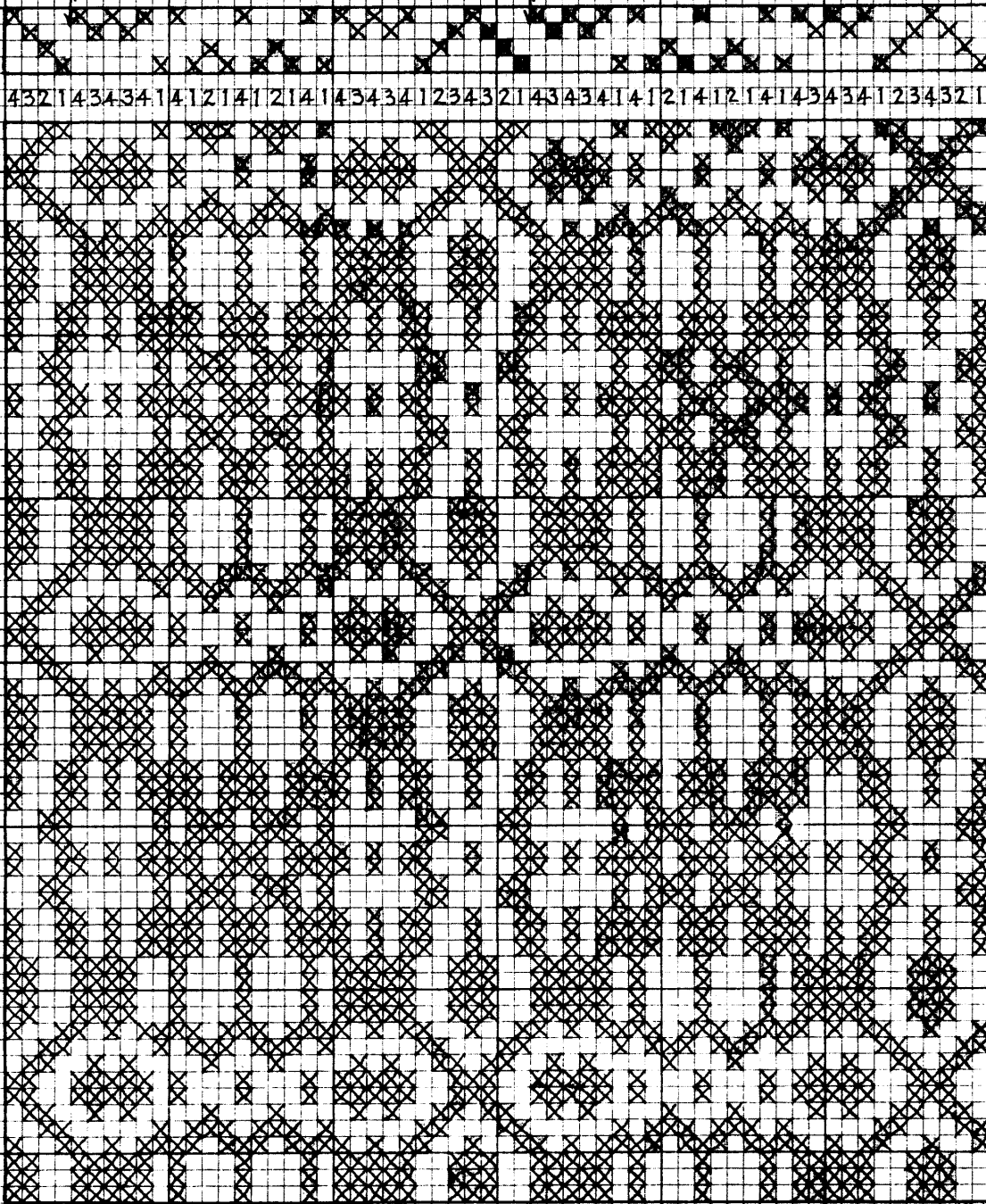
BRONSON WEAVE, EIGHT-HARNESS "POINT" PATTERN - MARY M. ATWATER



Treadle Harness	
1	2 4 5 6 7
2	2 4 5 6 7
3	2 5 6 7
4	2 5 6 7
5	2 6
6	2 6
7	2 6 8
8	2 6 8
9	2 4 5 6 7
10	2 4 5 6 7
11	2 4 5 6
12	2 4 5 6
13	2
14	2
15	3 4
16	3 4
17	2 4 5 6 7
18	2 4 5 6 7
19	2 5 6 7
20	2 5 6 7



HAZELWOOD (HAYES)



AS DRAWN IN

"IF, IN OUR WEAVING, WE COMMIT AN ERROR AND LET IT STAY,
IT WILL ALWAYS REMAIN A TESTIMONIAL TO OUR CARELESSNESS."

CLARA G. MENULTY