

# FOUR HARNESS SAMPLER 

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Most weavers have a box or two of small, individual samples they have woven and to which they rarely refer. After several years of concentrated study including several weeks at Banff School of Fine Arts, Banff, Alberta, Canada, a session with Mary M. Atwater in her home in Salt Lake City, Utah, three semesters and a summer session teaching weaving at the Wichita Art Association School, Wichita, Kansas, I too, had boxes of small, individual samples I rarely consulted. It was then I decided that a single sampler embodying the major four harness techniques or threadings woven on a number of tie-ups and treadlings would be far more useful than my small swatches, and the following sampler was developed.

Later, after conducting several workshops, I realized that many weavers were using one or two drafts or techniques over and over in the same manner either because they did not understand the possibilities of other techniques, were afraid of the unfamiliar, or had not been exposed to experimentation. Any weaver, regardless of experience, will find much of value in the finished sampler and for the less experienced weaver, the sampler serves several purposes:

1. It demonstrates the results achieved by weaving eleven different threadings, each with its classic tie-up and treadling plus thirtytwo treadlings on eight other tie-ups.
2. It provides an opportunity for easy selection of a technique adaptable to future projects.
3. It provides comparison between various tie-ups and treadlings on a specific threading so that the weaver may know what results to anticipate in departures from orthodox procedures and because of the concrete evidence at hand, gives confidence in undertaking original projects.
4. It provides the personal satisfaction that always flows from the completion of a useful, worthwhile project and will be decorative and complementary to any weaving environment. During the actual weaving the development of each section will be of intense interest to most weavers.

Each of the eleven sections of threadings produces many unusual and usable examples when all thirty-two treadlings are completed. Some of course, will be excellent examples of what not to use. The reverse side of the sampler should not be ignored. Most of the sections will be different in appearance and often more usable and interesting on the reverse side. More than 700 swatches are available all on one piece of weaving, for study, planning a project or becoming more familiar with the general appearance of a type of weave and its potentials.

It should be kept in mind that different weft materials, or weft of the same color as the warp, would be more orthodox for some of the sections. Wool or worsted is normally used as pattern weft for Overshot and Summer and Winter and the weft color is usually the same as the warp when weaving Huck or the Bronsons, but because this sampler is meant to be a study of the effects of many tie-ups and treadlings, the entire sampler was woven on a white cotton warp with a bright, colored weft for sharp contrast to more clearly show the weaves. In some sections, fewer pattern shots are required to square the blocks than would be the case if the usual weft had been used.

The completed sampler, hemstitched or the fringe knotted at each end, washed, pressed and hung in the weaving area where it will be easy to consult, will enlarge the weaving horizon and provide a basis for experimentation in future projects.

WARP: Lily Art. 114, Mercerized Pearl Cotton, size 10, White and Black. 25 ends per inch, 3 yards long. For sampler 40 inches wide, 999 ends. For a sampler 30 inches wide, 750 ends.
WEFT: Lily Art. 114, Mercerized Pearl Cotton, size 10, White, Black (same as warp), and a bright color for contrast.
Lily Art. 114, Mercerized Pearl Cotton, size' 3 or 5, in same contrasting color selected in size 10 .
REED: 15 dent sleyed 2-2-1 or 10 dent sleyed 2-3.
WARPING SEQUENCE:

| Color | 40 inch width | 30 inch width | To be threaded as |
| :---: | :---: | :---: | :---: |
| black | 12 ends | 6 ends | selvedge |
| white | 100 " | 100 " | Twill |
| black | 4 " | 2 " | divider |
| white | 72 " | 51 " | Rosepath |
| black | $4 \prime$ | 2 " | divider |
| white | 86 " | 86 " | Overshot |
| black | $4 "$ | 2 " | divider |
| white | 80 " | 60 | Monk's Belt |
| black | 4 " | 2 " | divider |
| white | 72 " | 56 " | M's and O's |
| black | 4 " | 2 | divider |
| white | 75 | 55 | Huck |
| black | 4 " | 2 " | divider |
| white | 72 | 56 | Barleycorn |
| black | 4 | $2 "$ | divider |
| white | 88 | 56 | Spot or Bronson One |
| black | 4 " | 2 " | divider |
| white | 90 " | 66 " | Lace or Bronson Two |
| black | 4 | 2 " | divider |
| white | 100 | 72 " | Summer and Winter |
| black | 4 | 2 " | divider |
| white | 100 | 60 " | Crackle |
| black | 12 | 6 | selvedge |
|  | 999 ends | 750 ends |  |
| COUNT: | hs. 1 - 322 | hs. $1-247$ |  |
|  | " 2-226 | " 2-181 |  |
|  | " 3-231 | " 3-167 |  |
|  | " 4 - 220 | " 4-155 |  |
|  | 999 | 750 |  |

Beam the warp with the Crackle section at the right side of the loom so that it will be the first section threaded. Drafts are given for both the 40 inch wide and the 30 inch wide warps. Where feasible, short drafts are used with a single threading for each block. All drafts are read from right to left and are written with the harness number instead of the conventional black square.
black - selvedge - 12 ends


6 ends
4

white - Crackle - 100 ends - thread draft 5 x
60 ends, thread draft 3 x

black - divider - 4 ends
2 ends


2
1
white - Summer and Winter - 100 ends - short draft BBB $\underset{\mathrm{BBBB}}{\substack{\text { ends } \\ \text { BBB }}} \mathrm{BBB}$

| $\mathrm{AA}$ |  | BB | BBB | BBB |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AA | AA | AA | AA |  | A |  |
| Thread A block |  |  |  |  |  |  |  |
|  |  |  |  |  | 3 | 2 |  |

Thread B block $4{ }_{2}{ }^{4}$

$$
1
$$

1
2 ends
black - divider - 4 ends
2 ends
4 3
2
$\qquad$
2

white - Lace or Bronson Two - 90 ends - short draft $\mathrm{BB} \quad \mathrm{BBB} \quad \mathrm{BB}$

Thread A block
black - divider - 4 ends

Thread B block 4
2

2 ends


56 ends - thread main area 5 x instead of 9 x .
white - Spot or Bronson One - $88 \underset{4}{\text { ends }}$
black - divider - 4 ends


56 ends, thread draft $7 \times$ instead of 9 x .
white - Barleycorn - 72 ends

black - divider - 4 ends
2 ends
4
2
1
white - Huck - 75 ends


55 ends - thread main area 5 x instead of 7 x .


$$
7 x
$$ 2 ends

3
1
white - M's and O's - 72 ends - short draft -

black - divider - 4 ends


2 ends
4 3
white - Monk's Belt - 80 ends

black - divider - 4 ends

white - Overshot (Sweet Briar draft) - 86 ends - same for both widths

black - divider - 4 ends
${ }^{4} 3$
32
1
white - Rosepath - 72 ends

black - divider - 4 ends

$$
4 \quad 3
$$

51 ends
 2 ends

white - Twill - 100 ends - same for both widths of warp

black - selvedge - 12 ends
6 ends


## Tie-ups and Weaving Procedure

Tie-ups for the counter-balance loom are shown on the X diagram, for rising shed or jack looms on the 0 diagram. Placement of the tabby and pattern treadles may be rearranged to suit the individual's treadling habits.

Standard tie-up will be used for the heading at the beginning and end of the sampler and for the sections threaded to Twill (first ten samples), Rosepath, Overshot, Monk's Belt, M's and O's and Crackle.

## Standard Tie-up

| X |  | X | X |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| X | X |  | X | X |  |  | 0 |  |  | 0 | 0 | hs. |
|  | X | X |  | X | X |  | 0 |  | 0 |  |  | 0 |

For Twill samples, numbers 11-12-13-14


|  | 0 |  | 0 | 0 | 0 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 |  | 0 |  | 0 | 0 |
|  | 0 | 0 | 0 |  | 0 |
| 0 |  | 0 | 0 | 0 |  |
| b | a | 4 | 3 | 2 | 1 |

hs.
4
3
2
2
1
hs.
4
3
2
1
hs.
4
3
2
1
1

For Twill sample number 19


|  |  | 0 | 0 | 0 |
| :---: | :---: | :---: | :---: | :---: |
|  |  | 0 |  | 0 |
|  |  |  |  | 0 |
|  | 0 | 0 |  |  |
|  | 4 | 3 | 2 | 1 |

For Twill sample number 20


Huck tie-up


Treadles

| 0 |  |  | 0 |
| :--- | :--- | :--- | :--- | :--- |
| 0 | 0 | 0 |  |
| 0 |  | 0 | 0 |
|  | 0 | 0 |  |
| 4 | 3 | 2 | 1 |

hs.
4 3 2
1 hs.


Treadles


4
3
2
1
hs. 4
3
3 2 1
hs. 4


The bright colored Pearl 10 is to be used as weft for the Twill samples, Rosepath, M's and O's, Huck, Barleycorn and the Bronsons. Overshot, Monk's Belt, Summer and Winter and Crackle will be woven with the Pearl 3 or 5 as pattern weft, Pearl 10 as tabby. Identify each section as it is woven by either a number or name. The finished 40 inch wide sampler should be from 76 to 78 inches long on the loom under tension and about 72 inches long off the loom.

HEADING:
Standard tie-up;
Pearl 10 tabby treadling
30
12
12

8 " | shots white |
| :--- |
| black |
| white |

TWILL: Weave one inch each of the following treadlings separating each inch with 4 shots of white tabby. The first 10 treadlings are done on Standard tie-up.


TWILL: Change to tie-up for samples 11-12-13-14.

| 11. Treadle | a | 12. Treadle | 4 | 13. Treadle | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| " | b |  | 3 |  | 3 |
| " | 1 | " | 2 | " | a |
| " | 2 | " | 1 | " | b |
|  |  |  |  | " | 1 |
|  |  |  |  | ", | a |


| 14. Treadle | a |
| :---: | :---: |
| $\prime \prime$ | b |
| $\prime \prime$ | 1 |
| $\prime \prime$ | 2 |
| $\prime \prime$ | 3 |
| $\prime \prime$ | 4 |

Change to tie-up for samples 15-16-17.


Change to tie-ups for samples 18-19-20.

| 18. Treadle | 1 | 19. Treadle | 1 | 20. Treadle | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\prime \prime$ | 2 | $\prime \prime$ | 2 | $\prime \prime$ | 2 |
| $\prime \prime$ | 1 | $\prime \prime$ | 3 | $\prime \prime$ | 3 |
| $\prime \prime$ | 3 |  | $\prime \prime$ | 4 |  |

Change to Standard tie-up;
Weave 4 shots white tabby, 4 shots black tabby and 4 shots white tabby for divider.
ROSEPATH: Standard tie-up; For 40 inch wide For 30 inch wide warp,

warp repeat treadling 12 x instead of 15 x

Divider - 4 shots white tabby, 4 shots black tabby, 4 shots white tabby
OVERSHOT: Standard tie-up; tabby between each pattern shot


Weave to square the pattern areas, it may be necessary to throw more or fewer pattern shots than are specified. This treadling squared the pattern areas using Pearl 5 for pattern weft.

Divider - 4 shots white tabby, 4 shots black tabby, 4 shots white tabby
MONK'S BELT: Standard tie-up; tabby between each pattern shot.


For 30 inch wide warp, repeat treadling

2 x instead of 3 x

Divider - 4 shots white tabby, 4 shots black tabby, 4 shots white tabby.
M's and O's: Standard tie-up.


Divider - 4 shots white tabby, 4 shots black tabby, 4 shots white tabby.
HUCK: Change to Huck tie-up.
$\left.\begin{array}{ccc} & \text { Treadle } & 1 \\ \text { For } 40 & \prime \prime & 2 \\ \text { inch } & \prime \prime & 1 \\ \text { wide } & \prime \prime & 2 \\ \text { warp } & \prime \prime & 1 \\ & \prime \prime & 3 \\ & \prime \prime & 4 \\ & \prime \prime & 4 \\ & & 3\end{array}\right\} 8 \mathrm{x}$

For 30 inch wide warp,
weave 6 repeats of the treadling instead of 8

Divider - 4 shots white tabby, 4 shots black tabby, 4 shots white tabby.

BARLEYCORN: Change to tie-up for Barleycorn and the Bronsons


For 30 inch wide warp, weave 4 repeats of treadling instead of 6

Divider - 4 shots white tabby, 4 shots black tabby, 4 shots white tabby.
SPOT OR BRONSON ONE: Same tie-up used for Barleycorn.


For 30 inch wide warp,
weave 8 repeats instead of 10

Divider - 4 shots white tabby, 4 shots black tabby, 4 shots white tabby.
LACE OR BRONSON TWO: Same tie-up used for Barleycorn and Spot Bronson
For 40 inch wide warp, For 30 inch wide warp,
Weave Block A - $2 x$ Weave Block A - $2 x$


Weave 4 shots white tabby.
BRONSON ALL-OVER LACE:
$\left.\begin{array}{cc}\text { Treadle } & \mathrm{b} \\ \prime \prime & 4 \\ \prime \prime & \mathrm{~b} \\ \prime \prime & 4 \\ \prime \prime & \mathrm{~b} \\ \prime \prime & \mathrm{a}\end{array}\right\}$ Lace

Weave lace block 10 x for 40 inch wide warp, 8 x for 30 inch wide warp.

Divider - 4 shots white $\overline{\text { tabby, } 4}$ shots black tabby, 4 shots white tabby.
SUMMER AND WINTER: Change To Summer and Winter tie-up; Tabby ( treadles a and b)
Pearl 10 white, Pattern weft ( treadles 1-2-3-4) Pearl 5 or 3

For 40 inch wide warp;
Weave Block A - once

| $\prime \prime$ | $\mathrm{B}-2 \mathrm{x}$ |
| :--- | :--- |
| $\prime \prime$ | $\mathrm{A}-$ once |
| $\prime \prime$ | $\mathrm{B}-\prime \prime$ |
| $\prime \prime$ | $\mathrm{A}-\prime \prime$ |
| $\prime \prime$ | $\mathrm{B}-2 \mathrm{x}$ |
| $\prime \prime$ | $\mathrm{A}-$ once |
| $\prime \prime$ | $\mathrm{B}-\prime \prime$ |
| $\prime \prime$ | $\mathrm{A}-\prime \prime$ |
| $\prime \prime$ | $\mathrm{B}-2 \mathrm{x}$ |
| $\prime \prime$ | $\mathrm{A}-$ once |

For 30 inch wide warp;
Weave Block A - once
" B - 2x
" A - once
" $\quad$ B $-3 x$
" A - once
" B - $2 x$
" A - once

Weave As-drawn-in then 4 shots of white tabby and weave In-pairs
To weave As-drawn-in;

| Block A | Block | B |  |
| ---: | ---: | ---: | ---: |
| Treadle | b | Treadle | b |
| $\prime \prime$ | 1 | $\prime \prime$ | 3 |
| $\prime \prime$ | a | $\prime \prime$ | a |
| $\prime \prime$ | 2 | $\prime \prime$ | 4 |
| $\prime \prime$ | b | $\prime \prime$ | b |
| $\prime \prime$ | 1 | $\prime \prime$ | 3 |
| $\prime \prime$ | a | $\prime \prime$ | 4 |
| $\prime \prime$ | 2 |  |  |

Divider - 4 shots white tabby, 4 shots black tabby, 4 shots white tabby.
CRACKLE: Pearl 10, white, for tabby and Pearl 3 or 5 for pattern weft.
Standard tie-up - tabby between each pattern shot.
For 40 inch wide warp,
For 30 inch wide warp, repeat treadling
sequence 2 x instead of 3 x

## HEADING: 8 shots white tabby <br> 12 " black "

| To weave In-pairs; |  |  |
| :---: | ---: | :---: |
| Block A | Block | B |
| Treadle | b | Treadle |



