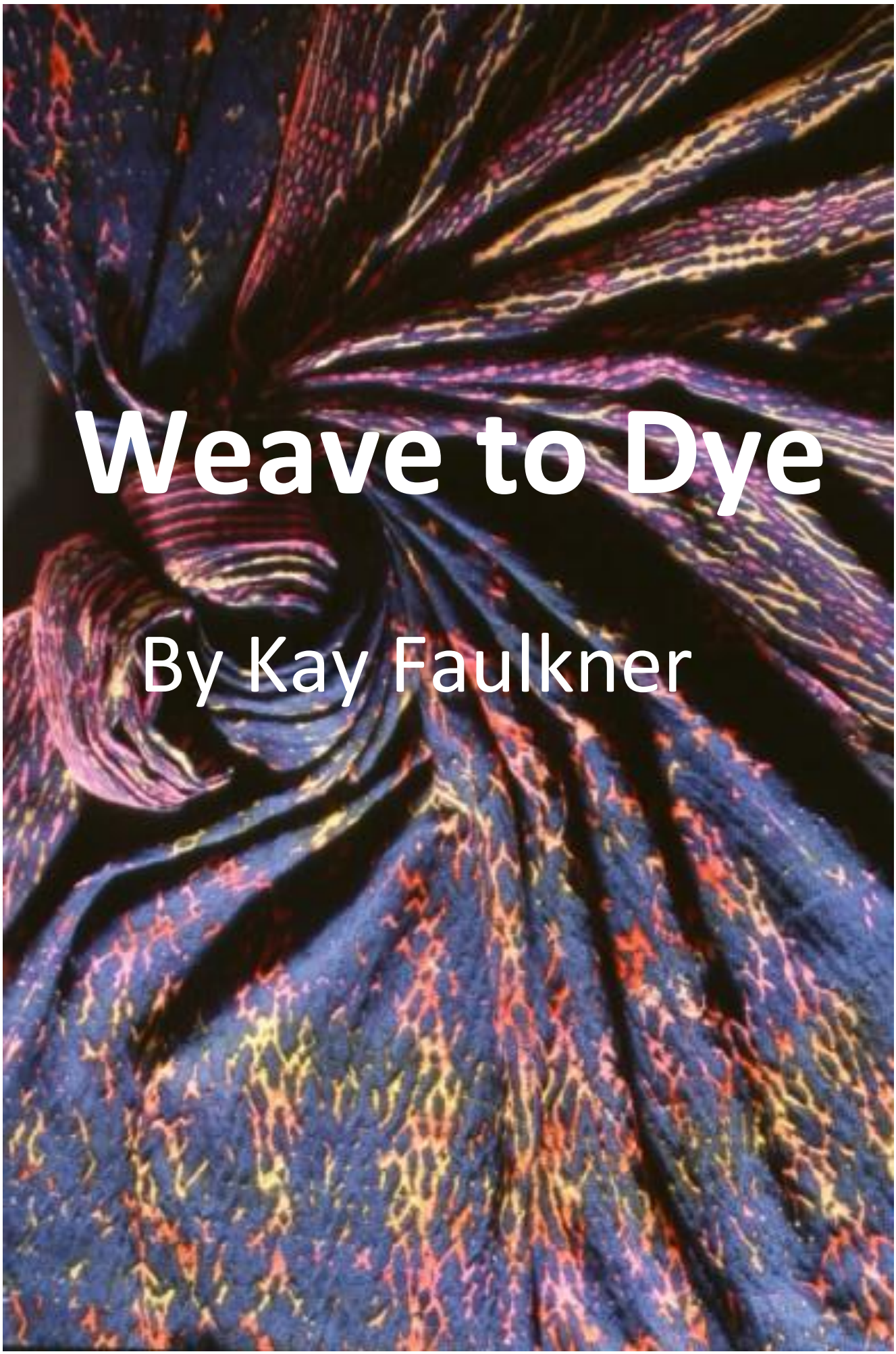

Weave to Dye

By Kay Faulkner

Kay Faulkner's weaving career spanned over 30 years. She was passionate about weaving and worked incredibly hard to develop her weaving, ideas, art and techniques. This was because she loved what she did. Kay was one of those people whose passion became their career.

While she loved weaving, she equally loved to teach. Sharing her knowledge and passion with others inspired her and she always taught with a spark, an enthusiasm for weaving and sense of humour. She loved inspiring others on their weaving journey.

Kay found inspiration everywhere: in the world around her, the environment, her travels and from other weavers. Every time she found something new that inspired her, I would get an excited phone call that ALWAYS started with the words:

"I've been playing"

… and she was off on a new creative adventure.

Every idea, be it in developing her creative works or in experimenting with weaving techniques was developed by, as she termed it "playing,"… along with an enormous amount of hard work!

It was over 20 years ago that Kay discovered a dyeing technique called *Shibori*. It fired her imagination. Frustrated that she spent so much time stitching resist threads, Kay developed her technique of Loom Controlled Shibori. Since then she has continually created, manipulated, and developed this technique, returning again and again to improve, and refine it, always taking it in new directions. Kay was immensely proud of what she was developing and took every opportunity to teach and share her knowledge with her fellow weavers.

Kay moved on to work with interlacements in other structures. Using tied weaves as a base; she played with what the ties could do to create different interlacements in the cloth and developed a series of tie- based interlacements in the ground cloth.

When Kay passed away suddenly in May 2019, she had been working on this book for several years. In the writing of this book she was uniting both of these ideas and techniques that continued to fascinate and inspire her. She never got to complete her book.

I hope that what she has written in this book fires your imagination. Take her ideas, manipulate them, create, develop, reimagine, but most importantly…

… Play!

Helen Faulkner

Message from the 'Editors'

Kay's book *Weave to Dye* has been compiled by Kay's friends, from the manuscript she left us. Neither Kay's family nor friends wanted the event of Kay's death to stop the publication of her work.

We have attempted to compile a publication that holds tightly to Kay's original vision. It was impossible to finish the book as Kay would have intended. We decided to simply publish this as Kay left it, with some tidying up. Kay was a master at her craft, and left us with some fantastic information.

(Many of the photos that were to be included in the book were not available to us. Any yellow highlighted areas represent missing photos).

Kay would dearly love us all to grow and build on the information that she spent such a large part of her life compiling.

This is a gift from Kay to all weavers worldwide.

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Introduction

This book has been over 25 years in the making and represents my research into what has become known as “woven shibori”.

Over the course of my textile career, I have always been fascinated by traditional forms of shibori. In fact when I graduated in 1975, having majored in textiles from teachers’ college, one of my final pieces was a folded and clamped resist garment. This was even before I had access to any significant shibori publications. It was the era of the populist movement of tie-dye.

Over the years I intermittently practiced shibori and while I appreciated stitched resist, I rarely used the technique purely because it was so labour intensive.

It was the mid 1990’s when I saw an article on creating stitched shibori using a smocking pleater that triggered the thought that just maybe a loom could be used to achieve a stitched resist pattern. And so my journey began. My first solo exhibition using this technique exclusively was in 1998 and looking back I have come a long way in refining and developing the technique.

Initially, I called the technique *Loom Controlled Shibori*. Why? Shibori was a recognisable process to many working with textiles. And while what I was doing was not Japanese in origin (some purists think that shibori should only be used when talking about traditional Japanese resist processes), people stood a half chance in understanding what was involved. Loom controlled because of course those resist threads were being manipulated because of what I was doing on the loom. My first article was printed in “Weavers”, 1998. I was delighted that it made the front cover.

At about the same time, I discovered that there was another weaver on the opposite side of the world who was also developing a similar technique. Serendipity is amazing! I was delighted to meet Catharine Ellis at the Atlanta Convergence in 1998. We had approached the concept from totally different angles: she initially worked with weft shibori while I worked with warp shibori. We continue to walk our own paths and I am honoured to call Catharine my friend.

Working in parallel, Catharine initially referred to her work as *Woven Shibori Resist* while I continued to use the term *LCS*. I guess it would be no surprise that the naming of the technique has evolved internationally into the very simple term *Woven Shibori* covering all forms and applications of inserting a resist thread into cloth as it is being woven.

What is woven shibori?

It is the process of weaving the fabric and a supplementary thread at the same time. The supplementary thread plays no part in the actual structure of the final fabric. When pulled up and a surface application (often dye) is applied creases are formed stopping access to the interior of the fold; in other words a resist is created. Once the dye or other surface application has been applied, the supplementary threads are removed exposing the final design.

In its simplest form, two shafts may be used to weave plain weave and at regular intervals an extra row is woven with a different weft thread inserted by hand, in either a regular or irregular manner.

On more than four shafts, the supplementary threads may be in the warp, weft or even sometimes both.

What is this book about?

The focus of this book is on weave structures suitable for the application of woven shibori. Both warp and weft shibori will be covered. The structures covered will be primarily for those with 4, 8 and more shafts. There's a chapter for those with the rigid heddle loom. It has application for those with jacquard, draw looms and in fact any loom from around the world.

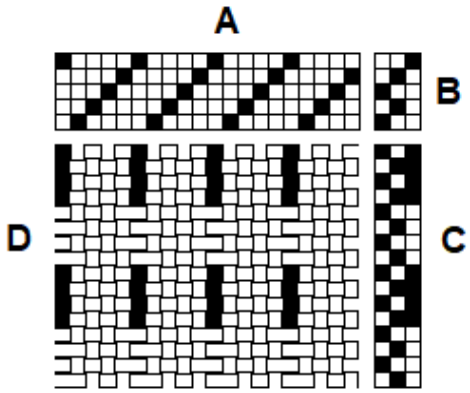
Chapter 1

Weaving conventions used.

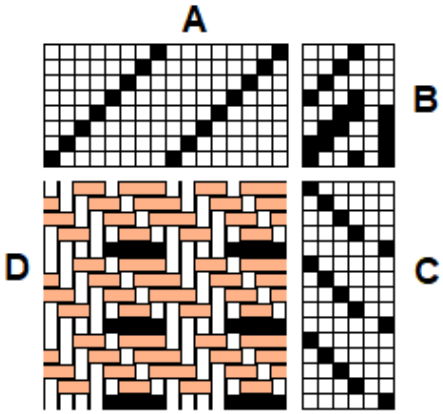
This chapter defines how to use the drafts presented in this book. Drafts do appear in several formats. This will explain how they should be interpreted.

Unless the fabric is an important consideration, the drawdown of the fabric will be neutral. If the structure of the fabric needs to be shown, it will be in a pale colour. The focus will always be on the resist.

The following drafts show this and will be used to define some of the weaving conventions used.



Warp shibori



Weft shibori

These are the identified sections of the draft. A: Threading draft. B: Tie up box. C: weaving sequence. D: structure drawdown.

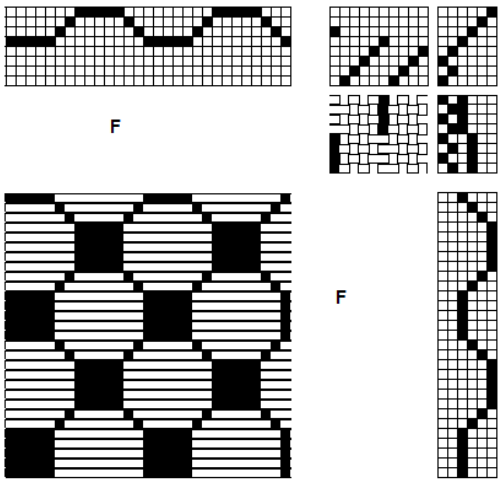
In all drafts the resist will be in black. The warp shibori fabric is plain weave so it has no colour in the drawdown. The weft shibori fabric is a twill so a neutral coloured weft has been used to enable the structure to be seen.

The resist in the threading for warp shibori will always be on the back shafts. There are fewer of these to be threaded. The resist for weft shibori will always be on the right hand side of the tie up and treadling drafts.

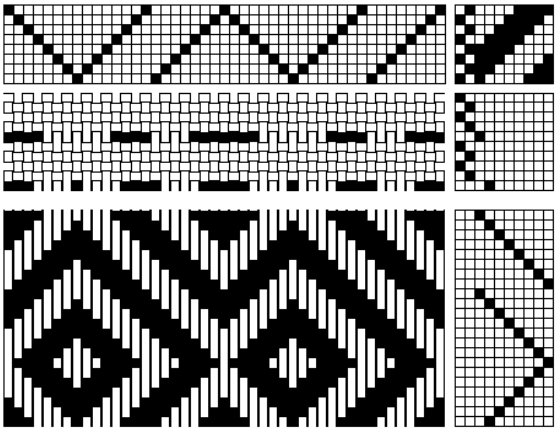
Primarily, the tie up box is used to indicate what shafts are being used in the weaving sequence. For those using a table loom the shafts that need to be lifted are above the corresponding column in the tie up box and above the marked square in the weaving sequence. Presenting the draft in this manner allows a clear vision of the movement of combinations of fabric and resist in the weaving sequence.

Warp shibori requires the weaving of two components at the same time. If using a treadle loom, two treadles will be used together- one for the fabric, the other for the resist.

There are of course variations to each guideline. This will occur when a longer threading or weaving sequence would be required if the above system were used.



Warp Shibori



Weft shibori

These are two examples of longer threading and weaving sequences. The warp shibori draft would require one hundred and twelve threads in both the threading and weaving sequence for one repeat. The weft shibori draft would require eighty-eight rows for one repeat to be woven. A method of condensing the drafts is clearly evident.

The warp shibori draft.

There are two sections of threading. The section on the right identifies the fabric structure and where the resist is inserted. In this case after every four fabric warps. The section on the left identifies the sequence for the resist. This resist sequence is to be inserted into the position identified on the right. In other words each of these resist threads will have four fabric warps between them.

There are also two sections for the weaving sequence. The top section identifies how the resist will be used in conjunction with the fabric structure. The bottom section identifies the pattern for the resist. In this case each of these will be lifted for four rows of plain weave.

There are sections removed in the drawdown (F). This helps clarify the visual appearance of what is being woven.

The weft shibori draft.

The top section of the weaving sequence identifies how often the resist is used in the fabric structure. The bottom section identifies the resist pattern.

Other variations in the drafting sequences.

Infrequently, where a complex fabric structure is used in combination with a complex resist pattern, they will be drafted as separate sections in the weaving sequence. It is expected that the two sections be combined in an appropriate manner.

Chapter 2

Taiten: a historical form of woven shibori.

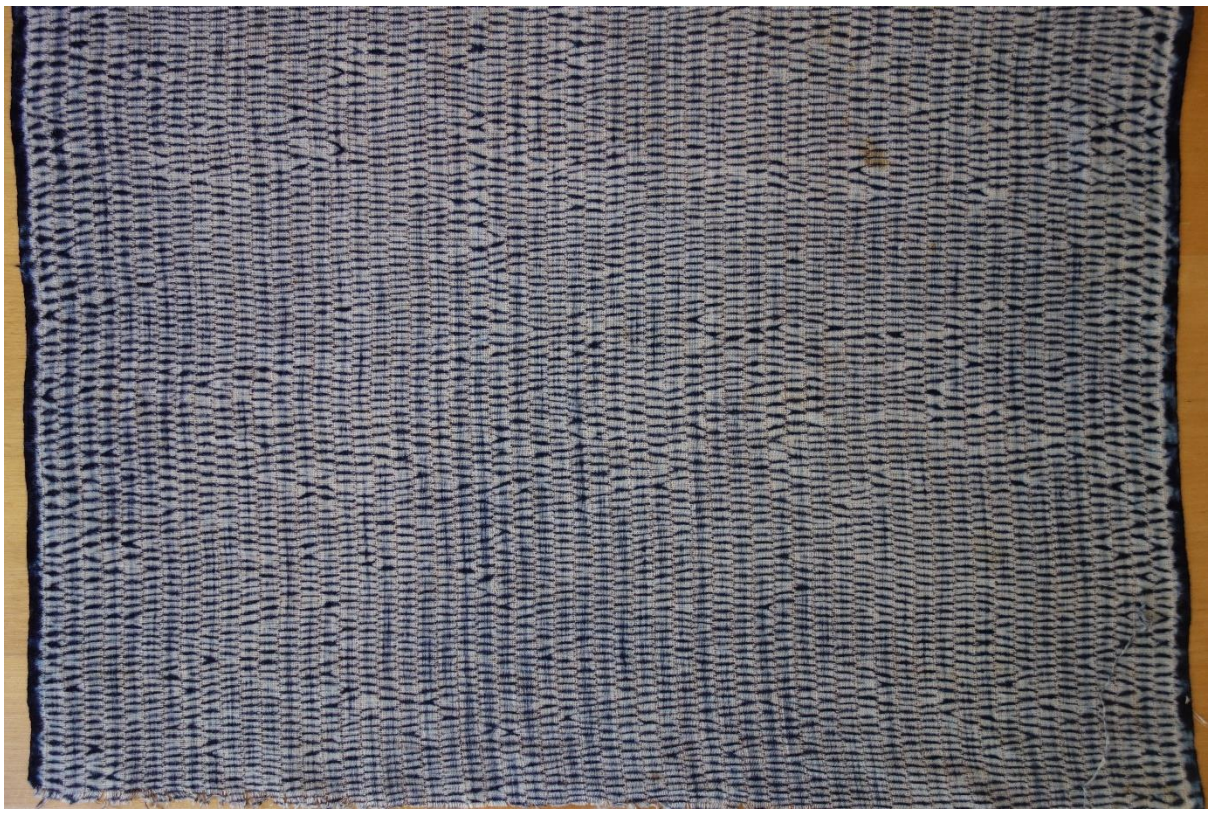
I would like to acknowledge an early form of woven shibori; perhaps even the earliest. This technique deserves investigation before examining contemporary woven shibori.

Traditional shibori requires the skill of highly specialist dyers. The weaving of cloth requires a different set of skilled artisans. In past cultures, it is rare that both highly skilled groups cross their specialist boundaries.

This however happened in the Shōwa Period in Japan. I came across an image and description when I was researching traditional forms of shibori. Its development is credited as a celebration of the inauguration or *taiten* of Emperor Taishō who reigned 1912-1925. This is the description that I found in Arimatsu Shibori, A Japanese Tradition of Indigo Dyeing by Bonnie F. Abiko.

> *Heavy threads are woven into the cloth and then pulled to squeeze or gather it together. After dyeing, these threads are pulled out leaving a fine network of parallel lines as well as noticeable holes which add to the final texture of the fabric.*

It was only when I had an example in hand that I understood the technique.



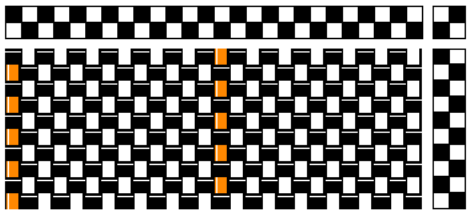
This fabric is woven in fine cotton and dyed with indigo. Width: 35.5 cm or 14”.

Taiten is warp resist, dyed, plain weave fabric with a space or series of holes bordered by warp threads that move in an identical manner.

What is taiten?

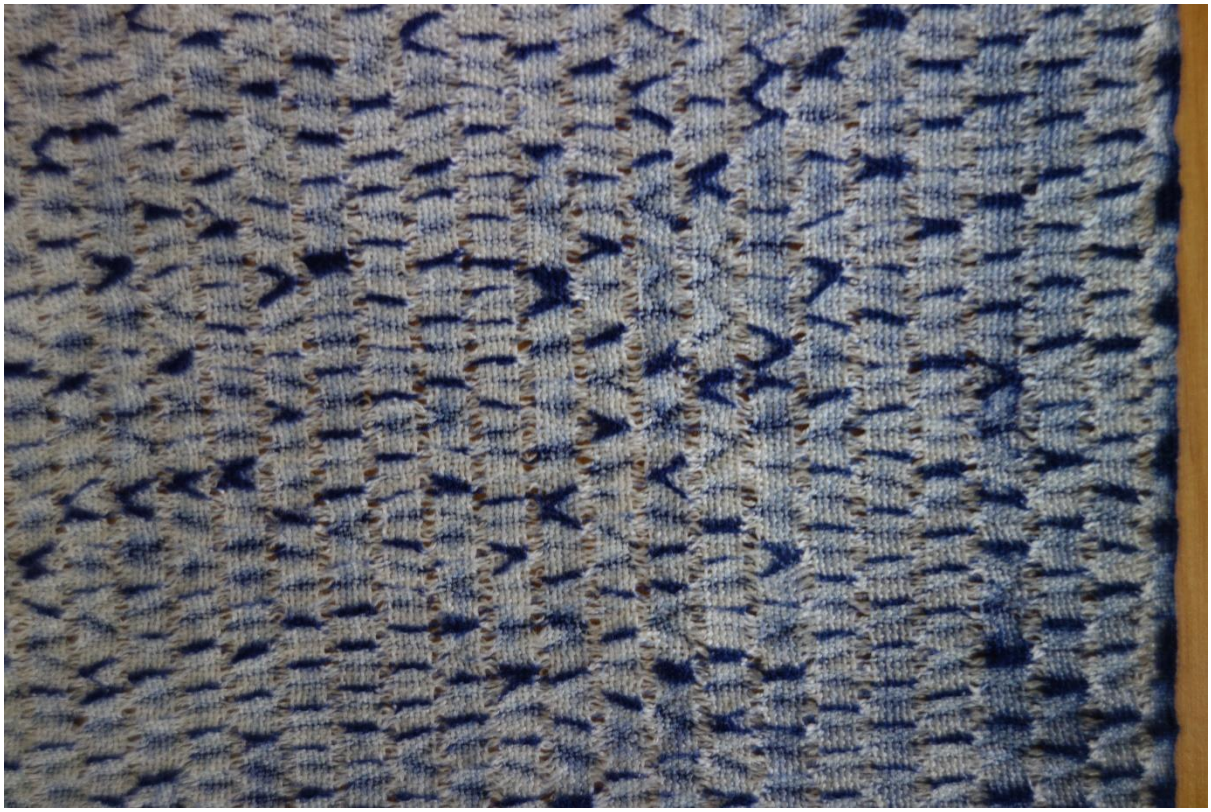
This style is in a class of its own in contemporary woven shibori. The resist thread is woven as part of the fabric structure. In all other forms, the resist thread is a supplementary to the fabric and once removed there will be no change to the structure of the fabric. The removal of a warp thread in taiten changes the structure of the fabric.

In its simplest traditional form, it is woven using just 2 shafts with the resist being included as if it were a normal warp thread. The sett required is for normal plain weave including the resist thread.



Draft of traditional taiten.

On completion of weaving the resist is pulled up compressing the fabric to create a resist before being dyed. On removal of the resist threads, the dye pattern is revealed. Where the resist is removed the two adjacent warp threads are seen to work in the same manner, as they will be on the same shaft. Holes are left because the warp sett is less one thread at regular intervals. The force used in creating the resist also encourages sideways movement of the resist. This in combination with the paired warp threads creates the “holes”.



Detail scarf: 60/2 silk, taiten, indigo. 2 shafts.

Traditionally it is one colour, indigo. However, other dyeing processes may be suitable. By hand painting the dye, it can progress from one colour to another.

Scarf, silk, taiten, fibre reactive dyes. 2 shafts.

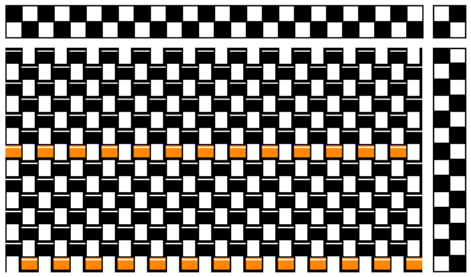
The “holes” created by the removal of one of the warp threads are enhanced when the fabric warps are dented separately to the resist. For instance, if the fabric warps are sleyed two or more per dent, when the resist is next to be threaded, it will have its own dent before the fabric warps continued to be threaded. When calculating you set in this case you may allocate the resist as being the equivalent of 2 fabric warps. A very thick resist thread or multiples of resist thread of your choice

can even enhance the effect more. Experiment.

Scarf, silk, taiten, acid dyes, 2 shafts. Fishing line resist was doubled to enhance the definition of the “holes”.

Weft Taiten

While it was traditionally woven as a warp shibori, a similar effect may be achieved when woven in the weft. This draft shows six normal threads being woven with the seventh using a resist thread. The number of wefts between each resist may vary according to the desired effect. The effect will never be as clearly defined as warp taiten because the reed controls the spacing of the warp and thereby the definition of the “holes”.

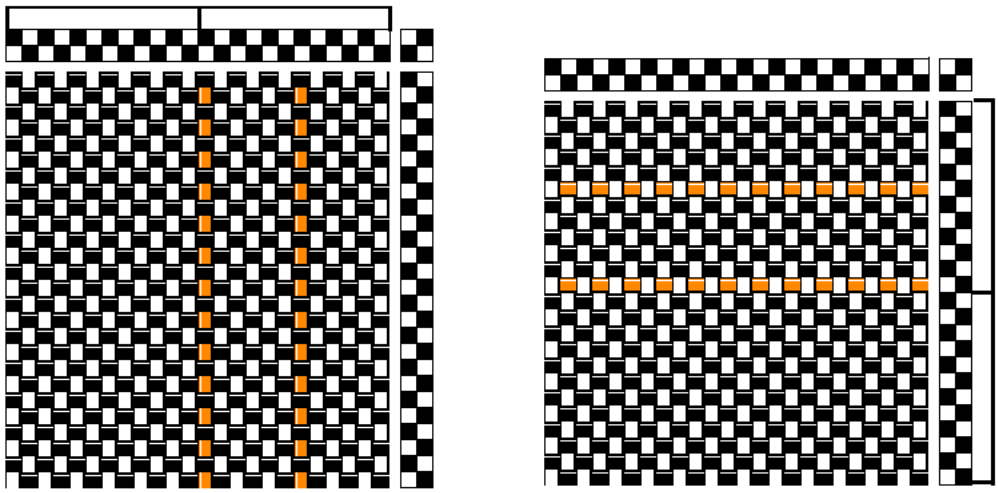


Draft of weft taiten.

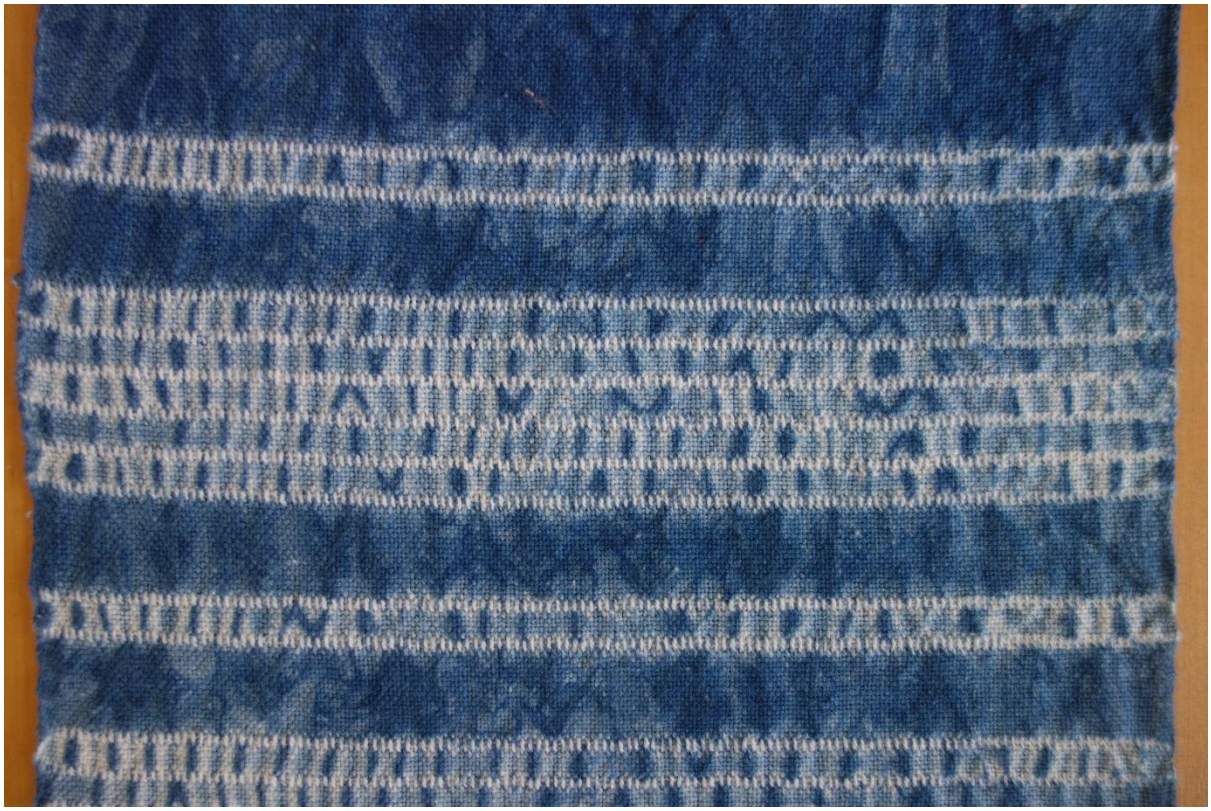
A close up view of weft taiten in cotton and indigo. 2 shafts. It is noteworthy that the pattern effect of “holes” is somewhat lessened in weft taiten.

Some basic variations.

It may be combined with areas with no resist thread. These drafts show both warp and weft examples. In both, the resist thread is every sixth thread. Vary the spacing between resists as required. Repeat each section as required. Of course, different widths of each section could also be combined.



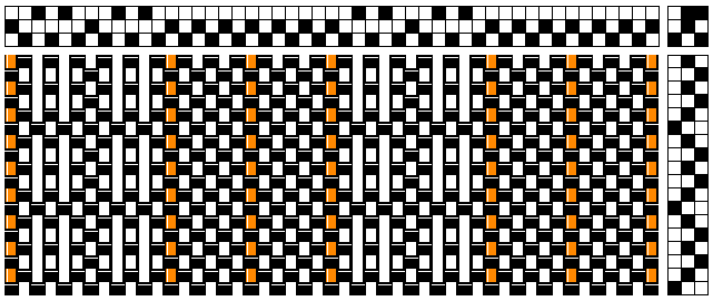
Drafts of spaced elements for warp and weft taiten. Repeat each identified section.



This example is of a spaced weft taiten in cotton and indigo.

Interesting effects can also be achieved when spaced taiten is combined with other structures. As taiten requires plain weave, it is desirable that any other structure that will be woven beside it will also have a plain weave base. Otherwise differences in sett may be required.

In the draft below the plain weave for the taiten shares shafts with the lace weave. Another combination may require independent shafts for each structure.

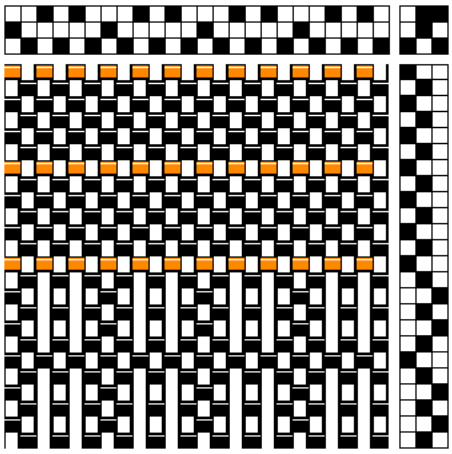


This draft shows stripes of taiten combined with Atwater Bronson Lace. Adjust widths and spacing of resists as required. The same effect could be achieved by weaving stripes of lace in the weft in combination with weft taiten.

Detail of scarf, silk, taiten combined with lace, acid dyes. 4 shaft loom.

This fabric was woven using variations of the basic draft shown above. Note the random flow of dye between the sections that were pulled up.

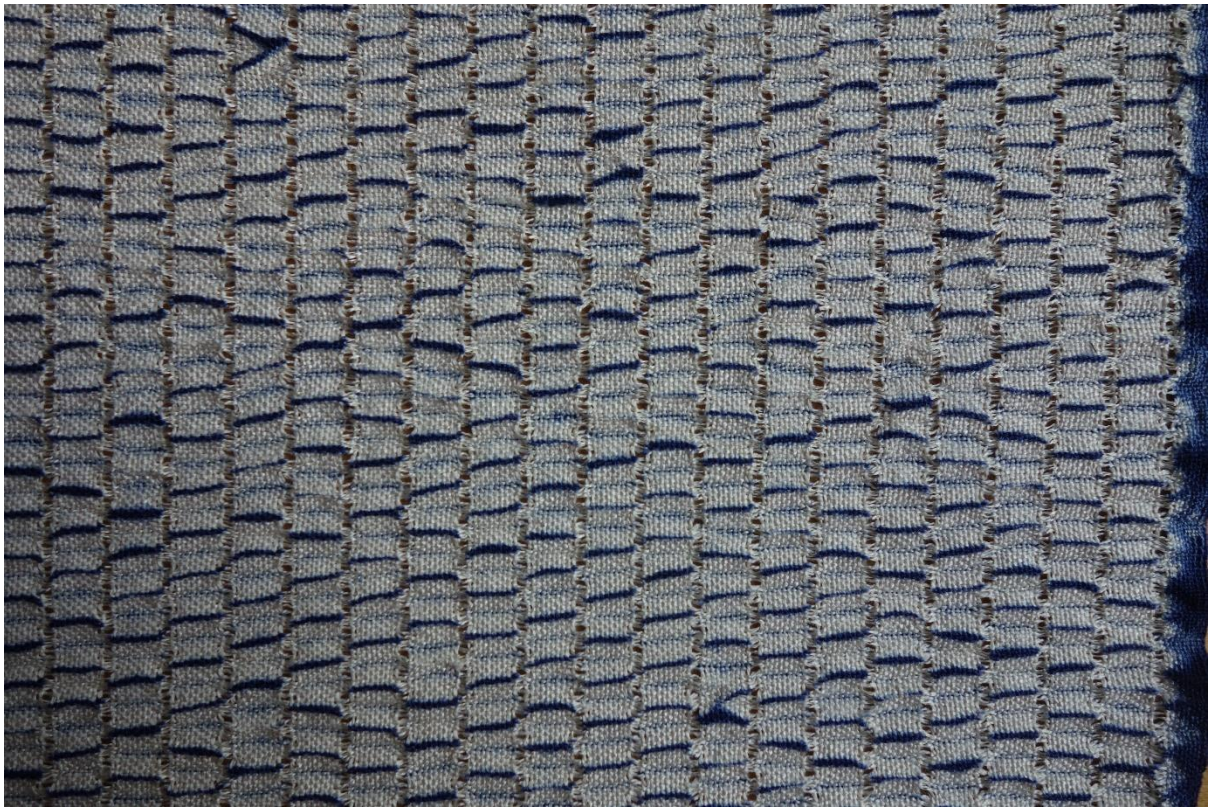
When stripes of taiten are combined with another structure in the weft, plain weave must be able to be woven from the threading that is used. The draft below could be used to achieve weft stripes of both taiten and lace, similar to the warp example above. Any structure that has a base of plain weave could be used in this fashion.



Weft taiten combined with Bronson Lace. Adjust and repeat both components as required.

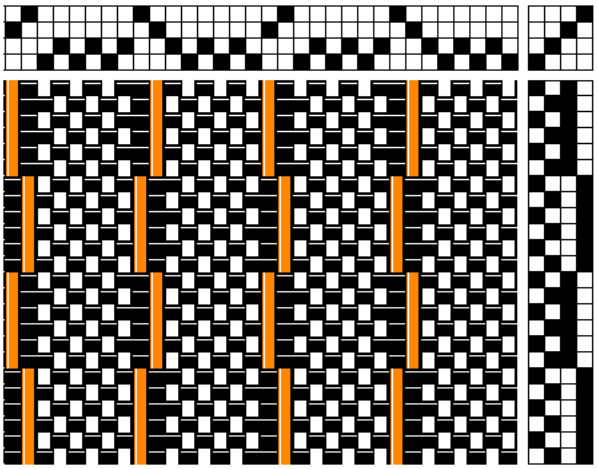
Taiten with more control.

The traditional form of taiten results in horizontal dye lines between the spaces in the warp. These lines are random in nature. I wish to have more control, so I have developed the following technique which results in a taiten effect but with more regular dye pattern.



Detail scarf, 60/2 silk, modified taiten, acid dyes. 4 shafts.

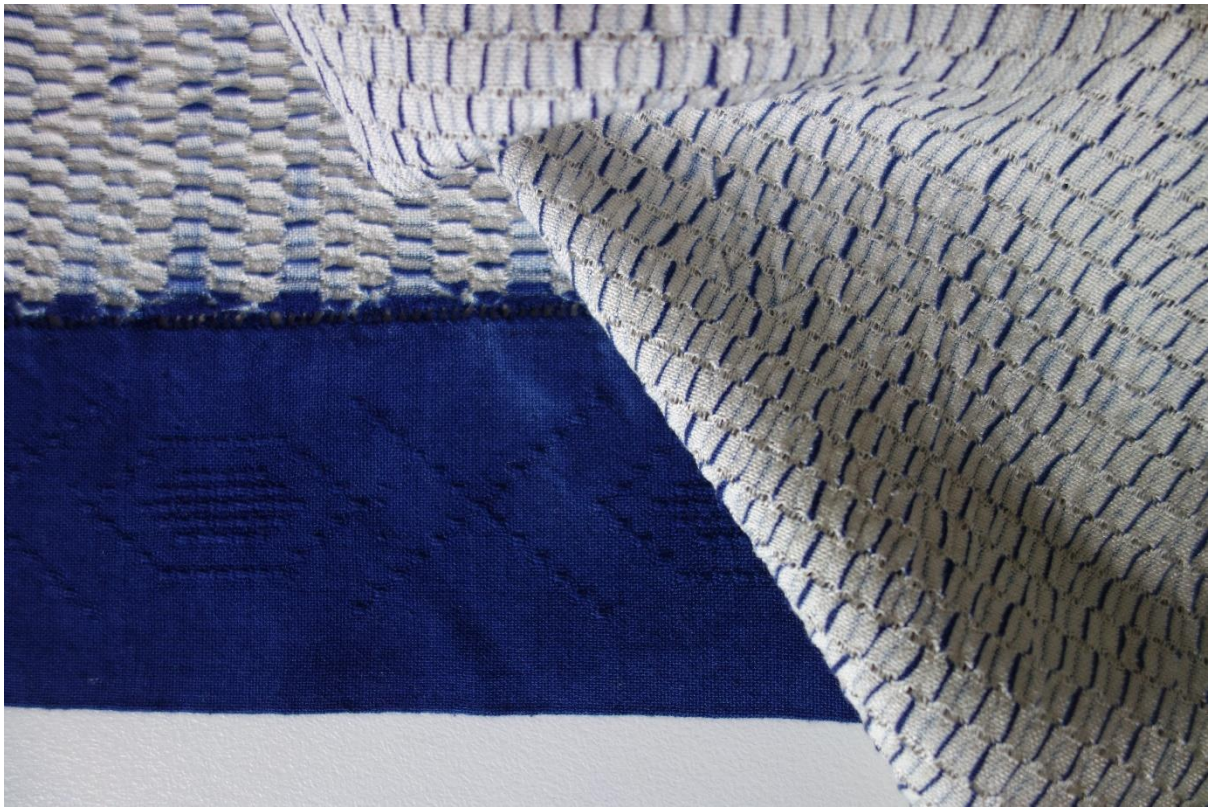
In this modified form, 2 shafts are required for plain weave and two for the resist.



The basic draft for taiten showing areas of plain weave separated by two resists. Adjust the spacing of plain weave as required. Note that each section of the plain weave starts and ends so that there will be a doubled thread either side of the resist threads- a similar effect to traditional taiten. The resist shafts mirror each side of the plain weave fabric. They will work in pairs when the resist is drawn up.

The sett is calculated on the yarn used for the warp and includes the two additional threads used for the resist. So, if the sett for the yarn used for the fabric was 14 epcm (35epi), following this draft two repeats of six threads for the fabric and two for the resist would be wound. If possible, use the system of denting where the fabric warps are separate to the resist.

When the resists are pulled up the opposing pressure forces the paired fabric warps apart ensuring the gap remains pronounced. As each resist is the same on either side of the plain weave, the dye lines are forced to remain horizontal.



Modified taiten with lace weave decorative border, silk.

To enable this decorative border to be woven three extra silk warps are wound in the standard modified taiten warp. The weaver has the choice of weaving taiten or a plain weave fabric. In this case the plain weave also utilises a lace pattern feature. When the resist is not used it floats behind the plain weave fabric. Alternatively those three extra fabric warps float behind the weaving when taiten is being woven.

As with traditional taiten, this extension can be used horizontally. Blocks of plain weave or a structure that can be woven as plain weave is required.

Chapter 3.

Weaving conventions used.

Weavers are very fortunate. They get to design both the fabric and the resist pattern unlike those doing traditional stitched shibori who have to use whatever commercial fabric is available.

When all the process of woven shibori is completed and the resist threads removed, all that is left will be the actual fabric. The fabric needs to have integrity. It needs to be able to support whatever process is to be carried out with woven shibori. I also consider it to be at least equally important that the final resulting fabric should be interesting and fulfil its function as a cloth.

Fabric Structure

Plain weave

Plain weave provides a good background for all woven shibori pattern and is the most common fabric structure used with it. Many of the structures that are adapted to woven shibori have the ability to weave plain weave. Plain weave achieves a uniform, neutral, flat surface. It allows the surface design to be totally dominant.

Two fabric lengths, cotton, weft shibori, discharge, fibre reactive dyes. 8 shafts. Photo: Andrea Higgins.

These two fabrics shout colour effect. They are both woven on plain weave. In one the dye effect is clearly defined while the other is more random. The complexity of the dye effect would potentially overcome any ground structure pattern.

However, as the designers of the cloth, weavers may choose to complement a shibori pattern. Even if only plain weave is used, checks and stripes can provide an interesting background for a dye pattern. In fact, any dye or colour and weave technique can underpin shibori pattern.

Image checks, ikat. (slide)

Scarf: mercerised cotton, warp shibori. 4 shafts.

Twill

Plain weave may not however be the best possible structure to choose for a particular project. Often it is more ideal to use a fabric that will drape. Twills will achieve this. Twills do however result in a thicker fabric than plain weave when the same yarn is used. This may result in a heavier dye pattern. A basic twill will provide a nonintrusive background for dye pattern.

Images comparison plain and twill

If a more interesting cloth is preferred, then a more complex twill may be chosen. A simple dye pattern will allow the more complex fabric design to be readily seen and yet add an extra dimension.

Barrier Reef Series: scarf, silk, twill fabric (two structures), warp dyed, warp shibori, fibre reactive dyes. 24 shafts. Image: Andrea Higgins.

Alternate structures to twill and plain weave.

We are hand weavers. It is within our capability to weave interesting cloth. Plain weave and twills have their place in providing a neutral background for a dye pattern, but we may also choose to create a more interesting cloth.

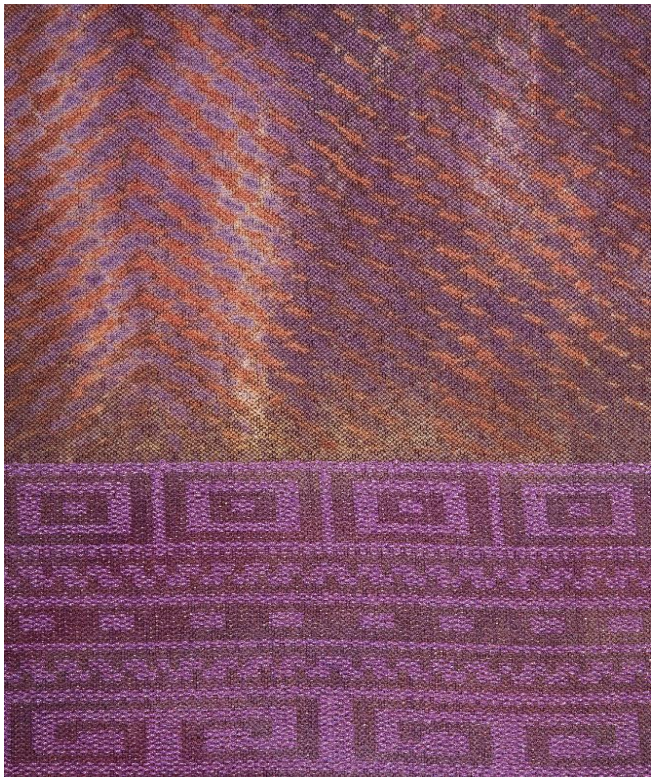
A more complex cloth can be obtained by the addition of extra elements. A woven shibori pattern can unite several elements, achieving a more interesting whole.

Detail of a scarf. Wool, silk, warp ikat, supplementary warp, warp ikat, acid dyes. 4 shafts.

Often it is possible to weave several structures from one threading. On a point twill threading it is possible to weave plain weave, a supplementary weft pattern and a pattern with long floats for woven shibori. Often this will result in design elements that relate.

Scarf, silk, plain weave, supplementary weft, weft shibori, fibre reactive dyes, metallic fabric paint. 24 shafts. Image: Don Hildred

While sometimes one structure provides many different elements that combine in the final cloth, it may also be desirable to bring two different techniques together to make a complex design.



Detail of *Graffiti*, two-tie unit weave, twill resist (warp shibori) discharge, fibre reactive dyes. 24 shafts. Photo: Don Hildred.

A shibori pattern need not be always the dominant feature of the final cloth. It can be just one element in a combination of several elements.

Fabric length, silk, cotton, novelty rayon, plain weave, twill, supplementary warp, warp shibori, fibre reactive dyes. 24 shafts.

In fact, many structures apart from the usual plain or twill weaves may be used in conjunction with woven shibori. All it takes is a bit of imagination, some informed decision making as to an appropriate weave structure and perhaps a compromise between dye and fabric designs and the number of shafts required.

Warp, weft or balanced structure.

While woven shibori is mostly carried out on a balanced weave (or close to it), extreme weft and warp faced structures should not be discounted.

Ideally the characteristics of the fabric should be considered. Sometimes a textile is easier to fold in one direction than the other. In this case a weaver can choose to put the resist in the direction that will pull up most easily. A warp faced textile will often pull up lengthwise more easily. If you have woven a textile with a similar faced density, feel how easily it will form folds in either direction and base your choice of warp or weft shibori accordingly.

Image

Table runner inspired by West Timor, warp faced fabric, warp shibori, fibre reactive dyes.

Consider the surface of the textile. Dips and valleys may allow dye to run along these. A resist may be used in the direction to reduce this dye run or an alternative way of adding surface colour may be used.

Often with very dense and thick fabrics whether it is to be used for warp or weft shibori, simple large scale dye patterns are more effective and easier to achieve.

Sett

Sett and the fabric

It is important to use the appropriate sett for your finished cloth and for the project that you are doing.

However a sett that achieves a good density and a firm surface is an appropriate place to start for a woven shibori project.

A fabric with a loose sett will allow the dye to pass through rapidly. A firmer cloth will be more successful.

Be aware that a loosely woven fabric may become distorted when the resist is tightened.

An extremely dense sett with the same yarn may result in a dye pattern that is one faced or that has a shadow as the dye hasn't been able to transfer through the fabric.

However, as weavers we should embrace diversity and the ability to weave cloth as open or as dense as we choose - as long as it is an appropriate sett for the final project and in this case that it is appropriate for whatever surface treatment is chosen.

Sett and stitch length

Be aware that the stitch length will have a direct correlation to sett. The number of threads a supplementary weft or warp passes over or under converts directly to a specific measurement.

If a stitch length is over six threads in either the warp or weft direction and if the sett is 12 epcm or ppcm, the stitch length will be 0.5 cm. In a similar way if the sett is 32 epi or ppi, then the stitch length will be ¼".

Weaving Width

It is possible to carry out the process of woven shibori on very narrow widths for weft shibori or very short lengths for warp shibori as long as enough resist yarn is accessible to pull up the design. Extra-long loops may be left at the side in weft shibori to facilitate this. When weaving warp shibori, allow some unwoven warp between projects.

It is also possible to weave to maximum width on a loom- even double width for weft shibori or long lengths of fabric in warp shibori. It requires a methodical approach when pulling up the resist.

Thickness of yarn and fabric

A very fine yarn produces a fine fabric. A fine fabric allows for small scale dye design, good definition and good penetration of dye.

A heavy yarn produces a thick fabric. A thick fabric achieves a large scale dye design with a broad dyed edge. It may result in a dye pattern that is predominantly on one side with little transference of dye from one side to the other.

The same yarn may be used to weave fabric of different thicknesses. A thicker fabric results in a heavier dye line. The dye line in the following example, which combines both a single layer with a pile cloth, clearly illustrates this.

Cut and uncut velvet stripe on plain weave, silk, weft shibori, acid dyes. 8 shafts.

Note that this fabric provides an additional example where weft shibori was a better technique to use than in the warp. Dye would have flooded down between the edge of the pile and ground fabric.

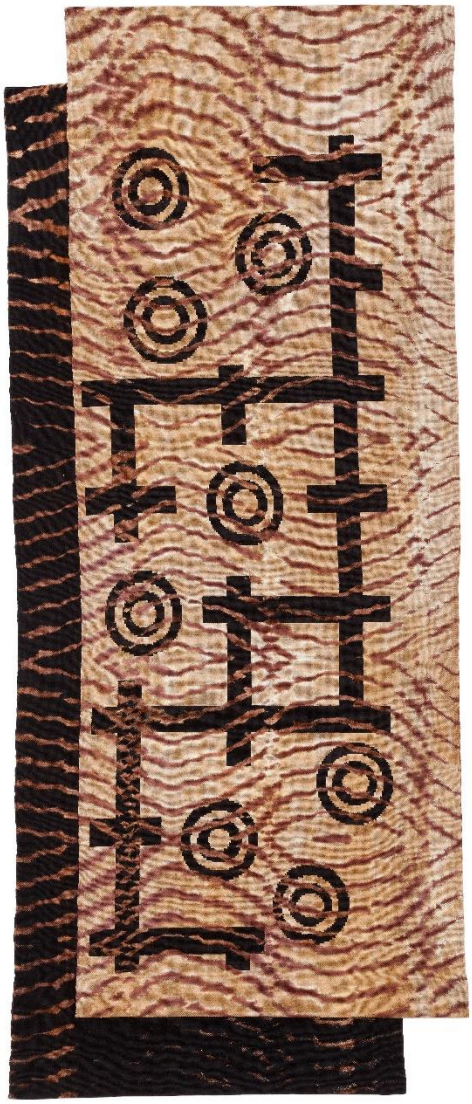
Fibre composition.

Fibres and surface design

Woven shibori lends itself to a whole range of surface design applications. It may be dyed, discharged, overdyed, shaped and sculptured. It may have fibres eaten away using chemicals or altered. The application of whatever process being used must be appropriate for the yarn composition. Different processes require different yarn compositions.

Cellulose fibre reactive dyes require a cellulose yarn (cotton, linen, bamboo, rayon, tencel, or any fibre with a plant base) or silk to work. Acid dyes require wool, silk and animal fibres and nylon. Different fibres require different mordants when carrying out natural dyeing. Other synthetics (polyester and acrylics) won't dye. A blended yarn will pick up the dye according to fibre composition and the type of dye.

Some fibres work well with discharge while some are damaged. Some dyes require specific forms of discharge. Bleach may be used on cellulose fibres however silk for instance will be destroyed. Thiourea dioxide will work well on fibre reactive dyes for both silk and cellulose.



Meeting Place VII, cotton, double weave, discharge, natural dyes (eucalyptus), warp shibori. 8 shafts. Photo: Don Hildred.

A fibre that will be permanently pleated needs to be thermoplastic- in general synthetics.

Silk while it may retain memory for a short while will have pleats that become less distinct over time.

Coral Polyps, triacetate acrylic with wool, lace weave echoed with warp shibori, permanently pleated. 24 shafts. Photo: Andrea Higgins.

Specific surface treatments do require specific fibre compositions. It is important to understand the process required for a specific surface design technique to be able to choose an appropriate fibre composition. A surface that will require heat to complete the setting process, such as foiling, and the use of some fabric paints will require a fibre that can have more extreme heat applied, often a cellulose fibre.

Devore´ requires either two yarns being used together or a blended yarn. When a chemical is applied, one of the fibres is 'eaten away'. Popular fibre compositions combine cellulose with synthetic. It is the cellulose fibre that will be removed.

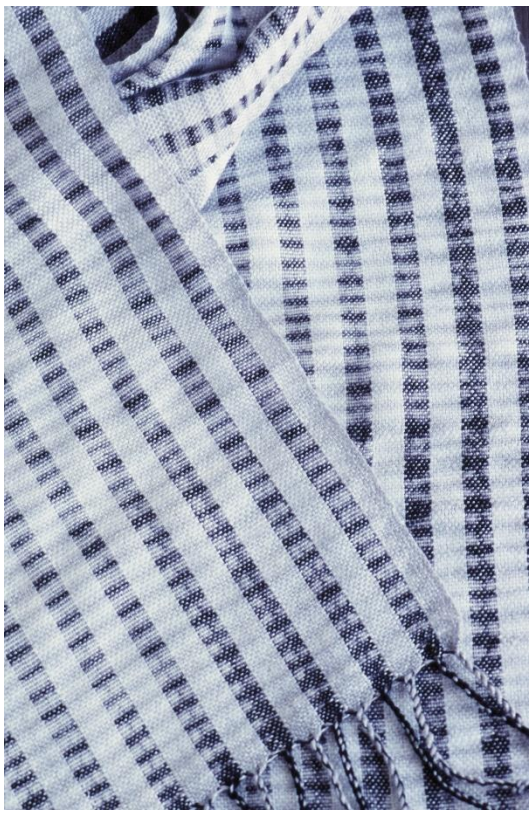
Image

Scarf, invisible sewing thread and cotton, warp shibori, devore´. 8 shafts.

Fibres and fabric design

Combining yarns with different fibre compositions in one piece allows for the use of differential dyeing.

Consider winding a warp with stripes of different yarn compositions. When placed in a dye bath, it can be intended that one takes up the dye while the other won't. Certain dye baths target specific yarns, while others will dye broad spectrum fibre compositions. Choose the dye systems to cater to specific requirements.



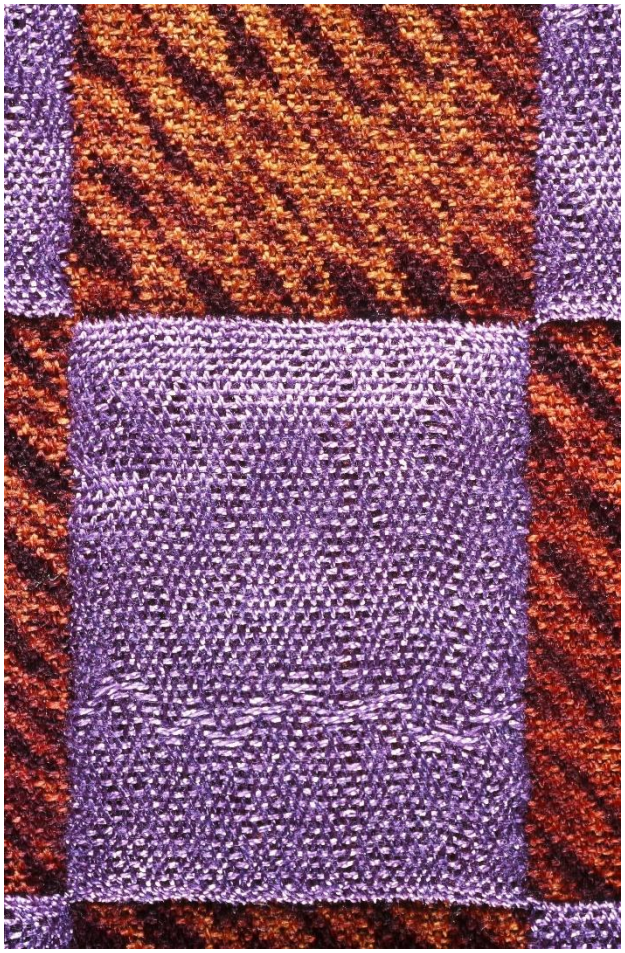
Scarf, wool and triacetate/ acrylic, warp shibori, acid dyes. 4 shafts. The acid dyes will only dye the wool.

Several dye baths may be used each targeting specific yarns of different fibre compositions.

Image.

Scarf: cotton and wool, warp shibori, procion and acid dyes.

When weaving double weave or textiles combining warp and weft faced structures, interesting effects can be achieved with areas that take up no dye or less dye.



Detail *Crossing the Centre*, wool, triacetate acrylic, doubleweave, acid dyes. 24 shafts. Photo Andrea Higgins

Texture of yarn

Weaving with heavily textured yarns may result in areas with less density in the woven cloth. These areas may be a point that allows for the dye to leak through. A tighter sett or a structure that provides a fabric with a greater density or a thicker fabric may be appropriate. A dye or surface treatment may need to be modified to overcome this.

image

Simplicity versus complexity.

As a general statement, if a dye pattern is complex and covers the entirety of the fabric, then the fabric structure will be less noticeable. Consider whether it is worth the effort and the number of shafts that will be needed to create a complex weave structure, only to have it overwhelmed by the dye pattern. Of course a more interesting fabric structure may be more engaging to weave and that in itself may not be discounted. It is also interesting to consider that while a complex dye pattern will visually overcome a complex fabric structure, it may be of benefit to use a more complex structure purely to achieve a more desirable drape or hand.

Image: busy pattern with drape.

A simple dye pattern may be enhanced by a fabric structure or alternatively a complex structure may be enhanced with a restrained or controlled dye pattern. A weaver can enjoy the process of achieving balance between dye or surface design and weave structure where each is in harmony, balancing each other and with as much complexity as they desire.

New Zealand Series: scarf, wool, silk, two tie unit weave, monks belt, weft shibori, acid dyes. 24 shafts. Photo: Don Hildred.

Chapter 4

The Basics: The resist.

Choosing the resist thread

The resist thread must be very strong and smooth. A thread can't be pulled up tightly enough if there is a fear of it breaking. Check for strength before you start. It should also be flexible enough to knot.

I have used a variety of threads out of my stash with good results. Thickness of thread doesn't seem to impact on the fabric. The holes made by the resist close up after laundering. I have used a very heavy thread for the resist in the hope that I would be left with holes after the fabric has been dyed and laundered but they disappeared. Thrums may be used for weft shibori provided they are colour fast and of course are very strong and smooth. Heavy buttonhole or top stitch sewing thread is useable.

Occasionally dye may run up the resist thread leaving small spots of colour when it is removed. It depends on the resist thread and the dye process. Some people like it, others don't. I consider it adds to the effect and denotes part of the hand created piece.

Braided nylon sewing thread is recommended. It can be used singly or doubled. It is strong and smooth and is available in a range of colours. It is accessible from larger sewing stores. It is also easy to use.

I use nylon fishing line extensively and prefer it. I can achieve a much tighter resist using it but it does require perseverance in learning how to manage it. I recommend 6 to 8 lb line that is coloured. It is cheap and easily accessible. Normal blue/green fishing line can be used but is more difficult to see. Having the fishing line extend out from the sides of the weaving in either the warp or weft helps find it especially if it is neutral in colour.

Basic Knots

The Overhand knot

The overhand knot is a useful basic knot. Use singly for all interim knots before the final series of knots is made.

Use doubled, one on top of the other, for making the final knot especially when using fishing line. When knotting fishing line with force, I have found that if two threads are pulled against each other using a surgeon's knot, there is a danger of breakage.

The Surgeon's knot (U-tube video)

Is self-locking and allows a second knot to be made without losing tension. Use as the final knot in creating the resist for all yarns except fishing line.

For resist yarns that will not slip a standard reef or square knot may be used. (Right over left then left over right). This knot may also be used as added security on top of the reef knot.

Weaving with resist

When weaving narrow fabrics using weft shibori, it will be advantageous to leave loops extending beyond the selvedge. This will provide leverage for pulling up the resist. Exaggerated loops are not necessary on wider work though small loops make finding the resist thread easier when using fishing line or non-contrasting thread.

A handy hint when weaving warp shibori is to start and end weaving so that the resist threads are clearly separated from the fabric. This is achieved by weaving only the fabric structure. It may be part of the design of the project or if the design requires the resist pattern to extend to the ends weave with waste yarn to achieve this separation.

Another hint for warp shibori: When cutting off from the loom raise the fabric shafts and cut these warp threads. The resist will remain. These may then be cut and secured in groups for step 1 below.

Fishing line is best used on either a ski or stick shuttle. It has a tendency to be unmanageable on a bobbin for a boat shuttle.

Pulling up the resist

This process takes time. It is best to work in a methodical manner.

For a wide or long length of fabric.

Step 1: Select groups of threads and secure in a group using an overhand knot. The number of resist threads in each group will depend on the spacing of the rows. It may be 4 to 6 on average. If a larger number is used, the dye line may not be smooth.

You may choose to group threads according to the direction of the resist. For instance all threads going in the same direction of the twill line may be tied as groups within that angle and this repeated for others going in the opposite direction. You may need to have multiples of 2, 4 or 6 resist thread groupings. This will result in the most defined resist. When the threads are grouped irrespective of the resist pattern, there will be a greater likelihood of a fragmented pattern.

Image and comparison.

These two fabrics are identical apart from how the resist has been grouped

A large blunt needle or equivalent may be useful to select resist threads and ease them away from the woven edge.

Image

Step 2. Perform this same grouping at the other edge. The groups should match. Weft shibori will require some loops in the resist to be cut.

Step 3. Start pulling up the resist from one end. It is best to work across the fabric pulling up shorter lengths than to try and pull one bundle up for either the entire length or a longer length. Work smoothly and evenly.

Image

Step 4. Keep pulling up the work until you are nearly ready to make the final knots. You may do this from just the one end or from both ends.

Image of pulled up fabric before the final tightening.

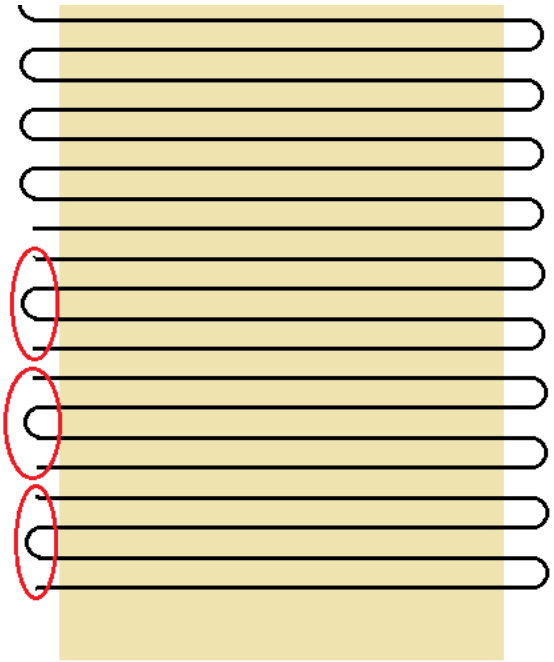
Step 5. Secure one edge for the final tightening using either a doubled overhand or surgeon's knot. Pull the resist as tight as possible. Pull each individual thread to make sure the fabric is totally compressed. Secure this edge with either a surgeon's knot or a doubled overhand knot.

Images: Do series of final knotting.

Hint: the resist threads may be trimmed as the fabric is pulled up. However make sure it is never trimmed less than 15 cm or 6". This length will be required to both make knots and to provide leverage when cutting resist threads after dyeing.

For a narrow weft shibori fabric.

There is no need to make two sets of knots of resist threads. Group each bundle matching the loops on the other side. Weft threads will need to be cut on the side that the knots are made. The diagram below shows every second loop cut on one side. When knotted in groups of four as identified, then there will be two corresponding pairs on the opposite side.



Hint: Pulling up resists can put a strain on the fingers. The use of a wooden dowel may help. Fingers may be protected **before** damage is done by wrapping the stress points in band-aids or even masking tape. You will soon discover where these stress points are after a little while pulling up. Rest before damage is done.

Pulling up the resist reduces the width of the fabric by a great amount. The percentage that the fabric is compressed by depends on the thickness of the fabric and the pattern of the resist. A resist with straight lines compressed more than one with a pattern. Some projects that combine patterns of resist may have different compression rates.

Buffers: an option for starting and ending a resist row.

I came across this useful technique practiced by Jane Callender, a shibori artist who practices hand stitched shibori. I often use buffers in two forms.

The primary use of buffers is to create a separation between the edge of the fabric and the knot. This is very useful when cutting the resist to remove it.

They may also be useful when single resist threads are used or when they are far apart.

Type 1.

Buffers are small squares of fabric, felt or wadding that are threaded onto the resist thread at both the start and end.

They may be useful in keeping the outside edge of the dye pattern clean and crisp with no smudges created by the formation of knots.

This buffer has the added advantage that the resist point becomes more dominant.

Step 1. Cut a small strip of fabric or if using something thicker, a small square.

Step 2. After weaving and before starting to pull up the resist, prepare one side for using the buffer. Thread the resist yarn onto a needle and pass through the buffer. Perform a series of small running stitches on the short strip or pass the needle through the thicker square. Secure with a knot. If the knot is in danger of pulling through a couple of stitches on top of each other will anchor the end.

Step 3. Prior to the final compression and while there is some slack in the resist yarn, thread the buffer onto the other end. Use a series of running stitches if using finer fabric and a small strip of fabric or just pass the needle through the thicker small square.

Step 4. Complete the final compression.

Hint: This is a very useful technique when using a single line of resist stitching. Weave with a doubled resist thread, representing a doubled sewing thread. When combined with using a buffer, creating a good compression is more easily achieved.

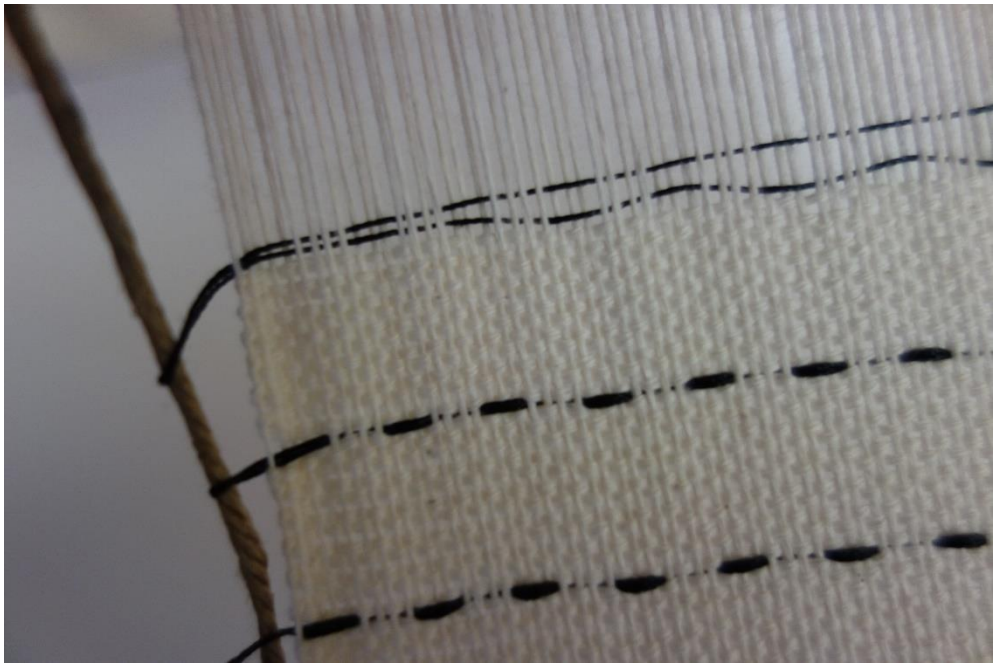
Type 2

Buffers may also be a length of string or cord that knots are tied over to provide distance between the knot and the fabric when cutting and removing the resist. It is often very easy to catch the fabric when the knot is being formed. It is also very easy to cut the fabric if care isn't taken when cutting the knot to undo the resist.

When using cord as a buffer, separate the resist threads to be knotted into 2 groups. Lay the cord in the middle of where the knot will be and complete the knot on top of the cord.

This image was taken after dyeing and shows both the buffer, resist threads

A floating selvedge using a thicker warp thread can be used as a buffer. It is very useful when a supplementary weft will be inserted back into the same row.



Undoing the resist

Pull the knot away from the edge of the fabric. Carefully cut off the knot. Scissors or even a thread ripper may be used.

It is possible to cut the resist thread in between the folds formed by the resist. However there is an increased danger that the fabric may be cut.

Don't be impatient when undoing the resist. Some resist threads have more drag when they are wet. You may need to wait till the fabric is dry. You do not want the process of undoing a fine fabric with weak threads to be damaged in this stage.

Fishing line can be pulled undone while the fabric is still wet.

Chapter 5

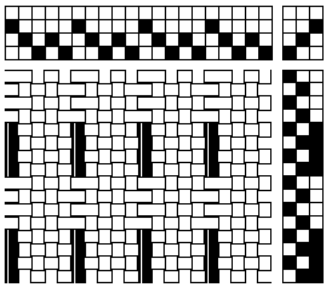
Straight lines

A single straight line or a series of straight lines are the most basic of design elements in woven shibori. They can be used to provide a broad range of very effective results, yet while the effect in itself is simple, it can also be used to create complex cloth.

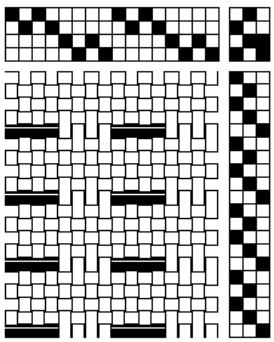
In the previous chapter the following drafts have been identified to weave an even straight resist line while using a minimum number of shafts.

The minimum requirement for warp shibori is three shafts: two for plain weave fabric and one for the resist. To achieve a straight line in weft shibori, two blocks are required. On four shafts two blocks of plain weave and a resist can be achieved.

Even stitching requires the resist stitch length to be the same size above and below the fabric.



Warp shibori



Weft shibori

While these drafts provide a good starting point for both warp and weft shibori, some of the techniques in this chapter may require a very long stitch length and wide spacing. Altering both is very logical.

Adjustments can be made to both drafts to make the space between the resists wider by either increasing the number of ground warps between the resist in the case of warp shibori and the spacing between the resist wefts in the treadling sequence in weft shibori. The stitch length can be increased by increasing the number of rows in the weaving that the resist is lifted or lowered for in warp shibori or increasing the size of the threading blocks in weft shibori.

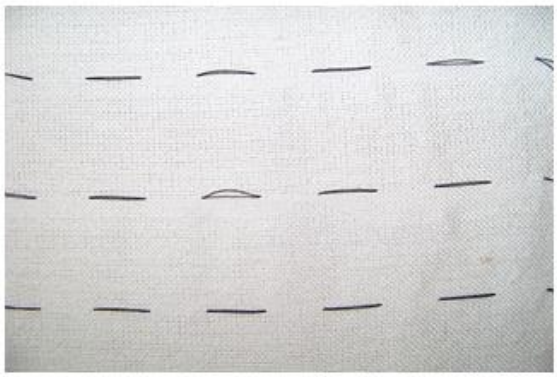
A very precise length and separation can be achieved when the yarn and required sett is accounted for.

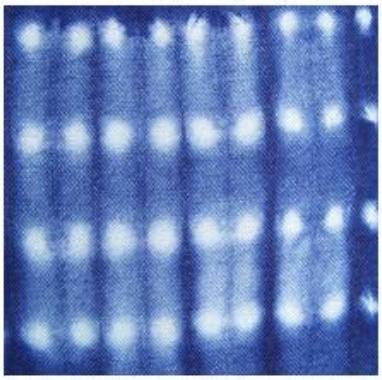
Pattern options for even stitching.

Spacing is critical. If the resists are widely spaced, a line becomes broken or intermittent. In more extreme cases, dots can be achieved. A solid clean line requires spacing between resists that are reasonably close.

Dots

Use a wide spacing for the position of the entry and exit points of the resist in all directions. It is at these points that the resist occurs. The emphasis is not on the folded edge of the fabric, which results when the fabric is pulled up.





Sampler: cotton, weft resist, indigo. These lines of resist have entry and exit points approximately 2 cm or 3/4" apart. Clear dots have been formed at the entry points with some dye penetration along a loosely formed fold.

The most clearly defined dots will have wide spacing between the resist rows and have very long stitch lengths.

An exaggerated dot will occur when buffers are used. This broadens the entry and exit points.

Image

Scarf, wool, widely spaced resist, warp shibori with buffers. Acid dyes. 4 shafts

A single line.

Weaving just one row of a resist will result in a visual straight line. The resist length will need to be reasonably fine. When the fabric is pulled up and dyed, a series of small dots will result in both the resisted and dyed areas. The eye will join these creating what appears to be a single line. In warp shibori this will appear as a line that runs parallel to the selvedge, while in weft shibori, it will run across the width of the fabric.

Image of one resist thread

For the ease of pulling up as each row needs to be pulled up individually, use either a doubled thread or two rows close together. A doubled thread will require some form of buffer at either side to be able to be pulled up tightly. Two rows woven with either one or two rows separation can be pulled up without buffers. The second option will result in the appearance of a slightly heavier line.

Image of two resists together with fabric.

Multiple lines

Weaving several resist rows results in a fabric that will be pulled up in straight pleats. If this fabric is dyed, the top of the folds will be accessed by the dye and result in a series of parallel dyed lines. A close spacing achieves the most clearly defined line. Four to six rows between each resist is usually adequate for optimum results while being the most efficient.

Several warp resist rows results in dye lines that run selvedge to selvedge. Multiples of rows in weft shibori, result in parallel lines running the length of the fabric. This is the opposite effect to a single row of stitching.

2 samples: parallel lines in warp and weft shibori.

Chapter 6

The basics: putting the fabric and resist together

So far focus has been given to the fabric structure and the requirements for the resist thread. This chapter examines how the resist is combined with the fabric structure.

Stitch length

A good starting point in considering what will be an appropriate stitch length is to consider a woven fabric and envisage stitching with a needle and thread. Logically, using a needle and thread, you would need a longer stitch length for a thicker fabric than a finer one. Different spacing will result in different effects- a denser or more open design.

Ideally consider what would be an appropriate stitch length for a particular project and the fabric you are about to weave before selecting a technique. Once you've decided on a stitch length, then structure options and modifications become clearer.

As a general guide, the smallest stitch length recommended would be over or under 4 threads. It can be however long you wish it to be.

It is possible to combine different stitch lengths within the one project.

The spacing between resists.

Remember that the resist thread that will be creating a dye pattern is either a supplementary warp or weft. When using these in conventional woven patterns such as overshot or summer and winter, they are inserted after every ground or fabric row. When using them for woven shibori, there is no need to use them in every second row and it would be a wasted effort to do so.

As a general guide, the supplementary warp or weft is inserted after every four to six fabric threads. There will always be variations on this guide. If a less clear pattern is required, then the spacing may be further apart.

It is of course possible to combine different spacing between resists for specific effects. An interesting effect can be achieved when a random spacing is utilized.

Fabric length: cotton, warp shibori in straight lines with resist threads randomly removed, indigo. 4 shafts.

Many different effects can be achieved as the result of spacing between rows. More will be covered on this topic in Chapter 6.

The number of resists between rows will also influence the angle of any dye motif. If a diagonal line is used, an increase in the number of ground threads between the resist threads in either the warp or weft, will make a dye line steeper. A decrease will of course make it flatter.

It will also affect the density or cohesiveness of a dye pattern. The greater the distance been resists the more opportunity there is for the design to fragment.

Even and uneven stitching

It is very easy to get into the habit of having a resist thread pass over and under the fabric with the same stitch length.

Diagram of even and uneven stitches- cross section

The effect of using an even stitch length is that when the fabric is pulled up, the same quantity of fabric is compressed above and below the resist line. This results in the dye or whatever surface treatment is chosen being evenly applied to both sides of the fabric.

It may however be highly desirable to shift the balance of exposed surface through the use of uneven stitching. An uneven stitch can result in just a narrow line of colour when dye is applied to just one side.

Image

Scarf, cotton, discharge, fibre reactive dyes, warp shibori, uneven stitching with dye application to one side. 8 shafts.

It may conversely result in a greater area of dye being able to access the reverse side. It may be more difficult to get an even dispersion of dye on this side if the pattern fold is large, as the fold will have less rigidity.

When different balances of even and uneven stitches are combined within the same piece it can result in shadows being cast by larger folds over finer ones.

Some fabric structures in weft shibori may combine even and uneven stitching by default, purely as the result of the threading sequences. In warp shibori, combinations of even and uneven resists are dependent on the threading draft and the treadling sequence.

Warp and weft shibori: an overview.

There are two basic methods of achieving woven shibori. Each has their inherent characteristics in the dye pattern of the final cloth. Each has their own design limitations and freedoms. The following information provides a general overview of these. An understanding of these informs the weaver of the best possible choice for any given project.

These are two images of simple warp and weft shibori. Notice the position of the selvedge.

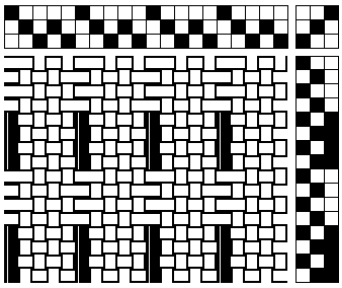
2 images : warp and weft shibori: same yarn. Same stitch length, same spacing

Warp Shibori	Weft shibori
The dye line runs selvedge to selvedge.	The dye line runs parallel to the selvedge.

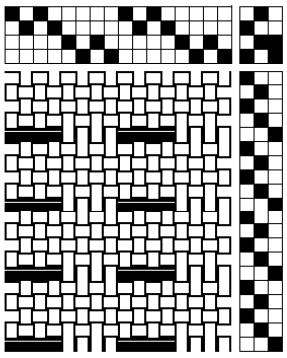
The alignment of dye pattern is important when one considers the final project. Does the pattern need to run the length of the project or is it best for the alternate direction? This may be flexible in some instances but critical in others. Consider the effect of dye lines going across a pattern piece for clothing or lengthwise.

These two drafts show the simplest of dye pattern: straight lines.

Warp shibori



Weft shibori



Both drafts result in resists with a stitch length of over and under four threads. Both drafts have ground fabric in plain weave with both four rows separating the resists and between the resists. The dye lines in the above fabric are the result of pulling up these resist threads in either direction.

Comparison of shaft requirements.

Warp shibori requires a minimum number of three shafts. The resist threads in this case are threaded on one shaft. The fabric requires two shafts for plain weave. The fabric and resist shafts work independently.

Weft shibori requires a minimum of four shafts: two blocks of plain weave requiring two shafts each. Each block can now be isolated to weave a resist row.

Stitch length

The resist stitch length in warp shibori is flexible and controlled by the number of rows that are woven. As a result it can be as short or as long as a weaver wishes.

In weft shibori the resist stitch length is dependent on the threading draft. To increase or decrease the stitch length for weft shibori alter the number of threads in each block of the threading draft.

Spacing of the resist.

In warp shibori, the spacing between resist rows is dependent on where the supplementary thread is added into the threading draft. Adjust the number of fabric threads between the resist to increase or decrease the spacing.

In weft shibori, the spacing of resist rows is flexible. It is inserted whenever the weaver wishes in the treadling sequence.

Designing the combination of resist and pattern

The fabric and resist design in warp shibori are totally independent. The difficulty lies in choosing the balance between the two. On an eight shaft loom the two extremes in shaft allocation are: 1 shaft for resist and 7 for fabric design or 2 shafts for fabric and 6 for resist design. Any balance between the two is possible. Of course the more shafts you have, the more diversity can be achieved.

The fabric and resist design in weft shibori are interdependent. Both are developed from the same threading draft. The fabric structure may look different to the resist and vice versa but it comes from the same source. The best design approach may be to choose or develop a draft for the resist and then work out the fabric design from that. If the fabric is designed first, the draft will need to be evaluated as to its suitability.

Time

Warp shibori takes more time to thread due to the increased number of warp threads because of the added resist.

Weft shibori takes much longer to weave. Two shuttles are required for weft shibori while only one is used for warp shibori.

There is usually a difference in time required to pull up the resist to create the required compression. In warp shibori, the knots are made across the width of the fabric. In weft shibori, knots are made the length of the woven piece. Depending on the length and width of the fabric, there are likely to be many more knots required in weft than in warp shibori.

Combining areas of resist and no resist

An all over dye pattern may not be required. There are two basic methods to achieve this.

Exact placement of resist pattern.

If the position of the resist on the project is known, then it is possible to calculate the threading and treadling sequences.

Borders either along the warp in warp shibori or across the width in weft shibori are ideal to weave in this manner. As the resist is included exactly where it is required, there will be no wastage of resist yarn.

Images

Cocoon, cotton and silk, twill fabric, warp shibori border, fibre reactive dyes. 8 shafts

Removal of resist from where it is not required.

A resist pattern may be woven over the full fabric. Once the fabric is completed, sections of resist can then be cut, undone back to where the knots will be formed before pulling up commences. It should be noted that the resist isn't cut at where the shibori pattern is required. Some resist thread length is required to form the knots. Sometimes this approach is easier as the final appearance may be adjusted according to what is actually seen.

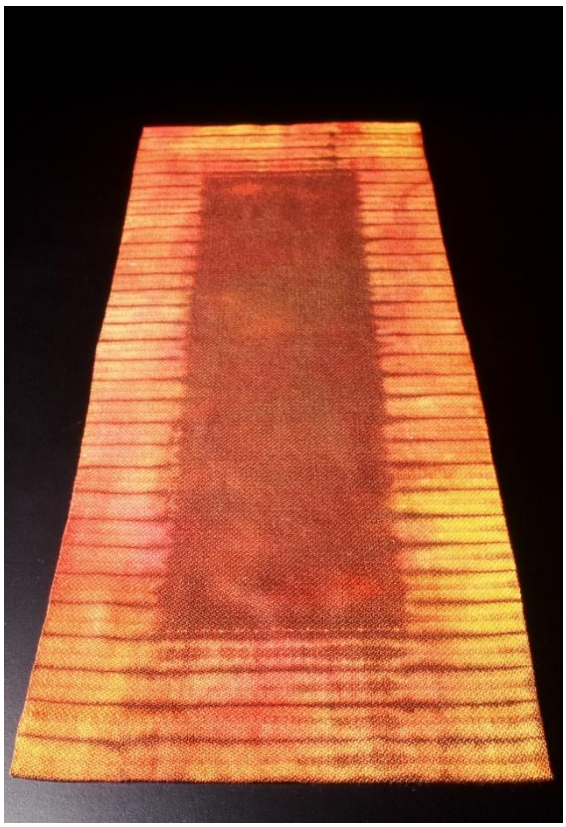
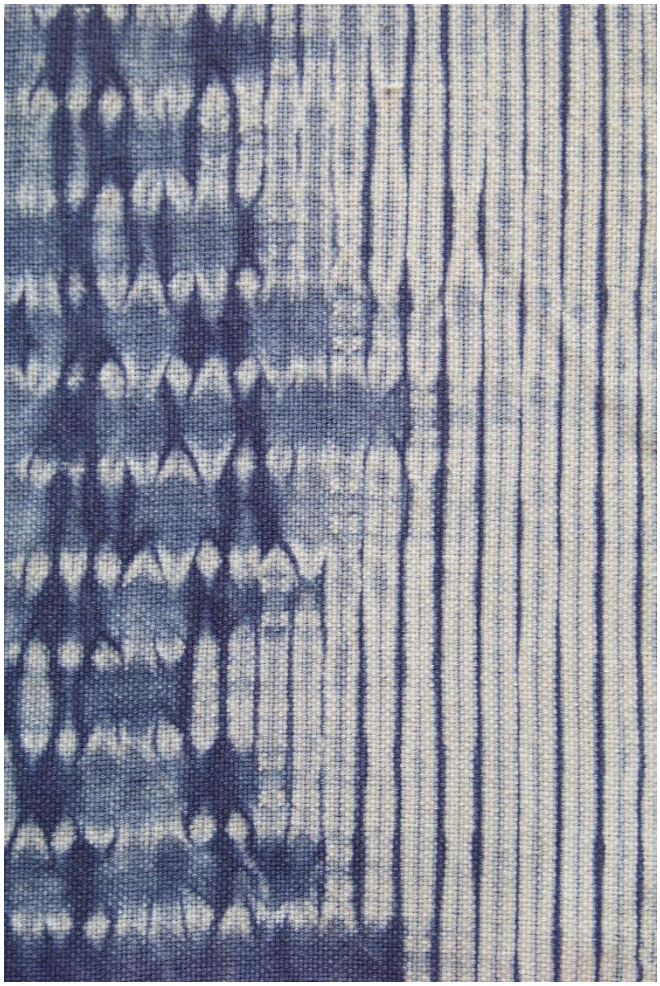


Table runner, cotton, broken twill fabric, warp shibori, fibre reactive dyes. 5 shafts.

Making shadows

A dense and less dense pattern may be combined in one project. This is achieved by having some areas with closely spaced resist rows and other areas with a more open spacing.

It may be achieved by the draft or by the removal of selected rows. Either warp or weft shibori is suitable.



Fabric, cotton, warp shibori combining density of dye pattern. 8 shafts

Chapter 7

Straight lines evenly spaced with alternate fabric structures.

Straight lines on plain weave can be rather boring. A more exciting cloth will result when the fabric structure adds something to the overall design. In addition other qualities such as an improved drape may result.

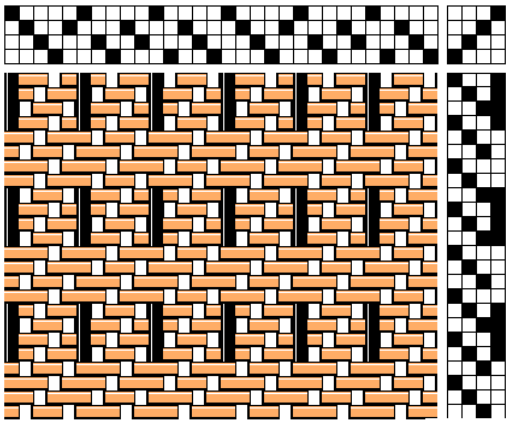
Of course, the more shafts that are available, the more complex the fabric can be.

It is important to evaluate the suitability of shibori technique with the thickness and character of the fabric.

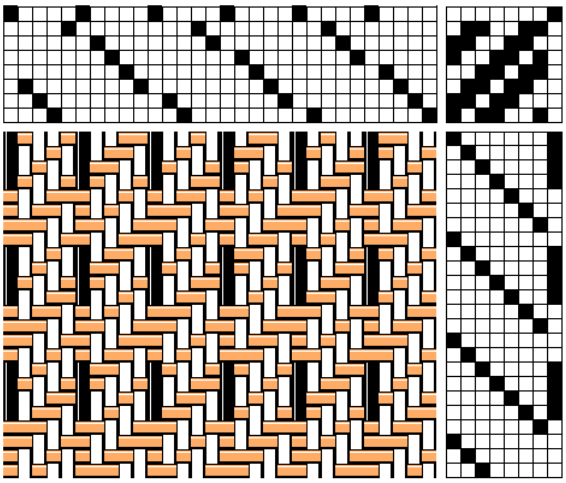
For the purpose of comparison in the next section, the resist stitch length will be over or under four threads. The spacing between resists will also be four threads. All drafts are for twill fabrics.

Warp shibori

As only one shaft is required for the resist, all the remaining shafts are available to create a more complex fabric. Therefore for those with a 4 shaft loom, it is possible to weave a three shaft twill with one shaft being required for the resist. On an 8 shaft loom, seven shafts may be used for the twill fabric. The fabric draft has no correlation to the resist with the resist being inserted at the required spacing.



4 shafts : 3 twill fabric, 1 resist.



8 shafts: 7 shaft twill fabric, 1 resist.

Continue the threading and treadling sequence while maintaining the inclusion of the resist.

Image: table runner, cotton, broken twill, warp shibori, fibre reactive dyes. 4 shafts.

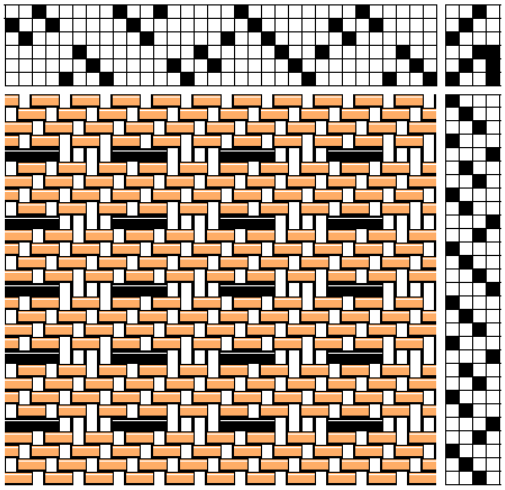
Weft shibori

On 8 shafts the options are different. (A weaver is unable to obtain twill as well as a resist of over 4 threads on a four shaft loom).

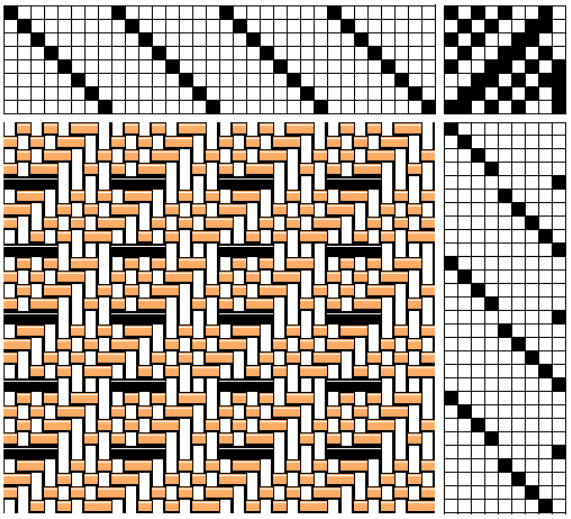
There are two approaches to achieving a stitch length of four on an 8 shaft loom.

The first is to have 2 blocks of twill. This means that a weaver could have two blocks of three shafts. This will achieve a similar result to that which can be obtained on four shafts as above.

The second is to utilize a straight draw and divide the eight shafts to achieve a resist length of four. This will then enable any 8 shaft twill fabric to be woven on this threading.



6 shafts = 2 blocks shaft twill + resist.



8 shafts= 8 shaft twill + resist.

Continue the threading and treadling sequence while maintaining the inclusion of the resist. The threading sequence has a direct influence on the stitch length. A stitch length of four, must be reflected in the threading draft.

Image

Wool, twill fabric with straight resist. Dye applied randomly by brush to both sides. Acid dyes. 8 shafts.

Structures other than twill for warp and weft shibori

For warp shibori, on an eight shaft loom, any structure requiring up to seven shafts can be utilized. There is freedom here.

The seven shafts can be used for lace weaves, overshot, summer and winter, double weave and many more.

The stitch length and spacing is easily varied. All that needs to be done is add in the resist at whatever spacing is required in the warp and treadle it raised or lowered for whatever distance is required.

Designing with even stitches on weft shibori is much more limited. The threading of the fabric structure needs to be multiples of whatever stitch length is required whether it is as blocks or of a structure.

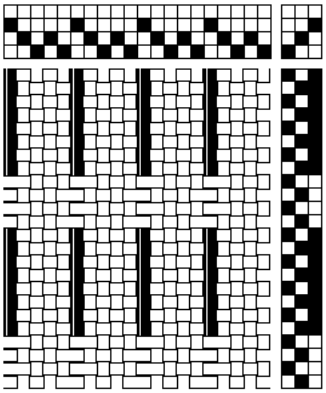
So a resist length of four could be achieved with a lace weave of a four end unit, while a stitch length of six could be achieved on a lace weave with a unit size of six ends. A stitch length of ten could be woven as two blocks requiring four shafts each. Two blocks of double weave can be used to achieve any stitch length, as four shafts are required for each block. Any other structure needs to be able to be threaded as two blocks using just four shafts to achieve even stitches of unspecified lengths. As a result the complexity of design using this method is limited.

Scarf, double weave, warp dyed wool for one layer, textured yarns for the second. Weft shibori with entry and exit points for stitching at joins for double weave layers. Pleats bound with yarn when pulled up. Acid dyes. 8 shafts.

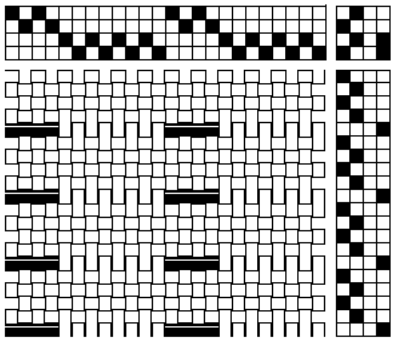
Uneven stitching on straight lines of resist.

Sometimes it will be desirable to achieve an unbalanced stitch length for use with traditional techniques.

On plain weave it is a simple matter of adjusting the resist in the treadling sequence for warp shibori and in the threading sequence for weft shibori.



Warp shibori- over eight threads



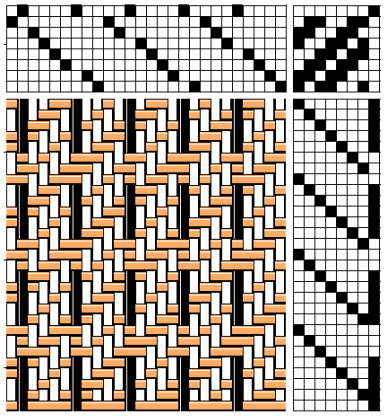
Weft shibori- over four threads fabric

The reverse side of these two drafts will match the turned view of other.

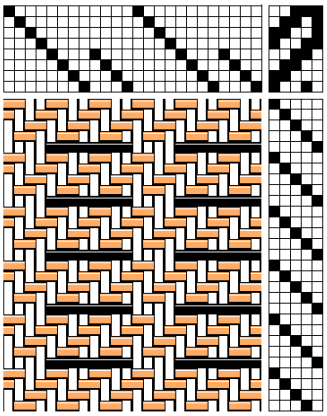
The principles for designing uneven stitching with different fabrics remain the same.

In warp shibori any seven shaft structure can be used. Insert the resist thread as desired and weave for the appropriate number of rows.

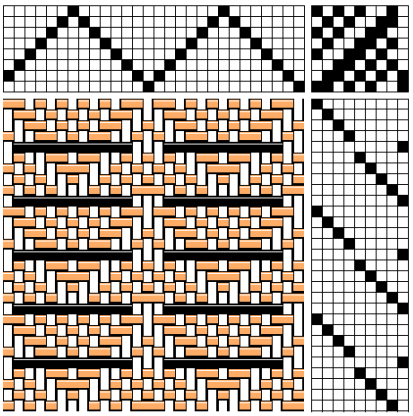
Weft shibori requires the differing stitch lengths to correlate with the threading draft. The two design approaches are shown below: either as a result of block size or as the result of selecting the stitch length from the threading.



Warp shibori, twill fabric.



Weft shibori: two blocks.



Weft shibori: 8 shaft threading.

Of course more shafts equal more design options for ground structure. For warp shibori just one shaft needs to be set aside for parallel lines or two for offset resist lines. For weft shibori the shafts can be allocated in whatever means so as to achieve either 2 blocks or a draft that can have shaft combinations resulting in an even or uneven stitch.

Making complex cloth

Very complex cloths can be achieved when several elements are combined.

Red and black fabric

Fabric length: cotton, supplementary warp, warp shibori, fibre reactive dyes. 8 shafts. Image: Andrea Higgins

This fabric relies on the positioning of a black stripe either side of the shibori stripes to hide any bleeding that may occur when the black dye is painted on.

Image

Fabric length: cotton, silk, plain weave combined with twill, warp resist on twill stripe, fibre reactive dyes. 8 shafts. Image: Andrea Higgins.

Image warp shibori more than 8?

Image weft shibori complex on 8

Weft shibori more than 8

It is entirely possible to take the most basic of elements covered in this chapter: warp and weft straight lines and combine them in one cloth. Here is a draft that shows one way of enabling this combination. So as to enable the resist threads to be selected in opposing directions in alternate blocks, each area of plain weave must have its own set of warp and weft resists.

Chapter 8

Straight lines and inspiration from traditional stitched shibori

Before progressing any further with the development of woven shibori, it is valuable to recognise the role of traditional shibori as a source of inspiration. The ability to weave warp and weft shibori with a straight line or lines of resist can be used in conjunction with traditional shibori.

Open any traditional shibori book and you will find reference to stitched shibori: one that uses commercial fabric, a sewing needle and thread. This chapter develops some of these traditional stitched shibori concepts for use in woven shibori.

In any traditional shibori book, there will also be references to folded and pleated cloth that can be resisted in various ways. Horizontal or vertical stitching results in perfectly pleated cloth that can then be used in these traditional methods.

It is to the interpretation of these two traditional processes, that this chapter is directed.

The fabrics.

Traditional shibori practitioners will buy commercial fabric on which to perform various processes.

The fabrics are usually reasonably fine in weight, often white and of an all over structure that will provide a background to the dye pattern.

The fabric structures are often plain weave, a basic twill or satin. Infrequently the ground may be of a more complex structure but it will always be used as a background for the shibori. Silk and cotton fabrics are often used. Sometimes variations exist purely because the dyer wishes to achieve an effect. Indigo and natural dyes are often used though chemical dyes also appear.

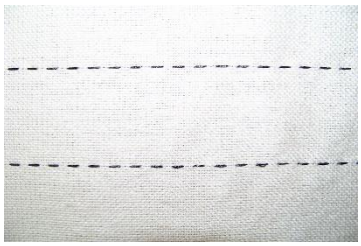
As hand weavers we can choose to weave these neutral fabrics that will provide a background to a form of traditional shibori or we can choose to weave fabric that will work with and compliment the technique.

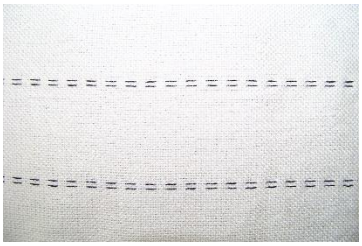
This chapter will not provide drafts for the fabric or resists. It will be presumed that information from the previous chapter will be used allowing a weaver to decide what fabric will provide a background for each technique.

The focus for this chapter remains totally on shibori pattern that has been developed from traditional methods with the fabric merely as background.

Stitched designs.

In the previous chapter the process for weaving a single line was developed for both warp and weft shibori.





It can be with either a single row or two rows woven close together.

While traditional practitioners have the ability to stitch curves, weavers can take inspiration and modify these effects.

A stitched line can be used in its own right to create pattern. Consider the use of discontinuous lines. These discontinuous lines can be controlled on the loom or resist cut and pulled back to a position where they are required. Sometimes it is easiest to weave an all over resist and then remove whatever is not required. In that way it is easiest to see an all over effect though yarn wastage is greater.

Discontinuous lines can also be combined with hand stitched motifs. It may be of benefit to use the same style of stitching (parallel or single) and approximately the same stitch lengths so that both elements work together.

Detail scarf, cotton, traditional and warp shibori, indigo. 4 shafts.

Creating a folded cloth for positioning a clamped image.

When a fabric needs to be concertina folded in exact increments, woven shibori can be used to facilitate this. Once the pleat length is decided, the stitching length can be calculated based on yarn and sett. Weave in the resist threads and then pull up the resist. The spacing need not be as close as if it were being used for woven shibori. These are only guide threads and their use will result in perfectly even pleated fabric.

Additional resists are created when the pleated fabric is placed between two identical objects and clamped. Once clamped, any resists that are exposed can be removed.

The same process can be used to create any repeating motif.

Still Playing, wool, triacetate/acrylic, plain weave with supplementary warp combined with warp shibori for pleating, wooden shapes, acid dyes. 8 shaft loom.

This perfectly folded fabric, can also be refolded using concertina pleats and then resisted with a clamped object. This results in a mirror image in both directions. This process saves half of the pleating process. Exact fold lines can be identified by where the woven resists are placed.

Creating a folded cloth for binding

In much the same way that wide pleats can be formed for clamping, narrow ones can be created for binding.

These pleats need to be narrow in width. Once pulled up, thread or cord is then used to bind the pleated fabric.

Image of bound and wrapped fabric; before and after

If only one side is to be dyed, the pulled up fabric may be bound onto a pole.

Image

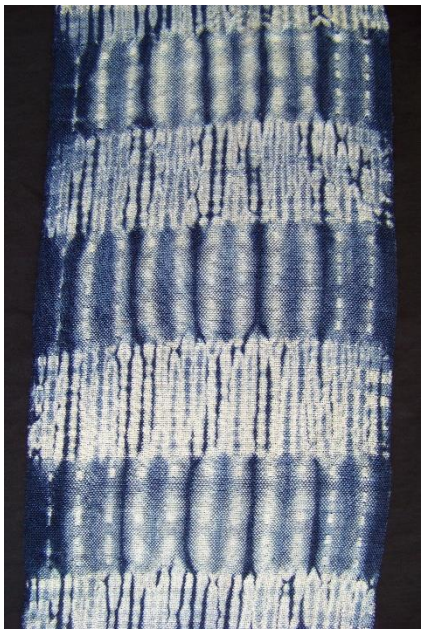
Yardage, twill ground, warp resist, bound onto a pole, fibre reactive dyes. 4 shafts.

Creating a folded cloth for parallel dye lines

Parallel lines are formed when columns of resist are woven. The spacing between resist rows should be reasonably close to control even folds and achieve a continuous line. A spacing of four to six is suitable though this can vary according to the thickness of the sett.

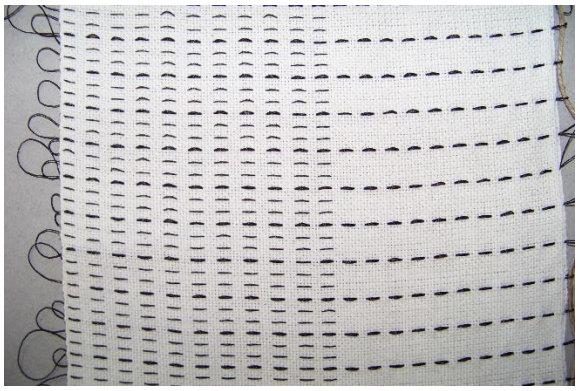
The following are some interpretations of traditional designs based on areas of parallel dyed lines.

Folds of different depths can be combined as bands.



Scarf, silk, weft shibori of narrow and widely spaced parallel lines, indigo. 8 shaft loom.

Different densities of parallel lines can be used.



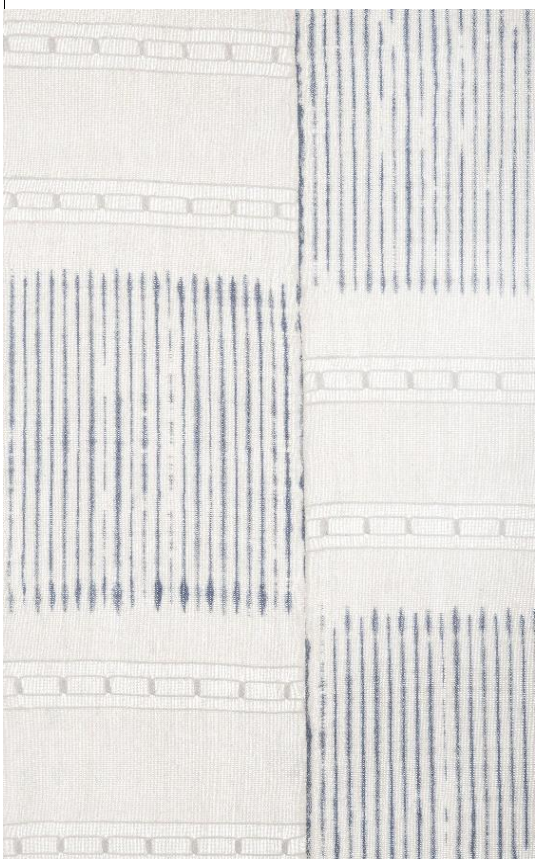
Squares for patchwork, cotton, weft resist, indigo. 4 shafts.

Images built up of parallel lines can be achieved. The image can be either woven as the shape using the resist on the loom or by the removal of threads after it has been woven. Achieving a diagonal line in this case can be readily achieved if the spacing between the resists and the stitch length are the same.

Cotton, warp resist, resists removed to form diamond shape, indigo. 4 shafts.

As well as traditional techniques providing inspiration, it can be the way a technique is used that also provides inspiration. The following project is an example of this.

I have long appreciated the control exercised by a dyer to achieve fabric with exact lengths of dye lines that when are sewn together match. There is an image of a kimono that appears regularly in traditional references. I have taken this concept to weave strips to be sewn together. A specific hand woven fabric has been woven to make the undyed areas more interesting.



Wrap: silk in various weights, weft resist to achieve folding, clamping and binding, acid dyes. Stitched in 3 panels. 4 shafts.

Traditional methods combining with woven shibori.

By combining these two methods of achieving dye pattern a more complex pattern can be achieved. In the following examples straight lines have been combined with other traditional techniques. Sometimes just one dye process may be required, while for others several may be required, one for each process.

The following are some examples of different combinations.

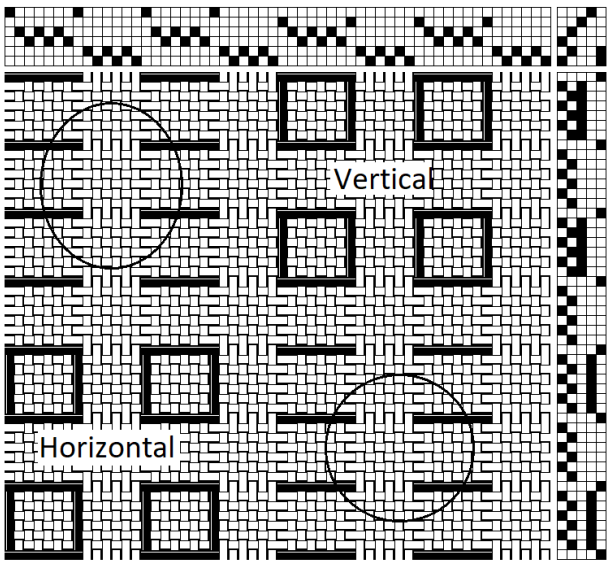
Straight lines have been given more interest with the combination of bound areas. Fabric is pulled up from a point and loosely folded before being wrapped. This will result in circular motifs with bound lines running around them. All of these areas are tied and bound first. The woven resists are cut enabling them to be pulled up around the bound motifs.

Yardage: cotton, twill fabric …….. combined with warp shibori. Indigo. 4 shafts.

The following series combines warp shibori with folding and resisting between two circles. Different effects were achieved by the sequences of dyeing for both processes. In one the circles were clamped and dyed before the resist was pulled up and dyed. The reverse was also carried out.

Scarves: warp shibori, twill fabric, clamped design., acid dyes. Two processes. 4 shafts.

The process was extended for both warp and weft shibori combined and interspersed with bound circles. The following draft will achieve both warp and weft shibori in the one project. Use the vertical or horizontal resists in each section as indicated.



Image

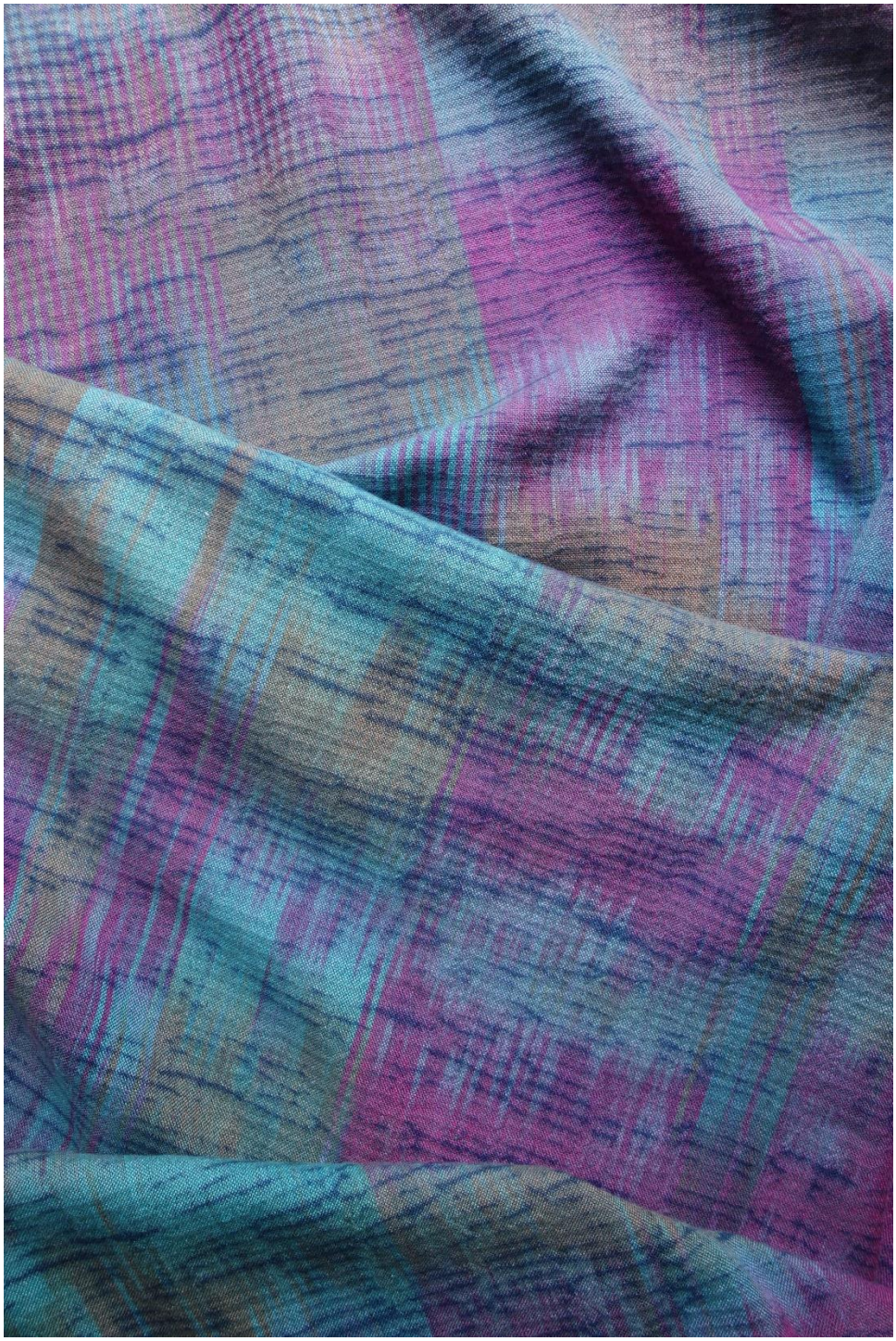
Wool, warp and weft shibori with bound circles. Two acid dye baths. 6 shafts.

All the warp shibori was pulled up in combination with the opposing circle and dyed in one dye bath. The opposite was carried out with the weft resists being pulled up. Each square of resist was

treated individually allowing the circles to be tied. To ensure perfect circles, the outline was stitched before binding.

Conclusion

Traditional shibori resources can provide much inspiration for woven shibori, both as approaches to resist, applications for techniques and techniques to use in combination. Many of these have been explored here. However this is just a start as there is much more potential. Consider introducing complex cloth into the mix. Consider other forms of woven shibori and how traditional techniques can enhance, extend and complement each other. The design possibilities are enormous.



Chapter 9

The straight diagonal or angled line: the basic principles.

The use of diagonal lines whether they are true diagonals of 45˚, flat or steep are some of the most pleasing surface design lines created by woven shibori.

To understand the basics only straight diagonal lines in one direction will be used. The following chapter will investigate the multitude of pattern that can be achieved by reversing directions.

A logical place to start is with a structure that weavers know will produce diagonals: the twill draft.

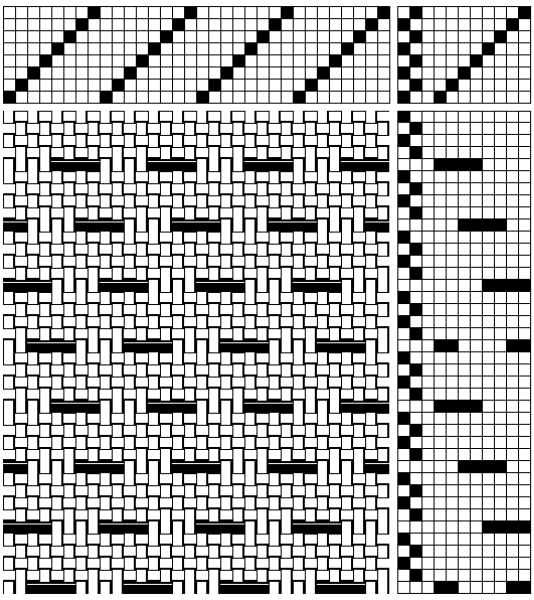
This chapter refers to eight shafts. Of course this basic theory can be extended to any number of shafts.

Using a twill draft

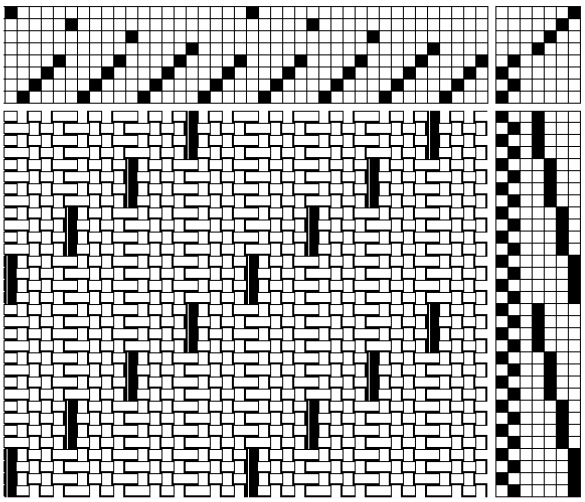
To weave an effective resist pattern of angled lines, a minimum of eight shafts is required. This chapter examines basic principles in obtaining an angled straight line. Once these principles are understood, versatility of line design can be applied and the best choice can be made for a specific application.

Of course an angled line can be obtained with either warp or weft shibori. Two examples are provided here.

A straight threading draft threading draft will result in straight angled resist lines.



Weft shibori on 8 shafts resist.



Warp shibori on 8 shafts: 4 shafts for fabric and

Both have a float length of four. Both have spacing between resists of four. The result is a different angle of resist.

An examination of both warp and weft shibori using an angled line will be separate as both have specific approaches to controlling the angle of resist. These approaches apply for whatever the number of shafts that are available.

Theoretically there is no “right” number of fabric rows between resists. However as a general guide, too many rows will result in a fragmented dye line as the resists allow for uncontrolled movement between the resist. Just one or two rows between the resist results in slow weaving and would usually be considered excessive. I have used spacing of three and six in some of the following explanations purely for convenience of comparison; both are acceptable. As a guide four to six fabric rows between resists are reasonably standard for most purposes.

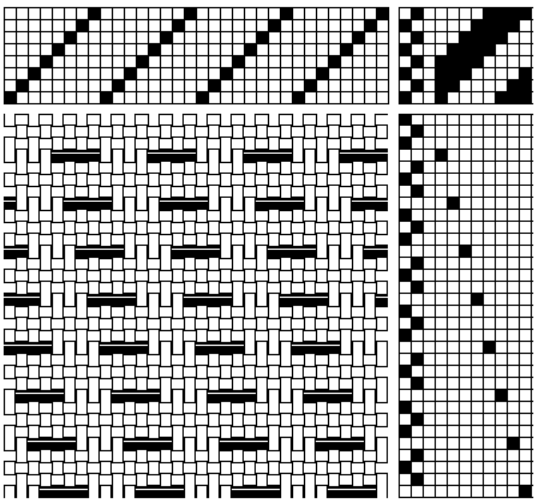
Weft Shibori

Balanced float length

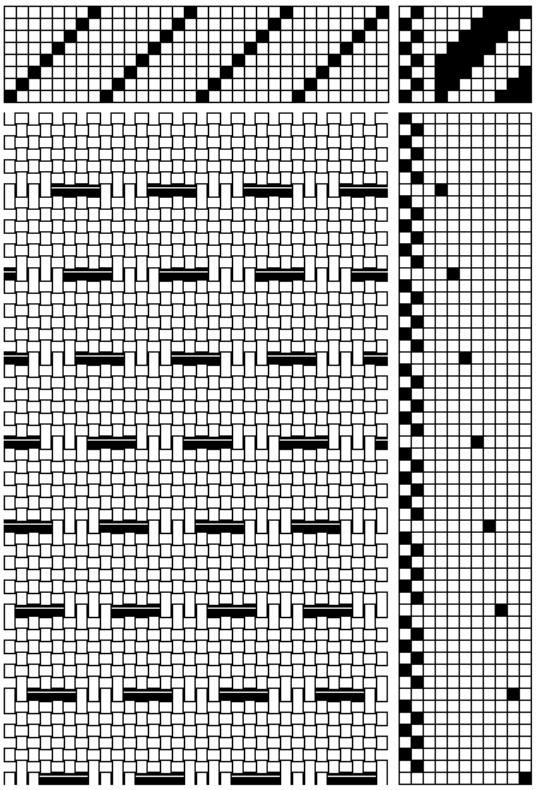
To understand the theory of weft shibori, an eight shaft loom will be used. For comparison purposes, the tie up will remain constant.

On an eight shaft loom, the threading draft consists of eight warp threads which when divided by two results in over and under four fabric threads. There is no other possible outcome to achieve even stitching on a straight draw.

It is of course possible to vary spacing between resist rows. That variation will affect resist angle.



Draft A: Three plain weave rows between resists.



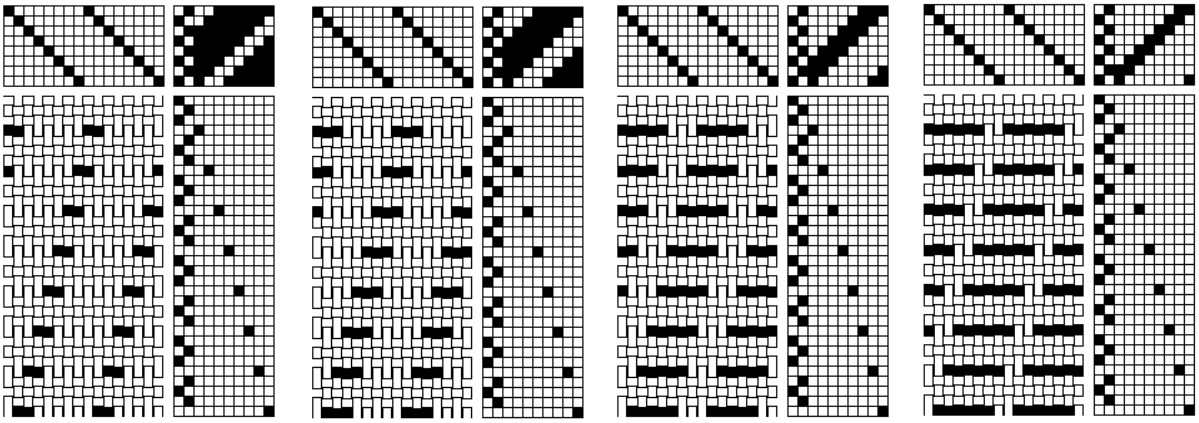
Draft B: Six plain weave rows between resists.

When three rows are woven between resists, the total number of fabric rows is twenty four. When six rows are between the resists, then the number of fabric rows is forty eight. Six rows between resists results in a much steeper angle.

Uneven float length

Shifting the evenness of the float controls the proportion of fabric that is exposed to the dye on either face of the fabric. (Chapter 6)

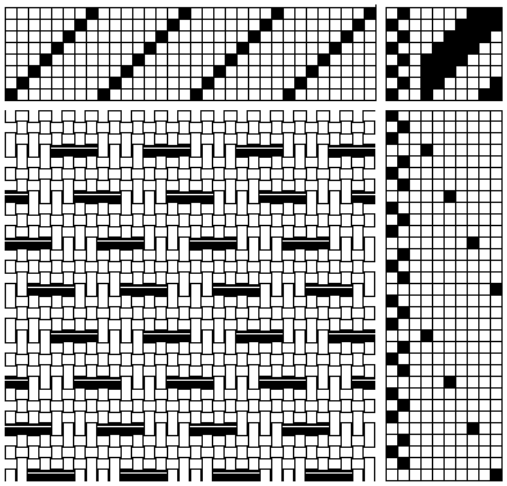
When eight shafts are available on a straight draw, mathematically these are some possible combinations if the resist float is 2 or more on either side of the fabric.



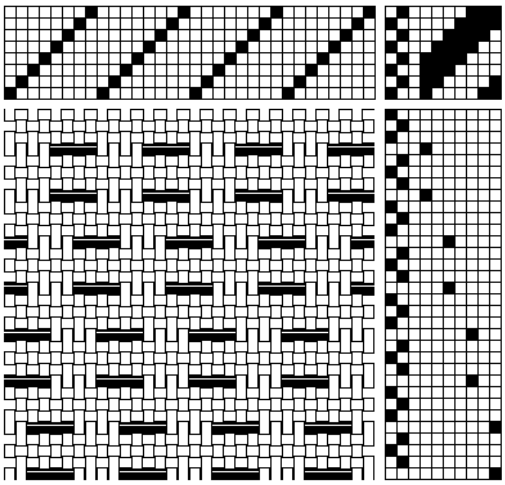
Draft C: Uneven stitching with a float of over two, three, five or six warp threads with a spacing of four fabric rows.

Change the progression of the resist.

No matter whether the floats are even or uneven, how the resists are used will affect the angle. Increasing or decreasing the number of rows between the resist rows will alter the resist angle.



Draft D



Draft E

Draft D uses every second resist row of the original draft A. For the purposes of comparison, the original tie up is included. This will reduce the angle by half. The number of fabric rows in one repeat is twelve as opposed to the original twenty four in draft A.

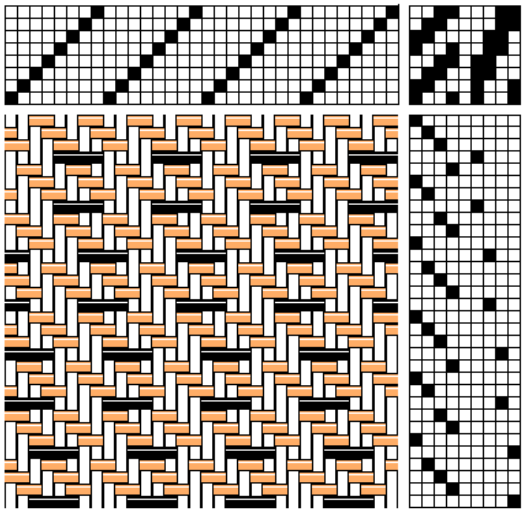
Draft E has the same number of fabric rows as the original draft A. However only four resist lifts or treadles are used. Each lift is repeated twice. This has the effect of returning the resist angle to the original position as there are again twenty four fabric rows. Repeating the same resist row twice

does not affect the overall result as it is done consistently. It is still a smooth line when the resist is pulled up.

What is the benefit of using draft E over draft A? The end result is basically the same. While draft A has an apparent smoother progression, draft B requires fewer treadles for the resist- four as opposed to eight. This compressed version requires the use of only six treadles. This may impact on the ease of using a treadle loom for resist and more complex fabric.

Diagonal resist on alternative fabric structures

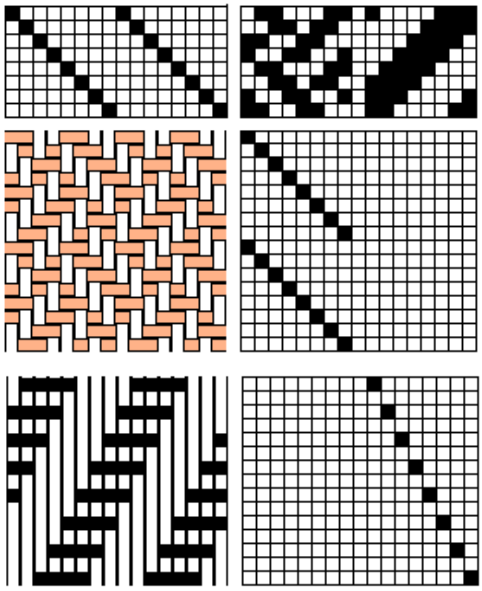
Usually an eight shaft floor loom has ten treadles. By compressing the number of resist treadles as in the previous draft E to four, a standard eight shaft loom can now be used to weave a more complex fabric. Six treadles are now available for the fabric structure.



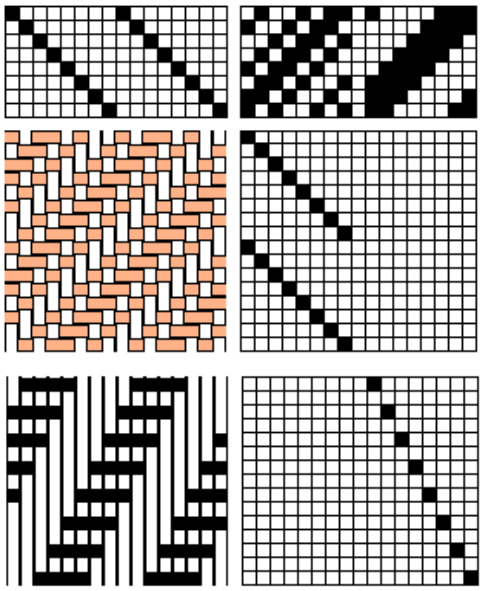
Draft F: Angle resist on twill fabric.

Eight treadles are required to weave this fabric: four for the resist and four for the twill fabric. The resist draft is the same developed in Draft E. For practical purposes, the weaver would probably choose to insert the resist after every four twill fabric rows. This draft shows consistence to the development of the concepts in this section.

Of course any combination of shafts for resist and fabric is possible on a table, mechanical dobby or computer assist loom with independent movement of shafts being available.



Draft G: Plaited twill fabric



Draft H: 8 shaft twill fabric

Insert the appropriate number of fabric rows between each resist.

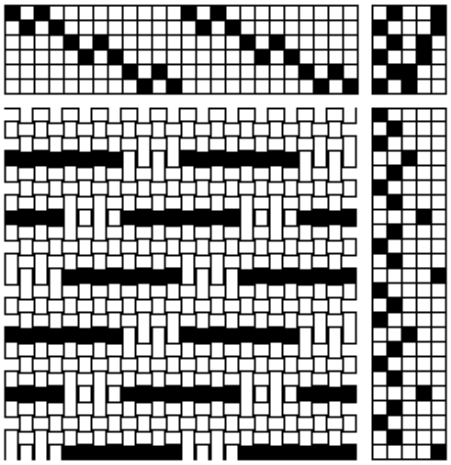
Remember, any fabric structure can be combined with a diagonal resist providing it shares the same threading draft. The weaving sequence lengths of both the resist and fabric do not need to correspond.

Diagonals created by blocks: weft shibori.

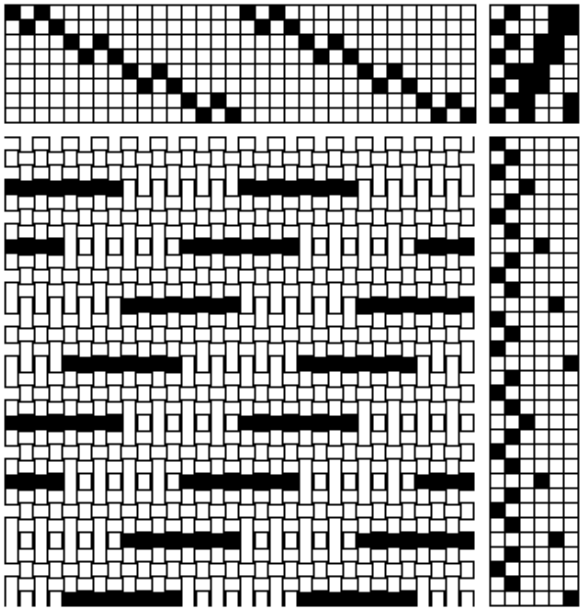
When three or more blocks of resist are used in a sequential series, a diagonal line can be achieved.

To achieve a straight line the blocks should consist of the same number of warp threads across the threading draft.

The following drafts utilise blocks of plain weave. Each block consists of four warps and four weft rows.



Draft I: 6 shaft draft



Draft J: 8 shaft draft

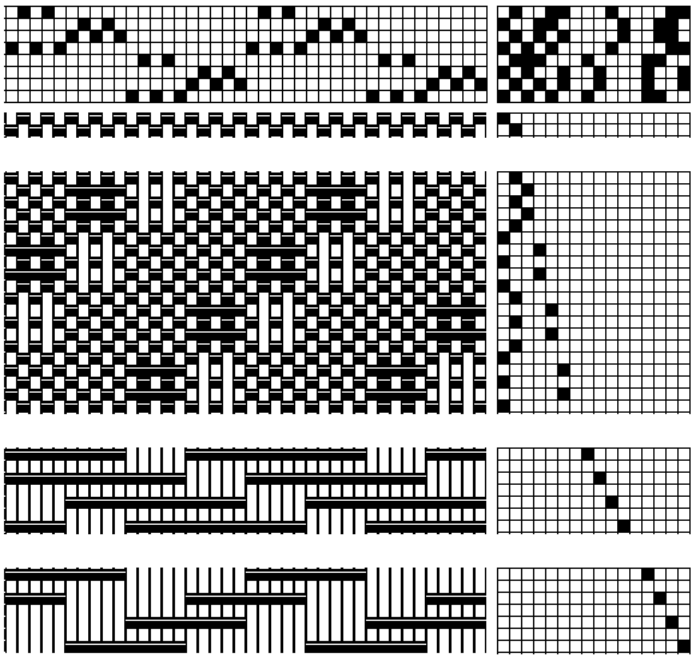
While the number of warp ends in each block is four, the number of weaving rows between the resist can be any number. For comparison purposes to the previous section, this draft utilises three rows between the resist rows.

Three blocks can achieve uneven resist floats on either side of the fabric. One block must work to oppose the other two. (Draft I)

When even or uneven floats are required, four blocks are the minimum needed. To achieve uneven resist floats, one block will be used against three. To achieve even floats, two blocks will be used in combination. (Draft J)

It is of course possible to modify any structure to achieve blocks for use in this manner. Some structure can be used without much modification, while others require more adjustment. The aim is to achieve independent blocks of whichever structure is used.

Lace weaves can be modified easily. It is important to convert a standard draft into individual blocks.

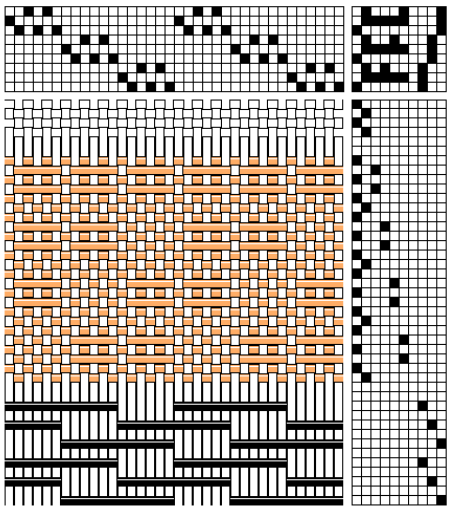


Draft K

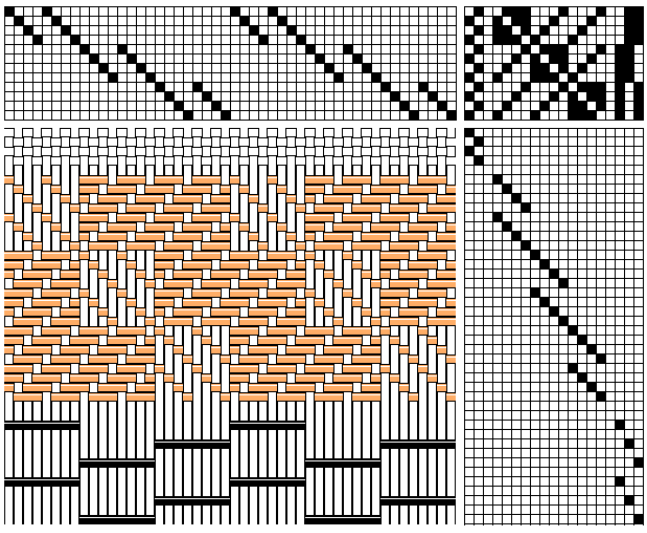
Two blocks of a standard Huck lace as shown in draft J provide the ability to weave plain weave, huck lace, uneven or even floats.

The resist spacing during weaving can be independent of lace units or align with these.

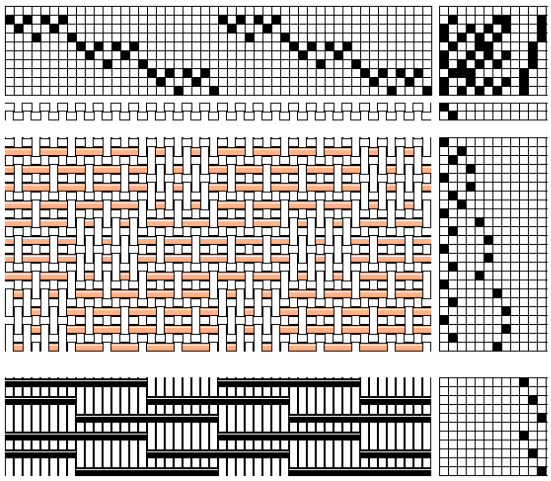
The following drafts illustrate the modification of some traditional structures to achieve three blocks for the resist.



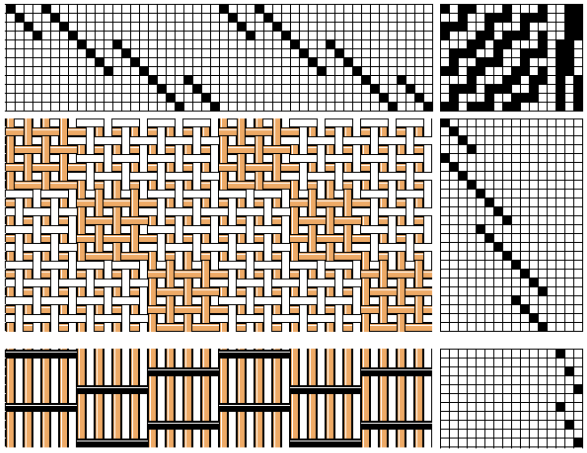
Draft L



Draft M



Draft N



Draft O

Draft L is based on an Atwater Bronson draft. Either plain weave or lace can be combined with a weft resist.

Draft M is based on three blocks of four shaft twill. It could be woven as plain weave or a combination of any four end twills. Warp and weft faced straight twills are shown here. When one or more block is raised, then long resist floats may be obtained.

Draft N is a modified Summer and Winter draft. It can be woven as plain weave or with a supplementary weft combined with a resist.

Draft O is based on double weave blocks. They can be woven as two layers of fabric in combination with the resist.

Warp shibori

Diagonal or angled lines are readily achieved on warp shibori. The minimum requirement is three shafts for the resist and therefore six for the fabric. The maximum number of shafts for the resist is six as two is the minimum requirement for the fabric.

Unless otherwise indicated, a spacing of three between the resists has been used. This will correspond to the spacing between resist rows used for weft shibori. It also conserves space. A spacing of four to six would be a more common choice.

On eight shafts there are four combinations of shafts for diagonal line and for fabric.

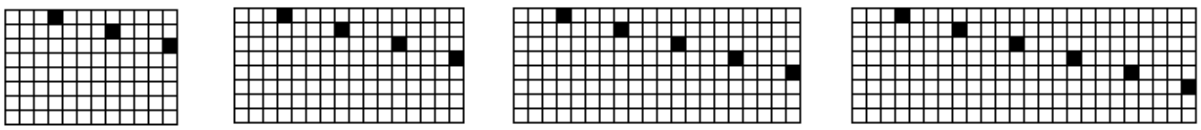


Diagram showing the minimum shafts for an angled resist through to the maximum number.

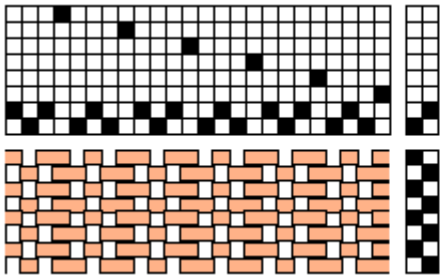
For ease of comparison there are three blank fabric shafts between each resist to show spacing of the resist. Fabric structures are to be included.

Adding Structure

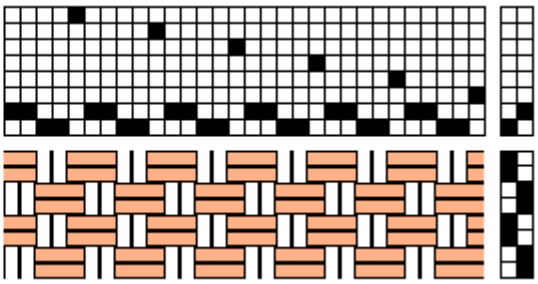
The biggest advantage of warp shibori is that the fabric structure is independent of the resist. So for any of the resists chosen, the weaver can choose a structure that will accommodate the remaining number of shafts.

The weaver chooses a structure and inserts it into the spaces between the resists. The following series of drafts include no resist patterning though the threading drafts do include the resists.

When six shafts are allocated for the resist to gain maximum resist pattern, two shafts remain. The weaver has a choice of plain or basket weave.



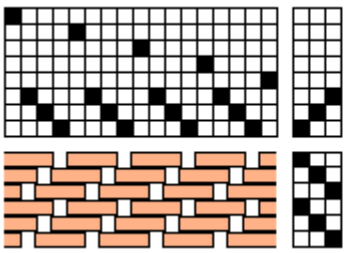
Plain weave



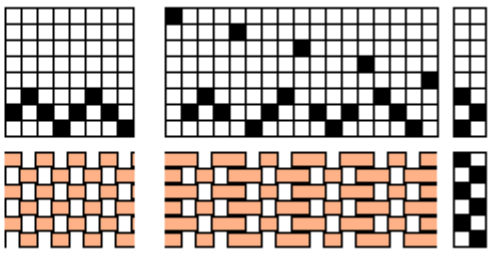
Basket weave

The plain weave draft shows a resist spacing of three. Note that the threading on alternate shafts is maintained. The basket weave draft has a resist spacing of four. Sometimes the weaver chooses to adjust the spacing to accommodate the repeat of the fabric structure.

When five shafts are used for the resist, then three shafts remain for the fabric structure. The following drafts show two possible choices. Any three shaft structure can be inserted.



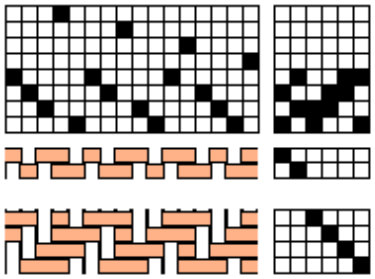
Three end twill



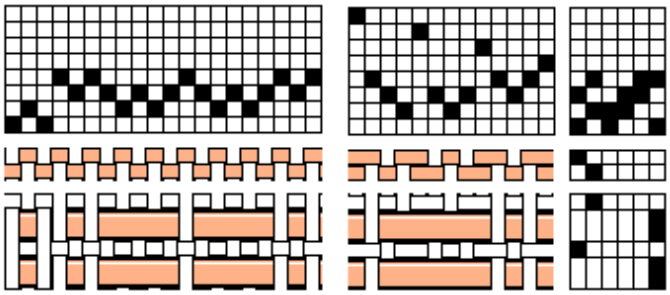
Point twill

A logical fabric structure on three shafts is twill. A straight draw will allow a warp or weft faced twill to be woven. If plain weave is required, a point twill allows this to be achieved. Note that the fabric and resist drafts do not align. The weaver must maintain the threading drafts of the fabric and resist as independent entities.

Four shafts for the resist and four for the fabric allow for even potential for both. Any four shaft fabric draft can be inserted.



Four end twill



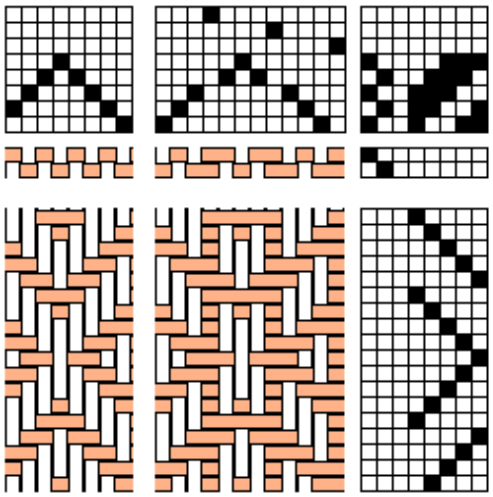
Overshot: “Rose Valley” (Davison pp136)

Any twill threading on four shafts will allow for either plain weave or twill to be woven. In this example a straight draw has been chosen though any four shaft twill threading could be used.

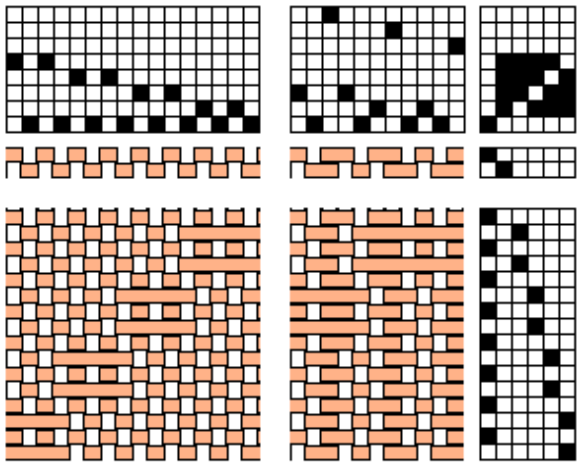
It is well worthwhile considering the inclusion of any four shaft structure as an alternative to plain weave or twill. An alternate four shaft structure may be one using an overshot threading. This will allow plain weave to be woven as well as an overshot pattern. The overshot may be used as an all over pattern or may be used as a stripe or accent to the resist pattern.

One repeat of the overshot draft is included as well as an example of how it would be combined with the resist.

Three shafts for the resist allows for five to be used for the fabric. Remember to weave plain weave on a twill threading on five shafts, a point twill must be used so that odds and even shafts can be achieved. Five shafts for the fabric structure allows for greater choice for complexity of fabric design.



Point twill



Spot Bronson Lace

A point twill draft for the fabric will allow plain weave to be woven as well as any twill sequence.

One solution for a fabric draft may be one of the lace weave family. The example shown is four blocks of Spot Bronson.

Once the fabric structure has been selected that is appropriate for the twill resist, they need to be combined in the weaving sequence. As for weft shibori, there are several approaches.

Even float length

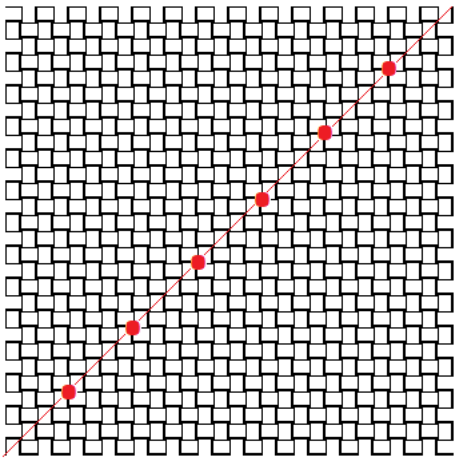
To obtain an even float length the shaft must be used for the same number times either above or below the fabric.

The true diagonal: the theory.

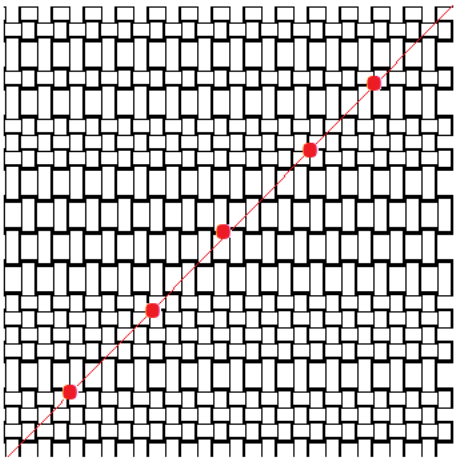
It is sometimes desirable to have a dye line from one corner of a square to another. Some approaches achieve this more easily than others.

The mathematics of achieving a diagonal line.

The entry or exit points must align with the same number of warp threads or weft rows on an even weave fabric or the same distance along a diagonal line when a fabric is not an even weave.



Even weave fabric



Uneven weave: textured yarns

Even weave fabric: This diagram shows entry points with a progression of a sideways shift of four threads in both directions. When these are connected, then a true diagonal line results. The floats for either weft or warp shibori must enter or exit at these points or any equidistant position along the diagonal line.

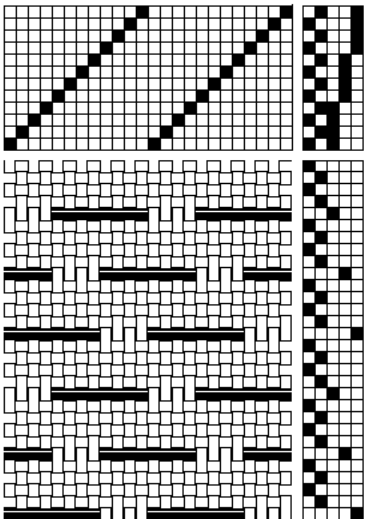
Uneven weave structure may result when yarns of different thicknesses or textures are used. This will result in a more flexible approach when deciding on where to put the resist to achieve entry or exit points for the resist.

Weft shibori and the true diagonal.

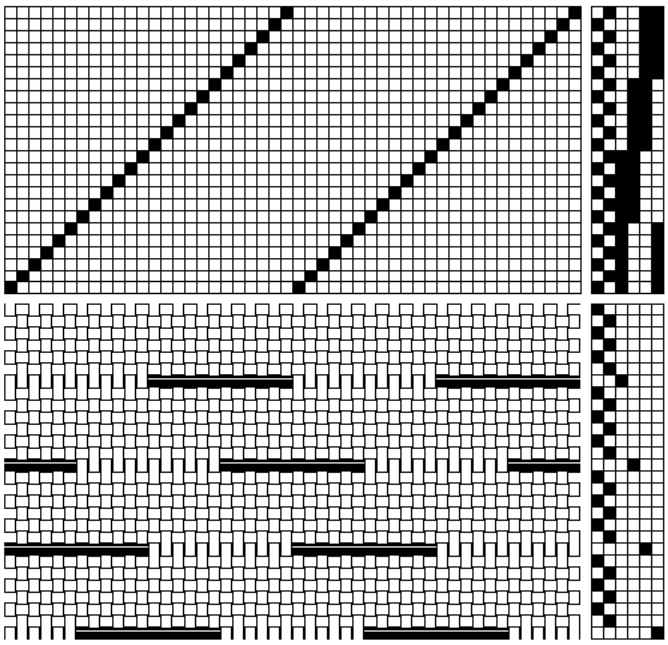
On an eight shaft straight twill this means that the resist must be included on alternate rows or on every second row. This is an excessive use of resist. Multi-shaft looms achieve this more easily as the spacing between rows can be further apart.

The absolute minimum for a twill is based on a multiple of three as this allows for a sideways shift. A float length of four is generally considered a minimum preferred option. So, working on this premise the minimum shaft requirement for a spacing of four rows and therefore a float length also based on four, would be twelve shafts.

The basic theory of even and uneven floats apply.



12 shaft draft



24 shaft draft

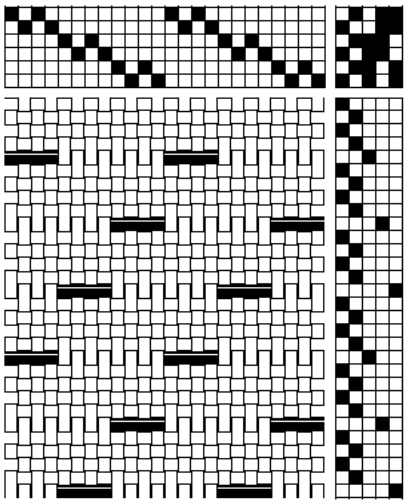
This twelve shaft draft has a repeat of twelve in the threading. That results in three multiples of four allowing for uneven resist floats of either four above or eight below the fabric. A spacing of four rows between resist in the treadling produces a true diagonal line on even weave fabric.

Putting this theory into practice, when even resist is required, then the minimum number would be based on multiples of four to maintain that sideways diagonal shift. Four rows between resists, a resist float of eight above and below the fabric (two times four allows for a sideways shift) equates to a sixteen shaft loom.

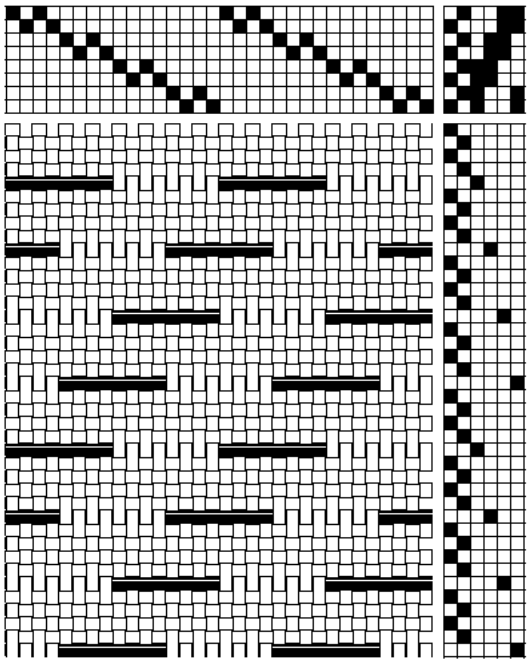
A twenty four shaft loom enables an even resist length of over or under twelve fabric warp threads with a spacing of six between each resist row.

The use of blocks of plain weave is an easy and effective way to achieve a true diagonal line. All that is required is that the number of warp threads in each repeat equals the number of rows between the resist in weaving.

Three blocks of any structure will result in uneven resist float lengths, while four blocks can achieve even resists.



Six shafts of three blocks of plain weave.



Eight shafts of four blocks of plain weave.

Any structure drafted as blocks can achieve similar effects. The number of shafts required will of course depend on the shaft requirements of each block.

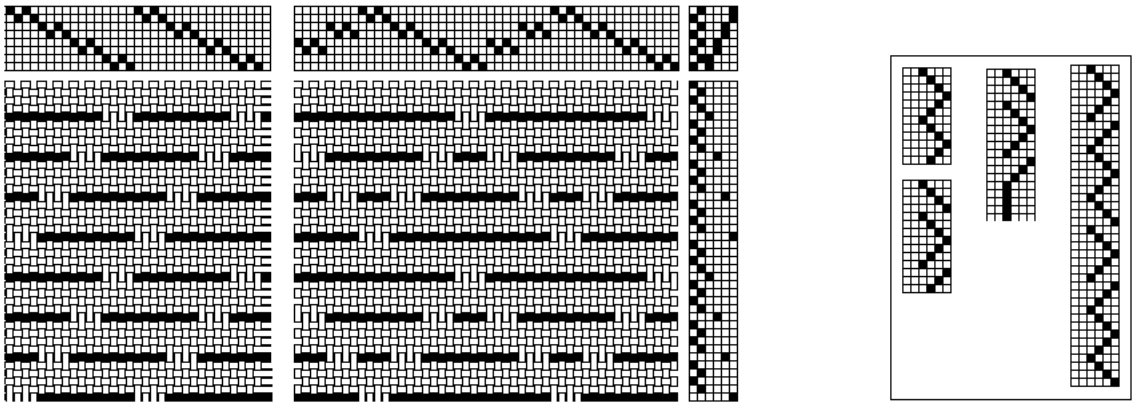
Warp shibori and the true diagonal.

It is very easy to achieve a true diagonal using warp shibori on any fabric whether it has different structures or uses different yarns in the warp or weft. It is a simple equation of the distance between the resist in the warp which must equal the distance between the entry and exit points when weaving. The other criterion, is of course, that three shafts are required to achieve a diagonal line. Again the spacing between the resist warps must equal the number of rows the resist shafts are used in the weaving sequence.

Chapter 10

(Jottings that we included under one heading, very much in Draft form. Editors)

This draft uses four blocks of plain weave threaded in both a straight and point progression.



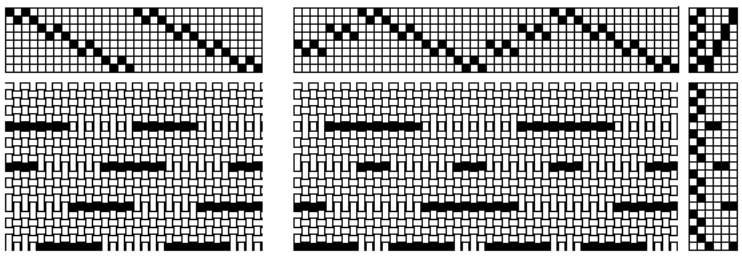
Uneven stitching achieved by blocks of plain weave- straight and point progression.

Any progressive sequence of the twill blocks may be used in the threading draft. Any twill sequence of resists can be used in the treadling sequence. These may also be combined with columns. Some examples of alternate resist sequences are shown on the right. Include plain weave for the fabric between each.

When each resist block is used on its own (as above), an uneven stitch length results.

The use of blocks to create a diagonal stitch line may result in a less than smooth progression in the dye pattern. This will be exacerbated when the blocks are large.

To smooth off the resist use two blocks together in the treadling sequence.



One repeat of the previous draft with two blocks being used for weaving the resist.

By using two blocks together overlap of resist rows can be achieved. This has the effect of making a smoother transition in the dye line. It also has the result of a more even stitch length.

Atwater Bronson Lace Project

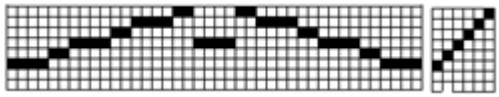
Yarn 1/16 linen

Sett 10 epcm

Width 36 cm

Length 300 cm total

Profile draft



Overall design

Total number of ends: 360

Total number of units in profile draft: 40

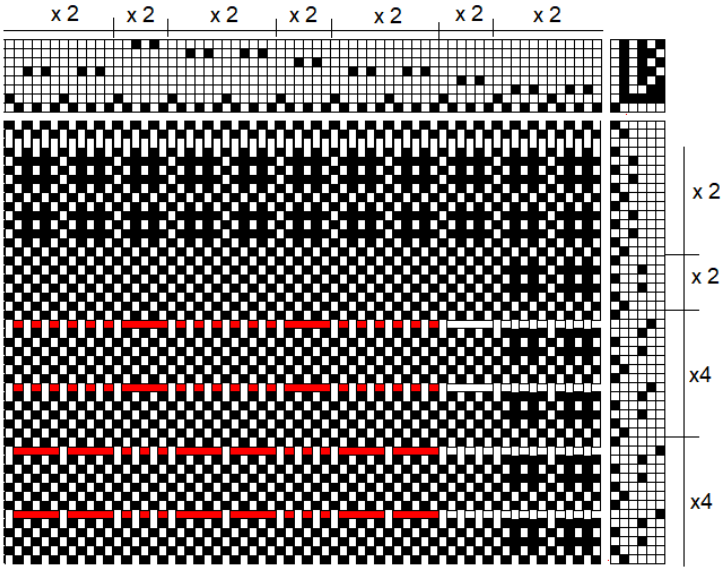
Number of ends per unit: 6

Total number of ends for this profile draft: 40 x 6 + 240

Number of ends for border: 260 – 240 divided by 2 for each side= 60 ends or 6 cm.

Lace and shibori

Draft does not show plain weave border.



Including resist: Bring shuttle up at the appropriate position: inside the start of the 2 blocks of lace for the border.

Overshot and Turned Overshot.

To achieve an appropriate stitch length for weft shibori on a 4 shaft loom, overshot is one method of achieving this. Ideally stitch lengths should be more than over or under 3 threads.

Using a pattern from a book.

Check out the stitch lengths.

Increase the block lengths if required' keeping to the overall intent of the design.

Draft your own

Make sure there are a number of 2 or more blocks in a profile draft

An opportunity to define stitch length and independent use of blocks.

Warp and weft shibori samples: Overshot.

Yarn 2/30 wool , braided nylon resist

Sett: 10epcm

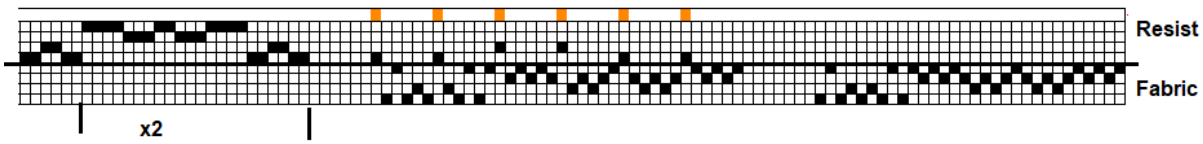
Width 25.5 cm 255 ends

Warp length

Draft

This draft combines a 4 shaft overshot design with a related 4 shaft resist. It is not based on exactly the same profile draft but has elements the same.

The overshot draft aims to achieve a weft float length of not less than 4.



Resist draft only Resist incorporated after 5 fabric ends Overshot draft only

Add 5 ends at the end so that there are 5 ends before the first resist and 5 ends after.

<u>Weaving</u>

You may choose to weave

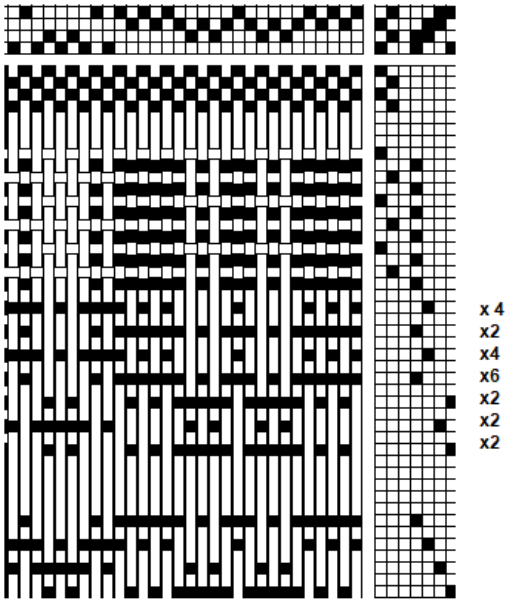
- a fabric in plain weave with a supplementary weft motif e.g. traditional overshot
- Plain weave fabric with a weft resist. Include resist after every 4 -6 fabric rows.

- Plain weave with an overshot style warp resist
- Plain weave with a block warp resist
- A complex fabric with an overshot motif and warp resist combinations perhaps as stripes.

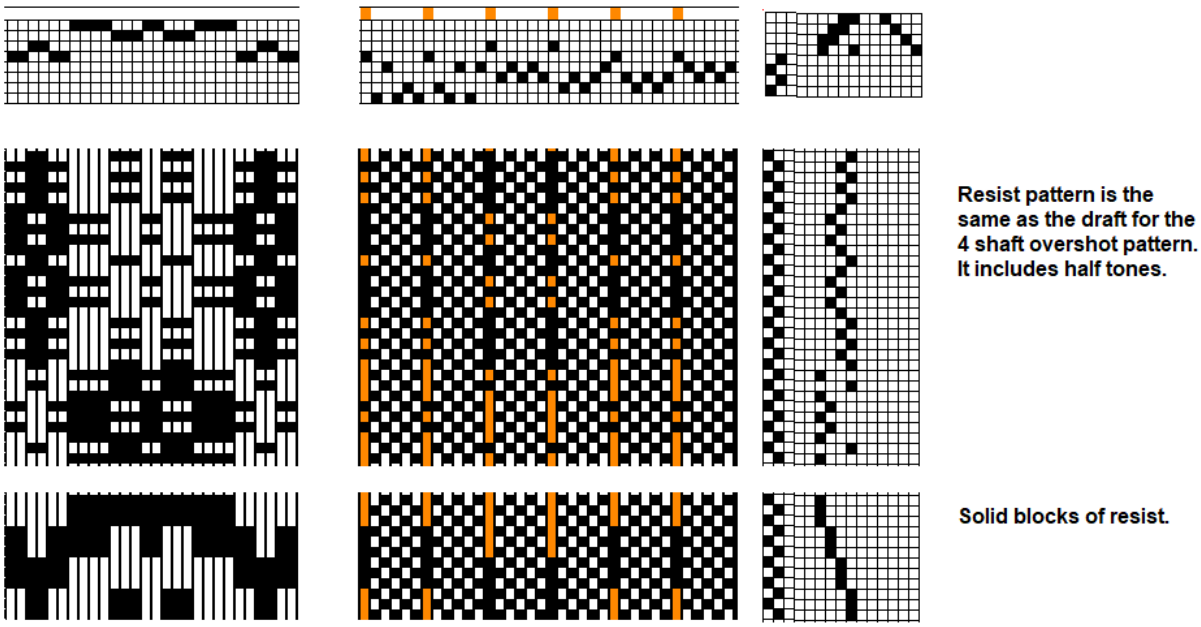
Note if you choose to weave an overshot design as well as shibori, you may consider using a supplementary weft that will not dye.

Weaving drafts

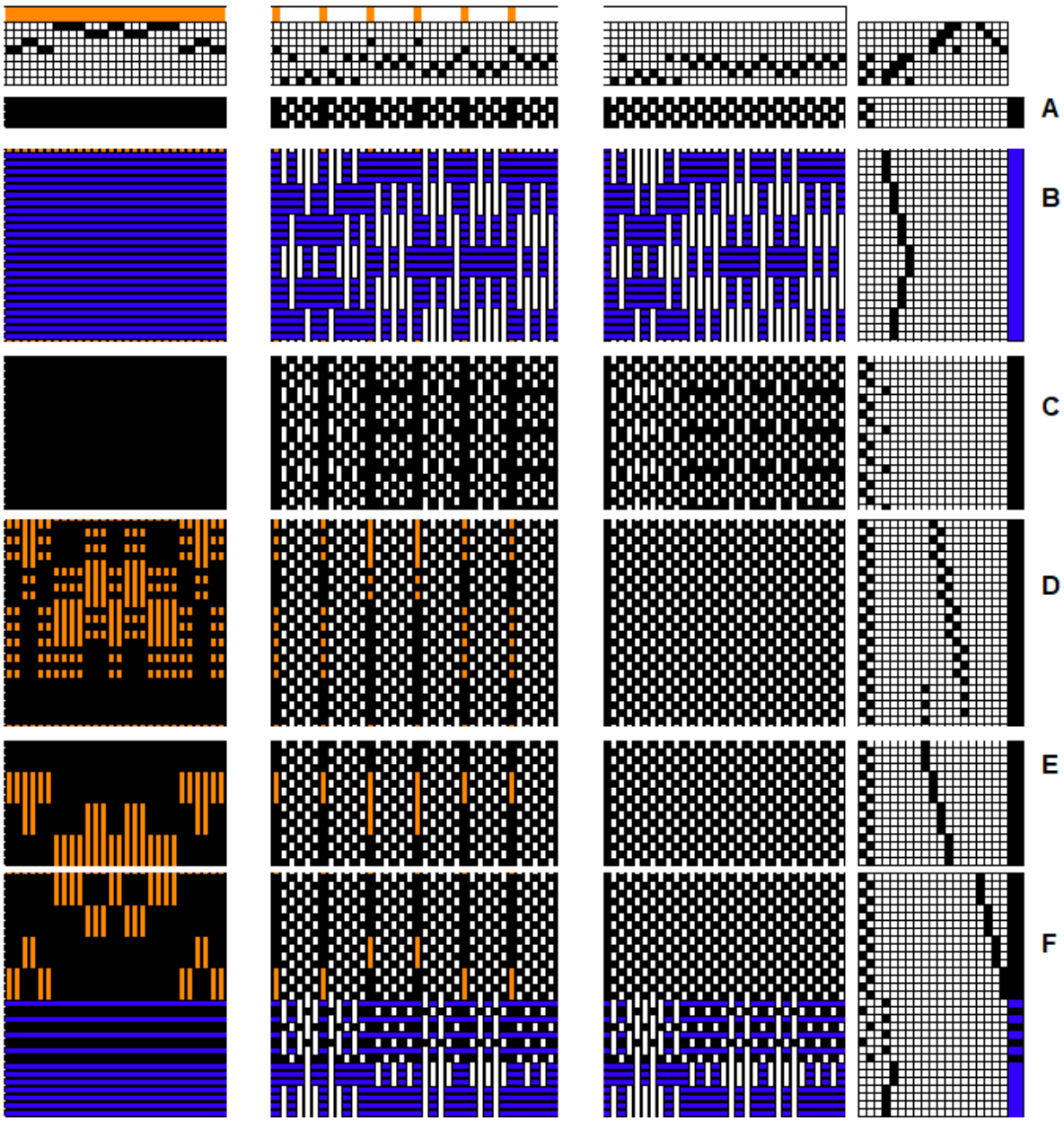
Woven as overshot or weft shibori



Woven as a warp resist on plain weave.



Sample.



A Plain weave

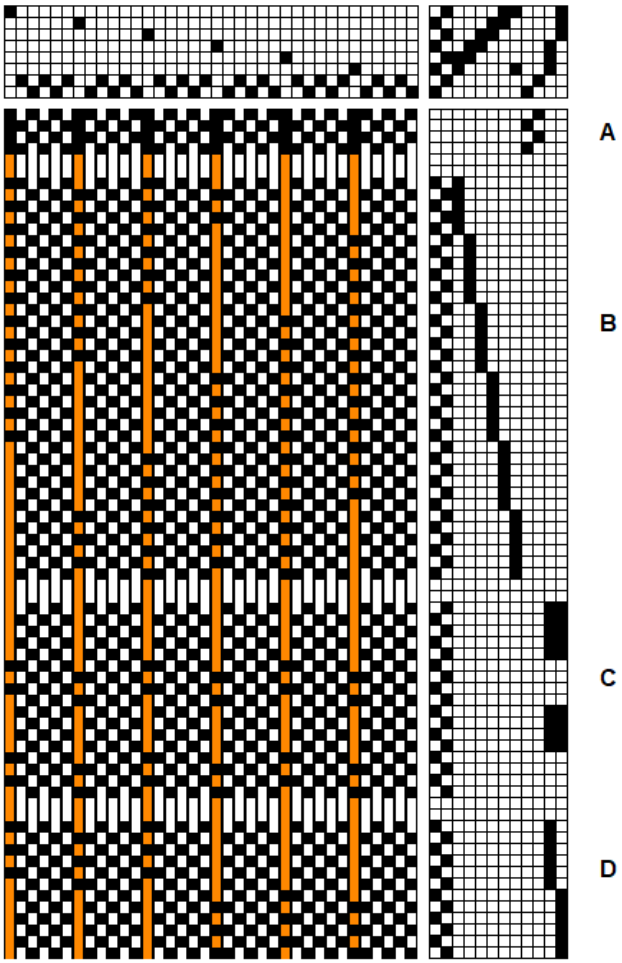
B Traditional overshot: include tabby

C Weft shibori: include plain weave between the overshot lifts as above.

D Warp shibori: Weave turned overshot style. Each block same length.

E Warp shibori: weave as clean blocks of pattern.

F Warp shibori with overshot motif. Weave as single blocks. Use original block profile as lift guide. Note this treadling draft needs adjusting. Each 2 resist warps = 1 column of lift. Therefore basic lift draft is identified as treadle R-> L . 4 3 4 1 none 1 2 1 2 1 none 1, each for the appropriate length.


A
B
C
D

Chapter 11

Woven shibori on a drawloom or an equivalent

A draw loom is a very efficient way to achieve more complex patterning that can be achieved on a conventional shaft loom. A drawloom has two sets of elements: one set of shafts for the ground fabric structure, the other for pattern. The pattern may be threaded on shafts or on a single draw. Traditionally it may be used to weave complex damask imagery or even complex supplementary weft imagery.

As with all shaft shibori, it can be woven as weft shibori or warp shibori. The imagery can become more complex. The principles however stay the same.

As an aside, this approach may be used for any loom which has the capability of an additional storage system such as those used in S. E. Asia. Jacquard looms have the capability for complex designs for weft shibori though they are not normally used for warp shibori.

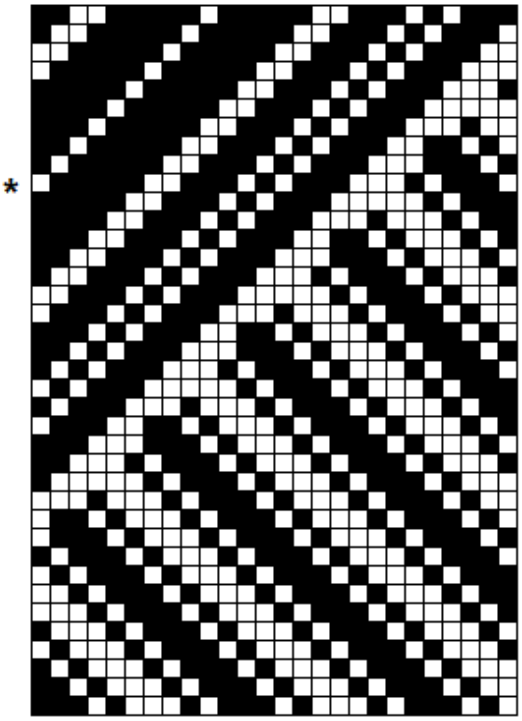
An important reminder:

Before the added elements of the pattern heddles or shafts are introduced, it is worthwhile to note that all the resist pattern capabilities of a standard shaft loom can be utilised. If your draw loom has eight or ten shafts, then those shafts can be used accordingly. Sometimes it may be more efficient to use these shafts for a simple resist in combination with more complex design elements.

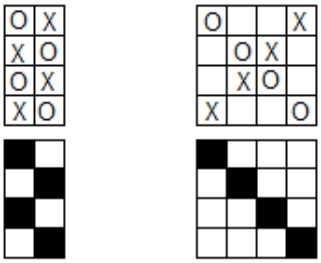
Weft shibori

The pattern shafts or heddles are usually threaded as pattern units consisting perhaps of four or more threads. These units of pattern can be used in a similar manner to shaft pattern blocks that have been explored in Chapter 9.

To explore the design options of weaving weft shibori on a draw loom, these elements have been used. The motif can be reversed or continued. The * marks the centre of the top band if the design is continued.



Pattern shafts



Ground structures: plain weave or twill.

The fabric may be woven as plain weave with the pattern shafts being used solely to create blocks for the resist pattern.

Table runner, cotton, discharge

This fabric is plain weave. Each square of the motif has eight threads or two units of four warp and weft threads.

The base fabric may also be woven as any structure. This is determined by the threading of the ground shafts. The structure pattern may echo the resist pattern. This is a simple matter of weaving the fabric and using the same pattern lift to create the weft floats for the resist. There is no additional consideration to be made while weaving this fabric as the pattern shafts or heddles are used in the same combination for both the fabric and the resist.

Table runner, cotton warp with cotton/linen weft, twill, fibre reactive dyes. The fabric design echoes the resist.

It is of course entirely possible for the pattern heddles or shafts to be used for both the resist and a different pattern for the fabric. This will involve some allocated for the fabric design and a second quantity for the resist. Weaving this will require concentration.

Warp shibori

There are two approaches. The pattern heddles may be used exclusively for the resist or they may be used for both fabric pattern and warp resist.

When the pattern heddles are used exclusively for the resist, the fabric will only be threaded on the first set of shafts. The fabric may be woven as plain weave or any other structure. As for conventional warp shibori, the resist is threaded after a consistent number of fabric warps.

Fabric panel: cotton, indigo. Every resist thread has an independent pattern heddle.

One set of pattern heddles may be used for the fabric design while a separate set be threaded with the resist. In this way complex fabric designs may be combined with an independent resist pattern. To make threading easier, the resist may be threaded after every pattern unit.

Fabric length, detail, cotton, fibre reactive dyes, warp shibori, discharge.

This fabric is woven as a five end satin. The resist is threaded after every five fabric ends or after every pattern unit.

This is a the last piece of weaving done by Kay, it was for the book and cut from the Drawloom after Kay's death. Editors

1955 - 2019