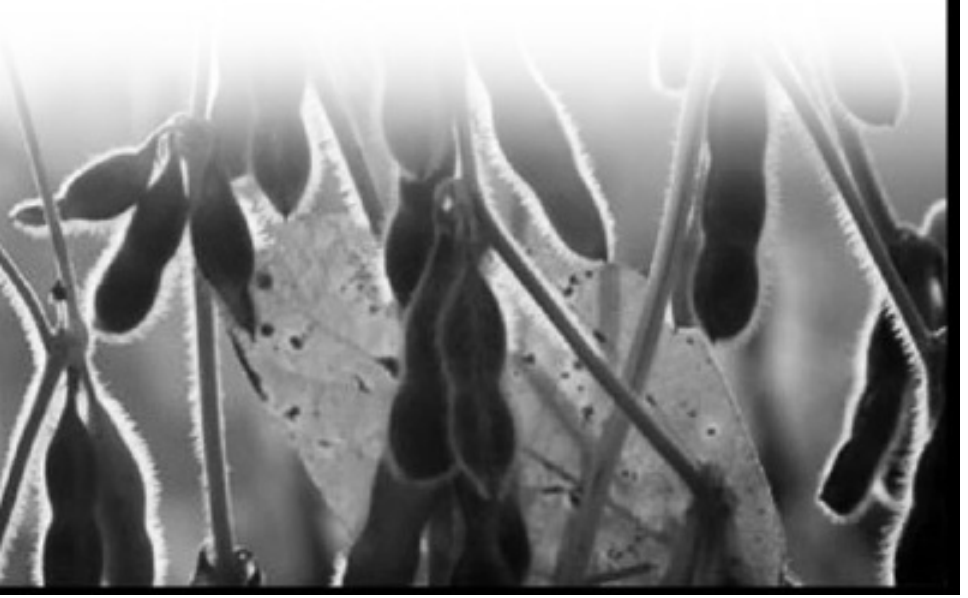
Blissful Dyeing for All Eternity

The Secrets Revealed

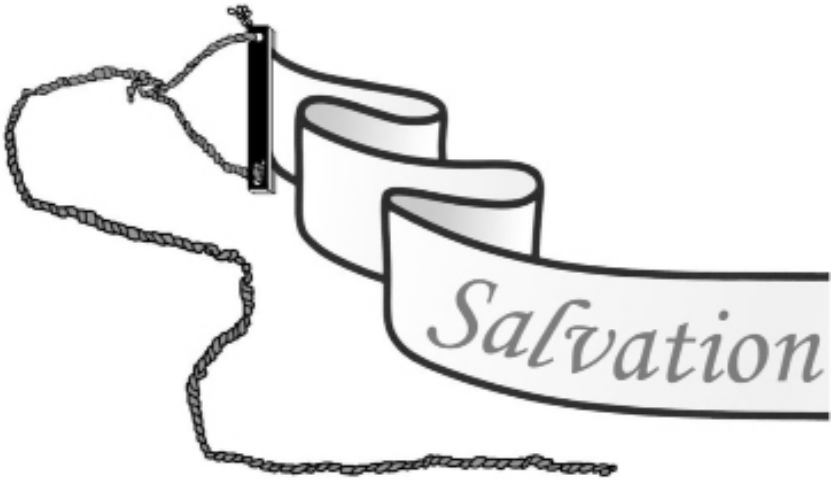
with John Marshall as your guide

I'd like to dedicate this booklet to
the mom and pop soy farmers of the world,
our frontline soldiers in the fight
for soy-supremacy in
the international arena.



SALVATION
through
Soy

Cover design: One day while surfing the web, looking for soy-related topics, I came across a peculiar hit: "Brother Harry's Bible Study," in which he describes himself as "honorary pastor at the most Godly church on Earth." The hit came up in reference to the following statement: "Soy Beans Are the Food of The Devil," and as proof he cites the fact that Asians eat them! Brother Harry is of course, the misguided Harry Hardwick of the Landover Baptist Church, so how could one let that go unchallenged?


Salvation

Blissful Dyeing for All Eternity

The Secrets Revealed

with John Marshall as your guide

brought to you by

the Goode Folke at

The Church of the Divinely Amused®

Legume Propaganda League

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PREFACE

The concept of using soy as an undercoat to silk and cotton yardage is not original to me, but a long-employed dye technique from Japan.

I went through the traditional apprenticeship for *katazome*, under Matsuyo Hayashi. However, unlike other traditional teachers, Mme. Hayashi tolerated my questions and search for answers.

Since 1973, through original research and weeding through pre- and post-war publications written in Japanese, I have developed a number of unique uses for the versatile legume soy.

My approach to using soy is threefold: (1) as a sizing after the paste resist has been applied, (2) as a binder for pigments, and (3) as a finishing treatment to give your yardage that *new* look.

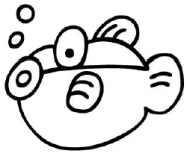
Traditionally one is taught simply to use the methods observed as the instructor goes about his or her own work. There is no tolerance for questions, and certainly no tolerance for innovations.

I sincerely hope that each and every soul who embraces this technique will find new and useful variations to which it may be applied. Only through trial and error will you fully discover what works best for you, and make it truly your own.

LEGEND

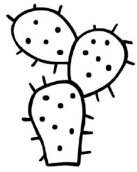
Since the differences between soymilk and fresh water are difficult to depict in gray scale drawings, I hope the following icons will be of help when viewing the illustrations.

Sonja Soy Leaves may be found near at hand whenever soy or soymilk is being added or extracted.

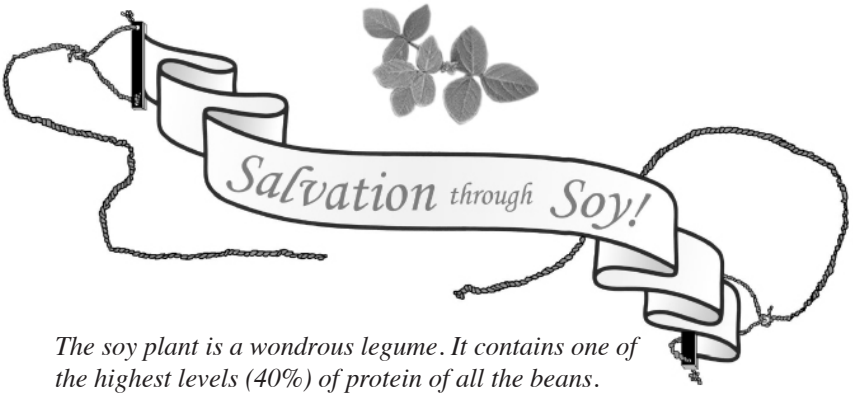


Freddy Fish indicates fresh water is in use.

Lucy Lightbulb draws your attention to wonderful ideas.



Carl Cactus is a reminder that the ingredients, or state, should be dry.



The soy plant is a wondrous legume. It contains one of the highest levels (40%) of protein of all the beans.

AMBROSIA OF THE FIBER GODS

Soymilk, as it pertains to dyeing yardage, has several wonderful properties: acting as a sizing agent to reduce or prevent wicking, and serving as a binding agent for dyes that have a tendency to crock or bleed.

As an added benefit, once the soy has sufficiently cured, it helps to keep the fabric from wrinkling as much as it might otherwise, and also functions as a soil-resisting agent (much like ScotchGuard® but without the costs or toxicity). In the pages that follow I will discuss how to make use of these unique properties, along with a few Japanese cultural extras.

As touched upon above, soymilk is used as the binding agent for some dyes, including both natural and synthetic dyes. The protein in the soy physically bonds with porous fibers, in essence gluing the fibers together at the points they cross in the weave. In addition, this coating of the fiber helps to reduce wicking, a major problem for most surface dyers. The net result is that the cloth takes on a paper-like quality: it becomes a bit

stiff and remains stretched even when removed from the stretching equipment. The cloth will return to its original hand during the final washing stages of the dye process. (Take care when handling the sized cloth: violent handling or pulling on the bias will cause the soy to release its hold, defeating its purpose.)

Once you've applied the sizing, the protein remains vulnerable to your needs for as long as two weeks. You are not dyeing just the fiber but the dye-hungry protein in the soy as well.

Once the soymilk sizing has cured, it reverses its receptive properties and becomes stain resistant, making it difficult for your dyes to get a good hold on the fiber. Therefore, it is best to complete all color application within the first few days of applying the soymilk.

The soy protein does not wash out once fully cured. It serves to strengthen the fiber, to help lock in colors, and to slow down fading caused by sunlight – even to make the final product somewhat soil and wrinkle resistant. Unless it is applied too thickly, or in too many coats, it will not significantly affect the original texture of the weave. Of course, if you would like to deliberately stiffen the fabric, or cause it to feel thicker, simply apply extra layers of soymilk once the dye job is complete. This is ideal for wall hangings that may need a little extra support to keep them from sagging over time.

HOW TO MAKE SOYMILK

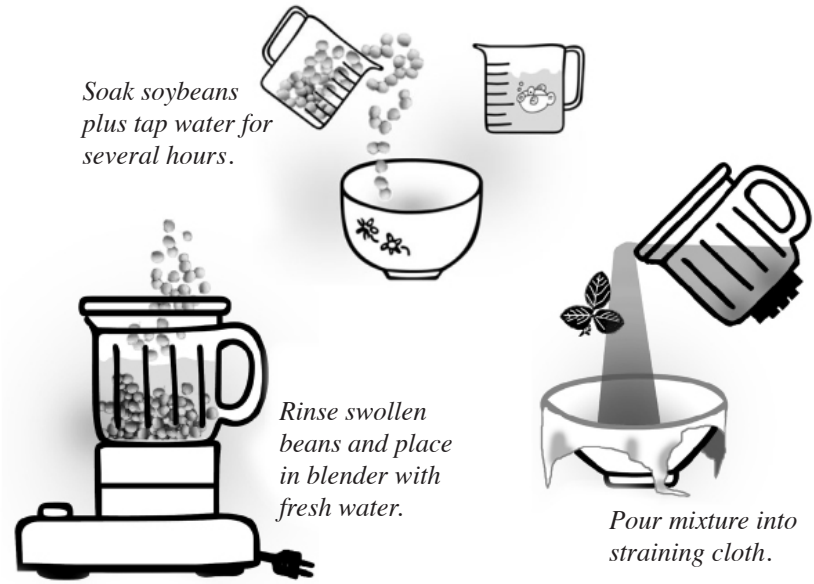
Soymilk is easy to make. Two simple methods are presented below. The first is the method I prefer. It will give consistent results and, when making larger batches, requires much less active involvement in its preparation. The "quickie" method, however, is great to use when you need

to make only a very small batch, when you unexpectedly find yourself with time to work in your studio, or when you have suddenly run short of the amount you will need to complete your current task.

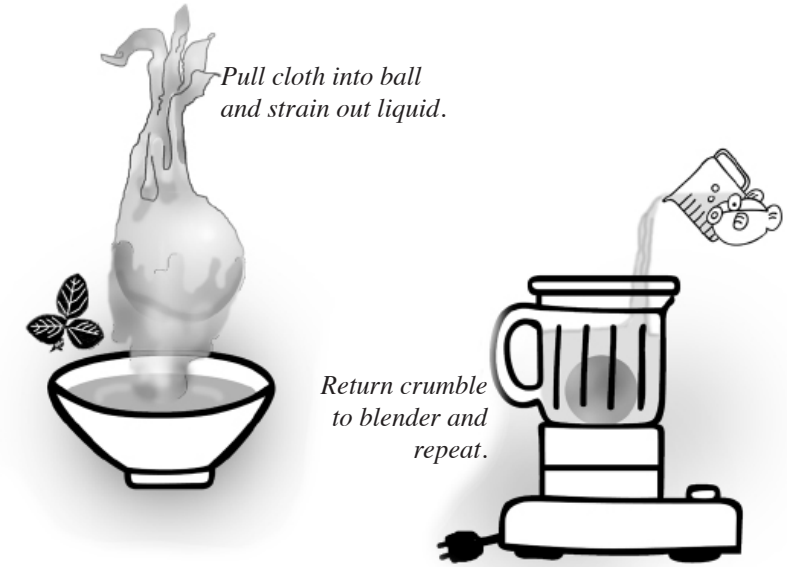
Once you've been introduced to making the soymilk, you will be guided through using soymilk as a pre-sizing and as a binding agent for pigments, as well as other steps equally important in creating a textile of beauty and quality.

Preferred Method

Buy dry soybeans packaged or in bulk from the grocery or health food store. **Place dry beans in bowl and cover with three to four times as much tap water by volume. Allow beans to fully swell.**



In warm weather soaking the beans will require three to four hours; in cold weather, up to twelve hours. A good habit to get into is simply to put the beans to soak before you go to bed at night for use the next day. In winter you



can speed up the soaking process considerably by starting out with very warm tap water. **Once beans are fully swollen, drain off soak water and rinse briefly.**

Prepare sheet of cloth approximately 12 to 18 inches square by soaking in water. Sack cloth or a scrap from an old sheet works well, as do men's handkerchiefs. **Wring cloth and drape over top of large bowl.**

Next, grind beans by placing them in blender with three to four times as much water. Blend on high, or liquefy, until beans are well ground, approximately two to three minutes. The mixture will froth quite a bit on top, so be sure not to overfill the blender.

Pour mixture into cloth. Pull sides up and strain out all milky liquid. Take soy crumble from cloth and drop back into blender. Add more water and repeat process.

You may repeat the process three or four times, or until the liquid goes from a rich creamy consistency (in the first straining) to a much thinner consistency, much like nonfat milk.

Combine all batches in same bowl. The leftover soy crumble may be tossed into the garden, or used as *okara* (hamburger helper) in Japanese cooking.

Most Japanese dyers insist on separating each batch: the first (creamiest) is used only for pigments; the second, for sizing; and the third, to thin the first two as needed, or simply thrown away. Throwing away the third batch has never made any sense to me as all three batches come from the same beans and the same water. I prefer to combine the three batches and use for whatever my needs are at the moment.

Peer through soymilk to check concentration.

Test your soymilk by scooping up a glassful and pouring it back into the bowl. How turbid is it? Ideally, it should appear to be about the consistency of whole or skim milk. For rugged fibers, such as cottons and linens, it should tend more toward whole-milk consistency; for sheer silks, more toward the consistency of low fat milk. One cup of dry beans will produce at least two cups of swollen beans. This, in turn, will yield enough soy-

milk to size seven to eight yards of 45-inch-wide china silk. Never be afraid to make more than you think you will need. If you run out of sizing before you have reached the end of your fabric, you have a major crisis on your hands. So make more than you anticipate you'll be using!

Quickie Method

In a pinch, a quicker method is to (1) grind dry beans in a blender (or coffee grinder), or (2) buy soy flour at a health food store. I recommend the former, since as soon as you break the skin of a grain, it starts to deteriorate. Flour, therefore, loses strength while sitting on the grocer's shelf.

Place several tablespoons of ground soy flour in middle of presoaked cloth. Bring up ends and twist the center into loose ball. Swish in several cups of

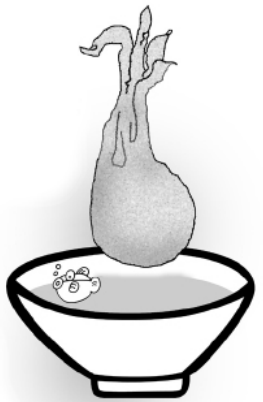
Add dry beans to blender and grind.

water, very gently kneading the flour ball as you do so.

The water will start to dissolve the protein out of the powdered soy. Continue until you have the proper consistency as outlined above, and the desired volume.

If you should accidentally over thin the solution made from the soaked soybeans (described in "Preferred Method"), this is a good, quick way to bring the solution up to proper consistency without taking time to soak more beans.

Transfer soy flour to cloth.



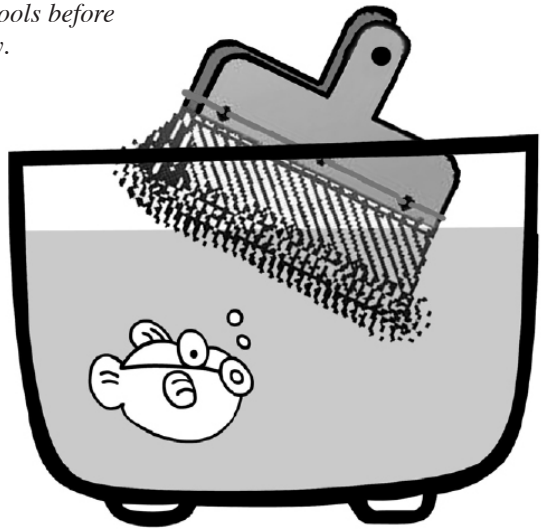
Use straining cloth as you would a tea bag.

Continue to dip and knead until desired consistency is achieved.

IMPORTANT TIPS FOR WORKING WITH SOYMILK SIZING

Since soymilk is a protein, it will sour and then rot if left long enough. I recommend you follow the tips below to protect your equipment and save aggravation:

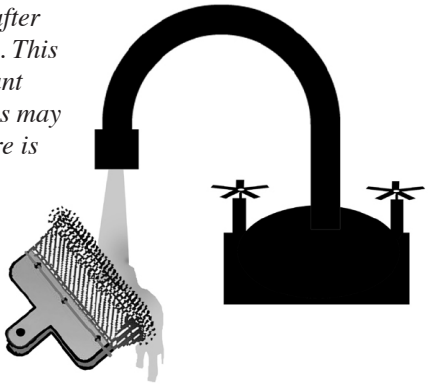
Soak porous tools before using with soy.



1. Soak all porous utensils in water before using them with the soy: straining cloths, brushes, and suribachi mortars. Presoaking will help to keep them from absorbing the protein and make them easier to clean.

2. Rinse all porous equipment immediately after use. This includes washing your brushes. Don't set a soy-wet brush aside to use again later. Wash it and set it aside to dry while selecting a new brush for subsequent stages.

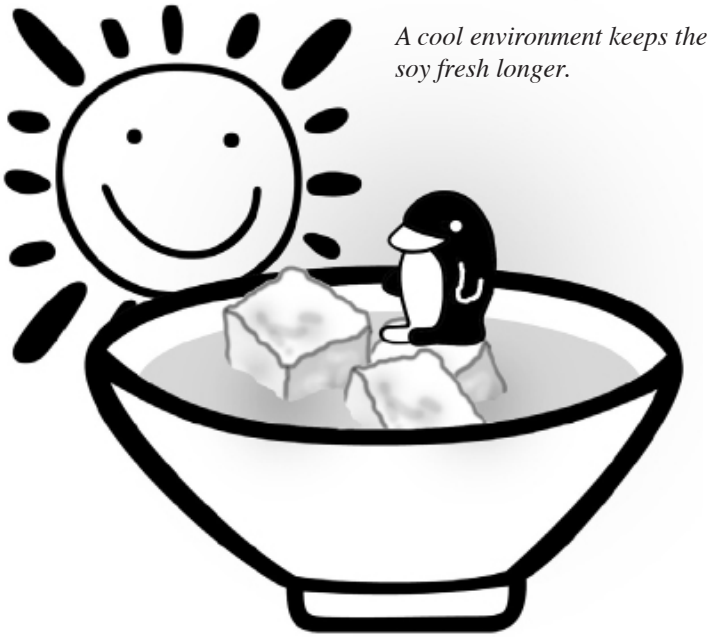
Rinse all tools well after contact with soymilk. This is especially important with brushes. Bristles may rot and fall out if care is not taken.



Throw out all left over soy at the end of the day. It may be safely tossed into the garden as compost.

3. Dispose of leftovers at the end of the day. Do not carry soymilk over to the next day as even slight souring reduces its strength.

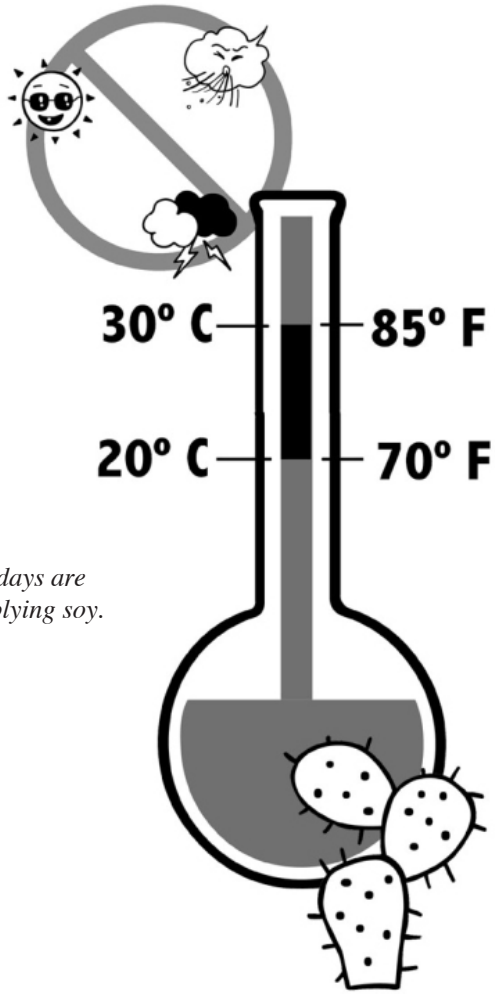
If it is a very hot day, refrigerate whatever soy-containing-medium is not in use at that moment, or drop an ice cube into the main bowl of soymilk from time to time during the course of the day. Some dyers add calcium hydroxide (calx) as a preservative to their soymilk, and in some cases keep it for up to several months in the refrigerator. I don't recommend this method because too much calx has a tendency to harden and damage natural fibers. If convenience is an issue, make small batches of soymilk using the soy-flour method outlined earlier.



A cool environment keeps the soy fresh longer.

4. As much as possible, work in very low humidity. If the humidity is out of your control, try to keep the area as cool as you can.

The best weather for working with soymilk and dyes is when the temperature is between 70° and 85° Fahrenheit (20°-30° Celsius) and the humidity is below 40 percent. Otherwise, use fans to help circulate the air and speed up the drying time. The soymilk will sour and lose its effectiveness if it sits wet on the cloth too long at this stage.



Dry, warm days are best for applying soy.

5. Try to complete all dyeing within two to three days of applying the sizing. During that window of opportunity the soy is most susceptible to being stained (dyed), and your most willing ally.

PREPARING THE YARDAGE

Natural fibers may be classified into two general categories: animal, including fur/hair (wool, angora) and exuded filaments (silk); and plant, including flowers (cotton) and bast (all "linens"). The animal fibers are protein based, the plant fibers are cellulose based. Within many dye traditions the dyes used for the protein fibers and those prepared for the cellulose fibers are quite different. That is especially true with synthetic dyes.

The methods I present here do not make that distinction. The recipes and application methods here are the same for all categories of porous fiber. (Porous fiber includes all natural fibers, plus rayon and nylon. Other synthetic fibers are too smooth, although microfibers may work well.)

All yardage should be presized with soy protein, which binds equally well to animal and plant fibers. The soy sizing absorbs a great deal of the color and is the "secret" of this whole process, allowing for even, rich coverage. Once the fabric has been fully cured, the dyes, along with the soymilk, won't easily wash out.

Scouring

Sizing starches used in yarn processing and various oils found in the fibers may cause uneven dyeing, splotches, and sometimes even horrendous stains if the starch and/or oil reacts with the dyes. Therefore, before you can dye successfully, it is important to remove any residues in the fabric. The removal process is called *scouring*.

The most efficient way to scour the fabric is to put the yardage into the washing machine, fill the tub with warm water, and agitate it only long enough to make sure all the cloth has become saturated. Then allow it to sit in the washer for about one hour. Spin out the cooled water and replace with hot water (never boil silk—it may kill the luster). Add a little cleansing soda, dish soap, or shampoo after you have started the wash on gentle cycle. Agitate for approximately 20 to 30 minutes. Rinse well, several times if necessary, to remove any hint of the cleansing solution. Take care with wools; excessive agitation will cause the fibers to felt. Careless washing is sure to give you unsatisfactory results in the end. Never crowd the tub as it will cause wrinkles to set. Check the yardage periodically during the agitation cycle to make sure the length isn't twisting. If the fabric does become tangled, stop the machine and straighten the yardage; otherwise you may find "wear spots" or permanent wrinkles.

Hang the fabric outside to dry (out of the sun) or place in a dryer. If using a dryer, be sure to remove the yardage before it is completely dry to avoid damaging the fiber. Again, check on the fabric periodically to make sure it doesn't tangle.

Sizing

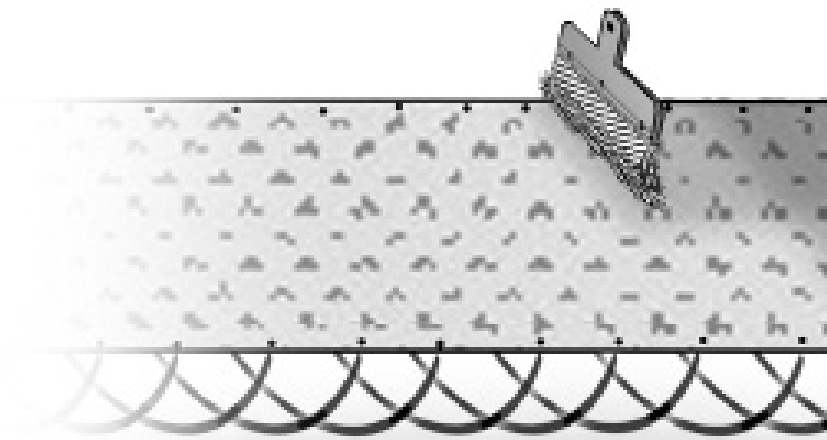
As touched upon earlier, soymilk is used as the binding agent for some dyes. It may also be used as a sizing agent for most dyes, including both natural and synthetic.

A sizing may be applied after the fabric has been scoured, but before any paste or dye has been applied. This is called *presizing*, and serves to stiffen the fabric, making it paper-like in texture, to allow for easier

handling during the pasting process. It will also help to prevent the dyes from wicking during the stages to come. Sizing may also be applied after the paste resist (used to block out areas of the cloth) has dried. This is called "mid-sizing," and is the most common form of sizing used in Japan. At this stage the sizing will also serve to prevent the wicking of colors. Sizing may be applied as the final stage in dyeing, just after you have washed out any resists. This is called "postsizing." It may serve two very valuable roles: (1) to prevent crocking (rubbing off), and (2) to give a "finish" to the cloth (a final "starched" feel that will act as a soil repellent and a wrinkle inhibitor).

A notable exception to the information above is when you are vat dyeing with indigo. In vat dyeing, you *do* want the dye to wick; therefore, pre- and midsizing would not be used as the soy will prevent wicking. However, if you find your indigo crocks, postsizing will bring great joy into your life by eliminating the problem.

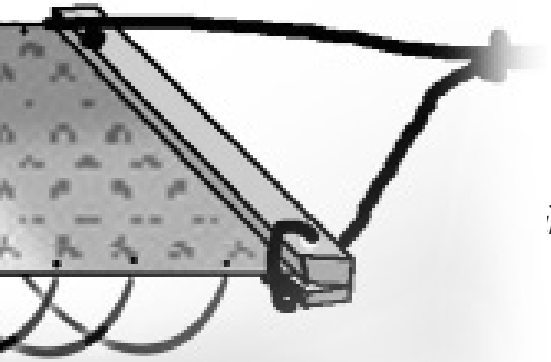
To size yardage, presoak brush (*jizomebake*) in water for 10 to 20 minutes. Stretch the cloth using *harite* clamps and *shinshi* sticks. Tilt fabric slightly toward you. While supporting the cloth with one hand, apply soymilk with brush. The brush should not be dripping wet. Stroke the brush gently against the side of the bowl to eliminate dribbles before transporting it to the cloth. Using a back-and-forth motion, start at the selvage farthest from you, covering an area 12 to 18 inches wide as you work toward the selvage closest to you. Return to the top selvage edge and, while brushing over a new area 12 to 18 inches wide, backtrack and give the previous section another light coat, essentially covering 24 to 36 inches with each swipe of the brush. Re-dip your brush as necessary.



Work as quickly as possible. Do not answer the telephone or take deliveries during this process. You are not able to answer children's questions or find your loved-one's keys until you finish applying the soymilk! Unless the house is on fire, remain focused on the job at hand.

The above precautions are necessary to prevent that invisible intruder who lurks in the shadows hoping to defile your work: wicking. Wicking, when the liquid travels along the fiber (just like oil traveling up the wick of a lamp), is a *bad* thing. Take great care to avoid this unwelcome guest.

If for any reason you apply the soymilk too slowly or oversaturate the fiber (so that soymilk is dripping off the lower edge as you work) or stop mid-process, you will invite wicking. If wicking occurs while sizing, it is actually the water traveling along the fiber, not the soy. That will cause uneven soy coverage, and eventual streaking. Unfortunately, the streaking won't be apparent until you begin to apply washes of dye, and may not even appear



forward, one step back," as you apply
k. Use this method also when applying
large areas of dye.

or the dyes to come. If you are presizing (applying the soymilk before having applied dye or a resist), stop at this point and allow the soy to dry completely to touch. If it is a humid day, it may be necessary to put a fan on the fabric to speed up the drying process. As with any bean product, the soymilk will spoil quickly if conditions are not right, so the sizing should take no more than three or four hours to dry, much less in hot weather.

If you are midsizing (sizing after pasting but before having applied any dyes), once the soy has been applied, flip the damp cloth over so that the back faces up. Scrub the back with a dry brush or spatula. You may work between the shinshi or temporarily transfer them to the right side. The purpose of the scrubbing is to draw the moisture to the back, and in doing so to help the now-slightly-softened paste to get a better grip on the fiber, which will

help to prevent the dyes from wicking under the resist later on in the process.

Turn the cloth face up again. If you have moved the *shinshi*, return them to the back side of the cloth. Allow the cloth to dry thoroughly before proceeding. If the cloth or paste feels the least bit cooler than room temperature, it is not yet dry. Allowing the materials to dry thoroughly between stages is imperative. How dry? Dry. Not "*almost dry*," "*sorta dry*," or "*maybe dry*." **Dry**.

Postsizing gives an even finish to the cloth, makes it more wrinkle and soil resistant, and adds a final security lock to the colors beneath. Treat the cloth as you would in presizing. Postsizing is not a traditional step in Japan.

Try this experiment:

Size only half a strip of yardage. Then treat each half in the same manner as you apply your colors. Cure, and in the final wash, I believe you will find that the half you sized is of much higher quality than the unsized half, both in terms of color and in resistance to crocking.

WORKING WITH DYES

Soymilk as a Binder

Soymilk may also be used to bind pigments to the fiber.

What is a pigment? A pigment is a colorant that does not normally remain dissolved in water, but settles out with time. The settling is caused in part by fairly large particles of color, particles that are not carried all the way into the fiber but that sit on the surface. As such, the pigments have a tendency to rub off (*crock*). When the pigments are suspended in the soymilk, the soymilk will act as a binder, encapsulating the color and adhering it to the surface of the fiber.

Dissolve your pigment, natural or synthetic, in soymilk–using the same recipe you used for sizing above. As a general rule, it is better to apply several thin layers of pigment/soy rather than one heavy layer.

To do this, mix the color you think you would like and test it on the selvage edge of your cloth. Allow to dry. When you have just the right shade, mix enough color to apply one coat to your entire length of cloth and still achieve the same shade. Satisfied?

To achieve a high quality color we must apply at least three coats of dye. If we apply three coats of the color we just mixed it will be far too dark. So what to do? Measure the total amount of dye in a measuring cup. We will add twice that amount in *soymilk* to the color to thin it down. After three coats you should have the same pigment concentration, and, therefore, the same shade of color as that

achieved in your original test along the selvage. By applying three coats you have encouraged each layer of pigment to become totally encased in the soy, giving you a much greater bond, and color with much greater integrity. Take care to allow each coat to dry thoroughly before applying another coat.

I should mention here that if you are not using a pigment as a dye you do not need to add any soymilk binder to your dye. Dyes made by cooking up plants or insects, along with synthetic dyes, should be applied to the cloth without adding soymilk to the mixture. The soymilk will do no harm to the color, nor will it serve any purpose other than to reduce the shelf life of your dye, since the soymilk will rot in short time.

Dye Application

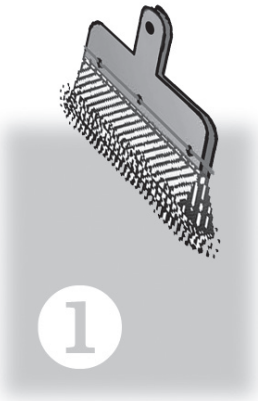
The traditional methods of Japanese color application follow the same concept of application mentioned in the preceding paragraphs. Generally speaking, the dye should be thinned down, and three layers applied. Also it is much easier to control the amount of dye you are applying if you use a drier brush (one that is not dripping wet) and *grind* the colors into the cloth rather than splash them over the surface. You will find that all of the brushes ending in "*-bake*" (*jizome**bake***, *surikomi**bake***, and *botan**bake***) are designed to take this grinding abuse.

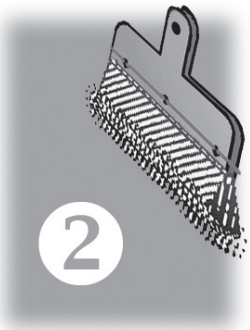
Steam-setting Colors

If you are using dyes that require heat setting, follow the manufacturer's guidelines. If using synthetic dyes, it is best to steam (if required to do so) before curing the yardage.

The steaming process has no effect on the soy sizing or binders as long as they are completely dry when you begin.

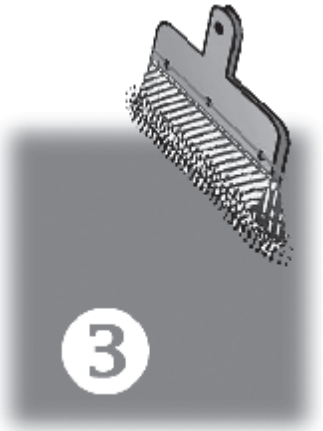
The first coat is applied in thin layer of color, seeping deep into the fiber.





The second coat is absorbed a bit less and starts to give the quality of the color some character.

The final coat is applied to yield desired color and add the extra bit of richness to your art.

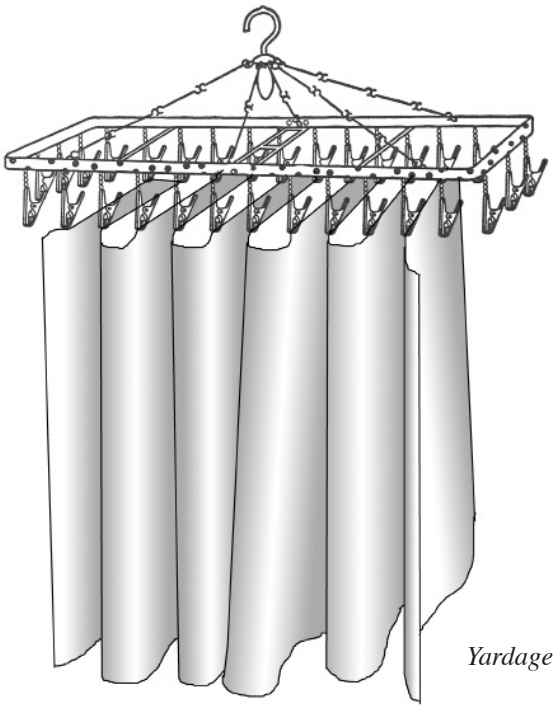


FINISHING UP

Curing the Yardage

The soy needs to do more than just dry. It must *cure*. Curing allows the protein in the soymilk time to shrink, biting into the fiber and becoming a permanent part of it. How long you allow the soymilk to cure is somewhat arbitrary. Some Japanese artists allow the soy to cure only a few days. I prefer to allow it to cure up to three months. The longer you allow it to cure the higher the quality of your product.

After you have applied the last of the dyes, store the fabric away in a safe, airy, dry location. I prefer to use laundry hangers, racks with clothespins suspended from a frame, for hanging the yardage. Taking care to handle the yardage gently, fold (do not pleat) the fabric accordion-style while clipping it in place. The yardage hanger will



Yardage hung to cure.

allow the fabric to hang without stress, and to exposed to the air evenly on all sides. Hang it some place out of the way, where it will remain unmolested for as long as you determine is necessary.

If you live in a very humid environment, you may want to construct a dry box. A dry box may be fashioned of a solid material such as plywood, or a disposable material such as a refrigerator carton. You may also decide to use an empty closet or a rarely used guest bathroom. In all of these scenarios you will need some heat source, such as a light bulb safely wired in, or an electric heater on its lowest setting. The heat will drive away the moisture, creating a dry environment in which to store your fabric during the curing process. In winter I hang my fabrics high overhead in a room with a wood burning stove, and in summer, out on the deck under a tin roof. Both places work quite well.

Final Washing

Once all other steps are completed, you may wash the fabric in lukewarm water to remove any water-based resists, or process according to manufacturer's recommendations for non-water-soluble resists.

Do not rub or scrub. The soy-based sizing and dyes are weakest at this stage.

If you have correctly followed all of the steps outlined above, very little, if any, of your dyes should dissolve out into the rinse water.

Washing the fabric will return the yardage to its original hand. If your fabric remains undesirably stiff, even after thorough washing and a tumble in the dryer, you probably have been too generous in your use of the soymilk. Next time try applying fewer layers of soymilk, or using thinner soymilk.

Sizing Finished Goods

Keeping in mind the properties of soymilk, try taking a lightweight natural fiber shirt and dipping it into your left-over soymilk. Hang to drip dry. *It must dry before it sours*.

Allow to hang for a day, then iron carefully, including any creases you would like.

Hang it away in your closet for a season and you will be ready to strut in a wrinkle-free, soil-resistant shirt!

Quick Review

▸ Always make *fresh* soymilk as you start out your workday.

▸ Don't work with spoiled, sour, or *questionable* soymilk–if in doubt, make fresh.

▸ Soymilk has three basic uses when working with textiles:

As a presizing to

- help prevent wicking and allow for even coverage of dyes
- absorb more color as it bonds to the woven fiber and increase color quality

As a binder for pigments

As a final sizing to

- seal in dyes
- give a finished "professional" look to the fabric,
- help prevent soiling in use
- help prevent wrinkling

▸ Soymilk must be allowed to dry between each step.

▸ Soymilk must be allowed to cure (fully oxidize) before suffering any abuse such as laundering.

COMMONLY ASKED QUESTIONS

How dry does the soymilk have to be before applying another layer?

Dry. Not damp. All the way dry, as in *parched bones in the Sahara*.

How can I use the soymilk to make my fabric wrinkle resistant?

If you have stretched your fabric on *harite* and *shinshi* during the dye process, store it away to cure as described above. If you take care not to allow it to become wrinkled while handling, it will naturally remember its flat state, even after washing.

Conversely, if you want your fabric to remember a non-flat state, wrinkle it before you store it away. If you set pleats (iron them in yourself, or send your yardage off to a pleating company) before storing the fabric away, it will remember the pleated state. You may still have to iron after each washing, but it will be a much easier endeavor than if you had not used the soymilk.

How can I keep my pigments from crocking?

To crock means to "rub off." Be sure to scour your fabric as your first step. Stretch and size your fabric as outlined above. If using pigments (pigments may crock; other dyes aren't very likely to), be sure to apply the colors in several diluted coats rather than one heavy coat. Allow to cure an ample amount of time before washing. Be gentle while handling wet yardage; pigments are weakest when wet.

How long will the soy stay fresh?

I recommend making only as much as you think you can use up in one day. Even if it hasn't soured or spoiled by the next day, it won't be at its best, putting at risk all the rest of your devoted efforts to your piece.

Will commercial soymilk work?

Soymilk purchased from your local grocery store may well work, but I recommend against it. The soymilk you make at home is simply soy and water–no variables other than the thickness of the solution.

When you purchase soymilk already made up it can't possibly be as fresh as that which you make yourself. It has been sitting on the grocer's shelf for at least a day, most likely has flavorings or other additives to make it more palatable (try drinking your own soymilk if you don't believe me), and in most cases has been pasteurized.

All of the above are variables that may affect the outcome of your work. If things start to go wrong with your dyes, it will only make it more difficult to track down the source of the problem.

It only takes a few minutes to make your own soymilk fresh–so buck up and do it right from the start. You won't regret it!

Will other kinds of beans work the same way?

Of all the legumes (peas, beans, lentils, tamarind, etc.) soybeans have the highest protein content. It is this protein that you are tapping into for the work described in this book.

Other sources of readily available protein may also be used, such as albumen (egg whites) and casein (milk fat). However, I have found that the soybeans are the easiest to store and prepare for use.

Under what circumstances should I steam my fabric?

The soymilk does not require steaming–it neither helps nor hinders the curing process.

However, some *dyes* do require steaming. In which case you are doing it to set the dye, not help the soy. For the most part I don't steam my fabric. If I am using pigments (and soymilk as the binder) or if I am applying juice dyes, such as onion skins with a mordant over a soymilk sizing, I don't need to steam–it would simply be wasted time and energy. However, there are times when I will choose to do so.

Cochineal is a dye I use a lot. When I apply it over a soymilk sizing with an alum mordant it is a nice quiet pink or salmon color. However, if I steam it, the heat develops the soft salmon color into a very lively flamingo pink. So I am steaming it to bring up the color, not set the soymilk.

What do I do with the left-over soy crumble?

Once you have strained out the soymilk liquid into a separate bowl, the residue in the straining rag, which looks a bit like wet saw dust, is called *okara*. For the most part, this is the main ingredient in HamburgerHelper®. *Okara* has long been used in traditional Japanese country cooking and can be added (up to 10%) to almost any recipe if you are in need of additional fiber in your diet.

Try Googling "okara recipes" for a broad range of delicious ideas.

How and why is vat indigo treated differently?

Technically, vat indigo functions as a pigment, since it rests on the surface of the fiber. However, it is best not to presize your indigo for two reasons: (1) you want the indigo to wick, thus causing it to soak into the fiber (presizing helps to retard wicking); and (2) indigo yardage is often washed very soon after the oxidizing stage is complete, which would not allow the soymilk enough time to cure.

Indigo fixes to the fiber as it oxidizes. Soy would neither help nor hinder the oxidation process and would therefore simply be wasted effort.

However, because indigo does often crock, it is wise to apply a coat of postsizing once all the dye steps have been completed. This is not a traditional step, but I've found that it works. Since vat indigo is dipped, both sides are coated with pigment and both sides have the potential to crock. If you are going to make an unlined garment, it is wise to apply a coat of soymilk to both sides of the yardage, one at a time, to prevent crocking onto undergarments. This may not apply if you are working with a very sheer weave.

The bristle arrangement is much like a paper towel tube cut in half lengthwise.

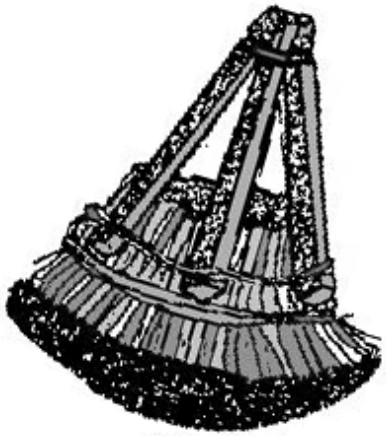
Brushes

Jizomebake are designed to allow the same number of bristles to touch the surface of the cloth no matter how it is tilted. You'll find this makes it much easier to apply sizing and dyes more evenly, helping to avoid streaks. *Jizomebake* come in sizes ranging from around four to nine or more inches wide.

Surikomibake are used to apply colors to smaller areas and to *grind* pigments into the weave. They tend to be a bit softer than *jizomebake* and are normally held perpendicular to the cloth to allow full contact with the yardage. They range in size from 1/16 to 4 inches in width.

surikomibake footprint

Botanbake are rounded at the bottom, much like a tennis ball cut in half. The brush is held with the top (the teepee-like handle) pressed against the palm of your hand, your fingers gripping the base of the handle (imagine a giant octopus descending upon a small submarine from above).



Using a lot of wrist action, the bristles are gyrated in a swirling motion across the surface of the yardage to create the appearance of misty clouds resting in a mountain valley, or tumultuous smoke pouring forth as dragon's breath.

While ideal for shading, I do not recommend this brush for beginners. The design is inherently unstable, allowing bristles to continually shed. Very similar shading results can be achieved with the larger *surikomibake*.

Stretching Equipment

Shinshi come in an enormous range of lengths and thicknesses, each designed for use with a specific weight or width of cloth. *Shinshi* are long flexible sticks of bamboo with needles embedded in each end. These stretchers are most often used in combination with *harite* to stretch the fabric into a taut, flat surface, much like that of a trampoline.

The needles are poked into the selvage of yardage, or into the corners of presewn squares and rectangles. The shinshi should be about 20 to 30 percent longer than the

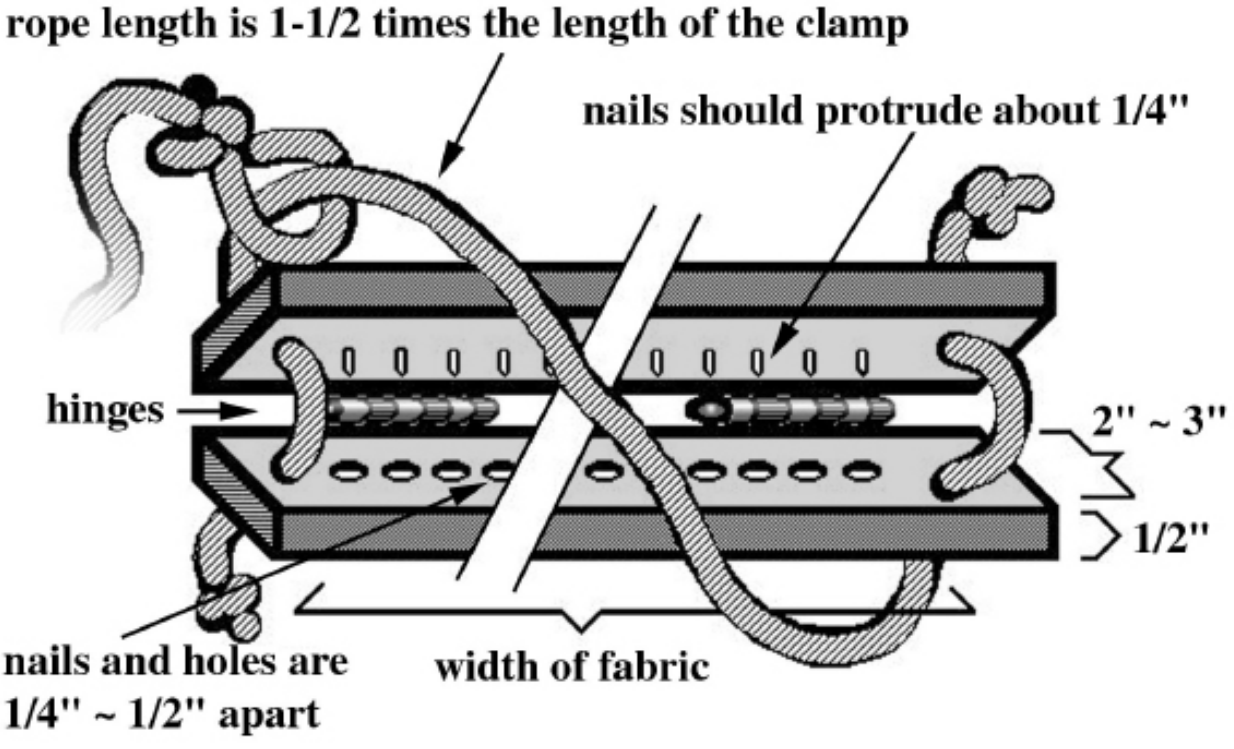
length of cloth to be spanned. The difference in length forces the bamboo rod to bend, creating tension, pulling the fabric taut between the two insertion points. The goal is to achieve a bend closer to a *Mona Lisa* smile, rather than a *happy face* smile.

Take care not to over-bend your shinshi.

Harite are made up of two sets of clamps; each clamp consists of two long and narrow planks of wood with needles to grip the cloth. Once the yardage is held in the clamps, the clamps are pulled taut between two posts to mimic a hammock. In doing so, often ripples are formed running the length of the yardage. *Shinshi* are pressed into service to eliminate this problem.

Harite are fairly expensive to purchase and rather easy to make. Follow the diagram on the next page to make your own set. Select a wood that is lightweight and not likely to split. Choose thin nails (brads) a little longer than the wood is thick so that the nail can pass through the wood, through the cloth, and into the corresponding hole drilled in the mated slat.

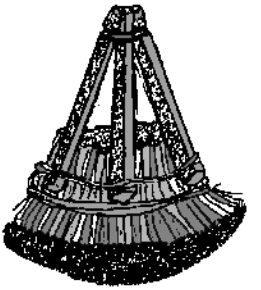
How to Construct Harite



GLOSSARY

blender used to pulverize swollen soybeans in water to make soymilk.

botanbake brushes made of deer hair, with the bristles curved (much like a ball cut in half) to allow for misty-appearing shadings. The handle is most often a tripod and as such is inherently weak in terms of holding the bristles in place. It is very susceptible to shedding. *Botan* means peony, and *hake* (*-bake*) means brush.

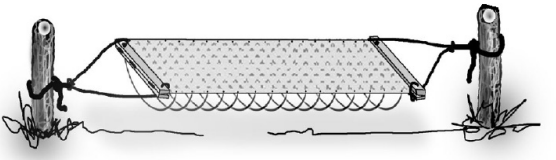


coffee grinder used to grind dry soybeans into a powder for the quickie method of making soymilk.

crock to rub off. Normally associated with topical dyes, as when indigo crocks onto a lighter-colored fabric (discoloring the lighter fabric).

dry box a container large enough to hold fabric suspended from a yardage hanger. It should have some heat source to drive away humidity and to speed up the curing process.

harite part of the compound traditional fabric-stretching equipment that includes *shinshi*. *Harite* are clamps designed to pull the fabric along the warp threads, suspending the cloth between two stable supports such as a pair of trees or clothesline posts, creating a visual effect much like a hammock

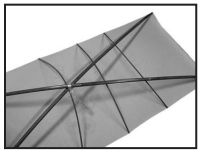


jizomebake brushes made of deer hair, with a curved surface (much like a tube cut in half lengthwise) to allow even coverage of sizing and dyes. Especially useful in covering large areas. *Jizome* means *dyeing the background*, and *hake* (*-bake*) means brush.

katazome paste resist with stencils. *Kata* means stencil, and *some* (*-zome*) means dyeing.

scour washing in such a manner as to remove all residue from the fiber, including any soil or commercial sizing.

shinshi part of the compound traditional fabric-stretching equipment that includes *harite*. *Shinshi* are bamboo sticks, of varying lengths and thicknesses, with a small needle in each tip. The needles are inserted into the selvage of the cloth, parallel to the weft threads. The *shinshi* should be longer than the cloth-to-be-stretched is wide. Once in place, the bamboo will be forced to bend, pulling the fabric sideways.



sizing the undercoating applied to aid the yardage in receiving dye.

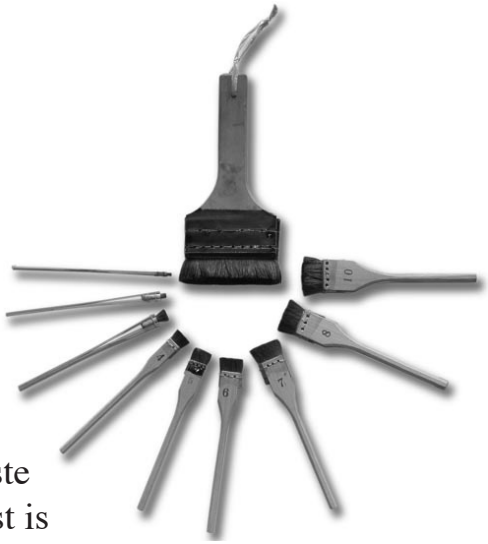
straining cloth used to separate soy liquid from soy crumble after pulverizing the swollen soybeans with water in a blender.

suribachi a clay grinding bowl with grooves scored along the inner surface. A suribachi functions much as a mortar, and is used in traditional Japanese cooking

much as we would use a blender.

surikogi the wood pestle used in partnership with a *suribachi*.

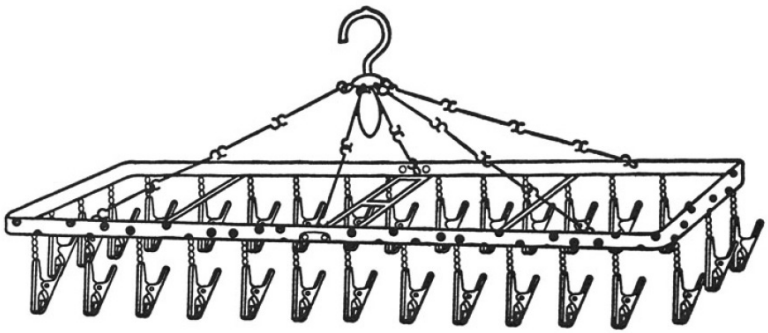
surikomibake brushes made of deer or badger hair that are held perpendicular to the cloth and used to apply isolated areas of color. *Surikomi* means grinding in, and *hake* (*-bake*) means brush.



tsutsugaki a method of paste application. The paste resist is placed into a paper tube, much like a pastry tube, and used to draw a design directly onto the fabric, as when you write "Happy Birthday!" on a cake with frosting.

wick the way a liquid travels along a yarn or thread, as when a dye wicks under the paste resist.

yardage hanger a series of clips attached to a sturdy rack from which yardage is suspended to allow even curing.



Steps in manufacturing soy sauce.

This and that…

JAPANESE HINA

Hina (talismans) have played a very important role in Japanese society since long before recorded history. The oldest forms were associated with purification rights.

Originally made of white strips of paper, sometimes a few leaves or twists of straw, soybeans, or other items considered to be pure, *hina* served to protect the owner from harm by absorbing any disease or ill fortune that may befall the host, thus helping to relieve some of the fear that comes from dealing with the unknown forces of Nature.

In ancient times *hina* were kept close to the host, sometimes worn on the body. In modern times they are kept in the heart of the home–the family shrine.

Periodically, especially after an illness or calamity, the proxies are purified by disposing of them through the use of fire or water, sending their essence up to the vast heavens or allowing them to drift downstream, carrying all accumulated evil with them to the great expanses of the boundless oceans. This custom is still practiced throughout Japan, with every region having its own variation.

Hina are the origins of the elaborate dolls seen on Girls' Day in Japan, the *Hina* Festival.

On the following pages are two examples of soybeans used as protecting talismans.

Setsubun (Vernal Equinox)

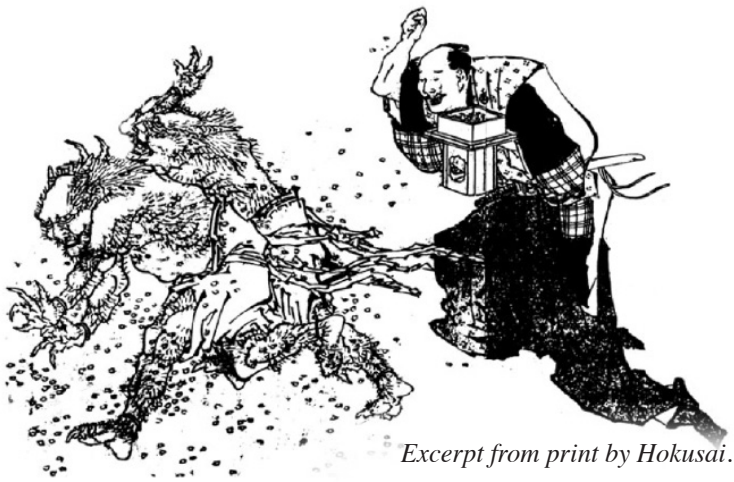
Radical changes of weather are considered times of vulnerability. To guard against ill fortunes the Japanese have an ancient practice of purifying the home with roasted soybeans during the change from winter to spring. To heighten the drama, a friend or neighbor will often dress as a goblin (representing all ills that are lurking to violate the home and its occupants) and attempt to invade the house. As he does so, the occupants will shout,

fuku wa uchi, oni wa soto!

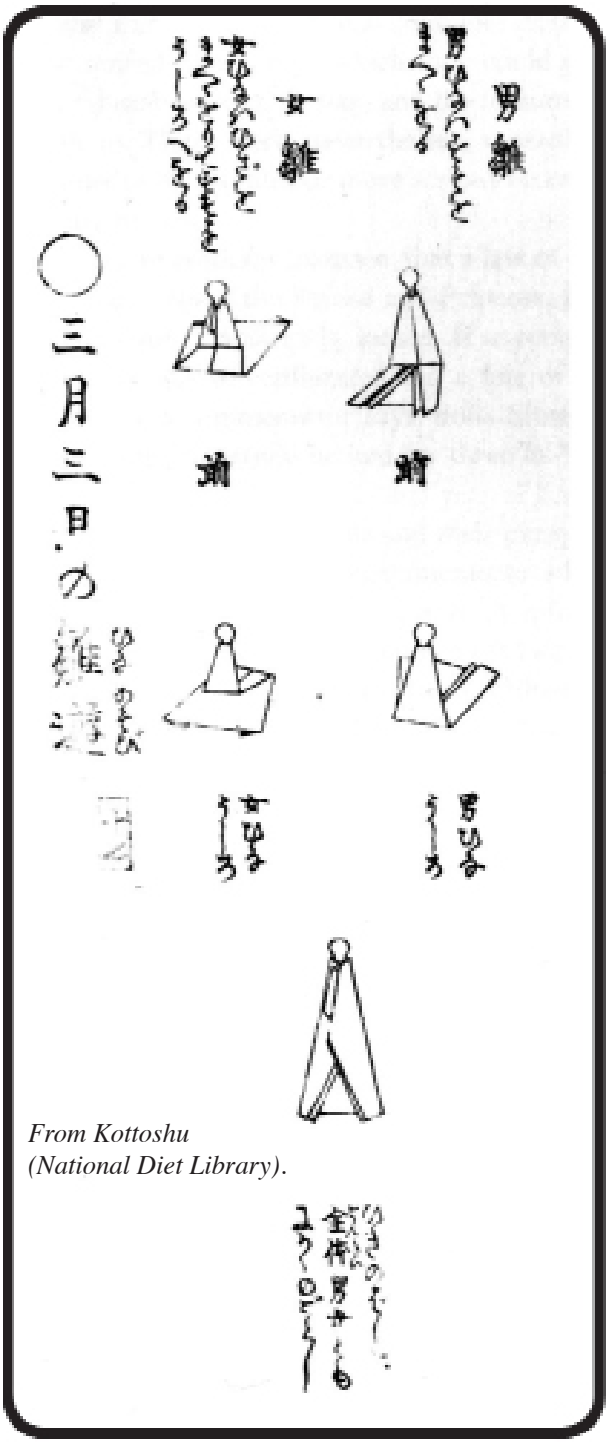
「福は内、鬼は外！」

as they throw the beans to repulse the goblin's efforts.

This exorcism is repeated in every room and closet in the house. One must be careful always to leave a door open during the rite to allow Ill Fortune a speedy escape! As a result of the purge, everyone is assured of a happy and healthy spring!



Excerpt from print by Hokusai.

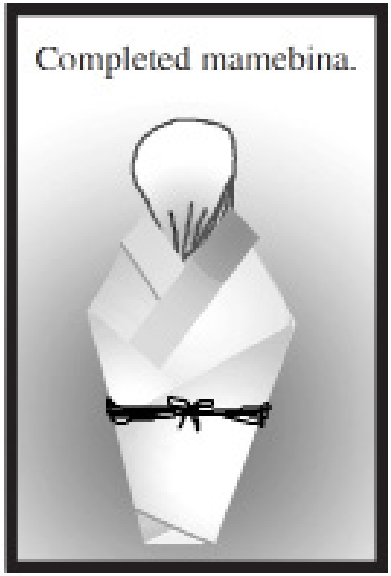


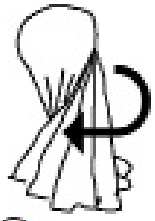
From Kottoshu
(National Diet Library).

Soybean *Hina*

You may create your own charming talisman by following the drawings below. Traditionally these *hina* are made of toasted soybeans (regular dry ones will do) and white or unbleached, thin, handmade paper (*washi*). White tissue is an acceptable substitute.

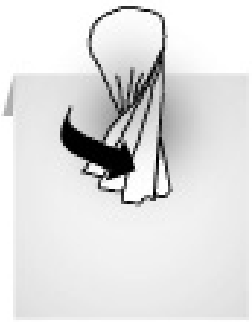
Place bean in center of tissue.

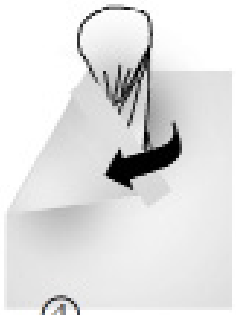




Twist tissue to form "ghost" shape.

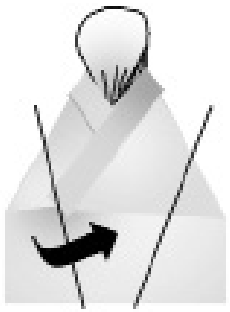
Fold down left corner.





Fold down right corner.

Fold in sides, right over left.



THE STORY OF SAINT MENDEL THE PROPAGATOR

Born July 22, 1822, in an area of the Czech Republic now known as Hyncice, Gregor Johann Mendel entered the Augustinian monastery in Brünn (now Brno) at a very early age.

Many scholars have long believed it was the reputation of the monastery, long a center of learning and scientific endeavor, that attracted young Gregor (now Grgr). However, recent evidence suggests it was actually the cruel taunts of his younger stepbrother, Pugsley, that inspired him to seek a new family of Brothers. Pugsley's taunts of "Bean boy! Bean counter!" continued to haunt him, even as he sought a career with the Austrian Council of Accounting. Within his first tour of duty, Mendel invented a radical new method of calculating the legume yields of the district in his charge. Jealous rivals soon uncovered his dark secret, through an anonymous tip printed in the hand of what appears to have been an annoying eight year old, and soon the young prodigy was finding "Bean Boy!" scrawled on public restroom walls. To the last refuge of the tormented he fled, taking up Holy Orders, believing sincerely that his penchant for bean numerology must have some deeper cosmic meaning.

Between prayers, Monk Mendel spent his time moonlighting as a substitute teacher at the technical school in Brünn, and there, faced with the abnormalities of the local population, he became obsessed with aberrations in nature, heredity, and evolution. Barred from recruiting students for use in his experiments, he withdrew to a quiet corner of the monastery, mysteriously digging shallow trenches by moonlight.

Between 1856 and 1863, Mendel cultivated and tested at least 28,000 pea plants, and kept the records to prove it, while carefully analyzing seven pairs of seed and plant characteristics. His meticulous attention to detail, and undying interests in the social organization of the legume family, led him to announce to the world his theories on bean genetics. At the time, unfortunately, the world was not yet into what was termed "bean counting at the microscopic level."

The monks of the monastery were a sympathetic lot, and required all acolytes to memorize what came to be known as "Mendel's Laws." It was Mendel's protégé who first suggested the term "dominance" in reference

to his teaching style, and "recessive" referring to his social skills. But as becomes the Blessed, Mendel took this as inspiration to further elaborate upon the conjugal conditions of beans.

Taking his lecture on the road, Mendel was at times perplexed by his unexpected popularity among the more mature female population of the realm. What interest could they possibly have in a man fixated on dominance theories and an erect, hairy plant, capped with a purple bloom?

Years later Mendel's brilliance was recognized and embraced by fellow Christians worldwide as his theories were used in statistical analysis to prove Darwin's theory of evolution.

Later genetic experiments with *Cannabis sativa* proved inconclusive. Inability to focus any longer was sighted as the main cause for his lack of progress, although he continually claimed greater insight than ever before. The pressure to produce results caused him to delve deeper and deeper into his new subject matter. He expired in a state of ecstasy, vanishing in a cloud of patchouli-laden smoke, as witnessed by his dealer on January 6, 1884.

St. Mendel is noted also for achieving the shortest turn-around time in acquiring sainthood, achieved through the offices of his stepbrother, Pugsley, then a Cardinal in Rome. In an uncharacteristic lapse into repentance, Cardinal Pugsley was able to attach Beatification as a rider on the bill to approve a budget for the Feast of the Assumption. This ploy has since been referred to as the "Hail Mary."

John Marshall

John Marshall is an internationally known textile artist working with techniques of paste-resist dyeing. He produces a wide range of sophisticated and colorful designs, many of which show the influence of his years of study in the Orient.

John grew up in the small town of Florin, just outside of Sacramento, California. Before wartime evacuations, Florin had been one of the largest Japanese-American communities in the United States; after the war many returned to reclaim lost years and property. Among these friends and neighbors John and his five brothers and sisters grew up.

John's godmother, the late Mary Tsukamoto, was a great influence in his life, she taught him to read and write the Japanese language and shared with him her great love of her cultural heritage.

At the age of seventeen, having worked and saved toward his goal for many years, John was off on his own to discover Japan. His eagerness to learn secured him private instruction under a variety of specialists in doll making, centered around the Yamato style. John was intent on studying the many facets of these shell-faced dolls, such as carving, weaving, dyeing, and sewing, to name just a few. His knowledge of the Japanese language proved to be of great benefit in understanding the subtleties of the culture.

The internationally published paper artist, Kunio Ekiguchi, took John under his wing and assured that John

received the proper introductions so necessary in Japan.

Mr. Ekiguchi arranged an apprenticeship for John with the late Matsuyo Hayashi, a master dyer in the *bingata* style of paste-resist. Through her insight and careful instruction, John became truly fascinated with this ancient art form. Mme. Hayashi had long dreamed of sowing the seeds of her art abroad. Upon her death, John discovered she had willed much of her lifetime collection of work, supplies, and equipment to him. John is determined to fulfill her wishes by bringing her techniques to the West.

Continuing his research into ancient cultures and dye techniques, John aims to interpret the sensibilities and

Demonstrating paste application techniques to student during Seattle Art Museum workshop.

aesthetics of the ancient and ethnic world through the Japanese paste-resist process, using the actual plants and insects employed in making the original dyes. John's research so far has taken him to Japan, Thailand, Indonesia Italy, and the Yucatan. Through the generosity of collectors, he has had the opportunity to view first hand a wide range of ancient and ethnic textiles and artifacts that have served to influence his fabric designs.

Today John lives in a remote corner of Mendocino County, California, where he has converted an 1880s

flour mill into a spacious studio. His studio is used to display the full range of his work as well as art pieces he has collected at home and abroad. Many groups have visited John's studio, including tours sponsored by the San Francisco Museum of Modern Art, the Oakland Museum, and the International Society of Interior Designers. His sun-filled studio is also used to host lectures and serve as a classroom for teaching workshops related to Japanese

textiles and doll making. He also teaches internationally for a variety of museums and universities, including University of California Berkeley Extension Services, Seattle Art Museum, Newark Museum, and the Tokyo Institute for Kimono Design.

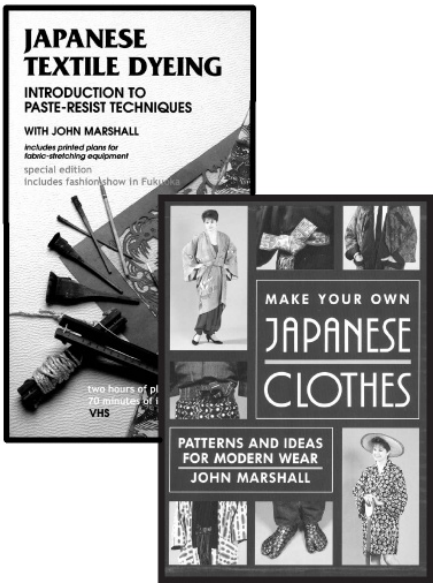
Specializing in one-of-a-kind works of art, John takes on commissions and new challenges. Primarily he produces large interior hangings and luxurious clothing. All of John's work is designed, dyed, and constructed for actual use. All hues are colorfast to repeated washings and to light. Personally executing all steps involved in the creation of each piece is one of his great joys.

Shiodoki by John Marshall
2012

John Marshall's work is collected internationally. He has been commissioned to design and dye traditional kimono in Japan and also produces unique art pieces for international figures, including European royalty, art collectors, stockbrokers, and scholars. He travels nationally and internationally, showing to private clients.

Iris by
John Marshall
1981

John is writing a series of instructional books. The first was published by Kodansha International, 1988, on the subject of Japanese sewing techniques and design concepts for use in the Western world. The title is Make Your Own Japanese Clothes: Patterns and Ideas for Modern Wear. This book will be followed by a number of other books, including one on his unique dye techniques. His video, Japanese Textile Dyeing: Introduction to Paste-Resist Techniques, released through A/zo Productions, covered the basics of using natural dyes with Japanese paste-resist methods and is now out of print. A series of DVDs on the same subject are being prepared.



John is eager to share information and ideas, with the hope of helping the seedlings of Japanese dyeing and crafts to grow and enrich all our lives.

Bangkok Exhibition, 1997

Every year in August, John opens his studio to host natural dye workshops. The dates for the classes are centered around the tiny town of Covelo's annual Blackberry Festival, held every year on John's property the third weekend in August. The festival offers a wonderful taste of rural Americana.

John's studio, The Old Flour Mill, was originally built in 1880. It offers a luxury of space with more than 4,000 square feet of work space. The warm dry air of August is perfect for this type of work: the dyes dry quickly and the soy needs a minimal amount of curing time, a perfect setting for a variety of learning experiences.

Participants may also opt to work in the shade of century-old black walnut trees, or stretch their fabric under the expansive wisteria arbor, all the while breathing in our fresh country air.

John has spent thirty years collecting textiles, supplies, and unusual dye equipment from all over the world. His library of more than 1,000 dye and design books is bound to serve as an inspiration, along with his collection of nearly 2,500 hand-carved stencils, and a whole floor of examples of nearly every type of weave and dye technique traditionally produced in Japan.

John, always happy to answer questions and help out with individual needs, confides that teaching in the studio gives him the ideal opportunity to share his love of fibers and color.

Wisteria arbor and bandstand in the early morning fog.

Further Contact

John Marshall has spent many years developing his web site at www.JohnMarshall.to.

Within the abundance of information offered may be found a list of all of John's upcoming programs open to the public, a list of all the retail supplies he carries, a list and description of all the classes and lectures he offers, complete directions for katazome and tsutsugaki, how to make a range of dyes, business suggestions for artists, directions for designing and sewing hanten jackets, and much, much more.

No access fees are charged. John has developed and maintains the site in the hopes of increasing interest and awareness in the traditional crafts of Japan, especially those of color and fiber.

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I'd like to thank
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She is a delight to work with
and a joy to know.

"Just a simple bean
waiting to take root in a new future...."

Saint Mendel the Propagator,
establishing new missions in the wilds of Iowa.

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