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NATURE'S COLORWAYS

conjuring the chemistry and culture of natural dyes

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LL: Working together to bring *Nature's Colorways* from a morass of ideas and stacks of sticky notes to final publication has been an education for both of us, hasn't it?

I've been captivated by the whole idea of natural dyeing ever since the 1960s, and I thought I knew a lot. I've tried a little bit of everything, produced some beautiful colors, produced a lot of blah beige. The readily available literature back then was skimpy and sometimes misleading (no, common dandelion roots do not produce purple!). But every author I've worked with on this project has taught me useful, even critical, things I didn't know: the rock-bottom basics of indigo chemistry, how to mordant cotton effectively, how to know in an instant whether a lichen will make purple or not.

AM: The most surprising thing I learned over and over is that a lot of what I thought I knew was wrong. You always need two dyestuffs to dye true green? You should always dye last with indigo? All lichens are slow-growing and precious? Tin is a dangerous mordant? All tenets of conventional wisdom turn out not to be true, at least sometimes. Question everything!

THE SIMPLE MAGIC OF

fresh indigo

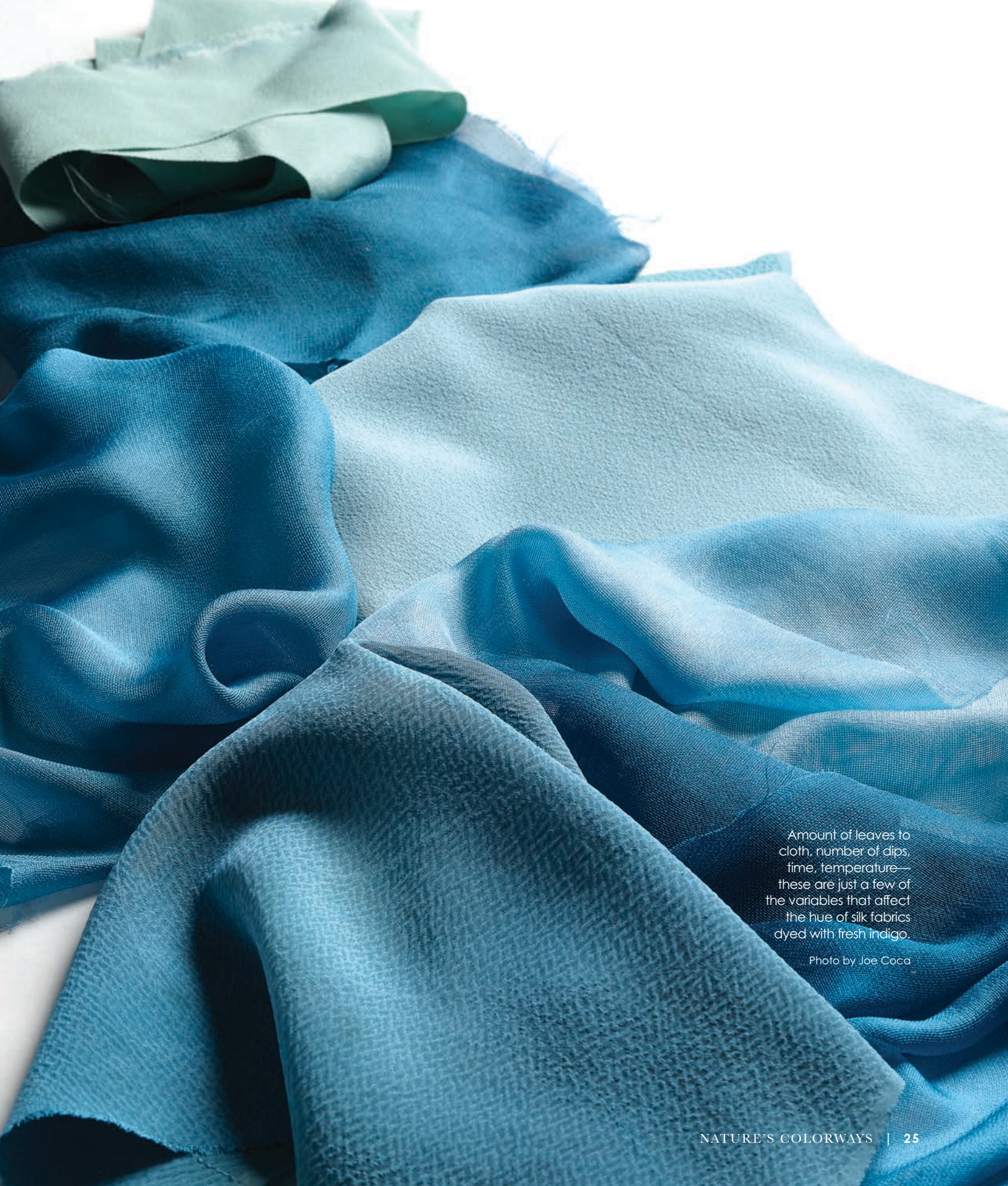
John Marshall

WHO WOULDN'T BE ENTHRALLED while watching the magic of alchemy as juice from the leaves of the earth is transformed before our very eyes into the boundless blues of the sky overhead? Since ancient times, this process has been enshrouded in mystery, its secret science carefully guarded and handed down only to trusted stewards. As a result, many creative but misguided concepts encrust the historical recipes available to us.

Let me chip away some of that crust and expose the clean and logical beauty of this process for what it is—one of the simple pleasures of nature.

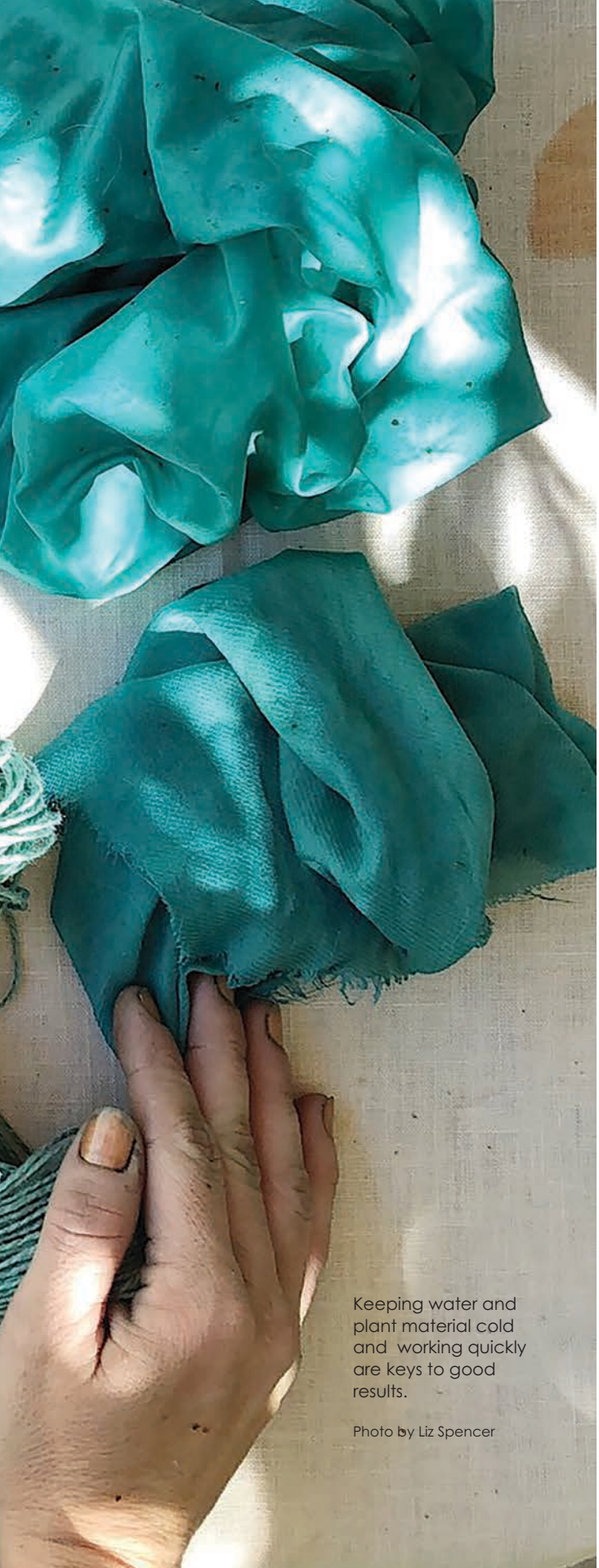
To begin with, let's take a look at the leaf. As with all plants, it is made up of a collection of cells, and each part of each cell has its own role to play. There is really only one portion that we are interested in at the moment—the element that will later give us blue. It's called *indican,* but what's in a name? Let's decide to call it *pre-blue* for the purposes of this article. To make our blue, we need to add one more ingredient, and that is simply the oxygen in the air we breathe.

The pre-blue is trapped within the leaf. As long as it is encased, it does us no good. If we somehow break through this barrier, we can release it. Released, we can partner it with oxygen, and their union will produce blue. If we interrupt this union, the blue will revert to its components, pre-blue and oxygen. We may convert the elements back and forth between these two states to suit our needs. That is really all that there is to the theory of working with indigo. Art, science, and experience help us to know when and how to manipulate these states.



Amount of leaves to cloth, number of dips, time, temperature—these are just a few of the variables that affect the hue of silk fabrics dyed with fresh indigo.

Photo by Joe Coca



Keeping water and plant material cold and working quickly are keys to good results.

Photo by Liz Spencer

pre-blue + oxygen = blue

blue – oxygen = pre-blue

Let's first visit removing the pre-blue from the leaf. One way to approach it is simply through brute force.

Select a few large, well-shaped indigo leaves from your garden or those well-tended pots on your sunny deck. Rinse them with cold water and blot dry. Take a piece of silk cloth—this may be just a scrap or a beautiful, rolled-edge scarf—and spread it flat on a firm, smooth surface, such as a tabletop or linoleum floor. Lay one or more leaves out in a pleasing arrangement on the silk. Spread a sheet of clear plastic—a 1-gallon-size baggie will work well—over the composition. Now have at it with a rounded rock, mallet, or cowboy boot! That's it! Really let out all your frustrations.

Simply pounding fresh leaves (in this case, on Japanese wool crêpe) releases the pre-blue pigment and exposes it to oxygen, making a permanent print.

Photo by Joe Coca

The goal here is to separate the pre-blue from the cells of the leaf. Take care not to damage the silk in the process. As the pre-blue is exposed, it will combine with oxygen, and after a short wait, turn blue. At this point, two paths are open to you. You may wash the fabric now in cold water before the leaf-juice dries and you'll be left with a clean robin's-egg blue. Or allow it to dry before rinsing, and you'll have a nice blue and teal-green print. It's your call.

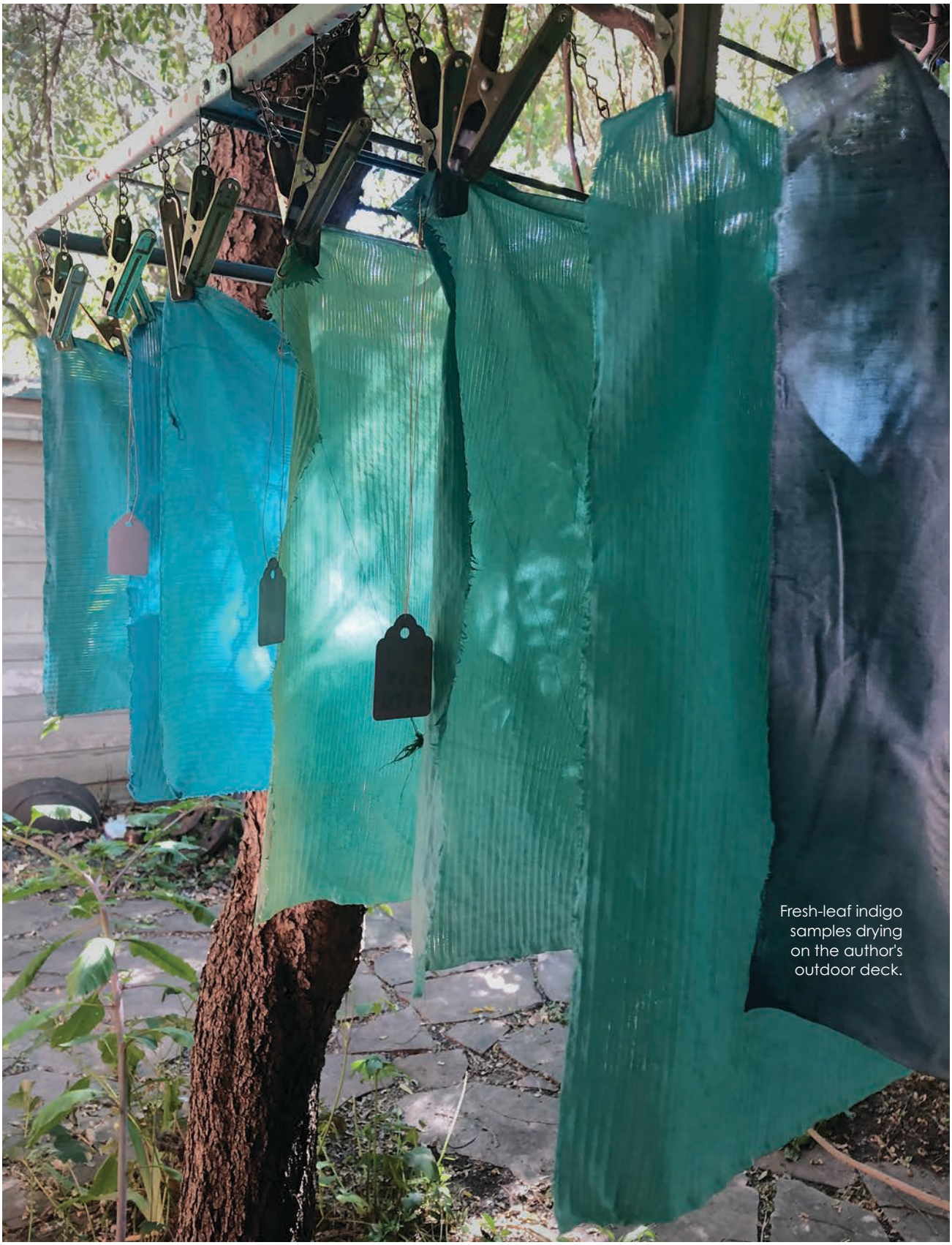
If you're feeling unfulfilled, you may print with one set of leaves and wash it right away to achieve blue imagery; and then go back with a fresh application of leaves which you allow to dry before rinsing. This will give you a beautifully nuanced range of blues and greens.

Now that you've had your first taste, are you feeling like expanding your operation? We're going to gather up a whole bunch of leaves this time, early in the morning while everyone else is sleeping. You may take time to individually select leaves as you pick them from the stems, or you may simply gather stems and all and sort them out later.

Separate the leaves from the stems if you haven't already done so. Place a handful of leaves in a blender and fill with cold water. Blend on medium or high until everything is nicely sliced, diced, and pulverized. About a minute or so should do it. This will break up the cell walls and allow the pre-blue to be released into the water where you can access it.

Strain the slurry through a colander with a handkerchief lining—this will separate out the vegetable matter, which may be tossed back into the garden or compost. The remaining juice will be our dyebath. During its time in the blender, the pre-blue was introduced to the oxygen. Keep the liquid cool.

Gently slip a prewashed silk scarf, necktie, or whatever you like into the mix and gently swish it from time to time. This will ensure even coverage. (I'm suggesting silk because that's the best fiber for this process. Cotton or other cellulose fibers just won't work very well.) The



Fresh-leaf indigo samples drying on the author's outdoor deck.

Photo by Liz Spencer

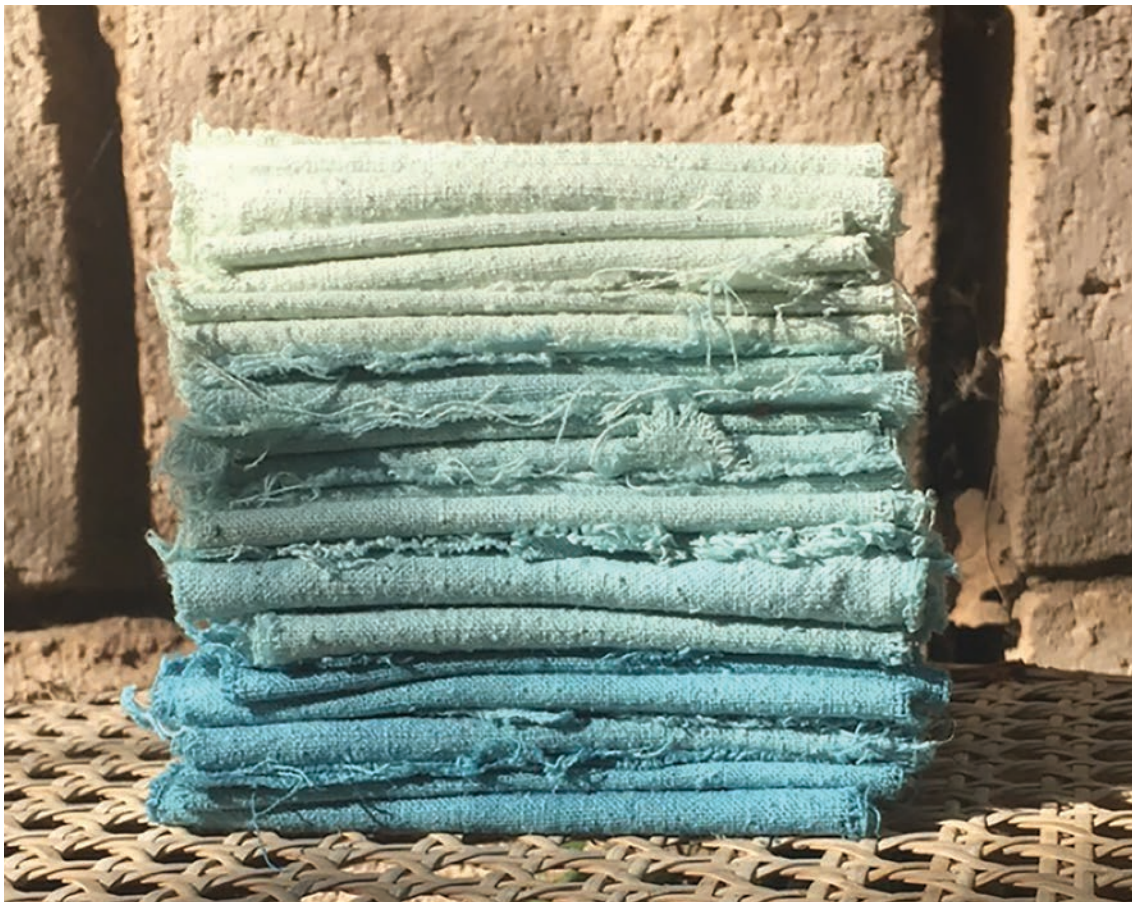


Photo by Liz Spencer

A range of blues and greens on raw silk are produced as the dyebath exhausts.

longer you leave the silk to soak, the deeper the color will develop into a rich blue. If you wash your dyed silk before allowing it to dry, you will be rewarded with a bluer blue. This may be anywhere from a robin's-egg blue to a rich peacock blue. If you let it dry before rinsing, as before, you'll be able to retain a range of teal blues and greens.

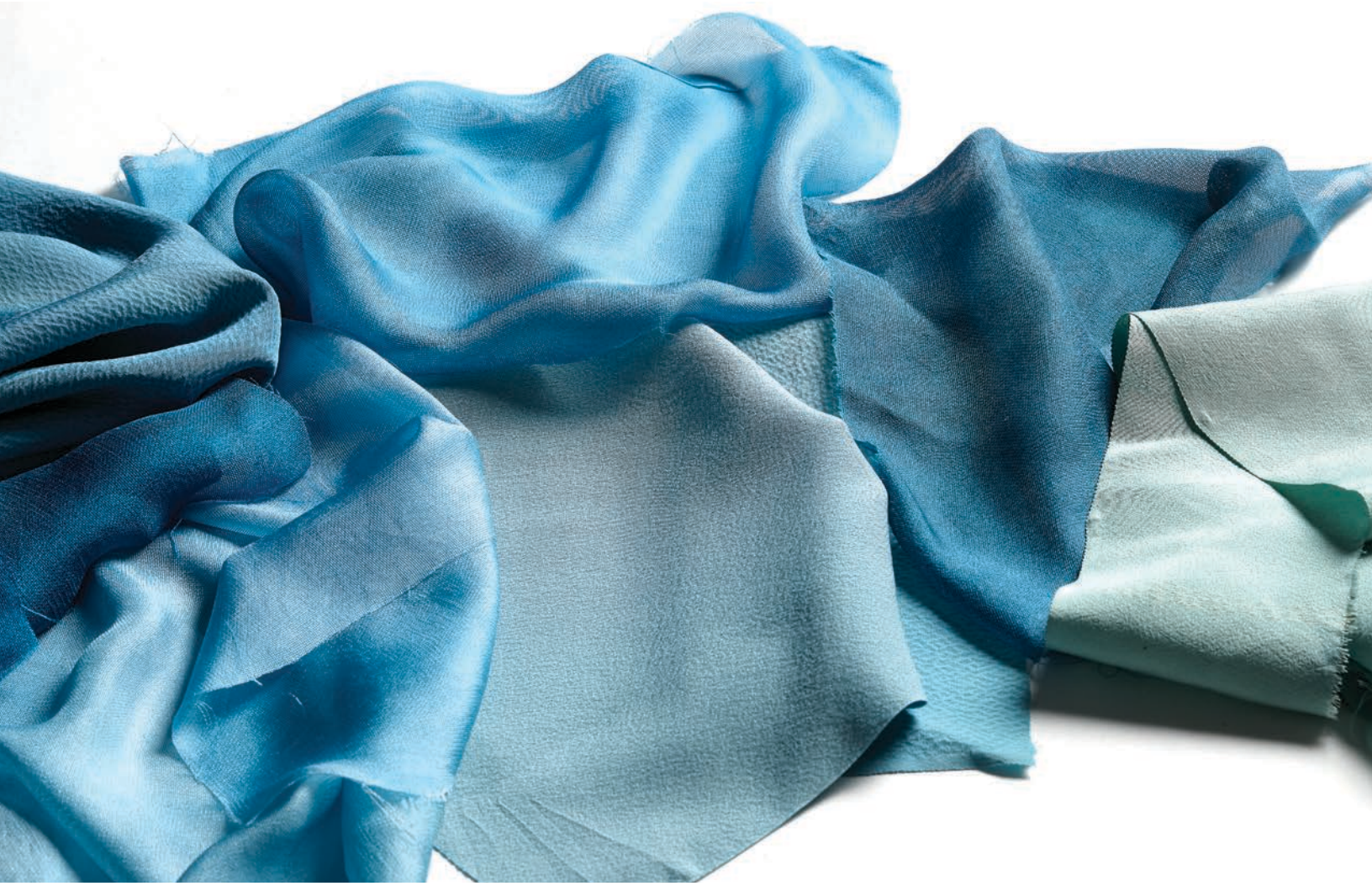
There are other ways to break down the cell structure to release the pre-blue. For example, salt may be pressed into service. The salt crystals will shred the cell walls and at the same time draw out the moisture and the pre-blue along with it.

Gather up a handful of the plucked leaves and toss them into a large bowl. Sprinkle liberally with table salt. Get in there with your hands and squeeze and mash and pulverize. Add your silk. In the midst of this activity, oxygen will be introduced. Without gloves, your hands will become quite stained—but where's the fun in wearing gloves? Welcome to the tribe of the Blue Handed—wear the color with pride!

Wait until it dries and it will retain a distinctive green cast As the salt softens and dissolves, it forces the water in the leaves out (and indican with it) in an attempt to dilute the saline con-

The freshness and health of the leaves affect the resulting color. The top fabric was dyed with leaves that were past their prime.

Photo by Liz Spencer



Ethereal blues can be coaxed from fresh leaves of Japanese indigo.

Photo by Joe Coca

centrate. It's the same thing that happens when you sprinkle salt on shredded cabbage to make a wilted salad. This is why we don't have to add water to this step; the leaf itself supplies the liquid needed with the help of the salt to make it accessible.The longer you knead the mashed-up mix, the darker the color will become. Rinse the silk before it dries and, yes, you get a bluer blue.

I've shared three strategies for direct application. However, there are many other approaches, including all the time-honored ways of extraction and fermentation that have been practiced around the globe for centuries. Just keep in mind that any and all plans to attain blue involve combining or separating pre-blue and oxygen—nothing more complicated than that.

With a sense of adventure and permitting yourself to learn as you go, you'll be able to get along just fine working with indigo. It has only the very simplest of needs. Pre-blue needs oxygen to turn blue. The ultimate truth in the universe.

Additional reading: *Singing the Blues: Soulful Dyeing for All Eternity, with John Marshall as Your Guide*. (See Resources, page 109.)

GROW YOUR OWN

As long as you have at least a sunny balcony and some healthy dirt, you'll be able to grow Japanese indigo (*Persicaria tinctoria*). It grows well in most subtropical and temperate climates—even as far north as Greenland with proper care. It is not drought tolerant, but it is otherwise very easy to grow. If you can grow basil where you live, you'll be able to grow *Persicaria tinctoria.*

The seeds may be purchased from many sources online. I like to recommend seed from Rowland Ricketts: rickettsindigo.com. To get the seeds started, plant them in shallow trays filled with rich potting soil early in the spring. A very sunny window or greenhouse will give you the hardiest starts. Don't plant outside until all danger of frost has passed. For me, here in northern California, that is normally the first of June.

Transfer the seedlings to their new location. Full sun is preferred, but they will grow well with some shade. The young roots will be tangled, but gently tearing them apart will do no harm. Space the clumps of four or five seedlings about a foot or two apart.

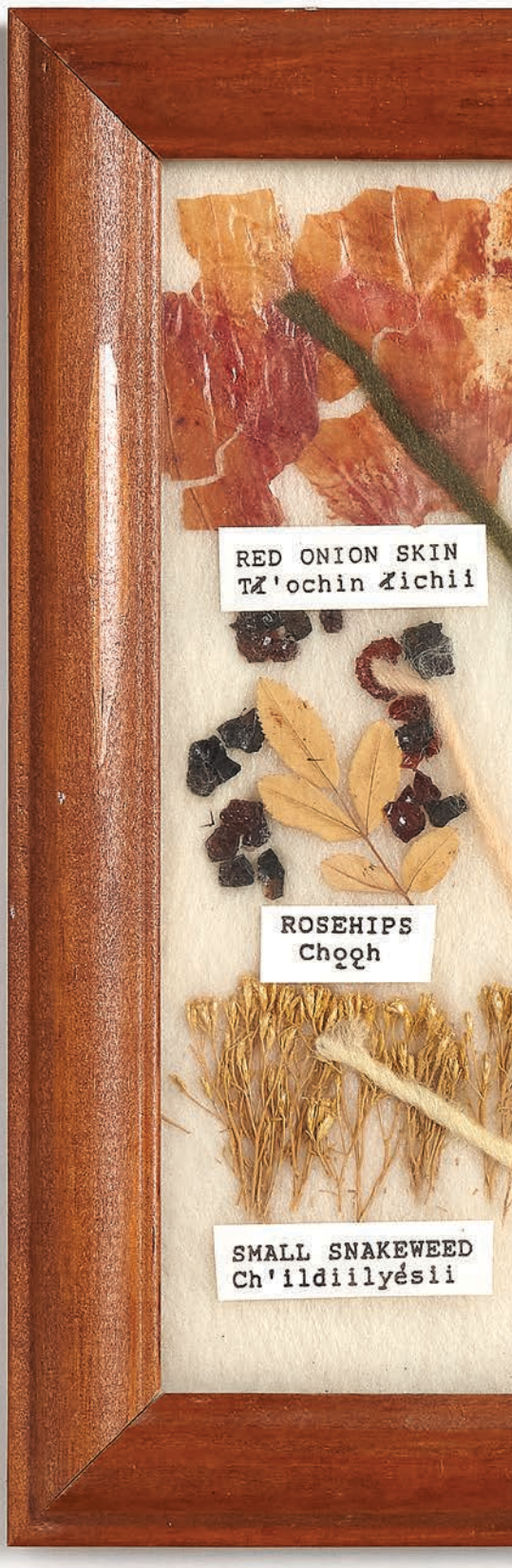
Summer is the rainy season in Japan, so keep your plants moist and water daily whenever possible. Good drainage is required, but never let the roots dry out completely.

The plants will be ready to use for dyeing once they are 2 to 3 feet tall, about midsummer. For fresh-leaf pounding or dyeing as I've described here, you can strip leaves from the stems; they will soon sprout new ones. Or you may cut the stalks down to about 6 to 12 inches from the base; they will quickly recover with a new crop of fresh growth.

Photo by Liz Spencer

keeping traditions alive

Linda Ligon



IT HOLDS A PLACE OF PRIDE ON A SHELF in my office: an unassuming framed piece, about 9 by 11 inches, holding the beginnings of a tiny four-selvedge rug woven with handspun wool, dyed in seven different colors from plants native to the Navajo Nation. A family member found it in a little shop somewhere in Oklahoma, but its home of origin was New Mexico, south of Gallup near the tiny community of Pine Springs.

That's where the family of Mabel Burnside Myers has continued to produce these cultural treasures: spinning the yarn, gathering the plants, dyeing, labeling, weaving. It's not a trivial undertaking. They're continuing a project begun by their mother, their grandmother, some 70 years ago.

Her life had been remarkable. Born in 1922 and graduated from high school in 1938,

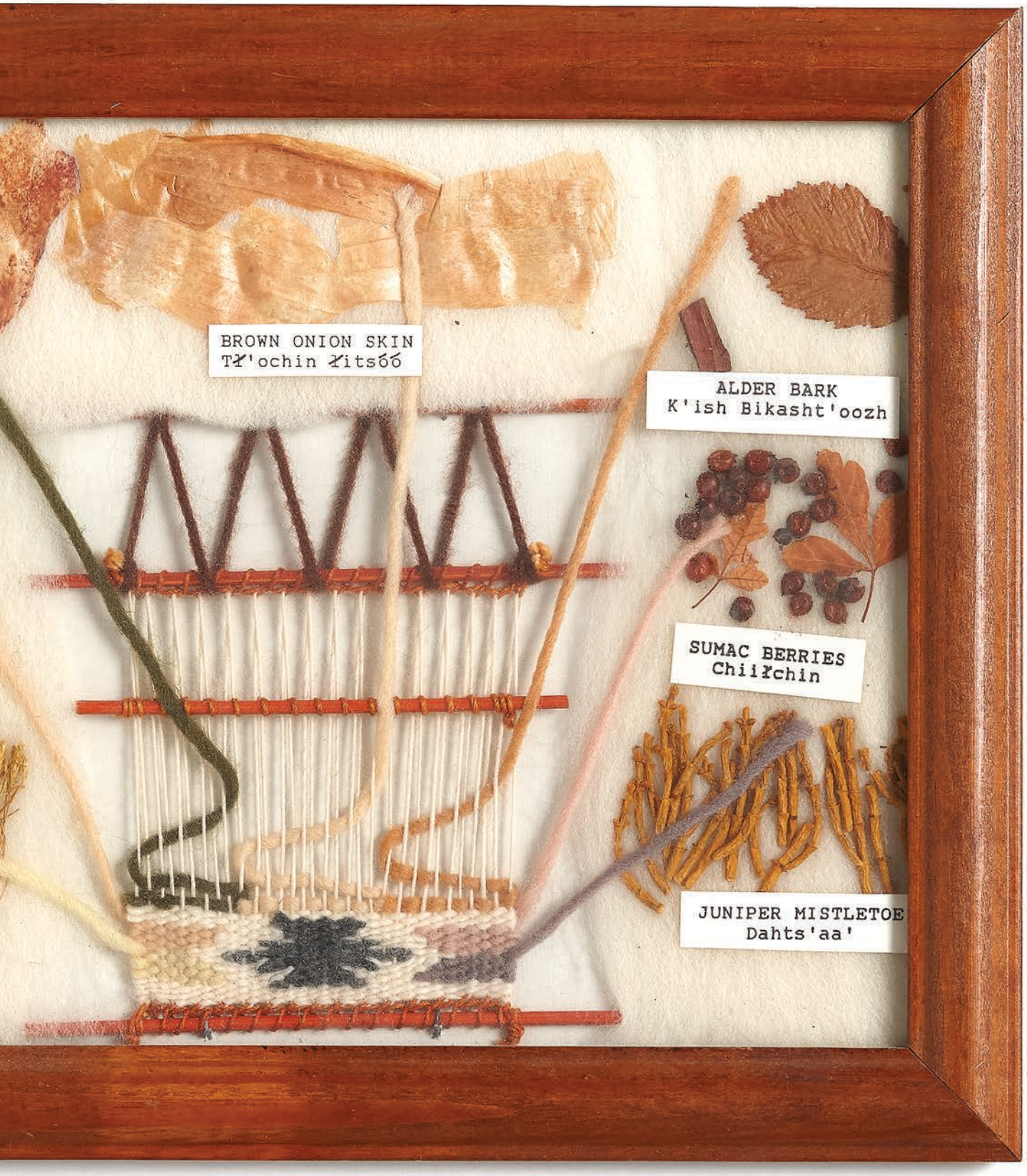


Photo by Joe Cocca

A portrait of Mabel Burnside Myers as a young woman with one of her prize-winning rugs.

Photo by Don Dedera, published here with permission of the Dedera family

Mabel Burnside was head of the weaving department at the tribal vocational school in Shiprock before she was thirty. She had participated in the beginnings of a natural-dye book at Fort Wingate Vocational High School much earlier than that; she's remembered as carrying sample cards wrapped in dyed yarn to serve as reference as she taught the skills. This was just a couple of years after high school.

Pine Springs and her family—which included five children—called her home, though. We see her weaving in her hogan in a National Educational Television documentary film (*The Navajo [Part I]: The Search for America*) made in 1958. In her soft-spoken way, she affirmed that being home with family and weaving were more important than the generous salary she had received working in Shiprock. She shows a rug, a masterpiece, that she had woven using 85 natural-dyed colors.

This mastery of such a wide range of dye colors somehow led to the idea of presenting them in a unique format, attractive to collectors and museums and tourists. Creating the framed charts became a little cottage industry for her family. Her children and grandchildren have memories of driving along the remote roads of the Navajo Nation, collecting leaves and twigs and berries along the way and then watching the colors emerge in the boiling vats in their hogan.

Mabel's daughter, Isabel Deschinny, began to learn the dyes from her mother when she was only ten, and she has led the project since her mother's passing in 1978. In fact, her framed chart featuring 87 colors took overall Best of Show at the Navajo Nation Fine Arts Fair in 2019. It's a majestic 3 feet by 6 feet, with an exquisite miniature rug at its heart.

My little piece, some colors faded with age, must be one of many hundreds, or even thousands, produced by Mabel Burnside Myers and the Deschinny family. You can find charts of all sizes and complexity in galleries and on eBay, selling for many hundreds of dollars. They are all true to the original: carefully warped little four-selvedge rugs, neatly typed plant labels in English and Navajo, alive with the colors of the land.

COLORS FROM THE LAND

Mabel Burnside Myers was not alone in her efforts to record the use of native plants in Navajo weaving. The Home Economics Department at the Fort Wingate Vocational High School felt a commitment to publishing information that would be useful to people from all parts of the Navajo Nation. Beginning in 1934, Mrs. Nonabah G. Bryan, who was teaching weaving, began the project of experimenting with native plants and creating usable dye recipes. This resulted first in a mimeographed bulletin produced by the school, and later a booklet published by the Bureau of Indian Affairs. This booklet, *Navajo Native Dyes: Their Preparation and Use*, includes plant illustrations by Charles Keetsie Shirley and delves into the uses of 35 plants and minerals.

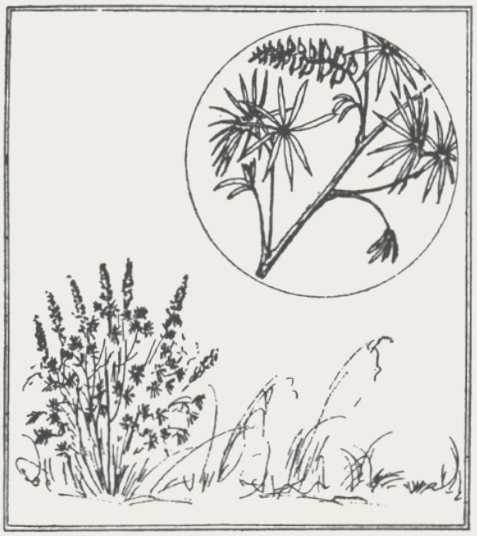
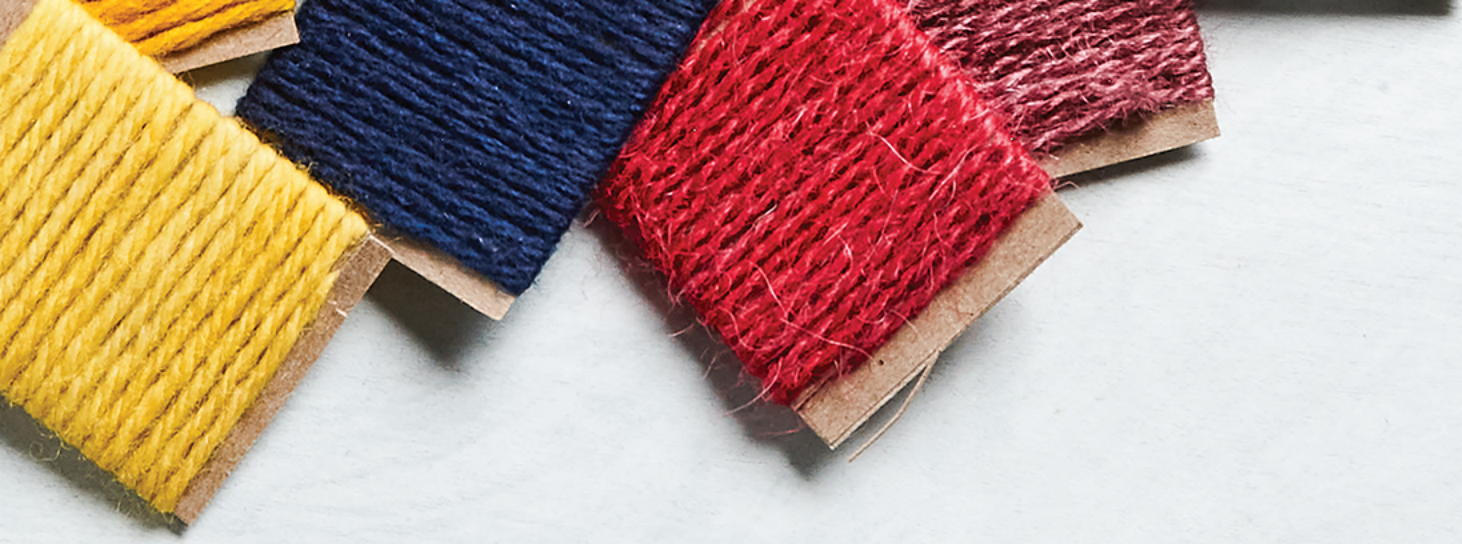


Illustration by Charles Keetsie Shirley

Blue-flowered lupine *(Lupinus kingii)*

Beginning in 1974, William Rieske of Historic Indian Publishers in Salt Lake City acquired two framed pieces created by Mabel Burnside Myers's family and cross-referenced their dyed samples with the Nonobah book. **Here's a short list . . .**

Common name	Genus and species	Color	Parts used
Blue-flowered lupine	*Lupinus kingii*	greenish yellow	flowers, leaves, stems
Cactus, prickly pear	*Opuntia polyacantha*	rose	fresh fruits
Canaigre	*Rumex hymenosepalus*	medium brown	dried roots
Cliff rose	*Cowania stansburiana*	gold	twigs and leaves
Gambel oak	*Quercus gambelii*	dulled tan	bark
Ground lichen	*Parmelia mollusca*	light orange	whole plant
Indian paintbrush	*Castilleja integra*	tan	blossoms
Juniper, one seeded	*Juniperus monosperma*	orange-tan	bast and twigs
Mountain mahogany	*Cercocarpus montanus*	soft reddish brown	root bark
Navajo tea	*Thelesperma gracile*	orange	leaves, stems, flowers
Purple larkspur	*Delphinium scaposum*	greenish gray	petals
Rabbitbrush	*Chrysothamnus latisqualis*	bright yellow	blossoms and twigs
Russian thistle	*Salsola kali*	rich olive	leaves and twigs
Sumac, three-leaved	*Rhus trilobata*	light orange-brown	ripe berries
Wild privet (ironwood)	*Forestiera neomexicana*	light gray	berries
Wild rubber plant	*Hymenoxys metcalfei*	bright yellow	leaves, stems, flowers
Yellow beeplant	*Cleome serrulata*	yellow-green	whole plant



NATURE'S COLORWAYS

Natural colors have brightened everyday human life and artistic expression since the Stone Age. Natural dye materials have driven global exploration, commerce, conflicts, and alliances through all of recorded history. Yet dyeing with natural materials is as fresh and relevant today as it ever has been.

In this new book from Long Thread Media, you can:

- Explore a simple way of coaxing blue from fresh indigo leaves
- Learn safe and ethical ways to find the elusive colors hidden in lichens
- Smash some leaves onto fabric to make intricate plant prints
- Create a bold design on fabric using rusty metal and tannins
- Plant a world-class dyer's garden
- Cook up a colorful cotton hot pad on your kitchen stove

And there's more: A fascinating deep dive into the lives and times (and glorious colors) of a family of professional dyers in eighteenth-century England, an armchair traveler's visit to block-print and batik studios in the Indian Kutch district, and an homage to one of the Navajo Nation's most accomplished dyers and cultural keepers.

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