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WINTER 2020

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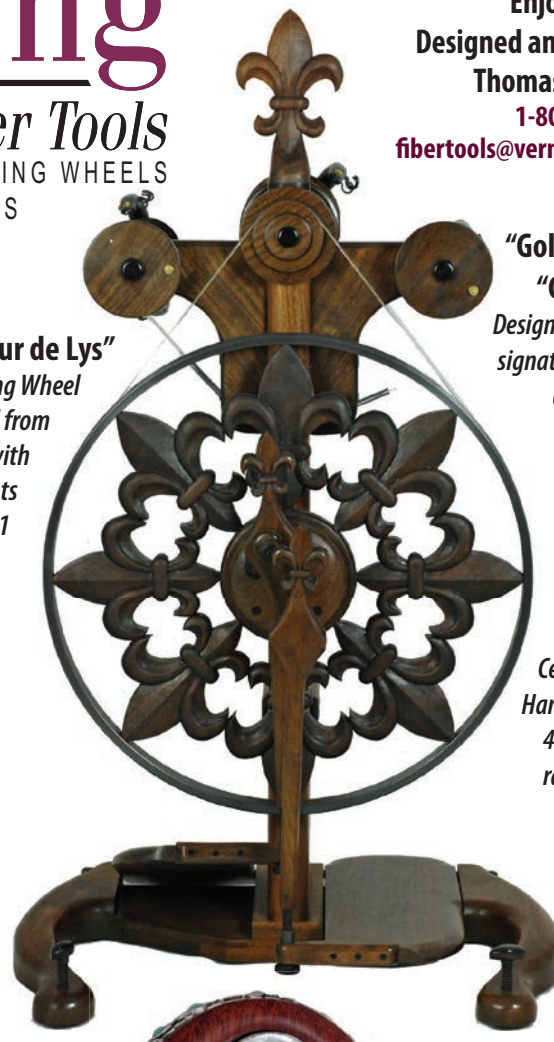

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Photos this page by Matt Graves

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Russian lace with a North American twist.

On the cover: Heavenly Bresser's wild silk blends. Learn more on page 24.
Photo by Matt Graves

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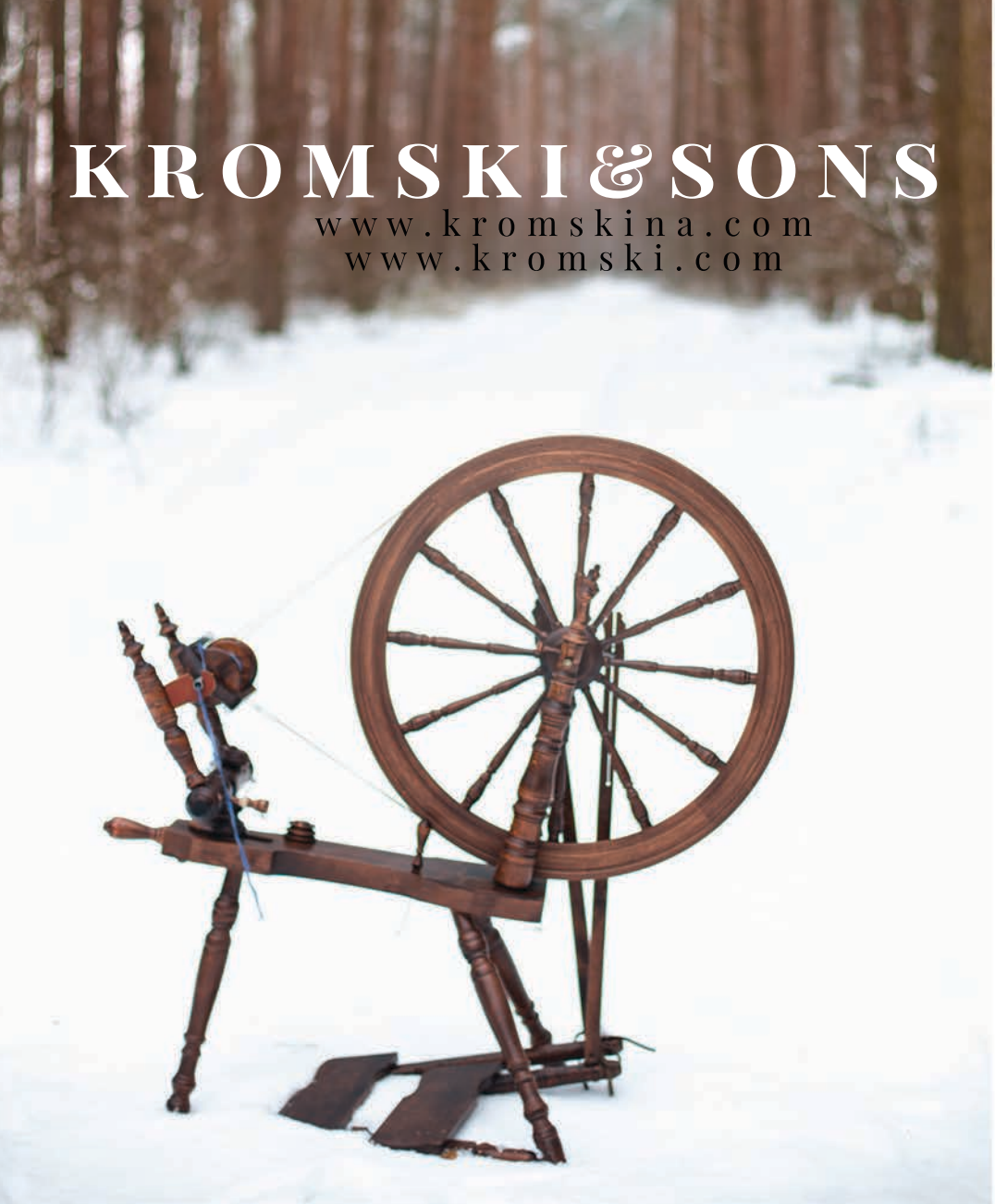

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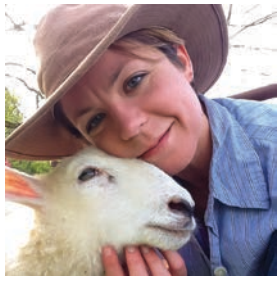

When I began developing this issue of *Spin Off* more than a year ago, I never anticipated all the changes that would take place before I would see it on printed pages. Little did I know that the Into the Wild issue would be brought forth as *Spin Off* broke new ground and blazed new trails.

On August 1, *Spin Off*, *Handwoven*, and *PieceWork* magazines settled into their new home at Long Thread Media. I'm eager and excited to see what the future holds for these publications and the community of makers they support!

The heady question that flows through this annual natural fiber issue is, "What is wild?" In our spinner-centric world, does "wild" always mean fiber gleaned from nature? Not necessarily. What connects the work of the authors in this issue is the intention, diligence, and joy in turning the resources they encounter into beautiful handspun yarn. Learn how the **Miskin family** has worked to connect fiber artists with the American bison. Follow **Karlissa Keller**'s retting adventure with local bast fiber. **Hannah Maxson** shows you a traditional fiber preparation method she learned in Mongolia.

What is your wilderness? Forage on the web for fixer-upper fleeces that need extra processing TLC—**Emonieiesha Hopkins** shows you how. Read about the search for wild genetics that led to paco-vicuña fiber raised in Colorado and then learn about the spinner using paco-vicuña to create gossamer lace in Orenburg, Russia.

Step off the beaten path and explore the world's natural fibers!

Photo by Matt Graves

Nightstalker rolags from Fellview Fibres.

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Hearing from our customers makes us so happy! When reflecting about how fulfilling his work is, Jan Louët said, "I have been overjoyed by the happiness our consumers have shared from the start. Early on, I got postcards from people I didn't know, and they would send pictures of wheels they saw on vacation. I was glad that I made a product that people enjoyed so much. It is a very happy job, so I can't stop."

To celebrate 45 years, we're collecting more stories to make Jan smile! We would love to hear how Louët has been a part of your life. Send in a photo of your Louët with a short story
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Raising Animals for Fiber:
Producing Wool from Sheep, Goats, Alpacas, and Rabbits in Your Backyard

By Chris McLaughlin

Many handspinners fantasize about raising their own fiber animals. If you've decided to take the leap from dream to reality or just want to know more about what goes into the production of your favorite spinning fiber, crack open a copy of Chris McLaughlin's new book. McLaughlin writes for those new to fiber farming and focuses on the four main fiber-producing livestock animals most popular in the United States: sheep, goats, alpacas, and Angora rabbits. For each one, she gives tips for finding good breeders, an overview of the basic characteristics of the species, costs of housing and caring for your livestock, and a list of common vocabulary terms associated with fiber farming. McLaughlin doesn't sugarcoat raising fiber animals; she maintains that livestock won't make you rich, and there will be nights spent in the barn (colorful jammies optional).

Mount Joy, Pennsylvania: CompanionHouse Books, 2019. Paperback, 176 pages, $19.99. ISBN 9781620083246.

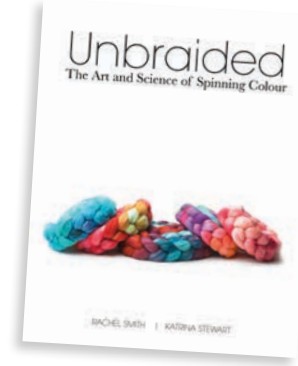
True Colors:
World Masters of Natural Dyes and Pigments

By Keith Recker

Keith Recker explores the narrative of color in this collection of essays focusing on the creative practice of 26 natural dyers and textile artists. Take solace in the space created by white, immerse yourself in deep blues created by multiple dips into an indigo vat, unearth the many shades of ochre, coax vivid yellows from the humble marigold, and discover the potential color in a simple grain of sand. Each dye tells its story through traditions passed down, which are then reimagined by the modern-day practitioner. Stunning photography throughout the book captures the full spectrum of hues extracted from nature. The conversations in every chapter enhances our understanding of the maker's practice and connection to color, adding to the ongoing story of color.

Loveland, Colorado: Thrums Books, 2019. Hardcover, 256 pages, $39.95. ISBN 9781733510851. www.thrumsbooks.com.

Unbraided:
The Art and Science of Spinning Colour



By Rachel Smith and Katrina Stewart

So, that sly little handpainted braid winked at you from across the fiber festival. You couldn't resist the temptation and brought it home. Your affair was no one-night stand; the fiber's been spending what seems like an eternity as stash until you feel worthy of spinning it. Rachel Smith and Katrina Stewart are here to help you figure out what made you fall for the braid in the first place and choose the optimal way to spin it. *Unbraided* starts with an overview of color theory, but it quickly gets to the best part: spinning. Plenty of full-color photographs show you what different types of colorways look like when spun in a two-ply, three-ply, chain-ply, or fractal yarn, and the book closes with several patterns, too. From analogous to speckled, feel empowered to spin a braid your way.

Langley and Pitt Meadows, British Columbia, Canada: Rachel Smith and Katrina Stewart, self-published, 2019. Paperback, 81 pages, $32. ISBN 9780368579127. www.craftyjaks.ca.

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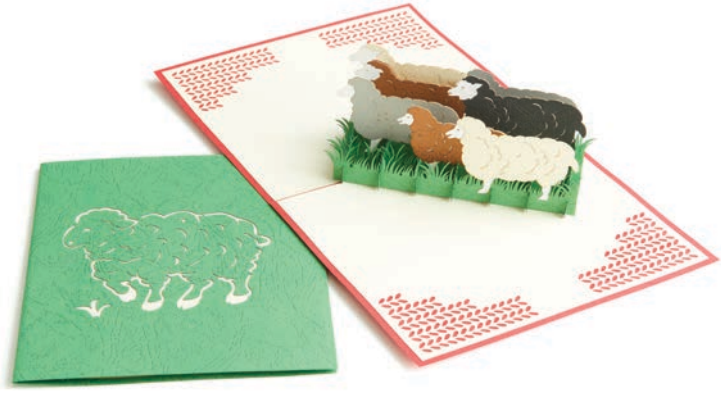

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Creative with Clay. www.creativewithclay.com.

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Fellview Fibres. www.fellviewfibres.etsy.com.

Spin a fractal-style yarn—no braid splitting required! The **Happy Little Clouds Fractal Pack** from **Naturallyknitty** offers puni-style rolags and a batt in coordinating colors. Spin the punis and batt individually into singles and then ply together for a random, barber-pole effect. $38/4.5 oz.

Naturallyknitty. www.naturallyknitty.etsy.com.

Ahoy ye matey! **Blue Barn Fiber** will 'ave ye seekin' **Sunken Treasure.** The punis will shiver ye timbers. They be made with a blend of Merino and bamboo fibers and rolled by hand. Arr, ye draft woolen-style wit' long draw. $8.00/1 oz.

Blue Barn Fiber. www.bluebarnfiber.etsy.com.

Have you ever watched the silky floss of the milkweed plant blowing on the wind and wondered, "Can I spin that?" **Buchanan Fiber Co.** says, "You betcha!" **Cotton Milkweed Punis** blend non-GMO, fair-trade Pima cotton from Peru with hand-dyed milkweed floss and a touch of nylon for strength. (Read more on page 70.) $15/1 oz.

Buchanan Fiber Co. www.buchananfiber.com.

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Meet a Resident Artist at John C. Campbell Folk School: **Martha Owen** By Elizabeth Prose

The John C. Campbell Folk School opened its doors in 1925. Over the years, the school and its community of makers have grown. Fiber artist and musician Martha Owen was first a student at the Folk School and then, about 35 years ago, became one of its teachers and then a resident artist in the late 1980s. We asked Martha to tell us what it's like working at the well-known school.

Spin Off **(SO): How did you become a handspinner?**
Martha Owen (MO): My mother gave me a spinning wheel, which she had gotten from my great-aunt Sally. I was told it was of no family significance, meaning Aunt Sally bought it somewhere. Momma brought home the wheel, set it down in front of me, and said, "There, you always did like weird stuff," and walked off. I could see where my foot was supposed to go but had never even seen anyone actually spin. Spinning wheels were the subject of fairy tales. About a day later, my grandmother was reading the local newspaper, the *Cherokee Scout,* which is in the same North Carolina county as the John C. Campbell Folk School. My grandmother said, "Look here, Sister, they are having a class in spinning and dyeing. Why don't you go down and learn?" And that's what started my whole adventure. We had a time getting the old wheel to speak to me since she wandered and shook and required shims and didn't even have a bobbin.

SO: What are some of your duties as a resident artist? What crafts do you coordinate and schedule for the Folk School?
MO: I am the resident artist for spinning, dyeing, knitting, crochet, feltmaking, and surface design. My duties include finding and inviting teachers, maintaining and updating studio equipment and supplies, editing text for the catalog in my areas of focus, doing demonstrations, and playing music and telling stories.

SO: What types of programs and projects is the Folk School planning in the future that spinners should know about?

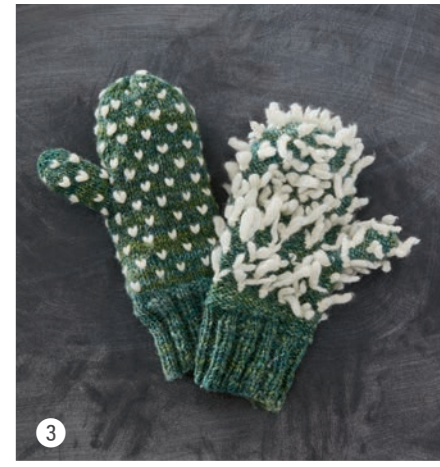

Photos courtesy of John C. Campbell Folk School

From left, Martha Owen with her banjo and *right,* teaching Bonnie Lenneman.

MO: We have spinning classes for beginners and others, too. Learn how to make a wheel go, focus on historical techniques or art-yarn constructions and novelties, or find out more about plant fibers. Also, we have all the equipment and small tools for students to use right here at the school, and they're in good repair, so students can come to learn and see if they like the subject offered or try new equipment without having to purchase it first. And that's just in spinning, there's also a world to discover in how to color your handspun and how to knit, crochet, and weave with it, too. A week at the Folk School includes good food, nice lodging, a beautiful natural setting, trails, dancing, visits to other studios, on-campus demonstrations, and lots of interesting people who are here to learn about something else during the same week.

One new and exciting project is in the garden. In 2019, cotton, indigo, coreopsis, madder, and marigolds were planted, and more plans are being made for 2020.

SO: In addition to your work at the Folk School, you and your husband, David Liden, play music and tell stories. Do the crafts of storytelling and playing music ever cross over into your handspinning practice?
MO: Anyone who signs up for one of my fiber classes will see a request for a story, song, or poem having to do with sheep and wool or fill in the blank. Both my students and I have made great discoveries that way. I have had great fun the last few years offering "Sheep and Wool in Story and Song" at all the venues I have been lucky enough to visit. Am I the stand-up comic of sheep and spinners? Maybe so.



1. Photo by Joe Coca
2. Photo by George Boe
3. Photo by George Boe

4. Photo by Joe Coca
5. Photo by Dan Waltin

It's the Season for a Mitt-along! By Anne Merrow

Even when the sun starts returning after the Winter Solstice, there are still months of frosty weather to come—mornings of scraping ice and shoveling snow, afternoons of stiff typing, nights of fumbling the housekeys with frozen fingers. *Spin Off* is continuing our recent tradition of a spring knitalong, this time with a mitt-along!

Not just for knitting, this two-month event welcomes spinners to crochet, weave, tat, or create any kind of warm handcovering your heart desires. For chilly fingers while typing, try Jane's Half Gloves. For maximum thermal advantage, try Thrummed Fleece-Stuffed Mittens. And if you like a challenge, how about Josefin Waltin's twined Heartwarming Mitts?

Why mittens? Besides keeping your hands warm at this time of year, they're an achievable challenge for most spinners . . . but they do have a few hidden requirements, such as maintaining spinning consistency, choosing durable fibers and yarn structures, and using a pattern you like enough to make twice!

Want to join in? Here's how!

Friday, January 17, 2020: Start spinning! It's just far enough into 2020 to take a breath and spin for yourself. (If you have the day off for Martin Luther King Jr. Day in the United States, all the better to get your yarn started!)

Watch our website, www.spinoffmagazine.com, for updates chatter, and even a few prizes.

Friday, March 20, 2020: Mitts off: Off the hook, off the needles, or what have you!

Please join us! You have nothing to lose but your frostbite.

1. Donna Kay's Winter Twilight Mittens from *Spin Off* Winter 2015. 2. Brenda K.B. Anderson's crocheted Marigold Mitts from *Spin Off* Spring 2019. 3. Jennifer L. Appleby's Thrummed Fleece-Stuffed Mittens from *Spin Off* Winter 2019. 4. Jane Dymond's Jane's Half Gloves *Spin Off* Winter 2010. 5. Josefin Waltin's twined Heartwarming Mitts from *Spin Off* Fall 2019.

And So It Begins

By Jessie Raymond

Confession: I now own three spinning wheels.

My husband, Mark, isn't thrilled. He says it would be like him buying three table saws. But it's not the same; I have an emotional attachment to my wheels. And anyway, what do I care how many table saws he has? Unlike him, I don't judge.

I bought my first wheel new, around 2004. Mark surprised me with the second one, an antique walking wheel. He thinks that because it's very old—two hundred years, with its original blue paint—and it's the most thoughtful Christmas gift he's ever given me, I should be all set in the spinning wheel department. I thought I was, too.

But in July, I attended a spin-in where I tried several antique wheels. One was so worn, its wooden treadle bore the contour of a spinner's foot from long ago. I kept thinking of all the unique, still-functional wheels out there that sit unused and unloved or, worse, are destined for the dump. I had to save one.

When I first told Mark, he looked from the wheel behind the love seat to the wheel next to the couch. He insisted that the house was already at maximum occupancy in terms of wheels. I said nothing; I was too busy scouring the Web for one to buy. I studied the various styles. I made a list of what to look out for when buying an older wheel. I learned the vocabulary, so if someone said "mother-of-all," I'd know it is part of the wheel and not an insult.

And then one day, I found it: a Canadian production wheel, or CPW. This type of wheel, manufactured in Quebec during the late nineteenth and early twentieth centuries, produced a fine yarn at a factory-worthy clip. A young woman was selling the wheel for her grandparents. We made arrangements to meet at their house two hours away. Mark, oozing antiwheel negativity, said he bet the seller wouldn't even show. But he couldn't blunt my enthusiasm.

I arrived at the address but found no seller—and no cell service. I waited 45 minutes before giving up all hope. I started back toward home, crushed. But then, a few miles down the road, my phone dinged. I pulled over. I had a message from the seller saying, "Sorry! I gave you the wrong house number."

Whooping like a rodeo rider, I whipped the car around. The woman met me at the door and apologized. "Fine, whatever," I said, shoving her out of the way in my eagerness to get to the wheel. And there it was: a classic CPW, well used but beautiful and in full working order. "Sold," I said in a reverent whisper.

Arriving home two hours later, I carried the wheel into the house, past Mark, and gave him my smuggest smile. He harrumphed. That evening, I started spinning. The wheel made old-fashioned whirring noises as I treadled away. Pure joy.

I could see that Mark was torn. On the one hand, he didn't like our house filling up with spinning wheels. On the other, he hadn't seen me this happy since the last Ben & Jerry's buy-two-get-two-free sale.

"I've got an idea," he said. "Why don't you buy a few more wheels, and then we won't even be able to walk through here?" I didn't have the heart to tell him; it's probably only a matter of time.

Jessie Raymond is a knitter, spinner, and humor columnist who lives in Vermont. See more of her writing at www.jessieraymond.com.

Photos by Jessie Raymond

Left: The CPW Lovers group on Ravelry helped Jessie Raymond identify her Canadian production wheel as a Bordua. *Right:* Jessie used her Canadian production wheel to combo spin a sweater's worth of local Romney she dyed herself.

Lisa Souza

KNITWEAR AND DYEWORKS

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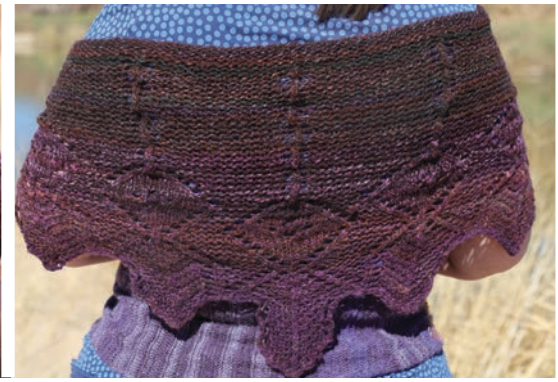
Sometimes, a whisper
is all that you need.

Two-ply yarn on the banks of the Finke River.



Ingrid's moody leftovers plied with a high twist.

Ingrid wearing her shawl in the Northern Territory of Australia.

Photos by Mikael Johansson

Handspun Pinecliff Shawl

By Ingrid Brundin

Pattern and designer Pinecliff Shawl by Silvia Silva. Ingrid test-knitted the pattern for the designer.
Fiber/preparation About 300 grams (10.6 ounces) of hand-dyed roving and sliver, which was generally spun from the whole width with no splitting or predrafting. The singles were quite compact, and the yarn was firmly plied to make it bouncy.

Wheel/spindle Kromski Sonata, scotch tension
Ratio 14:1 and 6.7:1
Drafting method Short-forward draw
Singles direction Z-twist
Yarn 2-ply; 1,079 ypp; 9 to 10 wpi
Yarn classification/weight Worsted weight
Yardage Used 547 yards
Needles U.S. size 8 (5 mm)
Finished size About 99" wide after blocking

In 2007, I was spinning a lot of singles. At the time, I had accumulated a great deal of multicolored roving in my stash purchased on a wild shopping spree on Etsy and acquired from fiber clubs. Once I had amassed a large assortment of spun singles, I would wind my singles off into balls. I kept them displayed in a large bowl, trying out different combinations.

From there, I tried plying different colors together as an experiment, duplicating colors and color schemes found in nature in my home country of Sweden. These skeins were the absolute leftovers, dark and moody with subtle changes in variegation. Having plied many skeins that were much happier and brighter in mood, I eyed these darker yarns and wondered what they would end up being.

The Sonata was my first spinning wheel so some singles ended up a bit uneven in thickness. Spindle spinning was my go-to method before learning how to spin and ply on a wheel, which is quite different from spinning on spindles.

I never measured the singles wraps per inch (wpi), but I was spinning all singles to match a favorite singles yarn, which measured 600 to 700 meters per 100 grams.

When I saw the Pinecliff Shawl pattern on Ravelry along with the call for pattern test knitters, I was immediately drawn to it. I also liked the pine cone and forest theme, and I thought about my plied skeins inspired by nature. I test-knitted the shawl for the designer and didn't check the gauge, for I was working with a thicker yarn and a different needle size than originally used. I looked more for stitch definition and an appearance I liked in my garter-stitch fabric. The high ply twist helped create a fabric that is quite elastic and springy and quite the opposite of drapey.

The photos are taken in a truly exotic and remote location, Finke River in the Northern Territory of Australia, also called the Red Centre of Australia, in the West MacDonnell Ranges.

Have a finished object to share? Tell us about it! Contact **spinoff@longthreadmedia.com** to submit your project.

Photos courtesy of Hannah Maxson

Spinning the Steppe

Camel Fiber and Firebox Spindles

By Hannah Maxson

January

There is a wind blowing across the Mongolian steppe, a bitter, dry wind that never seems to let up. All the polyester snowsuits and acrylic sweaters in the world can't keep my baby warm.

Through the worst of the winter, I have kept him indoors, safely out of the wind, cradled or wrapped to me. But he is growing and seeking adventure. He wants to be on the cold ground learning to crawl. Soon, the lunar new year will come, and it will be time to adventure outdoors in the wild steppeland. Even then, there will be five or six more months of cold.

It is time for his mother to be resourceful.

I take out my fiber stash and look at what I have to work with: wool from local sheep, gathered with my children in summertime; a bit of coarse goat wool, collected from thorns and briars on the steppe; and perhaps half a kilogram of camel fiber.

Folk wisdom tells us that the warmest of all fibers is camel down, the coat that keeps those great beasts warm through Siberian blizzards. It is not sheared; it falls from the camel each spring in great big clumps. These clumps are gathered and treasured by herding families. The coarse guard hairs are used to make the ropes and belts needed for the *gers*, or yurts, that many people live in. The softer down is used to make socks, scarves, and vests to keep out the winter chill.

Baby must have a camel-down vest, I decide. He hates the many layers I force him into whenever we venture outdoors. The vest will be different. It will allow him freedom of movement, but it will keep his core temperature stable.

In Mongolia, no enemy is feared as much as the cold. Nearly every sickness, from pneumonia to a sore throat, an upset stomach to the hiccups, is connected to being cold. To be warm is to be well, to be cared for, to be safe. With cold as the enemy, there is no better weapon to combat it than the wool of steppe animals. And there is no better fiber than the coat that falls from the camel's back.

From Clumps to Clouds

My camel fiber is still in the clumps that were gathered, and before I begin spinning, I must prepare it. We don't have wool pickers or carders; no one here has seen such things. I prepare my fiber by hand the old way. It is slow going, but it is a peaceful, meditative work.

This basic and effective form of fiber preparation requires no tools beyond my own hands and is accomplished through repeated drafting (see page 20). When finished, the resulting preparation is more organized than most carded cloud but has the loft and airiness of a traditional cloud preparation. This skill was taught to me by the old grandmother who also taught me to spin. As we sat together on the floor of her little mud house, she worked with the wool of a fat-tailed sheep, and she spun on a simple drop spindle with a rough metal whorl.

Whenever I use this preparation method, pulling apart my fibers and watching the matted clumps turn into soft, organized clouds, I think of her old, wrinkled hands, the hands that gave me this knowledge and skill. To her, spinning had always been a necessity—something as natural as breathing, as simple as eating food. But her own children and grandchildren had not cared to learn, and she was glad to teach me, even though I was an outsider.

From Clouds to Yarn

My roving is ready now, and I bring it to the wheel, sit down, and let my foot find its place on the well-worn treadle. My wheel is a beautiful old Saxony from Holland, many thousands of kilometers away.

A month ago, she came to me in pieces with no instructions and a broken leg. My children helped

Camel fiber is collected and saved.

Hand-Prepared Camel Fiber

First, the fibers are teased gently apart, releasing a little shower of vegetable matter that falls onto the carpet or—if I have been thoughtful enough to prepare—onto my spinning lap cloth. Then, holding the teased fiber in one hand, I pinch a small amount of fiber with my other hand, and gently pull the fiber out a few inches. I then pinch the fiber near the teased handful and pull away another few inches. I continue drafting this way, creating a sliver of both the long silky camel hair and shorter down mixed together (fig. 1).

When I have drafted an unwieldy length, I divide it in half and lay the two pieces parallel. Then, I divide this in half again so I have a plump little pile of aligned fiber, light as a cloud (fig. 2). I repeat the process of drafting and stacking, and this time the results are more uniform.

I might do this over and over again, or I might just do it once. Sometimes it depends on the fiber, sometimes it depends on the day. Sometimes it depends on the state of my heart and how hurried I am.


1


2


Spinning hand-prepared camel.

me put her together; the first few tries were wrong, but with persistence, we discovered all her secrets. My husband took the broken leg pieces and made a new leg to fit, and it was a grand day when she was finally standing independently and ready to sing. Camel fiber for baby mittens was the first project spun on her. When the mittens were finished, I was ready to begin the vest.

When spinning my hand-prepared camel down, I like to use a basic short draw. The first bobbin fills with singles; I change to another. I love the song of my spinning wheel, and I love to watch her work. Right now, the soft camel brown is the most beautiful color to me. When two bobbins are full, I ply and fill two more bobbins with two-ply yarn. These two skeins will be the beginning of the vest.

February

After a wash in warm water and drying on the heater, I begin to crochet. I start by following a pattern but end up changing it to meet my needs: I want it to be

long and able to fit over layers, and I want it to fit for a long time.

Halfway through the front panel, I run out of handspun. Nearly six more bobbins must be spun before my baby will have his vest. So I go back to my favorite seat in the house—the stool placed at the wheel—and again I spin. Sometimes baby is on my lap while I spin, and other days, he plays near me.

He is not always a model of contentment, however, and there are days when I can't find quiet time to use the wheel. He gets sick, and there are long evenings when I pace the house with a feverish baby wrapped to my chest. During those times, I use the cross-arm spindle I made during a winter afternoon not long ago.

March

I continue spinning camel down on both my cross-arm spindle and spinning wheel. As each skein is plied, I use a crochet hook to add it to my work in progress. When the two panels are done, I use a length of handspun to sew them together. Finally, it is time to put the vest on my child.

I meant to wash and block it immediately when it was finished, but first, I tried it on baby to be sure it fit.

Plied camel yarn.

Baby is ready for the steppe.

The fit was perfect and so exactly what he needed to be wearing right then that I couldn't take it off. It was nearly a week before I managed to wash it, and then he needed it as soon as it was dry.

May

It is May now, a cold, windy day at our steppeland home, but baby will no longer be homebound. Outside is the grand and glorious sky. What is more, there are five wild puppies, two big dogs, and endless flocks of cashmere goats, fat-tailed sheep, cows, yaks, and horses

Treasures from the Firebox: Making a Cross-Arm Spindle

I wanted a cross-arm spindle like the beautiful ones I saw on Instagram, which had such beautiful cops. For weeks I imagined how I might arrange to get one sent to Mongolia; and then one day, I gave up that daydream and decided I could make my own.

During a Mongolian winter, the fire must never go out, and the woodbox by the stove must always be full. I raided this box to find a piece of split firewood with straight, even lines to make my spindle. With a kitchen knife, I cut three pieces: the first long, thin, and stick-like, and two more pieces that were thin and flat.

The firewood is dry and brittle—this is why it is so good for burning and also why it is so easy to split. However, it means that I cannot do much fine-tuning or shaping, because the small pieces will split again and be worthless. I try to tidy up the edges a little and whittle the shaft until it is straight and smooth.

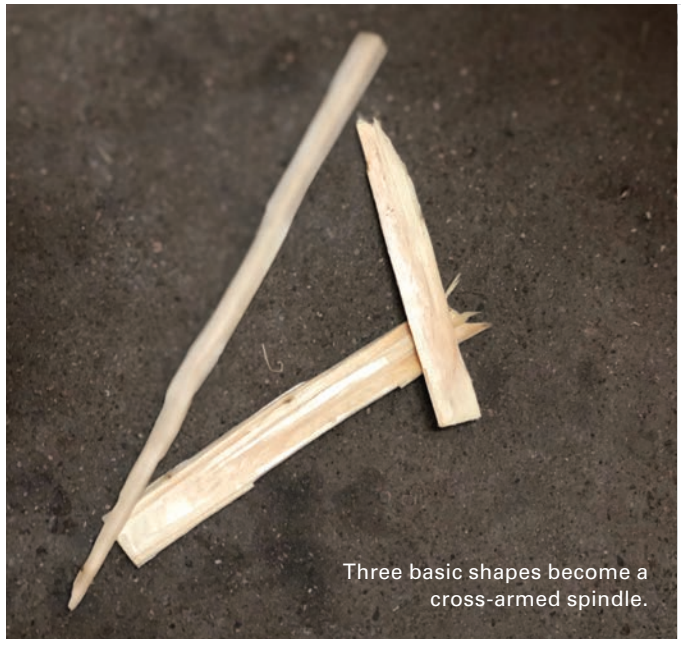
Then, with the point of my kitchen knife, I drill a hole through the center of each of my flat pieces. I check that they are aligned; then I determine just how much I must enlarge the hole so that my shaft will fit through. I'll want a tight fit; it is the snugness of this three-way connection that I will rely on to keep my spindle together.

As a finishing touch, I drill one more tiny hole with the kitchen knife near the top of my shaft. Into this I insert one small splinter of wood. This crosspiece will catch my yarn when I spin and allow me to dispense with making half hitches.

And then I prepare a small bit of wool, I wind it about the upper little crosspiece, and I spin. She spins beautifully—lightly, like a butterfly. I want to laugh, to dance with joy at this sweet success. Spinning is for everyone, after all. A lack of resources need never lock me out.

When I have spun a length, I bring it down to the two cross arms and wrap it around: over two, under one. As I spin more, my cop begins to form a star and then a pretty little turtle. When I have as much weight as I want on my spindle, I remove the turtle-shaped cop by first removing the shaft, then the two crosspieces.

The children see my spindle, and they want spindles, too. The oldest borrows the kitchen knife to make his own. For the littlest ones, I do the splitting. It isn't long until we are all spinning, always. My husband doesn't know why he finds bits of wool everywhere—on the floor, in the soap dish, in the dinner.



Three basic shapes become a cross-armed spindle.

Spindling in the depths of winter.

One of Hannah's handmade spindles in the Mongolian Steppe.

in the open range beyond our home. He must go out, and I put the little vest on him and set him out by the door. As he toddles where he will, he is protected from the cold, and while his brothers play nearby, nothing will hurt him.

Hannah Maxson, an avid spinner and fiber artist, makes her home in Northern Mongolia.

Photos by Matt Graves unless otherwise indicated

Wild silks less commonly available to spinners: *Clockwise from top left:* white eri, peduncle, muga, and red eri.

Wild Silk
Blending Beyond Bombyx

By Heavenly Bresser

In this day and age, when handspinners make mention of silk, they are most likely referencing either bombyx silk or tasar silk. The former is produced by domesticated *Bombyx mori L.* (Lepidoptera) silkworms. Because these silkworms feed solely on mulberry leaves, the silk produced is commonly known as mulberry silk. On the other hand, tasar silk is a product of various wild or semicultivated *Antheraea* silkworms that eat a variety of plants, which can impact the color of the silk. It is known by handspinners as tussah, but it has alternate spellings such as tussar and tussore. Besides tussah, there are other nonmulberry silks available for handspinning.

History in the Making

Sericulture is the cultivation of silkworms for the production of raw silk. Both China and India have an extended history of sericulture. According to Chinese legend, the wife of the Yellow Emperor, Lady Hsi-Ling-Shih, was taking tea under a mulberry tree when a silk cocoon fell into her cup. As the story goes, she saw silk unwinding from the cocoon and this inspiration led to the development of sericulture around 3000 BCE. In China, silk production was meant to be kept secret and exclusively for royalty. However, silk became increasingly used in many items such as clothing, instruments, and even paper.

According to recent findings in Jiahu, a Neolithic archaeological site in the Henan Province of China, silk production certainly took place over 8,500 years ago. The conclusion came from the discovery of biomolecular evidence of silk in soil samples discovered at two separate tombs in Jiahu. The latest findings in India date wild silk sericulture back to 2450 BCE.

According to the International Sericultural Commission, China is the leading producer of raw silk today. India is currently the second-largest producer and is also the world's largest consumer of pure silk.

Wild Silk Types

Tasar (tussah) There are many types of tasar silk, and it is the most common wild silk available to spinners. Two main types are tropical tasar and oak tasar. *Antheraea mylitta* is a tropical tasar silkworm that eats a variety of plants. China's major production of tussah silk comes from *Antheraea pernyi,* an oak tasar silkworm whose silk colors can vary from a soft honey color to a deep tan.

Peduncle This fiber is harvested from the stems of wild tropical tasar cocoons, which the silkworms spin first to attach themselves to tree branches before beginning to spin the main cocoons. The silk is strong but soft and lustrous, with a beautiful gunmetal, not-quite-black color.

Muga Originating from the Indian state of Assam, the semidomesticated silkworm *Antheraea assamensis* produces a beautiful golden-yellow silk. The silkworms feed on a variety of plants.

Eri This silk is produced by the domesticated *Samia ricini* silkworm, which most commonly feeds on castor plants. It comes to spinners in different colors, from white to copper. Eri can now be purchased in a natural yellow color.

Silk Preparations

Generally speaking, silk is available in a variety of forms: cocoons, carrier rods, hankies, caps, bricks, laps, degummed throwster's silk, silk noils, sliver, top, or roving. When wild silkworms leave their cocoons, the silk from the cocoons cannot be reeled. The resulting fibers are shorter and not nearly as high in quality in comparison to mulberry silk. Wild silk fibers tend to be coarser in comparison to mulberry silk, but, in my opinion, some of the wild silks feel especially fine and delicate. They are also not nearly as slippery as mulberry silk when spun.

A Wild Approach

I love fiber projects that give me the opportunity to dive deeply into uncharted waters, and the concept of blending wild silks immediately piqued my curiosity.

There were a few challenges to overcome. The first challenge was hunting and gathering wild silk for blending. These fibers, while increasingly available to handspinners, can be difficult to source. Much of the wild silk for purchase has limited availability or is sold in small quantities as sliver, roving, or cocoons.

The second challenge was deciding which fibers to blend with each silk. In making the decision on which fibers to blend, I had an end goal in mind: I wanted to know what it would be like to create wild blends using three different fibers, three drafting methods, and three different tools for blending.

To begin, I handpicked animal fibers from my fiber stash for blending; every fiber was processed by hand. The natural fibers I selected for blending were kid mohair, alpaca, and a wool-cross. They were all washed and handcombed prior to blending to remove debris and vegetable matter (VM). I chose the pairings at random. The resulting blends were kid mohair with muga, alpaca with peduncle, and wool cross with eri. With each of these pairings, I spun two sample yarns: a two-ply yarn made from an 80/20 animal fiber/silk blend as well as a three-ply yarn from a 60/40 animal fiber/silk blend, for a total of six sample yarns. I made the blends using handcards, a blending board, and a drumcarder.

Drumcarding Kid Mohair and Muga Silk

Using fine combs, gently comb the kid mohair to open any small matted areas and remove VM. Next, carefully remove fibers from combs by using a diz or by pulling them by hand into strips. Weigh the kid mohair and muga silk. For the first sample, I used 0.6 ounce of kid mohair and 0.4 ounce of muga silk. With 1 ounce, there is plenty of room on my 9-inch-wide drumcarder for the whole blend. Divide the muga silk

India's Wild Silks

The Central Silk Board of India states that India produces four varieties of natural silks: mulberry silk and nonmulberry tasar, muga, and eri silks. The nonmulberry wild silks are also known as Vanya silks.

Muga and mohair blends.

lengthwise into thin strips about half the width of your thumb. Set it aside.

Use a drumcarder with 90 tpi or finer cloth and begin to card a very, very thin layer of mohair. After applying a fine layer of kid mohair, take a thin strip of muga silk and use your thumb and index finger to gently place the thin layers of silk directly on top of the teeth of the large drum. This discourages the silk from clumping in one area. Load more thin layers of kid mohair onto the feeding tray of the drumcarder. With a manual drumcarder, crank the handle slowly so the silk will stay in place as the new layer of kid mohair begins to transfer onto the large drum, sandwiching the silk layer. Continue this process with thin layers of kid mohair and silk until the blend is complete. Finally, remove the batt from the drumcarder.

Because you carded thin layers, only one more pass is needed. Tear the batt lengthwise into four thin strips, tease the fiber widthwise, and feed the thin layers onto the feeding tray. Card slowly, making sure the fibers are not clumping together.

Repeat the entire process for the second sample, using 0.8 ounce of mohair and 0.2 ounce of muga silk.

Blending on a Board with Gray Alpaca and Peduncle Silk

Comb the alpaca to remove VM. For these alpaca samples, I used 0.5 ounce of fiber. For the first sample, I weighed 0.4 ounce of combed alpaca and 0.1 ounce of peduncle. Using a fine-cloth blending board, load thin layers of alpaca along the bottom of the blending board. Load the layers from left to right. Then load peduncle silk fibers at a slight angle from left to right on top of the alpaca layer. Continue to alternate thin layers of alpaca and peduncle, filling the blending board from bottom to top. When all layers have been placed, take two dowel rods and remove the fiber, creating rolags.

Repeat for the second sample, using 0.3 ounce of alpaca and 0.2 ounce of silk.

Tips for Successful Sampling, Blending, and Carding

1. **Use a precise scale.** Choose a scale, such as a digital food scale, that will provide the greatest precision for weighing fibers.
2. **Choose easy proportions.** Using numbers that are easily divisible is helpful for weighing. For example, for this project, I created an 80/20 blend as well as a 60/40 blend. To yield fiber with an 80:20 ratio, weigh 0.8 ounce of animal fiber and 0.2 ounce of wild silk individually for a total of 1 ounce.
3. **Know the limitations of fiber tools.** Handcards, blending boards, and drumcarders each have a different capacity for holding fibers. After weighing fibers for blending, you may need to divide the fibers into smaller bundles depending on the tool used for blending. The smaller the bundles, the less accurate the blend will be. However, it is better to split the fiber into smaller bundles than to overload the fiber tools and have fibers that won't fit onto the tool after layering.
4. **Choose appropriate carding cloth.** Choose tools that will not damage fine fibers. Because wild silk is very fine, use a carding cloth with a high number of teeth per inch (tpi); between 90 and 120 tpi is ideal. However, if the silk is blended with medium fibers, a medium (72 tpi) cloth will suffice. The silk should be "sandwiched" between layers of fibers when blending.
5. **Safety first.** Please take extra precautions for your safety, especially if you are using older fiber tools. Make sure your tools are clean and rust-free. Sometimes you may have an occasional prick or scratch while using these tools, so make sure your tetanus shot is up to date.

Peduncle and alpaca blends.

Red eri and wool-cross blends.

Handcarding Wool-Cross and Red Eri Silk

After washing this CVM/Romney/Salish-cross, I used a flicker to remove some of the tips of the fleece and then combed it with fine wool combs. For these samples, I used the same proportions of weight as for the alpaca and peduncle samples.

After weighing the fibers, split them into smaller amounts. Begin to load one handcard, using a thin layer of wool and starting at the lower portion of the handcard. Gently lay tiny, thin strips of eri silk on top of the wool layer. Continue to alternate layers of wool and silk in thin strips, being very careful not to crowd the handcard with too much fiber. Less is more.

Begin gently transferring the fibers from the layered handcard to the empty handcard. When the fibers are all transferred, take the newly empty handcard and card the fibers onto it. When removing these fibers for spinning, I decided to lift them off the handcard as opposed to making rolags.

The only difference with this blending method compared to the other two is the limited amount of fiber that can fit onto handcards comfortably. Consequently, the weighed fiber must be divided into much smaller amounts, and the blends might not be as accurate as the others.

Spinning Kid Mohair and Muga Silk

I used a short-forward draft for both samples. Because the kid mohair and muga silk blend is so clingy, I placed a cotton pillowcase on my lap. This made the batt more manageable. I divided the batt into thinner strips and

Photo by Lauren Bashore

Heavenly applying a thin layer of eri silk on top of wool before handcarding.

then spun. Here are the results of the experiment.

80/20 Two-Ply Blend:

The spinning wheel was set to a ratio of 10:1. I spun the singles at 40 wraps per inch (wpi) onto two bobbins. The resulting yarn was 278.8 yards in the 1-ounce, two-ply sample, or 4,460.8 yards per pound (ypp).

60/40 Three-Ply Blend:

The spinning wheel was set to a ratio of 8:1. I spun the singles at 10 wpi onto three bobbins. The resulting yarn was 40.3 yards in the 1-ounce, traditional three-ply sample, or 644.8 ypp.

It is hard to choose a favorite between these two samples. I love the crisp look of the three-ply, but I am head over heels in love with the blend in the two-ply and could picture this in a beautiful lace pattern. I love the sheen, and the small amount of silk goes a long way.

It has a stunning antiqued-gold look to it. When the blend is spun fine, it really brings out a natural elegance in each of the fibers.

Spinning Gray Alpaca and Peduncle Silk

Of all of the blends in this project, this preparation was my instant favorite. From rolags, I spun the singles using supported long draw. The natural blue-gray alpaca and peduncle silk spun very well together. Overall, I am impressed with the results.

80/20 Two-Ply Blend:

The spinning wheel was set to a ratio of 12:1. I spun the singles at 40 wpi onto two bobbins. The resulting yarn was 87.2 yards in the 0.5-ounce, two-ply sample, or 2,790.4 ypp.

60/40 Three-Ply Blend:

The spinning wheel was set to a ratio of 12:1. I spun the singles at 32 wpi onto three bobbins. The resulting yarn was 32.8 yards in the 0.5-ounce, traditional three-ply sample, or 1,049.6 ypp.

My favorite of these two is the two-ply blend. I love seeing pops of gunmetal gray from the peduncle throughout the plies in a background of the natural gray alpaca. The 80/20 blend brings out the best in both fibers. The peduncle enhances the alpaca by adding sheen, and it has a really soft hand.

Spinning Wool-Cross and Red Eri Silk

After lifting the blended fibers from the handcards, I spun them across the top. For this preparation, I used a short-backward draft. The results were rather surprising.

80/20 Two-Ply Blend:

The spinning wheel was set to a ratio of 12:1. I spun the singles onto two bobbins at 36 wpi, but the thickness varied a bit. The resulting yarn was 44.3 yards in the 0.5-ounce, two-ply sample, or 1,417.8 ypp.

60/40 Three-Ply Blend:

The spinning wheel was set to a ratio of 12:1. I spun the singles onto three bobbins at 32 wpi, but the thickness varied a bit. The resulting yarn was 28.5 yards in the 0.5-ounce, traditional three-ply sample, or 912 ypp.

The yarn plumped up quite a bit in the finishing stages. My favorite here is the two-ply. The CVM/Romney/Salish wool-cross gets a boost of luxury from the red eri silk.

Resources

Central Silk Board, www.csb.gov.in

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Harris, Jennifer, ed. Textiles, *5,000 Years: An International History and Illustrated Survey.* New York: Harry N. Abrams, 1993.

International Sericultural Commission, www.inserco.org

Silkroad Foundation, www.silkroadfoundation.org

Heavenly Bresser is an award-winning handspinner, experienced knitter, crocheter, and lover of all things fiber. She is the proud owner of 14 spinning wheels and loves restoring spinning wheels and teaching handspinning classes around the United States.

Photo by Heavenly Bresser.

From top: 80/20 and 60/40 wool-cross and red eri silk skeins, 60/40 and 80/20 mohair and muga silk skeins, 80/20 and 60/40 alpaca and peduncle silk skeins.

Photos by Matt Graves

PROJECT

Luxury Laces

By John Mullarkey

I'm often asked, "Why are you weaving shoelaces?" and my answer is always, "Because I can." But when asked, "Why are you weaving handspun silk shoelaces?" the answer is more involved. Sometimes you have a friend who is worthy of handspun silk shoelaces and who has boots so wonderful they scream for luxury laces. Also, I've never made handspun silk shoelaces, so why not give it a try?

Silk is wonderful for tablet weaving because of its strength, and handspun yarns created with hand-dyed silk fiber provide a richness and depth of color you can't get from dyed yarns. So, yes, it seems like a lot of time to spend on shoelaces, but these shoelaces will last longer than the shoes—I guarantee. As an added bonus, they will greet you with beauty each time you look at your feet!

Project Notes

Shoelaces are a great beginning tablet-weaving project or a fun, quick project for tablet weavers with more experience. This project assumes you already know how to tablet weave, and if you don't, check out my video *Tablet Weaving Made Easy* to get started (see Resources).

I like this pattern because it is reversible, which is not easily accomplished with tablet weaving, and it is fairly foolproof. If you get the threading reversed, the same pattern will result because the band is the same on both sides. To weave the pattern shown, turn the cards four quarter turns forward and four quarter turns back, but you can also have fun exploring how the pattern changes by varying the number of turns.

Length and Width

I find that a five-foot lace is a perfect length for boots and high-top sneakers. You can adjust this to accommodate your favorite shoes, but always keep in mind that the take-up in weaving with tablet woven bands is huge. This means that the warp must be much longer than the finished band. A five-foot lace (60 inches) requires about 80 inches of warp.

Creating a sample will allow you to test take-up and ensure that the band will fit your shoes. If the sample band is too large for the grommets on your shoes, you can adjust the pattern to use fewer warp threads and cards to create a narrower band. To finish the ends of the laces, which are called aglets, simply roll the end tightly in clear packing tape.

The firm end of a shoelace is called an aglet.

Spinning Notes

I typically work with *Bombyx mori* silk combed top, spinning from the tip of the sliver. Bombyx is also often referred to as mulberry or cultiviated silk. Tussah silk is far too fuzzy for tablet weaving in my opinion. (See page 25 for more about different types of silk.)

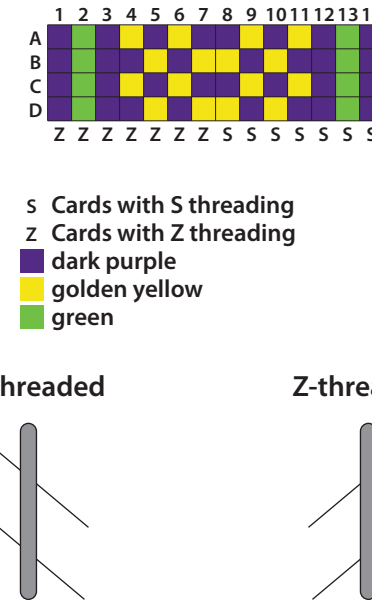
Because of the abrasion the yarns receive during weaving, I use a lot of twist in the single, and quite a lot of twist when plying. I know I have enough twist in both singles and ply when the finished yarn looks like little beads. I always spin two-ply yarns for bandweaving because the flat nature of a two-ply results in nice flat bands.

John used hand-dyed bombyx silk combed top to create a complex colorway.

After spinning, I wind the yarn into a skein, soak in the sink with tap hot water to set the twist, allow to dry, and I'm ready to weave.

Structure Tablet-woven band.
Equipment Inkle loom with at least four pegs that can accommodate a 2¼ yd warp length; fourteen four-hole tablet weaving cards; 1 belt shuttle.
Yarns 2-ply handspun bombyx silk, 36 wpi, 6,763 ypp.
Warp: dark purple, 72 yd; golden yellow, 36 yd; green, 18 yd. ***Weft:*** dark purple, 24 yd.
Warp Length 56 ends 80" long (allows 20" for take-up and loom waste).
Setts ***Warp:*** 150 epi. ***Weft:*** 28 ppi.
Dimensions
Weaving width: about ⅜".
Woven length: 58–62" including aglet ends when measured under tension on loom.
Finished length: 56–60" including aglet ends.

Fig. 1



1 Warp a full-size inkle loom with an 80" warp and 14 tablet-weaving tablets following the tablet weaving draft in fig. 1. Wind a belt shuttle with weft.

2 Weave the band 60" long or desired length, turning the cards 4 turns forward (away from you), then 4 turns backward (toward you). Draw the weft straight across the shed (no angling) so that the width of the band is ¼–⅜" and beat firmly with the beveled edge of the belt shuttle after each turn.

3 Remove the band from the loom.

4 Roll each end of the band and the midpoint between the two laces as tightly as possible in clear packing tape. Cut aglets to desired length.

Resources

Mullarkey, John. *Tablet Weaving Made Easy* video. (2013). Loveland, Colorado: Interweave. www.shop.longthreadmedia.com

John Mullarkey is an internationally recognized author and teacher of tablet weaving. He is constantly pushing this ancient weaving technique into new and contemporary directions. Learn more at www.malarkycrafts.com.

Jefferson Farms

The Search for Wild Luxury

By Deborah Held

Photos by Matt Graves unless otherwise indicated

Left: Dehaired roving for handspinners in the natural color of paco-vicuña. *Right:* The fine, dense fleece of a paco-vicuña holds its shape after shearing.

What happens when you blend a practical-minded woman seeking to better manage an overflow of responsibilities and a fortuitous patch of land near Denver, Colorado? You get Jefferson Farms, a rare-alpaca farm where founder Jane Levene's pragmatic nature helps her produce some of the finest spinning fibers money can buy.

Now if, like many wool lovers, you think you're not much into alpaca, do read on. The paco-vicuña (PV) is not your ordinary camelid. As the Paco-Vicuña Association explains, PVs in North America "are domesticated camelids selectively bred to exhibit the best fiber traits of their wild vicuña ancestors."

One of the results of this focus on vicuña characteristics is a deliciously soft fleece that earns PVs a place in the elite category of rare luxury fiber. Jane is more than willing to bet the farm on this fact. "I would put PVs against musk oxen in a heartbeat," she says, citing the PV's better range of natural, often reddish and deep mahogany colors, its longer and easier-to-spin staple, and the breed's ultrafine micron count.

Through her meticulous flock management, Jane has sought to improve upon this already opulent, top-of-the line fiber. She envisions PVs whose fleece characteristics share the proverbial spinners' spotlight with the finest and crimpiest wools. In the meantime, Jane works on her daily goals: to cultivate a lushly dense, uniform, ultrafine fiber and to continue finding ways to make her living doing so.

Family First

Jane wasn't looking for an agricultural career in 1995 when she found what would become her family's 5½-acre spread near Denver, Colorado. All she really wanted was to make better use of her time and energy as a full-time working mother who was at the same

time caring for her aging parents. She set out to find enough land to support two distinct houses—exactly what the Denver property title offered. It also came with one more, unexpected, bonus: the property had been zoned with an A-1 farm tax status. This difficult-to-attain, use-it-or-lose-it classification allowed for ranching and farming. The property also included water rights (a major and complex environmental responsibility in the state of Colorado).

Ever the pragmatist, Jane was not about to let this much-coveted status go to waste.

Surprisingly, the family venture into alpaca farming came quite accidentally. Jane's mom had seen a sign advertising alpacas for sale, and so they bought a couple. Soon these became 40, then more, and the extended Levene clan—especially Jane's dad, who worked outside on the farm with his daughter every single day until his death at age 90 in 2016—was happily ensconced in the alpaca business.

But the quality of alpacas' fleeces varied dramatically during this time period due to a lack of quality control within the breeding community itself. Jane was concerned that as the family's animals aged (alpacas can live 15 to 20 years) their fleeces coarsened or were too varied in fineness for consistent pricing and profit. "We wanted to have animals that could hold their fiber value better so that we could charge an appropriate price throughout the animals' life span," she says.

There were also sobering ranch, life, and environmental realities to consider. The problem was, the Levene family loved the docile, sweet-looking species, and they wanted to make an alpaca business work.

What Jane needed was an alpaca with a lifelong, consistently low-level micron count—all the better if the fiber length could be in the spinning (and milling) sweet spot of 3 to 4 inches. Better still, what if this fantasy fiber could also include the elasticity her alpaca was lacking? Now that would be perfect, especially if the animal retained the amenable disposition for which it is known.

Enter close friend Chris Switzer, whose flock of the incredibly rare North American paco-vicuñas would change the direction of Jefferson Farms.

What is Paco-Vicuña?

The South American vicuña is a protected species and cannot be imported into the United States. So, how was the North American paco-vicuña developed? The Colorado-based Switzer family, who initiated the development of the North American PV, states that the breed was established "by identifying the various traits of vicuña in alpaca and selecting the alpacas with [those] traits. These alpaca (paco-vicuña) can be bred together to amplify the vicuña traits, such as low micron count, bib [markings], and color, and produce a superior paco-vicuña.

"The same can be done for the desired traits we want for the paco-vicuña from the alpaca, such as fast-growing fiber and calm demeanor. The key is to recognize the alpacas that have these special traits and breed them together to magnify the qualities we are looking for in a paco-vicuña." (See Resources for more information.)

Photo by Jane Levene

One sign of a premier (Type I or II) paco-vicuña is its protruding eyes—a trait acquired from its vicuña ancestors.

Photo by Jane Levene

In addition to its plush coat, the paco-vicuña is also identified by its white bib.

Introducing the Paco-Vicuña

Now, Chris Switzer is quite the expert on PVs. She should be, as she and her husband, Phil, are responsible for the ingenious idea and Herculean task of bringing the breed to North America back in 2002. With the idea of selectively emphasizing the sweet temperament, plush fiber, and long staple of the domesticated alpaca along with the downy softness and high fiber curvature (the measurement of fiber memory/elasticity) of the endangered and still wild vicuña, Phil and Chris traveled through the Andes, finding just the right genetically inclined alpacas—those with wild vicuña traits—to bring home to Colorado. The results were all they'd hoped for. Phil then worked on creating the PV's grading standards as well as a national registry to help maintain clean heritage and breed statistics.

PVs are a more primitive type of alpacas. They are of a rare and unique caliber, with a price to match: depending on the level of preparation and grade of fineness, expect to pay $35 to $75 per ounce for fiber.

Jane recognized the potential of this breed immediately and fine-tuned her own business direction. Taking the risk even further, she convinced her physician husband, Arthur, to allow her to turn their fishing cabin in Salida, 100 miles away, into the hub of what would become the business's main ranch.

Today, the Salida property has grown to 90 acres. Between the two farms, there are over 400 hundred PVs. Their fiber, whether sold as mill-processed roving from a select number of fleeces or processed into yarn, is the main income of Jefferson Farms. The business also offers siring services, sells alpacas and PVs to interested and qualified shepherds, provides counsel and training on all things PV, sells rabbit meat, and offers two vacation rental homes on the Salida property (where interested parties can take a farmcation). According to Jane, it's vital to have as many streams of farm income as possible, all at the same time.

In 2018, there were 50 animals, including crias (baby alpacas) born at Jefferson Farms. There have been 45 new births to date in 2019, and in 2020, Jane forecasts 75 more. With a medical background, Jane herself handles all labor and delivery and most other medical-based animal needs.

Getting Particular

North American paco-vicuñas are graded by fiber fineness, ranging from Grade 000 (11–12.99 microns) on up to Grade 3 (23 microns and higher). One of the

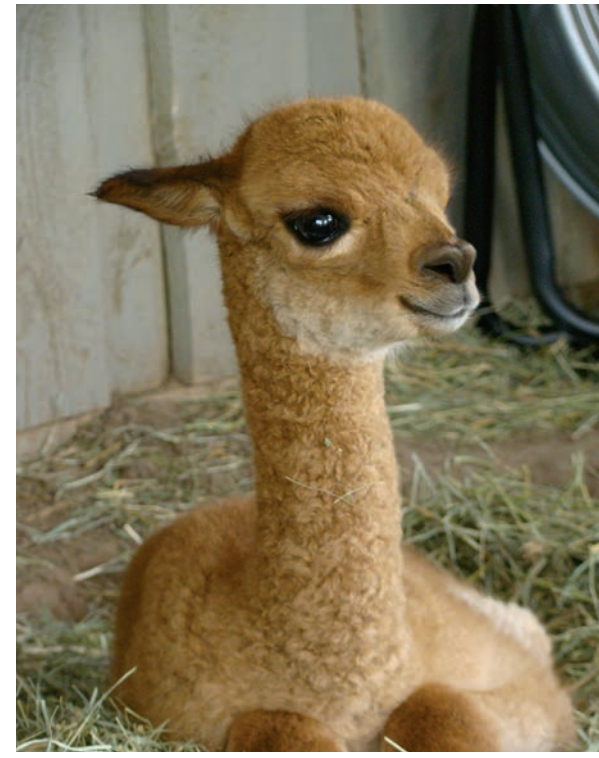


Photo by Jane Levene

Alpacas and their paco-vicuña relatives are said to be as sweet as they look—especially in baby (*cria*) form, as seen here.

prime advantages of the PVs is the ability to maintain this incredible fineness throughout their lifetime. Jane states that one of their working studs currently maintains a 12.7 micron fleece even at nine years of age! The finer the fiber (graded in lower numbers), the denser the blanket of fleece itself. In fact, these fleeces are often sheared in one piece, coming off the animal "just like a pelt," says Jane.

The PVs displaying more vicuña-like characteristics are sheared every other year to obtain the desired 3- to 4-inch staple length. Shorter than that and the fiber can be challenging to spin, sacrificing its sheen in woolen-draw options; longer than that and the combination of length and plushness can cause problems with the milling equipment during processing.

Per the requirements of the Paco-Vicuña Association, the registry founded by Phil Switzer to maintain the integrity of the registered North American PVs, a micron/density sample is pulled from every single animal when it is sheared at every shearing regardless of age of the animal. Each animal's sample is sent to Yocom-McColl Testing Laboratories, Inc. for micron testing, where it is also tracked for staple length and curvature. Jane says, "This fiber data is in turn submitted to Colorado State University for a comprehensive EPD (expected progeny differences) program, analyzing up to five genetic traits in this national herd. As a new breed, the association felt it was imperative to accurately track and analyze the outcome of each and every breeding. The goal of this effort is to make PVs the most thoroughly documented breed of fiber-producing livestock.

PVs have unusual uniformity of staple length and fineness of fiber within each animal's fleece, although there is some variation of these traits among flocks.

Through careful breeding, Jane has easily attained a fineness of less than 18 microns across her own flock. She is now well on her way toward her goal of 16 microns or less across the entire flock with many in the herd maintaining a micron of 12–14, regardless of their age.

Paco-vicuña is an ideal fiber for handspinners. As Jane explains, the crinkle, or tiny, unorganized crimp, helps to interlock the fibers, creating that loft so many of us love. Its memory makes for an easier twist introduction than one finds when spinning most modern domesticated alpaca. Its uniformity of staple and softness make for fiber so plush that the eye almost

Photo by Jane Levene

Shearing at Jefferson Farms.

can't recognize where one fiber begins and another ends. Despite the PV's cost, the airiness of the fiber helps to maximize yardage, particularly when spun into a laceweight yarn. (See page 38 for more information on spinning PV.)

Despite her unintended foray into alpaca farming, Jane wouldn't choose any other life. "There's something about a farm that people love," she says, noting how nieces and nephews, grandkids, and even strangers have always loved to visit. Her initial idea of finding land to house her family and her parents turned out to bring them—and others—together in beautiful, extended, and unforeseen ways.

There's only one thing she'd change, and that's how people view alpaca as a fiber so distinctly different from wool, when both are spinning-friendly and come in a vast range of grades. "There should be a more uniform language. We don't need to be different."

Maybe that's what Jane will work on next.

Resources:

Jefferson Farms Natural Fibers, www.jeffersonfarmsnaturalfibers.com

Robson, Deborah, and Carol Ekarius. *The Fleece and Fiber Sourcebook*. North Adams, Massachusetts: Storey, 2011.

Switzer-Land Alpacas, Chris and Phil Switzer, www.alpacaland.com

The Paco-Vicuña Association, www.pacovicunaassociation.com

Deborah Held is a freelance writer and a full-time, real-life spinster. She blends wool and words, sharing with others the positive impact that daily handspinning and her commitment to it have brought to her life. She lives somewhere in Atlanta in a sun-filled lair, where her desk and her wheels all sit facing a spinner's flock of sheep.

Not Your Typical Alpaca: How to Spin Paco-Vicuña Fiber

By Deborah Held

Whether you're a fan of spinning alpaca fiber, you've never tried it, or past experience has left you (and your yarn) feeling lackluster, do yourself the favor of splurging on just an ounce or two of some paco-vicuña—one of the rarest, finest, and softest fibers in the world. But be prepared: like any of the world's rare luxury fibers, paco-vicuña will cost you anywhere from $35 to $75 per ounce, depending on the grade you're purchasing and whether you're buying raw fleece or processed roving. Fortunately, PV is best spun into a laceweight yarn, and a couple of ounces would yield a capable spinner enough yarn to knit a little something for their neck—and that's the very best place to wear it, according to Jane Levene.

What about blending it with another fiber to stretch what you've got? Jane says that blending with an additional fiber implies that you're missing something in the fiber you already have—and there is nothing missing here. Thanks to its crinkle, PV provides an elasticity unknown in other alpaca fibers. This unorganized crimp also helps to interlock the individual fibers, forming tiny air pockets and leading to a lofty, warm yarn.

Prepare and Spin PV Fiber

- The raw fiber is likely to be dusty, and some of its most notable traits (crinkle and that natural density) mean that vegetable matter (VM) can be embedded

deep down toward the cut end of the locks. You'll want to pick out as much of it as possible before rinsing your fiber, as soaking will only cause the VM to adhere more firmly. (*Note:* Some alpaca spinners prefer to spin directly from the raw fleece, with no soaking or rinsing.) Several soaks in cool to lukewarm water will allow much of the dust and smaller pieces of hay, grass, and other VM to deposit on the bottom of your basin or sink. If your fleece has a barnyard odor, add a small amount of gentle soap during your final soak, then rinse.

- When working with raw fleece, Jane recommends pulling out the guard hair before washing. Place the fleece tip-side up on a skirting table or flat surface. Quickly and easily move across the surface of the fleece, pulling much of the guard hair out of the locks. Don't worry if you miss a few; you can easily remove any stragglers while spinning, before they enter the area of twist. If you're purchasing roving, the fiber will most likely have been dehaired.
- There are many options for what happens next. Depending on what type of spindle or wheel you will be using, you might choose different pairings when it comes to fiber preparation with the spinning draw. This dense yet somewhat slick fiber is best spun with a semiworsted draw, according to Jane. With its average 3-inch staple, you can explore different woolen and worsted draws. If you're a support spindler, this is a great time to extend the joy of your spin while also ensuring adequate twist for this sumptuous fiber. A fast-whorled suspended spindle can also yield good results and is one of Chris Switzer's favorite methods of PV spinning, especially with simple, handcarded PV rolags. Chris says that any preparation works well, particularly paired with a short-forward draw, including combing and simply spinning straight from the teased fiber. It's up to you!
- If you're using a wheel, set it up for fine singles: low take-up and high twist insertion (speed). Sample until you have a fine yarn with both loft and elasticity, then make a ply-back sample to keep at your wheel as reference throughout your spin.
- Wash or steam a bit of your yarn, allow to fully dry, and then check for the loft and twist of the finished yarn.
- Make the most of what you've got with a finely spun two-ply yarn.
- Knit or crochet yourself a little handspun luxury to wear around the exposed skin of your neck.

Paco-vicuña fiber can range from cream to cinnamon to mahogany.

Photo by Jane Levene

The 3-inch-plus staple of paco-vicuña displays crinkle (disorganized crimp) as well as guard hairs that are easily removed.

Photos by Matt Graves

PROJECT

ORENBURG SPINNING WITH A NORTH AMERICAN TWIST

Valentina's Polushawl to Knit

by Galina A. Khmeleva; handspun version by Valentina Federova

Polushawl (*polushalok *in Russian) indicates a smaller version of an Orenburg warm shawl, called a "half-warm shawl." It can be in the shape of a triangle, a rectangle, or square. This project was the genesis of a collaboration of three women in Orenburg, Russia: Valentina, Tatiana, and me. My younger sister, Tatiana, suggested that I design a lighter, less bulky version of a classic Orenburg warm shawl, one that could be worn comfortably under a heavy winter coat but large enough to cover the shoulders and front, extend to just below the waistline, and reach the third knuckle of the hand.

Valentina, younger sister of Orenburg lace-knitting legend Olga A. Fedorova, created a newer, more modern version of the classic Orenburg warm shawl. Using thicker yarn but with the classic Orenburg gossamer style, Valentina was able to create a design with an edging of four-hole teeth instead of the usual classic five-hole increase/decrease; thus the teeth became more rounded than pointed. The polushawl pattern that resulted from this collaborative effort was published in the May/June 2017 issue of *PieceWork*.

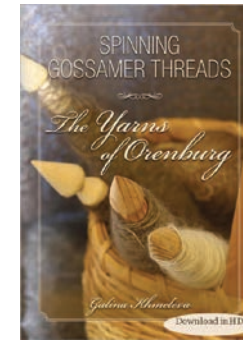
Valentina is not just a designer, she is also a talented spinner and knitter. Several years ago, I sent a parcel of paco-vicuña (PV) fiber to Valentina in Orenburg to obtain her opinion of the fiber. The result was more than I could have predicted: Valentina spun the PV, plied it with silk, and knitted a polushawl.

Spinning Notes

Valentina spun and plied the yarns for this shawl in the Orenburg tradition. She spun on three supported spindles that are used by resting the tip in a small spindle bowl. Two spindles were used to spin the singles, which were then plied with silk thread on a plying spindle.

Classic Orenburg lace yarn is composed of one strand of fine handspun goat down and a second strand of very fine plied silk yarn. The two strands of very different yet equally luxurious fibers are plied together. Valentina added a North American twist to this classic yarn by using Colorado-grown PV plied with silk.

Orenburg Spindles



Orenburg spinners use a different spindle for each handcarded rolag they spin. The wooden spindles, lathed or carved by hand, are made of lightweight wood. Their shape is particular to the region. They are made in one piece and include a tiny low whorl with tapered ends and a fat body. Orenburg-style spindles range from 10 to 15 inches in length and are less than 1 inch in diameter. The whorl and spindle circumferences are usually about the same. The shorter, more delicate spindles are used for spinning singles and the larger versions for plying.

To learn more about using supported spindles in the Orenburg tradition, check out Galina's video *Spinning Gossamer Threads: The Yarns of Orenburg,* available at **www.shop.longthreadmedia.com**.

Valentina spun paco-vicuña and plied it with silk thread.

Materials

Fiber 5 oz paco-vicuña; 1,200 yd undyed reeled silk or 12⁄2 silk thread.
Yarn 2-ply; 1,200 yd; laceweight.
Needles U.S. size 2 (2.75 mm) circular (cir), 24" or size needed to obtain gauge.
Notions Stitch holder; stitch markers (m), 4 colors; spare needle; tapestry needle.
Finished Size 29½" wide and 53½" long.
Gauge 23 sts and 48 rows = 4" in garter st.

Visit www.spinoffmagazine.com/spin-off-abbreviations for terms you don't know.

Notes

- Slip the first stitch of every row purlwise with yarn in front. This shawl is worked in garter-stitch lace with three Orenburg basic elements: Chain-of-Hearts (red on charts), Strawberries (red on charts), and Diagonals (green on charts).

Shawl

Using the long-tail method and holding 2 needles tog, CO 9 sts. Remove 1 needle. Work Rows 1–2 of Bottom Border chart once, then work Rows 3–14 twenty-four times—10 sts, 24 bottom border teeth. To make CO sts easier to find later, place original 9 CO sts on st holder after 2 teeth have been completed.

Turn First Corner

Work short-rows to miter corner as foll:

Row 1 (RS) Sl 1, kl, yo, k2, k2tog, yo, k2, kl and place back on left needle, do not work last st, turn.

Rows 2, 4, and 6 (WS) Knit.

Row 3 Sl 1, k1, yo, k2, k2tog, yo, k3, k1 and place back on left needle, do not work last st, turn.

Row 5 Sl 1, k1, yo, k2, k2tog, yo, k5, pick up one of the lps created at the ends of Rows 1 and 3, knit this lp tog with last st of row to close gap, and place back on left needle—13 sts.

Turn Second Corner

Set-up row (RS) Sl l, k2, yo, k2tog, k2, yo, k2tog, k4, pm. With spare needle and WS of border facing and beg at CO side, pick up but do not knit 145 sts on straight edge of border. With RS facing and right needle with 13 border sts, knit 145 sts tbl to prevent a large hole, place a different color m, pick up and knit 9 sts from CO sts on holder.

Work short-rows to miter corner as foll:

Row 1 (WS) Sl 1, k1, yo, k2, k2tog, yo, k1, k1 and place back on left needle, do not work last st, turn.

Rows 2, 4, 6, and 8 (RS) Knit.

Row 3 Sl 1, k1, yo, k2, k2tog, yo, k2, k1 and place back on left needle, do not work last st, turn.

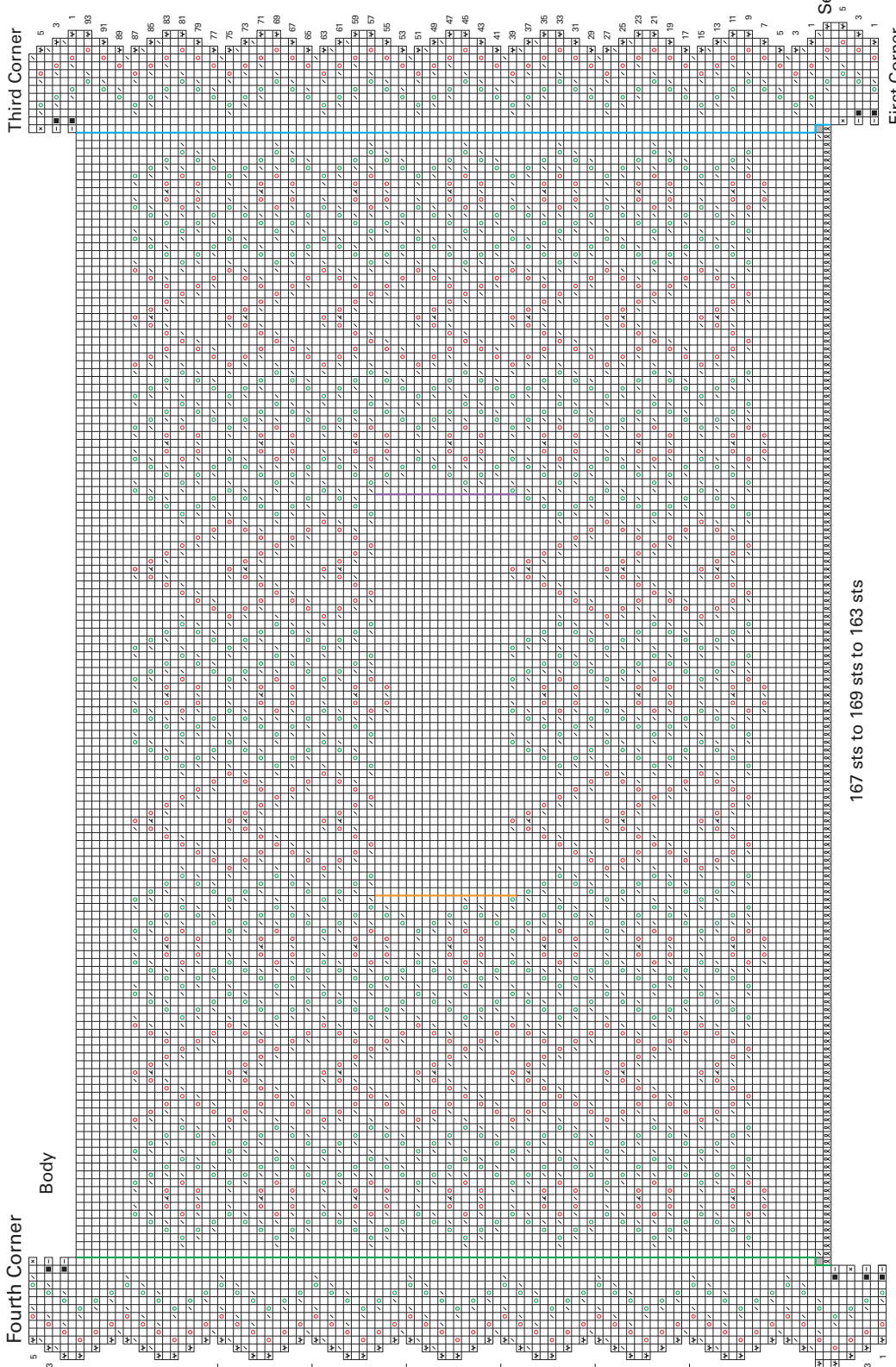
Row 5 Sl 1, k1, yo, k2, k2tog, yo, k4, pick up one of the lps created at the ends of Rows 1 and 3 and knit this lp tog with next st to close gap and place back on left needle—12 corner sts.

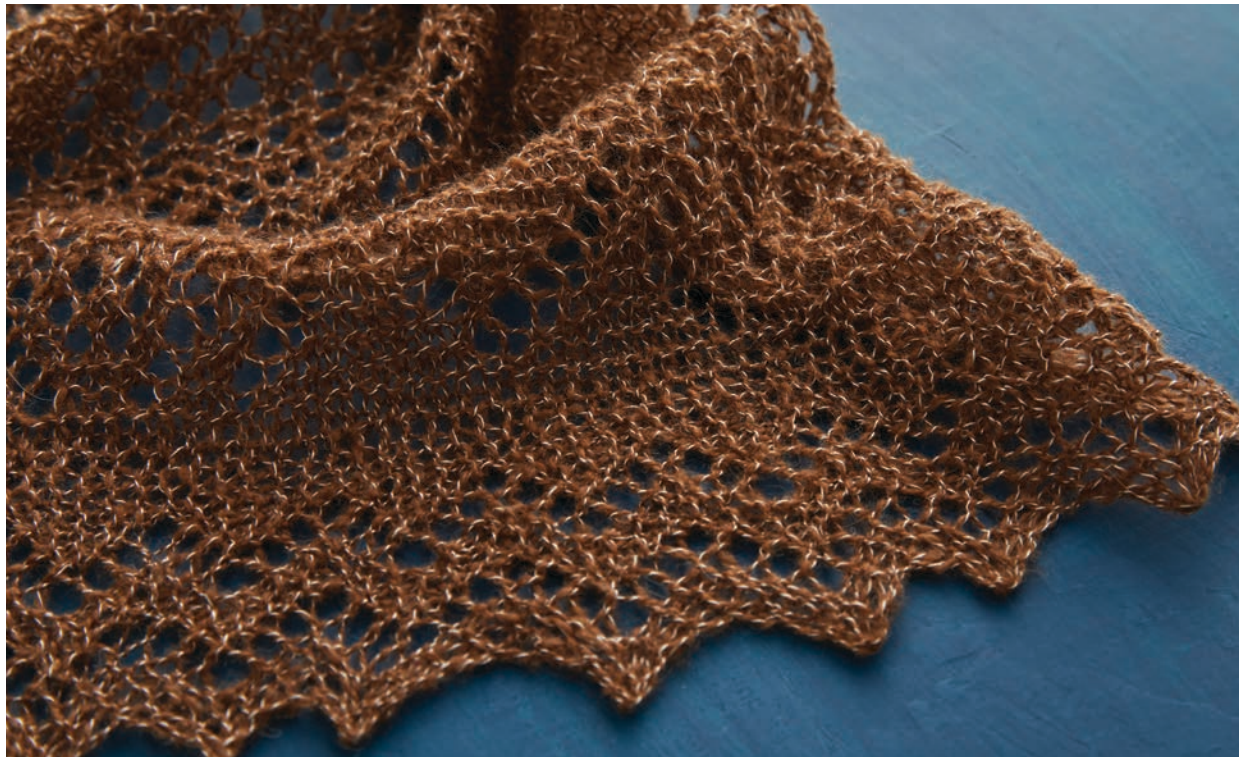
Row 7 Sl 1, k1, yo, k2, k2tog, yo, k4, k1 and place back on left needle, do not work last st, turn—13 corner sts.

Body

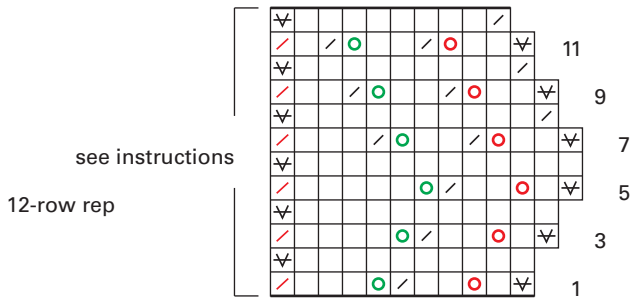
Set-up row (WS) Sl 1, k2, yo, k2tog, k2, yo, k2tog, k4, sl m, k2tog, knit to 2 sts before m, k2tog, sl m, knit to last 2 sts, k2tog—168 sts, 12 sts before first m for right border, 143 sts between m, 13 sts after last m for left border.

Work Rows 1–16 of Body chart once, work Rows 17–28 four times, work Rows 29–40 once, work Rows 41–52 thirty-six times, work Rows 53–64 once, work Rows 65–76 four times, and work Rows 77–94 once.



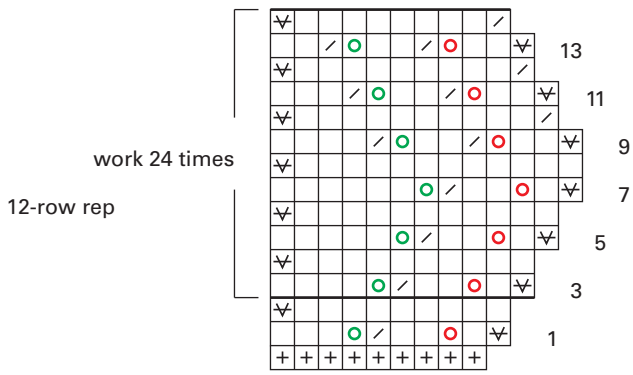


Top Border



10 sts to 13 sts to 10 sts

Bottom Border



9 sts to 13 sts to 10 sts

Key

- k on RS and WS
- sl 1 pwise wyf on RS and WS
- yo (diagonals motif)
- yo (hearts and strawberries motifs)
- k2tog on RS and WS
- k3tog
- CO 1 st
- k1tbl
- k1 and place back on left needle
- do not work last st
- pick up lp and k tog with next st
- no st
- k2tog (1 border st and 1 body st), turn
- marker position

Turn Third Corner

Work short-rows to miter corner as foll:

Row 1 (RS) Sl 1, k2, yo, k2tog, k2, yo, k2tog, k2, k1and place back on left needle, do not work last st, turn.

Rows 2 and 4 (WS) Knit to last 2 sts, k2tog.

Row 3 Sl 1, k2, yo, k2tog, k2, yo, k2tog, k1, k1 and place back on left needle, do not work last st, turn.

Row 5 Sl 1, k2, yo, k2tog, k2, yo, k2tog, k1, pick up one of the lps created at the ends of Rows 1 and 3, knit this lp tog with last border st to close gap, and place back on left needle.

Row 6 Knit to last 2 sts, k2tog—10 right border sts rem.

Top Border

Work Rows 1–12 of Top Border chart 23 times, then work Rows 1–10 once more—all body sts between m have been worked.

Work Row 11 of Top Border chart to last st, knit last st (do not work tog with body st)—11 top border sts rem. Do not work WS row.

Turn Fourth Corner

With RS facing, sl m, knit 13 left border sts. Work short-rows to miter corner as foll:

Row 1 (WS) Sl 1, k2, yo, k2tog, k2, yo, k2tog, k2, kl and place back on left needle, do not work last st, turn.

Rows 2 and 4 (RS) Knit to last 2 sts, k2tog.

Row 3 Sl 1, k2, yo, k2tog, k2, yo, k2tog, kl, kl and place back on left needle, do not work last st, turn.

Row 5 Sl 1, k2, yo, k2tog, k2, yo, k2tog, kl, pick up one of the lps created at the ends of Rows 1 and 3 and knit this lp tog with last border st to close gap and place back on left needle—11 corner sts rem.

Do not work WS row—11 sts on each needle.

Graft Borders

Sl 1 st from right needle to left needle. *Bring 2nd st on left needle through the sl st, sl this st to right needle, dropping the 1st st off left needle. Bring 2nd st on right needle through the sl st, sl this st onto left needle, dropping the 1st st off right needle. Rep from * until 1 st rem. Cut a short piece of yarn and use it to tie a knot through rem st to prevent raveling.

Weave in all ends.

Finishing

Because the yarn is thicker and the teeth are worked in a slightly different construction method than for a traditional gossamer web shawl, it is not necessary to block tightly to increase the size of project. Place the shawl on a flat surface, spray with water, place a damp towel over, and leave overnight.

Galina A. Khmeleva is the owner of Skaska Designs and author of two books about the history and techniques of Orenburg lace shawls. A former clothing and costume designer who worked with the aristocracy of St. Petersburg's music and theater society, Galina was a pioneer in breaking down barriers in the new Russia to give Russian women the opportunity to achieve ownership status in private companies.

A Lesson in Handspun Lace Repair

by Galina A. Khmeleva

After 30 years in the textile business, I have accumulated a large collection of the textiles for which I am best known: handspun, handknitted Orenburg lace. As an extension of this collection, I have quite a stash of leftover fiber and small amounts of yarn that remained after the shawl was off the needles. Not only are these leftovers beautiful, they are incredibly useful if one of my shawls is damaged. A handspun gossamer shawl deserves to be mended properly!

While teaching or vending at fiber events over the years, a few customers have asked me to repair various levels of damage to their precious pieces of lace. The culprits range from moths and silverfish to crickets, dogs, and cats. When I decide to take on one of these projects, I look to my stash of leftover fibers and handspun yarns for a match.

Orenburg lace yarns are typically wrapped around a small disk of cardboard for safekeeping. Having a small stash of leftovers helps with mending.

Photos by Matt Graves

An Unexpected Find

Recently, one of my friends asked me to repair an heirloom piece of lace that was purchased nearly 20 years ago; I was shocked when I saw the extent of the damage. I was going to reject the proposal outright, but then I saw the knitter's signature. This piece was handspun and handknitted by my teacher and famed lace knitter Olga Fedorova in Orenburg in 1996 or 1997. Olga had knitted in her signature at the bottom, which made the scarf priceless. Olga passed away in June of 2008.

After looking at the scarf for a while, I finally realized the cause ofthis damage. The original scarf had been folded numerous times and tucked into a drawer or trunk where a mouse had decided to build a cozy mouse condo by chewing through the scarf layer by layer, resulting in large and duplicate holes. Luckily for me and this shawl, I had leftover yarns that allowed me to start the smaller sections that needed repair work immediately. I would need to spin some matching mending yarns for the larger holes.

There are many types of snags, holes, frays, and ravelings that can be repaired in a variety of ways. A quick internet search will lead you to tutorials with advice on fixing small holes or raveled areas that need to be reknitted with the "ladder" of original yarn that used to be a beautiful section of handknitted lace. Olga's shawl presented a variety of problems, but the large, uneven holes where the original fabric was totally missing were a unique challenge. For this reason, I decided to publish this article and share this knowledge with you.

Mending Matters: Olga's Scarf

If you don't already have a stash of leftover yarns from previous projects, you can find a fiber that is a close match in both color and fineness, and spin your own mending yarn. Take your time and create several samples. You want to create a yarn that matches as perfectly as possible if you are attempting to create invisible mends. I used a traditional Orenburg spindle and bowl to create the yarns needed for my large repair project, but you can use a drop spindle, spinning wheel, or support spindle to spin mending yarns.

When repairing lace, you need to know how the lace pattern is knitted row by row. When reknitting large areas as I did here, it can be very helpful to have a chart of the lace pattern by your side as you work.

To mend Olga's scarf, I used about ½ ounce of fine gray cashmere that exactly matched in both color and fineness. I spun this into fine singles using an Orenburg-style support spindle and spinning bowl. When spinning gossamer weight, this small amount of fiber would provide about 200 yards of handspun singles. Using the Orenburg plying technique, I plied these cashmere singles with fine silk.

Galina's Gossamer Lace Mending Kit

- ½–2 oz matching fiber.
- Silk for plying.
- Small crochet hook.
- Two short double-pointed knitting needles.
- T-pins.
- Safety pins.
- Paper clips.
- Small tapestry needle.
- Bright thread: cotton or silk in a contrasting color.
- Nylon cord or blocking wires.
- Knitter's pattern highlighter tape.
- Small sharp scissors.
- 1 yd flannel or velvet fabric.

It was also important to set the twist using the Orenburg technique, so this yarn would fit well with the original yarn Olga used. You can learn how to spin, ply, and finish yarns in the Orenburg way with my video *Spinning Gossamer Threads: The Yarns of Orenburg* (See Resources).

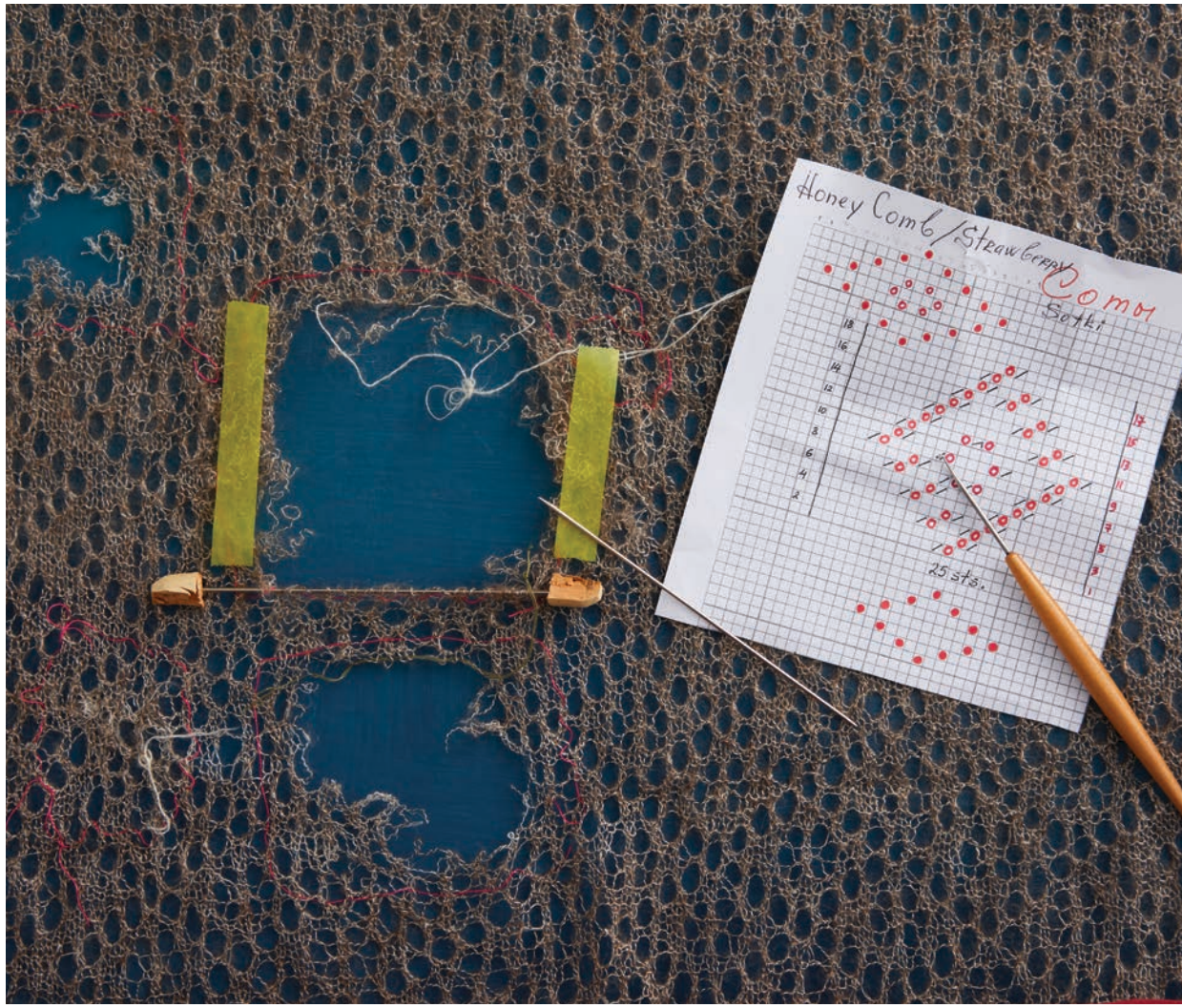
Lace Repair Method for Large Holes

1 For the repair work, you will need about 1 yard of dark solid-colored flannel or velvet fabric. The texture of the fabric helps to hold the delicate piece in place as you work. Carefully spread the damaged piece over the repair fabric.

2 Start identifying the damaged areas. Using T-pins to hold the surrounding area steady, I begin the repair process by outlining each hole with bright red sewing thread (mercerized cotton or silk) on a small tapestry needle.

3 Begin by repairing the smallest holes first. This strategy helps to prevent any small holes from

Left: The holes in Olga's scarf were the same shape in many places. The scarf had been neatly folded when a mouse chewed through layer after layer of the gossamer lace to make a nest.



Galina has stabilized this large hole so it cannot suffer further damage before she can complete the mending. When ready to begin, the highlighter tape is removed from the sides of the hole, and the caps are removed from each end of the double-pointed needle at the bottom of the hole.

growing larger, and it also gives you the confidence and muscle memory in your hands to work on the larger holes.

4 Now you are ready to begin the most difficult repairs: the large holes of missing lace. First carefully snip off the broken edges with scissors, trying to make the repair area as square as possible. Then, using a short double-pointed needle, pick up all stitches on the bottom side of the hole and determine which row of the lace pattern is now on your needle.

5 On the right and left sides of this large hole, the broken threads will look a bit like a fringe. You can use highlighter tape (the type knitters use to identify the row of a chart they are knitting) to hold the fringe in place in any area you are not currently working. Only slightly sticky, this tape is removed easily without causing further damage when you are ready to begin repairing an area.

6 Thread the tapestry needle with handspun mending yarn. If the next row of the chart is a right-side row, mending will begin in the bottom right corner. Beginning about 1½" outside the right edge of the hole where the fabric is still intact, find the pattern row above the one held on the double-pointed needle and begin working duplicate stitch from right to left. When you reach the hole, use the other double-pointed needle to knit in pattern across the hole.

When you reach the end of the live stitches, complete the left side as for the right. (Reverse directions for wrong-side rows.)

At the same time:
Knit the fringe of damaged threads on the right and left sides together with repair yarn for 2 or 3 stitches and leave the remaining fringe loose. Continue working in this way, back and forth across the hole until all rows are worked.

7 When the hole is filled in, pick up the live stitches on the top edge of the hole with the second double-pointed needle and graft together with live stitches on the bottom needle.

8 After the repair work is finished, hide what remains of the damaged yarns by weaving them into the fabric with a tapestry needle or small crochet hook. When weaving in ends, do so in different directions so as to not create thickened areas in such a delicate fabric.

Wash and Block Gossamer Lace

Beginning at one corner, thread a thick nylon cord loosely from back to front through each tooth point of the outside lace edge. Tie the ends of the cord together. Thoroughly wet the piece and squeeze out excess moisture. Using T-pins on a flat surface, pin the four corners to give the scarf or shawl its basic shape and size. Tie a separate length of cord to one corner pin and then wrap it around the other three corners, marking final dimensions. Pull the cord between each tooth until it touches the outer dimension cord and anchor with T-pins. Always pin into the loops formed by the cord, not into the shawl. Adjust the pins and cord as necessary until the shawl is stretc hed taut. Allow to fully dry while you admire your repair work!

Resources

Khmeleva, Galina A. *Spinning Gossamer Threads: The Yarns of Orenburg*. Fort Collins, Colorado: Interweave, 2012. DVD and video download. www.shop.longthreadmedia.com

_____. "Plying the Orenburg Way." *Spin Off*, Fall 2015, 53–56.

Orenburg gossamer yarns are traditionally handspun singles plied with silk thread.

Galina A. Khmeleva is the owner of Skaska Designs and author of two books about the history and techniques of Orenburg lace shawls. A former clothing and costume designer who worked with the aristocracy of St. Petersburg's music and theater society, Galina was a pioneer in breaking down barriers in the new Russia to give Russian women the opportunity to achieve ownership status in private companies.

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Events & Workshops

IOWA

Iowa Sheep & Wool Festival
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Hansen Agriculture Student Learning Center
Ames, IA
www.iowasheepandwoolfestival.com
gina.frahm@gmail.com
See & feel fibers galore at the Iowa Sheep & Wool Festival! Vendors, classes, fleece show and sale, silent auction, demonstrations, contests and more! Find complete details on our website.

MONTANA

Copper K Fiber Festival
July 18 & 19 2020
Historic Copper K Barn South of Whitehall, Montana
www.ranchingtraditionfiber.com
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Fiber arts..... Getting back to its roots
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TEXAS

Kid 'N Ewe And Lamas Too
November 8-10, 2019
Hill Country Youth Event Center
Kerrville, TX
www.kidnewe.com
(832) 584-4695
Texas's premier fiber arts festival, show and sales of fiber producing animals, supplies for dyeing, spinning, knitting and weaving. Demonstrations, workshops, and sales of finished products made from home grown fiber.

VERMONT

Vermont Sheep & Wool Festival
October 3-4, 2020
Tunbridge, Vermont
vtsheepandwoolfest.org
vtsheepandwoolfest@gmail.com
802-592-3153
The Vermont Sheep & Wool Festival celebrates small farms and natural fiber. Our vendors offer fleece and yarn, fiber animals, fiber crafting supplies, handcrafted wool items and local meat and cheese. The Festival includes contests, fiber arts classes, shepherd workshops, herding and shearing demos, fleece sale and more.

WISCONSIN

Wisconsin Sheep & Wool Festival
September 11-13, 2020
Jefferson County Fair Park
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www.wisconsinsheepandwoolfestival.com
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Photos: George Boe

American Bison

Modern Fiber from a Native Species

By Cecil, Ron, and Theresa Miskin

Photos by Theresa Miskin unless otherwise noted

"Buffalo," the name most Americans grew up using for bison, does not immediately evoke the image of soft, useful fiber. Yet the bison's downy undercoat that grows each fall and sheds each spring is the finest truly American luxury fiber available. In fact, "Seriously Warm—Surprisingly Soft" is a tagline we use for our family's bison products. The curious and excited look we get after handing someone a bison-down garment to touch seems to confirm this.

The down fiber produced by an adult bison has a fairly short staple length, typically about 1½ inches long, and measures 17 to 22 microns. An adult cow (female) bison will have roughly 1cto 3 pounds of down on her body when the fiber has fully matured, which is usually around the first of each year. The soft down grows close to her skin and is what will keep this 1,000-pound animal insulated and warm through the winter months.

A New Bison Venture

We bought our first bison calves in 1991 as a "why not" venture. We had some land in Texas, almost no knowledge of domestic animal husbandry, and not enough sense to realize what we were getting ourselves into. Our first encounter with fine bison down was early spring when we started plucking bits of the shed fiber off the briars in our pasture. It was silky soft, had a beautiful faint musky scent, and felt so comforting against our faces. We dutifully set about gathering what we could, knowing nothing about washing, felting, skirting, or dehairing—all that was to come later.

We continued raising bison and continued collecting the down left in the spring pastures. Time passes, winters and springs come and go. Eventually, we had about six boxes of the "fluff stuff" as we called it. Not knowing anything more about it, we offered the down for sale on eBay. Imagine our surprise when two bidders were fighting over it. Through this experience, we had the honor and privilege to meet Elizabeth Lang, an extremely knowledgeable and personable fiber artist. Experimenting with our bison down at her home in Boston, Elizabeth would correspond with us to patiently explain her process and findings. She asked questions, and she lectured. "Never agitate the bison" became her catchphrase because the very short, very dirty, and very crimpy fiber was easily felted during handwashing.

Elizabeth also led us to promote bison fiber to

as much of the bison industry as we could. At that time, there were less than four hundred ranches, most of them quite small, with 20 or fewer head of bison. We encouraged them to pick up the shed fiber, to contact local guilds and clubs, and to use the fiber as a promotional tool to help the general fiber-interested population know that bison ranching had more merit than just meat production. Even though these efforts were sporadic, they did some good and gave hands-on fiber enthusiasts a chance to experience bison. All these years later, several of those relationships still exist. Some ranches allow and encourage annual shed-fiber harvests, drawing spring "pickers" who collect the fiber and create beautifully spun yarns from bison-down blends.

The economic viability of bison down has long been the question. Until recently, every prior venture into modern-commercial processing of bison fiber has failed. Availability, processing costs, and unknown demand have all been significant factors in the challenge to bring bison fiber and bison fiber goods to market. Traditionally, fiber and hair have not been a profitable part of raising bison, but by adding value to the animal, it becomes more economically advantageous to raise animals. More money equals more bison. Looking both to the past and to the future, our family has spent much of the last three decades exploring ways for bison products to support the resurgence of this keystone species in the American landscape.

Processing Bison Down Today

Bison populations are now estimated to be between 450,000 and 500,000, mostly in the United States and Canada. This is almost double the estimated population of 250,000 when our family started raising bison in the 1990s.

Annually, around 55,000 are processed for meat. It is from these production animals that we are able to harvest fiber during January, February, and March, when the fiber is at its longest and least matted. Before that time of the year, the fiber is still growing and too short. After that, it is shedding and being rubbed into matts and balls that just cannot be untangled. We, like the indigenous tribes before the great slaughter of bison during the nineteenth century, try to use all of this great creature. Why throw away such a beautiful, durable, insulating fiber when we can put it to good use?

After harvest, the fiber has to be thoroughly scoured even though it contains no lanolin or grease. Bison don't have sweat glands, so to keep cool bison wallow, rolling in wet dirt to pack a layer of soil next to their skin. As

As bison begin to shed in the early spring, they look for places to rub, alleviating itchiness. Large brushes can be used to collect the downy fiber as it is released from the skin.

A Modern Movement

Two innovators in the current resurgence of bison down are important to note. Duane Lammers was the first in recent history to amalgamate enough bison fiber to have it commercially scoured, dehaired, spun, and woven into this beautiful cloth. Bison populations were decimated in the late 1800s (see page 57), and there wasn't a sufficient commercial supply of bison down available until about 1995, when the relatively new North American Bison Cooperative in New Rockford, North Dakota, ramped up commercial bison meat production to over several thousand head per year. Duane was then able to have access to a sufficient quantity of bison fiber for commercial processing.

Ruth Huffman of American Buffalo Designs Company was the first to work toward commercial application of bison fiber into usable products in modern times. Ruth's sweaters, ponchos, socks, and cowls are stunning designs produced using American bison down.

Dehaired bison cloud from the Buffalo Wool Company and (*above left*) bison and superwash Merino pin-drafted roving.

Photo by Matt Graves

such, their short, crimpy fiber retains a lot of the prairie landscape, which needs to be thoroughly removed without felting the down fibers. Scouring bison requires a lot of clean water and repeated long soaks.

Dehairing

Next, the fibers need to be separated, sorting the fine down from coarse hair. A bison fiber study done by North Dakota State University (see Resources) identified four, or possibly five, different fiber types on a mature bison. A dehairing machine can be used to separate the coarse fibers (primary coat) and guard hairs from the desired fine fibers (secondary coat). The dehairer works primarily by using centrifugal force, transferring the fine fibers between cylinders operating at different speeds, while the heavier, coarse fibers are preferentially ejected. The down is predominantly dark brown, but there are often light or white down fibers as well. There are no measurable differences between fibers of different colors, and when spun, it is all but impossible to see the white down. Unspun, it is relatively visible, but when the fibers are carded or combed and then spun, the down has a very consistent milk-chocolate color.

Blending and Spinning

Bison fiber can be blended with other compatible fibers to extend the available quantity of bison and to add other advantageous properties. Our first fiber blend was actually done to accommodate the machinery at a spinning mill. As the dehaired bison fiber made its way through the carding process and was passed from one carding machine to another, the fine web of short down fibers tended to break. Gary Boudreau, the spinner at Zeilinger Wool Company at that time, suggested adding a bit of fine nylon to the mix to help create a stronger web. Not only did this blend make carding and spinning easier, it also produced a yarn that was significantly stronger than the bison alone, resisted pilling, and was stable for making durable and comfortable goods.

We have since explored blending bison with other fibers with long staples, including Tencel, silk, mohair,

Bison or Buffalo?

Bison is the correct name for the largest native land mammal in North America. The term *buffalo* more correctly applies to the Asian water buffalo and the African Cape buffalo, which are scientifically distinct from the American bison. However, old habits die hard, and many people still refer to the American bison as "buffalo." In fact, we have called them buffalo in the United States for almost two hundred years. Our family companies Buffalo Gold Premium Fiber and the Buffalo Wool Company are in keeping with this long tradition.

camel, yak, and fine wools. Adding any of these fibers to bison down takes a bit of preparation. Choosing blending fibers that are fine and cut to a length of 2 inches or so seems to work very nicely with crimpy bison down. For our current line of products, we produce six blends in several different yarn weights in addition to fiber for spinning.

Preparing and spinning bison down, like any luxury fiber, requires technical knowledge of fiber as well as an understanding of the desired end results. Finding mills that can dehair and spin the fiber to our specifications has been a challenge, but the journey has resulted in some great partnerships and collaborations with some first-class textile processors in the United States. The process has also taught us a whole lot about what it takes to spin a good yarn. We now design our yarns based on tensile strength, abrasion resistance, insulation properties, moisture regain, and hand (the feel of the yarns in a finished garment).

Going to Market

Our first salable product was simply dehaired bison down roving, launched in 2005 at STITCHES West by Linda Cortright of *Wild Fibers* magazine. The spinning community devoured our roving and, to this day, we still produce and sell about 100 pounds of carded fine down roving each year.

With help from some wonderful fiber enthusiasts, we then started developing and spinning yarns for knitting, crocheting, weaving, and other fiber crafts. We worked with designers to create knitting and crochet patterns and kits.

Our original goal of diversifying the income generated by American bison to bolster their population growth led in so many directions. We have a growing line of felted bison and wool-blend hats with Bollman Hat Company, the oldest felt hatter in the United States, and we developed bison vending machines that bring warm socks and gloves to travelers, fishermen, and oilfield workers in Alaska.

In keeping with the native philosophy of respecting the animal by using every part, we have been developing uses for the secondary coarser fibers that are separated from the down during the dehairing process. We have used bison hair in everything from rugs to garden underlayment fabrics, fly-tying kits to felted insoles.

The History of Bison in North America

Editor's Note: For thousands of years, bison herds thrived in North America, playing a vital role in the landscape and in the lives of indigenous peoples. In the nineteenth century, bison populations were decimated, dropping from the millions to the hundreds.

Here are a few resources if you would like to learn more about this complex and difficult chapter of history and modern efforts to recover bison populations in North America.

InterTribal Buffalo Council, www.itbcbuffalonation.org

Locke, Harvey, ed. *The Last of the Buffalo Return to the Wild*. Banff, Alberta: Summerthought Publishing, 2016.

White, P.J., Rick L. Wallen, and David E. Hallac, eds. *Yellowstone Bison: Conserving an American Icon in Modern Society*. Yellowstone National Park, Wyoming: Yellowstone Association, 2015.

What's Next for Bison Fiber?

Even with an increase in both public and commercial bison herds in North America and an increased demand and production of bison meat, there is still a very limited and precious supply of fiber. With only an estimated 5,000 to 7,000 pounds of down available each year, it will never replace sheep wool, or even cashmere, as a mainstream fiber. Bison down is a luxury, and with responsible and sustainable practices, we can enjoy and wear this incredible natural resource for generations to come.

Resources

Braaten, Ann, and Robyne Williams. "Bison Wool Fiber Characteristics." North Dakota State University. www.ag.ndsu.edu/archive/carringt/bison/wool_fiber.htm

National Bison Association, www.bisoncentral.com

Bison thrive on native grasslands.


East Map
Blue River
Photos by Matt Graves

PROJECT

Trekking Socks

By Amy Tyler

I am always on the lookout for unusual fiber blends. At a fiber festival a few years back, I came across a carded roving that was a lovely dark brown blend of Huacaya alpaca and Babydoll Southdown wool. These two fibers are quite different from one another. Huacaya alpaca is soft and silky, not particularly elastic, has a reasonable staple length, and felts and shrinks quite easily. Babydoll Southdown wool, on the other hand, is not overly soft, is amazingly elastic, has a short staple length, and is resistant to felting and shrinking. Both fibers are warm, especially the alpaca. This was an unusual combination that I was compelled to try, and I wanted to spin it for socks.

I've tried knitting socks out of alpaca before. The pair I made was warm and cozy but felted and shrank so much they only lasted one year. I've also knitted socks out of several Down-breed wools, such as Suffolk, Hampshire, and Oxford. I've always appreciated their durability and resistance to felting. With this combination of Huacaya alpaca and Babydoll Southdown wool I hoped to get socks that would take advantage of the elasticity and durability of the wool and the softness and warmth of the alpaca.

Spinning Notes

When I sat down to try spinning this blend, I started with my default short draw (worsted) technique, where I draft untwisted fibers then allow twist to enter. I found that I was unable to get a consistent thickness in the singles because the roving behaved like alpaca (silky and somewhat slippery), and it also behaved like Babydoll (short fibers and super elastic). My go-to drafting strategy just wasn't getting the most out of this weird combination.

I changed my drafting to a version of point-of-contact long draw (drafting backward with twist between the two hands and drafting at a rate that was similar to the rate of entry of twist). Something was still not right, so I continued to explore and sample.

I ended up using a new-to-me combination of short- and long-draw strategies: drafting forward with some twist between my hands, and a lot of distance between my front and back hands. This worked, in part because holding my hands farther apart allowed me a better view of the thickness and twist of the yarn in the making.

I ended up with a lovely two-ply yarn that had a good amount of elasticity and softness, which is my preference for handspun sock yarn. I avoid adding a lot of twist in the spinning of the singles and in the plying, because I'm not fond of knitting with the ropey feeling of tightly twisted yarn. So, my handspun sock yarns are softer than those of most spinners. In order to get a durable sock, I knit at a relatively tight gauge.

I knitted these socks in August 2015. So, they have been used for four falls and winters. They are still a delight to put on my feet, and a great comfort for a walk in the woods. I am quite pleased with how well they have held up!

Amy spun a soft 2-ply yarn and knitted at a tight gauge to create a sturdy sock.

Finding Clarity

Very dark fibers can be difficult to see, and I admit that my eyes aren't what they once were. Because I was spinning a thin singles yarn out of this dark fiber, I needed to make adjustments. I used stronger reading glasses than I typically wear and found a spot in my house with good light. A white or light-colored lap cloth for contrast helped, too.

Materials

Fiber 4 oz carded roving blend of 70% Huacaya alpaca and 30% Babydoll Southdown wool.

Yarn 2-ply; 320 yd; 1,523 ypp; 12-14 wpi; DK weight.

Needles U.S. size 1 (2.25 mm). Adjust needle size if necessary to obtain the correct gauge.

Notions Markers (m); cable needle (cn); stitch holder; tapestry needle.

Gauge 32 sts and 44 rnds = 4" in St st.

Finished Size 7½" foot circumference and 9½" long from back of heel to tip of toe; foot length is adjustable.

Notes

- These socks are worked in the round from the top down, with a standard heel flap and heel turn, and a graduated wedge toe.
- They are worked at a tight gauge to make a durable fabric.

Stitch Guide

Uneven Rib Pattern: (multiple of 11 sts)

Rnd 1 *K1, p2, k2, p2, k2, p2; rep from * to end.

Rep Rnd 1 for patt.

Socks

Cuff

Loosely CO 66 sts. Place marker (pm) and join in the rnd. Work in Uneven Rib patt (see Stitch Guide) for 1¼".

Leg

Work Melting Cable chart over all sts until piece measures about 6½" from CO, ending with Row 20 of chart.

Heel flap

Next rnd K22, place next 34 sts on holder for instep—32 sts for heel flap.

Row 1 (WS) Sl 1 pwise wyf, purl to end.

Row 2 (RS) Sl 1 kwise wyb, k1, *sl 1 pwise wyb, k1; rep from * to end.

Rep Rows 1 and 2 until heel flap measures 2⅛", ending with a WS row.

Heel turn

Row 1 (RS) Sl 1 kwise wyb, k17, ssk, k1, turn.

Row 2 (WS) Sl 1 pwise wyf, p5, p2tog, p1, turn.

Row 3 Sl 1 kwise wyb, knit to 1 st before gap, ssk, k1, turn.

Row 4 Sl 1 pwise wyf, purl to 1 st before gap, p2tog, p1, turn.

Rep last 2 rows 4 more times—20 sts rem.

Next row (RS) Sl 1 kwise wyb, knit to 1 st before gap, ssk, turn—19 sts rem.

Next row Sl 1 pwise wyf, purl to 1 st before gap, p2tog, turn—18 sts rem.

Gusset

Next rnd K18 heel sts, pick up and knit 20 sts along side of heel flap, pm, work 34 instep sts in patt as established, pm, pick up and knit 20 sts along side of heel flap, k9 heel sts, pm for beg of rnd—92 sts total.

Dec rnd Knit to 3 sts before m, k2tog, k1, sl m, work in patt to m, sl m, k1, ssk, knit to end—2 sts dec'd.

Rep dec rnd every other rnd 13 more times—64 sts rem.

Foot

Work even in patt until piece measures about 6½" from back of heel, ending with Row 10 or 20 of chart. Work even in St st until piece measures 7" from back of heel, or 2½" less than desired finished length.

Toe

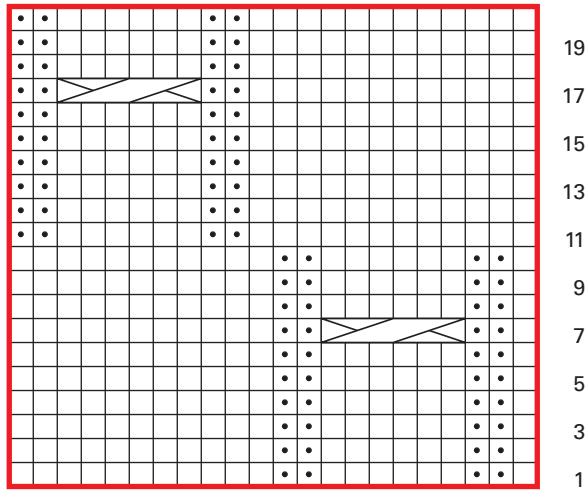
Next rnd K16, pm, k32, pm, k16.

Dec rnd *Knit to 3 sts before m, k2tog, k1, sl m, k1, ssk; rep from * once more, knit to end—4 sts dec'd.

[Work 3 rnds even, then rep dec rnd] 2 times—52 sts rem.

An alpaca and Babydoll Southdown blend led to socks that are soft, durable, and resilient.

Melting Cable



22-st rep

knit

purl

pattern repeat

sl 3 sts onto cn, hold in back, k3, k3 from cn

[Work 2 rnds even, then rep dec rnd] 2 times—44 sts rem.

[Work 1 rnd even, then rep dec rnd] 6 times—20 sts rem.

Rep dec rnd—16 sts rem.

K4. Break yarn, leaving a 15" tail. With tail threaded on a tapestry needle, graft sts using Kitchener st.

Finishing

Weave in ends. Block.

Resources

Alpaca/wool roving: It's Sew Ewe, Traverse City, Michigan, www.ItsSewEwe.com

Stanfield, Lesley. *The New Knitting Stitch Library*. Radnor, Pennsylvania: Chilton Book Company, 1992.

Amy Tyler lives in the northwest corner of the lower peninsula of Michigan, where there is an abundance of walking and hiking trails, and comfortable socks come in handy. Amy teaches spinning and knitting around the country. You can find out more about Amy's fiber work on her website, www.stonesockfibers.com.

THE GREAT FLEECE MAKEOVER

By Emonieiesha Hopkins

Photos by Matt Graves unless otherwise indicated

Let the hunt begin!

I love a good bargain. When I set my sights on something and spend days searching the internet for the best price, I feel totally accomplished when I find it. When I learned to process raw fleece, that "deal" desire never left, and I began to search for discount fleeces.

Because 99 percent of my fleeces are purchased online, I have to make sure that my deal is really a good deal when it arrives. When I first started processing raw fleece, I joined a few bargain fleece groups in which fleeces were practically a steal! At the time, I wasn't aware of the terms "handspinner's fleece" and "coated/jacketed fleece." As a bargain hunter in all aspects of my life, I knew fleece shopping had to yield good deals, too.

I know what you're thinking. You get what you pay for. You're right, I got what I paid for—but with a little patience, time, and effort, I definitely came out a winner. For handspinners, slow fashion is our goal; it's what makes our hearts sing. That's the attitude I like to have when I work with a marginal fleece. My heart leaps when I score a challenge fleece! I know I will get to spend quality time with my fleece, understanding all of its characteristics and transforming the wool into the very best fiber for me. I expect to spend more time processing a marginal fleece than a perfect, problem-free fleece, but with a little extra work, the results will be pleasing and most rewarding.

Not all shepherds have raised a handspinner's flock, but don't let that deter you from purchasing their fleeces. Time and patience can usually turn what looks like a hopeless fleece into handspun goodness.

Most of my marginal fleeces are purchased online, but certainly not all fleeces purchased online are marginal. I belong to several online groups whose members specifically state when fleeces are less than handspinner's quality. As I peruse the internet to find

marginal fleeces, I read the descriptions, carefully seeking out phrases such as, "This is a challenge fleece," or "Fleece may have cotted tips, heavy vegetable matter, or tender tips." Even though I shop for not-so-premium wools, I still hold the seller accountable with regard to the actual condition of the fleece and its shortcomings. This accuracy gives me an idea of what to expect. The secret ingredients are an open mind, patience, and proper tools.

Got Any Wool?

"You got any wool with that vegetable matter?" asked a fiber friend who saw me holding a fleece encrusted with chaff and hay. We had such a laugh, but that is what many handspinners think when fleeces are in such a pitiful state. "I would never sell that!" exclaimed a shepherdess in response to a "before" picture I posted of what could have been easily mistaken for shearing floor waste. And my favorite comment is "Life is too short to process a bad fleece."

But what exactly is a bad fleece? Vegetable matter (VM), muddy tips, yolk or canary staining, scurf, tender tips—we've all seen these words, and we politely scroll down past any fleece with these ill-sounding descriptors. After all, as handspinners, we've been conditioned to look for a handspinner's fleece with beautiful lock structure, 1 percent or less VM, and crimp that puts crinkle-cut french fries to shame. Don't get me wrong—I adore a handspinner's fleece, but I hold a special place for a fleece that goes from trash to treasure! Let me show you how I do it.

Planning and Organization

I am processing three fleeces: Corriedale, Cheviot/Dorset cross, and Merino/Romney cross. All are in less-than-desirable condition, but that's going to change! When any fleece arrives, I always sample a small 2-ounce portion. I live in a micro-condo and work on multiple projects at a time, so most often I do not process an entire fleece in one session.

My sampling materials consist of a three-ring binder, scrapbook pages that will accommodate 4-inch-by-6-inch index cards, and hang tags.

Once one lock of the fleece is stapled to the index card, I place the card to the side but near my processing area. I jot down my observations in real time while I am processing and have found this to be beneficial.

The Fleece Dirty Dozen

Marginal fleeces can have a host of conditions. Some spinners avoid these fleece flaws altogether. Other spinners, like myself, look closer to see what combination of problems a fleece has and the degree of damage before passing on an imperfect fleece.

1. **VM** (vegetable matter) Plant matter that is caught in the fleece.
2. **Cotting** Felting within the fleece that occurs on the sheep.
3. **Matted tips** Lock tips that are very dirty or are beginning to felt.
4. **Muddy tips** Lock tips that have soil mixed with wool grease.
5. **Burrs** Seedpods with Velcro-like surfaces that are embedded in the fleece.
6. **Poop tags** (also known as dung tags or dags) Parts of the fleece from around the sheep's tail; self-explanatory.
7. **Tender tips** Lock tips with exposure to sun and rain that can become weak and break easily.
8. **Second/short cuts** Short fibers created during shearing.
9. **Scurf** Hard-to-remove white globs in the cut ends of the fleece caused by lice or skin irritation in wet conditions.
10. **Dandruff** Skin flakes most commonly seen in breeds that naturally shed their wool; different from scurf.
11. **Breaks** Caused by weak spots in the fleece due to stress, nutrition, or health conditions.
12. **Staining** (also called yolk or canary stain) A bright yellow stain that doesn't wash out.

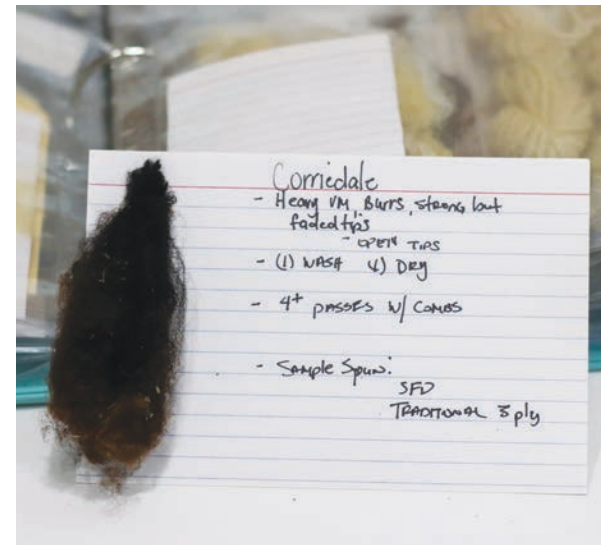


Photo by Emonieiesha Hopkins

My sample book contains index cards with sample locks and notes, singles yarn control cards, and finished yarn samples.

The index card is a great way to remain organized and research previously recorded fleece findings, and for a wool lover, it's just cool!

Fleece A: Corriedale

Overall Examination

When a fleece is shorn, it is commonly folded and then rolled with the cut ends of the locks facing outward and the tip ends of the locks hidden from view. I unroll the fleece and examine it with gloved hands; you never know what surprises such a dark fleece may have in store. I see VM and some second cuts but also very nice crimp.

Next, I decipher the VM. Is it large pieces, teeny pieces, sticks, or burrs? This fleece had all of the above!

Fleece A: The sun-kissed tips blended beautifully into the darker fleece after combing and spinning.

Vegetable matter is the first readily visible deterrent for a handspinner. Too much debris and landscape in a fleece can definitely be a turnoff, but I don't give in so easily.

In marginal fleeces, second cuts are common. Second cuts can be removed in some cases by shaking the fleece and carefully examining each lock from cut end to tip. Remember, patience is important.

Wool grease can also be a factor in a marginal fleece. With gloves off, I check the grease content by handling the fleece. Wool grease can be a spinner's delight, but in a marginal fleece, it may be a bit pesky. The grease can hang on to the VM and make it difficult, but not impossible, to remove.

Gloves back on! Brown fleeces can hide poop tags, so I wear gloves and conduct a diligent and patient search. One final check for this Corriedale fleece is to switch to my silicone gloves and randomly squeeze the fleece, checking for burrs or other potentially painful VM. Some burrs can easily puncture unprotected skin, and I don't like surprises.

Lock Integrity

Lock integrity is key! Yes, I am processing a marginal fleece, but the goal is to actually have enough quality wool to create beautiful yarn. I grab a few locks from various parts of the fleece, and then I look and listen carefully. I am looking for a difference in staple length that means some locks may need to be processed separately. Next, I check the locks for soundness by pinching each end of a lock and tugging in opposite directions a few times. I listen for a dry crackling, and this time I hear none. That's a good sign!

Now for the close visual inspection. I am looking for a physical break or a visible weak spot in the lock, referred to as a break in the fleece. No visible breaks or weak spots—score again! This Corriedale has sun-bleached tips, which is not an issue, but some of the tips are stuck together. How they are stuck is the important question. Are they felted, weak, or possibly matted? Or is it just a bit of wool grease holding them together? I fan the tips of the locks open to see if the fibers spread easily, and they do! Score again—no felted or matted tips!

Weak tips are another potential issue. They are the ends of a lock that break off easily when grasped or tugged. I want to identify any weak tips, as they will cause neps in the finished fiber if they break off during processing. I grasp the bottom three-fourths

It All Comes Out in the Wash

In a micro-condo, I have to get strategic when scouring fleece. I measure portions of about 2 ounces of a greasy fleece (or 3½ ounces of a not-so-greasy fleece) and place them in plastic storage boxes. With the contents of each box measured and ready to go, it is easier to manage the fleece processing.

Before the fleece hits the scouring water, I give it a final shake. This will release more VM and second cuts. The more that falls out now, the less I have to tackle when I get to the prep stage. It is easier to remove VM and short cuts from a fleece that is not heavy in wool grease.

I prefer Unicorn Power Scour because I find that it cleans fleece in minimal time. A little Unicorn Power Scour goes a long way, and I recommend following the instructions regarding temperature and the amount of detergent to use.

Scouring Supplies

- Plastic storage boxes
- Unicorn Power Scour
- Chopstick
- Hottest tap water (mine is 140°F)
- Stove
- 2 half-size anti-jam steam pans or 2 shallow pans large enough for wool you are washing
- Colander
- Spin dryer or salad spinner
- Silicone gloves
- Expandable herb dryer

I add detergent to the pan as I fill it with my hottest tap water. Then, I add the allotted fleece, submerge it with a chopstick, and heat it over medium heat for 20 minutes. I fill a second anti-jam steam pan with plain water, heating if needed so that the rinse water will be the same temperature as the scouring water. After the wash, I can evaluate the fleece to see if it needs more than one wash based on the cleanliness of the locks and if I still feel wool grease. I wear silicone gloves to gently pour the fleece into the colander.

I add the freshly drained fleece to the second pan of rinse water leaving the fleece in the rinse water on the stove for 10 minutes on medium heat, and then repeat the rinse process. After rinsing, I drain the fleece in the colander, then spin it in the spin dryer for 3 minutes. I remove the fleece from the spin dryer and gently pull the wet fleece apart, spreading the locks open. I hang the fleece in an herb dryer with eight layers, which is airy and allows the fleece to dry by the end of the day. The dryer is also very compact; it folds to the diameter of a dinner plate, which is great for my small space.

of a lock, pinch the tips, and tug. Score again—no weak tips. It looks as though I have a sound but veggie-filled fleece. (I notice a few burrs, so thank goodness for silicone gloves!)

Scour and See

This fleece needs only one wash. I take time once the fleece is clean to reinspect for anything that I may have missed. Burrs, poop tags, and large pieces of VM will now be more apparent, even on such a dark fleece. I give the fleece another good shake and release even more VM.

The Process

When working with marginal fleeces, wool combs are my favorite tool. I absolutely love combing fleece, so marginal fleece preparation is right up my alley. When I prepare fleeces, whether marginal or not, I prefer to comb and use a combing milk.

My clean locks are disorganized after washing, but this fleece has sun-kissed tips, and I can easily see the tips. For this project, I wanted to blend the light tips and the dark remainder of the lock, so I lash the locks on the combs in no particular order. My combing milk recipe fits in a TSA-approved spray bottle and consists of a dime-sized squirt of hair conditioner and the rest of the spray bottle filled with water. The combing milk eliminates the static and any flyaway fibers during combing.

I use two-pitch combs that have two rows of tines to help remove VM in each combing pass. I determine how many combing passes to make based on the amount of VM and how smooth and compressed I want my handcombed fiber to be. I record the number of passes on an index card and diz the fiber off the combs. Then, I wrap the sliver around my index, middle, and ring fingers and push the tip into the center to make a little nest.

Fleece B: Cheviot/Dorset Cross

Overall Examination

I admit that this fleece was described in two words: a disaster! As a handspinner, you would not walk but run past this fleece upon first sight. There is a lot going on in this fleece, so let's dive in. Gloves, please!

This fleece is not easy to examine visually, so I move very slowly. Right off the bat, I can see the fleece is downright filthy. I'm not sure if what I see are poopy tips or muddy tips, but for sure there's an abundance of VM. The VM in the locks extends from the cut ends to the tips like specks of pepper. I notice that this fleece is definitely yellow, so I know I also have some yolk or canary staining to contend with. Later, in the wash, I will assess which of the staining issues I have in this particular fleece. There also seem to be a few wiry white kemp fibers. Kemp fibers are short fibers that are itchy and brittle if left in the finished yarn. The fleece was sheared in one blanket, so there are no second cuts visible at this time.

Lock Integrity

With gloved hands, I pull a few locks from various parts of the fleece and examine them. I see that most of my investigation will have to be done after the scour for this fleece. Determining lock integrity is a bit tricky because the tips are stuck together and will not give me a good tender-tip test, so I will check after washing.

Fleece B: The yellowing, kemp, and gummy dirt at the tips disappeared with washing and combing, leaving creamy white wool.

Scour and See

The moment of truth! Remember the yellow issue? Now I can see if it will wash out or if it will be a permanent stain, or a bit of both.

After washing, the fleece still looks undesirable, but I see that it's now more white than yellow. Score! I check the stability of a lock by pulling horizontally from cut end to tip, and it is sound—just yellow and still full of VM. I give the clean fleece a good shake and

am successful in releasing more of the nasty VM. There is still quite a bit of VM, but the combs will remedy that. I take time to pull the locks open, being careful not to rip the fleece but spreading the fleece apart as if to make a fiber cloud. This releases more VM and prepares the locks for lashing onto the wool combs.

The Process

Multi-pitch, high-quality wool combs are a must-have with this Cheviot/Dorset. I lash my newly made clouds onto the combs with ease. To lessen static, I spray the fiber with combing milk, then start my passes with the combs. Having a fleece in this condition can take several passes and even requires manual removal of VM, so I am patient and enjoy the transformation. I record the passes on my index cards, diz the sliver off into nests, and prepare to spin.

Fleece C: Merino/Romney Cross

Overall Examination

At first glance, this fleece looks as though it was swept up with the shearing floor waste, and that's exactly what I thought it was when I received this fleece. There is yellowing, and possibly staining, halfway down the locks, along with VM as fine as grains of sand. Upon touching the fleece, it feels as if it has no wool grease, and the VM is simply falling out. I can tell that this fleece will take additional time in the processing stage.

Lock Integrity

I first snap a lock, as the stain that is midstaple needs to be assessed for a break or weak spot in the fleece. Luckily, the fleece has good lock integrity. The midlock staining looks as though it's dirt, but the scouring will yield final confirmation. I do hear dry crackling sounds when snapping the lock, but there is no breakage. To my delight, the sound was the VM falling out as the lock expanded. There are no burrs, tags, or other undesirables, but the fleece will definitely need a good shaking.

Scour and See

After shaking the fleece for a good 2 to 3 minutes, I am ready to wash. The minimal wool grease is definitely an asset here, and the fleece looks great after scouring except for the remaining VM. I shake the fleece once more after it is dry.

The Process

Combs are the best tool to use to remove this tiny pepper-like VM. In the end, this fleece takes six combing passes—slow fashion right here! I diz the sliver into nests, ready to spin.

Fleece C: From VM-filled mess to springy and clean with a little TLC.

Photo by Emonieiesha Hopkins

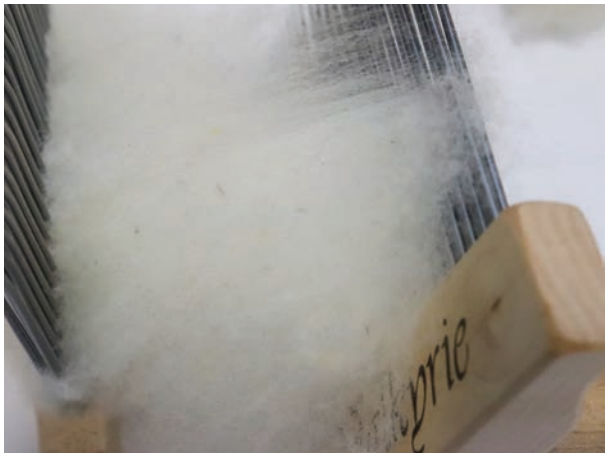
Emonieiesha's fleece-processing supplies: Valkyrie Extra Fine wool combs with comb pad and clamp, needle gauge used as a diz, and combing milk made using a squirt of hair conditioner in a spray bottle of water.

Spinning

I often spin hand-processed fibers on my e-spinner, a Woolee Ann. Woolee Ann has a digital display, and I record the rpm (revolutions per minute) on an index card. I spin all three of these samples with a short-forward draft and ply the yarn as a traditional three-ply.

Finally, I add tags to each sample yarn and file it in my sample binder.

Emonieiesha Hopkins is a Chicago fiber evangelist. She loves to gather with her wool and good fiber friends—any time, any place. Emonieiesha can be reached via www.hopkinsfiberstudio.com.



Wool combs are a great tool for removing debris from marginal fleeces.

Tips for transforming a fleece from "What in the world?" to wonderful.

- Take your time and be patient.
- Don't judge a fleece too harshly.
- Fleeces with less wool grease release VM and other undesirables, making them easier to process.
- Try to see past the VM and closely examine the lock integrity.
- A quality set of wool combs are a great investment.
- Enjoy the process.
- Take good notes.

MONARCHS, MILKWEED, AND YOU

Photos by Matt Graves unless otherwise indicated

Milkweed floss emerging from its pod.

By Kathy Augustine

Often overlooked or considered by some to be a noxious weed, the milkweed plant is a key link in the survival of the monarch butterfly, which is found throughout North America. In autumn, the milkweed's horn-shaped pods break open and release 50 to 100 seeds, each attached to a parachute of silky floss that carries the seed on the wind.

Many curious spinners have watched milkweed floss emerging from ripened seedpods and wondered about the yarn it might make. While we're not likely to find an abundance of milkweed floss at our next fiber festival, this surprisingly tenacious plant fiber can be a wonderful addition to our yarn. If we replant the seeds as we harvest the fiber, we are also helping to propagate an important part of the monarch's ecosystem.

Multipurpose Milkweed

The father of modern taxonomy, Carl Linnaeus, learned of the many folk-medicinal uses for the plant and named the genus for milkweed after the Greek god of medicine and healing, Asclepius.

In addition to its long-recognized medicinal qualities, milkweed has been used as a fiber source. As a bast fiber, the stems were a reliable source of cordage for Native Americans. During World War II, after losing access to kapok, a seed fiber from the Philippines that was used for life jackets, the United States found the hydrophobic (water repellent) properties of milkweed were an effective substitute. To process the fiber, the Milkweed Floss Corporation of America was established in Petoskey, Michigan, in 1942. The government slogan "Two Bags Save One Life" referred to needing two mesh onion bags full of ripe pods (about 20 pounds) for each life preserver produced. The need for milkweed was great, and because it was not a farmed crop, ordinary citizens and schoolchildren answered the call for picking ripe pods by scouring country roadsides and railroad tracks for the plant. Although the

Milkweed Corporation was short-lived (it closed after the war), enough seed floss was collected and processed to fill about 1.2 million life preservers.

Today, milkweed's many beneficial properties are becoming newly appreciated. Along with its use as a natural insulator in jackets and comforters, researchers discovered that the floss readily absorbs oil while simultaneously repelling water, thus making it an effective fiber to help clean up oil spills. And for handspinners, it can be a special additive to our yarn.

Monarchs and Munching Caterpillars

After mating, the female monarch butterfly will search for milkweed plants—this is the only plant on which she will lay her eggs. Each egg (about 1.2 millimeters high and 0.9 millimeter wide) is deposited on the underside of individual milkweed leaves.

In about four days, the egg hatches when a tiny caterpillar eats its way through the shell. After that, the caterpillar relies solely upon the milkweed plant for all of its nutrition. During the next 10 to 14 days, it will go through five instars, or growing stages. At the end of each stage, it will molt, or shed its skin. From an approximate length of 2 to 6 millimeters at its first instar, the monarch caterpillar will grow into a plump 25- to 45-millimeter eating machine by its fifth and final instar.

At this point, the caterpillar will find a safe location to transform into a smooth, green chrysalis. Metamorphosis, which lasts 10 to 14 days, is the restructuring of the tissues of the larval caterpillar into the adult butterfly that will emerge from the chrysalis.

Milkweed and Sheep

Although milkweed is essential for monarch butterflies, it can be deadly for sheep and other pasture grazers. In the United States, there are 76 milkweed species identified by the USDA, but not all species are equally toxic. The plants, whether fresh or dried, contain cardiac glycosides that can cause an electrolyte imbalance in the heart muscle. Only 1 to 2 ounces of leaf material could be lethal to an average-sized sheep.

Because of its bitter taste, most grazers avoid the plant; however, poisoning can occur when hungry animals have inadequate pasture. My local veterinarian, Dr. Justin Cunfer, stated that in nine years of practice he has never had an animal issue with milkweed poisoning, but he also confirmed the importance of sufficient forage and good pasture management.

Photo by Kathy Augustine

Monarch caterpillar on a milkweed leaf.

Monarch butterflies that emerge from the chrysalis at the end of the summer will be the generation that will make the incredible migration journey. Depending on where they begin their journey, some will travel over two thousand miles to their winter grounds in the high-elevation *oyamel* fir forests of central Mexico. Here, in dense clusters among the branches of the oyamel fir trees, millions of monarch butterflies overwinter for several months in a semidormant state until warmer temperatures (sunny and above 55°F) when they will begin the mating and reproduction cycle all over again as they migrate north.

A Threatened Species

Monarch butterflies are at risk for extinction. In 2016, the monarch population of 150 million, up from an alarming 42 million in the previous year, still showed a steady decline of 68 percent over 22 years. Only large populations can help a species endure unpredictable threats, such as the single storm in 2002 that killed an estimated 500 million overwintering monarchs. Conservation programs, such as the Monarch

Photo by Kathy Augustine

Flowering milkweed plant.

Photo by Stephanie Augustine

A tagged monarch butterfly.

Monitoring Project affiliated with the Cape May Bird Observatory in New Jersey, have researched the migration of monarchs for years and have increased public awareness. Many factors have contributed to the shrinking monarch population, including deforestation of their winter grounds, severe weather patterns, and a diminishing availability of milkweed plants. "Habitat loss and modern agricultural practices have resulted in a dramatic decline in milkweed, and therefore a decline in monarch numbers," points out Mark Garland, director of the Monarch Monitoring Project, who has been studying monarch migration for nearly 30 years.

Conservation biologist and former monarch butterfly field naturalist Stephanie Augustine shares that there are a number of ways that people can help conservation efforts, including data collection. "Monarch tagging is a massive citizen science project, amassing much more data than professional resources could easily gather. Because monarchs are such a charismatic species, it is easy for anyone to snap a photo of a tagged butterfly, report it to the Monarch Watch monitoring program, and help contribute to the research dedicated to saving the monarch from extinction." (See Resources.)

Finding Milkweed

During the summer months, locate where patches of milkweed plants are growing in your area. Because it is considered a weed, the plants are often found along roadsides and unused fields. Common milkweed

Play It Safe

- Extreme care should always be taken when handling milkweed. Many people report mild to severe allergic skin reactions from the sticky milky-white sap. Eye contact with the sap is even more dangerous and could result in corneal endothelial toxicity, with symptoms such as blurred vision, light sensitivity, and pain. It is recommended that you wear gloves while handling the live plant and always wash hands thoroughly afterward.

- When handling the dried seedpods, it is advisable to work in an unventilated room because the slightest air current can catch the fibers and set them adrift. Be sure to keep any loose fiber away from your face and be careful to not inhale any of the fine seed down.

Photo by Kathy Augustine

(*Asclepias syriaca*) grows to 2 to 5 feet tall. Attached directly to the erect, sturdy stems are ovate leaves, 4 to 7 inches in length, that bear a prominent midrib. The milky white sap for which the plant was named will immediately ooze from a broken stem or leaf. Fragrant flowers (colors vary with species) are arranged in ball-like clusters at the tops of stems.

After identifying the milkweed plants, carefully check the leaves for the presence of monarch caterpillars, which can be easily identified by their iconic black and yellow stripes. Don't be surprised to find other inhabitants because many other insect species also depend solely upon milkweed for their nutritional needs.

As autumn approaches, where there were once clusters of flowers, long gray-green seedpods will appear. These pods, upon maturation, will split open to reveal seeds arranged like fish scales along a fleshy core. Each seed is attached to a tuft of fine silky down that facilitates its airborne flight. Harvest mature pods by snipping them off the plant with sharp scissors. Allow the pods to dry thoroughly by spreading them on a drying rack that allows air circulation. Store dried seedpods in a paper bag to reduce chances of molding. When cleaning and collecting the fiber, be sure to save

Buchanan Fiber Company

Sarah Buchanan earned her bachelor's degree in Spanish and Wildlife Ecology from the University of Wisconsin-Madison. While collecting milkweed seeds as part of prairie restoration work in Wisconsin, she became entranced with the leftover floss, prompting her to explore possible uses for it. Initially, she hired a local spinner to experiment with the fibers, but then Sarah essentially fell down the fiber rabbit hole when she learned to spin. In combining her love of fibers and her passion for conservation, her business, Buchanan Fiber Company, was born.

Her Etsy shop offers a range of hand-dyed fibers, some of which are blended with milkweed floss. When dyeing milkweed floss, Sarah uses fiber-reactive dyes. Because of its inherent nature to resist water, she makes sure the floss is wetted throughout the process. As a bonus, Sarah reports, "The milkweed behaves much better after dyeing—much less prone to flying about." She uses organic fair-trade cotton and sources her Rambouillet/Merino fleece from a family farm in Nelson, Wisconsin. The milkweed pods obtained from various conservation organizations are cleaned, and then she returns the seeds to each group for prairie restoration. Because of her positive experience from an internship in Ecuador, Sarah donates a percentage of select sales to Las Gralarias Foundation, which raises funds for Reserva Las Gralarias in Mindo, Ecuador, with the goal of protecting land in the cloud-forest habitat. Learn more at **www.buchananfiber.com**.

Photo by Kate Larson

Dyed milkweed blended with Rambouillet/Merino wool.

the seeds and then redistribute them in locations ideal for a milkweed habitat or monarch way station.

Blending & Spinning Milkweed

Milkweed seedpod fiber, or floss, tends to create a brittle yarn when spun alone. But blending the floss with another fiber such as wool or cotton will add structural strength to the shimmering milkweed fiber. The ratio of wool to milkweed blend is a personal preference, although it is important to keep a higher percentage of wool for the sake of strength and structure.

The process of blending milkweed floss with wool is similar to creating any carded wool rolag or batt, such as those combined with silk or mohair. As with any specialty fiber, if the milkweed is overcarded, it can break and tangle.

For this sample, dried milkweed floss with a staple length of 1½ inches (3.8 cm) was blended with wool from my Icelandic/Finn ewe, Isabella, that had a staple length of 3 inches (7.6 cm). Blending fibers with different staple lengths is easily done with handcards or a drumcarder. Whichever carding method you choose, the floss should be sandwiched between layers of the base fiber to tame any flyaway fiber. While blending, keep your seedpods covered and be careful of inhaling flyaway floss.

Sampling

I worked in small batches, blending the milkweed and wool fibers with handcards to create rolags for woolen spinning. The two-ply yarn at 8 wraps per inch I created was about an 80 percent wool to 20 percent floss ratio. I decided on this proportion because I wanted to avoid muddying the colors in the finished yarn. The contrasting shine of the milkweed adds a fun bit of shimmer and texture when combined with Isabella's natural coloring, creating a luxurious tweed effect.

Working with milkweed floss as an additive to wool provides the handspinner an unexpectedly sound blending fiber. Although changes in agricultural practices and the increase in suburban sprawl led to a decline in the unfettered growth of the milkweed plants that provided the monarch's natural habitat, through conservation practices, we can begin to reverse the damage. After collecting the milkweed pods for their shimmering pockets of fiber, you can redistribute the seeds to help ensure a new generation of milkweed plants and also a new generation of monarch butterflies.

From top: Milkweed floss and washed fleece, handcarded rolag, and handspun two-ply yarn.

For More Information:

Cape May Bird Observatory, www.njaudubon.org/centers/cape-may-bird-observatory

Center for Biological Diversity. "Saving the Monarch Butterfly." www.biologicaldiversity.org/species/invertebrates/monarch_butterfly/

McCormac, Jim. *Milkweeds and Monarchs*. Columbus: Ohio Department of Natural Resources, Division of Wildlife, Pub. 5474 (0115), 2015. http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/publications/id%20guides/Milkweeds&Monarchs.pdf

Monarch Watch, www.monarchwatch.org

Taylor, Orley. "Biology of the Monarch Butterfly." *Kansas School Naturalist,* 62(2), November 2017, 1–13.

Wykes, Gerald. "A Weed Goes to War, and Michigan Provides the Ammunition," *MLive,* February 4, 2014. www.mlive.com/news/2014/02/a_weed_goes_to_war_and_michiga.html

Kathy Augustine became fascinated with monarch butterflies after her daughter raised them for a homeschool project. As a fiber enthusiast, it seemed only natural to experiment with the milkweed seedpod floss. She and her husband live in Pennsylvania with their furry and fleecy family of several cats, a dog, a mohair goat, and sheep.

Photos by Matt Graves unless otherwise indicated

Wild Core Spinning

Tips from a Texture Lover

By Ashley Martineau

Core spinning is an excellent method to create wild yarns, and the opportunities for spinning fun, textured fibers around a core thread are endless. Typically, this yarn construction includes two elements: a core thread and fibers that are wrapped on the surface, covering the thread.

I love exploring the full range of texture from tame to wild by using as many combinations of fibers, embellishments, and core threads as I can dream up. For example, you can keep your core-spun yarns smooth and fine by using a lightly textured art batt. To increase the texture, you can go wild with locks and embellishments. Changing the core threads to hemp, wire, or elastic provides even more avant-garde opportunities in your handspun.

Choosing a Core

When core spinning, twist inserted into the yarn by the wheel is transferred to the core, not the wrapping fiber. This can stress the core thread, particularly when creating heavily textured yarns. For that reason, I prefer core spinning on crochet cotton, loop mohair,

or brushed mohair threads. These threads are strong enough to be put under tension without breaking, and they can take a lot of twist without a struggle.

The millspun core options shown here start with a balanced twist, so some spinners like to add twist in one direction to the core and then core spin in the opposite direction to balance the twist once again. I don't usually do this because I like extra texture and energy in my handspun. If my core thread collects too much twist, it might become difficult to manage. If this happens, I continue core spinning over the section with extra twist and then move forward on new, balanced thread.

My suggestion is not to worry about keeping your core thread perfectly balanced while you core spin. With practice and experience, your core-spun yarns will become more balanced.

Wheel Adjustments

Core spinning on a spindle can be great fun, but I focus on using a spinning wheel in these tutorials. Smoother, finer core-spun yarns are easy to accomplish on most modern spinning wheels. Some spinning wheels are specifically designed to allow you to easily create larger gauge or textured yarns. Look for wheels that offer a larger orifice, hooks or pegs that will not snag fibers, and slow pulleys.

I always recommend core spinning with your slowest ratio, especially for spinners new to this technique. Using a pulley (whorl) with a ratio of 6:1 or lower is ideal. If you are continually getting too much twist in the core thread as you spin, and if you've already lowered the ratio, try treadling slower. As you get more experience core spinning, you might find that a slightly higher speed helps you spin at a more comfortable pace.

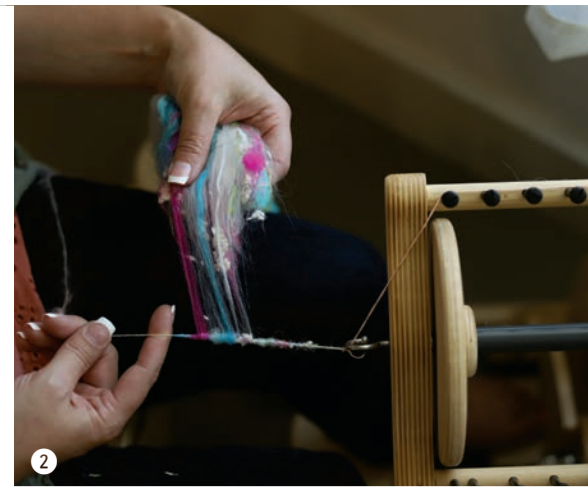
What Type of Spinner Are You?

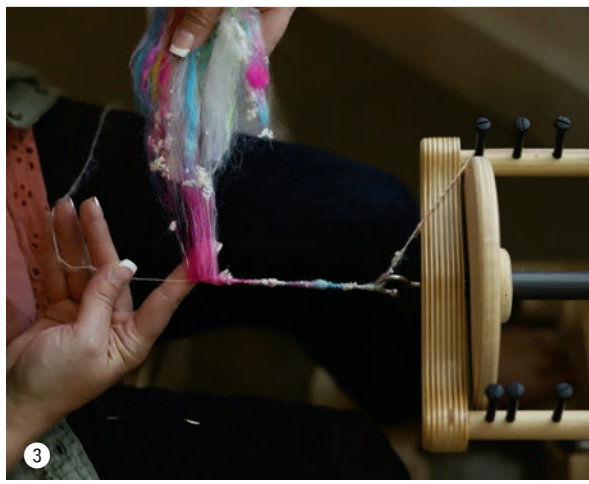
I think there are two types of spinners when it comes to take-up tension: givers and takers. Givers like to spin a length of yarn and "give" it to the wheel. They feed their bobbin in long lengths of yarn. Takers like to feel their wheel pull the yarn into the orifice while spinning. As they spin, they continually feed yarn into the bobbin.

If you are a giver, you will most likely need to increase tension for core spinning. Most core-spun yarns are bulkier than traditional yarns, and bulky yarns typically require more take-up. However, don't set the tension so high that the yarn is yanked into the wheel and you can't control it.

If you are a taker who usually spins with high take-up tension, you might need to decrease your wheel tension for core spinning. This will give you the extra time you need to wrap the fiber around the core before it pulls into the orifice. Your tension should gently pull the yarn through the orifice as you are core spinning at a speed that works for you, without building up too much twist or allowing the yarn to fall apart from too little twist. (For more help, see Troubleshooting on page 82.)

Core threads from top: black nylon threads, wire, loop mohair, brushed mohair, and crochet cotton.





Action photos by Nora Taylor

Core Spinning Art Batts

Prep: Split your batt into strips if desired. Predraft the carded fiber so that it is loose enough to allow the fibers to easily slip past one another.
Materials: Brushed mohair core and an art batt from Classy Squid Fiber Co.

Insert the core thread into a bobbin leader with a loop. Hold the fluffy end of your predrafted fiber at a 90-degree angle to the core where it meets the leader (fig. 1). Begin treadling slowly as you allow the fiber to catch onto the thread and begin wrapping (fig. 2). After it catches, continue holding it at a 90-degree angle, bringing the fiber down the core thread as it wraps (fig. 3). Treadle slowly using a slow ratio so you don't build up too much twist as the fiber is pulled from the fiber supply and wraps around the core. When you are done spinning, tie the end of the yarn in a knot. If you have active twist that built up during core spinning, keep the yarn under tension as you wind it into a skein and don't allow the ends to go slack, or they may ravel. Wash or steam to finish.

Controlling texture: With this core-spinning method, the thickness of the yarn is determined by the amount of fiber you allow to wrap around the core. You can fine-tune this during predrafting, or by holding the fiber supply closer to or farther from the core during spinning. For a bulkier yarn, allow more fiber to wrap around the core. For a thinner yarn, allow less fiber to wrap around the core.

Action photos by Nora Taylor

Core Spinning Locks

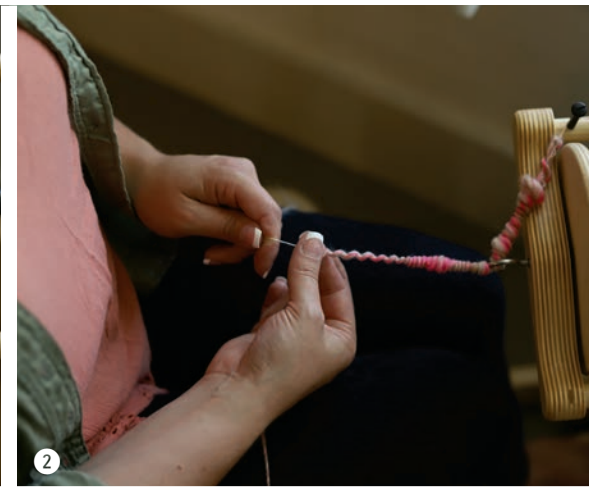
Prep: Handpick your locks, slightly teasing them so that some of the locks remain intact but there are separated fibers that can easily grab onto the core.

Materials: Brushed mohair core and washed Teeswater locks.

Hold the slightly teased locks at a 90-degree angle to the brushed mohair core thread (fig. 1). As the locks begin wrapping around and down the core, continue holding the fiber at a 90-degree angle (fig. 2). Place your index finger under the fiber as you spin to smooth, support, and control the fiber as it wraps (fig. 3).

A mohair core thread works great for wool locks because the fuzzy texture is easy for the locks to grab onto. Using a mohair core thread that matches your locks is ideal, so it blends in with the final yarn.

Controlling texture: The more you handpick the locks, the fuzzier your yarn will appear. More picking will allow you to spin a smoother yarn that covers more of the core, while less picking produces a wild, natural texture.



Action photos by Nora Taylor

Core Spinning Coils

Prep: Spin a singles yarn with Z-twist (clockwise).
Materials: Cotton crochet thread for the core and a slightly textured singles yarn for wrapping.

Tie the core thread and wrapping yarn into a knot and secure to the bobbin leader. Begin spinning with S-twist (counterclockwise) so that you are core spinning opposite the direction that the wrapping yarn was spun. As you treadle, hold the wrapping yarn at a 90-degree angle to the core thread (fig. 1). To create a loose coil, allow the core thread to show between the yarn wraps (fig. 2). To create a dense coil, allow the wrapping yarn to accumulate on several inches of the core and then push the wraps forward (fig. 3).

Cotton crochet thread works best for this core as it is very strong and smooth enough to push your yarn forward without too much friction. If you prefer core spinning with Z-twist, simply spin the wrapping singles with S-twist.

Controlling texture: You can produce wildly different coils by changing the gauge and texture of the singles yarn that is used to wrap the core. Try consistent singles, both fine and bulky, for a smooth coil yarn, or you can try singles with slubs to boost the texture of the final yarn.

the spool again. While you spin, twist will travel down the wire and cause the spool to spin freely as you wrap the fiber around the wire core.

Elastic Core

Elastic yarns are fun to use in scarves and cowls to create ruffles and texture. Using an elastic yarn under tension in a mixed warp when weaving will create ruffles in your fabric when you take it off the loom.

I recommend the elastic thread used for smocking because it has cotton around it that provides a surface texture for the fiber to grab on to. When core spinning your fiber over the elastic thread, keep the thread under tension (stretched) while you core spin. However, be careful not to overstretch or break the elastic.

Left: Handspun created using a wire core thread. *Below:* Handspun created using elastic core thread.

Tips for Fine-Tuning Wild Texture

Building on these basic core-spun yarn designs you will discover many other opportunities to modify structure and texture.

Wire Core

Wire core yarns are fun to sculpt into vessels, weave into textured cloth, and more. Beading wire and floral wire work well and are available at most craft stores. To start, take 12–18 inches of wire off the spool and then secure the spool so the rest of the wire does not unwind from the spool as you spin. Secure the wrapping fiber and begin core spinning down the wire. When you reach the spool, unwind another short length and secure

Photo by Nora Taylor

Surface Thread Wrap

A thread wrap can be used to embellish your yarn and secure wild texture, such as locks. If you have a traditional tube orifice, you can set your thread cone or spool on the floor between your feet and let the thread travel up to the orifice and wrap around the yarn before it goes into the orifice. However, if you have an open or delta orifice or simply want more control, hold the thread with your finger to prevent the thread from getting tangled around the orifice. For additional color and texture, try adding multiple types of threads on the surface of your core-spun yarns.

Ashley Martineau is the author of *Spinning and Dyeing Yarn,* a beginner-friendly guide to everything you need to know about spinning your own yarns. She has been spinning unique yarn textures since 2003 and teaches creative spinning lessons on her video channel at www.howtospinyarn.com. Ashley loves her SpinOlution wheel and uses her handspun yarns in handwoven clothing and textiles.

Troubleshooting

Too much twist? Make sure you are using your slowest ratio, and if so, treadle slower. Many experienced spinners core spin fiber over any sections of core thread that have built up excess twist; it does not create a problem.

Too little twist? Adjust your wheel to a faster ratio. For a smaller adjustment, try treadling a little faster.

Take-up problems? If the yarn is not pulling onto the bobbin, add tension. Still no take-up? Check your flyer guides. If they are narrow or hooked, they may grab onto textures or bulkier yarns.

Orifice problems? The size and type of your orifice may limit the type of core-spun yarns that you can spin on your wheel. If you have a narrow orifice, you won't be able to fit bulkier textures into it. Take note of the size of your orifice and as you are drafting fiber onto your core thread, don't draft more than will fit through your orifice. An open orifice or one that can be bypassed allows for the most dramatic and wild core-spinning textures.

Slippery locks falling off the core? Try spinning very slippery locks while they are slightly damp. The water creates a natural friction that secures the locks and makes them easier to core spin around the core thread.

Local Bast
Adventures in Wild Retting

By Karlissa Keller

Photos by Matt Graves unless otherwise indicated

Most spinners have wild plants—natives, invasives, or maybe both—growing in their region that can be processed into spinnable bast fibers. Depending on your climate, you might have plants such as nettle, flax, mulberry, milkweed, linden, or Caesar weed growing nearby. Some are considered weeds by many people, which just gives us spinners further encouragement to make use of this wild fiber stash!

When it comes to bast fibers, extracting the usable fiber from the plant can take patience and practice. *Retting* is a common method of extraction that uses controlled decay to remove some of the plant matter, revealing the long, silky bast fibers within.

I began a project exploring the effects of different retting variables, such as time and light, using Caesar weed (*Urena lobata*), a bast fiber that is invasive and abundant where I live in central Florida. This now-wild plant was introduced to the United States for its fiber, which is strong and lustrous like flax and can now be found in warm regions in much of the country.

What Is Bast?

"The source for bast fibers, including flax, lies within the stem of the plant. Fibrous structures run the length of the stem, transporting food to and from the leaves and roots and giving the stem flexibility and strength. Bast fibers are the phloem, thick-walled tubes that grow just beneath the bark." —Stephenie Gaustad, *The Practical Spinner's Guide: Cotton, Flax, Hemp* (Interweave, 2014)

What Is *Urena Lobata*?

Caesar weed. Aramina. Bun ochra. Hibiscus burr. Whether you call it a pesky weed or fiber resource, *Urena lobata* is known by many names. Although the origin of the plant is unknown, researchers speculate that it came from a tropical region of Africa or South Asia.

Today, as in the past, Ceasar weed is grown primarily for its long bast fibers, found between the thin outer bark and the woody core. These fibers are most often grown as a substitute for jute or hemp.

Introduced to Florida in the late nineteenth century for making burlap, it promptly escaped and has been an invasive ever since. In the United States, Caesar weed grows in Alabama, California, Florida, Hawaii, Louisiana, and South Carolina. However, it could be grown as an annual instead of an invasive perennial in any state with suitable growing conditions for at least part of the year. In favorable warm and wet conditions, this plant grows, as they say, like a weed.

As *Urena lobata* is currently on several states' noxious weeds lists, never plant or scatter seeds anywhere that the plants can't be contained. Instead, I suggest doing as I did and gathering what you need from your local infested park after securing permission. You will be doing your bit for your local environment and collecting a fiber supply at the same time. With its dime-sized, light-pink, hibiscus-like blossoms; distinctively shaped, rough, fuzzy leaves; and not-to-be-forgotten seedpod burrs, this plant is easy to recognize.

Collecting Caesar Weed

I began by harvesting living stems that were about as tall or taller than myself (5 feet, 3 inches). I left the bundle in the sun for a day or so by accident, which had the happy result of drying all the leaves so they fell off with a gentle but thorough brushing.

The seedpods were more troublesome and are what earn this plant its fearful reputation. Do these seedpods stick to your socks and any other exposed fabric? Yes. Do they damage any delicate fabrics they come into contact with? Possibly. Draw blood? No. The little barbs covering the surface of the pod stick out in all directions and are rough but no sharper than the hooked side of Velcro in my experience. To avoid the complication of seedpods, cut the plants while they are in full bloom but before they have gone to seed.

Tread Lightly

When foraging natural materials for any purpose, always educate yourself first, ask permission from landowners, and follow ecological best practices.

Photos by Karlissa Keller

Karlissa bent the branches before retting, which resulted in some shorter and some longer fibers. *Right:* Retting tub with branches fully submerged.

Retting Process

My goal was to ret the plants long enough for the bast fibers to be loosened from surrounding plant matter and allow them to be cleaned further, but not to allow the retting to go too long so that the bast fibers themselves would begin to decay. Retting relies on microbial activity, so it is impacted by temperature, moisture, and the amount of time the plants are exposed to retting conditions. Where I live in Florida, winter and spring are the perfect times to process bast fibers, as the cooler temperatures help control the microbes that are doing all the heavy lifting and keep unwanted insects at bay. The retting for this project took place from April 22nd to May 17th. Temperatures usually ranged from high in the 80s and low in the 60s (Fahrenheit). Several heavy rains cooled things off, but they didn't seem to dilute the retting water too much.

I placed my retting tub—a 45-inch plastic kiddie pool—far enough away from foot traffic to be undisturbed and covered enough to be bug-free.

After retting for only nine days, the fibers are just beginning to be released from surrounding plant matter.

Photo by Karlissa Keller

As the fibers peel off the branch, they have a beautiful lacy structure. This sample is nearly done retting.

Most of my branches were longer than my 45-inch tub. I bent each one neatly in half, careful not to pull the two pieces entirely apart. This approach does break the fiber on one side of the branch, but the full length on the other side was preserved, allowing me to process some fibers that were much longer than my retting tub. This produced two bundles of shorter fibers (still 2 to 4 feet long) and one bundle of long fibers the full length of the branch. Cutting branches exclusively to fit in the retting tub would have been another option and would still offer long bast fibers.

After removing the leaves, seeds, and flowers, I submerged the stems in my retting tub with some stones placed over strategic branches to hold everything under the surface of the water.

Sampling and Checking Progress

About every nine days, I processed a sample of the fiber. To do this, I selected a stem, carried it out to the lawn, then rubbed off the slippery slime that results from rotting vegetable matter (in this case, bark). I rinsed each one, either while I was removing the majority of the gunk or after. Then, I peeled the fiber away from the woody core underneath, trying to pull it off in the largest cohesive bundles I could manage.

For good measure, I gave the loose fiber another rinse before setting it out to dry in a partially sunny spot.

Because I initially left the smaller twigs on the stems, I had to work around these when removing the fiber later. Early on, I found that the shorter twigs did not contribute enough length to the final fiber length to justify working around them (and when they did, the fiber usually broke off at the node where the smaller branch met the main stem). I used a pair of pruning shears to remove all the small twigs from the first sample branch, making it much easier to loosen and remove the fiber.

By the time I took the third sample, the retting had begun to affect the woody cores of the plants as well

Try This at Home!

Tips for trying this in your own backyard:

- The retting water and "gunk" that used to be the outer plant bark has a swampy smell, and the smell may linger. I don't find it to be too strong, though, and the odor is greatly diminished after a generous wash with soap and water. If it bothers you, try scrubbing again with more soap and water, but for me, the smell was always gone by the next day, so patience may be equally rewarding.
- Wear old clothes! The retting residue produces copious greenish-brown stains—think grass-stain paint.
- Use the right tool for the job. From investing in hackles for processing this fiber to repurposing an old underbed storage bin for a retting tub, you can identify the job you want your tools to perform and determine if it's worth it to purchase the good stuff or whether you have something on hand that might do the trick.
- Trim liberally. The base of the plant where the outer bark is too tough to ret away and the tips of the plant where the bark may be dead and dried out, depending on the time of year, will not produce quality fiber, and it might not be usable at all. Trim these parts away as well as any small twigs before retting. As a result, you may find that smaller retting container was just the right size after all!

as the outer bark, so most of the twigs ripped off with a little pressure at the fork where they met the main branch, then slipped neatly out of the surrounding fiber. It was then much easier to remove every last bit of retted plant matter by just running a hand down the branch.

Retting Results

For the best and easiest-to-remove fiber under my retting conditions, I found that two to three weeks was the right amount of time. I also found that allowing the fiber to dry in place on the branch was helpful. When I removed the branches, I rinsed off every bit of retting gunk from the de-twigged plant stem, leaving the fibers in place, and let the branch and fiber dry in the sun. Then, I removed the fibers after they had dried on the stick. This method produced a beautiful bundle of fine, lustrous fibers that I could have almost removed one-handed, they came off so smoothly.

The fiber was just as fine as the flax I have in my fiber stash and even slightly more golden in color. With a hackle and evenly dressed distaff, I suspect this fiber would spin like flax or hemp into beautiful threads. However, in keeping with my "wild" experiment, I pulled out my favorite top-whorl spindle and handcards.

Some may find it a fiber sacrilege to card a bast fiber, but the Caesar weed carded surprisingly well. I experimented with drawing handcards through the dried fiber and found that the process broke some of the longer fibers into consistent sizes, a couple of inches long, which were perfect for handcarding. I had loosely rolled—but very fluffy—rolags in just a few minutes. As I spun a small proof-of-concept sample size, I broke the thread once in a very thin spot that was overspun. With even consistency and better twist control, this promises to be a good, sturdy fiber. I loved processing and producing this wild handspun yarn and will next try using hackles and a distaff to do this unusual fiber justice!

Resources

Encyclopedia Britannica, www.britannica.com/plant/urena-plant

Florida Exotic Pest Plant Council, www.fleppc.org/wildlandweeds/authorarticles.cfm?id=10

Natural Resources Conservation Service, www.plants.usda.gov/core/profile?symbol=URLO

Karlissa Keller has been crocheting ever since her mother taught her at age seven and spinning since her parents gifted her with her first spindle right before college. The rest is history. She rarely travels anywhere without at least one spindle, a crochet hook, or both.

Karlissa used a Schacht Hi-Lo as a high-whorl spindle to experiment with her finished fiber.

The Joy of Spinning Florida Native Cotton

By Elizabeth Prose

Photos by Matt Graves

Florida native cotton from left to right: undyed natural and dyed peach and turquoise.

In 2003, at a local native-plant sale, Caroline Tacker purchased three Florida native cotton plants for a dollar. She took the seedlings home and planted them in the front yard, where they grew and began producing cotton bolls. With a supply of new-to-her fiber, she began doing research on the internet for ways to use the cotton. A friend suggested she contact Heritage Village in Largo, Florida, and one of the employees taught Caroline to gin her cotton and spin it on a takli spindle. Caroline took quickly to the new skill, and soon she met other spinners and weavers at the local Pinellas Weavers Guild. We recently asked Caroline to share some of what she has learned about spinning Florida native cotton.

***Spin Off* (SO): How has spinning Florida native cotton fit into your life?**

Caroline Tacker (CT): I love teaching anyone who wants to learn about cotton and other fiber arts, and I take advantage of opportunities to show handspinning at the Florida State Fair or Heritage Village festivals. I also help promote spinning by participating in different events such as Spinzilla and Roc Day with the Pinellas Weavers Guild. It gives me a great sense of accomplishment to take something that I have grown, cleaned, prepared, and then spun into yarn, and then knit, crochet, or weave it into a usable product, such as a shawl, towel, or washcloth. Plus, I've met so many people while demonstrating spinning and talking about cotton, whether it's commercial cotton or the Florida native cotton I have grown in my front yard.

SO: What makes native cotton a challenge for handspinners?

CT: My Florida native cotton's staple length isn't more than one inch, so most people don't want to spin it. Another challenge is that Florida native cotton is not found easily. In the early 1940s, the native cotton

was systematically destroyed when there was a new boll weevil threat. Those tasked with eradicating the threat soon went to join the fight in World War II. These events helped make Florida native cotton an endangered plant.

SO: What advice can you share for spinning native cotton?

CT: My friends who have tried spinning Florida native cotton don't want to mess with it at all. They feel there are many other fibers out there that have nice, long staple lengths, so why bother with this cotton? One thing I can say is that you need patience. Also, spinning in low humidity helps greatly. You don't want your hands getting sweaty at all.

Photos this page courtesy of Caroline Tacker

Above: Caroline Tacker standing next to her four-year-old Florida native cotton plant, which is just starting to bloom. *Right:* A Florida native cotton seed and boll. Notice the extremely short staple length of the fiber.

SO: How much cotton do you harvest from a mature cotton plant in a year?

CT: Florida native-cotton plants produce cotton all year long, and the species prefers a subtropical climate. When the temperature drops below 45 degrees here in St. Petersburg, Florida, it's not happy. I've never kept track of how much cotton I can pick from my plants, but if I had to guess, over a 12-month period, I will get at least a pound in poorer weather conditions and up to about 3 pounds in a really lovely year. Currently, my plants are full of bolls, as the weather has been perfect for my plants. I hope to have a decent harvest this year.

Cotton Concerns

Both native and commercial cultivars of cotton plants are highly regulated in the United States due to the threat of several cotton pests. These insects can decimate commercial cotton crops and have long complicated the future of native, noncommercial cotton plants, such as Florida's native cotton. In fact, native cotton in Florida is regulated as both an endangered and prohibited species in certain areas of the state. In Florida and elsewhere around the country, you should always check local regulations before purchasing, planting, or moving cotton plants and seeds.

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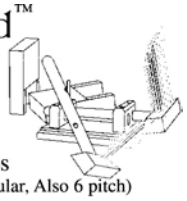

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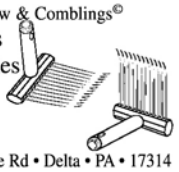

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Lyn Ellen Burkett

Music Professor

Tell us about your day job.

I teach music at Western Carolina University. I work with the sophomores and help them develop skills to read, hear, play, and sing different kinds of harmonies, melodies, and rhythms. Our graduates go on to become music teachers, performers, recording engineers, and music industry professionals. I teach several classes each semester, organize concerts, and give scholarly presentations at conferences. I also perform; I'm a pianist. Additionally, I'm organist and choir director at Episcopal Church of the Good Shepherd in Cashiers, North Carolina.

How did you become a spinner?

Nearly 15 years ago, when I was living in northern New York, I attended a spinning demonstration sponsored by a local arts organization. A few months later, I took a drop spindle class; it was very basic, but I was hooked! The next summer, I played the organ at six weddings, and I saved the money I earned to buy a wheel, a Kromski Minstrel, which I love.

How does spinning fit into the rest of your life?

When I get busy with school and church, I can usually find 15 minutes a day to spin. I set the kitchen timer and, for just a little while, clear my mind of everything but the colors and textures running through my hands. It's very soothing.

What is your favorite thing about spinning?

I love the sense of community I've found with other spinners. In our very small town, we have a group that meets every few weeks to spin together. Last March, we visited a nearby farm that had just shorn Jacob ewes, and we each bought a fleece. Before long, we'll be comparing the knitted and woven items we've created from the wool we bought.

Do your job and your fiber hobbies ever overlap?

I recently finished teaching a course on the history of country music and was reminded of the important contributions women continue to make to Appalachian culture, in music as well as in the fiber arts. Both areas involve developing the discipline to cultivate specialized skill sets whether for spinning, dyeing, singing, or banjo playing.

Photo by Bryan Burkett

Photo by Eldred Spell

Above top: Lyn Ellen Burkett spinning at home on the front porch. *Above:* Performing with saxophonist Ian Jeffress at Coulter Recital Hall, Western Carolina University.

In a completely different context, last fall, I accompanied a voice student who sang Franz Schubert's song "Gretchen am Spinnrade" (Gretchen at the Spinning Wheel). The piano in that song imitates the whirring of a spinning wheel. The student and I spent some time pondering the relationship between the tempo of the music and the speed at which a spinning wheel turns. That performance was especially meaningful.

DO YOU KNOW SOMEONE whom we should feature in "I Am a Spinner"?

We're especially interested in spinners with unusual careers, locations, and perspectives. Drop us a line at spinoff@longthreadmedia.com. Because of the volume of submissions we receive for this feature, we will only notify you if your nomination is selected.