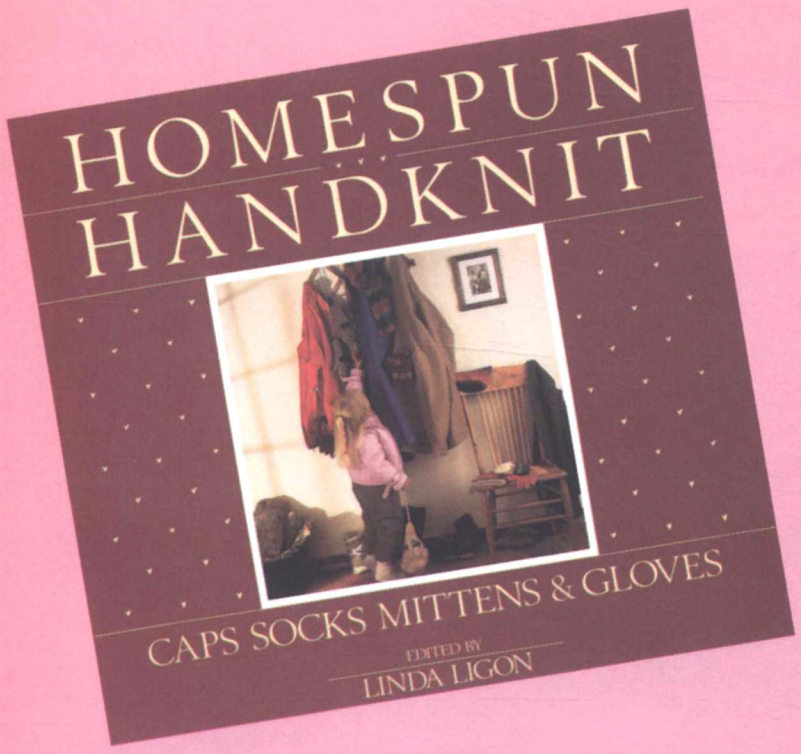
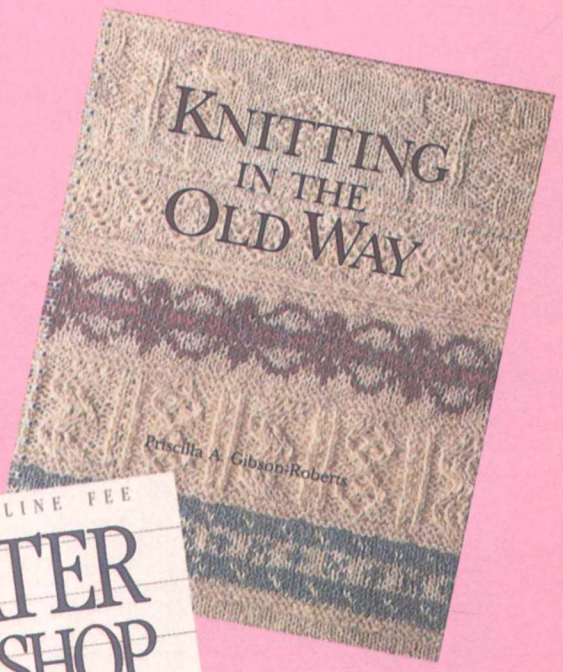
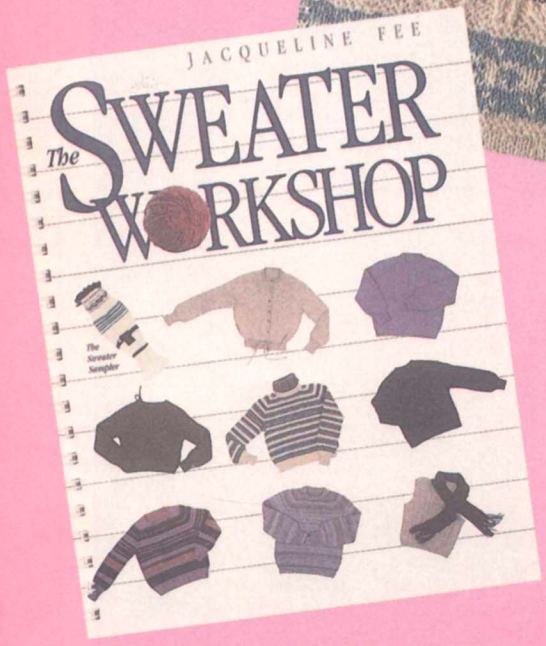
SPIN·OFF

vol. XI
no. 4
winter 1987
$3.50



Cast On With HANDSPUN





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SPIN·OFF

Volume XI
Number 4
Winter 1987

About the cover: *Color, texture and pattern are orchestrated masterfully in Paula Shull's handknit vest. Read about it on page 29.*

The Editor's Desk

It seemed to me that my list of things to explore and learn and try would never end. In my excitement about discovering the craft of spinning (which really translates into the study of fibers, drafting, twist, dyes, knitting, weaving, and a host of related topics), I have told numerous people that if I were lucky enough to live to 90, I would still have not exhausted my List of Things To Do. What I hadn't counted on were occasional lapses in inspired energy.

Has it ever happened to you? One day I found myself so caught up in planning and paperwork and meetings, that it hadn't even occurred to me to spend time at my wheel. Worse, I realized that I hadn't done any spinning for *weeks*. Worse still, when I did sit down to spin, I couldn't decide which fiber to start with, what kind of yarn to spin, which project to tackle. I was *busy,* for heaven's sake, and couldn't seem to decide where best to spend my limited time. Well, I thought, maybe I'd better just do the dishes, or get back to those letters . . .

I was so relieved to hear from some of my spinning pals that it happens to them occasionally, too—that feeling of being something of a stranger to your wheel, and wondering what happened to all that motivation to dive into the next project. Wondering in the back of your mind if just maybe the spark won't return (perish the thought!). But the good news is that just about any little stimulation will get you going again.

A lot of us just let our lives get in the way. With demands from family, work, house, and friends, time can slip away at an alarming rate. There is *always* another chore that needs to be done. The trick is to figure out your priorities, and make sure that spinning is somewhere on your list. A friend and I once challenged each other to spin at least 15 minutes a day (or dye, or knit or weave, just so our hands were in fiber) no matter what. It was a good idea, but it wasn't quite enough. When we made ourselves report to one another every Friday on our progress, things started happening. Next thing you know, the projects were beginning to unfold and the ideas were coming fast and furious. It just took a little oiling of the works to get things rolling at their old pace.

Sometimes it's a major life change that seems to turn everything upside down, such as an illness, an injury, a birth, a death, or just a move to a new home. These are the kinds of things that seem to mark a major reassessment of life's priorities, and sometimes it's difficult to figure out where spinning fits in, or even *if* spinning fits in. Once upon a time, I went through a phase of thinking, "What is the point of all this?" There are weightier things that should be occupying my time. But I realized that there is a lot more going on when we spin than just cranking out yarn. Spinning offers a tremendous outlet for some intangibles that are really good for the soul: creating, learning, teaching, planning, dreaming, experimenting—*and* we crank out the yardage. It's just a matter of letting it be okay to work at this, too.

When you read in the last issue of some "worst disasters", perhaps you thought of one or two of your own. When you spend a lot of time, heart and effort on an important project, having it go awry can really take the wind out of your sails and the confidence out of your next plan. But you really do just have to get back up on the horse again after he throws you. Chalk it up to a great learning experience, and resolve to take what's left of your masterpiece around to show other spinners, so they don't make the same mistakes. Then try again—it feels good to get it right.

Other tricks for getting yourself back on track? Call up another spinner or two, and do some show-and-tell. The other spinners will have some very nice things to share, and you won't be able to keep from dreaming up ways to get similar results, or better results. Send a sample off in the mail, and ask for one in return. There's nothing like opening up an envelope, taking a look at a little fabric swatch, and wondering, "How do you *do* that?".

Even something as simple as treating yourself to a new little gadget can do wonders. Get a little oiler, a fancy niddy noddy, some knitting needles, a hand spindle, an inch gauge, or a diz. You've got to try out your new toy, don't you?

And, the most foolproof of all, get yourself to a spinners' gathering, whether it's SOAR, a local spin-in, a sheep-to-shawl, a conference, a county fair, a workshop, or a class in the neighborhood yarn store. When you get a few spinners together and you give them half a chance to tell you about what they've been working on, you might as well resign yourself. No matter how busy you think you are already, you'll find yourself buying fibers and supplies before you know it, and forgetting all about the dishes. You'll be messing with fiber in every spare minute and planning some remarkably creative ways to get to every single thing on your List of Things To Do.

Lee

Lee Raven, editor

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Letters

Dear Spin·Off,

Having only recently discovered *Spin·Off* (being rather isolated from the active field), I'm eager to see what news I might catch up on. We've kept busy, but all our sources and names were older ones. It's a very good magazine, as you already must know. In addition to the source info, I found to my pleasant surprise that the majority of fashions pictured are quality, classic styles which will endure, not "far out" fads. Most are beautiful and elegantly simple, very tasteful to a wide variety of opinions.

Reading the few issues I have has been like participating in a well-attended workshop, complete with dealer booths, in my own home. Both new and experienced spinners learn much from sharing ideas, opinions, questions and techniques with each other. I'm glad when I finally managed to reach back out in the world that *Spin·Off* was there. I'll certainly tell our students in spinning and natural dyeing, and our rabbit customers, about you all.

Jonnie V. Southworth
Stanton, Kentucky

Dear Spin·Off,

I really enjoyed this last issue, looking back and reminiscing—but I beg to differ with Allen Fannin's opinion about our progress as spinners and the future of handspinning. First of all, to be valid, I take it that handspinning must be commercial. Why? Cannot spinning for pleasure and personal consumption be valid? There are many woodworkers who pursue their avocation for pleasure and personal consumption while supporting an economic segment of our society. Is their work not valid? Maybe Mr. Fannin does not see the same population that I see in my workshops, for there is a steady growth in both interest and numbers in the type of work that I pursue: handspinning and handknitting for pleasure as well as for producing useful garments for my family and friends. And believe me, these people are producing both quality and quantity. Where are the new spinners coming from? Many from the ranks of knitters. And how many hand knitters attempt to produce for commercial sales? Precious few. But this does not invalidate either their dedication to the craft or their support of the economic sector. Mr. Fannin's attitude is unrealistic if he thinks that spinning can only be validated through monetary rewards.

Priscilla A. Gibson-Roberts
Lakewood, Colorado

Dear Spin·Off,

In the Winter 1986 issue there was an item in "Spinning Guild News & Views" about an English spinner's interest in American spinners visiting England. I wrote a letter to the Kirkby-in-Ashfield guild to let them know when we would be in the area so we could exchange ideas and discuss our craft. We received a reply from Muriel Lander, secretary of the Kirkby-in-Ashfield Spinners and Weavers Guild, giving dates of their meetings and offering addresses of other guilds if we were not in their area for the meetings. The enthusiastic tone of the letter prompted our immediate reply that we would attend the May meeting.

We received a letter from Muriel at our London address inviting us to spend the night with her and Tony, her husband, as it was an evening meeting and Nottingham was two and one-half hours from London. She asked us to call to get more details on getting to Kirkby-in-Ashfield. She told us they would meet us at the station. Muriel made us feel welcome and at home. Tony came home at five and was as gracious as Muriel. Muriel and I went to the spinners' meeting, while Tony

—continued►

LETTERS *(from previous page)*

showed my husband, Bob, the town and took him to a pub.

Spinners are the same the world over. As each member arrived, we were introduced and immediately asked questions. We felt and examined the sweaters and garments each was wearing. They seemed as thrilled as I that I was there. They made me an honorary member and gave me their guild pin. What a wonderful group of warm friendly people.

We went home to a proper English dinner: joint of beef and Yorkshire pudding. By midnight the living room that had been in perfect order when we arrived was filled with sweaters, fleece, hanks of yarn and samples of dyed yarn.

The next day Tony came home at noon to say good-bye to us. It was one of the most beautiful experiences we ever had. Our information and exchange of spinning ideas will continue through the mail until Muriel and Tony, hopefully, come here to visit.

Hope your magazine staff enjoys this account and realizes that some good does result from their work.

Sally Lorenzon
Bay Village, Ohio

Dear Spin·Off,

I have been spinning cotton on a Shaker wheel to knit lace, and was proud—no, probably impressed—with the results I was getting. I idly wondered how I compared to your record setters, so I dug out the 1980 issue and checked Freida Hammett-Bryer's yardage. WOW!! I'm a few yards over *half* of her diameter and yardage. Effective object lesson in humility.

Thanks for providing constant inspiration and goals. Wish there were a way to *see* those wonderfully fine yarns and threads.

Sharon Neeuwsen

Dear Spin·Off,

Does anyone know the method of de-hairing camel fleece? I have two dromedary (one-humped) camels and have tried different methods to no avail. Wool combs smooth out the fibers much more than handcards but do not remove the hair. Any ideas?

Toni Friedman,
Moshav Nir, Etzion,
D.N.-Hof Carmel, Israel 30808

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Spinning Guild News & Views

Within one month after being organized, the **Nile Valley Spinners and Weavers Guild** (NE) held their first workshop, "Dyeing Fibers With Natural and Chemical Dyes". Members also toured the Brown Sheep Company.

Helpful hint from **Estacada Area Spinner's and Knitter's Guild** (OR): when winding your yarn from the bobbin to the ball winder or niddy-noddy, stand back 10-20 feet from your wheel —the farther back the better. This allows any uneven twist that may be in your single or plied yarn to even out.

Those of you who have followed this column over the years might be interested to know the Private MacArthur Project of the **Queensland Spinners, Weavers and Dyers Group Ltd.** (Australia) has finally been completed. An official party from the 8/9 R.A.R., Enoggera, headed by Lt. Col. Herford, brought along the guest of honor, Private MacArthur IV, the regimental mascot. After a somewhat reluctant entry to the hall, introductions were effected and Private MacArthur IV behaved impeccably, despite some anxious backward glances of his handler on a few occasions. Col. Herford was presented a soft, fine length of MacArthur tartan and a small matching rug, spun, dyed and woven from a fleece shorn from the original Private MacArthur (descendant of one of the first Merino rams in Australia) by several guild members.

An herb dye session was one of the summer activities for **Spindle and Dyepot Guild** (WI). The group experimented with dill, field bindweed, carrot tops, elecampane, Queen Anne's lace, onion skin, chicory, purslane, privet, sweet fern, comfrey, tansy, elderberries (fruit and leaves), rhubarb, goldenrod, chamomile and bee balm. One of their members suggested this tip for cleaning dirt and oil from carders: Mix 1 part flour, 1 part oatmeal and 2 parts cornstarch. Run through carder until carding cloth is clean.

To provide group identity when demonstrating, members of the **Foothill Spinners and Weavers Guild** (VA) made matching aprons. Members were encouraged to individualize their aprons with a woven strip across the top.

Worth quoting from **Black Sheep Handspinners Guild** (NY) newsletter: "Everyone has his/her own reasons for spinning wool. Some want to carry forth a tradition; others enjoy the satisfaction of creating a final product from raw materials. I'm even told that some people are able to make a living doing it! For me, all these reasons are part of it. As I improve my spinning technique, I'm finding that I really enjoy the quiet rhythm of the wheel and the therapeutic effect this has on my psyche. After a long day at work, I often come home and settle down to the peace and quiet of spinning. The effect is perhaps similar to meditation; I find myself relaxing into the rhythm and being productive at the same time."

Dyeing with staghorn lichens and marigolds was on the agenda for a recent meeting of the **Rolhags**, a spinners' group of the **Redwood Empire Handweavers and Spinners Guild.** The general guild meeting that month included a silent auction of yarns, equipment, books, food, handmade items and "mystery boxes".

From the **Desert Fiber Arts** (WA), on "Paying One's Dues": Guilds that are active, effective and growing are those where the members "pay their dues." These dues are not the monetary ones (these are very important, too) but are dues each member pays to the organization with *active* volunteer work. Paying one's "dues" means volunteering without being asked, participating, being visible and keeping promises.

Leatherstocking Spinners (NY) punch holes in their newsletters so members can keep them in a looseleaf notebook. Isn't that a great idea to encourage members to keep back newsletters on file?

Weavers and Spinners Society of Austin (TX) inaugurated a drawing for a door prize at their meetings. To be eligible, members are required to drop their name tags in a "hat" at the conclusion of each meeting. A name tag is drawn and the lucky owner gets the door prize. Nifty way to encourage wearing name tags!

From **Old Fort Weaving and Spinning Guild** (AR) come two great ideas. One of the local merchants donated a prize to be awarded to the member bringing the most guests to the first meeting of the fall season. Members were also asked to design their own nametags: the tags could be woven, spun, dyed, felted, carved, painted, needlepointed, or whatever.

Twist O'Wool Guild (VT) starts each fall season with a "Let Us Get You Started Spinning" meeting held for the general public through the local Extension Service. A wonderful way to educate the public and recruit more spinners!

Boston Area Spinners and Dyers (MA) always seem to have interesting group projects going. This year, each meeting will feature a new dyepot. Members will furnish their own yarn and fleece, pre-mordanted if necessary.

Another group from "down under" has been added to the Registry. Janet Boys of the **Wellington Handweavers and Spinners Guild** (NZ) visited the States this past summer and sent several of their newsletters for the exchange. She also sent a large enough envelope with enough postage that quite a number of your newsletters are on their way to be shared with our fellow spinners in New Zealand.

★ ★ ★

News, ideas and projects included in this column come from guild newsletters so generously sent me. Would you check to see if I'm on the mailing list for your guild newsletter so your activities and projects can be shared too? Also, I'm delighted to send as many of these newsletters as possible to anyone sending me a business-sized (#10), self-addressed envelope with two ounces worth of postage on it. Deadlines for this column are February 1, May 1, August 1 and November 1. Send all newsletters and other information to Ann W. Klinect, 7410 77th Avenue SE, Snohomish, WA 98290. □

GUILD REGISTRY

New Listings

ARIZONA

Yuma. Yuma Weavers and Spinners Guild, Liz Smith, 2971 W. 21st St., 85364.

MASSACHUSETTS

Amherst Area. Woolgatherers, Carole Adams, 94 Bay Rd., Belchertown 01007.

NEBRASKA

Scottsbluff. Nile Valley Spinners and Weavers Guild, Gayle Rojas, 3401 Avenue H, 69361.

PACIFIC NORTHWEST

Washington, Oregon, Idaho, Montana. Northwest Regional Spinners Assoc., Inc., Beverly Kaufman, 9914 226th Place SW, Edmonds, WA 98020.

VIRGINIA

Charlottesville. Charlottesville Fiber Artist's Guild, Karen Mason, 733 Madison Ave., 22903.

NEW ZEALAND

Wellington. Wellington Handweavers and Spinners Guild, Inc., P.O. Box 5160, Lambton Quay.

CHANGES

Birmingham Fiber Guild, Douglas Baker, 21213 Chastaine Circle, Birmingham, AL 35209. *(Change of guild name and contact person.)*

Moonspinners Spinning and Weaving Guild, Pam Dimmlich, Peaceable Hill Farm, 4152 W. Orangeville Rd., McConnell, IL 61050. *(New contact person.)*

Bluegrass Spinners Guild, Linda S. Hofacker, 1584 Wellesley Drive S., Lexington, KY 40513. *(New contact person.)*

Michigan Handspinners Guild, P.O. Box 3282e Avenue, Farmington Hills, MI 48333. *(Permanent guild address.)*

Medina Spinning and Weaving Guild, Barb Getty, 6333 Stone Rd., Medina, OH 44256. *(New contact person.)*

Oregon Wheel and Loom Society, Jerie Lucas, 658 35th Avenue NW, Salem, OR 97304. *(New contact person.)*

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(703) 896-9931

Virginia Beach
Handweaver
340 Coventry Road

VERMONT

Bridport
Wooly Hill Farm
R.D. 1, Box 366
(802) 758-2284

Greensboro Bend
Sarah T. Spinnery
R.R. 1, Box 220

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Coupeville Spinning & Weaving Shop Inc.
P.O. Box 550, 15 Front St.
(206) 678-4447

Gig Harbor
Wools Unlimited
3028 Harborview, Box 203

Mead
Alice's Spinning Wheel
8314 E. Mt. Spokane Pk.
(509) 466-6582

Seattle
Weaving Works, Inc.
5049 Brooklyn Ave. N.E.

WEST VIRGINIA

Morgantown
Elaine Burrell
1412 Western Avenue

WISCONSIN

Cedarburg
Woolgathering
N70 W6340 Bridge Rd.
(414) 375-2025

Madison
Weaving Workshop
920 E. Johnson Street
(608) 255-1066

Milwaukee
The Wool Works
1812 N. Farwell Avenue
(414) 278-8838

Mineral Point
The Looms
Far End, Shake Rag St.
(608) 987-2277

WYOMING

Powell
Hart Mountain Roving
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CANADA

BRITISH COLUMBIA

Hudson Hope
The Tapestry Door Yarn Shop
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(604) 783-9933

Victoria
The Wool Works
2687 Sooke Road
(604) 474-4221

NOVA SCOTIA

Halifax
Fleece Artist
Box 881, 1865 Water St.
(902) 423-9311

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London
Helen Koop
662 Warren Road
(519) 471-8804

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Gemini Fibers
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(416) 473-1033

Whitevale
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Tips & Techniques

Regarding Marina O'Conner's "Show and Tell" piece in the Summer '87 issue, I had an idea. She said that the edges raveled easily, so she stay-stitched them after the pieces were cut out.

To keep raveling down to an absolute minimum, pin the pattern to the fabric, machine baste just inside the pattern lines, and *then* cut out the pattern pieces, just outside the pattern lines. Then pull off the pattern pieces.

This method makes it difficult to reuse the pattern, since it winds up slightly smaller than it started out, but for fabrics that tend to ravel badly, it may be worth the disadvantages. *Pam Dotson*
Rowland Heights, California

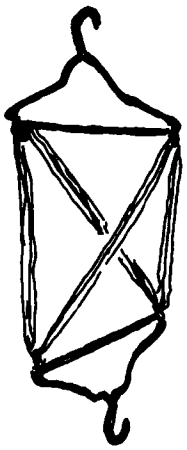
Being on a limited budget, I cannot afford to purchase a bobbin winder now. Winding thin thread by hand was very time-consuming and tiring. I discovered an easier way to wind bobbins that I would like to share.

I use a variable-speed electric drill and a $\frac{9}{32}$" drill bit which fits nicely inside the bobbins. I use a slow speed and guide the yarn by hand so that it feeds evenly onto the bobbin. It takes about three or four minutes to wind each bobbin. This is much faster and easier than winding by hand. *Virginia Noblit*
Landenberg, Pennsylvania

To keep tension on each strand of yarn while double plying, use a chair that has smooth slats or round posts for its back. Place the lazy kate with full spools on the chair seat, and have the chair face away from the orifice. Then weave each strand out through the center two slats, in and around the next slat out on each side, and then back in and out through the center again. Not only does this provide a nice "tensioner", but it also gets the spools of yarn up to a good working height. If you don't have a lazy kate, or if you want to ply balls of yarn, place them in separate containers on the chair seat.

Lynn M. Short
Los Angeles, California

For fast, lightweight blocking of skeins of fine singles, I use two plastic hangers—the kind with hooks under the lower edge for suspending garments.



Hang up the first hanger in an airy place. Then attach the opposite ends of a wet skein to the two hooks so that each half falls equally. Then take the second hanger and attach it by its hooks to the draped portions of the skein, so that it is suspended at 90° to the direction of the first hanger. The skein will be blocked in exactly the same kind of figuration it has on a niddy noddy. If you need extra weight, you can hang fishing weights to the lower hanger.

Dave Centner, Rome, Italy

If you have a useful trick of the trade you'd like to share, write up a brief description and send it along with appropriate samples or sketches to Lee Raven, c/o Interweave Press. We look forward to seeing suggestions for spinners at all skill levels. If your special technique or tip is selected, we will send you a little spinning gift.

To Shear or Not To Shear?

by Maribelen Ciesiel

LAST YEAR we acquired a beautiful black ewe in full fleece, but we had already sheared the rest of our flock. I had a choice to make: should I take a long leisurely afternoon and gently remove that special black fleece in one glorious piece, nearly free from second cuts, or should I use Gordon and his quick-cut, clean-ewe approach?

Gordon has sheared professionally for years. His job, and he is good at it, is to quickly remove the fleece with the least possible trauma to the ewe, leaving her smooth and clean, for which he is paid $1.50 per ewe. This approach insures a minimum of fuss over a large number of heavily coated, hot ewes, but it does tend to leave some second cuts.

I've watched Gordon for 12 years. I have a blow-by-blow shearing chart from Sunbeam. I have a pair of electric clippers that I'm storing for a friend. And lastly, I am spiritually a Navajo, and the Navajo shear by tying the ewe's legs, laying her down, and trimming slowly and carefully with a pair of hand shears. As spinners, they, too, wish to avoid those little slub-making gremlins called second cuts.

I envisioned a slow, thoughtful, relaxed removal of an intact fleece. If the ewe looked a little shaggy, I could always reclip her, but the important thing would be the nice, long, even fiber, kept intact in locks!

I chose the cool cement under the shady porch. There I soothed her, laid her down, and tied her legs, explaining that, as she lay quietly, we would get rid of all that hot wool.

Somehow she missed the relaxed atmosphere that I was providing. She twitched, she bucked, she fought. I soothed, I coddled. I lay on her, I fought her, I cussed her. And all this before I had even touched the shears.

Finally I had her in position and moved in with the metal fingers of the clippers. What a shock! For Gordon, the thick mat of wool would have seemed to part magically, revealing tender pink flesh. While, when I pressed forward, the clippers seemed to catch in impossible tangles, or they'd rush in to nick her skin. Or most devious of all, they'd go in part way, level off, take a new bite and leave an area layered in small irregular valleys. It was as if the shears had a mind of their own. Meanwhile, Two Below (the ewe in question) seemed determined to end this nonsense and get back to the flock.

Finally we settled on a procedure. I would lie on her, sweat profusely, and explain in a loud voice all the evil that would befall her if she didn't stop misbehaving. Then I'd turn on the clippers, approach the fleece gingerly, and hope to find the skin before I had nicked her or before I had leveled off with the skin another inch below the cut. This worked for a couple of hours (that I still don't describe as leisurely, and that, in fact, I remember with reluctance). But the fleece was coming off and I was gaining knowledge.

Now it was time to carefully trim around the face. As I crept toward her head, she flicked her ear into the cutting edge of reality. Ears bleed profusely from very small cuts. She bled profusely. The nick irritated her, causing further flicking. It all began to look like a scene from some early animal sacrifice.

Oh well, it wasn't more than another hour or so until I was finished. I untied her, she shook herself in disgust and trotted back to the flock. They all inspected her and warily nodded in my direction. Meanwhile, I cleaned dirt, wool, and blood from everything, including bystanders. My back ached and I had two cuts on my fingers from trying to get a closer look at Two Below's skin.

On the bright side, I had my prize fleece—even if it was reduced to short clumps of chopped-up wool—and a new-found appreciation for the unsung hero of the sheep industry, the shearer. □

News Clips

From the "Iowa Stater", Dec. 1985:

Ames Laboratory physicist John McClelland suspected that his friend's mail-ordered turtleneck sweater was an imposter. The clues? The fabric content on the garment label didn't match the catalog advertisement; also, the material felt a bit slick, and had a slight sheen.

McClelland and his friend both suspected polyester but the mail-order company denied it. More evidence was needed. McClelland was confident that his super-sleuth device, a photoacoustic cell, would solve the mystery.

This was the device that won McClelland an award in the Industrial Research and Development Awards Competition, recognizing it as one of the top technological innovations of 1985. By combining light and sound, the photoacoustic cell would allow McClelland to analyze the turtleneck by its "voice-print".

The detective work was fast and simple. McClelland compared the voiceprint of the turtleneck with voiceprints of fabrics made of 100% cotton and 100% polyester. The data were clear—the turtleneck was a blend fabric.

It was evidence the company could not dispute and McClelland's friend received an apology from the company, a promise to correct future catalogs and a refund on the turtleneck. Her letter was also circulated around the company as a warning to "let the seller beware".

Associated Press:

Of several enlisted men and an officer exposed to a minor boiler fire aboard the US Navy destroyer *Manley,* all except the officer escaped with superficial injuries. According to navy officials, the enlisted men were protected to a degree by their plain cotton uniforms, while the officer, clothed in a more fashionable 100% polyester double-knit ensemble permitted among higher ranks, ignited instantly and was baked to death as his petroleum-based uniform melted around him.

—submitted to the "National Lampoon" by Christopher Daniel

From "Echoes of the Ancient Skies":

When a Kogi shaman builds a temple, he actually makes a model of his universe. The temple is, in fact, a loom on which the sun weaves the cyclic pattern of time and transforms its structure into organized space. The Kogi are a South American Indian tribe of northern Colombia. Although they have relatively little in the way of material things, anthropologist Gerardo Reichel-Dolmatoff has reported their rich tradition of cosmological symbols and their elegantly woven network of metaphor and myth.

For the Kogi the cosmos is a spindle, a concept that reflects the turning of the sky and the movements of objects in it. Male and female are essential in the cosmic scheme, for through sexuality the creation—new life—becomes possible. The spindle's hardwood shaft is, therefore, male. Its disk is made of soft wood and represents the female. The shaft penetrates the whorl, and together they spin the thread which will be used to weave a fabric. On a cosmic scale the spindle of the universe reaches from zenith to nadir. Tapered at both extremes, it has nine levels—each imagined as a disk—comprising the cosmos, and the layer with the largest diameter, the spindle's middle, corresponds to the earth. These nine layers derive, in part, from the nine months of a human pregnancy.

Calendar

EXHIBITS & SHOWS

Feb. 20. Tempe, AZ. Telerana Weavers and Spinners Guild will celebrate its 10th anniversary with a fashion show and luncheon at noon. This biennial event will feature members modeling their own handcrafted clothing. At Top of the Rock, Westcourt in the Buttes, 2000 Westcourt Way. For more information, call Jean George (602) 969-4346.

Feb. 22-Mar. 11. Chula Vista, CA. The San Diego Creative Weavers' Guild will sponsor a show of weavings, baskets, and bobbin lace at Southwestern College. The juried exhibit will be open weekdays 10-2 and Wed. and Thurs. evenings from 6-9; admission is free.

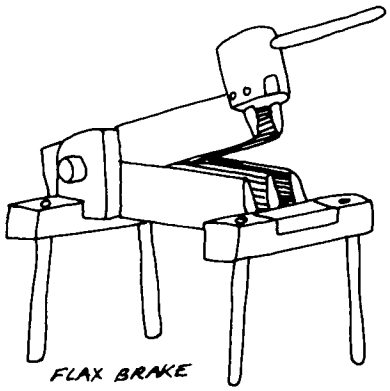
Mar. 12-Apr. 16. Philadelphia, PA. A Tribute to Weaving '88. 35th annual exhibit of juried works by the Philadelphia Guild of Handweavers. Paley Design Center, Philadelphia College of Textiles and Science, School House Lane and Henry Avenue.

Apr. 1-30. Corvallis, OR. "All Oregon Juried Fiber Show". Juried exhibition of fiber art sponsored by the Corvallis Handweavers and Spinners Guild. *Entry deadline, Jan. 10, 1988*, limited to residents of OR. For prospectus/information, contact Corvallis Handweavers and Spinners Guild, P.O. Box 876, Corvallis, OR 97339.

CONFERENCES

Feb. 26-28. Secaucus, NJ. "MacKnit Expo '88", national conference on machine knitting: trade show, fashion shows, workshops, seminars. At the Meadowlands Exhibit Center and the Meadowlands Hilton Hotel, Two Harmon Cove, Secaucus. For more information, call or write MacKnit, P.O. Box 8145, Englewood, NJ 07631. (201) 568-3369.

Apr. 22-24. Chico, CA. The 35th Annual Conference of Northern California Handweavers will be held at the Silver Dollar Fairgrounds. Theme for the conference will be "Weaving: A Reflection of Time", with numerous programs and a panel discussion on weaving. Send SASE to Conference of Northern California Handweavers, 550 McKay St., Fair Oaks, CA 95628 for more information.



May 8-12. Sydney, Australia. The international craft conference of the World Crafts Council will be held on the topic "Crafts in the Late Twentieth Century: Social Relevance and Change". Contact Michael Keighery, Crafts Council of Australia, 100 George St., The Rocks, Sydney, New South Wales, Australia 2000.

FESTIVALS & GATHERINGS

May 27-30. Auckland, New Zealand. The New Zealand National Woolcrafts Festival. Venue is Auckland Showgrounds, Epsom, Auckland. Guest lecturers include: Bobbie Cox, English spinner, dyer and tapestry maker; Clotilde Barrett; Catherine Mick; and top artists and craftspeople from New Zealand. Contact National Woolcrafts Festival, P.O. Box 26005, Epsom, Auckland 3, New Zealand.

June 1-4. Berea, KY. Precious Fibers Foundation's 1988 Fibers Congress. Classes, demonstrations, exhibits, competitions, shows, and animal auction. For registration/information, write or call The Precious Fibers Foundation, P.O. Box 511, Berea, KY 40403. (606) 986-1495.

STUDY/TRAVEL

April '88. Himalayan Weaving Workshop/Tour offered by Craft World Tours. Contact Prof. Tom Muir Wilson or Sherry Clark, Directors, Craft World Tours, 6776 Warboys Rd., Byron, NY 14422.

June 28-July 5. 1988 Arctic Experience for Spinners and Dyers. Lichen dyeing, qiviut spinning, hiking, Inuit craft production, printing, and carving in the Canadian Arctic. Write Wendy Chambers, 21 Boxwood Crescent, Whitehorse, Yukon Y1A 4X8, Canada.

August '88. 1988 Yukon Wilderness Experience for Dyers. Hiking, horseback riding, camping, lichen collecting, and dyeing; with guide and instructor in the spectacular mountain country of the Yukon. Write Wendy Chambers, 21 Boxwood Crescent, Whitehorse, Yukon Y1A 4X8, Canada.

Planning a Regional Spinners' Gathering

by Marilyn Franc

SEVERAL YEARS AGO the Spinners Textile Study Group, consisting of professional spinners, weavers, knitters, textile artists and teachers in the greater San Francisco area, decided it was time to have a regional conference, or gathering, just for spinners. The main purpose of the gathering was to be educational—the promotion of finely crafted handspun yarns with lectures, demonstrations, displays, commercial exhibits (not sales), information exchange, and a chance for those attending to share their handspun, handmade work with others.

This year's event will be our third annual Northern California Spinners' Gathering. Each year we feel we've been able to improve on planning and execution and to expand what we offer based upon the spinners' interests and needs in this region. In sharing our experiences, we hope to give you some guidance that may help in planning your own spinners' gathering.

We chose late September for the event for several reasons: to avoid the summer conference crunch and major holidays, to take advantage of Bay Area weather at that time of year, and to have everyone's kids back in school. We located the event as centrally as we could to make access easy from as many communities and "pockets of spinning activity" as possible.

The first year, we began planning at our monthly meeting in January. We literally had no idea how many spinners to expect, so we just guessed that we might be able to pull in around 50 or so the first time around. We arranged to rent space in a local textile school on a Sunday when we could have the building to ourselves. We invited a guest speaker, Anne Blinks, to make a 45-minute presentation, which she generously agreed to do without a fee. We decided to incorporate a question-and-answer period; our own silk display (which we were putting together for the upcoming spring weavers' conference); our collection of antique equipment, tools and textiles; and door prizes, which we hoped would be donated by local spinning shops. We also wanted to invite participants to bring their latest projects for a show-and-tell display.

We knew advertising the event would be a problem because there was no communication network in place for spinning groups and because the guilds we knew of took a summer hiatus. We quickly put together a flier on colored paper to distribute at the spring weavers' conference and decided to do a direct mailing to the stores and guilds on our short list before the summer months. Based on cost estimates of producing the flier, photocopying, postage, and building rental for one day, we decided to charge $2 per person at the door. We wanted to attract as many people as possible and to just cover our expenses.

The first Gathering was quite a success, with an enthusiastic group of about 75 spinners attending. We had attendees fill out name and address cards as they came in, which included their guild affiliation, if any; whether they taught spinning; or if they did spinning on commission. Those cards became the beginning of a mailing list, which, by consent, we made available to anyone who wanted a copy. We lost a bit of money on our first Gathering (our costs were higher than we estimated), but we left with big plans and high hopes for the following year.

Planning began immediately, for we now had a good idea just how much work and time this annual event would take. We scouted around for a larger building with nice outdoor areas and found a lodge we could rent in a regional park, nestled in a stand of redwoods—close to a major road, but quiet and serene. We arranged for another guest speaker, Celia Quinn, as soon as we could (she also was very kind in donating her time). To the previous year's event, we added tea, coffee and homemade treats for the morning *(much* appreciated by the participants); a display library and book list; handouts on knitting patterns and equipment making; and seven demonstrations given by individual STSG members. We distributed a flier again at the spring weaving conference (this time the spinners were looking for it), and we used our expanded mailing list to direct mail both to guilds and to retail outlets (who turned out to be very generous with both display material and door prizes). This time we told spinners to bring a bag lunch—not only were restaurants far away, but we wanted them to have more time just to sit and talk with one another.

Costs were higher, especially for the building and postage, so we adjusted the entry fee to $4 per person. Set-up time took us half again as long as we had estimated (an hour and a half all told), but take-down time took half the allotted hour.

Eighty spinners came to the second Gathering (some came all the way from Nevada!), bringing an even more impressive display of their recent work. They approved heartily of the better location, the displays, the demonstrations (all of which were held outside), and the refreshments. Again, we lost a bit of money (about $30) due to increased costs, but as spinners were leaving, they were asking where and when the next Gathering would be.

This year we'll try to expand our budget to cover our costs completely and to offer the speaker a nominal fee. We will be advertising as we have done before, with the addition of adding the Gathering to the calendar sections of the magazines that northern California spinners subscribe to. The brown-bag lunch turned out to be a great idea—everyone had a chance to relax, exchange information, and make new friends—so we'll do that again. Providing a map on the flier was also very helpful, and signs posted along the road (about an hour before the doors opened) helped the out-of-towners find our secluded location.

We found that speakers should be scheduled just before lunch and demonstrations just after lunch—this helps combat post-meal "sleepies" on a warm afternoon. After requests from participants, we've decided to schedule repeats of demonstrations during the day so everyone will have the chance to see as much as possible.

We have found that the question-and-answer period, while very valuable, needs to be tightly controlled and guided. It helps to seed the discussion with questions related to the speaker's topic, the demonstrations, and the STSG's display. (Each year our group chooses a particular topic to study in depth. We present our findings in detailed displays and demonstrations each spring at the Conference of Northern California Handweavers. This same display is shown at the Gathering each fall.)

We've discussed including commercial sales and adding workshops at upcoming Gatherings as well as expanding the event to two days. But this would mean a good deal of additional effort and planning.

All in all, it is a lot of hard work that takes a lot of volunteer time, but the end results are very rewarding to all involved. STSG has 11 members now—a good sized group to work with; we have enough members to distribute the tasks to, but not so many that decision making becomes burdensome. Our meetings every second Sunday are taken up primarily with planning, and it takes all of us working a little each month to make the Gathering come together successfully. We do miss the amount of experimentation, show-and-tell, and information exchange we used to enjoy, all for which we originally came together. Naturally enough, we are beginning to explore ways in which other guilds could get involved in the Gathering and ways in which we can enrich our monthly meetings with the work that brought us together in the first place.

■ ■ ■

The 3rd annual Northern California Spinners' Gathering was held on Oct. 4 at the Sequoia Lodge in Oakland. Joanne Nissen gave an informative presentation on selecting and sorting a fleece, and Louise O'Donnell demonstrated her special technique for creating wrapped yarns. STSG members hosted a panel discussion related to their display, a study in unusual uses of twist in yarn and fabric construction. Hands-on demonstrations included quick-dye methods, charkha spinning, drafting techniques, making and spinning mawata, fiber and color blending, and flax spinning.

DO YOU REMEMBER "Baby Huey", the lovable, oversized duckling of cartoon fame who didn't know his own strength? I have a "Baby Huey" in my life: a ducky spinning wheel bought a few years ago when I expected to be in Rome for only a short time. I wanted an inexpensive, portable wheel for spinning rug-weight yarns. "Baby Huey" came as a kit that I could put into my suitcase. It was inexpensive and a good spinner for medium-weight yarns—just what I needed, or so I thought.

REINING IN BABY HUEY

by Dave Centner

As things turned out, I never spun those rug yarns. I had the "misfortune" of discovering too many other things to spin. What began as experiments with samples turned into major projects: I've spun some Lincoln long wool warp yarns and an odd mixture of weft yarns. Before long, I got hooked on multi-ply knitting yarns and Falkland Islands wool, which I needed to spin to upwards of 4000 yards per pound. And that was when I discovered that "Baby Huey" did not know his own strength. He kept pulling in the yarn and breaking it.

My experience in trying to spin fine yarns with a wheel not made for them is a familiar plight to many readers of *Spin·Off*. My wheel is a single-drive-band, bobbin-lead wheel, similar to a Louët. And like the Louët, it has a fused nylon drive band. Many readers have written in about adjusting that wheel for fine yarns. I've used most of the suggestions sent in, and then some. Baby Huey can be reined in. More accurately, I can learn to spin at the limits of my wheel's technical capacity.

Spinning at a wheel's technical limits is easier if you have some idea of the mechanics involved. A good encyclopedia article on kinetics is worth reviewing. It is equally helpful to remember all the common experiences of mechanics in the knobs, wheels, winches, flywheels and levers that are part of everyday life. Or to go back in memory to the age when Baby Huey Comics might have been an important part of your life, an age when you (or your siblings) pushed friction racers, twirled tops, and played on the push carousel in the park. You learned a lot about the Baby Hueys of the world on that carousel. There was always the big kid who made it spin so fast you had to hang on for dear life, or who wouldn't stop so anyone could get on or off. And you soon learned that it was just about impossible to budge your "merry-go-round" by trying to rotate the axle with your hands. You could push it slowly from the center if you were strong, but you had to run very fast if you pushed it from the outside.

Stopping it was a problem, too. You couldn't brake a rapidly spinning carousel by grabbing the axle. The easiest way was to drag your feet over the outer edge, but God help anyone standing by who tried to stop it by simply grabbing onto it: he or she would be dragged violently as if by wild horses. And you knew that the big sturdy carousels made of heavy pipes were more work to start and stop than small, lightweight ones. And, of course, they were harder to push if lots of people were loaded on them. You might even have been aware that an axle needed greasing from time to time. In short, you had some understanding of leverage, rotation, inertia and its relation to mass, and lubrication.

Baby Huey spinning wheels are a lot like those carousels pushed by the big kids. Leverage is a major factor. Usually their bobbins are quite large, which means there is a tremendous difference between the mechanical forces at play close to the bobbin shaft and those farther out when the bobbin is full. They are rotating bodies, and inertia comes into play in starting and stopping them. (Inertia applies to bodies in motion as well as at rest.) And they need lubrication.

But another factor may not be so evident: mechanical efficiency. You experienced this on the carousel, too. If your feet slipped while you tried to push it, you didn't make it move much faster. And when you tried to stop it, you depended on your feet slipping, or it would have pulled you to pieces. Similarly, slippage and friction are important aspects of the drive and brake systems of spinning wheels.

On a spinning wheel, slippage can be induced by easing the tension so that the drive band is loose. But a lot of these wheels have no tension control: the drive band is fused nylon, and its grip is always highly efficient. It is this feature, more than mere size, that makes them real Baby Hueys. They have no "gentle"—they just rip away. This mechanical efficiency is even more critical when you consider that the drive belt is directly attached to two masses in motion: the drive wheel and the bobbin. The bobbin alone on my wheel weighs nearly half a pound, and the drive wheel, much more than that. Furthermore, the flyer weighs another half pound, and the treadle, at least twice that much (I can't detach it to weigh it). That's a lot of mass for a fine yarn to have to deal with.

To understand this, let us reflect on how these bobbin-lead, single-drive-band wheels spin. When the bobbin and flyer spin at the same rate, all the rotary motion is imparted to the fiber in the form of twist. However, when the flyer turns more slowly than the bobbin, the yarn begins to wind on. If you were to stop the flyer, but continue to turn the bobbin, you would have essentially a bobbin-winder.

Fine yarns require high rates of twist and low take-up. This means that the flyer must turn at very nearly the same speed as the bobbin, otherwise the yarn will be drawn on too quickly, and, not having sufficient twist to

withstand the pull of the bobbin, will drift apart or break.

The flyer is slowed by two things: the friction of the flyer shaft against the bearings on the maidens, and a friction brake band. On the other hand, friction between the flyer shaft and the bobbin tends to cause the flyer to spin at the same rate as the bobbin. Unless the flyer shaft and the inside of the bobbin shaft are well lubricated, the braking system will be useless. You lubricate the flyer shaft well so that the flyer can spin independently of the bobbin. And you brake the flyer slightly so it will slow down and allow some drawing on of the yarn. *In practice, you do not normally need the friction brake when spinning fine yarns—you need to lubricate the flyer shaft and let its own weight provide all the braking action.*

And this is where Baby Huey tends to get out of control.

In drafting, when you hold back on the yarn, you are applying resistance to the entire system, not just the yarn and flyer. This would not be much of a problem if you could loosen the drive belt and take advantage of slippage. But since Baby Huey has no "gentle", holding back on the yarn leads to a tug-of-war between you at one end with the untwisted fibers, and the force of the rotary motion of the bobbin mass and drive wheel, and the vertical motion of the treadle mass, at the other. You need to hold back just enough to draft and to impart a bit of drag to the flyer, but not enough to let the implacable tug of the bobbin break your yarn. That is rather like trying to brake the rapid spin of that playground carousel. The only way your yarn can hope to survive the experience is by taking maximum advantage of leverage. *So the finer the yarn, the further out from the shaft of the bobbin you must work.* Don't be afraid to fill the bobbin almost to capacity—you can even use thrums for that! On a five-inch-long bobbin 90% full, you can still get several ounces of fine yarn.

None of this will have come as a surprise. I think most spinners know that by starting with a relatively full bobbin, lubricating well, and disconnecting the friction brake on the flyer, you can manage a finer yarn. And yet, yarns still tend to break, usually just *after* starting or when stopping. Baby Huey still needs reining in.

Sudden starts and sudden stops will almost always break a fine yarn. Why? Inertia again, without benefit of slippage. If you start suddenly, the well-lubricated flyer tends to remain at rest for a fraction of a second. In other words, you start with wind-on, not twist. The first bit of fiber is either unspun or underspun. It may survive the initial yank but tends to drift apart just as it is being wound on. The solution to this problem is to *back a few inches of spun yarn off the bobbin before restarting the wheel.* These extra inches will enable Baby Huey to "shift to spin" before you begin to attenuate fiber.

Yarns break when you stop for just the opposite reason. Inertia causes the flyer to continue to turn, and its impact on the yarn (especially if it is held taut—and we

often tighten up when we stop treadling) may be enough to break the yarn.

It is obvious that no matter how well you spin these yarns, they are going to be subjected to more stress than they would on a more suitable machine. It is a good idea to aim at a really uniform yarn. And worsteds, which are inherently stronger, can be spun more finely than woolens.

To repeat, spinning fine yarns on bobbin-lead, single-drive-band wheels with large bobbins requires: a) plenty of lubrication; b) a nearly full bobbin; c) disengaged friction brake; d) care in stopping and starting; and, e) structurally sound yarns.

Much the same principles apply to wheels with double drive bands, but with two important differences. They provide for tension adjustment, so you can exploit slippage, and the whorl ratios are often more favorable for a slower take-up. I used a wheel of this type for two years (the Hemlock Hill Spinner) and never had any particular problems spinning at about 4000 yards per pound, with the long draw.

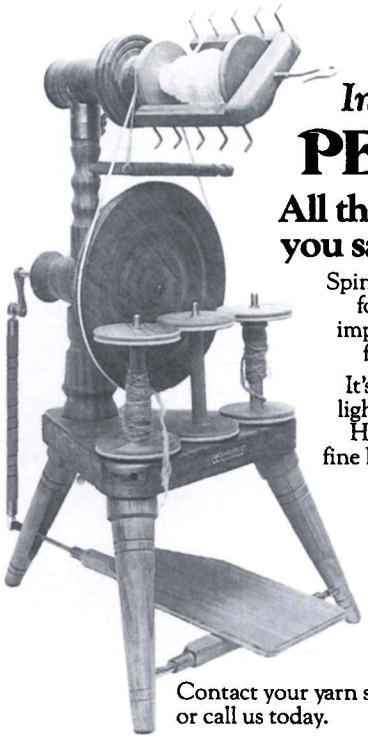
And on "Baby Huey"? I recently tested the limits. Using a worsted draw, I found I could consistently produce a medium-twist yarn at just under 5000 yards per pound, starting from a bobbin 80% full. If I am willing to struggle against draw-on, I can manage to spin a yarn at close to 9000 yards per pound, firm twist, from a 90% full bobbin.

But is it worth it?

If I spin fine yarns only occasionally and do not need a very soft twist, Baby Huey is all the wheel I need, and a very good bargain indeed. If I need soft-twist yarns only now and then, I can use a supported spindle. But if I want to do much fine spinning for yardage or multi-ply knitting yarns, then spinning at the technical limit of a wheel is not the best solution. It can even adversely affect your spinning—the proof of that came recently when I tried to spin some medium-weight yarn with the long draw. I was nearly as tense as a novice spinner: I had gotten used to reacting to the wheel, not responding to the fiber. Furthermore, a wheel engineered for fine spinning produces fine yarns much more rapidly and with less strain on the spinner. I have a trunk full of silk and cashmere, precious gifts from friends, but I put off spinning them. It was too much work—or rather it was *tense* work, not play. Meanwhile, I had been spending money on commercial yarns for the scarves and afghans I was asked to do.

Baby Huey was never meant for fine spinning. Perhaps it is time to find a wheel designed for fine yarns. Then, whether I spin rug yarns on Baby Huey or yarns as fine as eider down, it will be like water off the back of a duck! □

Fr. Dave Centner, O.C.D., currently resides in Rome as English-language secretary and translator for his order. He weaves or spins a bit daily. He finds it helps him unwind mentally after a day in the office and fosters recollection before evening prayer.



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an excerpt from *HANDS ON SPINNING* by Lee Raven

Problems With Your Flyer and Bobbin Wheel Spinning

1. The yarn doesn't take-up, won't wind on.
First of all, remember that the flyer and bobbin have to travel at different speeds for wind-on to take place. On single drive wheels, be sure the brake band has enough tension to slow the bobbin or flyer as needed.

On double drive wheels, be sure that one loop of the drive band is on a flyer whorl, and the other on the bobbin whorl. It is easy to inadvertently put a loop on each of the flyer whorls, or both on the bobbin whorl, and in that case, no wind-on can take place. Check that the drive band has enough tension on it to turn both flyer and bobbin, and is not just slipping around the whorls.

After you've checked the drive and brake bands, look closely at the yarn traveling over the hooks. Sometimes the yarn, or a tangle of fibers, can get looped around a hook and get caught there. Or sometimes the yarn has come off the hooks completely. Check also that the yarn didn't get wrapped around the flyer shaft, which can happen if you try to wind the yarn on too quickly.

If you're just starting a bobbin, it may be that your leader yarn is not secured around the bobbin, and is slipping instead of pulling on the yarn. Tighten the knot, or simply turn the bobbin by hand to wind several layers of the leader tightly over the knot.

It is possible that your yarn is too thick to pass through the orifice and eye of the flyer. Check the entire path the yarn takes to see if it is getting caught up in one particular spot.

2. Too much take-up.
If you are working with a single drive wheel, loosen the brake band on either the flyer or bobbin as needed, until the take-up is just as you need it.

On double drive wheels, put the drive band on one of the flyer whorls with a smaller diameter for reduced take-up. You can also try loosening the drive band tension.

With any of these solutions, you are, in effect, decreasing the differential in speed between the flyer and bobbin, thus reducing take-up.

3. Drive wheel is hard to treadle.
All the moving parts of this wheel need to be lubricated to move smoothly and efficiently. Be sure the wheel axle and the treadle pivots are well oiled. Oil the flyer shaft at both ends of the bobbin, too, and at the extreme ends where they rest on the bearings.

The greater the tension you put on the drive band, the harder you have to work to turn the wheel. Adjust your drive band tension to be as loose as you can while still maintaining good wheel performance.

Make sure that the bobbin can rotate freely on the flyer shaft and that the flyer can rotate freely on its bearings.

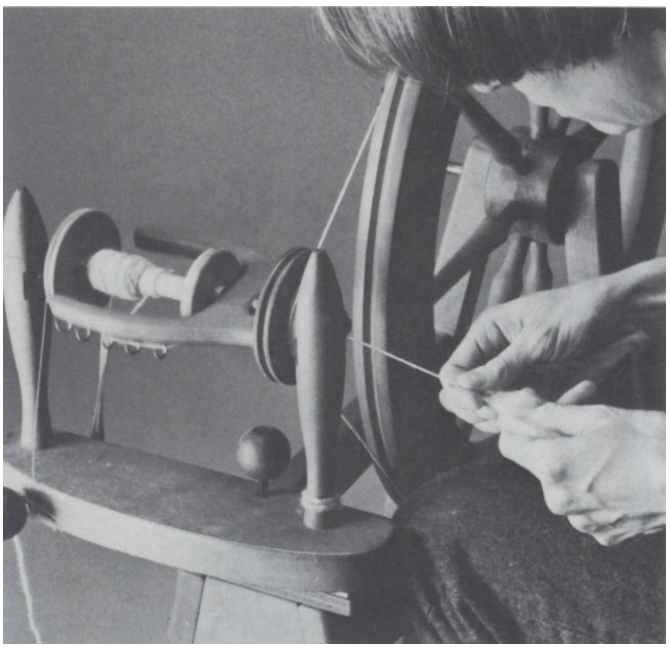
4. Too little twist going into the yarn.
Slow down your drafting just a bit, and speed up your treadling just a bit, so that more twist enters the yarn.

Decrease the take-up tension so that the yarn will wind on slower. If the wheel pulls the yarn out of your hand too fast, you won't be getting enough twist as you draft, and you may end up losing the end of the yarn into the orifice.

5. Too much twist going into the yarn.
Speed up your drafting just a bit, and slow your treadling, so that less twist enters the yarn.

Increase your take-up tension so that less twist enters the yarn during wind-on.

6. Losing your end.
If the wheel seems to grab the end and you lose it through the orifice, stop the wheel, find the end on the bobbin, rethread the end through the orifice, make a



The position in which you spin will affect both your stamina and the yarn you make. Relax—especially in your shoulders, neck and back—and remember to breathe easily.

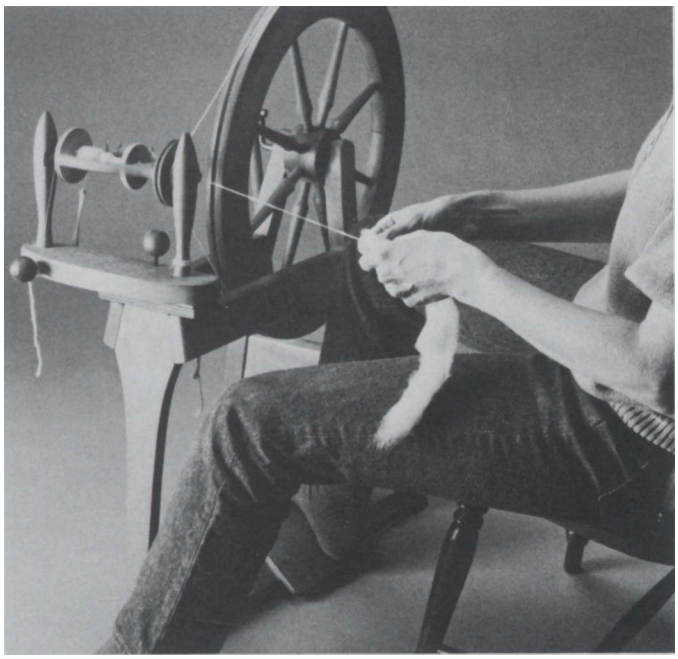
join, and continue spinning. Occasionally the end can be hard to find, especially if it was pulled in under a great deal of tension and got buried under the layers of yarn, or if it got so thin before it broke that it seems to disappear. In that case, try using a piece of masking tape to fish it out. It will also help greatly if you keep track of which hook you were on, so you know where to search.

7. "Throwing" the drive band.
If the drive band comes off the main wheel while you are spinning, it is because the groove in the main wheel does not line up properly with the groove in the flyer or bobbin whorl. Be sure that the maidens are aligned properly, and that the flyer and bobbin can each rotate freely. Unfortunately, some wheels are not made as well as others, and a thrown drive band can be a chronic problem.

8. Just can't get everything going at once.
Don't worry about it a bit. You can't focus your concentration on everything you've learned, and your hands and feet have all been given very different tasks.

If you have a friend who can help you, break up the tasks by having one person control the wheel, and the other person control the yarn (treadler sits, spinner stands). Don't switch places until you each feel comfortable with the timing and actions.

If you don't have someone around to help, all you have to do is back up a bit and remind your hands and foot once again of what they need to do. Practice treadling without spinning until your attention can wander freely. Practice spinning on the supported or drop spindle until the drafting feels more controlled and comfortable. Make sure the drive band has about an inch and a half of play in it (when you push it down with a forefinger), and that the brake band is just tight enough to wind the yarn on, and no tighter. Treadling should be easy, almost leisurely, and the yarn should stay in your hands when you want it to.



It's tempting to sit closer to the wheel and to try to spin right next to the orifice, but it's not productive. If you find yourself in this position, relax and sit back—or take a short break.

You'll have better control, and more time, if you work farther from the orifice. Don't let the drafting zone approach any closer than a foot from the wheel, and work even farther back if you can. This will give you time to see and appraise the yarn length you are working on and to make any adjustments in your drafting or treadling before it disappears onto the bobbin.

Putting It All Together

Take a deep breath, relax your shoulders and neck, and sit back in your chair. It is not at all uncommon to see spinners hunched over their wheels in concentrated effort, but it is not a position that can be maintained comfortably very long, and it doesn't enhance the smoothly flowing rhythms of spinning good yarns. In order to sit comfortably at your wheel for stretches of time, you need to make yourself relax your neck, shoulders, back, and thighs as much as possible. You will find that the more you are able to relax, the easier spinning rhythmically will become. And the more easily and rhythmically you spin, the more and better yarn you can produce.

As you spin, especially in the beginning, you may notice that gradually your shoulders, neck and back may tense back up as you work. You may tend to lean forward and over your work. Just be conscious of this happening and make an effort to relax again. Work in a well lighted and ventilated place, in a comfortable, but not soft, chair. Reorient yourself to the wheel so that drafting does not cause you to twist your back. You do not have to sit exactly square to the wheel, but rather in a position that will allow you to work comfortably.

If you're having trouble seeing your yarn clearly, try putting a contrasting background behind it, on your lap or on the floor. Black yarn against a white cloth or white yarn against a black cloth is much easier to see.

Once you've spun a bobbin or two of wool, you should start to feel more comfortable with the rhythms of drafting and treadling. You may notice that you can speed up your actions a bit, and at the same time, that your yarns are less likely to break or snarl. New spinners often say that there is a threshold to be crossed: in the beginning, nothing seems to work—least of all your hands—and then suddenly, everything begins to fall into place, as you get a "feel" for the new actions. That same feeling of initial clumsiness followed by a satisfying jump in dexterity is common to most learned physical activities, so if you feel awkward for a while in the beginning, remind yourself that we've all been there, and that a fine reward is waiting just around the corner. □

Spin·Off *editor Lee Raven had some busy times last year—in addition to her work on the magazine, she gave birth to a book manuscript and a baby boy almost simultaneously.* Hands On Spinning *is a complete beginner's guide, from hooked stick to drop spindle to flyer wheel, available from Interweave Press.*

Handspun GALLERY

Hand-dyed Angora Bunny Scarf

Jacque Hart
Scottsbluff, Nebraska

This homegrown, handspun, hand-dyed, handwoven Angora scarf makes a great project for novice spinners/dyers/weavers.

I started out with white Angora rabbit hair from my own animals, which I teased and then carded on hand cards. I find that carding helps to smooth the spinning process and to keep the fibers from flying around quite so much. I also use a towel on my knees when I spin angora, so I don't get the fibers all over my clothes.

Here's my dye procedure. First, thoroughly wet the skeins in hot tap water. Put some hot water in a roasting pan (reserved exclusively for dyeing) and add one-half cup of household vinegar. Heat the oven to 350° F. Lay the skeins back and forth as you lower them into the pan. Sprinkle the yarn with Kiton dyes (acid dyes) that have been placed in salt shakers. There don't seem to be any rules to this technique. I rarely get "bad" results, and even if I get something I don't really like, it is easily overdyed.

Place the pan carefully on the center rack in the oven and bake for one hour without stirring. Remove the skeins, wash in Ivory liquid, and rinse thoroughly. Hand the skeins on "S" hooks without weights to dry.

The scarf was 9" in the reed, sett at 10 e.p.i. The warp was 2½ yards long, including waste and take-up. The pattern was plain weave. I found that angora yarn must be pressed gently instead of beaten into the web.

After the scarf was taken off the loom, I tied overhand knots in the fringe and washed the scarf in Ivory, rinsed it, and hung it over a towel-padded rod to dry. Next I trimmed the fringe and then brushed the whole scarf with a dog brush to bring up the nap. The scarf weighs about 5½ ounces and required just over 400 yards of yarn.

The "Almost" Mt. McKinley Expedition Sweater

Erda Kappeler
Ukiah, California *(next page)*

My husband received this sweater three times: as a promise, as yarn, and finally as the sweater.

My mother, Gretl Schefter, had been looking for something to do, so we decided to make a sweater for my husband. The nearest wool I had was roving from a wool warehouse. It suited us just fine. I had no trouble spinning noil-free, two-ply yarn. My mother was able to knit with it easily, even though she has only limited vision left in one eye. Amazingly, she made the pattern up as she went! Every visitor to her house was asked to point out mistakes or dropped stitches—she could no longer see them. She gave this wonderful sweater to my husband in time for his expedition to Mt. McKinley in Alaska. Max got to the top, but the sweater never did—it was deemed too heavy and too warm!

Confetti Sweater

Pat Slaven
Benicia, California *(next page)*

I'm relatively new to spinning. This is the third sweater I've spun yarn for. Not too long after learning to spin, I went to my first sheep shearing, where I met a nice young black half-Cotswold ram named Tonto (the owner wasn't sure about Tonto's other half). I had his fleece processed at the Winters Wool Scouring Co-op, ending up with three pounds of spinnable sliver.

The black wool seemed to need something more. It was beautiful as yarn, but it seemed flat when knitted up. My spinning teacher had shown us how to spin bits of color into a one-color two-ply yarn by incorporating small puffs of dyed wool between the two strands as the yarn was plied. I'd played with this idea a bit, experimenting to get color and texture. However, I hadn't done any dyeing.

A friend from the Netherlands came to visit and conveniently had little tins of Dylon dye, the Dutch equivalent of Rit dye. She would dye whole fleeces in the grease to get heather tones. One day I took the red, yellow and blue dyes and mixed up controlled dyebaths for primary and secondary colors. I dyed clean white sliver and ended up with a rainbow of even colors. I developed my yarn by combining bits of red into the black two-ply and eventually enlarged on this to incorporate little pieces of the entire rainbow of dyed colors. I spun six bobbins of black singles at 8 t.p.i. and 1100 yd/lb. Then I spun one puff of color in each make (draw) as I plied two strands together. I varied the color sequence so it wouldn't be regular. I plied half a bobbin without colors for the borders.

I used a standard crew-neck style for the sweater and knit it to my friend's measurements. She's tiny and has short arms. She's excited about having a sweater with sleeves that don't need to be rolled up.

The sweater reminds me of looking through the slats of an old barn and seeing bits of the outside gleaming through.

Jacque Hart's Bunny Scarf is woven from skeins of angora that have been "sprinkle" dyed in the oven for a softly variegated color effect.

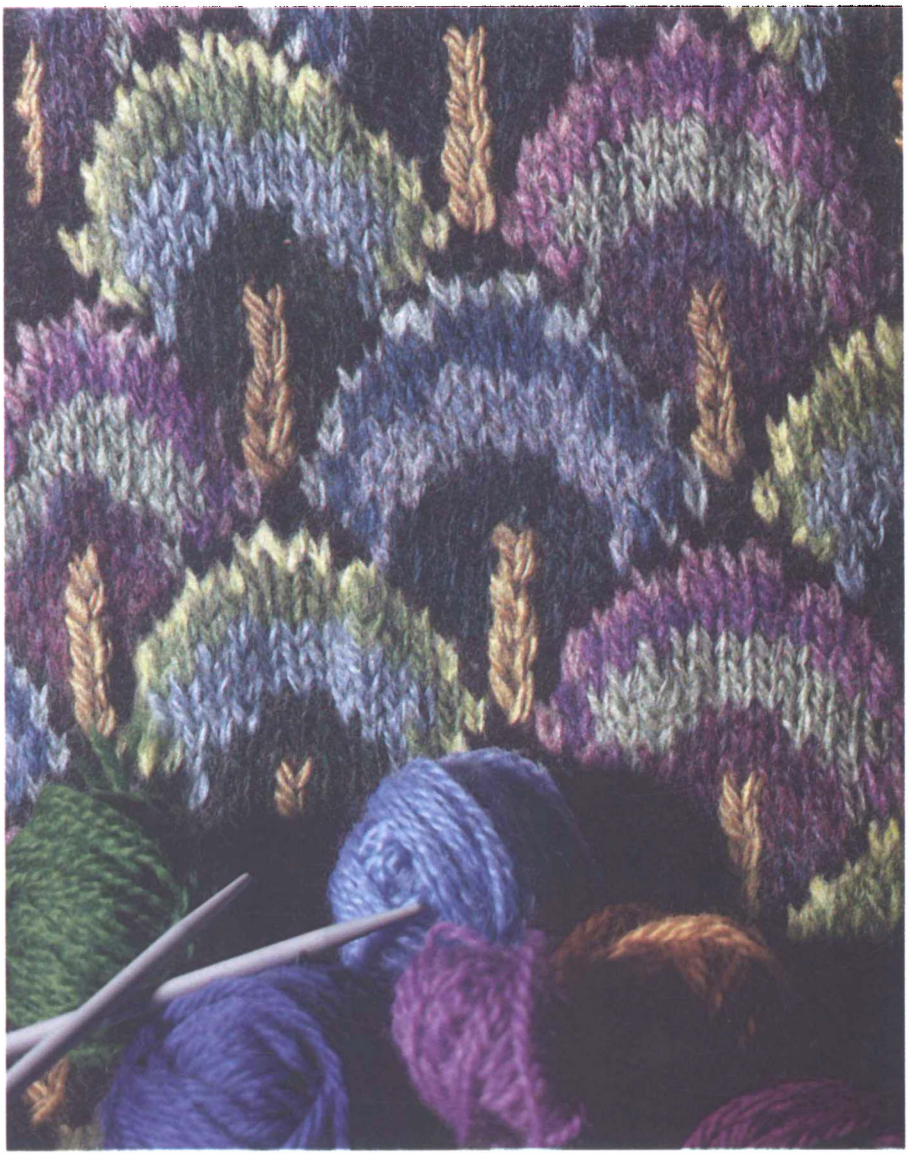
Erda Kappeler spun a two-ply knitting yarn from prepared roving for her husband's "Almost Mt. McKinley Sweater". Her mother knitted it, making up the pattern as she went.

Puffs of brightly dyed fleece spun into the ply of a natural black yarn add a bright, sporty look in Pat Slaven's Confetti Sweater.

Stained Glass Vest

Paula Shull
Silverton, Oregon
(on the cover)

Blended colors sing, and the slightly irregular two-ply handspun give character to the surface in Paula Shull's Stained Glass Vest. It's a design of complexity and depth, representing a lot of work—and a lot of play!



About a year and a half ago, I bought a copy of Kaffe Fassett's book, *Glorious Knits,* and pored through it time after time trying to decide which sweater I would tackle. Each time I chose a different one. There were quite a few techniques new to me that seemed fairly practical for intricate pattern knitting, if not strictly orthodox. Two of the ideas were: working with short lengths of yarn instead of from balls or bobbins; and knitting in the ends as the work progresses.

Still without a sweater design in mind, I began dyeing wool in cool tones of blue, purple and green. As I spun, dyed and finished the yarns, I tossed them all into the same box. Then one day it clicked —I had been looking through an old knitting pattern magazine and came across a pattern for needlepoint taken from an Art Nouveau pillow top. I decided that I could use what I had learned from Kaffe Fassett, in a pattern from the needlepoint design, using my dyed handspun, and "sparking" the colors with black outlines in the style of the French painter, Rouault. (He had been a stained-glass craftsman before he began painting and used black against colors to suggest the luminosity of glass.)

The wool is mostly from my small flock of Romney-Corriedale crossbreds, except for one double handful of gold-dyed Romney lambswool that I had purchased at a spin-in. The rest of the colors were solar-dyed with Kiton acid dyes in a fairly uncontrolled manner. There are three color families, four shades of each, that I blended in carding to get the colors I wanted. I blended some mohair into some of the more intense colors to give them a depth that the wool didn't seem to have. I used yarns in varying thicknesses, some singles and some two-plies, all spun semi-worsted with varying amounts of twist.

The structure of the vest itself is much the same as the Fassett waistcoat. After I successfully completed a sample swatch (it was hard to cut those lovely colors into snippets!), the knitting for the vest was completed in about four weeks. Since the design is seamless, there were only the shoulders to join and the facings to stitch down. I did add a lining, because it improves the ease of wear and hides a rather cluttered-looking inner surface.

To finish the vest, I washed it in medium-hot water with detergent, kneading it just enough to slightly felt down the ends inside, rinsed it with a fabric softener in the final bath, and blocked it to dry.

Plying a Balanced Yarn for Knitting

by Celia Quinn

PLYING CAN BE used as a means to offset the tendency of a stockinette-stitch fabric to slant or skew when knitted with single-strand yarns spun with more than a soft twist. But it is *also* possible for fabrics made from plied yarns to skew. Plying only counteracts skewing when the *correct* amount of ply twist is used to balance (or neutralize, stabilize) the amount of twist inserted while spinning.

ACHIEVING A PERFECTLY BALANCED PLIED YARN FOR KNITTING TAKES A LITTLE THOUGHT AND PLANNING—BUT THE RESULTS ARE WORTH IT!

Skewing is the result of yarns having an excessive amount of 'S' or 'Z' twist. In yarns that have been spun clockwise, the fibers slant in the direction of the center shaft of the letter Z (Fig. 1). Fibers in yarns spun counterclockwise slant like an S. If you knit a stockinette-stitch swatch from a firmly spun Z-twist single, the fabric skews like the letter Z, while a swatch knit from a firmly twisted S single skews like an S (Fig. 2). This can also happen when using plied yarns. If, for example, you spin a firm Z singles, but ply S very loosely, there is obviously more Z twist than S twist, and the fabric will be likely to skew like a Z. If you spin a soft Z singles and then ply S very tightly, the fabric skews in the S direction.

It is possible to construct a plied yarn in which the spinning twist is exactly neutralized by the plying twist, so that the yarn has no excess twist in either direction, and as a result will not skew in knitting. For my understanding of how this occurs, I would like to thank Mabel Ross for her explanations in *The Essentials of Yarn Design.*

You've all observed how a newly spun Z-twist length of yarn can double back on itself (in an S twist) into a plied yarn. That is an example of a singles yarn untwisting itself exactly enough to create a relaxed, balanced two-ply. If the ends of that length of plied yarn are brought together, the yarn hangs in a relaxed loop and does not try to kink on itself (since the Z twist is neutralized by the S twist).

If your yarn is plied shortly after it has been spun, it can be checked for stability in a manner similar to that just described. As you ply, let the twist enter a length of two singles held under tension. As an experiment, after treadling just a few times so that the yarn is *barely* plied (and there is an obvious excess of Z twist), bring the ends of the *underplied* yarn toward one another (making a four-ply). The yarn relaxes back on itself in an S twist, since there is more Z twist than S (ply) twist. Straighten the length of two-ply and begin to treadle again. After treadling several times, let the length double on itself again. It may relax again in an S twist, but much less vigorously. After another treadle or so, it won't double on itself, but will hang in a relaxed loop. At this point you have the same amount of S and Z twist in your yarn —they neutralize each other. If you were to stretch out the yarn once more and continue treadling, you would see that soon the yarn would kink on itself in a Z conformation, meaning that the yarn is *overplied* and has an excess of S (ply) twist.

This method can be used to determine how many times you need to treadle to neutralize the twist in each length of yarn during plying. However, it only works if the yarn being plied has been newly spun. If the yarn sits on the bobbins for a while before plying, the twist becomes temporarily set, so that the yarn no longer acts lively and doesn't readily kink up on itself. A yarn like this will behave as if it has little or no Z twist in it, so that *any* addition of S twist in plying will make the yarn act as if you have plied too much.

Fortunately there's a wonderful formula that can be relied upon to tell you how much S versus Z twist to use in order to produce a balanced yarn. It frees you from having to spin and ply within a short time span. In order to use the formula, you have to develop a standard-length draw while spinning and plying. In so doing, it is possible to count the number of treadles per draw during both processes.

The number of treadles per draw you use will be determined by how much twist is desired in the yarn. A softly twisted yarn which is then lightly plied has a very soft, limp feel. A more firmly twisted yarn which is made into a balanced ply has more body and elasticity. If you know what kind of yarn you are after, you can simply spin a length, double it on itself, and adjust for more or less twist, depending on whether the plied length looks softer or harder than you want it to be. I often work in this manner, but if you want more specific guidelines for how many twists per inch different types of yarns require, you will find the aforementioned book by Mabel Ross very helpful.

Now back to developing a standard-length draw. Since I employ similar movements while spinning and plying, the standard-length draw is easily repeated. I spin most fibers and yarns using a long draw, where my hand draws the fibers back away from the orifice in a long sweep at the rate the twist is entering the fibers. I make a standard draw by drafting the fibers back until my arm is completely extended, then I wind on the whole length. I count the total number of treadles it takes to achieve the

particular yarn that I'm spinning, as I draft out and then wind on (most of the treadles occurring on the way out, and just two or three during wind-on). When plying, I extend the lengths of yarn back to the same place (where my arm is straightened), then pinch the twist off at that point and treadle the appropriate number of times.

It's somewhat trickier to do this with the worsted (push-pull) method, since that entails drawing short lengths of yarn, and plying usually involves longer lengths of yarn. One way to approach it is to feed a standard length of yarn per treadle (two inches, for example). Then establish a standard-length draw for plying—say 30 inches—and figure how many of your short draws would equal the length of your 30-inch draw when plying (15 in this case). Then you would know the number of treadles it takes to spin the 30-inch length of yarn so that you could figure the number of treadles necessary to balance the same length during plying.

Fig. 1

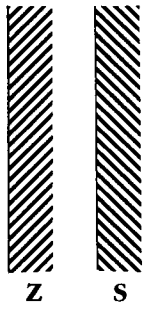
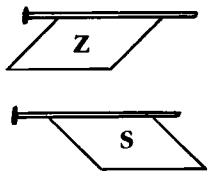


Fig. 2



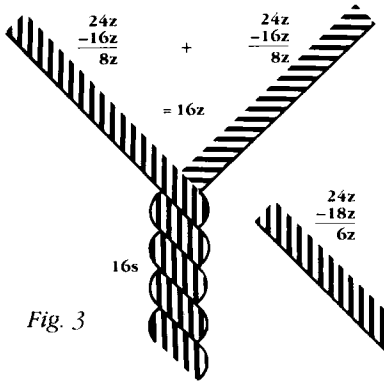


Fig. 3

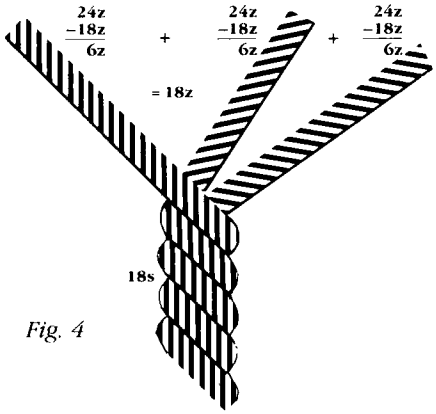


Fig. 4

Now comes the formula for figuring the precise amount of plying twist to neutralize the original spinning twist. The amount varies depending on the number of plies. A two-ply requires ⅔ of the original Z twist in the S or plying direction. A three-ply requires ¾ of the original twist during plying, a four-ply ⅘, etc. The fraction for any number of plies is simple: the top number of the fraction is the ply number (two-ply, three-ply), and the bottom number is the ply number plus one.

The following description explains how the formula works. Let's say that your yarn had *24 treadles* for each length of yarn spun with the long draw. For a two-ply to be balanced, two-thirds of those 24 Z treadles must be inserted during plying for each length: ⅔ of 24 = *16 treadles* of S twist per draw. When S twist is inserted, Z twist is being removed (untwisted).

As you ply at the rate of 16 S treadles per draw, 16 Z treadles are removed simultaneously from each strand. You are left with eight of the original 24 Z twist treadles in each strand: 8 Z + 8 Z = 16 Z treadles balanced by the 16 S treadles (Fig. 3). If you wanted to make a three-ply from the same singles yarn, ¾ of the original 24 Z-twist treadles (¾ of 24 = 18) would have to be removed while plying (Fig. 4).

Let's do a worsted example. We'll assume you fed two inches of yarn for each treadle while spinning, and your ply length was 30 inches. The same length (30") in spinning would have required 15 Z treadles, so for a two-ply, you would need to use two-thirds of the 15 Z treadles, or ten treadles, while plying to balance each 30-inch length of yarn.

Test the formula for yourself by spinning some yarn (counting treadles); calculating the ply twist; plying it immediately (counting treadles as per formula); and testing it (by letting it ply on itself) every few treadles to see how many treadles it takes to become balanced (check by relaxed loop). Did the formula work? Test a few lengths to allow for possible variation in your drafting length and treadling.

For a large project, you could start double-checking the formula in the above manner, and then switch to using only the formula. You won't have to ply the singles immediately, and you can be assured of a stable yarn.

You should also consider whether you want your yarn loosely or firmly plied. I prefer my yarns firmly plied so that the strands don't split easily while I'm knitting. Since two-thirds of the twist is removed when plying a stable two-ply, a firmly plied yarn must be made from firmly twisted singles. A softly twisted single would become balanced with very little ply twist, resulting in a loosely plied yarn.

I have found that balanced yarns have a lot of elasticity (an 18-inch length of a balanced two-ply I made stretches to 24 inches), which makes them delightful to knit with. That elasticity can be accentuated by using a fine, crimpy wool that's spun with a fair amount of twist, and by not weighting the skein of plied yarn to set the twist. Since the twist has been neutralized, there are no kinks of residual twist that need to be set (if your singles are not plied immediately, the yarn will *act* kinky until it gets wet, and then it will hang straight). After plying, simply wet or wash your yarn, stretch it out lightly, and lay it flat on a towel to dry. The resulting yarn will have much more elasticity than yarn which has been set with weights, or under tension on a yarn blocker. □

Santa Cruz, California, is home to Celia Quinn—when she's there. She teaches workshops all over the country, and only seems to "visit" home. When she is there, Celia works diligently on her own spinning, dyeing, knitting, weaving and writing projects, but she always manages to find time to work for the Nuclear Freeze Movement.

Handspun for Kaffe Fassett Sweaters

by Brucie Adams

BY NOW, ALMOST all knitters are familiar with the work of the innovative Kaffe Fassett. The most noticeable feature of his designs is his use of many colors in simple geometric patterns. The results are stunning. After making a couple of sweaters, though, it occurred to me that there had to be a better way to make color changes than coping with all those horrid yarn ends. True, Fassett's "weaving" method of dealing with the ends as-you-go is an improvement over sewing each one in, but it's still a nuisance.

SPINNING THE COLOR RIGHT INTO YOUR YARN MAKES COMPLEX PATTERN KNITTING A BREEZE. ADD A SPECIAL TRICK FOR DEALING WITH LONG FLOATS, AND YOU'RE WELL ON YOUR WAY TO AN EYE-CATCHING, ONE-OF-A-KIND SWEATER.

The answer to the problem is obvious to any spinner—spin the yarn with the color changes incorporated within the yarn length.

With this in mind, I ordered several rainbow batts with one series in the blue/green/brownish range and the other in reds, purples, and pinks. I separated the batts into their component colors and spun the colors sequentially. I used the long draw technique, drafting the fibers in the same direction that they had been laid down by the carding machine. Although I didn't measure the yards per pound, I spun the singles finely enough so that a three-ply would equal a worsted-weight knitting yarn. In order to keep the colors distinct and separate, I plied the yarn using the Navajo method (see pp. 36–37 of the Summer, 1985 *Spin·Off*).

For the most part, both sweaters were knit on a knitting machine. The patterns were both adaptations of instructions in Fassett's book, *Glorious Knits*. I simply did a gauge swatch, and, with the aid of my trusty calculator, converted my own row and stitch count to get the correct size. For the zigzag sweater knit in the Fair Isle technique (knitting edge to edge with the unused colors carried across the back of the knitting), I wanted fairly large sections of each color. Therefore, I had to spin about one-fourth to one-half ounce of any given color before changing to the next one, keeping in mind that the length of single-ply yarn would be reduced by approximately two-thirds when Navajo-plied.

I knit the body on the knitting machine, but I ended up knitting the sleeves by hand. My first attempt at knitting the sleeves yielded one of dark and somber hues and one of bright and vivid hues. Added to the already "busy" pattern of the sweater, the overall effect was too harlequin-like. It occurred to me that if I knit the two sleeves simultaneously, they would come out virtually the same. That's what I did, first knitting the two cuff ribbings, then adding steeks on each side of the sleeves. I machine-stitched the steeks and cut them apart, as for any sweater which uses steeks (see *Knitting in the Old Way* by Priscilla A. Gibson-Roberts, Interweave Press, 1985). Voilà—two almost identical sleeves!

Another invention, of which I am rather proud, is a way to handle the long floats in Fair Isle knits, caused by carrying yarn over more than five stitches. The machine-knitting technique for dealing with these is to lift up a float from the preceding row onto a needle, so that it is knitted with that stitch on the next row, nicely catching it. It seemed that this same method would adapt to hand-knitting, so I tried it. It worked famously. No tangled strands, just simple knitting with the two different yarns held one in each hand, combining Continental and English knitting styles. (I've been told this solution can be found in a knitting instruction book, but I haven't found it yet.)

The way to do it is this: knit the first row, paying no heed to how long the floats are, but being sure to leave a *lot* of slack in them. On the next row, midway over the float, use the tip of the right needle to lift up the yarn and place it diagonally over the tip of the left needle. Then knit the float and the next stitch together. If the float is very long, this can be repeated twice, or, I suppose, even more often. It is possible that this method might not be satisfactory with, say, black on white, because of a shadow effect, but such shadows often appear using the traditional method of wrapping the yarns around each other as well. It is important to leave sufficient slack in the floats, because the slight diagonal line tightens them more than usual.

The vest was knitted using the intarsia technique, in which several balls of yarn are knit simultaneously, each one used for a different large-pattern area. Because each strand would not extend the whole width of the knitting, a different spinning technique was necessary. I spun only small handfuls of each color before changing to the next one. Other than that, I used no special techniques with this sweater.

These sweaters provided a lot of enjoyment, both in the knitting and in the spinning. My enjoyment was certainly enhanced by not having to spend a lot of fiddly time dealing with numerous stray yarn ends. □

Brucie Adams is a frequent contributor to Interweave Press publications. Her Machine Knitting with Handspun workshop at Spin·Off Rendezvous was a great success. Brucie lives in Laramie, Wyoming, the heart of sheep country.

Brucie Adams' two "Kaffee Fassett" sweaters are machine knitted, with hand knitted sleeves on the left-hand sweater.


SR401 S

Cross-Country Ski Set

by Louisa Chadwick

THIS IS A tale of how one person can take the ideas of many people and combine them all into a project that somehow still remains totally personal. I had no idea when I began that all my time and effort would be so well rewarded at the Association of Northwest Weavers' Guilds' conference, "Fibres Forever", where my Cross-Country Ski Set was given an Award of Merit. I didn't even start out to make anything in particular.

It all began when I was playing with some of the dye formulas in Michele Wipplinger's *Color Trends* and applying them to small amounts of purebred Romney fleece from a local Fraser Valley farm. For some of the colors, I used my new Lanaset dyes, some came from Ciba acid dyes, and the lightest shades were produced in exhaust baths. The whole process took about eight hours, and even then, I didn't want to stop! I ended up with 12 colors, most of them rather difficult to describe: grayed blues, blue-violets, sage-y greens, dusty rose, peach, and a rusty orange that looked luminous against the duller colors.

Then came the spinning. The many colors seemed to suggest a Fair Isle pattern, so I decided on a two-ply knitting yarn. I teased and machine carded each little pile of fleece and tore the resulting batts lengthwise in a zigzag to form a continuous roving. I spun the singles with a medium twist using a modified long draw, then plied to balance the twist. The resulting two-ply averaged about 1000 yd/lb. After spinning in every spare moment for what seemed like a century, I had 12 balls of yarn in various sizes. By then I was beginning to get an idea for the next chapter of the story.

The 1985 fall/winter issue of *Knitters* magazine had a lovely tam by Nancy Bush in a pattern she called "Bogus Bohus". Bohus patterns began in Sweden in the 1930s and consisted of one or two colors carried in a row, like Fair Isle, with the addition of purl and slip stitches to provide even more color pattern and texture. Nancy used six colors for her pattern, but I couldn't bear to part with any of my 12 and used all of them. I knitted the rib with 2.75 mm needles and added elastic thread for a tam that would stay on. Then I switched to 3.25 mm needles to achieve the correct gauge, and chose the lighter blue-violet for my main color; the rest of the pattern just sort of fell into place.

After knitting the tam, I still had plenty of yarn left. My small hands do not fit well into ladies' glove sizes, and gloves to match the tam sounded like a good idea. It certainly wouldn't take much yarn. The 1984 winter issue of *Spin·Off* contained Rita Buchanan's pattern for gloves with the baby finger slightly lower than the others for a close fit. I reduced the amount of stitches to fit both my hands and the Bohus pattern, and I fudged the pattern a bit at the thumb gusset. I chose 2.75 mm needles to get a tighter fabric for the gloves than for the tam, both for extra wear resistance and to help in sizing them smaller. Each glove took a lot of concentration and about a week to knit. They don't fit anyone else but me, since every finger was tried on and knit to my exact length.

For the last chapter of the tale, Celia Quinn's "Basic Boot Socks" in *Spin·Off*'s 1986 summer issue were perfect. The soles of the socks had to be long-wearing, and I thought my woolen-spun yarn was not quite adequate to the task. I went back to the dye-pot and the spinning wheel for a matching two-ply worsted yarn. Thanks to Celia's clear instructions, my first pair of socks knit up very easily—and by that time I almost had the color pattern memorized. I used 3 mm needles for a gauge between those of the tam and gloves.

A SUPERBLY SPUN KNITTING YARN, HAND-DYED IN GLORIOUS SHADES, LED TO AN AWARD-WINNING SET BY THIS CANADIAN SPINNER.

The tale is done and I have the socks, gloves, and tam as a whimsical addition to my rather unorthodox skiing outfit. Unfortunately, now that the set has been such a center of interest, I'm afraid to wear it and subject it to the tortures of poles and boots that will inevitably turn it to felt! □

Using Michele Wipplinger's color formulas, Nancy Bush's tam, Rita Buchanan's glove technique, and Celia Quinn's sock patterns, Louisa Chadwick created a completely original matching set.

Louisa Chadwick is a Vancouver, British Columbia, native, as are her husband and two teenagers (a rare breed in the cosmopolitan city). Louisa began knitting when she was eight years old, but it wasn't until about 1975 that she became a fiber addict when her husband made the mistake of giving her a drop spindle and some carded raw fleece. A room-full of equipment later, Louisa is still going strong. Her 15-year-old daughter has become the youngest member of the weaving guild, and of course she wants her own spinning wheel, and carders, and fleece . . .

References

Color Trends, Michan Enterprises, 8037 9th Ave. NW, Seattle, WA 98117.

Knitters, Golden Fleece Publications, 335 N. Main Ave., Sioux Falls, SD 57102.

Highly twisted yarns combined with a structurally stable lace weave create the stretch and buoyancy of a knitted fabric in this woven vest by Patricia Emerick. Instructions are on page 46.

VEST WITH A HTIWDIDSETN

by Patricia Emerick

My fascination with the possibilities and potential of collapse fabric began when I read Bette Hochberg's article on crepe yarns which appeared in *Spin·Off* (1981 annual). Although it was several years before I had time to begin experimenting, I read and reread the article many times. Finally, last year, I began spinning my first crepe yarns. The movement and collapse that occurred in my first piece was enough to keep me hooked for a long time.

Throughout this article I will call the yarn that we are discussing a "crepe" yarn and the fabric that it produces a "collapse" fabric. In considering different ways of creating collapse, I found that all the fabric I'd seen had been done in plain weave. What would happen, I wondered, if a different weave structure were used? I decided to begin with a lace pattern, since an open weave would allow the most movement in the finished cloth.

Because collapse in the fabric is created by overtwisting the yarn, I knew that in order for the fabric to retain a soft hand, I needed to begin with a very soft fiber. I chose Sharlea Merino, an extremely fine luxury wool from Australia. I then searched through my weaving magazines and books for a pattern, and finally settled on Swarthmore Lace from Davison.

I can't stress enough the importance of weaving samples when using yarns spun for collapse fabric. Collapse in fabric width can often be 55-65%. Obviously, when designing fabric for clothing, your calculations must be very accurate. In sampling, I usually begin with a sett that is half of what I would normally use for a balanced plain weave. For example, if my sett for a "normal" single would be 20 e.p.i., I begin experimenting with crepe singles of the same weight sett at 10 e.p.i.

Your yarn must be uniformly spun (both in twist and diameter) from beginning to end. It's a good idea to spin all the crepe yarn to be used for the fabric at one time. If you use the spin-as-you-go method, you will often find that your spinning has changed subtly, and even slight variations will produce areas that collapse more (or less) than the rest of the fabric. My top has one small area in it (now strategically placed in the lower back) that collapsed slightly less than the surrounding fabric. Although the difference is slight, it is noticeable upon close inspection.

Now I was ready to begin spinning for my sample. I first spun the Sharlea into a fairly firm single and then respun it (just adding twist) directly from the bobbin. I counted the times I treadled per predetermined draw length. I also occasionally checked the twists per inch by allowing the yarn to double back on itself and counting the turns in one inch. I generally respin my crepe yarns to just below the point where they corkscrew and cannot be straightened out. (Be sure and use the fastest, or smallest, whorl on your wheel, if you have a choice.) Respinning is a good project for while you're watching television or minding the children, since you are only counting the times you treadle and are not actually spinning.

After they are spun, I run my yarns through a sizing solution (two and a half cups of water to one envelope unflavored gelatin) directly from the bobbin onto a blocker (yarn reel). Crepe yarns should be kept under tension at all times until the sizing has set. Sizing the yarns before weaving makes them much easier to handle and helps cut down on abrasion from the heddles and reed. This sizing works well on all types of fiber. I have used it for silk and cotton singles as well as wool, and I rarely have any broken warp ends. I size both warp and weft yarns if they are crepe.

After the yarn dried, I proceeded as usual in warping the loom, winding bobbins, and weaving. On this specific project, the only problem I had was with the tension on the threads on shaft one. They sagged badly after only 12 inches or so of weaving. As my sample had already warned me that this would happen, I was prepared. I put more weight on these threads by inserting a lease stick over them near the back beam and weighting the stick on both ends. I also used a floating selvedge on each side. I beat the weft in very lightly, thus the fabric resembled a lovely (and very open) patterned window screen while on the loom. I hemstitched both ends.

After I cut the fabric from the loom, I washed it in hot, soapy water without agitation, rinsed it, and laid it flat to dry. The finished fabric was soft, spongy, and elastic, closely resembling a knitted fabric. A newly found friend, Stephanie Thompson, added some much needed sewing expertise and shaping details to this simple top.

Spinning yarn for collapse fabric is an exciting and unique use of our handspinning skills. The possibilities for these yarns, and the resulting fabrics, have only just begun to be explored. Plain weave, lace weaves, twills, etc.—all have inherent structural differences, which, when woven with crepe yarns, can create fabrics unlike any others you've worked with before. I would encourage you to try a simple project that will enable you to gain confidence and an understanding of what happens when yarns collapse. □

Strongsville, Ohio, in the greater Cleveland area, is home for Patricia Emerick and her family. Patricia started spinning about four years ago, and found early on that fine spinning was her area of interest. She now combines fine spinning with her studies in crepe yarns and collapsing fabrics; she teaches these two topics locally in evening classes, and will be sharing her expertise at Convergence in Chicago next summer. Patricia is interested in sharing news, questions and experiments involving collapse fabrics with other spinners. If you think you'd like to take part, you can write her at 20411 Arlington Drive, Strongsville, Ohio 44136. And congratulations are in order: the baby is due in January.

IN THE Navajo Way

by Ginger Jolley

What follows is a description of the process I use to transform a 14-pound white Romney fleece into handspun warp and weft to weave a three-by-five foot tapestry in the Navajo way. Many weavers use similar methods to process wool, incorporating changes based on wool type, tools, experience, and the yarn desired. My main purpose here is to give you an idea of what is involved in processing large amounts of wool for this type of weaving.

The unavoidable question from visitors in my studio is "Why bother with this mess? Surely you can buy commercial yarn and save a lot of work." We should deal with this dangerous question now, because by the time we've started spinning the 29th skein, we'll wonder ourselves.

For weaving in the Navajo way, it is almost impossible to find comparable commercial yarns that will work as well as our own handspun. If you do find such a yarn, it may be of good quality, but the cost for the amount you need is likely to be prohibitive. Also, by spinning your own, you can accumulate a "yarn bank", a large supply of white skeins ready to be dyed to just the colors you choose. If I need red, my yarn bank can supply ten skeins of the same red, or two of red, two blue-reds, four hot reds, and several cool purple-reds. Having this yarn bank available adds to the pleasure and efficiency of weaving. Another advantage of spinning your own is that you can rely on the yarn. You know you'll have even strength for good tension in the warp and a yarn that is consistent in diameter, ensuring a crisp design. If a problem develops, you'll be able to trace it down and solve it. The biggest payoff is the absolute beauty of handspun in the finished tapestry.

One certainty about processing a whole fleece at once is that the weaver enters the hardball arena of fiber processing. Be prepared to work an eight-hour day for six to eight weeks to finish the task ahead. Remember, this is an enormous amount of wool. The long effort will result in enough spun warp and weft to last six to eight months. If you spin natural colors for an additional week, you can stretch the supply to last well over a year.

Naturally, not all of you are full-time weavers, nor is it always desirable or practical to process a full fleece in one big gulp. Keep in mind that the following steps can be adapted to work for as little as one pound of wool.

"Star Rug", 5' × 7'. Natural dyes of madder, cochineal, logwood & lichens.

Selecting the wool

Finding beautiful, top quality fleece is much easier now than when I began looking 12 years ago. The classified section of this publication is a gold mine of sources. Buy the samples offered and request all the information available. I use most of the long lustrous fleece types for spinning tapestry yarn. Lincoln, Romney, Border Leicester and assorted cross-breeds are excellent, in addition to New Zealand wools. If you want to use the traditional Navajo wool, the Churro, contact Dr. Lyle G. McNeal, Director of the Navajo Sheep Project, Department of Animal, Dairy and Veterinary Sciences, Utah State University, Logan, Utah 84332-4850. It is certainly worth writing a letter and giving a small donation to learn about the magnificent job these people are doing to preserve the American Navajo-Churro sheep.

Tapestry yarn has a high fiber count; it is hefty compared to a fine yarn, but it is not a rope either. We want a yarn of "medium" diameter, which is always consistent and that has enough twist to be firm. I'll explain why later. The point here is that the spinner will be drafting more fibers into the twist than for a fine yarn, and it will be much easier to do that if this fleece has been washed.

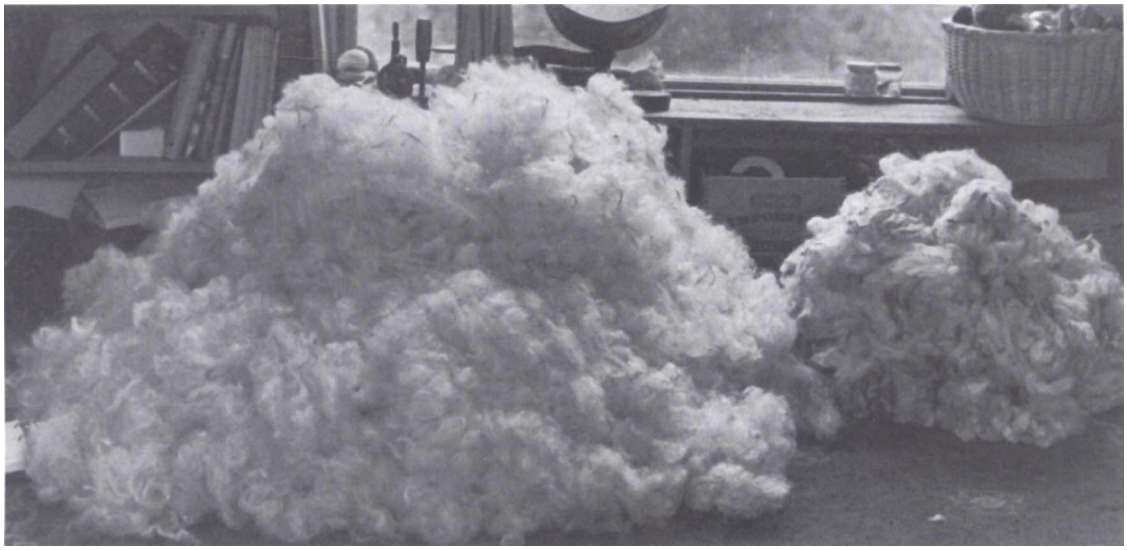
We will be using all of our fleece: the neck, sides, belly, shoulders, everything. This is a matter of economy, both of time and of fleece, and is true to the Navajo method. After cleaning, it will be necessary to tease the dry fleece in order to combine all of the parts. If we do not distribute the fibers in this manner, the carded batts will be uneven, resulting in uneven yarn and a mottled, odd-looking weft-faced weave. After all of our effort, that effect is more than disappointing!

One more thing to consider in favor of teasing: teased wool will card much better than compacted locks. Many spinners have a remarkable talent for spinning directly from a teased lock, saving them days of mindless labor cranking the carding machine. Personally, I can't seem to get the consistent, moderately sized yarn required for tapestry. I get better results with carded batts. Using hand cards for small amounts is ideal, but for the amount of wool to be processed here, a drum carder will save days of work. (If you have experienced difficulty using a drum carder, perhaps the locks of wool were not teased thoroughly, or the staple length was too long or too short. The carder may have required adjustment in the belt tension or carding tolerance, or it may have needed oiling.)

I have selected a white Romney fleece from Sally White in Oregon. It has arrived as usual, beautifully skirted and ready to go, so let's begin.

Cleaning

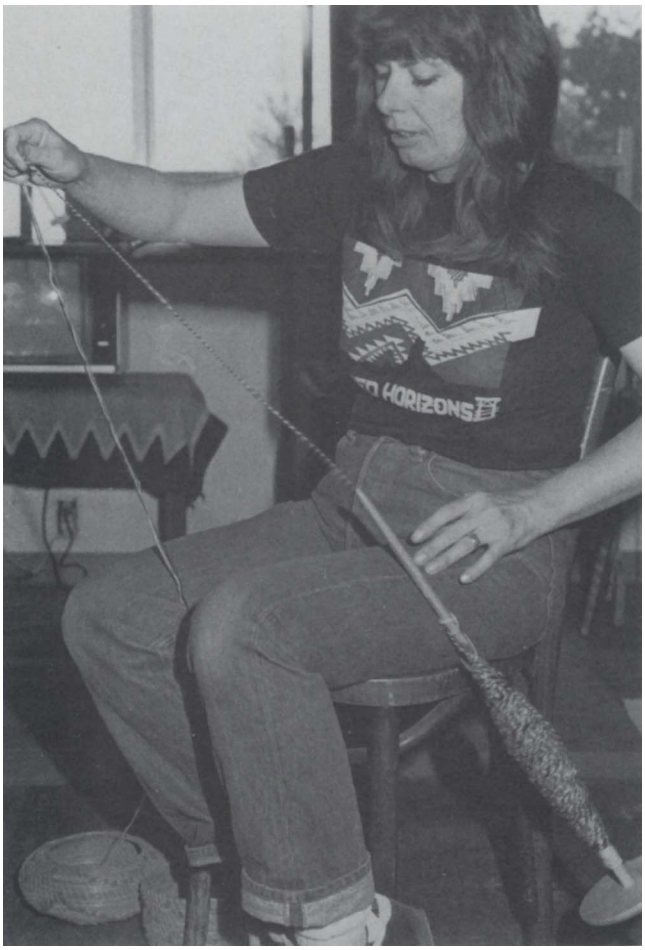
I have never been convinced that spinning with dirty wool is of any benefit either to the yarn or the spinner. Aside from the case of fine wools with lots of crimp (that may felt if scoured), or using very fresh, warm, newly shorn fleece, why spin dirt? The old argument for keeping the lanolin in as a preservative will not sway this weaver. Clean the wool first; get rid of the manure, sand and whatever else is present. Then, by all means, add clean oil by the method you prefer.



Left: *Thorough teasing by hand will make the carding process much faster and more thorough.*
Above: *On the left is half the fleece, after teasing. The pile on the right is equal in weight but much smaller in volume.* ***Right:*** *A finished ball of warp.*

After the fleece arrives, open it and lay it out on the floor to rest. Give it a good look, pick away any straw or odd bits, then divide the fleece into two- or three-pound piles. I always stash two pounds away just in case. We'll use the washing machine for convenience, but be on your toes. I forgot once to make sure the machine was off, and to my horror, I wound up with a gruesome felted doughnut which had to be cut away from the agitator.

Fill the machine with warm water and add a mild soap. Dissolve the soap in the warm bath water (machine is off!), then add two or three pounds of wool. Push the wool down gently, close the lid and let the wool soak overnight. Agitation causes wool to felt, so no poking or swishing the wool about. By soaking the wool overnight, you'll be less tempted to fool with it, and you will insure a good cleaning.



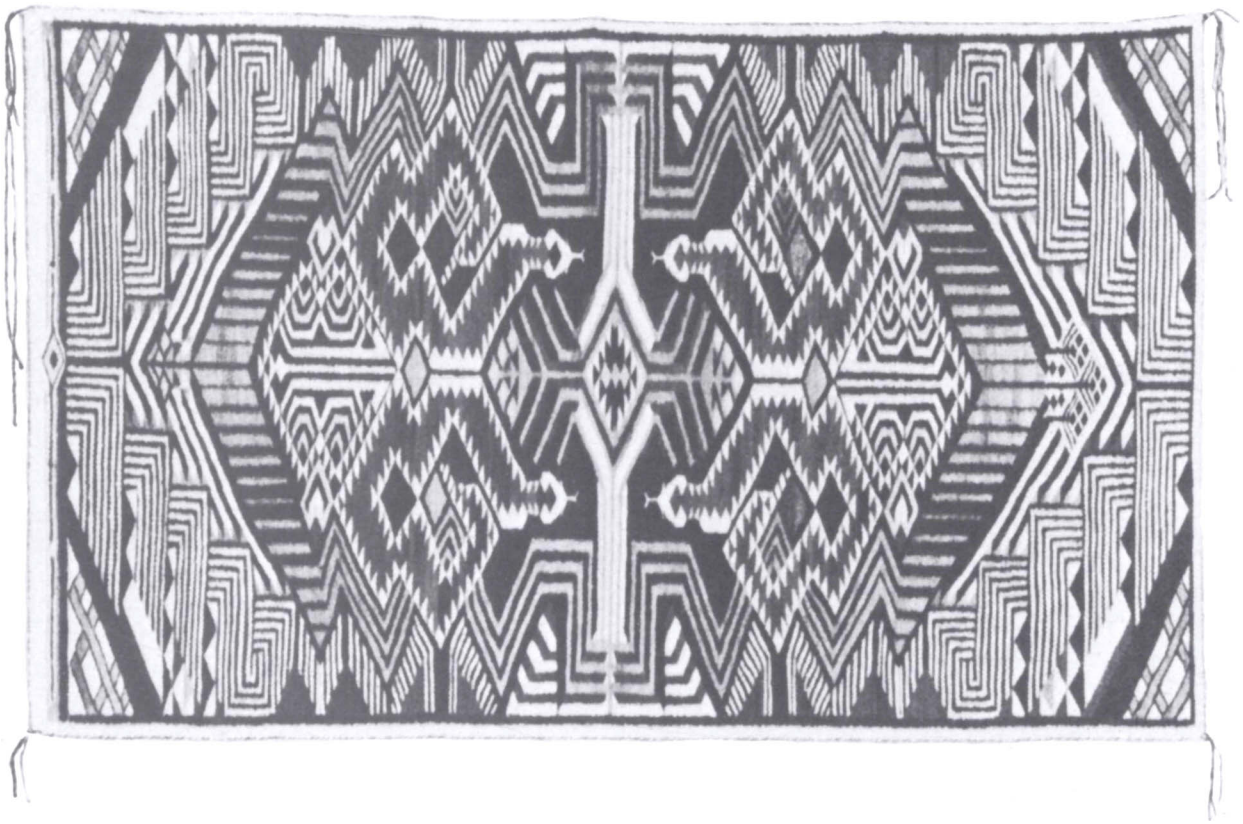
Next morning, feel the bath temperature by hand. The rinse bath should match the temperature of the end of the wash bath. Carefully set the dial for the spin cycle, and spin out the wash bath. Remove the wool temporarily. Set the dial for rinse, and fill the machine with the correct temperature of rinse water. Soak the wool at least an hour. Carefully set the dial for the spin cycle, and spin out the rinse water. Unload the wool and place it on the floor out of the sun to dry. (It took me four overnight washes to clean the whole fleece.) If you process smaller amounts, use your sink.

When the cleaned fleece has dried, spray it with spinning oil if desired. (This fleece felt fine as it was, so I didn't add oil to it.)

Teasing

When the wool is completely dry, pluck up a handful and gently pull the fibers apart with your fingertips. Pull slightly, jerk the teased part, reach for the next fibers, pull gently, jerk, etc. As you progress through the locks of wool, this action will become smooth. (The clean wool from the Romney fleece weighed just under ten pounds. It took me three to four days to tease that amount.)

Left: *Ginger plies her selvedge and end cords on the Navajo long spindle.* ***Below:*** *The weft has less twist than the warp, but is consistent and well-spun.* ***Right:*** *"Snake Rug", 5' × 8', natural fleece colors.*



Carding

Start with a cleaned, oiled carder which is securely fastened to a table with a "C" clamp. Slide the teased wool in a layer to the feeder roll, and crank at a comfortable pace. When the carder is full, it will reject any further offering of fleece. Slide the pick or knitting needle along the seamline one or two inches, and pull up. Flick the batt open as the pick moves along the seamline. Loosen the batt and pull it off. Stack the batts in groups of five. (It took me three days to card 108 batts.) During the carding, make sure to look after the carder: oil moving parts when needed and adjust the teeth if they begin to grind too much.

Spinning warp

I use a Pirtle wheel for spinning warp, because the large head will hold almost two pounds of spun wool. That saves me the hard job of splicing numerous two-ounce balls of warp. Spliced joins can be a concern for the weaver, since, if they are not spliced securely, they will ravel and break away when the warp is under full tension. Repairing broken warps is exasperating! If you plan to spin warp for numerous large tapestries, then it might make sense to buy a wheel with a large head. If you only wish to do a small weaving, then you can buy commercial warp and re-spin it, or buy a Navajo long spindle, and spin your warp on that. I do not advise you to spin warp on a fine wheel. We are after a hard, tightly spun, monster of a yarn, and I do not want to be responsible for dozens of smoking Ashfords. You can re-spin commercial yarn on the long spindle, too; it will hold a lot of warp yarn. I have not forgotten the advantages of electric spinners—that is an area I'm about to explore.

The warp spinning theory is quite simple. Usually the number of fibers in the yarn's cross-section is the same as for the weft, but the warp is spun tightly once, and then spun a second time. The Navajo are so skilled they are able to spin the warp a third time, if it is desired, and still

avoid the overtwist curls that plague the warp spinner. If these curls are warped and put under tension, they will "pop", or uncurl, and cause a slack place in the weaving. Or they will remain and cause a bump or snarl which leads to damage as the tapestry ages.

To start, take up a batt and divide it into quarters. Be sure your wheel has been oiled and cleaned, and your bands set for a light to medium take-up. Treadling as usual, spin the warp with a worsted technique. As your left hand drafts a short length, use your right hand thumb and forefinger to pinch the thread, holding off the twist. As the fiber is held taut, slide the pinch down to the left hand and let the twist zip in. Continue in a smooth combination of treadle, draft, slide-twist-in. When the desired amount of warp is spun, roll the yarn into a hard ball and set aside.

For the second spinning, adjust your bands to increase the draw-in. Treadle deliberately, feeding the warp thread into the orifice with a hand-over-hand motion. When you finish, loosen the restraints on your wheel and roll the warp into a hard ball. Be careful—you can burn blisters quickly into your fingers; sometimes gloves are a good idea. You will also be grateful for the good job you did in teasing, because the nasty thorns have been removed.

The diameter or size of the thread is a personal preference. I rarely compute the yards per pound and rely on my experience instead. The sett for tapestry can range from six to twelve ends per inch; I get eight or nine warp ends per inch. I use about ten carded batts for warp. The average weight of a carded batt is roughly one and one quarter ounce, so I spin just under a pound to get a three-by-five-foot web. Occasionally I spin a few extra batts to be sure I have enough.

Spinning and plying for the selvedge and end cords

The Navajo warp is laid in a continuous web between two opposite poles within a warping frame. The length and width are determined by the weaver's placement of the frame. Working on her knees, the Navajo weaver carefully setts the warp thread at spaced intervals in a figure-eight fashion. This is a difficult task done with grace and ceremony.

When the warp has been laid, it is necessary to space the loop ends and bind them securely with a two- or three-ply cord of handspun.

Similarly, the selvedge cords are two- or three-ply cords. They are tied to the bottom of the warp dowel right next to the side of the warp, two plied cords on each side. As the weaving grows, the selvedge cords are twisted at a regular spacing. The length of the cords is determined by the size of the textile (that is, length and width), plus the take-up of twining, and the length of the tassel. The presence of these cords is one of the ways to identify a genuine Navajo textile.

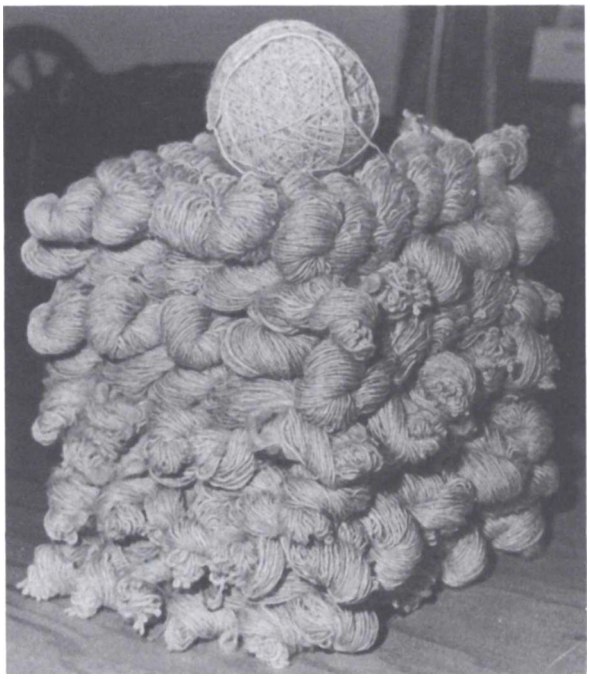
Depending on the number of plies desired, spin a yarn that is finer and that has more twist than the weft. Wind the spun lengths off into separate balls, then ply the strands for the cord needed. The process is explained in better detail in the books for suggested reading.

The use of these cords adds beauty and crisp detail to the finished work, and serves to protect the weaving from wear and damage.

Spinning weft

For the weft, you need a consistent, well-spun yarn. The twist required is far less than for the warp, but you want slightly more twist than that used in a commercial singles. The reason is that a soft yarn will compress when beaten during weaving. Of course you want some compression, but too much will flatten the design. Instead of a perky 45° angle, a limp slope will result, and

Below: *Ready to weave: 45 skeins of handspun weft, one ball of warp.* ***Right:*** *"Maze Rug", 5' × 5'.*



the weaver will find herself pushing the weft up with her fingers or the end of the fork. The effort is lost—the design will continue to droop.

The other extreme is a weft too tightly spun. In this case, the yarn will bounce as it is beaten in the web. It will not snuggle down as it should—you'll beat and it will leap. The warp will show through in irritating dots, and the design will elongate, refusing to balance.

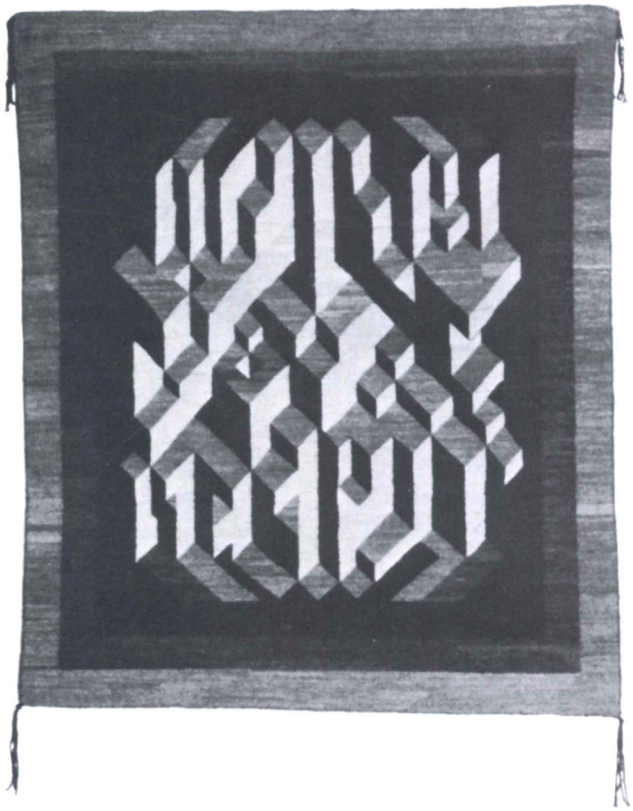
Spin the weft any way that works and that is comfortable for you. Remember to avoid the extremes, and come close to or a bit "fatter" than the size of the warp. Make certain that the weft is all the same size—do not mix a fat weft with a thin one, or the design will suffer.

I spun the remaining 86 batts of Romney for weft on my Ashford wheel. I found that it was necessary to adjust the wheel tension only slightly. I increased the draw-in more than usual, and got a better looking yarn. Each skein weighed about two ounces, so I had 50 skeins as a result. The task took nine days, spinning six skeins a day, from 7:30 a.m. to about 4:00 p.m. This was an extreme schedule; ordinarily I spin three a day, and life is good.

You can wash your skeins ten at a time in Woolite or liquid dish soap. Fill a large sink with very warm water, add the detergent, and then let the skeins soak for several hours. Lift the skeins out into a pan, refill the sink with rinse water of the same temperature as the cooled wash water, and let the skeins soak for another 20 minutes or so. I do not add anything to the rinse water.

At this point, if the skeins are to stay their natural color, slip them into the washer on the spin cycle to get rid of the excess water. You don't want lofty yarns, so the skeins need to be dried under tension. When I have 30 damp skeins, I slip them over two aluminum poles on my frame loom, adding weight to the bottom pole to straighten the skeins until there are no curls left in the yarn. Whatever your setup, keep the skeins under tension until completely dry.

If the skeins need to be dyed, they go directly into the dyepot after rinsing. I use both Cushing dyes and natural dyes. The chemical dyes are predictable, easy to mix, and readily available. I have built a network of friends who supply me with natural dyes, including onion skins, manzanita (for a beautiful teal color from the leaves and bark shavings), and vetch (a parasite on the local scotch broom plants that gives a brilliant yellow). White skeins aren't the only ones to go into the dyepot—I like to start with naturally colored wools when I dye darker colors like blues and blacks, because of the extra shimmer in the yarns when they are woven. I use my exhaust baths to extend my color palette and to dye the yarns I use in restoration work.



For those of you who would like to pursue weaving in the Navajo way, I recommend two splendid books on the subject. The first is *Navajo and Hopi Weaving Techniques,* by Mary Pendleton, Macmillan Publishing Company, New York. All the supplies you will need, plus the book, are available at The Pendleton Shop, Box 233, 465 Jordan Road, Sedona, Arizona 86336. Look also for *Working With the Wool,* by Noel Bennett and Tiana Bighorse, Northland Press, P.O. Box N, Flagstaff, Arizona 86002. The white Romney fleece came from Hungry Hill Homespun, John and Sally White, 39918 North Ruby Road, Scio, Oregon 97374. □

Ginger Jolley and her husband live in Rim Forest, California. Self-taught, Ginger worked for years developing her skills as a spinner and weaver, until finally she felt her tapestries were good enough to take on the reservation at Ganado. It was hard to put her work out for the master weavers to see, but it turned out that her rugs were well received. Ginger works on a homemade vertical loom; the only variation from true Navajo technique is that she uses a spinning wheel instead of the long spindle. It takes her eight or nine months to complete a rug, and not until it is taken off the loom does she see if it will lie flat without bubbles or curling. That's when the years she spent developing her skills as a spinner really pay off.

Vest with a Hidden Twist

(as shown on page 36)

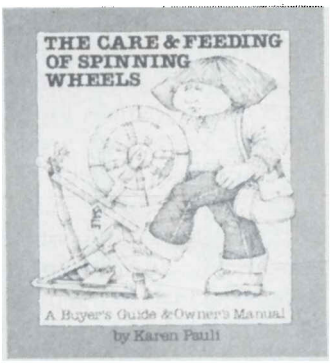
Warp & Weft: Sharlea top spun single at approximately 3200 yd/lb. I spun 1600 yards for this project.
Twists per inch: 18.
E.P.I.: Average of 12, sleyed in a 30/10 reed.
Size: Women's small, bust circumference 36–38″. Size can be easily altered by adding inches in length and width of fabric. Remember to add double the number of inches you want in your finished fabric.
Warp Length: 3¾ yd, which allows 24″ for loom loss.
Width in reed: 20″.
Total warp ends: 240.
Draft: Swarthmore Lace from *A Handweaver's Pattern Book,* Marguerite P. Davison, self-published, 1944.
Weaving: Weave 115″ in pattern, paying close attention to your selvedges.
Finishing: After removing fabric and washing it in hot soapy water (no agitation), allow it to air dry on a flat surface. After washing, my piece was 8½″ wide and 80″ long. This represents 58% collapse weftwise and 30% warpwise.
Sewing thread: Sharlea single spun firmly but *not* overtwisted; 3200 yd/lb.
Ribbing: Very firm 2-ply of Sharlea; 3000 yd/lb.
Assembly: Fold fabric in half to find midpoint, and machine zigzag on both sides of center line. This is to control the considerable raveling of this material. Also zigzag both ends and cut off fringe. (Stephanie advises that the zigzag stitches should be wide but spaced closely on the material.) Expect flaring of the cloth as you machine-stitch. Cut between rows of machine stitching.

After cutting, place the two pieces side by side and needle-weave together to within 2″ of the back neckline. (There are two different sides to this fabric, so be sure to place both right sides up for seaming.) Needle-weave side seams to within 8″ of shoulder line. Shaping is accomplished by taking a tuck down the back length of the garment. Fold material for a 1″-wide tuck and baste with handspun Sharlea 2-ply. Estimate placement of the tuck depending on your body size and individual preference. Overcast the bottom edge using the Peruvian Needle Stitch (see p. 55 of the Jan/Feb '84 issue of *Handwoven*). This stitch produces an edging that can be easily picked up and used for casting on as well as providing protection for your edges. I spaced the stitching very closely and then picked up every third stitch for a total of 200 stitches. Work 2¼″ of K2, P2 ribbing with Sharlea 2-ply on size 1 needles, casting off in pattern. Weave elastic thread through the machine-stitched edge in order to draw in the flaring and create a slight blouson effect. □

Oldies But Goodies

Fleece in Your Hands *by Beverley Horne.* All the in-depth knowledge that New Zealand spinners are noted for is distilled in this classic volume. Characteristics, spinning advice and project suggestions are given for 17 breeds – from the finest Merino to shaggy, lustrous Lincoln. You'll be able to make the best use of the fleece at hand, plus pick up a treasure trove of hard-to-find spinning hints and tricks. Index, 69 pp. softbound, b/w photos, 5½"×8½". $6.00+$2 p&h.

The Care and Feeding of Spinning Wheels *by Karen Pauli.* A "buyer's guide and owner's manual" for selecting and restoring old wheels and keeping new ones in good running order. Special chapters on troubleshooting, lubrication, travelling with a wheel – profuse black/white illustrations help show the way. 76 pp. softbound, 8½"×9". $7.50+$2 p&h.



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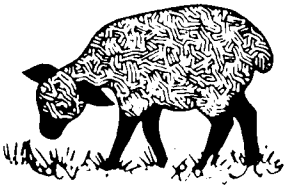

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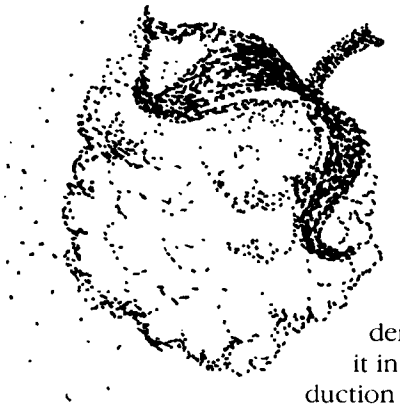
IN SEARCH OF
Colored Cotton

by Sally Fox



Brown cotton first came to my attention at the 1979 Southern California Handweavers Conference in Santa Maria. I was completely fascinated by it. The cotton I saw had come from Guatemala, and was a rich, dark red-brown. I wondered why no one was growing it in the United States. My introduction to the different species and varieties of cotton came through a professor who ran insect-resistance experiments. We often drove to the Imperial Valley of California and picked cotton test plots. Ginning the cotton and weighing the yield was how he evaluated the cotton's ability to produce lint (fiber) under insect pest pressure. I recall seeing *Gossypium arboreum* from China with its short and curly lint, almost like half-inch wool, and Pima with its long, silky fibers. The beauty of the cotton flowers surprised me, as did the lushness of the plants.

After completing my degree, I took a temporary job with a plant breeder who had done innovative work on tomato and cotton pest resistance. From him I learned the science of cotton breeding and received the colored cotton seeds with which I began my work. These seeds had been given to him by a USDA cotton breeder who believed them to be a genetic source of pest and disease resistance.

Although I was excited by the colors of the lint I grew, my experience with other cotton fibers told me that the quality of the colored lint left much to be desired. Armed with what I had learned, I began the project I am involved with today: improving the lint quality of colored cottons through traditional plant breeding techniques and growing enough of these cottons to provide lint to other handspinners like myself.

For the first two years of my work, I grew the plants in pots. Growing cotton in containers is not difficult—you can try it, too. It is important to plant the seeds deeply enough—at least one-and-a-half inches into the potting soil. Press the seed firmly against the soil. Start your plants in the spring, and water them regularly, but don't allow the soil to become too damp. Cotton needs heat, so the plants must be started in a greenhouse or near a sunny window if you don't live in a cotton-growing area.

Cotton is grown in the United States in many regions. In the west, it is grown in the San Joaquin Valley of California, as well as the Imperial Valley east of San Diego. In Arizona, New Mexico, Texas, and Oklahoma, cotton grows readily, and of course it is grown in "The South". Worldwide, cotton is a major crop of India, China, the USSR, Pakistan, the Middle East, Eastern Europe, parts of Africa, Central and South America, and even Australia.

I get good results by fertilizing my potted plants with commercial rose fertilizers. Cotton is a perennial plant, so I generally bring my potted plants indoors over the winter or put them in a greenhouse. The leaves do fall off during the winter. Prune the plants back in January to encourage vigorous growth the following year.

During these first years of work, I cross-pollinated my potted plants. In general, cotton self-pollinates, so cross-breeding takes some human intervention. Each flower contains both female and male parts. Under normal conditions, before the flower opens in midmorning the pollen bursts from the anthers and the flower self-fertilizes. It is then that the seeds begin to form. In cotton breeding, you need to remove the pollen from the flower designated as the "mother" before the pollen bursts, but not so soon that you injure the flower. Once the pollen is removed, the pollen from the "father" can be collected—its pollen is used to fertilize the emasculated "mother". I tag the flowers which have been crossed and save the bolls which develop from them. Their seeds are considered hybrid seeds. Generally, between five and twenty seeds develop from a cross-pollinated flower.

After two years, I began growing the cotton in a garden-sized plot. Cotton farming practices vary depending on climate and the variety of cotton. My hybrids were the children of cottons requiring very different amounts of water, lengths of season and almost everything else. I had to watch them carefully and try to anticipate their needs. Acala cottons must not be overwatered—they require a certain amount of water stress to induce early flowering. Sea Island cottons need great amounts of moisture in the air and soil, and must not be water-stressed in any way. And the Sea Islands need a longer growing season than California has. (Sea Island, when grown in the Caribbean, is planted in September and harvested in April or May the following year.) Each of my parent plants had different needs, and only time would tell what their children, grandchildren and later offspring would need.

During this period, I began to examine the development of color in my cotton's lint. The most surprising fact was that both the brown and green lint developed in the sunlight. When the boll opens, the cotton is an off-

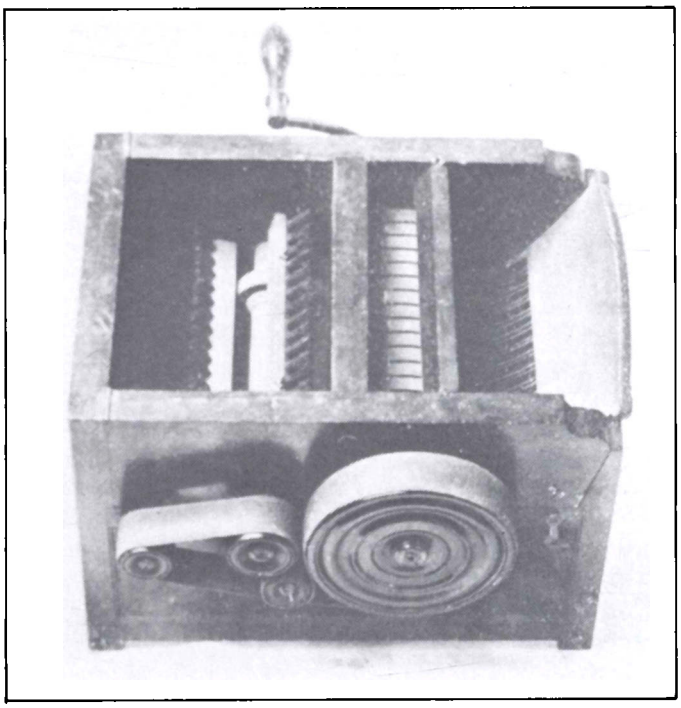
white; it takes at least a week for the final color to develop and set. This is radically different from the development of the lint itself, which begins at fertilization of the seed and finishes well before the boll opens. The intensity of the color is governed not only by genetics, but by soil mineral content as well. Certain trace elements appear to be particularly important for the development of pink- and green-colored lint. As yet, the part these elements play in color is unclear.

In 1986, I received the approval of the Acala Cotton Board to farm up to two acres in the San Joaquin Valley for breeding purposes. This was a major turning point for me and my business. I quit my job at the genetic engineering company in San Diego where I had worked and moved to a small town near Bakersfield, California, where I planted my first two-acre crop.

I grow my cotton organically. This means doing without insecticides for insect and mite control, herbicides for week control, fungicides for disease control, and defoliants for machine picking. Two acres becomes quite large when one does all the work by hand! Weeding is a massive, never-ending task from April until July, when the cotton plants finally grow so much that all the soil between plants and rows is shaded. Hand-picking cotton is a slow process; picking by breed and making selections for color and fiber length further slow the task.

GINNING IS THE process of separating lint from seed, and there are several methods. *Gossypium barbadense* cottons, such as Pima, Egyptian, and Sea Island, bear naked seeds. The lint is very easy to remove from the seed. Roller gins are generally used on these cottons because they are gentle and slow. Roller gins are direct descendants of the Churka, an Indian gin predating Eli Whitney's mechanical gin by some 3500 years. Eli Whitney's gin changed history because it allowed the speedy ginning of the linty-seeded, high-yielding *Gossypium hirsutum* cottons. Whitney's gin looked something like a carding machine—it was mounted on a template which did not allow the seed through. As it spun around, teeth grabbed and held on to the lint, pulling it free from the seed. Brushes moving opposite to and in back of the cards removed the lint and blew it into a hamper. Today's commercial gins use saws instead of teeth, but operate the same way.

My ginning experiences have been trying. The naturally colored cotton I began my work with is a medium- to short-stapled cotton which is coarse and weak. I wanted my gin to be as gentle as possible, yet still to go faster than ginning by hand. (It takes me three to four hours to hand-gin an ounce of lint.) Roller gins are extremely gentle, but did not work at all on these cottons. Saw gins chop the lint up somewhat. I finally found a saw gin built at the turn of the century and owned by the USDA. A retired machinist built a replica of it for me, but it took a lot of work to get it running properly. After a year of fussing and adjusting, I am finally satisfied with it. Lint analysis also shows that the lint is not damaged significantly by this replica gin.



Model of an Eli Whitney cotton gin, invented in 1793.

Commercial cotton gins, where growers bring their cotton, consist of gins, lint cleaners, and lint compressors. Lint cleaners remove vegetable matter and immature seeds in the lint after ginning. Lint cleaners resemble gins in that they consist of many circular saw blades, but the template is set up to remove dirt and leaves rather than seeds. Lint compressors help with baling.

THE GOALS OF my breeding program are to improve the quality of colored cotton lint as well as to produce colored cotton for handspinners. After all these years, I feel that the goals may actually be attained. I now have brown cotton with lint comparable in all characteristics to Pima, boasting a one-and-a-half-inch fiber length. I also have darker browns than I began with. Multicolored lints also exist; that is, on a particular strand of lint, more than one color will develop. I have a green and white, an off-white and tan, and a red and green.

But I am most excited about finding additional colors hidden by the brown. Green-fibered cotton is the most striking of these. Green is hidden by brown because the brown genes are dominant over all of the other color genes. Pink is another shade which pops up occasionally —I haven't been able to stabilize it yet. Rust-red is another complete color that came from brown parentage. Every year I wait with excitement to see what color will pop up next.

In 1986, the Spinners Textile Study Group in the San Francisco Bay Area became interested in my cotton. Some of the members of the group were working with fabrics at UC Berkeley's museum of anthropology. They showed me a photograph of a fabric woven in Peru some 2000 years ago with what are believed to be naturally colored cottons. The colors included blue, purple, pink, green, brown, tan, and red. These colors have never been described in the botanical literature and perhaps have been completely lost.

Can these colors be resurrected through plant breeding? Could they be hidden behind some brown like the green was? In addition to working at improving fiber quality, I now have an additional dimension to my breeding program: to expand the color spectrum of naturally colored cotton. To this end I am searching for other colored cotton seeds to add to my program, and I am studying my own original colors from a different perspective.

An interesting experiment that the Study Group did on some of my colored cottons was a test for color fastness. They wrapped duplicate cardboard strips with sections of yarns, and exposed half of the strips to sunlight for ten days. There was a noticeable decline in color, especially in the greens. But the group made an exciting discovery quite by accident. Boiling the yarns to set the twist actually enhanced the original color, and those samples retained their color in the light test far better than the unboiled samples. Even the source of the water seemed to make a difference—well water deepened the colors more than city tap water. What might this mean in connection with ancient Peruvian weavers? Did they boil their cottons? If so, did they add something to the water, like mordants?

Many more experiments need to be done, and certainly, the breeding program will take years, but in the meantime, we can begin to enjoy a new color palette of naturally colored cottons. □

Sally Fox learned to spin at the age of 13. Besides spinning the hair of the family's Samoyeds, Sally even spun cotton from cotton balls and pill bottles found at the local drug store. She tells us that Pima cotton used to be used for those products. Sally studied Entomology and Integrated Pest Management at the University of California. She supports her colored cotton research by selling her organically grown cotton to other handspinners through Vreseis, Ltd. For more information on colored cottons, see Sally's previous article in the Spring 1987 issue of Spin·Off.

Black Welsh Mountain Sheep

by Anne-Marie Moroney

THE NAME OF this sheep breed sums it all up: the black color of the fleece, the animal's origin, and the natural environment of this mountain and hill breed. Black Welsh Mountains are the darkest sheep I have ever seen, and surprisingly, they do not go gray with age.

The mutton of these sheep was prized in the Middle Ages for its flavor and texture. The black wool, known as *Cochddu* (reddish-brown), was much in demand by merchants.

About a century ago, flockmasters in Wales began to select black lambs and breed them carefully to produce a pure and separate strain of Black Welsh Mountain Sheep. The breed has had its own Flock Book since 1922. Flocks of this pure breed are now widely distributed throughout Wales, England, Scotland, Ireland, Belgium, France, the USA, and Canada. The Black Welsh Mountain Sheep Breeders' Association currently has about 230 members with registered flocks totalling 4300 ewes, 1550 ewe lambs, 200 rams, and 250 ram lambs.

The Black Welsh Mountain Sheep has a small masculine head tapering towards the nose. The rams have strong and curved horns. The muzzle is broad and the forehead is free from wool. The shoulders are nicely rounded and level with the straight back, strong loins and thick hindquarters. The long tail is covered with fine wool. The legs are comparatively short.

The Black Welsh Mountain breed produces premium meat with a close grain and a light bone. Ewes crossed with meat-producing rams do well for fat lamb production. However, the genes producing black wool will dominate in crossbreeding, and this has to be taken into account where the color and quality of the wool is important.

Lambing is from February to March, with lambing percentages of 175% in registered flocks; selected flocks can reach well over 200%. Lambing is relatively trouble-free with this breed. The ewes are confident in the open during lambing, and mortality rates are very low. The Black Welsh Mountain ewe is the ideal mother: she has natural breeding qualities, is deep milking, and is a dedicated mother. The lambs are fat, lively, and quick to suckle. They grow rapidly.

Overall, these black sheep are well known for their hardiness, self-reliance and intelligence. They are unspoiled, surviving well on natural hill vegetation. They also thrive under better lowland management, where the sheep increase in size and grow heavier fleeces. These sheep are ideal for herbage control in parklands; they scavenge successfully on rough and unplowed land.

The black, short, thick wool is firm to the hand. The tips weather to a rich, dark brown. An average fleece weighs about three or four pounds. The fibers are two to four inches long, graded as 48s to 54s, demi-luster. The locks have a lively crimp, but I couldn't manage to measure or count it.

PHOTO OF RAM COURTESY BRITISH WOOL MARKETING BOARD.

continued►

The wool is used either pure or in combination with quality white wool, resulting in interesting patterns and checks characteristic of the Welsh woolen industry. It may also be blended with white wool to obtain various shades of gray. The cloth is light, warm and durable. The wool is also used for knitting, sometimes blended with small amounts of longer wool fibers to facilitate commercial spinning. The cured sheepskins with their naturally dark, deep pile are much in demand for use as rugs or chair cushions.

This is an ideal wool for the handspinner. The fleeces are of a manageable size, even for beginners. The Black Welsh Mountain Sheep have a neat, short coat of wool that is less likely to pick up a lot of vegetable matter during the year. This is just as well, since any contamination in the fleece shows up readily as "gray hairs" or "dandruff" on the dark background of the spun yarn.

If a fleece is fresh and not too dirty, I advise spinning it in the grease. The grease in the wool is not overly abundant and makes carding and spinning easy. A lukewarm scouring will remove the dirt while retaining much of the natural oil. The wool may be scoured in hot water, too, which will get rid of most of the oil.

I tease the wool and remove any second cuts and vegetable matter before carding. This wool has no kemp, but I separate the coarser parts of the fleece for spinning into rug yarn and continue working with the softer wool to produce a woolen knitting or crocheting yarn. Carding is successful on both hand carders and drum carders. For the latter, the batts should be put through two or three times to ensure the even distribution of fibers.

A woolen yarn can be produced with comfort and speed by using the long draw, but some people may prefer to use a short draw. A drop spindle can be used, too. The yarn should be spun firmly, since the fibers are short, but not with a hard twist, since this would spoil the qualities of the wool. Plying should just be firm enough to balance the yarn.

Washing the finished yarn in hot water and a good liquid detergent is important to dissolve the oil completely and to allow the fibers to relax. Dry the yarn without tension to retain the bounciness of the shorn locks.

Soft, yet durable, Black Welsh Mountain works well when spun woolen for use in knitted or woven outerwear. Coarser parts of the fleece can be used for harder-wearing fabrics like blankets and rugs.

This lovely black wool will inspire you to spin all sorts of yarns for projects, in purest black, in "pepper and salt" combinations (two-ply black and white), or blended with white wool to give various shades of gray. □

Anne-Marie Moroney, a native of St. Gallen, Switzerland, now lives in Ireland with her husband and two children. While she was a teacher in a rural area of Switzerland, the mother of a pupil taught her spinning and vegetable dyeing. Anne-Marie teaches a few subjects part-time or privately and pursues her own interests in spinning, weaving, batik, and fabric painting. She makes everything from tiny whimsical dolls to elaborately patterned pullovers from her handspun yarns.

Breeders' Association: The Secretary, Black Welsh Mountain Sheep Breeders' Association, Brierley House, Summer Lane, Combe Down, Bath, BA2 5LE, England.

References:

"Black Welsh Mountain Sheep—Defaid Duon Mynydd Cymreig", a leaflet produced by the Black Welsh Mountain Sheep Breeders' Association.

Information supplied by the British Wool Marketing Board, Oak Mills, Station Road, Clayton, Bradford, West Yorkshire, BD14 6JD, England.

Many thanks for the help of all my friends, sheepbreeders, and wool merchants who answered my questions so patiently.

Scarves in Variegated Yarns

by Bobbie Irwin

WHILE TAKING A spinning class, I had done a little experimenting with variegated yarn but had not found the incentive to work with the idea any further. Then one day I found myself with a little bit of dark wool and a little bit of light wool: leftovers which, by themselves, weren't enough for much of a project, but together might amount to something. So, just for fun, I spun some bicolored yarn and wove a scarf. I was so delighted with the results, I've been doing it on purpose ever since.

Natural black and white wools spun together in a variegated yarn create a natural plaid effect when woven.

Since I was a weaver long before I started spinning, the primary use of my handspun yarn is for weaving. I spin a medium-weight singles yarn which I use for both warp and weft. A variegated singles yarn displays a full range of color blending and is ideal for the scarves I like to weave. The same yarn could be used plied, but plying might tend to mask the color variations.

Although I prefer to work with natural colored wool, dyed fleece could also be used to create lovely yarns. Combining several colors or shades of natural or dyed wool could be used to add even more variety to your skeins.

Several methods of mixing the colors are acceptable. In variegated yarns, you want to aim for distinct color changes, so keep the colors separate during carding. Then control the placement of color in the yarn solely during the spinning.

If you're using a drum carder, you may card the colors in distinct layers or sections (in other words, dark on top of light, or dark next to light) during the final carding. (I always run my wool through the carder at least twice to get a uniformly open and lofty batt.) Do not, however, mix multiple colors together in the same layer; this tends to blend the colors together too much, producing a heather effect instead of variegations (nice, but not what we're after here).

I have achieved the most pleasing results by carding each color separately so that I end up with light batts and dark batts. Then I pick them up and mix and match as I please while I spin. If you are using hand carders, the same recommendations apply: card each color separately and prepare a stack of rolags of each color.

I divide batts from the drum carder into two or three layers lengthwise, gently roll up each layer, and spin from the edge of the roll. When working with two colors, I lay a layer of one batt on top of another layer of wool of the second color, then roll both colors up (as in making a jelly roll). If you like spinning "over the finger" from roving, you can layer colors one on top of the

other. If you prefer to spin from the end, hold two colors side by side, whether working from drum-carded batts, roving, or rolags. Turn your wrist to guide the twist into the different color sections.

Although the resulting yarn may appear to have been spun randomly, I actually carefully control the color blending as I spin. At times, I let one color dominate; other times, I emphasize the second color. In between, I spin sections which show both colors, in a "candy-stripe" effect. I change blends frequently. If you plan to weave narrow fabric from your yarn (such as a scarf), it is especially important not to allow one color to dominate for more than a foot or two; white sections, more than dark, seem to stand out more in the finished fabric, and large areas of a single color detract from the general appearance. If you plan to weave a wider item, longer monochromatic sections will work nicely. In general, however, the bicolored yarn seems most attractive for most uses.

My scarves are woven in plain weave, using handspun yarn for warp and weft. I use a sett of 6 e.p.i. for my medium-weight yarn. Experiment with your own yarn, working to achieve a balanced weave. The beat should be gentle and you should see spaces between warp and weft (a relatively open-weave fabric).

To conserve yarn, I thread a dummy warp onto the loom (using inexpensive carpet warp) and tie on two-yard sections of handspun warp using the weaver's knot. The width in the reed is 12" and the resulting scarf (after a gentle fulling; see below) will be approximately 9" wide by 45"-48" long. Length and width can be adjusted as desired.

If the variegated yarn is used for warp only, with a single color for weft, the effect is subtle, somewhat like ikat. Variegated yarn used for weft, combined with white warp, results in discontinuous stripes. But I especially like the false plaid effect I get when I use the bicolored yarn for both warp and weft.

Hemstitch both ends of the scarf on the loom, using yarn of the dominant edge color (in other words, try not to use a predominantly light strand to hemstitch a mostly dark edge). Although the fabric will seem somewhat stiff and unyielding when cut from the loom, don't despair. Soak the scarf in warm water with a mild detergent, rinse in water of the same temperature (but don't let the water run directly onto the fabric), and spin the excess moisture out in the spin cycle of your washer (or roll the wet scarf in towels to absorb most of the water). While still damp, lay the scarf out flat and brush in all directions (I use a stiff nylon-bristled brush) to bring up the nap and increase softness. □

Bobbie Irwin moves around the country a lot with her forester-husband, making spinning friends wherever she goes. She's currently in Fort Collins, Colorado, serving as copy editor to Spin·Off *and* Handwoven *magazines.*

Reflections

Spin·Off Rendezvous, September 13-20, 1987 YMCA of the Ozarks, Potosi, Missouri

by Dale Pettigrew

A television character from a couple of years ago had a trademark saying that pretty well sums up my feelings about the Rendezvous, Spin·Off's tenth anniversary celebration: "I love it when a plan comes together."

It was a lot of work for the Interweave staff, but we certainly feel it was worth it, and feedback from participants and instructors tells us it was worthwhile for them, too. I can't begin to tell you all that happened there, the week was so full, but I'd like to share some of the highlights with those of you who couldn't join us and rekindle some memories for you who were there.

Gliding across the lake, a canoe trip before breakfast, a symphony of awakening birds, dew rolling off the leaves, the sun climbing over the treetops.

Sunnen Lake was shrouded in mist every morning.

Bright, eager faces gathered for coffee before breakfast; well-disciplined souls in sweats and tennies heading for a workout before the day began.

Waiting in line for meals, not missing a minute to talk spinning.

Stuff: goodie bags and programs and nametags and aprons and directions and door prizes and stuff for commercials and stuff for instructors and stuff for participants.

Nearly heaven: a commercial exhibit area packed with goodies—fibers, tools, fibers, books, wheels, fibers, yarns, fibers, dyes, fibers, doodads, fibers . . .

A wealth of talent that may never gather again in the same spot. So many of the folks who have been spinning and writing and teaching for lots of years: Harry and Olive Linder, Paula Simmons, Persis Grayson, Edna Blackburn, Alden Amos, Barbara Wheeler, Allen Fannin, Norman Kennedy. And those whose voices & work we have come to appreciate more recently: Stephenie Gaustad, Celia Quinn, Brucie Adams, Ella Baker, Leslie Comstock, Anne Field, Maggie Glossup, Linda Knutson, Erica Lynne, Kate Martinson, Dorothy Miller, Romedy Murrow, Margaret Patterson, Sharron Reese, Beverly Royce, Michele Wipplinger. And all the accomplished participants.

Spinning talk didn't take a break for meals.

Celia Quinn made an easy job of the long draw.

An Interweave team who made the gathering happen: Anne Bliss, who undertook Linda's idea of a spinning publication ten years ago and helped to make it happen . . . Lee Raven, who came along with the energy and expertise to add a newsletter to the annual and then turn it into a quarterly magazine . . . Linda Ligon, whose vision and commitment to the fiber community has drawn us all together . . . Deborah, Sharon, Jane, and Steve who manned the registration table, toted stuff around, helped participants, helped instructors,

The spinning trolley made its rounds between sessions.

helped exhibitors. Karen Evanson, who helped with the paperwork; Karen Hirmer, who helped with the advertising; Ann who helped with the artwork. And Holly and Avelene who helped with the leg work.

A reception on Sunnen Center Deck—friends from across the miles hugging; teachers and students from across the years catching up; newcomers meeting and instantly finding a common ground.

A dining hall humming with hundreds of voices telling their stories.

Invigorating walks from place to place to visit instructors.

The camraderie as we helped each other get our stuff and our bodies on the hay wagon for a ride to the next class.

Dialogues: discussions initiated on equipment and vocabulary. What should equipment do for us? What do we mean when we say . . . ? No answers, no final pronouncements, but food for thought. Conversations starting and continuing: what is excellence in spinning? how can it be measured? how do we teach it?

Classes where we leaned forward to catch every word the teacher had to offer, classes where we hovered over our wheels, trying to make our hands move in a new or better way.

Displays of work like Ella Baker's, all done on a spindle, so fine, so careful, so beautiful. Machines can do more and do it faster, but only two hands and a loving heart can do it so well.

Stephenie Gaustad—master pun-maker.

Workshops where energies were focused on one subject for three whole, glorious days.

A slide show filled with handspun, hand-dyed, handwoven textiles from Central and South America and southeast Asia and Korea which inspired and humbled us.

Some great chuckles as the instructors introduced each other.

Rita Buchanan's tips for getting things done made us examine our attitudes as well as our methods, and lit a fire under all of us.

A very special final evening as we all gathered on the tennis court under the lights. A picnic dinner, wheels humming, spindles twirling, needles clicking —so much energy, so much magic, so much love.

Norman Kennedy making us laugh and tap our toes with his songs and folk tales.

A sunrise meditation Sunday morning at the campfire ring down by the lake. The mist rising gently off the lake as the sun peaked over the forest-covered hills. An intimate group of folks gathered to share songs, poems and prayer.

A wrap-up by Anne Bliss: of where we've come from: self-taught, scrounging for supplies, making do with old or funkie equipment to choices of quality fibers and tools, suppliers willing to fill our needs, literature and teachers. And a challenge to carry on.

Kate Martinsen and Norman Kennedy believe that busy hands are happy hands.

Best of all, I remember this incredible sense of family, of being connected to each and every spinner there.

The bond that links your true family is not one of blood, but of respect and joy in each other's life. Rarely do members of one family grow up under the same roof.

—Richard Bach,
The Adventures of a Reluctant Messiah

PRODUCTION DYEING WITH NATURAL DYES

by Trudy Van Stralen

AFTER YEARS OF experimenting with chemical and natural dyes, I have found that both the most brilliant and the softest colors come right out of nature. Perhaps you prefer natural dyeing as well, but are put off by the time it seems to take or the drab colors which sometimes result. Let me introduce you to *production dyeing,* my method for dyeing yarns and fleeces with bright colors from natural sources to give a wide range of colors in a minimum amount of time.

By production dyeing, I don't mean you have to work with huge amounts of wool. This is a systematic, time-saving plan for combining different colors and working with a variety of fibers at the same time. For our first sequence using three dyestuffs, we'll work with gray wool, white mohair, and white silk, to produce colors ranging from maroon pinkish gray, to gray-blue, green, yellow, and red.

The raw materials

When working with wool or mohair, I prefer to dye most fleeces before spinning. This way, I don't have to worry about running out of my handspun yarn for dyeing, and I've discovered endless possibilities for spinning interesting yarns in vibrant colors during the long winter months.

Choosing the right fleece is very important. Lustrous fleeces dye better than soft, flat fleeces. (The soft, flat wools dye better after they are spun.) Don't save your worst fleeces for dyeing; use the nicest, shiniest fleeces, such as second-clip kid mohair, Lincoln, Coopworth, or Border Leicester. These lustrous fleeces will add sparkle and depth to your natural dye colors.

The wool doesn't necessarily have to be white. Gray and soft beige fleeces are also beautiful when dyed in rich colors, and they spin up into interesting tweedy yarns.

Silk should be spun before dyeing. I like to use the shiniest silks, because their luster brings out the best color of the dye. You can use handspun or commercially spun yarns.

When dyeing fleece or mohair, you get the best results when mordanting is done right in the dyebath. Silk dyes best when premordanted. Don't try to mordant the silk the same day you dye it; mordant ahead of time, so you'll have a supply ready to dye.

A word about measurements: Although I'll give you some U.S. equivalents, I strongly encourage you to obtain a metric scale and use metric measurements. The metric system gives much more accurate results than using pounds, ounces and teaspoons.

In our first dye session, we'll work with 250 gm (about ½ lb) of gray wool, 750 gm of kid mohair, and 300 gm of silk, but we will start by preparing larger quantities for future use.

The dyes

In this first series of dyebaths, we will use logwood, brazilwood, and Osage orange.

Logwood gives a great variety of colors, but when used alone, even with mordants, logwood colors are not particularly fast. However, they will become fast when they are overdyed (as we will do with Osage orange).

Wood shavings from Osage orange give a yellow (not orange) dye. If you wish, you can substitute local yellow

Equipment

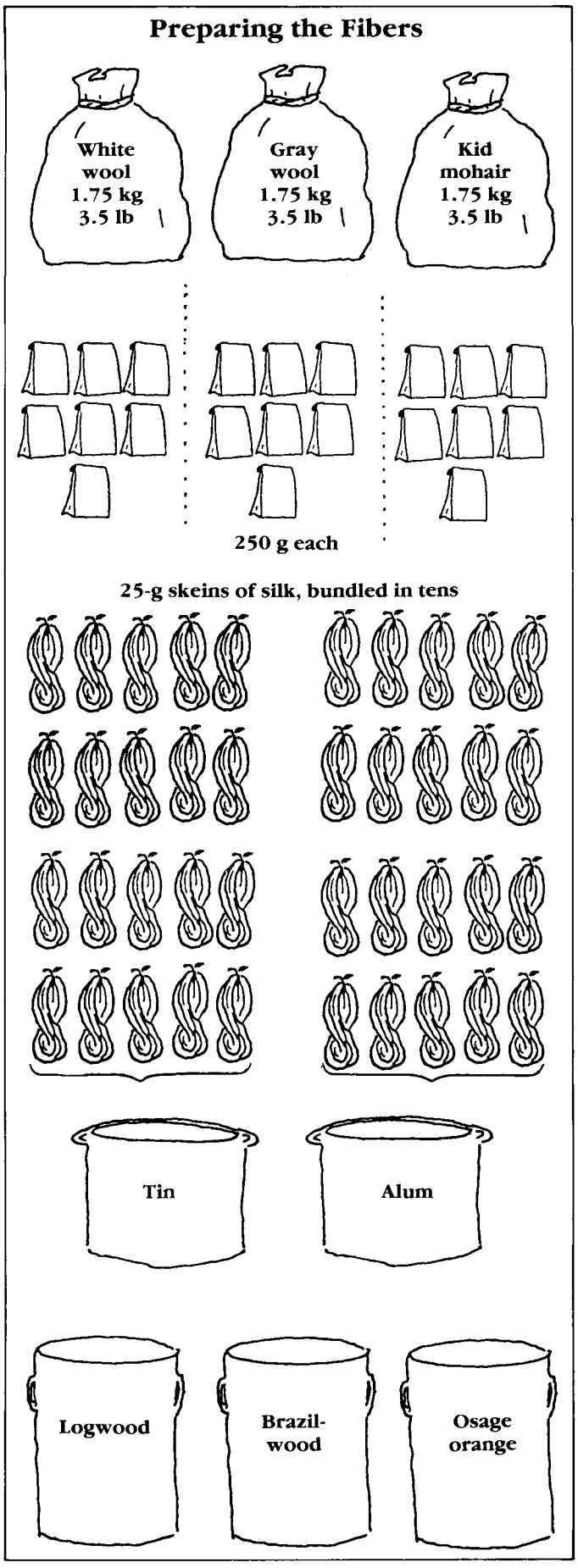
- Metric scale
- 2 or 3 dyepots (used exclusively for dyeing, never for food)
- several plastic pails
- stir sticks
- spin dryer or salad spinner (for saving the extracted liquid to put back in the dyebath; used only for dyeing)
- liquid soap (I use L.O.C. from Amway)
- gloves
- fine mesh bags for dyestuffs (I use old pantyhose)

Dyestuffs

- logwood chips
- brazilwood chips
- Osage orange chips
- ammonia
- aluminum sulfate (alum)
- copper sulfate
- stannous chloride (tin mordant)
- tartaric acid
- washing soda

Metric Equivalents

x oz × 28.35 = grams
x g × .035 = ounces
(x g × .035) ÷ 16 = pounds
x lb × 453.6 = grams
x lb × .045 = kilograms
x kg × 2.2 = pounds



dyestuffs—for example, goldenrod, marigold, coreopsis, Queen Ann's lace, St. John's wort, or onion skins. If you are using flowers, pick them in the early stages of blooming in order to achieve a greener yellow.

Preparing the fleece

Start with 1¾ kg each (approx. 3½ lb each) of white wool, gray wool, and mohair. Skirt the fleece well, but do not wash it. Divide each type into seven 250-gm lots and put each lot in a paper bag marked for contents; this will give you 21 parcels. Later, you'll want to record the dyebath sequence on each bag so that you can keep track of colors.

Preparing the silk

Starting with 1 kg (approx. 2¼ lb) spun silk, tie the silk off in 25-gm skeins, tying the ends of each skein together. This will give you 40 skeins. Make at least five *loose* figure-eight ties around each skein. Bundle the silk skeins together in groups of ten skeins. Tie each group together loosely with a long cord that you can remove easily later.

Do your mordanting (and dyeing) outside, if possible (I use woodstoves set up outdoors). If you must use your kitchen, be sure to use an exhaust fan to dissipate the vapors, and keep all your dye equipment completely separate from kitchen pots and utensils. Some of the mordants we will use are very poisonous, so protect yourself and your environment. Clean your workspace thoroughly after you're through, and save your baking for another day!

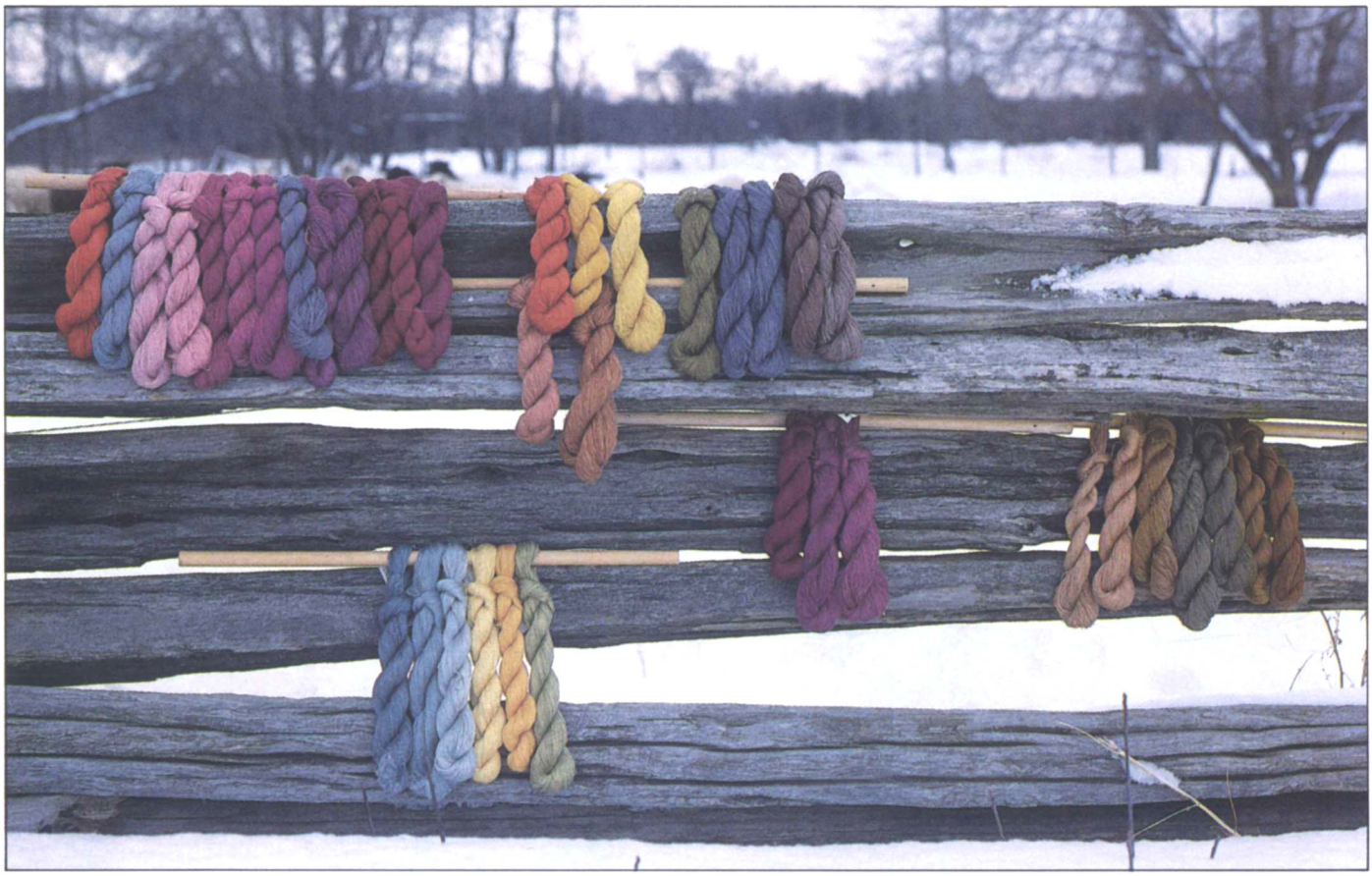
When mordanting, choose a large enough kettle so that your silk is not crowded. You will be working with 20 skeins (two bundles) at a time. If necessary, use a smaller pot and repeat the steps with fewer skeins.

When you are ready for mordanting, soak the silk in warm water with ½ cup liquid detergent for at least two hours. Rinse well. The wet skeins will go directly into the mordant solutions, which should be at the same temperature as the rinse water.

Tin mordant: Tie each skein loosely with a piece of sturdy yarn or cotton tape with one knot tied in the end. This will serve as identification: one knot means tin mordant. For 500 gm of silk (20 skeins), you will need five grams of stannous chloride (one per cent of the weight of the silk).

Dissolve the tin in a small container of hot water. Stir the dissolved solution into your large kettle of water. Add the washed and rinsed wet silk (500 gm). Bring the kettle slowly to a simmer at 90° C (194° F). Simmer at this temperature for about one hour. Cool in the mordant bath if desired or take out immediately; rinse and dry skeins.

Alum mordant: We will treat the other half of the silk (500 gm, 20 skeins) with alum and tartaric acid. Tie each skein loosely with a piece of sturdy yarn or cotton tape with *two* knots in the end—two knots means alum



Summer's colors light up the winter landscape at Trudy's "Hilltop Farm".

plus tartaric acid. For 500 gm of silk, you will need 50 gm aluminum sulfate (alum; ten per cent of the weight of the silk) and 25 gm tartaric acid (five per cent by weight).

Dissolve the alum and the tartaric acid in a small container of hot water. Stir the dissolved solution into your large kettle of water (if you use the same kettle you used for tin, you must thoroughly clean the pot to remove any traces of tin mordant before working with the alum). Add the washed and rinsed wet silk, bring the solution slowly to a simmer (90° C or 194° F) and hold this temperature for about an hour. Cool skeins in the mordant bath if desired or take out immediately; rinse and dry.

The dyeing procedure

A few cautions are in order before we begin to dye. Remember, never shock the fiber. Cool down the dyebath before you add the fiber, or warm up the fiber first (for example, in a hot water bath).

It may seem as if we use a lot of dyestuff, but the dyebaths are prepared for a number of successive baths. For the very bright colors that we are after, especially on the silks, the first bath needs to be concentrated.

This dye sequence will take you most of the day, so start early. With several dyepots, some of the steps can be done simultaneously. It's a good idea to read through the whole process before you start.

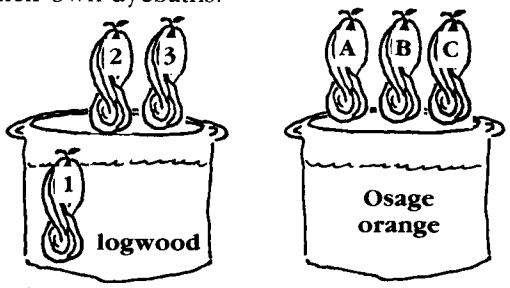
The night before

1. Put 100 gm (3½ oz) of logwood chips in a small mesh bag or nylon stocking. Soak the logwood overnight in 2 liters (2 qt.) of water in the dyepot.
2. Put 250 gm (8.8 oz) of Osage orange in a nylon stocking. Soak overnight in 2 liters (2 qt.) of water in the dyepot. If local plants are used, you'll need ten times that amount (2500 gm) of flowers with stems. Bruise and crush them. Soak overnight in the dyepot. (If you are using local flowers, the procedure for reusing the dyestuff is much the same. You will have some more liquid to begin with, because of the volume of the flowers.)
3. Put 100 gm (3½ oz) of brazilwood chips in a nylon stocking. Soak overnight as above. If you don't have a third dyepot, soak it in a plastic pail and put it aside.
4. With waterproof tags and marker, label six tin-mordanted skeins with the numbers 1, 2, 3, 4, 5, and 6, and six alum-mordanted skeins with the letters A, B, C, D, E, and F. Soak these 12 skeins overnight in water.

Dye day

My method is written out here as a step-by-step procedure. Follow it exactly, point by point.

1. Put 250 gm (one bag) of gray fleece to soak in hot soapy water. Do the same with three bags (250 gm each) of mohair fleece.
2. Boil the logwood vigorously for one hour.
3. Boil the Osage orange vigorously for one hour. If you are using local flowers, be gentle—don't boil them, but simmer slowly, or else the dyebath will become brown just like overcooked spinach.
4. Take the dyestuffs out of the baths and put them into pails or plastic bags. Save them, because you will need them later.
5. Put skein 1 (silk) into the logwood bath. (Remember to warm the skein first in a pail of warm water to avoid shock to the fiber. Do the same for the other skeins in subsequent steps.) Simmer at 90–95° C (194–203° F) for half an hour (for darker color). Enter skeins 2 and 3 into the same bath. Simmer all three skeins for another half-hour.
6. Put skeins A, B, and C into the Osage orange bath. Simmer for half an hour.
7. Take skeins out of both dyebaths. Use the spinner to extract all the dye liquids. Put the extracted liquids back into their own dyebaths.



8. Dip skein 3 into an ammonia afterbath (1 tablespoon of ammonia in a pail of hot water).
9. Wash all the skeins with a mild soap and rinse until the water runs clear. In this and subsequent steps, be sure and use warm water for the washing and rinsing. Check all markings.
10. Put the bags with the dyestuffs back in their dyebaths. Add extra water if necessary, and boil again for one-half hour. Remove bags of dyestuffs and set aside.
11. Add 7½ gm of copper sulfate to logwood dyebath (three per cent of the weight of the fleece). This will make the dyebath bluish; if not, a little washing soda needs to be added. Usually 1 teaspoon of washing soda is enough—start out with that amount.
12. Rinse out 250 gm of mohair fleece from Step 1 in warm water. Put skein D and mohair fleece into logwood bath. Simmer without stirring for one-half hour.
13. Take mohair and silk skein out of dyebath. Extract the dye liquid and return it to the logwood bath.
14. Put skein D and the blue mohair from the logwood bath (Step 12) in the yellow/Osage orange bath for one hour. This will make a beautiful green color which is very colorfast. Be gentle—don't stir the fleece around, just push it under the water.

Discard the dye liquid. Wash and rinse the mohair and the silk.

15. Return the logwood dyestuff to its bath. Dissolve 1½ gm of copper sulfate in the dyebath (add washing soda if not blue enough). Put skeins 4 and E into the dyebath. Simmer one hour. Remove skeins, wash and rinse.
16. Put Osage orange bag into *clean* water. Add ten per cent mordant: ten per cent of 250 gm fleece is 25 gm, so add 20 gm of alum and 5 gm of tartaric acid. Dissolve well. Boil for one hour. Take bag of Osage orange out and set aside.
17. Rinse out 250 gm of gray fleece from Step 1 in warm water and put it into Osage orange dyebath. Simmer for one hour without stirring. Remove, wash and rinse fleece.
18. Rinse out 250 gm of mohair from Step 1 in warm water and put it into Osage orange bath. Simmer for one hour without stirring. Remove, wash and rinse fleece.
19. Return bag of Osage orange to dyebath. Add 1½ gm stannous chloride (tin) and 5 gm of tartaric acid. Boil for one hour.
20. The brazilwood can be started at the same time as the other baths, but if you are following this program for the first time, it might be confusing.

Boil the brazilwood vigorously for one hour in its own dyepot. Remove bag of brazilwood and set aside.

21. Enter skeins 5 and F into brazilwood bath. Simmer one-half hour. Now add skein 6 to the bath. Simmer another half hour. Remove skeins, extract and return liquid to dyebath, wash and rinse skeins.
22. Put bag of brazilwood back into bath. Boil for one hour. Remove brazilwood and set aside.

Rinse out 250 gm of mohair fleece from Step 1 in warm water and put it in the brazilwood bath. Simmer for one hour without stirring. Extract excess dye liquid.

23. Enter the same fleece into the Osage orange bath. Simmer for one hour without stirring. Remove, wash and rinse fleece.
24. You can now mix the Osage orange and brazilwood liquors and get a lighter dyebath.
25. Dry all fleece and skeins. Except for skein A, all skeins and fleece have their final color.

In the next issue, Spring 1988, we will continue with step 26 and work with dyepots of cochineal, madder, kamala, cutch, and indigo. □

A native of Holland, Trudy Van Stralen has always had an interest in dyeing. She has had quite a bit of experience with chemical dyeing, but it is the dyes from nature that have really captured Trudy's interest. After experimenting for years, and reading dyebook after dyebook, Trudy ended up developing her own methods for getting the bright colors from natural dyes that she is known for today. Trudy emphasizes brilliant colors that are light- and washfast, yet that require minimal use of mordants. Each year, between April and October, she dyes about 2000 pounds of fiber and yarns at the family farm in Prescott, Ontario—for other weavers, fiber stores and herself. She does her spinning in the winter.

Product News

by Sharon Altergott

Eric and Elina Baker of Ertoel Wheels in Croydon, Victoria, Australia, wrote recently that they are now distributing their products in England, Canada, the U.S., and Japan. They started Ertoel Wheels in 1973 and after a few years working from their home they were large enough to move to their present factory location in 1977. Among the mainstays of their business is the "Roberta", an electric spinner with adjustable speed control and three large bobbins. It's compact, weighs only 12 pounds, and is constructed from dark Tasmanian Myrtle with an optional carrying case. They also sell two drum carders—the "Kate" with a 4″ diameter drum, 6″ wide and the "Celia", 6″ diameter drum, 8″ wide. Their "Victoria" spinning wheel is a two-band upright wheel with a unique reverse flyer, allowing bobbins to be changed without disturbing the bands. All merchandise sold to customers in the U.S. is shipped postpaid via air freight. For a product brochure, write to **Erotel Wheels,** 1/67 Lusher Road, Croydon, Victoria, 3136, Australia.

Of interest to production spinners is the new power tabletop carding machine from **Patrick Green Carders Ltd.,** "Paula's Rover". Introduced at the Spin·Off Rendezvous, this eight-drum machine makes roving from good quality picked wool at a rate of about five pounds per hour. Two dyed wools can be fed side by side to produce two-color roving. Each made-to-order unit is 4′ × 1½′ × 1½′ and weighs 180 pounds. Cost is $2600 with crating, brokerage and duty extra. Phone Paula Simmons at Patrick Green's to discuss your wool processing needs—daytime or evenings at (604) 858-6020, or write to them for additional information about their line of carders and pickers at 48793 Chilliwack Lake Road, Sardis, British Columbia, Canada V2R 2P1.

Melda Montgomery of Woodland Hills Farm announces a new custom wool carding service for handspinners. Fleeces at least 2½″ long and free of vegetable matter are washed, picked and carded into continuous roving or batts for spinning. Return of your own wool is guaranteed. Color and fiber blending services are also available. Woodland Hills Farm has been producing wool for handspinners from a flock of over 70 Lincoln, Corriedale and Romney × Lincoln sheep for the past 11 years. Send $2 for samples or write for a free brochure on carding services to **Woodland Woolworks,** 17340 N.E. Woodland Loop, Yamhill, Oregon 97148-8420, (503) 662-3641. □

Classifieds

NOTICES

TO PLACE A CLASSIFIED AD

For the next issue, send your ad along with payment eight weeks prior to the month of publication. Only $.75 per word ($15 minimum) or $25/col. inch (camera-ready). **Payment must accompany ad.** Send to **Interweave Press, Spin·Off Classified Ads,** 306 N. Washington, Loveland, CO 80537.

ENGLISH ANGORA RABBITS for sale. Pedigreed, show quality, excellent woolers. Colors and white. SASE to **Sweeterland Estate,** Joyce Troutman, RD #1, Box 225A, Paxinos, PA 17860.

HIGH WOOL PRODUCING commercial Angora rabbits. Hardy and productive. Several bloodlines available. Reasonable prices. Will ship. **Fisher's,** 143 New Meadows, Missoula, MT 59802. (406) 728-6962.

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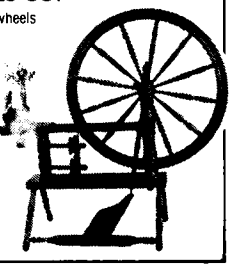

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