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HOW TO SPIN

From Choosing a Spinning Wheel to Making Yarn

Beth Smith, author of
The Spinner's Book of Fleece

HOW TO SPIN

From Choosing a Spinning Wheel to Making Yarn

Beth Smith

Storey Publishing

To my kids, who are all working on getting beyond the beginner stage.

The mission of Storey Publishing is to serve our customers by publishing practical information that encourages personal independence in harmony with the environment.

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Cover illustration by © Fumi Koike
Interior illustrations by Alison Kolesar

Storey Publishing
210 MASS MoCA Way
North Adams, MA 01247
www.storey.com

Printed in the United States by McNaughton & Gunn, Inc.
10 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data

Names: Smith, Beth, 1965– author.
Title: How to spin : from choosing a spinning wheel to making yarn / Beth Smith.
Description: North Adams, MA : Storey Publishing, [2016] | Series: A Storey basics title | Includes index.
Identifiers: LCCN 2015041610| ISBN 9781612126128 (pbk. : alk. paper) | ISBN 9781612126135 (ebook)
Subjects: LCSH: Hand spinning. | Woolen and worsted spinning.
Classification: LCC TT847 .S64 2016 | DDC 746.1/2—dc23 LC record available at http://lccn.loc.gov/2015041610

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ACKNOWLEDGMENTS

I just want to say thank you to all of the people who have helped me with this book. All of my spinning teachers over the years gave me all of the information that I needed. My darling husband, Lou, who is patient and kind when there is no dinner and the house is a disaster area. The kids who live with me and on their own, who love me even when I am short with them due to deadlines. And finally my editors, Gwen Steege and Ann Budd, who clarified and questioned and fixed the words so this book can help so many more people learn to spin their own yarn — which is sheer joy once you get past those first two weeks of hardship.

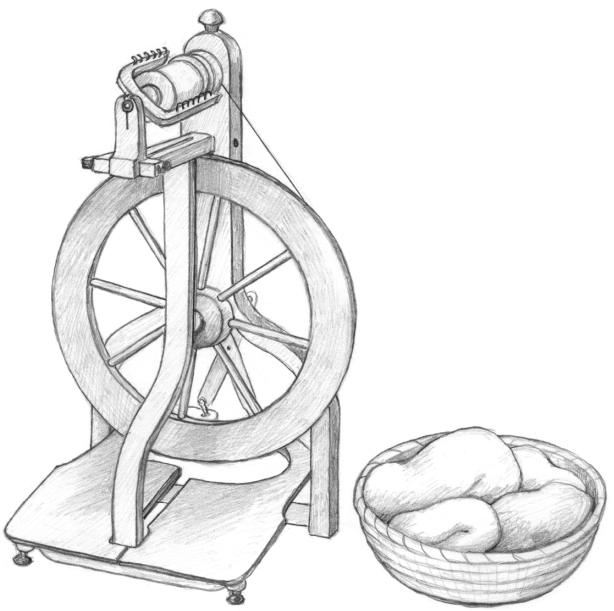
TAKE THE SPINNING PLUNGE

Spinning can be relaxing and satisfying, once you learn, of course. It's a simple process, really. Take a bit of fiber, add twist to it, and voilà — yarn! But that simple thing can be quite difficult as you learn to get your mind and body to work in harmony.

I learned to spin out of curiosity — I simply wanted to know where yarn comes from. I've been interested in textile work all my life, but never really thought about how the yarn or threads I used came to be. The day I finally I asked myself where yarn came from, I started doing some research. That research led me to learn to spin.

Like many new spinners, I began with a spindle, and it wasn't long before I was able to make an irregular yarn that could be wound onto the spindle shaft. Because my yarn didn't improve with practice, I assumed that my equipment must be bad. I decided that a spinning wheel must be necessary to spin smooth, even yarn, which, of course, isn't true. Not knowing any better, the first wheel I chose wasn't in working condition and needed a few parts.

At this point, I got smart and looked for some local help. I got my wheel fixed, bought an entire raw Shetland fleece, and got to work ruining all of the fiber. I'm not saying this wasn't a



learning experience that produced plenty of skeins of yarn, but the methods I used to wash and prepare it for spinning were not the best choices for the fleece. That said, I would never discourage anyone from just going for it like I did. No money or time was wasted — I'm better for the experience, and that sheep grew a new fleece for the next shearing! I learned a lot, and through my story I can help others make faster progress.

Throughout the book, I talk a lot about sampling and trying things out — it's the best way I know to improve skill and confidence. Don't be afraid to experiment. Make adjustments to your wheel by increasing and decreasing tension, changing whorls, and tightening and loosening drive bands. Try different brake-band and drive-band materials to see how they affect the yarn you spin. Also, as you improve as a spinner, keep records and samples of your progress. They will serve as recipes for yarns that you may want to re-create later.

Above all, be patient. Spinning takes time to learn and a lot more time to master. In my experience as a teacher, new spinners need to practice at least 15 minutes every day for two weeks to feel comfortable. But don't force it. Stop when you begin to feel frustrated. If you start each practice session fresh, you'll progress more rapidly.

Once you feel comfortable spinning and can sit at your wheel with confidence, I encourage you to make as many different kinds of yarn as you can — thick yarns, thin yarns, textured yarns, and smooth yarns. Practice them all regularly so you don't get caught in the rut of only being able to spin one type of yarn. Don't be afraid to play at your wheel. Playing is not a

waste of fiber. On the contrary, it's an extension of your education and well worth the investment. And, please, knit, weave, or crochet sample swatches out of your yarn! It's the only way you'll learn how different yarns behave in different fabrics.

Many feel isolated in the craft. If you feel this way, take heart — with just a little research, you'll find online communities and you may well find other spinners in your area. Facebook and Ravelry.com are great places to meet online friends. If you're looking for a more up-close and personal experience, join a spinning group or start one of your own. Online searches are a great way to find spinners in your area. Look for spinning or knitting or weaving guilds by searching for them along with surrounding city names. If you want to start your own group, include spinners of all levels. You'll hone your skills by helping the less experienced, and you'll advance your skills by observing and learning from the more experienced.

CHAPTER ONE

SPINNING IN A NUTSHELL

Spinning is a simple matter of twisting loose fiber into a long, strong strand that we typically call yarn. Thread is simply very, very fine yarn. The concept is easy to grasp, but because you have to coordinate your hands, feet, and brain, the process can feel awkward and frustrating at first. New spinners generally produce yarn that's thick in some spots, thin in others, and, at times, becomes a gnarled mess or completely drifts apart. But with practice, you'll settle into a comfortable rhythm and produce a uniform strand that will make you proud.

To begin, let's look at the general process to familiarize you with the steps. Once you're comfortable making yarn, you can move on to the next chapters to learn more about the various types of spinning wheels, fiber preparation, drafting methods, plying, and finishing the yarn.

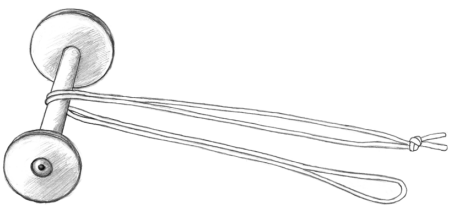
For this abbreviated lesson, you'll need cotton yarn for a leader (a strand of yarn fastened onto the bobbin that you can attach your unspun fiber to) and wool fiber for spinning. I recommend starting with undyed wool because dyes can affect the surface of the fiber and may make drafting (see page 10) more difficult. It's often best to begin with a type of wool that's not too soft or slippery, such as Corriedale or Romney, but beginning with a fiber that makes you happy can help with the experience.

TYING ON A LEADER

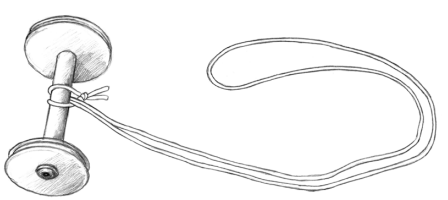
To use a spinning wheel, you'll need to tie a leader onto the bobbin so you can attach the first bits of newly spun yarn to something. I prefer cotton leaders because they wear well and can be used over and over. To make a secure leader that doesn't slip and slide around the bobbin shaft, cut a piece of cotton string about 6 feet (2 m) long and attach it to the bobbin with a lark's head knot (see facing page). This type of knot will remain in a tight, fixed position for multiple spinning sessions.

TYING A LARK'S HEAD KNOT

1. Tie the cut ends of the cotton yarn into an overhand knot to form a large circle, fold the circle in half, then wrap it around the bobbin shaft.



2. Insert the looped end through the knotted end so the knot lies on the bobbin, then pull tight.

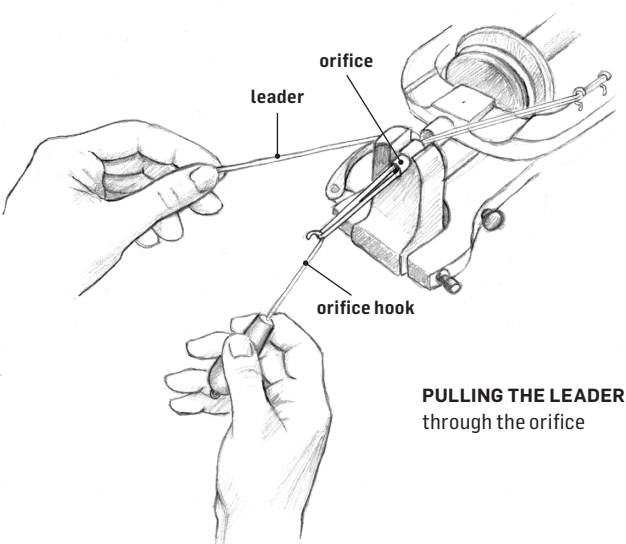


3. Wrap the double strand around the bobbin shaft again, then pull the looped end through both newly wrapped strands and pull tight to secure it.

(continued on next page)

This method produces a loop in the leader through which the fiber can be placed when you begin to spin. Some spinners prefer to omit the overhand knot in step 1 and simply begin with the lark's head knot in steps 2 and 3, in which case, they catch the fiber between the two loose tails when they begin to spin.

Once the leader is secure, insert the bobbin on the wheel. Use an orifice hook to pull the leader through the orifice, and you're ready to spin.



PULLING THE LEADER
through the orifice

TREADLING

To make the spinning wheel turn, you'll step on treadles. Some wheels have a single treadle; others have two — one for each foot (we'll talk more about wheels in chapter 2).

When you sit down at the wheel, place your feet so that the arch of your treadling foot/feet are positioned over the pivot point of the treadle. It's okay if your heel hangs a bit off the back of the treadle. In addition, your leg(s) should be slightly extended. You want less than a 90-degree angle between your thigh and lower leg. This position will help you treadle just with your feet (not your entire leg), which will be easier on your joints and lessen fatigue.

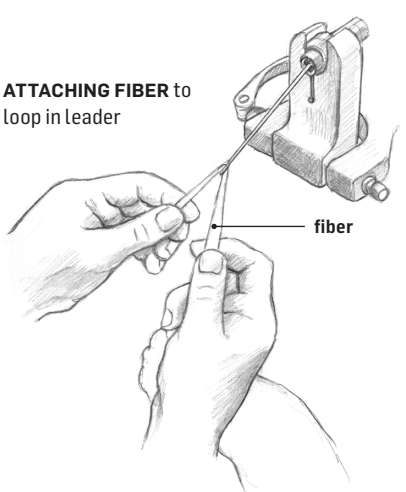
Keep Your Distance

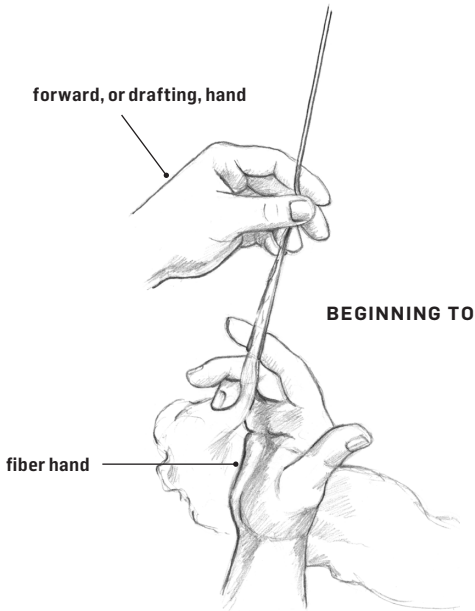
For all drafting methods, it is important to keep your hands and your body as far from the orifice as is possible and comfortable. There are several reasons for this. First, it's better for your posture and will save you a lot of pain in your back, shoulders, and other places. Second, allowing more space between your drafting and the orifice allows the twist to even out a little bit before it is wound onto the bobbin, which helps result in a more consistent yarn. And third, more room between your hands and the orifice gives you a little more time to work before too much twist builds up and results in little corkscrews or with the newly spun yarn breaking.

When you're first learning to spin, take care to treadle slowly — just enough to keep the wheel turning without reversing directions. It's a good idea to practice treadling (without trying to spin any yarn) until your feet can make the wheel turn smoothly and slowly without your having to think about it.

DRAFTING

When your feet can treadle at a smooth, constant rate, it's time to focus on using your hands to draft the fiber to make yarn. Drafting is the action of pulling fibers past one another before they become twisted into yarn. To get started, treadle slowly as you pull out a few fibers and catch them between the loop or loose ends of the leader, depending on how you tied on the leader. Once the fiber is attached to the leader, you're set to spin.





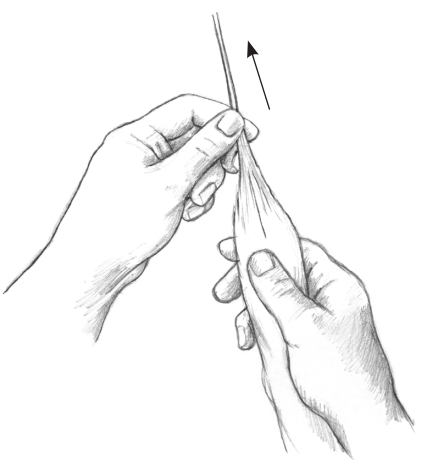
The brief instructions that follow are for drafting with a short forward draw. Other methods of drafting are discussed in detail in chapter 4, but this is the method that I've found to be easiest for most of my students. This type of drafting requires both hands — the hand in back (called the fiber hand) holds the fiber with a loose grip while the hand in front (called the forward or drafting hand) pulls out fiber to be twisted by the motion of the wheel. Try each hand in both positions to determine which is most comfortable for you.

SHORT FORWARD DRAW

1. Hold your hands at least one-and-a-half staple lengths apart (see Staple Length on facing page) and keep them as relaxed as possible. If your hands are too close together, you'll have hold of both ends of the staple, which will prevent the fiber from sliding through your fingers to form the yarn. If your hands are too far apart, you won't be able to stabilize the fibers as the twist is added.

2. While treadling slowly, use your forward hand to pinch and pull a bit of the fiber forward from your fiber hand.

3. Without releasing the pinch, slide your fingers back to the fiber supply and pull a bit of fiber forward again.



Repeat this process of pinching and pulling forward, then sliding back, keeping your fiber hand relaxed and pinching only tightly enough to prevent the twist from entering the fiber supply. As you move your forward hand forward, allow the yarn to

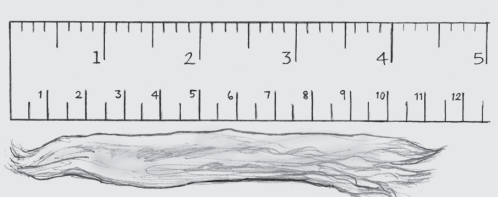
feed onto the bobbin. If you need to fix something or you feel that your hands are lagging behind, stop your feet. Continuing to treadle will only add to the trouble, not fix it. Remember to keep your shoulders down and relaxed. Holding your shoulders up around your ears will strain your back.

If you want a yarn that is slightly less smooth or contains a bit more air, allow some twist into the fiber supply. But be careful — too much twist might make the yarn thicker than you may want, or it may lock up the fibers to the point that drafting becomes impossible.

If things aren't working, try a different fiber, change the way you hold your hands, treadle slowly, and stop if you get into trouble. Treadling faster won't make a better yarn if your hands aren't drafting faster as well.

Staple Length

To determine staple length, simply pull a lock, or staple, of fiber from the end of the top or roving and measure it with a ruler. Do not stretch the fiber; staple length is the relaxed measurement of the fiber



CHAPTER TWO

WHEELS AND HOW THEY WORK

Because this book focuses on spinning on a wheel, it's important to become familiar with the various parts of the wheel and how they work together to turn fiber into yarn. You'll want to know what happens when you turn the knobs and use the different whorls and tighten or loosen the brake band and drive band. Learn what happens if you treadle with a drive band that's too tight. Can you use just one foot on a double-treadle wheel? Is it more comfortable to use a single foot or both feet in unison on a single-treadle wheel? So many questions! Take time to become familiar with your wheel so that you'll have an inkling of what to fix when things go wrong.

SPINNING WHEEL PARTS

Although yarns wind onto a bobbin or spindle in different ways, depending on the wheel style, most wheels are constructed with similar parts. Take time to learn the names of these parts and how they work. Then, when you need help fixing or adjusting your wheel, you and the person helping you will speak the same language. See page 18 for specific types of wheels, with some parts labeled.

Bobbin. The bobbin collects the yarn after twist has been added to the fiber. It sits on the flyer shaft and should spin freely.

Bobbin bushings. Bushings, typically made of plastic, are added to the ends of bobbins to hold the bobbin core away from the flyer shaft.

Bobbin whorl. Depending on the type of wheel, the bobbin whorl holds the drive band (on double-drive or Irish-tension wheels) or the brake band (on Scotch-tension wheels).

Brake. The brake slows or stops the bobbin from spinning on a Scotch-tension wheel or stops the flyer from spinning on an Irish-tension wheel.

Crank. The crank is the part that extends through the center of the drive wheel to connect the footman or footmen.

Drive band. The drive band transfers power from the drive wheel to the flyer. It can be string or some type of elastic material. What works best for a particular wheel depends on whether or not the mother-of-all is adjustable, among other things. Most manufacturers recommend the type of drive band they believe is best for a particular wheel.

Drive wheel. This, the large circular wheel, is the focal point of any spinning wheel. It's put in motion by the treadles, and, because of that movement, the bobbin and flyer rotate.

Flyer. The flyer is the U-shaped part that includes a metal shaft (called the flyer shaft) that holds the bobbin. It spins to add twist to the fiber and directs where the yarn winds onto the bobbin.

Flyer shaft. The flyer shaft holds the bobbin.

Flyer whorl. Sometimes called a pulley, the whorl (or whorls) that comes with a spinning wheel hold the drive band. The size of the whorl helps determine how much and how quickly twist is added to a length of fiber.

Footman. The footman is the rod that connects the treadle to the drive wheel. A single-treadle wheel has one footman; a double-treadle wheel has two footmen.

Mother-of-all. By supporting the flyer and bobbin, the mother-of-all is what allows the wheel to spin yarn.

Maidens. The maidens are the uprights that hold the flyer in place, either by plastic or leather bearings. There are two maidens — one in front and one in back.

Orifice. The orifice is the opening at the front of the wheel that guides the yarn onto the flyer.

Treadle(s). Operated by your feet, the treadle (or treadles) sets and keeps the drive wheel in motion. Some wheels have one treadle; some have two.

Treadle support. The treadle support is typically attached between two legs of a wheel to support the treadle or treadles.

On some castle-style wheels, however, the treadles are simply attached to the base of the wheel.

Uprights. The uprights hold the drive wheel in place.

Wheel hub. The wheel hub is the center of the drive wheel; it usually involves a metal bar that rests on the uprights.

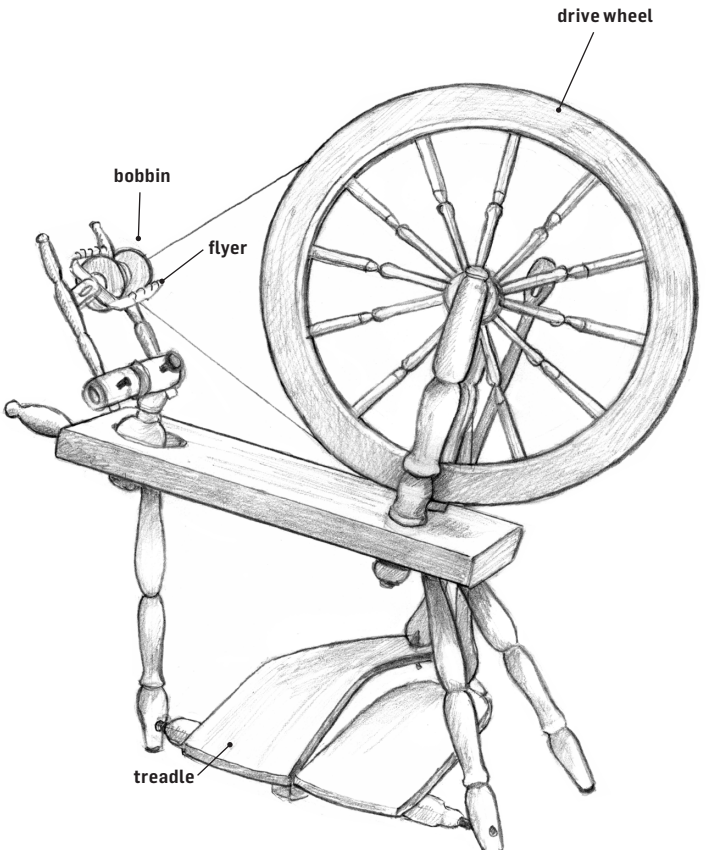
TYPES OF WHEELS

When shopping for a wheel, it's natural to be drawn to ones that you find attractive. Although beauty doesn't necessarily affect how well a spinning wheel may work, it can be an important factor in how much you spin. Most of us spin in our living area, where the wheel is always on display. If you don't like the look of your wheel, you're apt to move it somewhere out of sight. Unfortunately, out of sight is often followed by out of mind, and you may stop spinning altogether. As a beginning spinner, it's especially important to spin often. It's therefore good to love your first wheel enough to have it on prominent display.

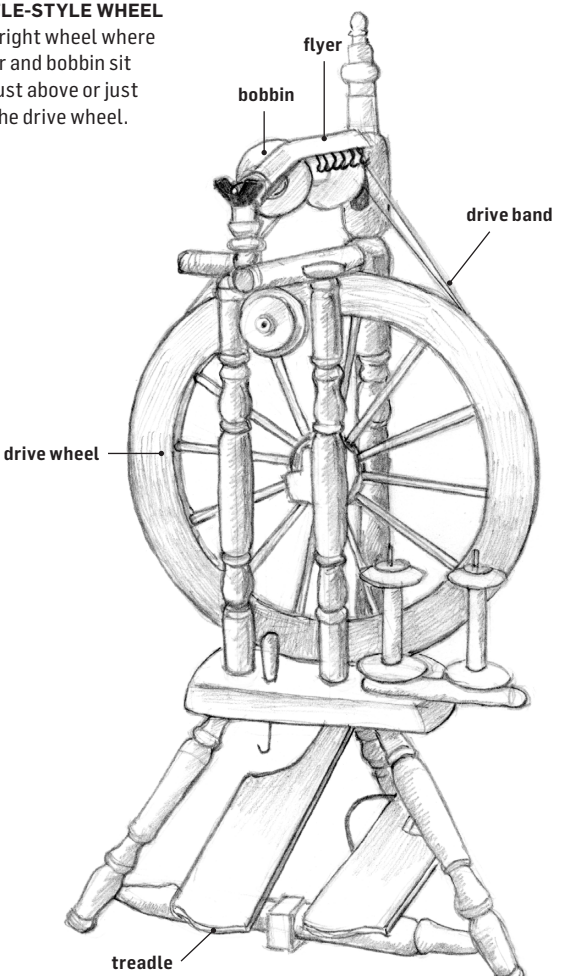
Looks aside, there are dozens of spinning wheels from which to choose. Fortunately, they can be broken down into four distinct styles, plus an electric spinner. The following section will give you insight to the different types and may help you narrow down the options when making your selection. Most advanced spinners own a number of different wheels to accommodate the variety of yarns they spin.

Saxony (and Norwegian) wheel. This is the type of wheel that's associated with most fairy tales. The drive wheel is set to the left or right of the flyer, and both rest on a long bench.

A SAXONY WHEEL has the wheel off to the side of the flyer.



A CASTLE-STYLE WHEEL is an upright wheel where the flyer and bobbin sit either just above or just below the drive wheel.



The main difference between a Saxony and Norwegian wheel is that the bench on a Saxony is slanted while the bench on a Norwegian is parallel with the floor. The Schacht-Reeves is a Saxony-style wheel that comes with either a 24-inch (61 cm) or 30-inch (76 cm) drive wheel. The Kromski Polonaise is an example of a Norwegian-style wheel.

Castle-style wheel. This type of upright wheel has the flyer positioned above or below the drive wheel. The Louet S10, Ashford Traveler, and Schacht Matchless are all castle-style wheels.

Great wheel or walking wheel. This type of wheel is moved by hand rather than a treadle. It's set up similarly to a Saxony wheel with a large drive wheel to the side. The drive band turns a spindle, and the spinner makes yarn by drafting against the spindle. Once enough twist has been added, the direction of the wheel is changed, and the yarn is moved to the back of the spindle where it is wound on.

Charkha wheel. This portable wheel can be considered a tiny great wheel. It includes book and tabletop versions, depending on the overall size. Like a great wheel, there are no treadles — one hand is used to turn the small wheel while the other hand drafts the yarn. The drive wheel and spindle are next to each other either in a box frame or standing up like with the great wheel. This type of wheel works best with short fibers, such as cashmere and cotton.

Electric spinner. Driven by a motor, this type of wheel has no treadles. Instead, it has a simple peddle or switch to start or stop the flyer. In this case, the motor turns a small whorl or

pulley, which turns either the bobbin or flyer. Electric spinners can have either Scotch tension (page 24) or Irish tension (page 26), depending on the maker.

DRIVE SYSTEMS

A DRIVE SYSTEM HAS TWO PURPOSES. First, it transfers energy from the drive wheel to the flyer, which spins around and around. Second, it moves the bobbin and the flyer at different speeds so that the yarn will wrap around the bobbin for storage. This wrapping, and the tension it causes on the yarn being spun, is referred to as take-up.

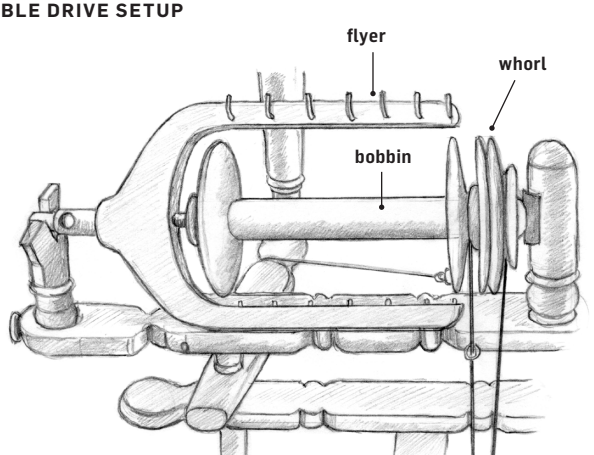
Spinners like to debate about which drive system is best. As a new spinner, you may wonder what all the fuss is about — it's just a way to get yarn onto the bobbin, right? Well, yes, but there is a difference in how much take-up or how much adjustment is necessary when spinning a full bobbin. Once they get comfortable with the type of wheel they have, most spinners insist that the drive system on their wheel is superior. In truth, there are benefits and drawbacks to each system, and some are better for certain yarns than others. When choosing your first wheel, keep in mind that anyone can learn on any wheel as long as it has all of its parts and is in good working order. Let's talk about how each drive system works.

Double Drive

In a double-drive system, a single drive band moves both the bobbin and the flyer. The drive band goes around the drive wheel twice, with one loop around the flyer whorl and the other around the bobbin whorl. There should be a difference in the size of the flyer whorl and the bobbin whorl. This difference affects the heaviness of the pull or take-up of the newly spun yarn onto the bobbin.

Most modern double-drive wheels are set up to be bobbin led, which means the bobbin whorl is the smaller of the two. Because the bobbin whorl is smaller, it moves more quickly when there's tension on the yarn. Drive-band slippage occurs on the flyer whorl while the yarn is held in place. The slippage

DOUBLE DRIVE SETUP



on the flyer whorl allows the flyer and bobbin to spin at the same speed. When the tension on the yarn relaxes to allow the yarn to wind onto the bobbin, the flyer slows, the bobbin continues to move at the same speed, and the yarn wraps around the bobbin.

Some double-drive wheels can be set up to be flyer led if the flyer whorl is smaller than the bobbin whorl. But, because most modern wheels have small bobbin whorls, this can be difficult to achieve.

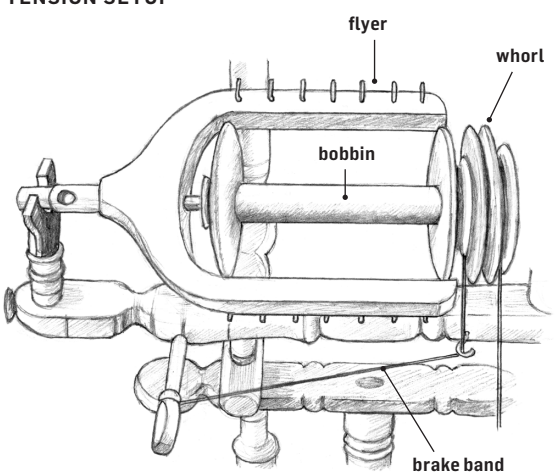
In general, take-up is affected by the difference in size of the bobbin whorl and flyer whorl, as well as the tension of the drive band. Drive-band tension is adjusted by the mother-of-all. For wheels that have a "tilt tension" system, as found on a lot of Saxony Canadian production wheels, tension is adjusted by moving the mother-of-all back and forth from a pivot point on a type of hinge. The tension is adjusted on other wheels by a large screw that moves the mother-of-all backward and forward, or up and down. The screw is typically at the end of the bench on a Saxony wheel or at the back of a castle-style wheel.

Scotch Tension

Wheels with Scotch tension are also referred to as flyer-led wheels because the flyer is the part that's driven by the drive band. Most Scotch-tension wheels have a single drive band that goes around both the drive wheel and the flyer whorl. In the types of wheels called direct drive, the flyer whorl sits right up against the drive wheel and moves in tandem with the drive wheel. Most of these wheels have a Scotch-tension system with a brake band on the bobbin whorl for tension adjustments.

On a wheel with Scotch tension, the drive band moves the flyer; a separate band called a brake band is on the bobbin whorl. As the fiber is held still through the orifice, the bobbin is

SCOTCH TENSION SETUP



dragged around at the same speed as the flyer to add twist to the fiber. When the tension is released, the bobbin either slows or stops, and the flyer, which is still moving, wraps the yarn around the bobbin.

The take-up tension in this type of drive system is adjusted with a knob at one end of the brake band. Most often, a spring or some other type of stretchy material at the other end helps to tighten or loosen the tension. Adjusting the tension on the drive band doesn't affect the take-up at all in this case, so it's always best to keep the drive band as loose as possible. It just needs to be tight enough to move the flyer, but not so tight that it makes treadling difficult.

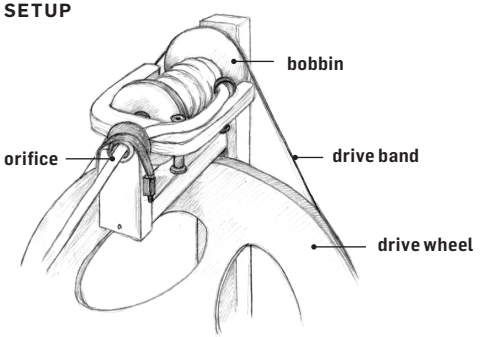
"Good Working Order"

When "spinning wheel in good working order" is specified in a materials list for a class, it means that the bobbin spins freely on the bobbin shaft, everything turns when the treadles are pushed, nothing falls apart during spinning, and the drive band is in relatively good condition and can turn all of the whorls, regardless of their size. The drive band shouldn't be frayed or falling apart if made of string. If made of a stretchy material, it shouldn't be cracked and dry or so stretched out that it doesn't turn the small whorls of the wheel.

Irish Tension

Irish-tension wheels are sometimes called bobbin led, though, as we've already discussed, most double-drive wheels also use a bobbin-led system. On an Irish-tension wheel, the drive band goes around the drive wheel and the bobbin. The brake is on the flyer and typically is positioned across the outside of the orifice. The take-up on this type of wheel is strong enough that the brake doesn't need to be tightened very much, if at all.

IRISH TENSION SETUP



Spindle Wheel

A spindle wheel doesn't have a bobbin or a flyer. A spindle is driven by turning the drive wheel with either a treadle or by hand (as for great or walking wheels and Charkhas). The drive band turns the spindle, and the turning spindle adds twist to the fiber. The wheel is then reversed a bit to allow the newly spun yarn to be wound onto the part of the spindle that's

farthest from the point, then the direction is changed again to allow the yarn to wind onto the spindle. Although this sounds a bit complicated, an easy rhythm develops with practice. A great wheel or a wheel that's turned by hand must be combined with a long-draw drafting technique (see chapter 4), because only one hand is available to draft while the other is dedicated to driving the spindle.

Which System Is Best for You?

Even experienced spinners disagree about which drive system is easiest for beginners. Some insist that Irish tension is best because there are fewer adjustments to be made; others favor Scotch tension because it tends to be more sensitive than, but not as touchy as, double drive. Just like a spinning wheel, the arguments go round and round. In all honesty, as long as you're determined, you can learn on any type of wheel with any type of fiber. Most spinners agree that you'll learn fastest if you start with a medium-length fiber that's not too slippery on a modern wheel that's in excellent condition. But keep in mind that spinners all over the world learned to spin silk, cotton, and even cashmere on simple, rugged equipment. In truth, all it takes is a working wheel, well-prepared fiber, and daily practice to become a competent spinner.

I often hear people discussing orifice height and whether a particular wheel is too tall or short. In fact, orifice height doesn't matter in the least. If the orifice is low and causes back pain, you're probably working too close to the orifice. Simply sit back a little and straighten up, and the pain should disappear.

TENSION AND TENSION ADJUSTMENTS

TENSION, OR TAKE-UP, ADJUSTMENTS are necessary as a bobbin fills with yarn or when you change from spinning one type of fiber or yarn to another. The way to adjust the take-up depends on the type of drive system on your wheel. Make adjustments in small increments. You want to allow slippage on the bobbin and/or flyer whorl as you spin. If the tension is too tight, treadling will be difficult and may stop the flyer or bobbin from moving altogether. If there isn't sufficient tension on the bobbin or flyer whorl, then it's possible that too much twist will be added as you're trying to get the new yarn to wind onto the bobbin. Tension is always a balancing act but gets easier to control as you become more comfortable spinning. The different types of spinning wheel tension are described below.

Double-drive tension is affected both by the difference in size of the bobbin and flyer whorls, as well as the tightness of the drive band.

Scotch tension is adjusted by turning the knob to which the brake band is attached by a string or cord with a spring or elastic at the other end. The more surface area of the bobbin whorl that's touched by the brake band, the smaller the adjustments should be when changing the amount of take-up.

Irish tension is adjusted by the brake. This type of wheel almost always has take-up, and it's difficult or impossible to adjust the tension by reducing the take-up. Instead, the brake (usually located over the orifice of the flyer) can be removed altogether if a finer thread is desired.

Spindle tension is not an issue. There is no take-up on this type of wheel. Instead, you control the amount of tension that's put on the yarn as you spin and wind the yarn onto the spindle.

What to Feel For

When I sit down to spin a new project or fiber, I always reduce the tension on my wheel to the point of no take-up at all. As I begin to treadle, I tighten the tension little by little until the yarn begins to draw on. I'm always amazed by how the smallest of adjustments can make a huge difference in how hard the yarn is pulled onto the bobbin.

The tension should be just tight enough to pull the yarn onto the bobbin, but not so tight that you can't pull the yarn back off of the bobbin. The right amount of tension is determined by the thickness of the yarn you're spinning. In general, fatter yarns require more tension while finer yarns require less. In fact, very fine yarns require so little tension that it may feel as though the yarn is winding onto the bobbin by sheer willpower.

When adjusting the tension on a Scotch-tension wheel, the spring should rarely be extended. If the spring stretches out, chances are that there's too much tension. On a double-drive wheel, there should be some play in the drive band. If the drive band is very tight and doesn't bend down when pushed, there's probably too much tension.

As you spin, you'll need to periodically adjust the tension and, therefore, the take-up as the bobbin fills. Double-drive and Irish-tension wheels require fewer adjustments over the filling of a bobbin than Scotch-tension wheels.

SPINNING WHEEL MAINTENANCE

As with most things in life, measures must be taken to keep your spinning wheel in tip-top shape. Not every wheel requires the same maintenance — it's very important to follow the manufacturer's instructions and recommendations.

Lubrication

Oil is key to keeping all the parts running smoothly and freely — almost everything else is superficial. The goal is to lubricate every part that touches and rubs against another part. Keeping the parts moving freely extends the life of the wheel. New wheels should be oiled at the beginning of each spinning session and at least every hour of operation. After a wheel has been working for a while, it will suffice to add oil just at the start of each spinning session. Sealed bearings — small balls encased in a metal frame that contains oil — do not need to be oiled because the oil is already sealed in place. This type of bearing is protected from contaminants and lasts longer. Some wheel manufacturers use this type of bearing at the wheel hub.

WHAT TO LUBRICATE WITH

Moving parts. Most wheel manufacturers recommend 10W-30 motor oil on all moving parts. This heavy oil can withstand the high friction and heat generated by parts that move against each other for long periods of time. Sewing machine and 3-in-1 oils are generally too lightweight to withstand the rigors of extended spinning.

Bobbin shafts. I've been known to use white lithium grease (available at hardware and auto parts shops) on my bobbin shafts. This grease is a bit thicker and will get rid of "bobbin racket" if the bushings in your bobbin are a bit loose on the shaft.

Leather parts. For leather, such as the front bearing on some wheels, most wheel manufacturers recommend carnuba (car) wax, a very light coating of petroleum jelly, or even hand lotion. All of these will help the flyer spin freely and keep the leather in good condition. If your wheel is old or antique, any of these products will work very well.

WHERE AND WHEN TO OIL

Bobbin shaft. The first important part to oil is the bobbin shaft. When changing bobbins, wipe the shaft clean of oil and grime with a paper towel or soft cloth. Replace the bobbin and put the flyer back between the maidens. Then add a drop of oil at each end of the bobbin. Don't be too skimpy but also don't overdo it — when you get up to spinning speed, excess oil might be sprayed from the fast-moving flyer. When not changing bobbins or in the midst of spinning, you can get by with just a drop of oil at each end of the bobbin. Those ends have a bushing that sits on the shaft so it's not necessary to oil the entire shaft length.

Wheel hub. If your wheel doesn't have a sealed bearing at the wheel hub, you'll want to oil the spot where the metal shaft sits in the uprights. Oil this area at the beginning of each spinning session. Take care not to oil the hub pin, which extends

through the center of the hub and drive shaft to hold the wheel to the shaft. There are no moving parts in this area.

Flyer. Another important place to oil is the flyer. It should be oiled in the front where the orifice meets the front maiden and bearing, as well as in the back where it sits in the back maiden. These spots should be oiled about as often as the bobbin shaft.

Treadle. Some wheels have a rotating treadle support that attaches to the legs. This area may need periodic lubrication. You can either use oil or rub a bit of candle wax onto the joint to help minimize squeaks. If using candle wax, you may need to remove the support from the leg to access the entire pin.

Crank shaft. It's also a good idea to periodically (about once a week or so) add a little oil to the spot where the crank shaft meets the footmen.

Although this may seem overwhelming at first, it doesn't take long to oil all the necessary parts once you get the hang of it. It also won't be long before you can feel when a bit of oil might be needed. Proper oiling and lubrication will help your spinning wheel and bobbins stay in good shape for a good long time, and will help you spin your best. Be sure to refer to the manufacturer's instructions when deciding where to oil your particular wheel.

Wood Care

Take care of the wooden parts of your spinning wheel the same way you'd take care of a good piece of furniture. About once a year, clean wheels that don't have a clear finish with a damp cloth, followed by a coat of wood conditioner. To clean wheels with a clear finish, simply rub lightly with a damp cloth.

Treadles that show signs of footprints (common on wheels that have just a wax or oil finish) can be cleaned with fine steel wool and a bit of elbow grease.

Cleaning and Tightening

Every few months (or more often if you travel with your wheel), take a close look at your wheel. Turn it upside down to inspect the under parts. Use a soft rag to remove any build-up of dirt or fiber. Take this opportunity to tighten any nuts and bolts. New wheels are generally shipped with the correct tools (such as Allen wrenches) for this purpose, and they should be kept with your other spinning tools.

Wood expands and contracts with changes in humidity, and the simple act of moving a wheel from one room to another, or to and from classes, can cause parts to loosen. Tighten everything, making sure that all of the feet are present and secure, and that no screws have gone missing. If parts are missing, replacement parts are available for most wheels from most dealers. You can even get parts for antique or handmade wheels from the wheel manufacturer or specialty repair shops.

CHAPTER THREE

FIBER PREPARATIONS

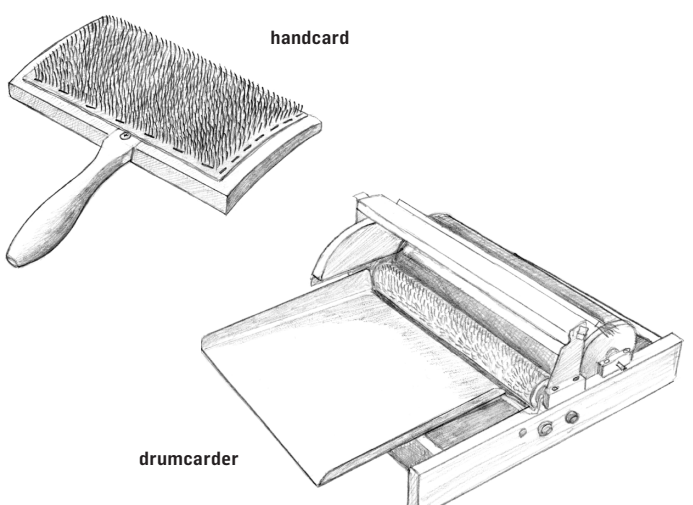
When shopping for fiber, you're likely to come across five types of mill-prepared fiber, as well as two or three types of hand preparation available for sale. The differences often have to do with the number of steps completed before the fiber is sold. The type of fiber preparation affects the outcome of final yarn, even if the same drafting method is used in each case. The combination of fiber preparation and drafting method can yield extremely different results or yarns with just tiny differences. It's up to you to choose the combination that produces the yarn that's best for the project you have in mind. These choices are easy to make if you take time to spin small samples and work them into small swatches of the fabric you intend to make.

CARDED PREPARATIONS

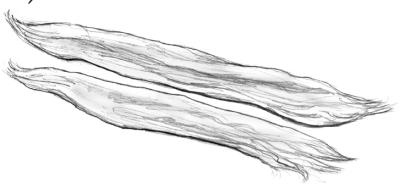
Carded preparations can be done on large equipment in a mill, on drumcarders, or with handcards. The carding opens the fibers and aligns them somewhat to get them ready for spinning (see page 42).

Batt

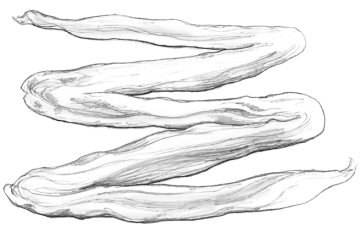
A batt is a rectangular preparation created by carders. Large batts from mill carders are often used for padding quilts. Smaller batts from small-scale carding operations are often used by handspinners. You can make your own batts with either handcards or a drumcarder.



There are a few ways to prepare a batt for spinning. It can be stripped along the grain (a), zigzagged into a single long length (b), or rolled and drafted into a long length that's either parallel or perpendicular to the fiber orientation. The orientation of the fibers will affect the yarn that's spun from it (see chapter 4).



a. batt stripped along the grain



b. zigzag stripping

Sliver

Sliver is made from fiber that has been picked free of dirt and debris, and then run through a carding machine. The carding machine aligns the fibers somewhat, but doesn't remove damaged fibers or those with shorter staple lengths. The carded fiber is then pulled from the carder into long ropes that have no twist.

Sliver is usually used for mill spinning, although a few vendors make it available to handspinners as well. This preparation is a bit denser than roving (see below), but because the preparation is very unorganized, it makes a nice woolen-style yarn (see chapter 4).

Roving

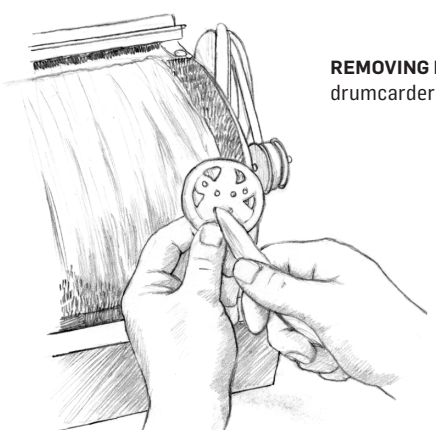
Roving is simply sliver that's undergone another preparation step. Like sliver, it's a carded preparation that includes all the short and long fibers, but it has been drafted into a long rope to which a slight amount of twist has been added. When spun, roving often results in a yarn that's airy and light with great insulating powers.

You can make your own roving with handcards or a drumcarder. To make roving with handcards, card the fibers into batts (see page 35). Remove the fiber from the carding cloth in a single piece. Stack five to seven batts, then use your hands to pull or draft the stack into a long rope. Pull the fibers evenly so that the resulting rope is even and consistent.

The most important part about making roving with a drumcarder is removing the fiber from the carding cloth. You might like to use a diz (a small concave tool with at least one hole in the center through which roving is pulled) to help produce a consistent fiber rope. Using a diz is the last step in making combed top from handcombed fiber; it can also be used along with a drumcarder to make your own roving.

Feed a small bit of carded fiber from the seam in the carding cloth through a hole in the diz, push the diz back toward

the carding cloth until you feel slight resistance (too much resistance can cause the fiber to break or get stuck in the hole). Pull about 4 to 6 inches (10 to 12.5 cm) of fiber off the drum, then push the diz back again. Repeat this process until all of the fiber has been removed from the carding cloth. This method works best on carders that have teeth set in a diagonal pattern, but if done carefully, it works for other types of teeth arrangements. No further pulling or predrafting is necessary for this type of roving.



REMOVING FIBER from a drumcarder through a diz

COMBED PREPARATIONS

COMBED FIBERS ARE MORE ALIGNED than carded fibers. In addition, most of the shorter-stapled and weak fibers have been removed through this process. Yarn spun from combed top will usually be smoother and more compact than yarn spun from roving or other carded preparations.

Top

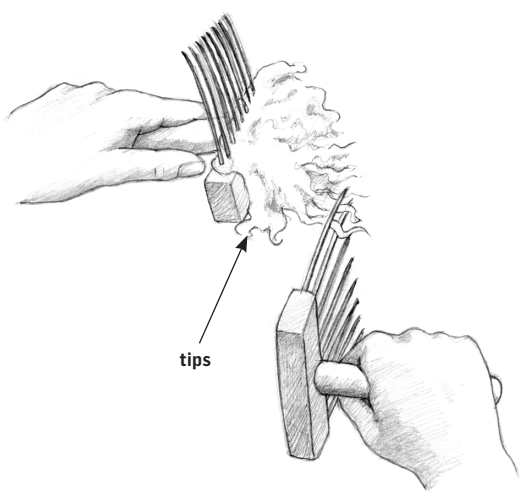
Top is a combed preparation. Top prepared in a mill is slightly different from top prepared at home with handcards. At a mill, the fiber first goes through a carding machine and then is passed through a combing machine. During the process, some shorter fibers as well as neps and other inconsistencies such as second cuts and shorter fibers are removed as the fibers are arranged in parallel alignment. (Neps are small knots of fibers caused by springy fibers catching on the carding teeth and bouncing back on themselves to form little balls that appear as lumps in your yarn.) The aligned fibers result in a smoother, denser yarn that often has more luster and definition than yarn made from roving.

Top prepared with handcombs (see page 40) tends to be smoother than top produced in a mill because the fibers are generally loaded into the combs facing in the same direction. As a result, more of the shorter fibers are removed. The directionality of the fibers results in an even smoother, more lustrous yarn if spun with a worsted-style short forward draw (see page 12). The diz can be used with the handcombs to make an

even more consistent preparation than if the fiber was removed without the diz or spun right off of the comb.

Be aware that the directionality of top fibers can have an effect during spinning. They can be easier to draft from one end than the other. If you find that your prepared top is difficult to draft even if it doesn't appear to be felted or matted, flip the fiber around and try drafting from the other end.

HOW TO HANDCOMB TOP



BEGIN BY COMBING through just the tips, then gradually work back to the comb.

SHORT FIBER PREPARATIONS

VERY SHORT FIBERS, such as cashmere, some angora, or bison, may benefit from special preparations to help manage them more easily during spinning.

Cloud

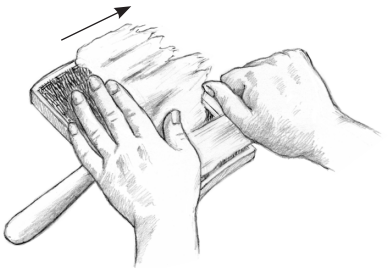
A cloud is a type of carded fiber that's less organized than a batt. Very short fibers, such as cashmere and bison, are typically available in cloud form because they're too short to be pulled into a roving that will hold together. Fibers from this type of preparation are spun from small handfuls.

Most fibers in a cloud preparation have been scoured and dehaired, but haven't been carded or processed any further. Cloud preparations often come from smaller mills.

Rolag

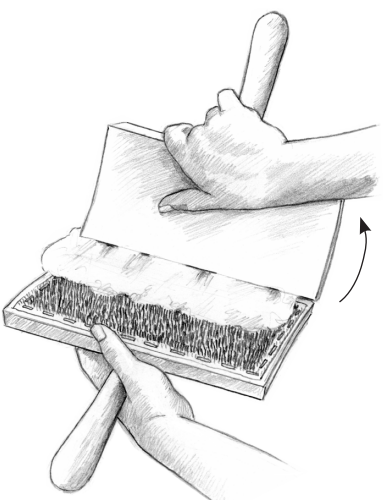
A rolag is made from handcarded fiber. (For how to handcard, see illustrations on the following page.) Once carded, the fibers are rolled in the same direction that the carded fibers are aligned. For spinning, the fibers are presented to the wheel from the rolled end in a spiral that results in an extremely airy and fluffy yarn if spun with a long draw or supported long draw (see chapter 4).

HOW TO HANDCARD



LOAD SMALL HANDFULS OF FIBER about one-third the card's width away from the handle side of one carder.

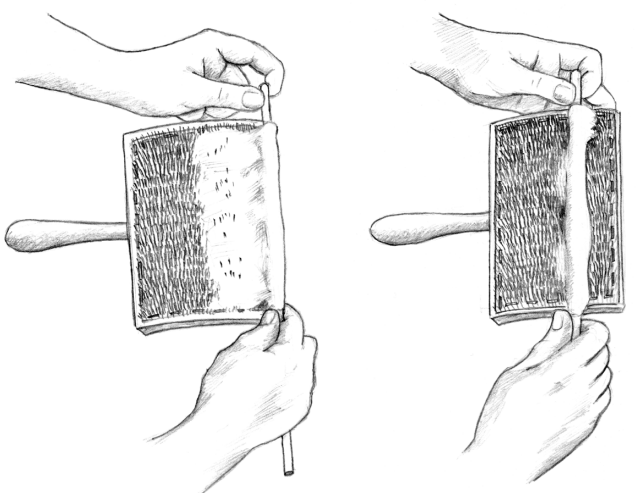
BRING THE EMPTY CARDER DOWN to meet the tips of the fibers on the edge of the loaded card, then flip the empty card up at a 90-degree angle, pulling slightly upward to transfer fiber from the first to the second card. Repeat this motion several times, moving slightly closer to the handle side of the carder with each motion, until all of the fiber is on the top carder. You can switch hands and repeat this process until the fibers have been opened and aligned. This may take several passes.



WITH ALL THE FIBER ON THE BOTTOM carder, use the top carder or your fingers to roll the fibers toward the body of the card, removing the fibers from the pins in the carder little by little as you form the rolag.

Puni

A puni is simply a very tightly rolled rolag. This type of preparation is generally reserved for extremely short fibers, such as cashmere and cotton. To orient the fibers in the same direction, handcards or a blending board are used. (The latter is a flat board with a carding cloth that's used to lay out already open fibers, such as top or roving, to make special effects, such as stripes, in a puni or rolag.) The oriented fibers are then removed from the carding cloth as they're rolled tightly around a dowel or stick. The dowel is slipped out before the fiber is spun. This preparation type helps hold the fibers together and is ideal for spinning very fine yarn.



MAKE A PUNI by rolling carded fiber around a dowel.

CHAPTER FOUR

DRAFTING METHODS

Different drafting methods combined with different fiber preparations can result in endless types of yarn. Granted, some of these yarns may look quite similar, but even tiny differences can affect how the yarn behaves in the final fabric in terms of wear, luster, hand, and drape. Knitting, weaving, or crocheting samples with these yarns will help you decide which drafting method will be best for the project you have in mind. Ideally, you'll want to make samples from a variety of combinations to make sure you produce the best possible yarn for your project.

WOOLEN VERSUS WORSTED

Discussions often become heated when it comes to what makes a true woolen and what makes a true worsted yarn. Through a lot of reading and experimenting, I've come up with my own opinions, which I'll share here. Throughout this book, I use the terms for describing yarns made from two different drafting methods. Technically and historically speaking, both woolen and worsted yarns are made from pure wool fibers, although many modern spinners include wool blends as well. It's helpful to understand the difference between the two types when you're planning the best approach for a particular project.

A true worsted yarn is made from wool fiber that has been handcombed and removed from the comb through a diz so that the butts (the cut ends) of the fibers all face in the same direction. The long rope of prepared fiber is then spun with a short forward draw (see page 12). The forward hand pulls out the fiber and then slides back without allowing any twist to enter the fiber supply. The resulting smooth and dense yarn is ideal for knitting cables or lightweight summer sweaters, for colorwork with crisp color definition, and for hard-wearing projects that resist pilling.

A true woolen yarn is made from wool fiber that has been handcarded and rolled into a rolag. A long draw (see page 52) is used to spin from the end of the rolag. Unlike true worsted yarn, the twist enters the fiber supply and assists in determining the thickness of the yarn. This method allows plenty of air

between the fibers, resulting in a light, airy yarn that's highly insulating. In general, this method is used to produce delicate yarns from shorter fibers. Depending on the amount of twist that's added during spinning, woolen yarns are more likely to pill than worsted yarns.

Yarns spun with a long draw or supported long draw are generally less consistent than those spun with a short draw. Consistency will improve with practice, but it will never match the smooth structure of worsted-style yarns.

Positioned between the true woolen and true worsted ends of the spectrum, there are endless semi-woolen and semi-worsted variations, depending on the type of preparation and the drafting method used. For now, suffice it to say that through sampling and experimenting with different combinations, you'll discover the combinations that make the types of yarn you want.

SHORT FORWARD DRAW

In general, a short forward draw is preferred for worsted-type yarns. In this method, no twist is allowed to enter the fiber supply. Your forward hand will pinch off the twist and, as you slide your fingers back, you'll control how quickly the twist enters the fiber that has been drafted out. For instructions and illustrations of how to do this, see page 12.

SHORT BACKWARD DRAW

I RARELY USE A SHORT BACKWARD DRAW, but some people find it more comfortable than the forward draw. Keep in mind that because the backward draw uses a larger hinge (your shoulder rather than your wrist) than the forward draw, this draft may not result in as consistent a yarn as the forward draw. If you want to produce a smooth and dense yarn from a combed top that doesn't respond well to a forward draw, this technique might solve your problem without allowing the twist to enter the fiber supply.

Short Backward Draw Variation

Another option for the short backward draw is to treat it as a supported long draw (see page 49) but keep the twist out of the fiber supply. To do this, draft backward one-half staple length (see page 13), and then slide your forward hand back to the drafting point. Draft back again and then slide your forward hand back to the fiber supply again. Repeat this several times while keeping the pinch in place, then allow the new yarn to wind onto the bobbin.

DRAFTING WITH A SHORT BACKWARD DRAW

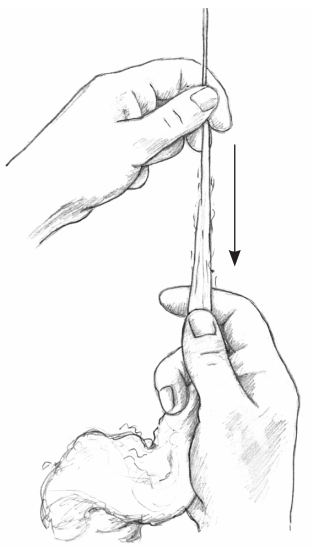
This drafting method is similar to the short forward draw, but the fiber hand does a bit more work. In both methods, the forward hand pinches off the twist.

1. Hold your hands at least one-and-one-half staple lengths apart, the same as for the short forward draw (see page 12). If your hands are too close together, you won't be able to draft easily.

2. Instead of pulling your pinching fingers forward, draw your fiber hand backward, maintaining a draft that's about one-half staple length.

3. Loosen your pinching fingers, then move your fiber hand forward again.

Repeat steps 2 and 3, striving for a smooth, even yarn.



SUPPORTED LONG DRAW

The supported long draw is similar to the regular long draw described next (page 52), but instead of drafting against the tension on the wheel, you'll draft against the tension added by your forward hand. Fiber preparation is important with this method but not as crucial as for the one-handed (unsupported) long-draw method. Rolags aren't necessarily needed, but the fiber must be open and move easily when you spin. Combed top made from longer stapled fibers is less desirable for this drafting method, unless you spin it from the fold (see page 56), in which case you can end up with a loftier yarn.

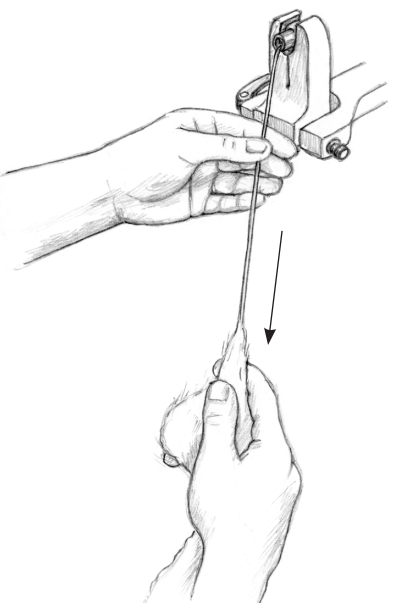
It's important to keep your fiber hand loose and open. I like to wrap my thumb and index finger loosely around the fiber while using my little finger to lightly hold it. The goal is for your hands and fingers to be relaxed and open enough to allow the fibers to slide past each other, but not so loose that the fiber flies out of your hand.

Sit relaxed in your chair with your forward hand a comfortable distance from your body. Your forward hand doesn't have to be right in front of the orifice. Treadle slowly to begin. As you become comfortable, treadle faster and change to a smaller whorl size to add twist faster or to increase productivity. The pinching in step 3 (page 51) will help keep the twist out of the fiber supply and prevent a lump from forming when you begin to draft again.

DRAFTING WITH A SUPPORTED LONG DRAW

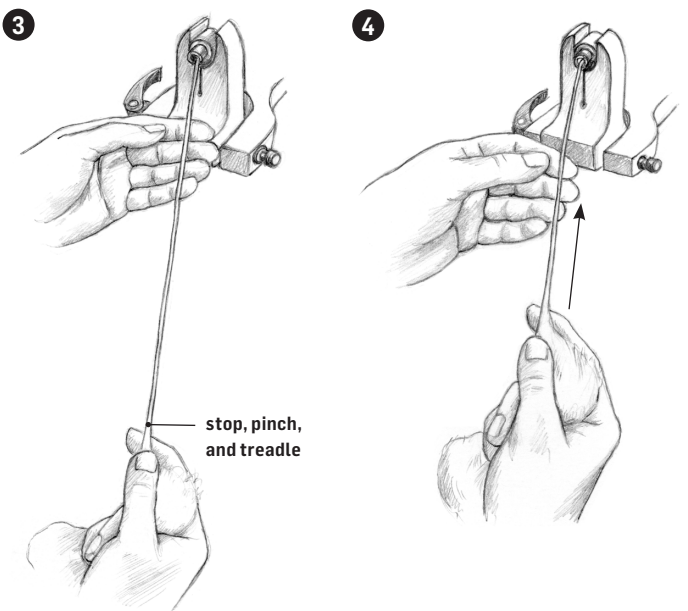
1. As you begin to treadle, move your fiber hand backward as the twist runs forward. Think of this step as playing keep-away with the twist, but don't move your hand so fast that you prevent the twist from holding the newly drafted fibers together.

2. While drafting backward, open and close your forward hand to control how fast the twist enters the drafted fiber and to provide support to pull against. The pinch doesn't need to be very tight to stop the twist; in fact, a tight pinch can become painful over time. Your pinching hand should stay in the same position as your fiber hand draws back — your hands will move farther and farther apart.



3. When you've drafted back to a comfortable position, stop and pinch the fibers just at the point where the twist enters the fiber supply.

4. Continue treadling until enough twist has built up in the drafted fibers, then move both hands forward to allow the new yarn to wind onto the bobbin.



Repeat steps 2 to 4, striving for even, consistent yarn.

LONG DRAW

A ONE-HANDED DRAFTING TECHNIQUE, the long-draw method produces a true woolen yarn from carded wool that has been formed into a rolag. But you can get a great woolen-ish yarn by using wool that has been prepared other ways. Although the long-draw technique can be used on any spinning wheel, it's the only method that can be used on a great wheel or spindle wheel that's turned by hand, such as a Charkha (see page 20).

Good fiber preparation is crucial for true long-draw drafting. Because only one hand is available to do both the drafting and spinning, the fibers must be open and able to slide past one another with very little effort. Short-staple fibers that are no more than 3 inches (7.5 cm) long and rolled into rolags work best, but mill-prepared roving can be used if it hasn't been too compacted. It's also possible to use combed top made from short-staple wool as long as the fiber has been excellently prepared.

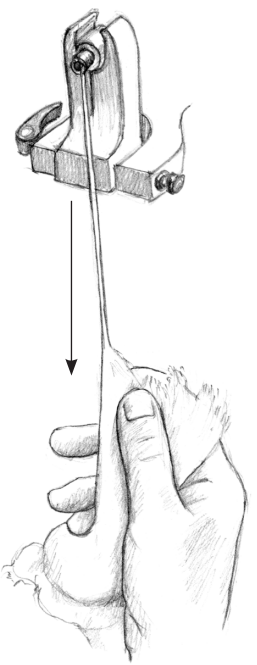
You may want to work with more tension than for other drafting techniques, but take care that the tension isn't so tight that the fiber pulls apart before sufficient twist has been added. If adjustments are necessary, make them in very small increments.

The pinching in step 2 (page 54) will prevent twist from building up in the fiber supply while enough twist is added to make stable yarn. This, in turn, will help prevent a big lump of fiber from forming at the stop/start point when you begin to draft again.

It's important to keep your fiber hand loose and relaxed so that the held fibers are allowed to move around and be drafted out by the twist when their turn comes.

DRAFTING WITH A LONG DRAW

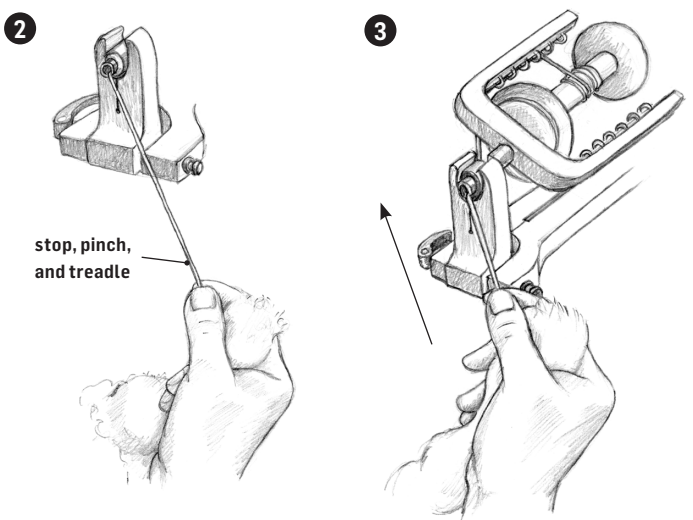
1. As you begin to treadle, move your fiber hand backward as the twist runs forward. Like the supported long-draw method, you'll play keep-away with the twist, but don't move your hand so fast as to prevent the twist from holding the newly drafted fibers together.



(continued on next page)

2. When you've drafted back to a comfortable position, stop and pinch the fibers just at the point where the twist enters the fiber supply, then continue treadling until enough twist has built up in the drafted fiber.

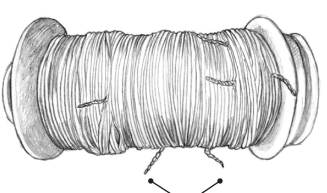
3. Move your hand forward toward the orifice and allow the new yarn to wind onto the bobbin. Then draft back to a comfortable position.



Repeat steps 2 and 3, striving for even, consistent yarn.

A double-drive wheel offers a challenge you won't experience with wheels with Scotch and Irish tension: when you begin to allow your newly spun yarn to draw onto the bobbin, the take-up happens almost immediately. In contrast, with double drive, there is some lag time between when you begin to allow the yarn to wind on and when it actually takes up because a moment is needed for the flyer and bobbin to change speeds.

In all cases, be careful not to push the newly formed yarn onto the bobbin. Instead, begin to slowly move your hand toward the wheel, feeling for when the speed of the bobbin changes and the yarn begins to take up. If you try to push the yarn onto the wheel too quickly, small loops (called pigtails) will appear on the bobbin.



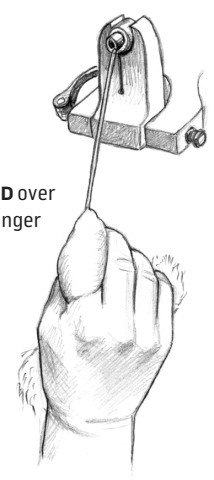
SPINNING FROM THE FOLD

SPINNING FROM THE FOLD isn't so much a drafting technique as a way to prepare and hold the fiber as you spin. Instead of attaching one end of a strip of fiber to the leader and drafting lengthwise from end to end, the fiber is drafted from the middle of a short section that's folded in half over a finger or held in your hand.

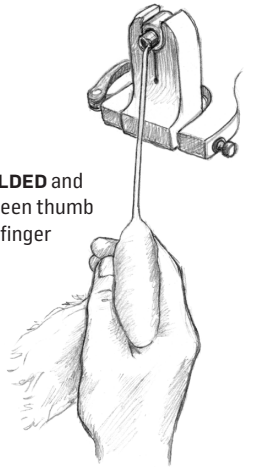
There are several advantages to spinning from the fold. For example, if the fiber has a very long staple length that's cumbersome to spin, you can work with individual locks or smaller sections. If the fiber is slippery, such as silk or kid mohair, you can gain better control. Spinning from the fold also helps produce a more woolen or airy yarn from a fiber that's not naturally lofty, such as Wensleydale or Lincoln. It's also helpful if you want to produce a lofty yarn without having to card top that's already been combed.

SPINNING FROM THE FOLD

1. Break off a piece of the prepared fiber and fold it over the index finger of your fiber hand. I like to pull out a tiny bit of the fiber to join onto the bobbin leader (see page 6). You can either keep the fiber over your finger or hold the folded fiber between your thumb and index finger. I prefer the second option because it's easier for me to maintain a light grip on the fiber — I tend to squeeze too hard when it's folded over my finger.



FIBER FOLDED over index finger



FIBER FOLDED and held between thumb and index finger

(continued on next page)

2. Begin to spin. You can use any drafting method you like, depending on your goals for the yarn.

When you get to the end of the folded fiber, you may be left with a clump of unorganized fiber that will cause lumps in the yarn. Feel free to discard this bit of fiber. I find it much better to discard half a gram than to produce inconsistent yarn.

CHAPTER FIVE

PERFECTING YOUR SKILLS

Once you're comfortable spinning yarn, you can concentrate on the other skills that are necessary to produce a nice consistent yarn. This chapter focuses on joining new fiber, getting the correct twist, and improving yarn consistency, all of which are necessary for yarn that will hold up in any project. Perfection comes only with practice, and sampling is an important part of that practice. Practice the techniques in this chapter, then use your yarn to make swatches to further understand how joins and twist angles can affect the finished fabric.

JOINING NEW FIBER

EVENTUALLY, YOU'LL RUN OUT OF THE FIBER you're drafting and you'll need to join a new fiber source. Joining new fiber is essential for spinning continuous yarn and therefore should be practiced over and over. The goal is for a strong join that's invisible. It may be intimidating at first, but with practice (as with everything else in spinning), it will eventually become second nature and you won't give it a second thought.

There are two different ways to join new fiber to in-progress yarn. The one to choose depends on how the fiber was prepared and the drafting method you're planning to use.

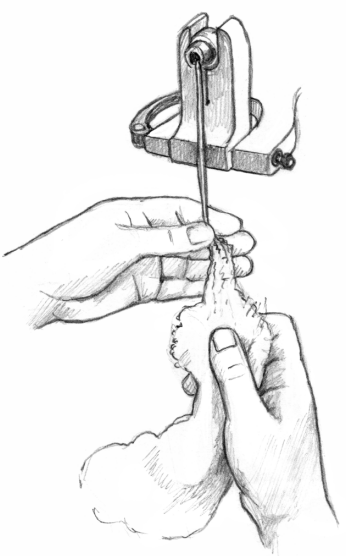
Woolen-Style Join

A woolen join is fairly straightforward and is the best option when working with a carded preparation such as roving, a batt, or a rolag, or if you're drafting with a long draw or supported long draw. For these yarns, you'll want the join to match the airy yarn, without crushing or smoothing it down.

HOW TO MAKE A WOOLEN-STYLE JOIN

1. Spin until just about 2 inches (5 cm) of fiber (a "tuft") remains in your fiber hand.

2. Overlap the new fiber with the tuft and allow twist to enter the fiber supply, grabbing both sections of fiber. Keep your hands relaxed and try not to grab the fiber too tightly.



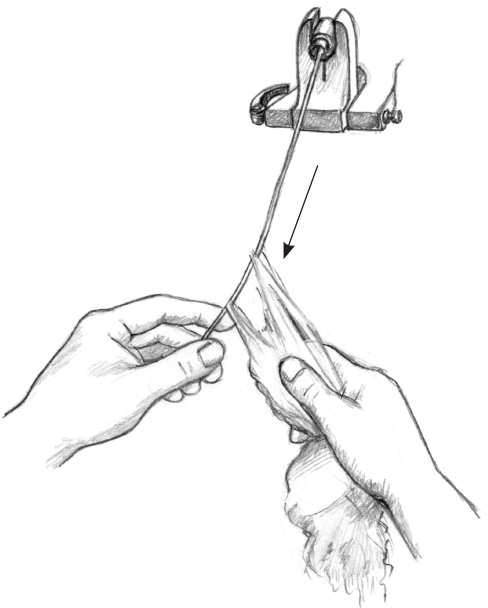
Worsted-Style Join

Joining is a little more involved when spinning worsted-style with combed top or using a worsted draft, such as a short forward or short backward draw (see chapter 4 for drafting methods). You want a smooth join that matches the smoothness and diameter of the existing yarn. A strong join that maintains consistent yarn size takes practice and patience.

HOW TO MAKE A WORSTED-STYLE JOIN

1. Spin all the way to the end of the fiber source so that no fluffy fibers remain.

2. If they're not already present, pull some small wisps of fiber out of the end of the new fiber source. Hold the end of the spun yarn with your forward hand and begin to treadle as you bring the new fiber about 3 to 4 inches (7.5 to 10 cm) in front of the spun yarn, allowing the wisps of fibers to grab onto the spun yarn.



3. As soon as the wisps grab on, draw your fiber hand back while more wisps are pulled out and twisted onto the end of the spun yarn, and new yarn is produced by the new fiber source.

Whichever type of join you use, position your hands to draft again. Check to ensure the join is strong by sliding your fingers over the yarn from the orifice toward your body. No fibers should lift up, and the yarn should remain firm without falling apart. If this isn't the case, pull the join apart and try again.

A MATTER OF TWIST

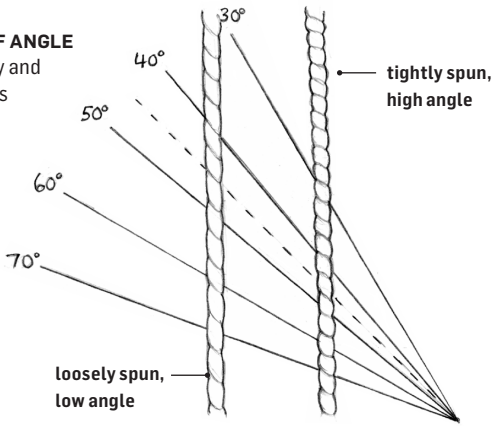
THE AMOUNT OF TWIST to put into a yarn is a concern for new, as well as advanced, spinners. As your proficiency increases, you'll learn how to make samples and choose the amount of twist that's appropriate for both the type of fiber you're spinning and the fabric you plan to make from the yarn.

When just beginning, your focus will be on learning to draft while adding enough twist to turn the fibers into yarn but not so much twist that the yarn forms tight coils on the bobbin. Once you're comfortable drafting, you can begin to look at the angle of the twist (in both singles and plied yarns) and eventually learn to choose the appropriate twist for everything from loose drapey yarns to tight springy yarns. As you improve as a spinner and your yarn gets more consistent, the twist will even out over the length of yarn that's wound onto the bobbin.

In general, twist gathers in areas where the yarn is thin and is sparse in areas where the yarn is thick. If you produce a yarn that's both thick and thin, there will be less twist in the thick areas and more twist in the thin areas. This is natural and nothing to worry about. More twist is necessary to hold the thin areas together, and the twist will naturally shift to where it's needed. Your goal is to strike a balance between consistent drafting and consistent twist over the entire length of yarn.

The angle of the twist is related to the tightness of the twist. The twist in loosely spun yarns will be more parallel with the length of the yarn and is said to have a low angle; the twist in

tightly spun yarn will be more horizontal and is said to have a high angle.



COMPARISON OF ANGLE of twist in loosely and tightly spun yarns

When plying two or more singles (see chapter 6), the goal is for the twist in the ply to counteract the twist in the singles, which stabilizes the yarn — sometimes referred to as balance. (See page 91 for more on balanced yarns.)

Keep in mind that because singles are plied in the opposite direction than they are spun, a bit of the twist in singles is lost during plying. Therefore, if you plan to ply your yarn, you'll want to spin the singles with a higher twist angle to compensate for this loss. There is a mathematical formula that determines the amount of twist needed in the singles to produce the desired twist in the plied yarn, but you can avoid the math altogether by taking time to make samples from your spun yarn.

TRICKS FOR IMPROVING CONSISTENCY

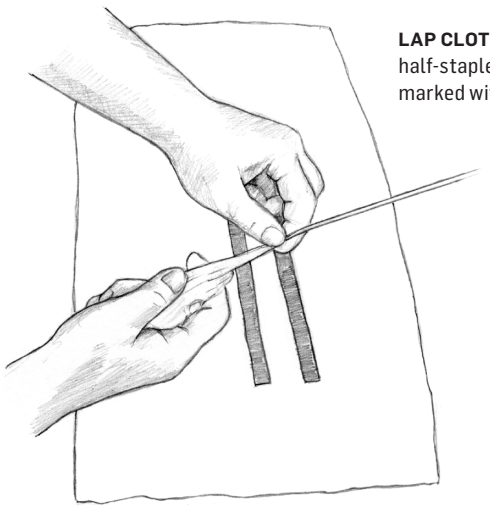
There are a few secrets to spinning a consistent yarn, and, with practice and when used together, the results can be impressive.

Short-Draw Tricks

Maintain an equal amount of fiber with each draft. Focus on pulling out the same number of fibers with each draft. For most spinners, this is all in the touch, especially when using short-draw drafting methods. Sometimes your eyes can play tricks on you, and you'll adjust your hands accordingly only to produce a fat spot in the yarn. Once you begin to feel comfortable with the drafting process, try closing your eyes and allowing your hands to guide you. You'll be surprised to learn how sensitive your fingers can be.

Draft out only about half a staple length at a time. When beginning with a mill-processed fiber, pull out a few of the fibers to measure the staple length (see page 13). With just a little practice, you'll be able to estimate staple lengths of certain fibers and this exercise won't be necessary. You might find it helpful to place a cloth on your lap that has the half-staple length marked with masking tape, then follow those marks to maintain a consistent drafting length (see illustration on facing page).

Develop a consistent treadling rhythm. If you're able to draft a consistent number of fibers, but the yarn appears inconsistent from skein to skein, you've probably been inconsistent in the amount of twist that you've put in the yarn. You can overcome



LAP CLOTH with half-staple length marked with tape

this problem by learning to draft with your hands in rhythm with the treadling of your feet. The rhythm you choose will depend on how much twist you want and the size of the whorl you use. In general, begin sampling with one draft per rotation of the wheel. To do this, focus on just one foot if you're using a double-treadle spinning wheel. As you spin, draft forward each time the right (or left) foot presses down on the treadle. When the foot comes up, slide your forward hand back to get ready for the next treadle. For more twist, draft forward every second (or third) time your foot presses down. For less twist, draft two (or three) times for every time your foot presses down.

Adjust drafting speed and whorls as needed. Change your drafting speed as well as the whorl size to fine-tune the twist as desired. The smaller the whorl, the faster the twist will be added.

Long-Draw Tricks

Develop a rhythm between drafting and treadling. For long-draw or supported long-draw methods, yarn thickness depends on both the amount of twist and the drafting speed. Although the woolen preparation used to prepare fiber for these drafting methods predetermines that the yarn will have inconsistencies, you can minimize them by drafting in rhythm with your treadling. As you begin to draft back, count how many times you treadle to get to your stopping point, how many times you treadle as you allow the twist to build up, and how many times you treadle as the yarn is wound onto the bobbin. Maintain this treadling rhythm for each draft.

Don't hurt yourself. To spin effectively, you must be kind to your body. Longer drafting lengths are fine for showing off, but when you're spinning for long periods of time, be careful not to twist or strain your body. When spinning on a castle-style wheel (see chapter 2 for wheel types), pull the yarn back toward your body, stopping when your hand is even with your hip. Only your drafting arm should move. When spinning on a Saxony-style wheel, draft across your body without twisting your back. Strive to maintain the same starting and stopping points so that the same amount of twist is added to each draft.

Consider take-up. When spinning on a Scotch- or Irish-tension wheel, take-up occurs as soon as you allow the yarn to wind on. This take-up lags a bit as the yarn starts to draw onto the bobbin and should be taken into account when determining your treadling speed.

No matter which wheel or drafting method you use, count how often you treadle each time you draft for the first 10 or 15 minutes of a spinning session. After that, your body will settle into a rhythm that should be easy to maintain. Eventually, the rhythm will become so natural that if your feet change cadence, your hands will automatically follow, and vice versa. This is particularly handy when your feet slow down because you get distracted or when they speed up to match the rhythm of lively music or excitement on television!

CHAPTER SIX

PLYING

There are good reasons to ply yarn. For one, it helps make the yarn stronger: two or three strands twisted together are definitely stronger than an individual singles. Plied yarns have greater resistance to pilling and other wear from friction and abrasion, because loose fiber ends that could be caught and pulled out of a singles yarn are held in place and more frequently tucked to the inside of the ply. This makes the yarn not only stronger lengthwise, but its surface is also stronger. Because singles are plied in the opposite direction than they are spun, plying also helps produce a balanced yarn.

A range of twists is possible, and not every yarn has to be perfectly balanced. But balanced yarns will help finished fabrics lie flat and drape nicely. The number of plies can affect how a yarn behaves in the fabric. For example, 2-ply yarns help the eyelets in knitted or woven lace fabrics stay open. Because 3-ply yarns are rounder than 2-ply yarns, they result in beautiful solid and textured knitted fabrics and may provide more drape in woven fabrics. Make a few swatches to prove this for yourself!

Yes, it takes more time to spin a plied yarn than a singles of equal length, but the plied yarn will be thicker and less will be needed to knit, crochet, or weave the same size of cloth.

singles **2-ply yarn** **3-ply yarn**

When Singles Are the Best Choice

I rarely use yarn that hasn't been washed and finished in some way, but some people love to weave with "energized" singles that's just been spun (see page 15). If I want to knit lace with singles, I find that the yarn is much easier to manage if it's left on the bobbin. The extra energy is tamed when the lace project is washed and blocked.

LAZY KATES

A LAZY KATE IS NECESSARY for plying yarn from two or more bobbins or to hold bobbins for rewinding (see page 77). It can also serve as a holder for bobbins if you want to warp a loom or knit directly from the bobbin.

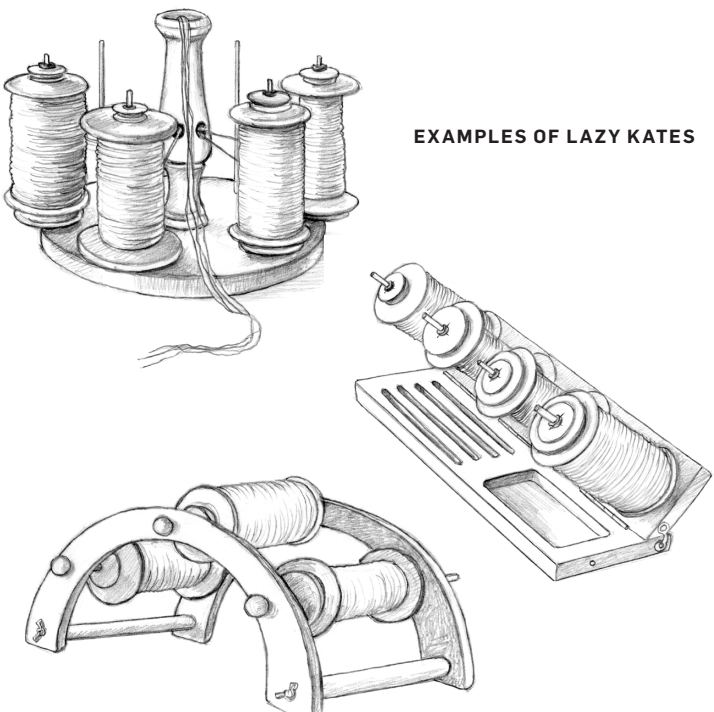
Most manufacturers include lazy kates with their spinning wheels. In addition, many woodworkers offer handmade kates that are beautiful to look at and delightful to use. If you don't already own a lazy kate, ask permission to try out a variety of models at spinning shops or fiber festivals before you make a purchase. Be sure to bring a few full bobbins to make sure that your bobbins fit on the kates that interest you.

Some kates include tensioning devices that regulate the speed at which the bobbins spin as the singles unwind. The tension is created by a piece of cord or string that fits across the bobbin whorls. It can be tightened or loosened, depending on how fast you want the bobbins to spin.

Some of the smaller wheels designed for traveling include a built-in lazy kate. I don't recommend using these kates for all your plying because the movement of pulling the yarn back toward your body and then feeding it forward again onto the bobbin can cause inconsistent ply twist that results in inconsistent yarn. But, they're great when you need to ply at classes, workshops, or guild meetings.

There are three ways that bobbins are positioned on lazy kates: vertically in a column; horizontally in a row; or on pegs that are orientated at about a 45-degree angle. Kates with

bobbins positioned parallel to the floor generally require the tightest tension because this position allows the bobbins to spin freely on the kate posts. Tensioning kates with this bobbin position is especially handy when plying freshly spun yarn. The tension keeps the singles slightly taut, which prevents pigtails (see page 55) from forming in the singles between the kate and your hands.



EXAMPLES OF LAZY KATES

CHOOSING THE RIGHT WHORL FOR PLYING

As explained in chapter 2, a whorl (also called a pulley by some) is the small disk attached to the flyer of the spinning wheel or bobbins that make the flyer turn with the drive wheel. Most new wheels include several whorls, as well as multiple grooves in each of those whorls. This provides a wide variety of places where the drive band can be placed and, consequently, a variety of speeds.

To begin plying, place the drive band in the groove that's around the largest part of the largest whorl you have. This will give you a wheel-to-flyer ratio of between 6 and 8 to 1. This simply means that for each time the drive wheel goes around one full turn, the flyer will rotate 6 to 8 times. In other words, a larger whorl turns more slowly and adds less twist than a smaller whorl.

In a nutshell, larger whorls are used for fatter yarns because fat yarns require less twist to hold together. Finer yarns, which require more twist, are more easily and more quickly spun with smaller whorls. Once you gain drafting proficiency and can control the thickness of your yarn, I recommend that you try all of the possible ratios to learn how they affect the yarn you spin or ply.

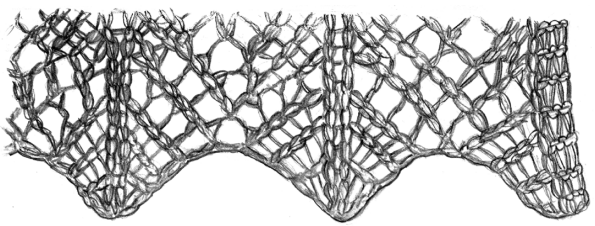
CHOOSING THE NUMBER OF PLIES

As with all aspects of spinning, the best way to determine the optimum number of plies for your yarn is to sample. Compare lengths of singles, 2-ply, and 3-ply structures, and work them into small samples to determine which is right for your project.

Singles. The secret to a good singles yarn is a twist low enough that the yarn doesn't ply back on itself after finishing; in other words, there shouldn't be so much twist that it causes the finished fabric to bias or skew. However, successful singles don't have to be perfectly balanced and hang in a single straight line. Once finished, a skein can have up to one-and-a-half twists and still behave fine in any fabric. After you get the twist right, which is high enough for the yarn to hold together but not so much that the yarn kinks and curls excessively, then everything can be taken care of during the finishing process (see chapter 7). Of course, this is a judgment call. Some spinners are much more comfortable with more twist than others. Sampling and spinning lots of yarns will help you find your comfort zone. Singles can be used for almost any project, from lightweight lace to durable sweaters.

2-ply yarn. Most beginners are drawn to the versatility of 2-ply yarns, which are appropriate for almost any project; in fact, many spinners produce only 2-ply yarns. To make a 2-ply yarn, you have to begin with two bobbins of singles. In addition to adding strength, the extra ply helps prevent individual fibers from escaping the twist and eventually turning into unsightly

pills. Two-ply yarns are preferable for knitted lace fabrics because the plies create a slightly flat structure that helps hold open the characteristic holes. They also help warp and weft yarns lock together in woven fabric.



THE SLIGHTLY FLAT STRUCTURE of 2-ply yarn works well for knitted lace.

3-ply yarn. The added strand in a 3-ply produces a round yarn that fills in open spaces between and within knitted and crocheted stitches, which is ideal for stockinette as well as textured knitted fabrics.

REWINDING BOBBINS

I DON'T ALWAYS REWIND MY BOBBINS before I ply, but there are some very good reasons to do so. First and foremost, rewinding bobbins before plying will help the twist redistribute itself more evenly throughout the entire strand of singles, resulting in a more consistent yarn. Also, if you're spinning worsted style with a short forward draw and smoothing all of the fibers as you go, rewinding the bobbins will reorient the nap so you'll smooth the fibers in the same direction when you ply them. Otherwise, you might bring up the nap and add fuzz as you ply. I generally rewind only if the project is extremely special or will be entered for competition and rarely add this step for small amounts of fiber that I spin for pleasure.

For the best results, place the bobbin you're winding from as far away as possible from the bobbin you're winding onto. (For more information on how to do this, see page 78.)

HOLDING SINGLES FOR PLYING

WHEN PLYING, YOU WANT TO MAINTAIN equal tension on each strand of singles. In conjunction with consistent twist, this is key to producing a smooth, even yarn. Fortunately, there are a number of ways to maintain equal tension, and you can choose the method that works best for you. With no other equipment than your hands, you can manage as many as four separate strands to create up to 4-ply yarns.

Begin by placing the lazy kate as far behind you as possible; I try for a minimum of 24 inches (30.5 cm). This distance gives the twist an opportunity to even out a bit before it's plied. Keep in mind that a long leader (see page 6) is necessary if you want to be able to ply all the way to the end of the singles on each bobbin.

If your leader has a loop, pull the strands from each bobbin through the loop and fold them back on themselves about 3 inches (7.5 cm). If the leader has no loop, overlap the ends of the strands with the leader for about 3 to 4 inches (7.5 to 10 cm). (For how to start with or without a loop on the leader, see pages 7–8.) In either case, start treadling in the opposite direction than the singles were spun while holding the singles steady until enough twist builds up to join them to the leader.

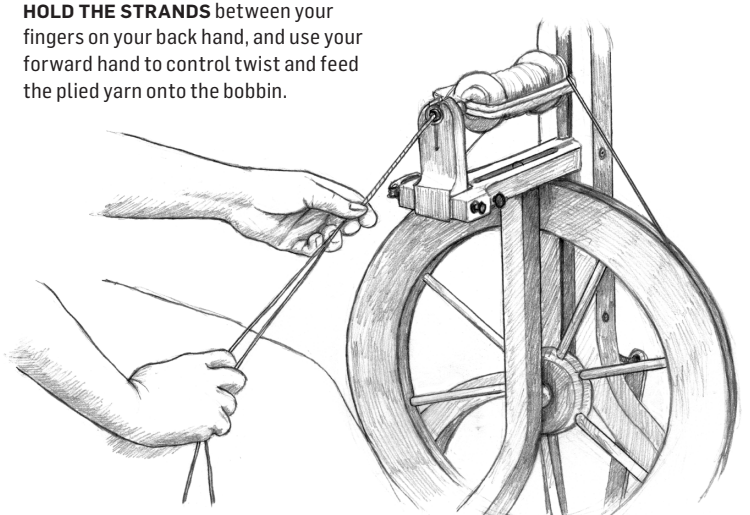
For a 2-ply yarn, place one strand between your thumb and index finger and the other strand between your index and middle finger. For a 3-ply or 4-ply yarn, use the spaces between your remaining fingers. Adjust your fingers as necessary to control the tension on the singles and position your hand so that the twist enters all strands evenly. Feel for any pigtails that might make their way to your tensioning hand and be sure to straighten out these pigtails before they get plied into the yarn.

Some spinners prefer not to separate the individual strands with their fingers. Instead, they feel they have better control over the tension if the strands are allowed to travel side by side. Try both techniques to determine which works best for you.

Once your yarn is attached to the leader and the strands are in position in your hand, begin to treadle in the *opposite*

direction than the singles were spun. For example, if the wheel rotated clockwise when the singles were spun, rotate counterclockwise to ply those singles, and vice versa. Use your back hand to tension the strands and use your forward hand to control how quickly the twist enters the yarn as well as how quickly the yarn is drawn onto the bobbin.

When there's the right amount of twist (refer to your sample card; see page 110), feed the plied yarn onto the bobbin, then slide your forward hand back to its original position, hold it in place for a few treadles, then move the yarn forward onto the bobbin again. Repeat this sliding and feeding sequence until the bobbins are empty. Keep in mind that it's unusual for

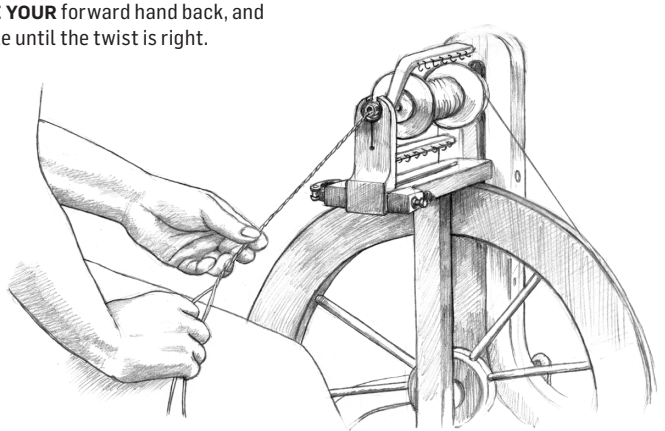


HOLD THE STRANDS between your fingers on your back hand, and use your forward hand to control twist and feed the plied yarn onto the bobbin.

both bobbins to have exactly the same amount of singles, so don't worry if some remains on one bobbin. (We'll talk about how to deal with that extra yarn later in the next section.)

Use the technique described on pages 64–65 to ensure there's the same amount of twist throughout the plied yarn. Begin by counting the number of times you press the treadle(s) as you ply — how many times it takes to push the yarn onto the bobbin, how many times to slide your hand back to the original position, and how many times to hold the strands in place before feeding the yarn onto the bobbin again. The total of these three numbers tells you how many times to treadle for each section of plied yarn that gets wound onto the bobbin.

SLIDE YOUR forward hand back, and treadle until the twist is right.



Count this number for the first 15 minutes or so as you ply, to develop a good rhythm for the rest of the plying session.

If you have to stop at some point (for example, if you have more than two bobbins of singles to ply or if you need to take a break), make note of your plying counts so that you'll be able to return to the same rhythm. The best place to note this information is on your sample card (see page 110).

Tensioning Tip

When plying, strive to maintain the same amount of tension on each strand so that they appear to wrap in unison around an invisible core. If the tension is looser on one strand, that strand will sit on top as it wraps around the other strand(s). There are times when you may want this effect, but not when you're trying to perfect basic plying.

Uneven tension causes one strand to wrap around the other

Evenly tensioned strands produce consistent 2-ply yarn

PLYING FROM A SINGLE BOBBIN

Situations might arise when you'll want to make a plied yarn from a single bobbin of singles. For example, you may have spun the entire fiber source on the same bobbin or you'd like to maintain the color progression of handpainted roving, or you want to use the bit of singles leftover on one bobbin. The instructions that follow will work for all of these situations.

Chain (Navajo) Plying

Also called Navajo plying, chain plying produces a 3-ply yarn that contains tiny loops where the singles wraps back on itself. Spinners debate over whether or not a chain-plied yarn is as strong as a true 3-ply in which three individual singles are plied together — I'll leave that for you to decide. Fortunately, we can all agree that this is a handy technique.

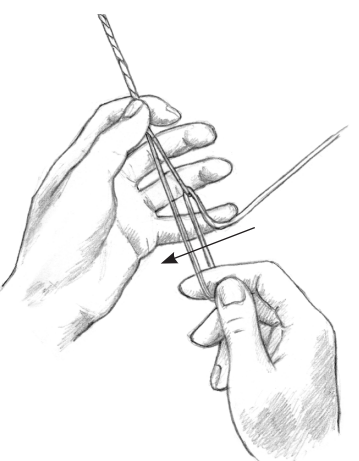
Think of chain plying as making a giant crochet chain with your hands as you spin. It can be awkward at first but, with practice, your hands and feet will work in comfortable coordination. As when learning any new spinning technique, begin by treadling slowly. You can increase the speed once you're comfortable with the movements.

HOW TO CHAIN PLY

1. Place the bobbin on a lazy kate that's about 24 inches (30.5 cm) behind your fiber hand.

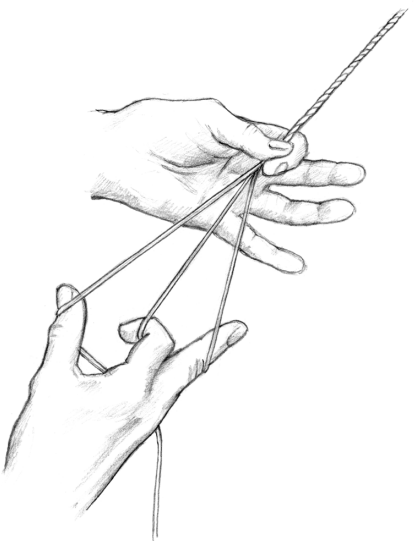
2. Make a loop of the singles large enough to put your hand through easily, then tie a knot (an overhand knot works well) to hold everything in place. Put this loop through the loop in your bobbin leader up to the knot and fold the loop back on itself. Some people prefer not to use a knot to get started, but I find it's easier and less fumbly than other beginning options.

3. Treadle slowly while you pull the singles from the bobbin through the loop to create a new loop. At the same time, pinch the spot where the current loop meets the new loop to prevent twist from running into the loop just made until you've pulled it to the desired size. Don't make the loops too small — they need to be big enough to put your hand through comfortably.

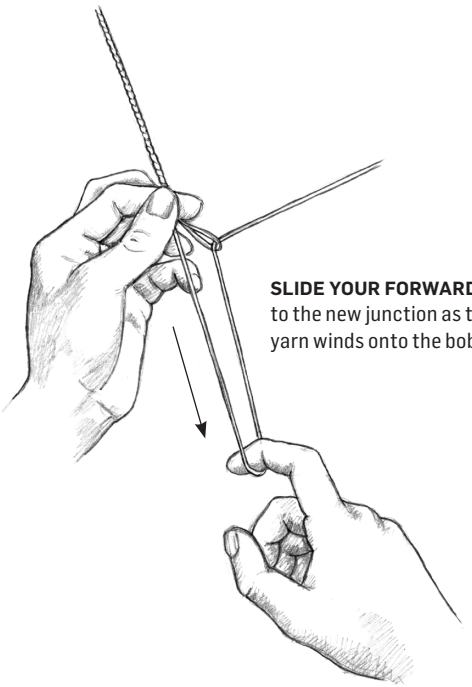


(continued on next page)

4. Use your thumb and little finger of your working or rear hand to hold the new loop open as your index finger scoops a strand of singles from the bobbin through this loop.



5. Using your forward hand to control the amount of twist as you pull through loops, continue to pinch off the twist at the last junction until a new loop is made. Then slide your forward hand to the newly made junction as you allow the newly plied yarn to wind onto the bobbin.



SLIDE YOUR FORWARD HAND BACK to the new junction as the newly plied yarn winds onto the bobbin.

You may find it helpful to watch someone ply yarn this way in person or on a video. Don't be shy about asking a spinning friend to show you or to look up the process on the Internet. Sarah Anderson has a great video on YouTube (https://youtube.com/watch?v=JmlwtojLXI8) that's very helpful.

PLYING FROM BOTH ENDS OF THE SAME STRAND

THERE ARE SEVERAL WAYS TO WIND singles in such a way that will allow you to ply from both ends of the same strand. If you wonder if it matters that the strands unwind from different directions when you ply using any of the following methods, the answer is yes and no.

There are situations in which you'll want the nap of the two strands to be in the same direction. When this is important, some spinners rewind their singles so that when plying, they smooth the fibers in the same direction that they were smoothed during spinning. Similarly, when you ply two ends of the same singles, one strand is smoothed in the opposite direction as it was initially spun, while the other strand is smoothed in the same direction. Quite frankly, this is generally of very little significance and should only be taken into consideration when you're spinning very special yarns, such as for special-occasion garments or competition.

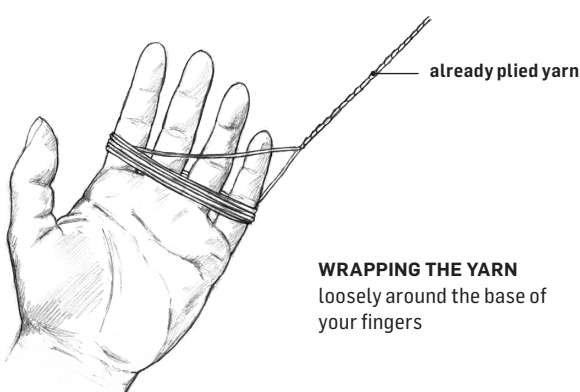
Simple Hand Wrap

The easiest method of all, the simple hand wrap is ideal for using up the little bit of singles left on one bobbin.

HOW TO PLY FROM A SIMPLE HAND WRAP

1. Wrap one end of the singles around your fiber hand (wrap both ends around your hand if the singles isn't already attached to plied yarn on the wheel). Spread your fingers out as far as possible and wrap the singles loosely around the base of your fingers.

2. Join the two ends by catching them in the twist of the already plied yarn. Start treadling while moving your hand back and forth between the two strands. Use pressure from your thumb or spread your fingers to manage the tension on the strands as necessary.



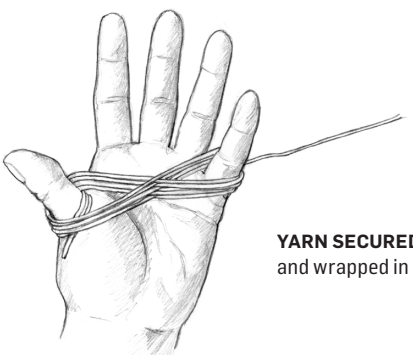
WRAPPING THE YARN
loosely around the base of your fingers

Butterfly Ply

Butterfly plying is ideal for short lengths of singles. Take care to open your hand as wide as possible to create the greatest distance between your thumb and little finger.

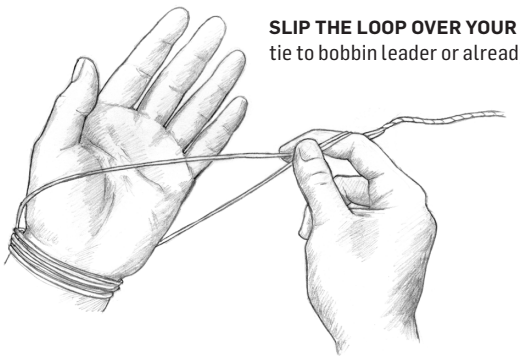
HOW TO BUTTERFLY PLY

1. Secure one end of yarn by wrapping it several times around your thumb, then wrap the yarn back and forth in a figure eight between your thumb and little finger of your fiber hand until you get to the end of the yarn.



YARN SECURED on thumb and wrapped in a figure eight

2. Remove the yarn from your hand while keeping one loop open (it doesn't matter which one), then wiggle the loop large enough to slip over your wrist.



SLIP THE LOOP OVER YOUR HAND and tie to bobbin leader or already plied yarn.

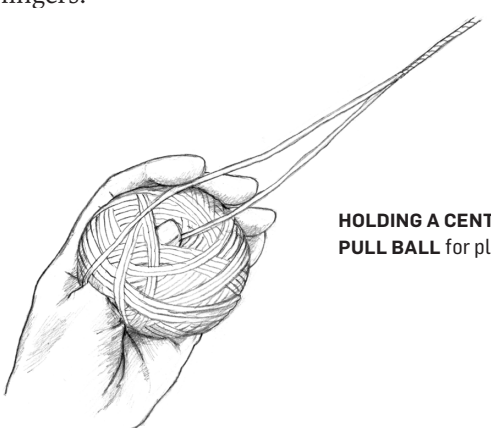
3. Allow the two ends to twist around the bobbin leader, then treadle slowly, using the fingers of your forward hand to guide the singles into the ply.

Center-Pull Ball

You can ply two ends of the same length of yarn if it's wound into a center-pull ball. This type of ball is easy to make on a ball winder.

HOW TO PLY FROM A CENTER-PULL BALL

1. Place the thumb of your fiber hand through the center hole of the ball while lightly holding the ball with your other fingers.

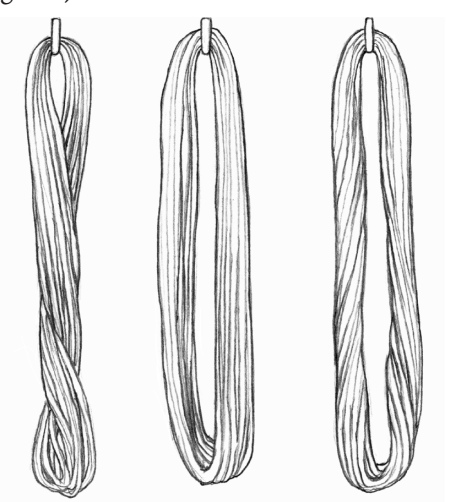


HOLDING A CENTER-PULL BALL for plying

2. Attach the two ends (one from inside the ball and the other from outside the ball) to the leader and begin treadling slowly while maintaining even tension on both strands. Tilt the ball back and forth as necessary to release the strands into the ply.

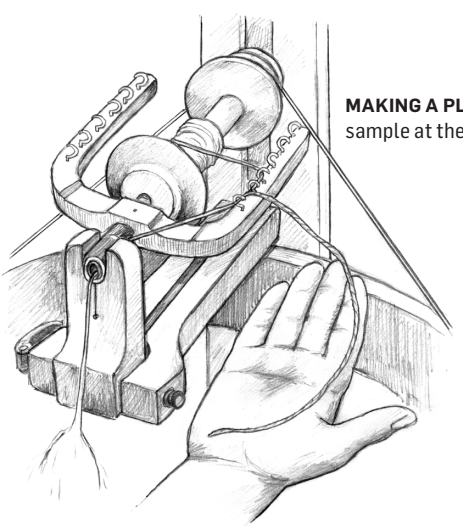
A MATTER OF BALANCE

In general, spinners strive for a finished yarn that's "balanced." This means that the twist added to the singles yarn is offset by the opposing twist added during plying so that the fully finished skein (see chapter 7) hangs in a nice straight loop that ends in a beautiful U shape. Unbalanced yarns will form skeins that twist or skew in one direction or the other. If the washed skein was plied counterclockwise (or S) and twists to the left, it's underplied; if it twists to the right, it's overplied. The fibers in a balanced skein will be parallel to the sides of the yarn just made. You may have to look closely to see this (use a magnifying glass).



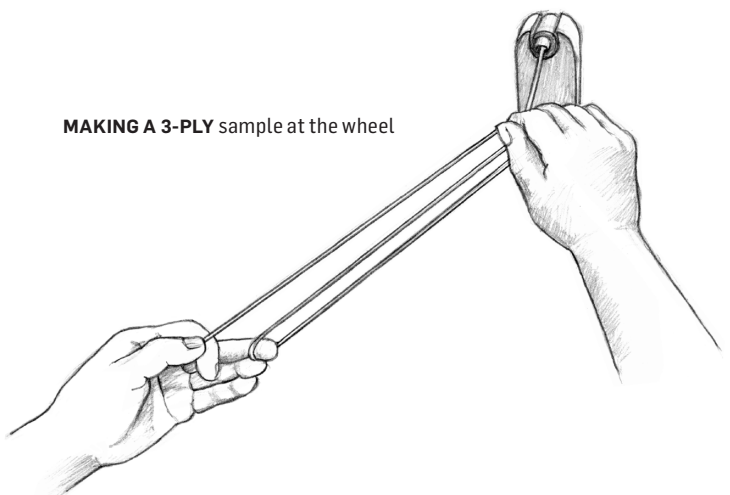
tightly twisted **balanced** **lightly twisted**

Making a balanced skein requires the correct amount of twist added during plying to counteract the amount of twist in the singles. When spinning singles, you can get an idea of what the balanced plied yarn will look like by pulling a strand on the bobbin (don't use a length that hasn't entered the orifice yet because it won't have the full amount of twist) and allowing it to twist back on itself — this is called a ply-back. You can do a ply-back to look at a 2-ply, 3-ply, or even more ply yarn. For a 2-ply, pull out at least 12 inches (30.5 cm) of singles yarn so that any inconsistencies will even out. You'll need more yarn pulled off of the bobbin for more than a 2-ply sample. Cut off this sample and keep handy it for reference as you continue to spin, to ensure that you're maintaining consistent twist.



MAKING A PLY-BACK
sample at the wheel

To make a 3-ply sample at the wheel, pull the yarn off of the bobbin as if you're making a 2-ply sample, then, without letting go or allowing twist to get into the two strands, pull more yarn from the bobbin and fold the sample back onto this new yarn to determine the proper length for three strands. Break off the singles and allow the three strands to twist around each other.



MAKING A 3-PLY sample at the wheel

Now I'm going to share a little secret. It's not all that important to get the ply twist exactly right. Of course, you don't want too much or too little twist, but you're the judge of what's too much or too little. You don't want the fabric knitted from your handspun to skew, but, on the other hand, over-twisted yarn can add a nice design detail to woven fabric. Strive for balance at first, then branch out and see what happens.

Need I say it again? Sampling is key. A little extra ply twist can make a more durable yarn; a little under twist can affect how the fabric drapes. Depending on the fiber, you can ply low-twist singles with a high-twist ply to create an "energized" yarn that has unbelievable elasticity.

WINDING OFF

Once your plied yarn (or singles if you plan not to ply) is on a bobbin, you'll need to transfer it into a useable form that can be properly finished. There are several tools that facilitate winding yarn off a bobbin: another bobbin, a niddy noddy, or a skein winder. Even if you wind the yarn off onto another bobbin, you'll first have to wind it onto one of the other devices. A niddy noddy is small, portable, and easy to store. Skein winders are larger devices that are typically collapsible and attach to the edge of a table or other flat surface. Some skein winders are equipped with yardage counters that measure the length of yarn that's been wound on.

Winding onto an Empty Bobbin

It's sometimes a good idea to rewind the singles onto empty bobbins before plying. If you position the empty bobbin several feet (a meter or so) away from the winding device, the twist has more chance to even out before it winds back on. Ideally, I like to place the bobbin and winder at least 6 feet (2 m) apart. If the singles were spun with a worsted draft (which smoothes the fibers; see Woolen versus Worsted, page 45), you can rewind

the singles so they are plied with the nap orientated in the same direction, even though the wheel spins in the opposite direction to ply.

To wind off singles, place the full bobbin on a lazy kate or leave it under light tension with the brake band or drive band in place on the spinning wheel. I like to place the empty bobbin on a bobbin winder or another wheel that can be made to run with Irish tension (drive band on the bobbin whorl and brake band on the flyer whorl; see page 26). I wind from the side of the bobbin — twist will be added or subtracted if the strand goes through the orifice — and use my hand to guide the yarn evenly onto the new bobbin.

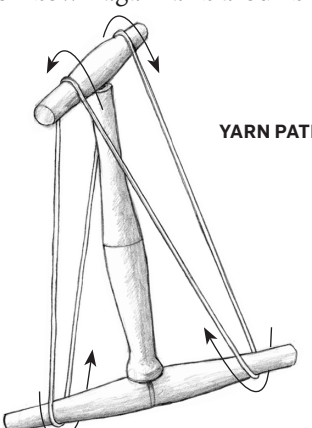
Winding onto a Niddy Noddy

A niddy noddy in an ingenious contraption that looks like two "T"s in opposite orientations. I like to think of it as a large circle that has hills. The yarn winds simultaneously around and around and up and down. Although it might feel awkward at first, you'll soon develop a rhythm that requires very little thought.

HOW TO WIND ONTO A NIDDY NODDY

1. Holding the end of the yarn, grasp the center pole of the niddy noddy so that the strand is secured and you have something to tension against.

2. Bring the yarn up and around the outer arm, over that arm and down around the lower arm that is farthest away from your body, back up and around the nearest upper arm, then down again and around the nearest lower arm.



YARN PATH on the niddy noddy

Continue to wind in this manner, striving to keep the yarn loose, especially if you plan to use the path around the niddy noddy to estimate yarn length (see facing page). Keep in mind that the length you measure is only an estimate, especially as more and more yarn is wound onto the niddy noddy (as the layers build up, the yarn will travel farther with each wrap).

MEASURING THE LENGTH OF A SKEIN

If you know the distance of one complete rotation on your niddy noddy or skein winder, you can estimate the amount of yarn that you've wound, which will come in handy when you need to have a specific amount of yarn for a project.

The most popular niddy noddys create 2-yard (2.2 m) skeins. However, there are also ones that measure 1 to 1½ yards (0.9 to 1.4 m), or even smaller for small samples. To determine the size you have, wrap a tape measure around it the same way that you'd wrap the yarn. Because the yarn travels in an undulating path, one rotation will be much longer than the simple length of the niddy noddy.

Once you know the size of your niddy noddy, simply count the number of strands on one leg of the niddy noddy, then multiply that number by the length of one rotation. For example, if each wrap on your niddy noddy measures 1½ yards (1.4 m) and you count 200 strands on one leg, you have about 300 yards (274 m) of yarn.

Example: 200 strands × 1½ yards = 300 yards

CHAPTER SEVEN

THE END IS IN SIGHT

Handspun yarn isn't finished until it's, well, finished. Some spinners call this washing; others call it setting the twist. I prefer the term *finishing* because most often the choices made here will change your yarn for the better. Some of the changes are quite striking; others are nearly imperceptible. But even the smallest changes can affect how the yarn wears or behaves in the finished fabric.

FINISHING TECHNIQUES

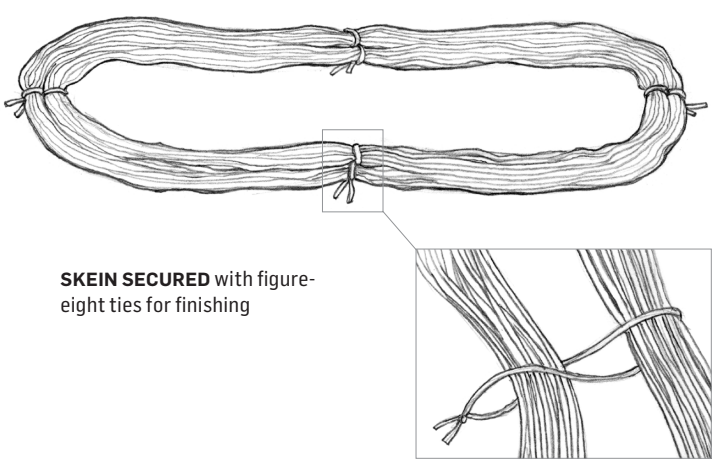
THE WAY TO FINISH YOUR HANDSPUN depends on how it will be ultimately used. Many spinners use the same finishing method for every yarn they spin. That's fine if it gives them the result they want, but it's far better to understand how each finishing technique affects the yarn and, therefore, the fabric that's made from that yarn. More choices offer more chances to produce the fabric that drapes, wears, or fluffs just the way you want.

Any of the techniques explained in this chapter can be used on singles as well as plied yarn; the choice depends on your goals. All methods begin with a simple soaking, after which you may decide not to go any further, but other methods have specific benefits. If, after soaking, your skein has only about one to one-and-a-half twists, then it's nothing to worry about. That extra twist isn't enough to bias the finished fabric. Here's a rundown of the benefits and how-to steps for four different techniques.

As always, the only way to know which is best is by making samples after the skeins have dried, finishing them in different ways before making a decision.

Preparing Skeins

Before you finish your yarn using any of the following methods, it needs first to be wound into a skein that's secured in at least four places so it won't tangle during the process. If you're lucky, you'll be able to tie the two ends of the yarn together in a knot, then use four figure-eight ties to secure the rest. If the two ends of the yarn don't overlap enough to tie into a knot, use them to tie two of the figure-eight ties. In general, you can use anything for the ties — the same yarn, string, or anything else that doesn't have dye that might bleed onto the handspun while it soaks. Be sure not to tie the ties too tightly (especially if you plan to dye the skein of yarn); there needs to be plenty of space for the yarn to expand (or "bloom") and for the twist to equalize throughout the skein.



SKEIN SECURED with figure-eight ties for finishing

Soaking

However you plan to finish your skein, begin by soaking it in hot water. There's no risk that the hot water will felt your yarn as it soaks. It takes a lot of agitation to felt animal fibers, and some of them resist felting altogether. Of course little tests are always a good choice, and be sure to check your yarn frequently in the midst of some of the more forceful methods to prevent going too far.

HOW TO SOAK YARN

1. Soak the yarn in a sink or bucket filled with hot water and a tiny bit of detergent or wool wash (just enough to help lubricate the fibers) for at least 15 minutes.

2. Remove the skein from the sink or bucket, add fresh hot water if you've used a detergent or wool wash that needs to be rinsed, then return the skein to the water for about 5 minutes or so. If I'm in a hurry, I sometimes leave it for only 2 minutes.

3. Remove as much water as possible (see Removing Excess Water from Skeins, page 102).

Removing Excess Water from Skeins

Both of the following methods work well to remove excess water from skeins that have been soaked.

Towels. Squeeze (don't twist) the skein in your hands to remove as much water as possible. Place the skein between folds of a terry-cloth towel and either stand on the towel or lean on it with all of your weight to transfer the excess water to the towel.

Spinning. Place the skein in a salad spinner and spin it as if it were wet lettuce. You can also put the skein in your washing machine and run it through the spin-only cycle. In this case, be sure that no water will be sprayed on the skein or you'll risk felting it.

Snapping

If you like the softness and the look of the singles yarn just as it is after soaking, snapping is most appropriate. While it doesn't paste the fibers together, it is ideal for redistributing the twist to make a more even yarn. It's not only the simplest way to finish handspun, but it's also an easy way to realign the fibers and encourage the twist to shift to a consistent degree throughout the skein. I use this method most often for worsted yarn spun from top with short forward draw (see page 12) because snapping doesn't change the surface or texture of the yarn. It allows the carefully smoothed-down fibers to remain smooth without adding fuzz or a halo.

HOW TO SNAP YARN

1–3. Follow steps 1–3 under How to Soak Yarn on page 101.

4. Place your wrists inside the damp skein and snap your arms outward several times to straighten the strands.

5. Rotate the skein an eighth of a turn and snap again.

Keep rotating the skein and snapping until you've made a full rotation. This snapping helps to realign fibers and move twist around to make it more consistent over the skein.

Smacking or Beating

If the yarn has a lot of excess energy (see Energized yarn, page 115) and that is not your goal, then smacking or beating is a good finishing choice. This treatment gives you a chance to get a little violent with your handspun. The purpose is to fluff up and slightly full the yarn. Fulled yarn resists pilling and is more durable than its unfulled counterpart. I use this method for yarn that I'll keep as singles, as well as woolen yarns spun with a long draw (see page 52) or supported long draw (see page 49).

HOW TO SMACK OR BEAT YARN

1–3. Follow steps 1–3 under How to Soak Yarn on page 101.

4. Clear a space on a counter, washing machine, or nearby wall where nothing will get broken. Hold the damp skein at one end and smack it on the hard surface several times.

5. Rotate the skein an eighth of a turn and smack again.

Keep rotating the skein and smacking until you've made a full rotation. Lay the skein flat to dry.

The Hot/Cold Treatment

If you have singles with a lot of extra energy, you may want to use the hot/cold method (perhaps combined with a plunger for more durability; see page 106), but be aware that this will not preserve the smooth surface produced by a short forward draw. Transferring a skein back and forth from hot and cold water will give a fulling effect. It shocks the fibers, causing the scales to open and close as they shift from one temperature to the other.

HOW TO USE THE HOT/COLD METHOD

1. Follow step 1 under How to Soak Yarn on page 101.
2. If the water has cooled, refresh it with very hot water. Fill another container with cold water. You may want to wear thick rubber gloves to protect your hands from the temperature extremes.
3. Remove the skein from the hot water, use your hands to squeeze (don't twist) out the hot water, then place the skein in the cold water.
4. Let the skein sit in the cold water for less than a minute, then remove it, squeeze out the cold water, and return it to the hot water.

Repeat the process until you see the strands beginning to stick to each other. Remove as much water as possible (see Removing Excess Water from Skeins, page 102, then lay the skein flat to dry.

The Plunger Technique

This technique is similar to the hot/cold method, but a plunger is used to agitate the yarn, causing some fulling that helps hold the fibers together. This ensures a more durable yarn, suitable for a cardigan or mittens. It also fluffs up the yarn, adds a bit of a halo on the surface, and shrinks the yarn more in length than any of the other finishing methods. I know it sounds scary, especially if you've been warned about the dangers of felting. But, here's the thing: it takes a long time to fully felt yarn. In this process, the skein is only agitated for a few minutes, which is enough for the fibers to begin to attach to one another (it only takes about three trips back and forth between the hot and cold baths), but not enough to produce a solid mass.

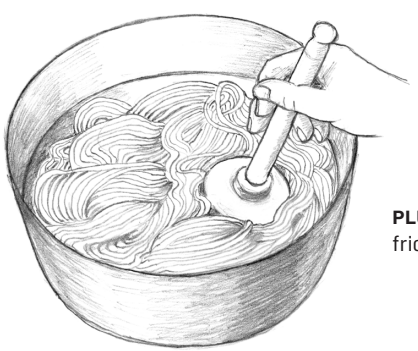
I sometimes use this method with wool, but almost always with very short-stapled animal fibers, such as cashmere or bison. These short fibers are difficult to spin with a short forward draw, but the long draw or supported long draw necessary for the short fibers produces what looks like inconsistent yarn when it's first wound off the bobbin. The plunger finishing technique makes yarns spun from such short fibers more durable and helps prevent pilling or shedding. It also fluffs up the thin spots to better match thicker spots, and it encourages the twist to balance out throughout the entire skein.

You can use the plunger in both the hot and cold baths, or just one or the other, depending on how rough you want to be. The rougher you are, the denser the yarn will become. Use a short sink plunger with a handle less than 24 inches (61 cm) long. Sink plungers are available at most hardware stores.

HOW TO USE THE PLUNGER METHOD

1 and 2. Repeat steps 1 and 2 for How to Use the Hot/Cold Method on page 105.

3. Use the plunger to cause a little friction (don't press it all the way down to create suction on the bottom of the basin). I plunge four or five times at each step.



PLUNGER ADDING friction to a skein

(continued on next page)

4. Remove the skein from the hot water and use your hands to squeeze (not twist) out the hot water. Then place the skein into the cold water and use the plunger to cause a little friction again. Squeeze out the cold water and return the skein into the hot water.

Repeat the process until you see the strands begin to stick to each other. Remove as much water as possible (see Removing Excess Water from Skeins, page 102), then lay the skein flat to dry.

DRYING YOUR FINISHED YARN

After finishing the skein(s) you have spun using any of the described methods, the yarn needs to dry. If the yarn is plied, the best choice is to lay the yarn on a flat surface. Hanging the yarn is an option, but as the yarn dries, water pools at the bottom loop and acts as a weight, which can stretch or slightly distort the thickness or twist. This is usually not a big problem but can affect your knitting gauge slightly.

If the yarn is a singles with a lot of twist that will be difficult to manage, you can soak the skein on a niddy noddy made of plastic or PVC pipe, and allow the yarn to dry in place. I particularly like this method when I want to use the yarn for lace that will be blocked flat, such as for a shawl. Some weavers prefer this method to tame energized yarn for weaving, then let the energy go wild after the fabric has been washed.

As always, I encourage you to make samples and try each technique to learn how it affects your handspun. Label your samples, including the spinning and finishing methods you used, and keep the samples for future reference when you are trying to decide which method will work best for your next project.

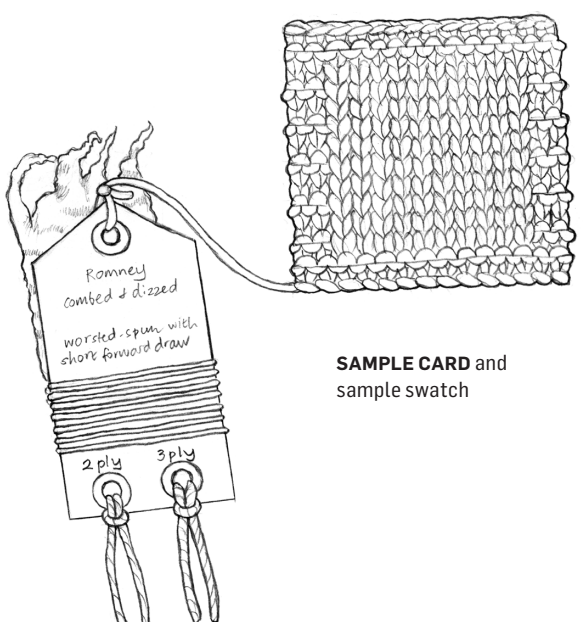
THE IMPORTANCE OF SAMPLES

In closing, I cannot stress enough how important it is to make samples with your handspun. Make samples as you spin, ply, and finish your yarn, and work those samples into swatches. Through samples, you'll become better acquainted with your wheel, as well as the various drafting, plying, and finishing techniques discussed in this book. It's only through actually using the yarns you make, and then making the necessary adjustments, that you'll learn to create any type of yarn you want. Although you may not have a particular project in mind for your early spinning attempts, that yarn will be beautiful and useful on its own.

Make a sample card for each yarn you spin. I like to use a large manila tag that has plenty of space for noting the fiber content, its preparation, the wheel (or spindle) and size of the whorl used, the drafting method, treadling rhythm, and the way the yarn was finished, as well as any other information that might be important. This records the information I need, in case I want to duplicate the yarn in the future. I always attach a bit of the raw fiber and wrap some singles around the card so that they lie flat and are easy to see. Then I punch holes for attaching 2- and 3-ply samples so that I can see the differences at a glance. I typically prepare between five and ten yarn samples for each fiber type — each breed of sheep, each type of silk, and so on.

Be sure to label the swatches made from your handspun yarns and keep them organized in a small box or notebook so you can refer back to them and avoid duplicating your efforts. Even though you might feel intimately familiar with the yarn you just made, you'll soon forget the details when you move on to the next yarn.

You'll never regret having samples even if you never refer back to some of them, but you may very well regret not having a sample of a yarn that you decide to duplicate sometime in the future. Plus, it can be a lot of fun to revisit your samples just to see how you've progressed as a spinner.



SAMPLE CARD and sample swatch

GLOSSARY OF SPINNING TERMS

Andean-style plying. A way of wrapping yarn around your hand so that it can be plied from both ends. It's a great way to use up small amounts of singles left on a bobbin or spindle.

Batt. A flat mass of fiber that has been removed from a handcard or drumcarder.

Beating. Sometimes referred to as thwacking or smacking, the method of hitting a wet skein against a hard object, such as the wall, to full the yarn and make it more cohesive.

Blending board. A flat piece of wood or other material covered by carding cloth that's used for blending fibers or combining fibers for special effects.

Bobbin. Sits on the flyer shaft and collects yarn. The bobbin must be able to spin freely on the shaft.

Bobbin led. A type of spinning wheel drive system also referred to as Irish tension. On double-drive wheels, the bobbin usually spins more quickly than the flyer and is also referred to as bobbin led.

Bobbin whorl. The pulley on the end of the bobbin that holds either the drive band or the brake band.

Brake band. The cord, thread, or band, depending on the drive system, that adds friction and allows either the bobbin or flyer to slow so that the newly made yarn can wind onto the bobbin.

Butterfly plying. A way of winding yarn onto your hand in order to ply small amounts of yarn that may be left on a bobbin. This is one style of plying from both ends of the yarn.

Carders. *See* Handcards.

Carding cloth. A leather or rubber mat on handcards or drumcarders that's covered with short metal pins. The pins are set at different distances apart, depending on the type of fiber to be carded.

Castle-style wheel. A type of spinning wheel in which the mother-of-all is situated above the drive wheel.

Center-pull ball. A ball of yarn wound so that the yarn can be pulled from both the inside and the outside at the same time. This type of ball can be wound on a mechanical ball winder or a nostepinne, and can be used for plying from the same length of yarn or for knitting with two strands simultaneously.

Chain (Navajo) plying. A method of making a 3-ply yarn from one bobbin of singles. The yarn is pulled from the bobbin and made into a series of long crochet chains. This method is used to maintain the solid color sequences in handpainted fiber.

Charkha wheel. Most commonly used in India, this type of wheel is very small in size and is self-contained inside a box. The drive wheel is horizontal and is driven by hand. The drive band goes around a metal spindle. Other types of Charkhas are upright and look like small tabletop versions of a great wheel or walking wheel.

Cloud. Fibers that have been opened up but not carded, combed, or further organized. Most clouds consist of shorter-staple fibers. This preparation is simply spun by the handful.

Combing. A way of preparing fibers, often for worsted spinning, using two combs, each having one to five rows of sharp tines. The combs can be hand held, or one comb can be clamped to a table for combing larger amounts.

Crank. The part that goes through the center of the drive wheel and attaches to the footmen to make the wheel spin around when the treadle is pressed.

Direct drive. Rather than the flyer being driven by a drive band during treadling, the flyer whorl on a direct-drive wheel rides against the drive wheel and turns directly from the motion of the wheel. Direct-drive wheels often have a Scotch-tension brake.

Diz. A concave tool with one or several small holes through which fiber is pulled to make long lengths of combed top or roving.

Double drive. A type of drive system in which one drive band wraps twice around the drive wheel. One wrap of the drive band rests on the flyer whorl; the other rests on the bobbin whorl so that when the wheel is treadled, the drive wheel drives both the bobbin and flyer.

Draft(ing). The act of drawing out fiber from the fiber supply before adding twist to make yarn.

Drafting hand. The drafting hand is usually the forward hand during short-draw/worsted spinning, but it can also be the back or rearhand, or fiberhand during a woolen spinning/long-draw method.

Draw on. Also known as take-up or tension. It's the force with which the new yarn is pulled into the orifice and wound onto the bobbin.

Drive band. The band that goes around the drive wheel and either the flyer whorl, bobbin whorl, or both. Usually it is made of some sort of soft cording but can also be made from a stretchy or rubbery material.

Drive wheel. The large wheel that turns either the flyer or the bobbin.

Drumcarder. A tool with two or more drums covered with carding cloth; used for opening fibers and aligning them in preparation for spinning.

Electric spinner. A spinning tool driven by electricity rather than hand or foot power. They are usually very small and portable.

Energized yarn. Yarn that has extra twist so that it isn't balanced. Energized yarns can be used to get special effects in finished fabric.

Felting. The act of compacting wool or other fibers using heat, water, friction, and soap to form a solid mass. Usually done with unspun fibers; it's always irreversible.

Fiber. A flexible, thin, and strong material used to make yarn, thread, cord, or rope.

Fiber hand. The hand that's used to hold the fiber during spinning. Usually, it's the hand that's held in back.

Finishing. Sometimes referred to as washing or setting the twist. Allowing the fibers to relax into each other after spinning by submerging them in water and allowing them to dry; sometimes combined with plunging or smacking the yarn against a hard surface, depending on the result being sought.

Flyer led. A type of spinning-wheel drive system in which the flyer is driven by the drive band. In these cases, there's usually a brake band on the flyer.

Fiber supply. The mass of fiber that's drafted into yarn. This mass can be roving, top, cloud, lock, and so on.

Flyer. The U-shaped part of the spinning wheel, in the middle of which a metal shaft is attached. The flyer holds the bobbin and has hooks along one or both arms to guide the newly spun yarn onto the bobbin in an organized manner.

Flyer shaft. The metal shaft in the center of the flyer that holds the bobbin in place.

Flyer whorl. The whorl or pulley that the drive band rests on for double-drive or Scotch-tension wheels, or where the brake band rests for Irish-tension wheels. The flyer whorl often determines the speed that the flyer moves during spinning.

Footman. The footman connects the crank to the treadle. Single-treadle wheels have one footman; double-treadle wheels have two.

Forward hand. The forward hand controls the twist, typically by pinching the yarn or fiber supply during drafting.

Fulling. A process similar to felting (friction, water, soap) used on fibers that have been spun into yarn. Fulling is done to strengthen yarn or as a finishing process for fabric.

Great wheel. A wheel that has no treadles, flyer, or bobbin. Also called a spindle wheel, it's driven by turning the wheel by hand. Great wheels are often referred to as "walking wheels" because the spinner walks back and forth next to the wheel as the yarn is spun.

Handcards. Also called card, a tool covered in carding cloth for opening fibers and aligning them in preparation for spinning. Handcards are usually used in pairs.

Irish tension. Also referred to as a bobbin-led wheel, the drive band is placed over the bobbin while the brake band is placed over the flyer during spinning.

Lazy kate. A holder of bobbins for plying or other purposes. Some wheels have lazy kates attached to the wheel base or table. Unattached lazy kates are usually placed behind the spinner during plying.

Leader. A length of string or cord attached to the bobbin to join fiber when beginning to spin a new bobbin.

Long draw. A drafting method in which the twist is allowed to enter the fiber supply, which results in a yarn with good insulating properties.

Maiden. The front and back uprights that hold the flyer in place on a spinning wheel.

Mother-of-all. The part that holds the maidens in place above the spinning wheel bench.

Nap. The presence of fibers on the surface of yarn or fabric that have directionality.

Nep. An imperfection caused by fibers that are immature or haven't been straightened properly.

Niddy noddy. A tool for winding yarn into skeins. It consists of a longer center post with two crossarms at right angles to each other. The yarn is wound by moving in an up-and-down motion that results in a large circle of yarn, typically called a skein.

Norwegian wheel. Similar to a Saxony wheel, except the bench is generally flat or perpendicular to the floor. This type of wheel may include stabilizers that allow adjustments to be made to the position of the drive wheel.

Nostepinne. A small handheld tool used for hand winding center-pull balls.

Orifice. The opening at the front of the spinning wheel flyer through which yarn must travel before being wound onto the bobbin. Some spinning wheels have open orifices (not holes) that are easier to thread.

Orifice hook. A hook for threading the yarn or leader through the flyer orifice before spinning.

Pigtails. Small ply-backs of yarn on the bobbin that form during spinning singles if the newly spun yarn is pushed onto the bobbin more quickly than the take-up can manage.

Ply. Two or more singles twisted together in the opposite direction of their original twist. This helps strengthen the yarn and balance the twist so that the fabric made from the yarn will lie flat and straight.

Predraft(ing). Action taken before spinning to open up fibers and make them easier to draft.

Pulley. Another word for whorl.

Puni. A thin equivalent to a woolen rolag. A puni is usually made from very short fibers such as cotton or cashmere. After the fiber is carded with handcards, the batt is wrapped tightly around a thin rod, such as a knitting needle or dowel, which is removed before spinning commences.

Rolag. A fiber preparation that has been handcarded and rolled into a tube. It is typically used for woolen spinning.

Roving. A long length of carded fibers, generally made on large carding drums in a mill and then drawn off the drums into narrow strips. It can be handmade with a drumcarder.

Saxony wheel. A type of wheel in which the drive wheel is positioned to the side of the mother-of-all. This type of wheel usually has a slanted bench.

Scotch tension. A wheel tensioning system in which the drive band is placed on the flyer whorl and a brake band is placed over the bobbin whorl.

Short backward draw. Similar to short forward draw, but the fiber is drawn back with the fiber hand.

Short forward draw. A drafting method in which the forward hand pinches off the twist as a small amount of fiber is pulled forward. The key is to prevent twist from entering the fiber supply

Singles. Yarn that has been spun in one direction but has not been plied.

Skein. Yarn that has been wound into a large circle, often using a niddy noddy or skein winder, for storage or washing.

Skein winder. A niddy noddy or other tool that has several arms around which the yarn is wrapped. Some winders are horizontal; others are vertical.

Sliver. A long rope of carded fibers into which no twist has been inserted.

Smacking. Sometimes referred to as thwacking, the process of hitting a damp skein on a hard surface to even out the twist and to full the yarn somewhat to add strength and fluff it up. *See also* Beating.

Snapping. Placing a wet skein on the wrists and snapping the wrists outward to help even out the twist; rotating the skein an eighth of a turn after every snap until the skein has turned a full circle. This less-severe method of finishing yarn is good for worsted-spun yarns because it doesn't cause the yarn to plump.

Spindle. A long, metal, needle-like object that is driven by a large drive wheel. Spinning happens by turning the wheel with one hand while drafting with the other hand. A spindle can also be a small, more portable, hand-driven object used to add twist to fiber.

Spindle wheel. *See* Great wheel.

Spinning from the fold. A fiber management technique where a short length of fiber is folded and twist is added to the center or folded part of the fiber length.

Spinning wheel. A tool that adds twist to drafted fiber to make yarn or thread.

Staple length. The length of the staple, or lock, when it is not extended or stretched.

Supported long draw. A drafting technique typically used for woolen spinning in which twist is allowed to enter the fiber supply. The forward hand controls the amount of twist entering the yarn to facilitate drafting.

2-ply yarn. A yarn in which two singles are twisted in the opposite direction of their original spinning direction. A 2-ply yarn can be made by plying from each end of a single center-pull ball.

3-ply yarn. A yarn in which three singles are twisted in the opposite direction of their original spinning direction.

Take-up. *See* Draw on.

Tension. *See* Draw on.

Top. A long, even length of fibers that have been combed; this preparation is often used for worsted spinning.

Treadle(s). One or two pedals that are moved with the feet to put the drive wheel in motion.

Treadle support. The front bar on a spinning wheel on which the treadles sit. The treadle support can either sit directly on the floor or be supported at the bottom by two of the spinning wheel legs.

True woolen. Spinning handcarded rolags while using a long-draw draft.

True worsted. Spinning handcombed fiber that's been pulled through a diz while using a short forward draw.

Twist. The magical structural element that holds fibers together and makes yarn. Different amounts of twist can change the way yarn acts. Less twist usually makes a softer drapey yarn; more twist makes a more durable yarn with body. Too little twist allows the fibers to drift apart; too much makes a yarn that feels harsh and brittle, regardless of the fiber used.

Uprights. The supports for the drive wheel.

Wheel hub. The center of the drive wheel.

Woolen-style. A combination of drafting method and fiber preparation that produces a lofty and airy yarn. Twist is allowed to enter the fiber supply during drafting, which usually results in a yarn that's quick to spin and provides great warmth.

Worsted-style. A combination of drafting method and fiber preparation that produces a compact and dense yarn. It's spun with a short forward or short backward draw such that no twist is allowed to enter the fiber supply, which usually results in a durable, crisp yarn that's ideal for color separation and cable designs.

Yarn. A continuous length of twisted fibers that can be sewn, knitted, woven, or crocheted into cloth.

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