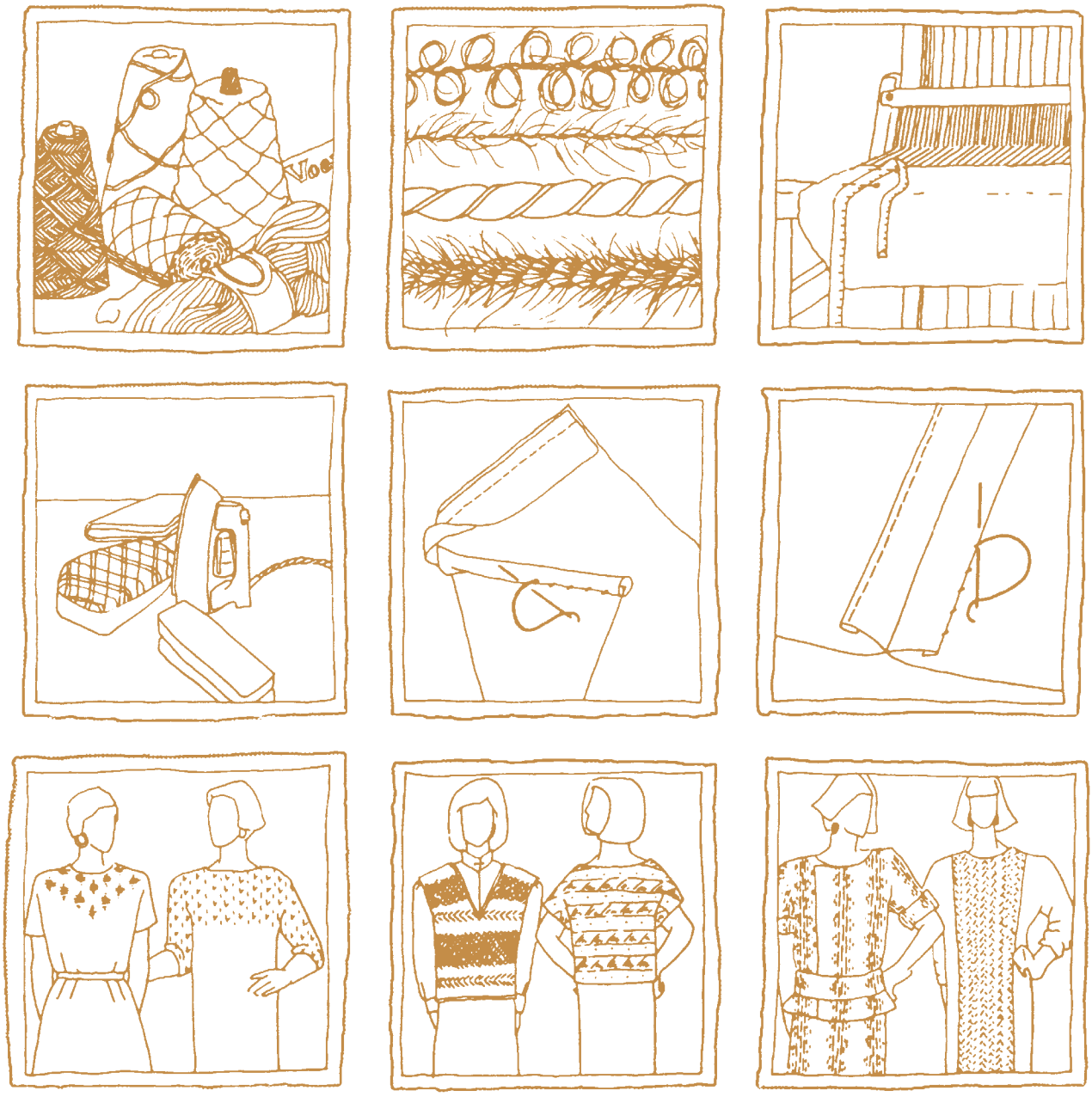
# Designing to Weave & Sew



Written & Illustrated by Jean Scorgie

In honor of the first annual Special Fashion Issue of *Handwoven* magazine (September/October 2011), we bring you as an ebook this comprehensive manual for sewing with handwovens. Written by Jean Scorgie, this little book originally accompanied the Handwoven Designer Patterns*—full-scale paper patterns for garments especially suitable for handwoven fabrics (we're thinking of bringing these back, too!). This book is a very rich resource for all the sewing techniques you really need to make couture garments from your handwoven cloth: how to choose the right weave structure, yarns, setts, and draft for a specific garment; how to cut out the pattern pieces, matching and placing stripes and plaids and securing edges; how to reduce bulk in seams and hems; how to finish, line, and embellish the final garment; and much, much more. You'll find detailed instructions for each step with clear hand-drawn illustrations by Jean for each one. Best of all, Jean tells you which technique works best with which type of fabric, from fine silks and linens to heavier fabrics in bulky wools and novelty yarns. The information and techniques are timeless and never more clearly explained than here.

Madelyn

*Originally published as *Designing to Weave & Sew* by Jean Scorgie, Interweave 1986.

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# Designing

Designing is not a straight-line process. The different aspects of designing interrelate, from designing and weaving the fabric to designing and making the garment. A change in one part of the process will affect the other parts. Sometimes, a beautiful yarn will spark an idea, another time it may be a weave you enjoy, still again it may be wanting to make a certain garment. Where you decide to start is up to you. Feel free to skip around from one section of this booklet to another to keep all aspects of your designing coming along together.

Often, a good place to start designing is with an idea of the garment you want to make—the garment will tell you a lot about the characteristics you'll want to design into the fabric. Blouse fabrics need to be lightweight (in handweavers' terms), flexible, comfortable to move in, and comfortable against the skin. Skirt fabrics need to hold their shape, not be bulky, not sag or bag. Coats need thick, lofty fabrics to trap air for insulating warmth. Fabrics comfortable in summer need to be lightweight, cool feeling, and able to absorb moisture.

Become a collector of fabric samples from your own handwoven pieces, commercial fabrics, and favorite old clothes. Sit down with a stack of fabric samples and a fashion magazine. Try to match garment designs with the fabric samples. Also, clip drawings and photos of garments that would look great in handwoven fabric. They'll be a good source of ideas for garment shape, surface patterning, and design details.

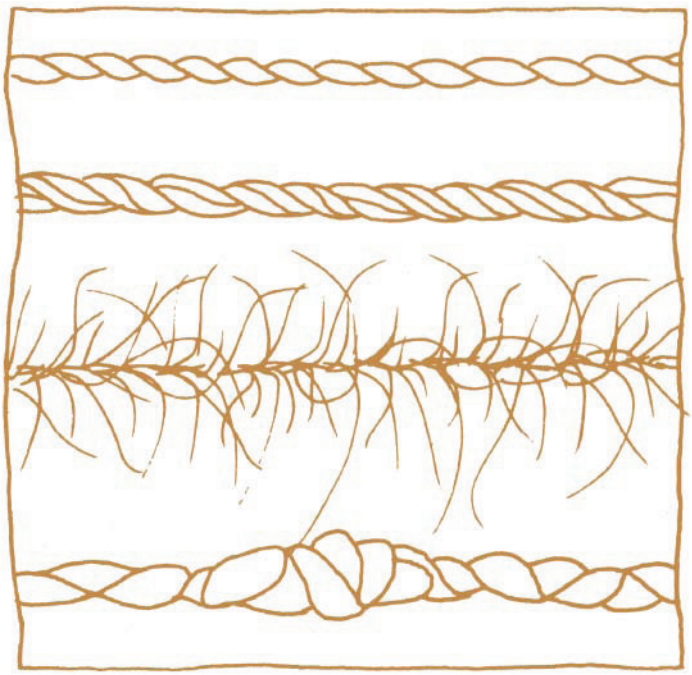


Gather the design elements that inspire you.

## Yarn

Choose yarns carefully. It's obvious—but sometimes easy to forget—that fine fabrics aren't made with thick, heavy yarns. If you want a fabric that's lightweight, start with fine yarns. Every handweaver remembers a garment that weighed a ton—lots of these were woven with dense, heavy carpet mill ends! With so many yarns available now, you can choose just what you need.

Fine yarns are versatile because they can be used for a wide range of fabrics. As well as making a light fabric in balanced plain weave, they can make a fabric several degrees heavier with a more complex weave structure that has floats or uses both a pattern and tabby weft. They can be stranded and used doubled or tripled or more to make them physically thicker. Use heavier yarns for accent or weight; combine heavy and fine yarns for texture.



Choose from many different yarns.

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The actual weight of a yarn depends on its fiber content. Some fibers are just heavier than others. If you compare a garment woven of rayon with one of silk, you find that although they may look and feel similar, the rayon one is considerably heavier. Linen is heavier than cotton, cotton is heavier than wool, and wool is heavier than silk.

The amount of twist in a yarn affects its weight as well as its surface texture. Yarns with a high degree of twist are compact, firm, and hard. They look solid and have crisp, definite edges. They can be dense, heavy wools spun for use in rugs or upholstery. They can also be cord-like cottons with several plies twisted together to make a strong yarn from the short cotton fibers, such as cotton seine cord, crochet cottons, and sewing thread.

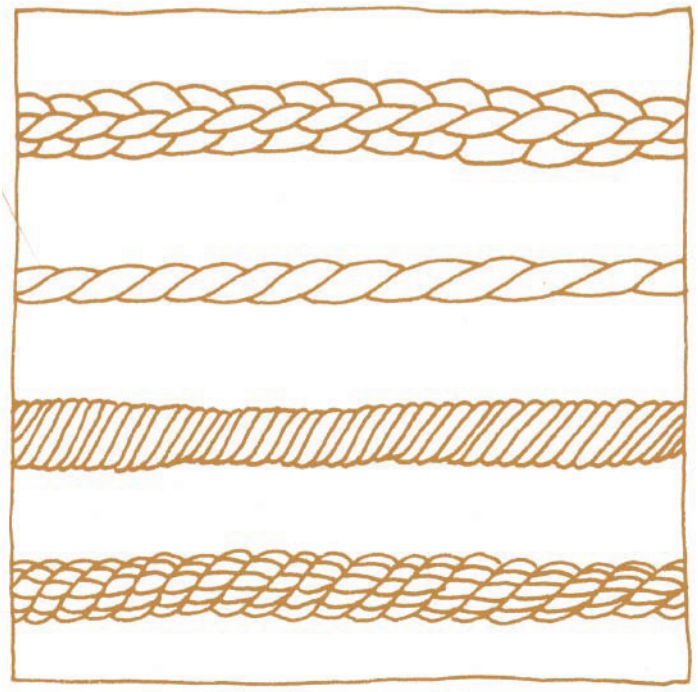
Highly twisted yarns weave into sturdy, long-wearing fabrics with a smooth surface. They have lots of body when they're set close together and woven firmly. Choose them for skirts, tailored jackets, menswear, and outdoor clothing. They work well in twills, damask, satin, and other multishaft weaves that have close setts. They are also good as a fine warp woven with a much heavier weft because their strength allows them to be set far apart and yet be strong enough for the heavy yarns crossing them.

Loosely twisted yarns are lightweight because they have air spaces. Lofty yarns are loosely spun from fibers that have some crimp to hold the fibers apart and make a fuzzy or fluffy yarn. Knitting yarns are good examples of loosely twisted, lofty yarns. These yarns are good for soft sweater-like garments, scarves, and shawls. Make the most of the airiness of these yarns by not packing them closely in either warp or weft. They need room to breathe. They will weave lightweight, drapey, soft fabrics—fabrics that are also somewhat limp, stretchy, and delicate in handling and wearability.

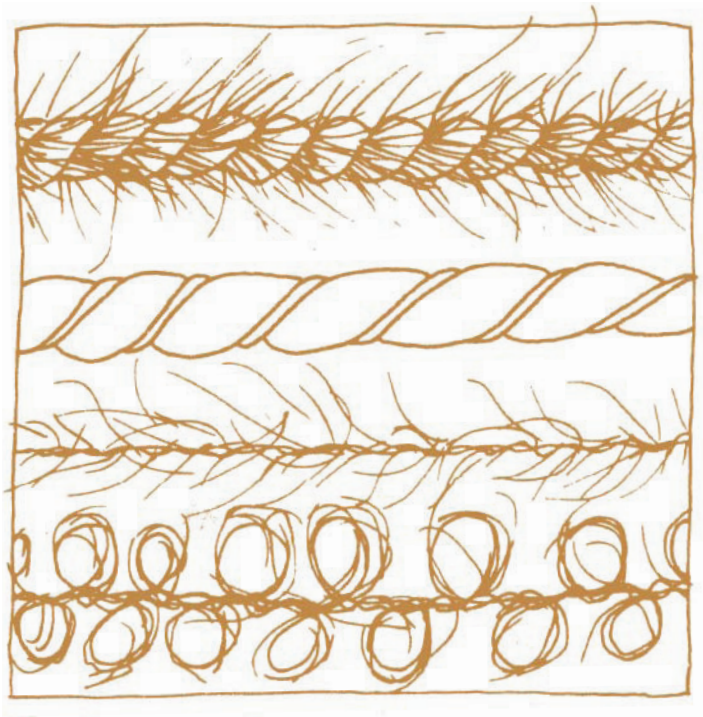
Brushed yarns of mohair or wool also need open setts because their fluffy loose fibers fill the spaces between their small cores. Even though brushed mohairs or wools seem thin, they are often set at 6–8 ends per inch (epi). When a closer sett is needed for a denser fabric, regular wool yarns are often combined with the brushed yarns to fill in the spaces and allow the long loose fibers to glaze the surface of the fabric.

On the other hand, slippery yarns, such as shiny rayons, need close, firm setts or else they'll slide around and distort the weave structure. These yarns are beautiful in warp- or weft-dominant fabrics, both of which show up their glossiness. They are often used as contrasting picks with a tussah silk or matte-finish rayon, cotton, or wool.

At right is a chart comparing setts of fabrics of different weights. The overlapping between different weights of fabrics is due to differences in weave structure. Balanced plain-weave fabrics and structures with open setts, such as laces, use the lower numbers in each range. Twills use closer setts and doubleweaves, and weft-faced structures use closer setts still.



Highly-twisted yarns make crisp fabrics.



Soft novelty yarns add texture.

### Fabric Weights and Their Setts

| | |
|---|---|
| Lightweight fabrics | 24 epi and higher |
| Medium-weight fabrics | 12 epi to 24 epi |
| Heavy fabrics | 6 epi to 16 epi |

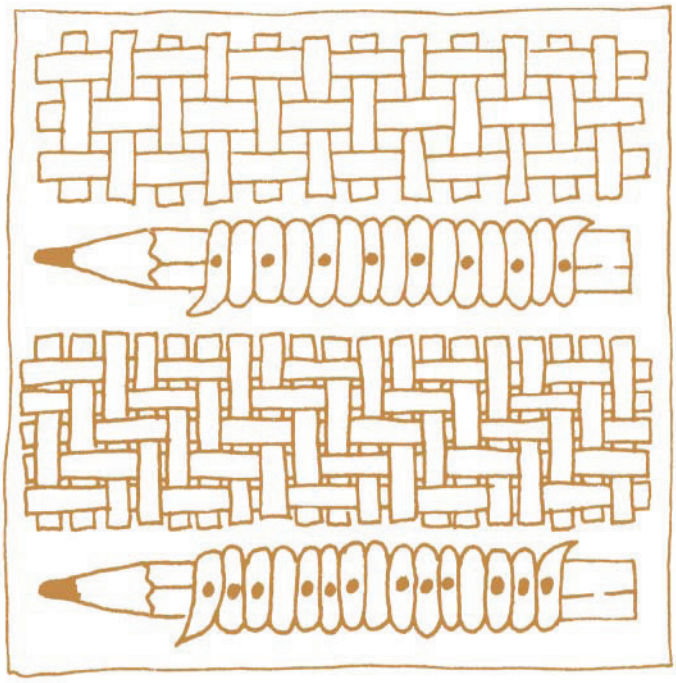
Use lightweight fabrics for blouses, medium-weight ones for dresses and skirts, and heavier fabrics for jackets and coats.

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Here is a sampling of garment-weight yarns, their approximate yardages per pound, and a suggested range of setts. Novelty yarns, though very useful in designing, have not been included.

| | approx. yardage | plain weave | twill |
|---|---|---|---|
| **WOOL** | | | |
| 32/2 | 7,865 | 30–40 | 40–48 |
| 24/2 | 6,400 | 20–24 | 24–32 |
| 20/2 | 5,600 | 20–24 | 30–36 |
| Nm 20/2 * | 4,975 | 24–30 | 30–36 |
| 18/2 | 5,040 | 20–24 | 24–30 |
| 12/2 | 3,200 | 15–18 | 20–24 |
| Nm 6/1 | 2,985 | 18–20 | 22–24 |
| 12/3 | 2,160 | 15–18 | 20–24 |
| 2-ply | 2,000 | 10–12 | 15–18 |
| Nm 7/2 | 1,590 | 12–15 | 15–18 |
| 6/2 | 1,600 | 10–12 | 12–15 |
| Nm 6.2/2 | 1,540 | 12–15 | 15–18 |
| 2-ply | 1,475 | 8–10 | 10–12 |
| **BRUSHED WOOL/MOHAIR** | | | |
| | 1,000–2,000 | 6–8 | 8–10 |
| **LOOP WOOL/MOHAIR** | | | |
| | 1,000–2,000 | 6–8 | 8–10 |
| **COTTON** | | | |
| 50/3 | 14,000 | 40–45 | 45–54 |
| 30/2 | 12,600 | 30–36 | 40–45 |
| 20/2 | 8,400 | 24–30 | 30–36 |
| Nm20/2 | 7,500 | 24–30 | 30–36 |
| Nm 16/2 | 6,340 | 24 | 30 |
| Nm 12/2 | 4,675 | 20–25 | 24–30 |
| 10/2 | 4,200 | 24–28 | 30–32 |
| 8/2 | 3,000 | 16–20 | 24–30 |
| 5/2 | 2,100 | 15–18 | 20 |
| Nm 8/3 | 1,950 | 15–18 | 20–24 |
| 3/2 | 1,260 | 10–12 | 15 |
| **COTTOLIN** | | | |
| 22/2 | 3,150 | 15–18 | 20–24 |
| **LINEN** | | | |
| 40/2 | 6,000 | 24–30 | 36–40 |
| 20/1 | 6,000 | 4–30 | 36–40 |
| 12/1 | 3,600 | 22–25 | 30–32 |
| 20/2 | 3,000 | 20–24 | 24–30 |
| 10/1 | 3,000 | 20–24 | 24–30 |
| 16/2 | 2,500 | 18 | 24–28 |

**Yarns with Nm in front of their yarn count numbers are from Scandinavian countries using a yarn numbering system called Metric Numbering*



Determine sett by counting the number of wraps per inch.




Match yarn weight to garment weight.

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| SILK | | | | |
|---|---|---|---|---|
| 60/2 spun | 15,000 | 66 | 70–74 |
| 30/2 spun | 7,500 | 30–32 | 36–45 |
| 27/2 tussah | 7,500 | 24–36 | 36–40 |
| 2-ply tussah | 6,680 | 36–40 | 40–44 |
| 2-ply spun | 4,650 | 28–30 | 32–36 |
| 2-ply bourette | 4,650 | 24–26 | 28–30 |
| 2-ply tussah | 3,750 | 24–26 | 28–30 |
| 12/2 spun | 3,250 | 18–20 | 22–24 |
| 8/2 spun | 2,800 | 18–20 | 22–24 |
| 2-ply bourette | 2,375 | 14–16 | 18–20 |
| 2-ply spun | 1,725 | 14–16 | 18–20 |

**Yarns with Nm in front of their yarn count numbers are from Scandinavian countries using a yarn numbering system called Metric Numbering.*

## Determining Setts

To determine the sett for yarns not on the chart, wrap the yarn around a pencil or a ruler for one inch and count the number of turns. For plain weave and weaves based on plain weave, use half of that number. For twills and other weaves with long floats, use two-thirds to three-quarters of the number of turns.

You can estimate the weight of a garment you're planning by converting the yardage you'll need into pounds of yarn. Figure the yardage for both warp and weft, subtract an amount for loom waste, and divide by the yards per pound of the yarn. This will tell you how many pounds the garment will weigh. Sweaters and jackets average 1½ lb to 2½ lb. Blouses weigh less, 4 oz to 1½ lb. Coats will weigh more, up to 4 lb. So, if the blouse you're planning needs 5 lb of yarn, think again!

## Weave Structure

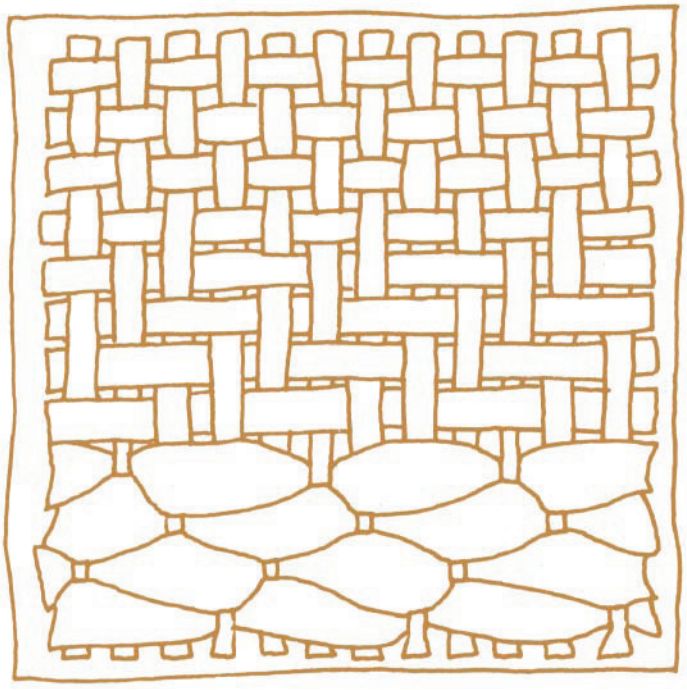
Balanced plain weave with its over one, under one structure makes the thinnest fabric, except perhaps for leno. It also uses the least amount of yarn of any weave structure. Other weaves use more yarn and make heavier, thicker fabrics because their floats demand a closer sett so that the yarns will nestle together. When you want a thin fabric, use a threading that's predominantly plain weave. You can get many exciting effects by combining yarns of different textures, sizes, and colors. These combinations mask one drawback of plain weave—it shows wrinkles more readily than other weaves, especially when woven all of one yarn in a solid color.

Twills are a very large category with many variations. They are especially suitable for clothing because they drape well and mold over curves. There are many treadlings possible for texture as well as twill's classic diagonals, herringbones, and diamonds.

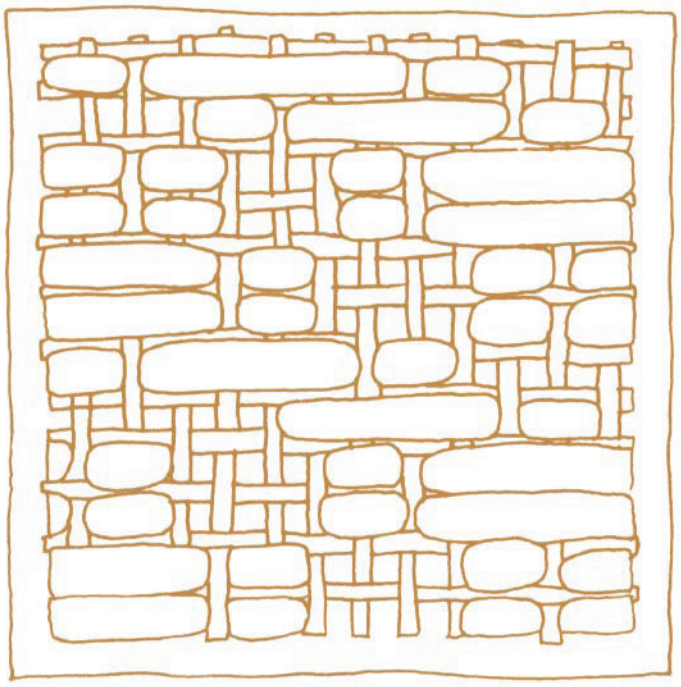
Overshot is used mostly for its complex pattern potential. It can be overpowering in contrasting colors, but in tone on tone or used as borders or inlaid designs, the effect can be very elegant. Overshot includes many possible designs—from circular to rectangular motifs and more—in a range of sizes.

Overshot is a member of the two-shuttle class of weaves in which one shuttle weaves tabby and forms a ground cloth while the other shuttle weaves with a heavier weft that floats to create pattern. These weaves—overshot, crackle, and summer and winter and other two-tie unit weaves—are useful for clothing because of their pattern versatility.

Hand-manipulated techniques, such as leno, Mexican lace, soumak, rya knots, and dukagang and other inlays are excellent



Plain weave makes a lightweight fabric.



Overshot has many possible looks.

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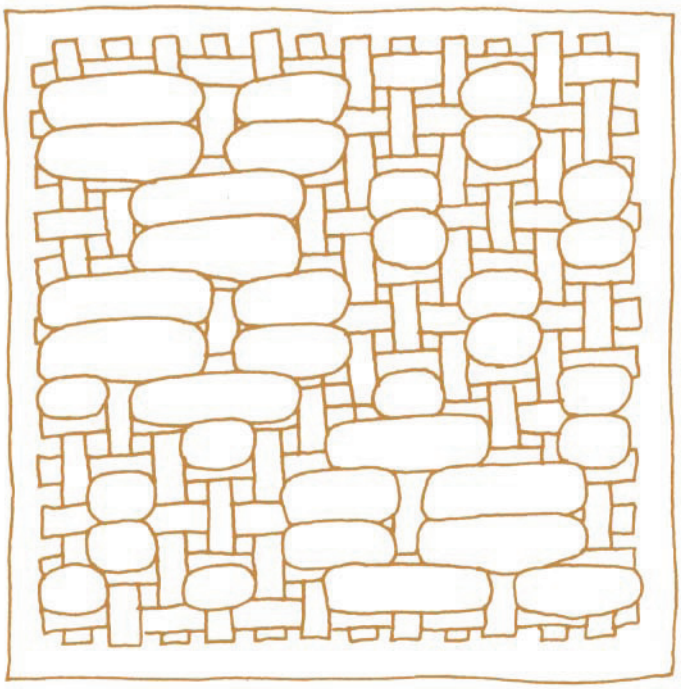
for personalizing a handwoven fabric. Their strength lies in their ability to be placed anywhere on the fabric. Hand-manipulated techniques are especially appropriate for blouses and jackets because their design detail can be an alternative to jewelry.

Texture weaves such as huck, Atwater-Bronson lace, and spot Bronson and texture treadlings on twill can give variety and interest to solid-colored fabrics. They are especially effective in silks and fine cottons for blouses.

## Scale

Weave structures with small overall repeating patterns, such as rosepath and similar twills, may be small in scale, but seen close-up their detail delights the eye, while from a slightly further distance they look textured. Still further away, small-scale patterns function as solids—and they're more interesting to weave than plain weave!

For bold effects, use color and pattern boldly. Use large patterns with big sweeps of solid color. Juxtapose large areas of contrasting color: a tube dress in tobacco brown with a swath of lavender across the shoulders and down one side; a 6" or 8" plaid in raspberry and turquoise; wide white awning stripes on a black background; solid dark brown contrasted with natural or unbleached silk.



Many effects are possible with unit weaves such as summer and winter.

## Size of Repeat

If the selected weave structure has a repeating motif such as in overshot, you'll want to know how big each motif will be in the yarn you've chosen. To find the size of the repeat, divide the number of ends in one repeat by the ends per inch.

For some weaves, the only way to change the size of the repeat is to change the size of the yarn. Many weaves, however, can be enlarged or made smaller because they consist of repeating units. Examples of these weaves include summer and winter, Swedish lace, crackle, log cabin and shadow weave, overshots, and many multishaft structures. Each weave has its design rules—one of the delights of weaving is exploring a weave in depth.

Weft repeats are a different story. Here is an area where the handweaver can shine. Weft repeats can be any length you wish, from using a few treadles over and over to long, complicated, eccentric treadlings that have no repeat from the beginning of the weaving to the end. Most weave structures can be treadled several different ways and can be creatively treadled as you weave. You can use as many different weft yarns as there are rows. By adding changes of color and yarn, designing with the weft becomes limitless. Truly, the province of the handweaver lies in weft designing.

Production handweavers, on the other hand, take their cue from commercial manufacture. In order to speed up their rate of production, they do what factories do. They put on long



A design that is large in scale gives a different look from a design that is small in scale.

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warps with lots of color and texture in the warp, and they try to weave with as few shuttles as possible. Although they change treadlings and weft color from one piece to the next on their long warps, their fabrics do not show the variety of design effects that are possible for the handweaver to use with multiple wefts and eccentric treadlings.

One of the most unique effects available to the handweaver is the capacity to place pattern pieces so that fabric designs appear in selected areas. Bands of treadling can be placed on yokes, collars, sleeves, waists, front edges of jackets, center panels of blouses and dresses. There are many weave structures that allow both plain weave and pattern—lace weaves, summer and winter, overshot—or two or more different designs can be produced with different treadlings. Any of these methods can be used for contrasting areas in a cloth.

## Color and Weave Structure

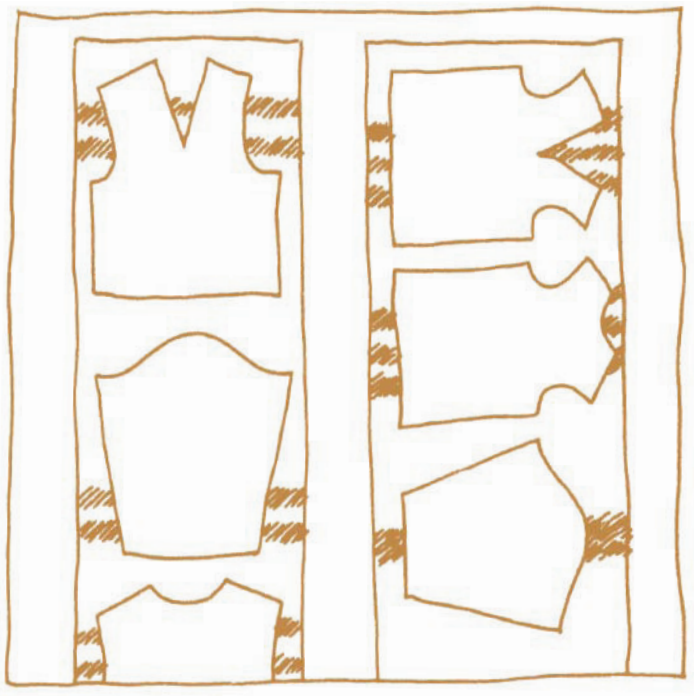
Color and weave structure often go together, but not always. Sometimes a weave structure is used as the basis for assigning colors to certain warp threads within the repeat. In each repeat, the color appears in the same position and the color repeat exactly matches the threading repeat.

Another way to design is to plan the color placement so that one color is used for several repeats of the weave structure. This type of designing is frequently seen in large-scale stripes and plaids in which each color area contains several repeats of diamonds or small motifs.

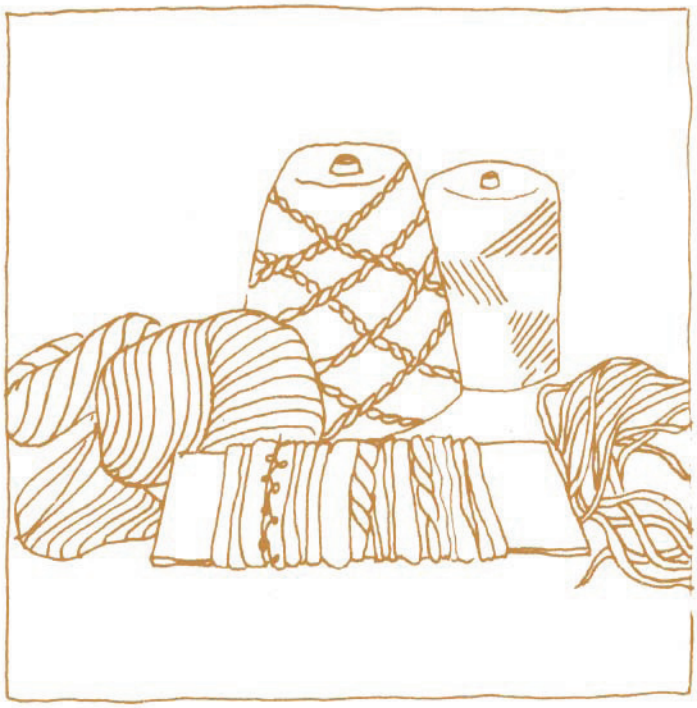
Still another way is to use color randomly on a repeating motif—or to use space-dyed yarns. Because the colors fall at odd places, these colorations disrupt the weave patterning, sometimes evoking a feeling of watery movement or the play of light and shadow on a pattern—sometimes even obliterating the pattern completely. Often, areas of random color are alternated with solid-color stripes so that the pattern of the weave stands out clearly in the solid stripe before dissolving in the random area.

## Weave a Sample

It's true! Weaving a sample will invariably provide you with more ideas—and better ones—than if you hadn't made the effort. Weaving a sample shows how a yarn looks at a particular sett in a particular weave. It shows how colors interact in the weave structure, often a surprise from the way the colors looked separately. A sample can show the weight, drape, and hand of the fabric. Finishing the sample shows the effects of washing and pressing. Measuring your sample as you weave and after it's finished will help you estimate take-up and shrinkage for weaving your garment fabric.



Making pattern fall in specific places is the special province of handweavers.



Explore stripes through color wraps.

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## Planning the Garment

Once the yarns and weave structure are chosen, it's time to plan how the garment will look. Knowing the limitations of the weave structure, you are now free to explore its possibilities. With your garment in mind, consider the effects of vertical and horizontal stripes, not just allover, but as highlights to the design of the garment. Use stripes or inlaid patterns to bring subtle or dramatic emphasis to different areas. Add details for extra interest.

Narrow stripes, wide stripes, combinations of both— you can look forward to a full life just weaving stripes. Explore color in stripes by wrapping yarns around a cardboard strip. Start with a lichen-covered stone, a garden flower, or a crisp fall leaf, and try matching its colors with bits and pieces of yarn. Wrap each color in the same proportion and order as in the item to reproduce the effect. Often single strands of brighter colors will balance wide bands of more neutral tones. Keep adding and subtracting colors until the effect is right. Such a stripe can be used once on a solid-color background or it can be repeated and reversed and expanded and contracted and even plaided . . . you get the idea!

## Verticals and Horizontals

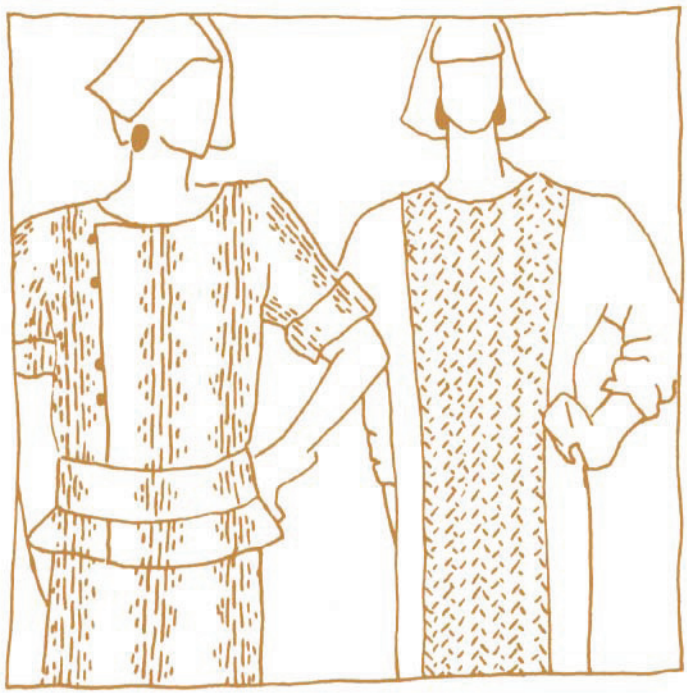
Most of us feel we could be taller and more slender. For a slender look, it's hard to go wrong with vertical lines. Warp stripes will be vertical on the body when the pattern pieces are cut lengthwise on the fabric. For a fabric with weft stripes, placing the pattern pieces crosswise will make them vertical when you wear them.

Even a solid-colored fabric can be enlivened by verticals in the weave structure. A vertical herringbone twill is subtle but effective. Many weaves, such as Swedish lace and other block weaves, can be treadled to give vertical stripes. For a slender look it also helps to use one color from shoulder to hem rather than cutting the figure at the waist with contrasting colors.

What about horizontal lines? Although they're seldom seen below the waist, they are often used above the waist for balance. They can look wonderful across the shoulders in the yoke area. Vests and short-sleeved blouses are great ways to wear horizontal stripes. Be careful when you add sleeves—stripes here sometimes look better placed vertically.

A classic way to wear horizontal lines is to keep their contrast low. Imagine horizontal patterned stripes on a jacket woven in heathery blues and purples. Or woodsy browns and greens. But be careful when combining darks and lights—a dark brown with celery green stripes will look stripey.

Planning where you want to place stripes and how wide you want them is easy if you stand in front of a full-length mirror holding the pattern piece up to you. After an initial hesitancy (before realizing that you do know what you like when you see it!), it becomes easy to decide where you want stripes and how wide you want them to be. Mark with felt-tip marker right on the pattern and make an instant appraisal of the effect.



Verticals give a slim look.

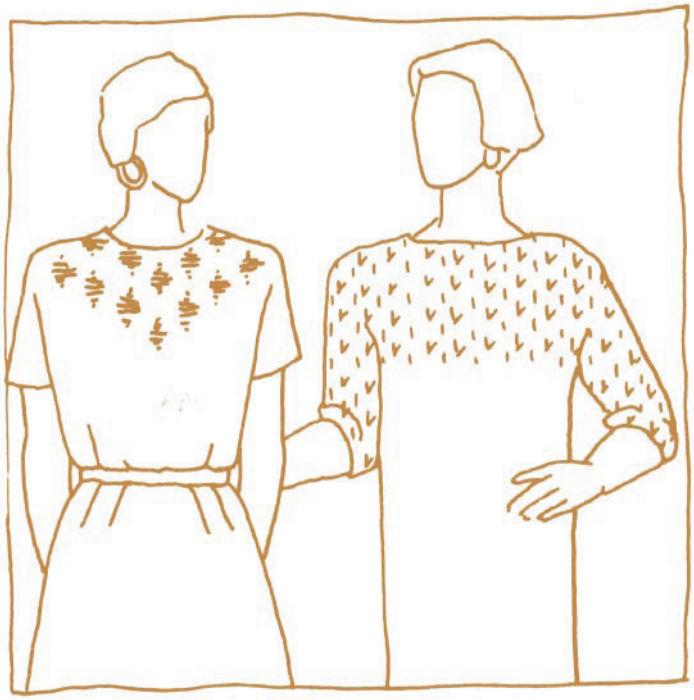


Horizontal lines are often used in tops.

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## Planning Emphasis

Emphasis is often placed near the face through contrast in garments—a light scarf or blouse against a dark jacket—or through accessories such as jewelry or scarves. If the fabric itself is to be the emphasis, plan stripes, inlay designs, or pattern near the face. In the yoke area, collar, blouse, or jacket, design an interesting pattern or color combination to bring out the coloring of your eyes and flatter your complexion. Use less contrasting color and pattern to play down other parts of your figure. You usually know what you like in ready-to-wear—keep these same things in mind when designing for handwoven fabric.



Patterned yokes bring emphasis to your face.

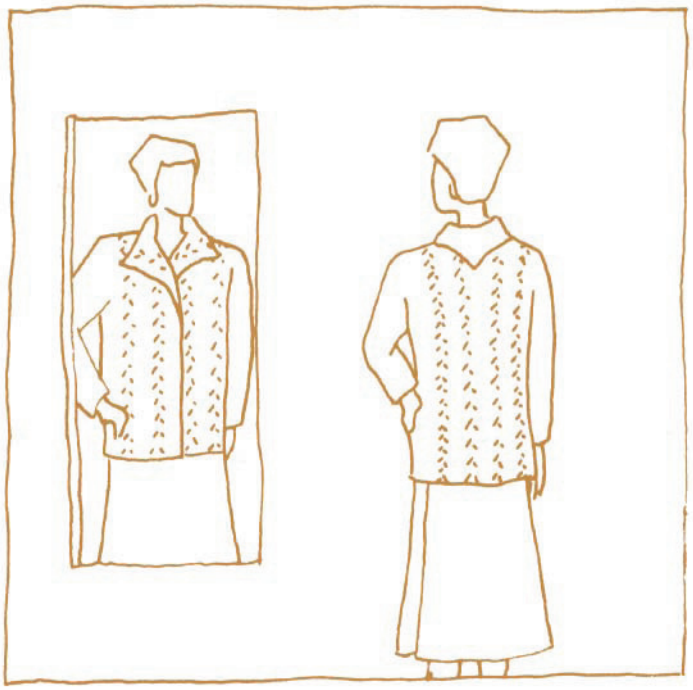
## Making a Trial Garment

Considering the time, effort, and expense that will go into your project, you'll want to eliminate as many surprises as possible. The first time you use a pattern it's wise to try it out by sewing it up from an old sheet or a remnant of fabric, what sewers call a "muslin." You can check the fit and make alterations to fit you perfectly. You can see how the design lines look on your figure. Standing in front of the mirror also provides a good opportunity to check the length of the garment, the sleeve length, and the garment's fullness, especially important for planning the amount of fabric you'll need to weave.

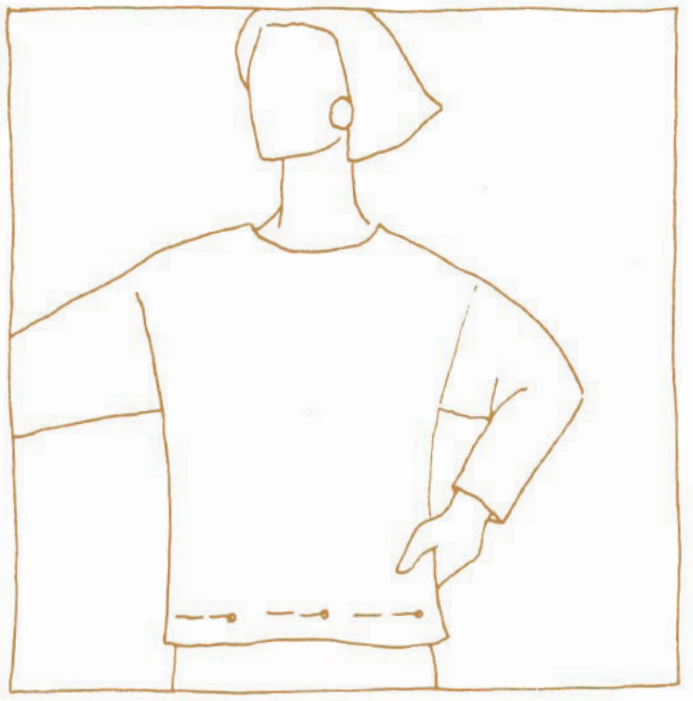
Remember that as in other types of sampling, you will also allow a margin of error. For one thing, the fabric in the sample garment is probably thinner and firmer than the handwoven fabric will be. The trial garment should fit loosely to make up for the extra thickness of the handwoven fabric. Later, it'll be better to sew deeper seams than end up with a garment that's too small.

When you have woven a sample of the fabric, hold it up or pin it to yourself, stand back, and look in the mirror. Try to visualize the effect of the fabric in the handwoven garment. What will it look like repeated and extended for the width and length of the garment?

When all the tucking and pinning, marking and visualizing are done, transfer the changes to your pattern pieces. Don't rely on remembering the changes you want to make, put them on the pattern.



A trial garment is essential for checking fit.



Modify widths and lengths for the right proportion.

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# Weaving

Before going to your warping board and loom, you need to do some figuring. You must plan how much fabric to weave and add for take-up and shrinkage to calculate warp and weft requirements.

## Planning the Layout

After you've made a trial garment and have adjusted the pattern to fit you, clear a space on a large table or on the floor to lay out the pattern pieces as they will appear on the length of fabric you'll weave. Place the pattern pieces lengthwise or crosswise, depending on your design. The narrowest fabric you can weave will have to accommodate the widest pattern piece, so that's a good place to start.

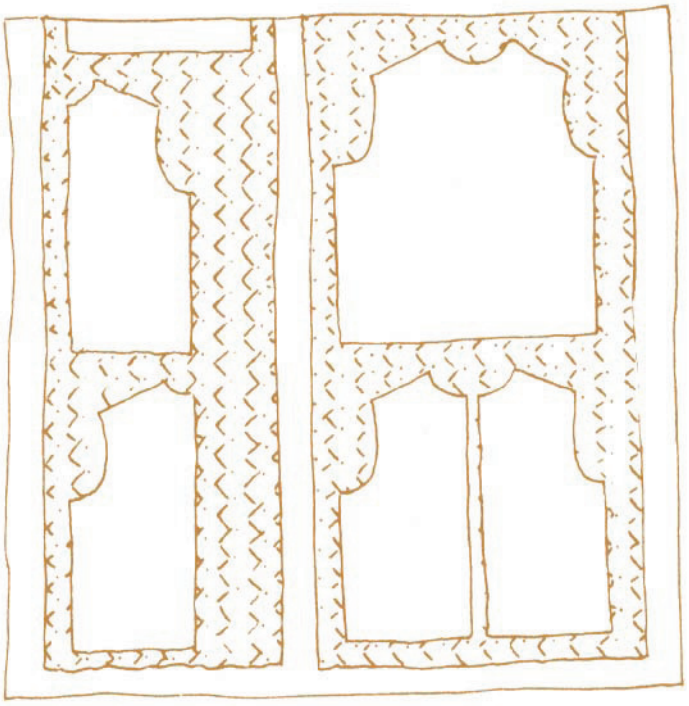
Try to fit the other pieces as efficiently as possible into the same width. They may fit together with little leftover fabric, or there may be several areas that are not quite large enough for a pattern piece but seem too large to waste. If this is the case, try placing two pattern pieces side by side to establish a new wider warp width. Putting two front pieces side by side is often a good choice because the weft will automatically match across the center fronts. Lay out the rest of the pattern pieces in this new width and see if there is less wasted fabric. Keep experimenting until you find a width narrow enough for your loom but wide enough for the economical placement of the pattern pieces.

If you have warp and weft stripes that must fall at certain places on the pattern pieces, you may have to try several layouts to get everything to work.

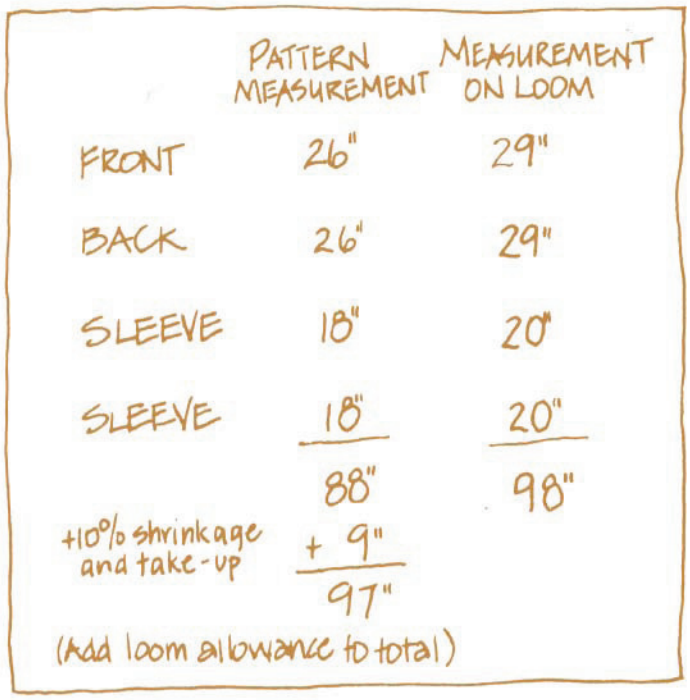
When you're satisfied that your plan is right, measure the width and length of fabric you will need and make a drawing of the placement of each piece. If you are using warp stripes or weft stripes or inlaid patterns, mark the placement of these accurately. Double check pattern placement to see that the grainlines are exactly vertical or horizontal. Check pieces cut on the fold and pairs of sleeves and pairs of pockets. And one last time, follow the warp and weft stripes through the layout to see how they affect each piece they cross.

## Take-Up and Shrinkage

The width and length measurements you've just taken represent dimensions for the finished fabric. When you calculate the warp width and warp length for weaving the fabric, you



Determine your fabric width through trial layouts with pattern pieces.



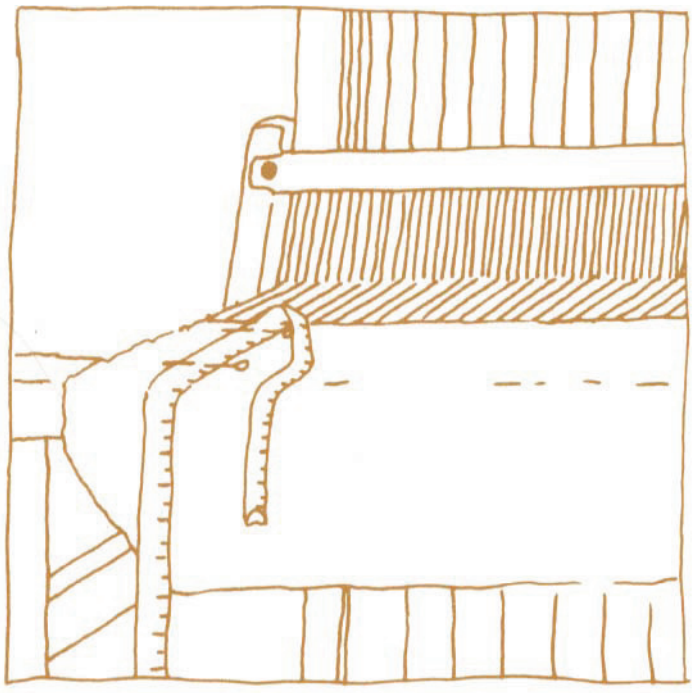

Add allowance for shrinkage and take-up (10% is shown here) to warp width and length on the loom.

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must add loom allowance plus the take-up and shrinkage you've figured from your sample. This is important! Not only must you add shrinkage and take-up in your warping calculations, but you must also revise each of the measurements for stripes and inlaid patterns to include take-up and shrinkage. Actually, this is often very easy to do in your head, especially if the take-up and shrinkage is 10%, because you just move the decimal one place to the left. For a 5" wide stripe with 10% take-up and shrinkage, add 5 plus .5 and weave 5½". For a 15" sleeve, weave 16½". Remember, however, that take-up and shrinkage may be higher and can only be determined by sampling. It never hurts to add a bit more than you expect.

## Measuring While Weaving

Keep track of your progress while you are weaving by pinning a tape measure to one edge of the fabric. Use two pins; long plastic-headed pins or corsage pins work well. Plastic tape measures are hard to pin into—try to find one made from fabric. Space the pins a couple of inches apart. As you weave, remove the first pin and repin it close to the fell of the cloth. The other pin will hold the tape measure in place while you repin. Refer to the tape measure for placing weft stripes and inlaid patterns and checking your beat. Remember to add take-up and shrinkage to the finished measurements you want. And don't roll the tape measure up on the cloth beam!



Pin a tape measure to the weaving to keep track of each length you weave.

## Finishing and Future Care

"Finishing" can range from pressing with a warm iron to steam pressing to machine washing in hot water and tumble drying. To avoid surprises later, choose a finishing process that is more severe than the cleaning method you intend to use as you care for your garment. If you don't, you could accidentally shrink your perfectly fitting garment when you clean it later, or you could felt it or make the colors run.

Light steam pressing is a suitable finishing method if the piece will be dry-cleaned and lightly steam pressed later. This finishing is suitable for some synthetics, rayons, mixed fibers, and delicate pieces. Handwashing is next in gentleness along with machine washing for a short time on a gentle cycle, followed by hanging or laying flat to dry. Most fabrics can be finished this way, including wools and linens. For robust fabrics, machine wash in hot water on a regular cycle followed by tumble drying with heat. Sturdy cottons can be finished this way. Try finishing your samples to see the effects of washing and fulling. Many fabrics are improved by the proper finishing process. If you are unsure about caring for a garment that's already made, it's usually safest to dry-clean it.

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# Sewing

Handwoven fabrics have special characteristics you need to take into consideration when planning construction. They are often bulky, and they often don't take a press well. Seaming and hemming techniques should reduce bulk as much as possible. In addition, raw edges must be finished or well-secured.

## Tools and Equipment

If you already sew, you probably have the tools and equipment you'll need for making handwoven fabrics into garments. A sewing machine that does regular zigzag and multiple-stitch zigzag is nice, but straight stitch is all that's really necessary. It is important that the machine stitch evenly and smoothly and can feed bulky handwovens easily. Clean and oil your machine before starting a project—there is always lint to be removed from the feed dog under the presser foot. Use medium-sized needles, size 12–14 (80–90), for most handwoven fabrics. For heavy wools, use size 16 (100). Before starting a project, put in a brand-new needle and sew on some of the scraps leftover from cutting. Adjust the tension if necessary. If your machine doesn't have a ¾" mark next to the presser foot, make one and tape it to the machine.

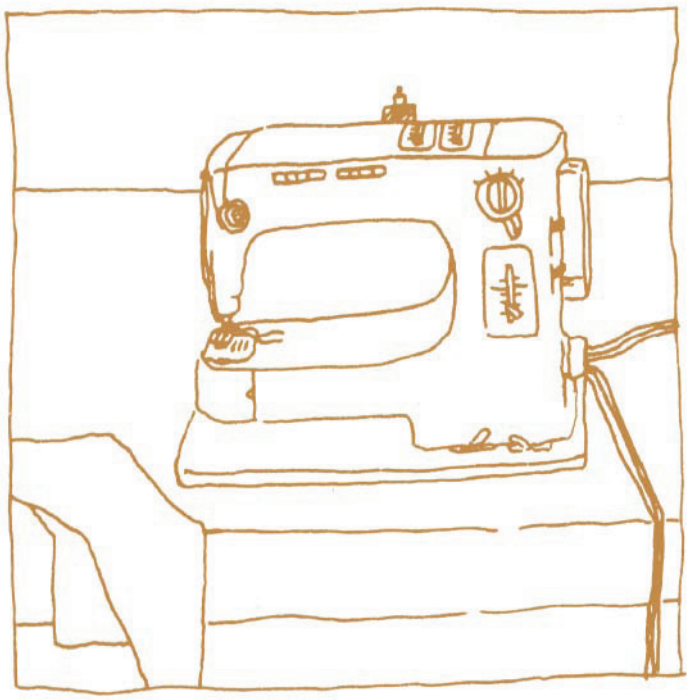
Next, you'll need a pair of shears for cutting out the fabric and smaller scissors for trimming edges. Sharp scissors reserved for cutting nothing but fabric are such a pleasure.

Pins are another necessity. Get some long pins with plastic heads so they won't disappear in bulky fabrics. And try not to sew over them!

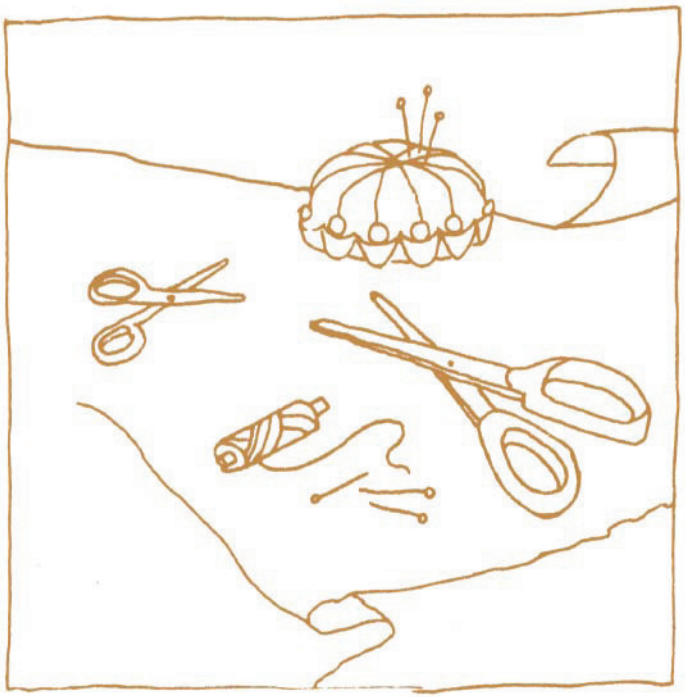
An iron is essential. Most irons have steam settings. For some handwovens this will be enough for sewing, but for wools you'll want to use a press cloth dipped in water and wrung out. An old clean linen dish towel works beautifully because it can take high heat and moisture without leaving lint stuck to the soleplate.

You will also need some additional pressing aids for working with wool. A tailor's ham (it got its name from its shape) makes a curved surface for pressing shaped areas such as necklines, collars, shoulders, and hips. A terry-cloth towel tightly rolled and pinned can substitute.

A tailor's clapper is a necessity for working with wool. It is a rectangular block of hardwood that is "clapped" onto a freshly steamed area to flatten it. Seams, especially when they cross each other, can be too thick to fit under the presser foot. A few



Clean and adjust your sewing machine between projects.



Use shears for cutting out pattern pieces, smaller scissors for trimming and clipping.

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seconds of steam and the clapper takes them down in size. It's also good for flattening hems.

Add to this list any items you like to use such as small rulers, needle threaders, handsewing needles, and a thimble.

## Cutting

Cutting into handwoven fabric for the first time is often traumatic. Your mind fills with visions of raveling and disintegrating fabric following each cut of your scissors. You conjure up remedies such as gluing edges and stitching several times to keep the edges intact.

Actually, most handwoven fabrics don't ravel to smithereens. Some are even very stable and don't ravel at all, particularly woolens that are well-fulled. Others ravel to varying degrees depending on the slipperiness of the yarns and the particular weave structure. In addition to all the techniques described below (and especially with fabrics that are highly likely to ravel), you can fuse fusible interfacing either to the entire fabric before you cut or to selected pieces.

Many handwovens can be cut and handled the same way as ordinary fabrics, with extra care to avoid roughing up the edges. With a little experience, you'll soon be at ease with cut edges and will be able to judge which ones need stabilizing. Curved and angled edges often need reinforcement against stretching. Edges that will be sewn last, such as the lower edges of a garment, may need to be stitched to keep them stabilized until they're sewn.

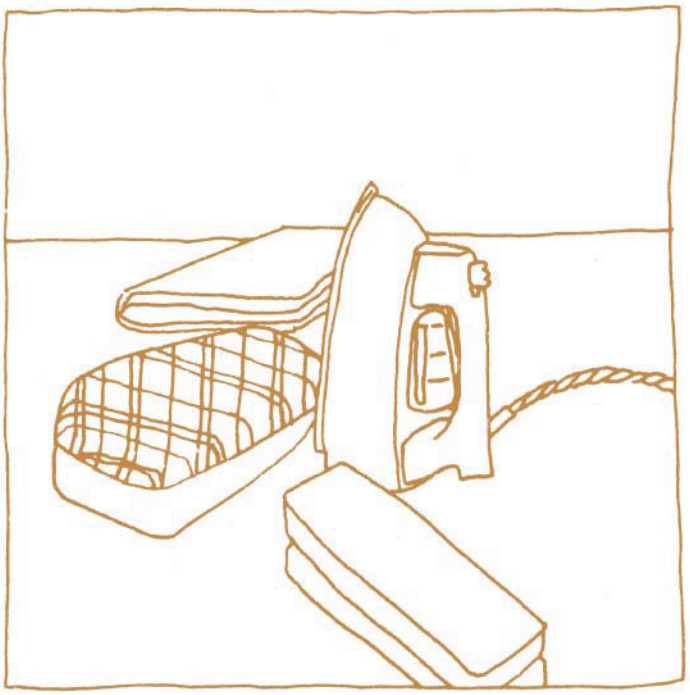
A row of straight stitching is often recommended as a first step because it keeps the edge from stretching out of shape. The edge can then be machine zigzagged. Later, you'll modify this method to stitch edges selectively according to the way they'll be used. You'll zigzag or serge some edges, straight stitch others ¼" from the edge or right on the seam line when the curved edge will be turned into a hem, and leave some edges unfinished for later trimming in enclosed seams.

For your first experience cutting and sewing handwovens, choose between the safe and the super-safe approaches. The safe approach is to cut out the pieces, transport them carefully one at a time to the sewing machine, and straight stitch ¼" from all edges. (If you have a serger, you can use that instead.) You can then finish the raw edges as you construct the garment by zigzagging, binding, or turning under and hemming.

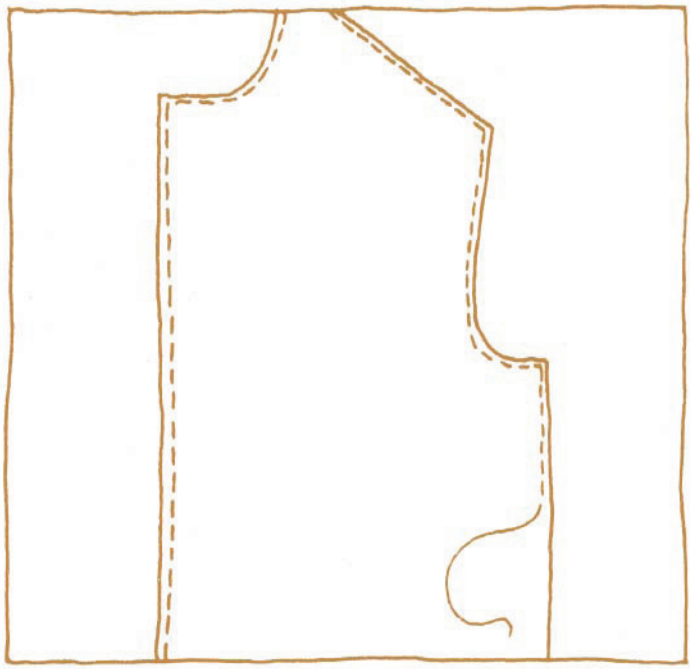
The super-safe approach is to place the pattern pieces on the fabric and hand baste around each on the cutting line. Before cutting, machine stitch just inside the basting, being careful not to pull the fabric on the bias, which would distort angled and curved edges. After stitching, steam-press the fabric lightly to smooth it and then cut on the basting. If the large piece of fabric is difficult to handle at the machine, cut some of the pieces apart before machine stitching.

Because of the bulk of many handwovens, it's often easier to cut out one layer at a time. To cut two identical pieces such as sleeves, cut one, flip it over, and place it on the next piece of fabric, matching the warp and weft patterning exactly before cutting.

For pattern pieces cut on a center fold, lay the foldline along a warp (or weft in a crosswise layout). Since handwovens are coarser than commercial fabrics, you can usually follow a yarn easily. Pin the pattern to the fabric with an extra pin placed

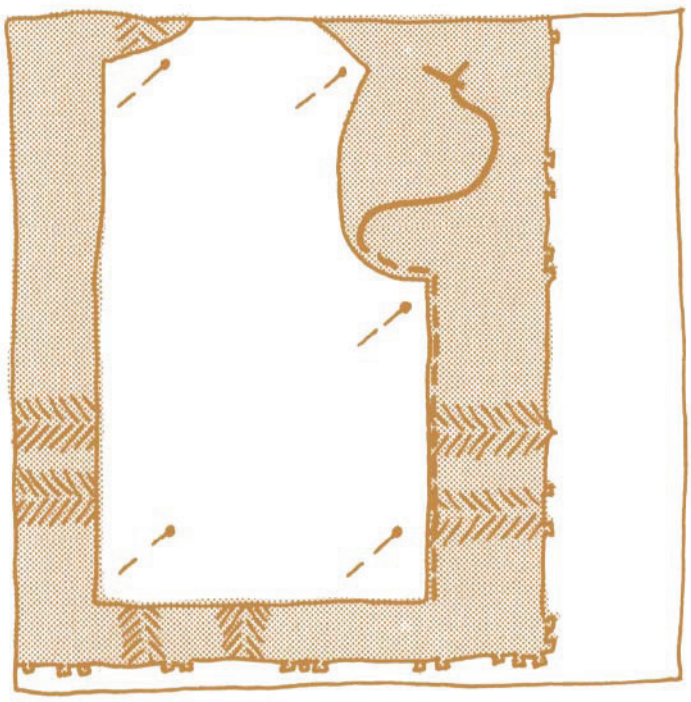


For steam-pressing wool—use a tailor's ham and clapper and a press cloth.

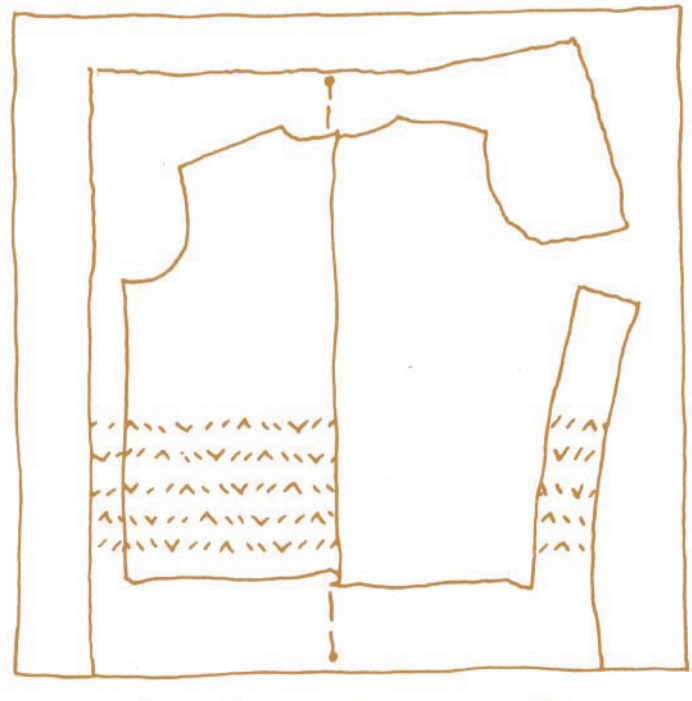


Stabilize the cut edge by straight stitching ¼" from the edge.

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For fabrics that ravel, baste around pattern piece and machine stitch before cutting.



Match pieces by cutting one side and flipping it to use as a pattern for the other side.

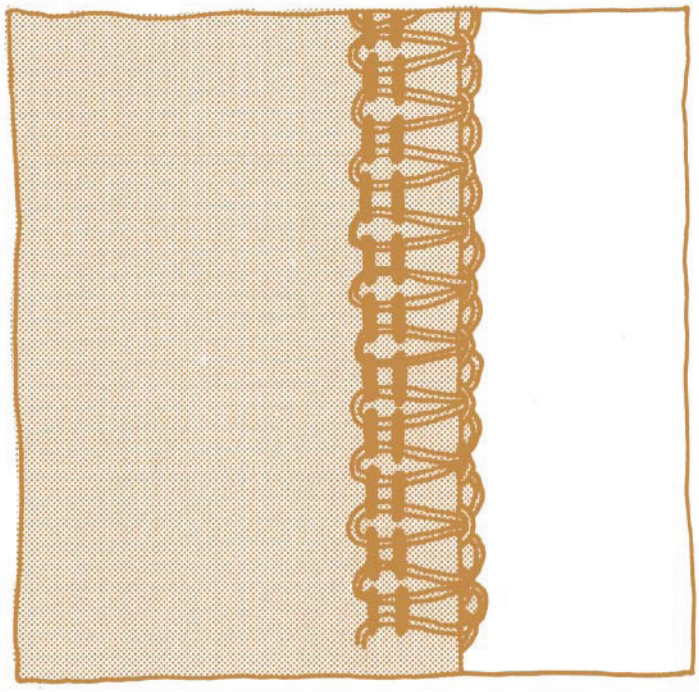
vertically in the fabric toward each end of the fold to help you line up the pattern in the next step. The pins will also help you remember not to cut along the fold. Cut around the pattern except the fold edge. Unpin the pattern and flip it over, matching the center front fold to the pins. Check all the edges to see that the pattern is placed on the fabric exactly as it was on the other side. If the fabric is thin enough, you may want to flip the cut fabric to the other side instead. As you cut each piece, mark the face with a loop of brightly colored thread or a safety pin.

Here are a variety of edge finishes, seams, and hems. You'll need to choose which one fits the garment type and fabric thickness.

# Finishes for Seam Allowances

## Overlock

Serging on an overlock machine trims and oversews the edge in one step. Handweavers use a ¾ thread serger that has a safety stitch in the middle of the overlock to give more stability to the edge. The stitch width and length can be adjusted to make the edge secure. A serger makes quick work of sewing with handwovens—it's the fastest way to finish the raw edges of seam allowances.



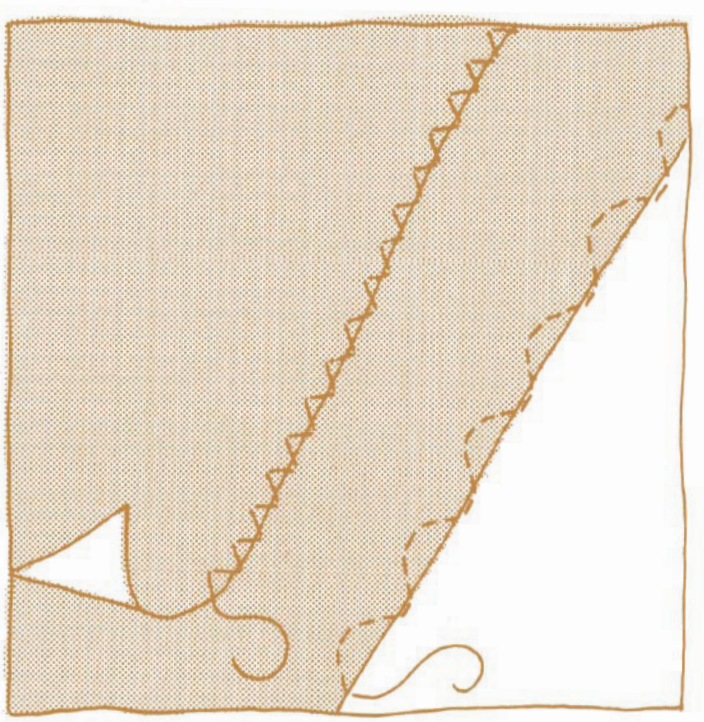
Serging with a ¾ thread overlock neatens and secures cut edges.

## Zigzag and Stepped Zigzag

Zigzag is usually worked over a cut edge, with the needle piercing the fabric and then swinging off the edge for the other stitch. Stepped zigzag (multiple-stitch zigzag) takes more stitches in its swing over the edge. Adjust the stitch length of

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either so that the zigzag secures the edge but don't shorten it so much that it looks like a buttonhole stitch. After stitching, cut off any yarns that have frayed.



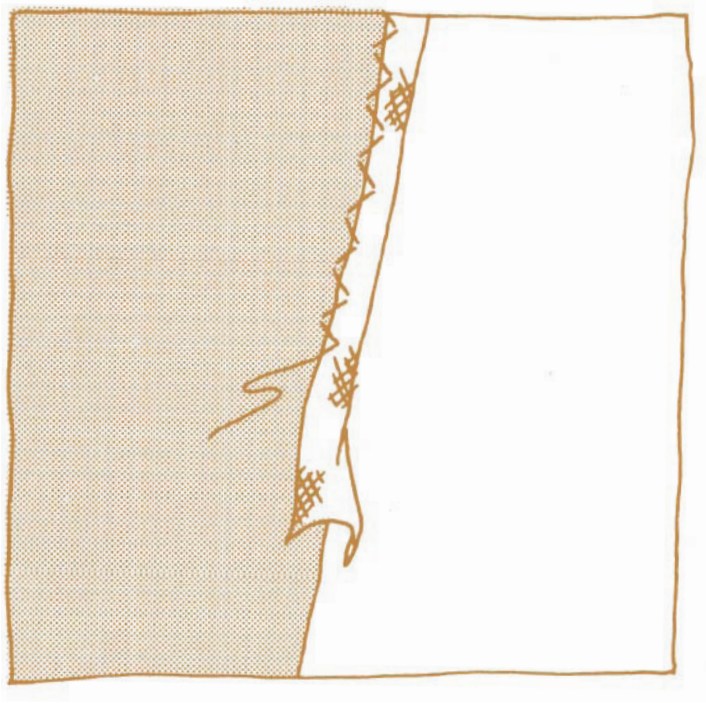
Regular zigzag and stepped zigzag keep edges from raveling.

## Sheer Seam Binding

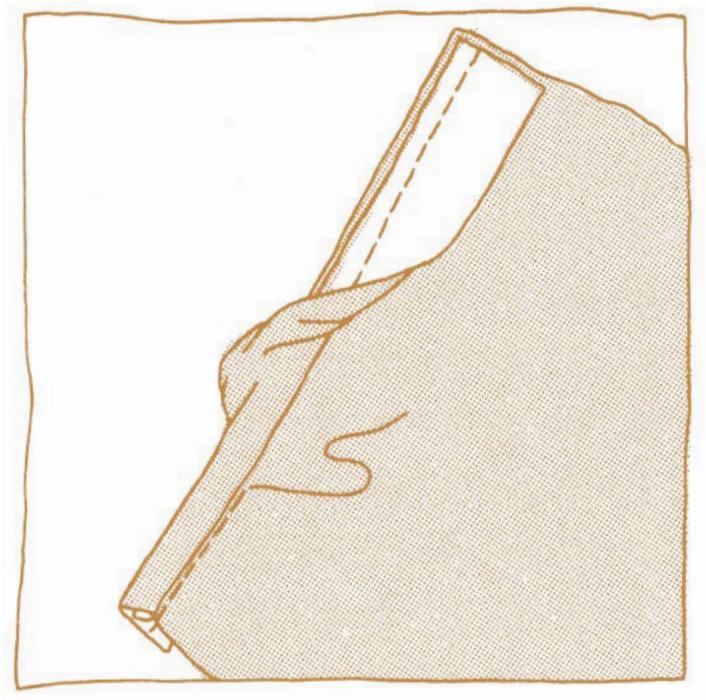
Edges can be bound with a sheer seam binding such as Seams Great or Seam Saver. Both of these products are available in two widths and a small range of colors. The wider width is better for bulky handwovens; it's exactly twice as wide as the narrow width, so you can cut it in half for thin fabrics. When pulled slightly, it curls around the raw edge and can be stitched in one pass. Zigzag stitch catches the edges more consistently than straight stitch.

## Hong Kong Finish

The most elegant way to finish raw edges is to bind them with bias strips cut from lining fabric in a method called Hong Kong finish. Use a matching or coordinating color of thin fabric compatible with the handwoven fabric. Cottons, linens, and rayons are good together; polyester and silk are good with wools; and silk is best with silk. Cut bias strips about 1" wide for thin fabrics to 1½" wide for thick fabrics. With right sides together, sew one bias strip to a seam allowance or fabric edge ¼" to ⅜" from the raw edges of both. Fold the bias strip over to the underside of the seam allowance or fabric edge to enclose the raw edges and, on the right side, stitch in the ditch of the seam that joined them. Trim off the extra bias fabric right next to that seam on the underside. (Repeat for the other seam allowance if used as a seam finish.)



Sheer seam binding encases raw edges.



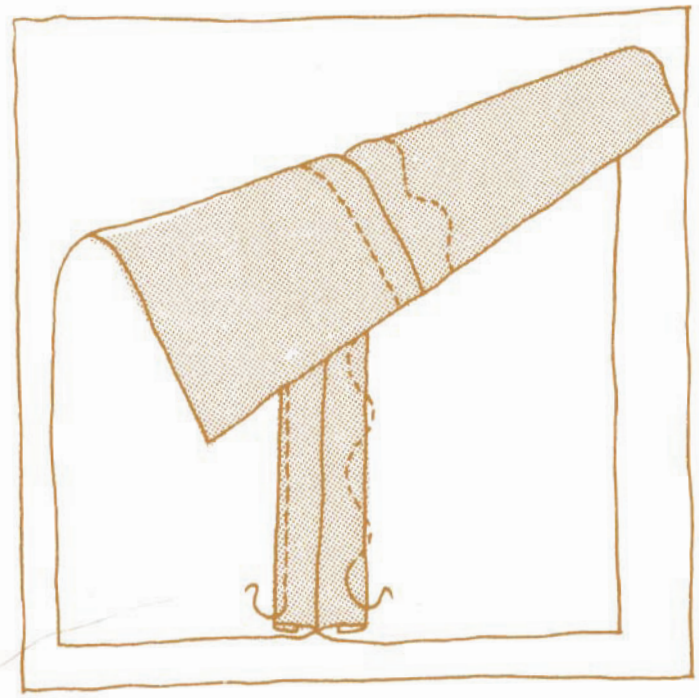
Hong Kong finish is an elegant way to finish an unlined jacket.

Other finishes for the edges of seam allowances include turning under ¼" and edge stitching by machine, turning under and handsewing to the inside of the garment, and turning under and machine stitching to the garment—in this last, a line of stitching will show on both sides of the seam on the right side of the cloth.

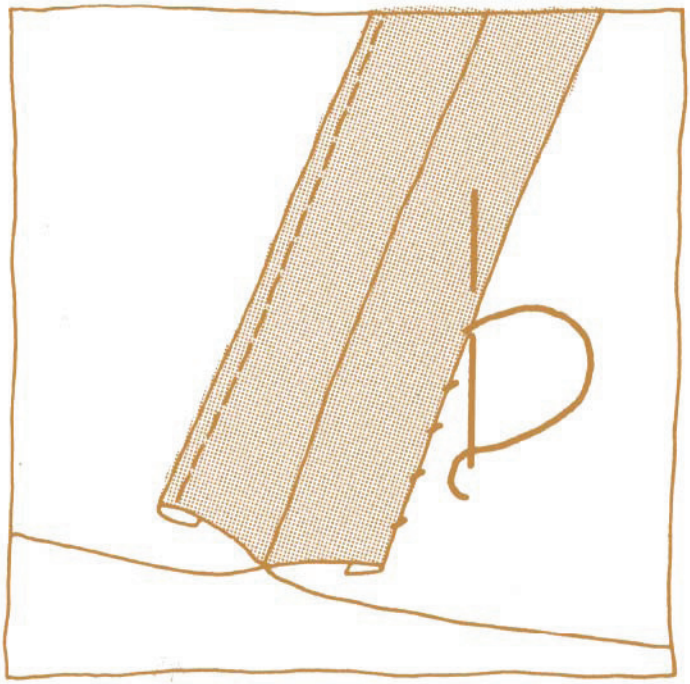
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## Seams

Although pattern companies usually use ⅝" seam allowances, it's useful to plan ¾" (⅞") seam allowances that can lie flatter with bulkier fabrics. Think creatively about seams. Sometimes working them to the outside instead of inside makes them a design element, and their bulk is not as noticeable. Seams to the outside are especially nice for fabrics that look different on each face.



Machine stitching seam allowances is one way to keep them flat.

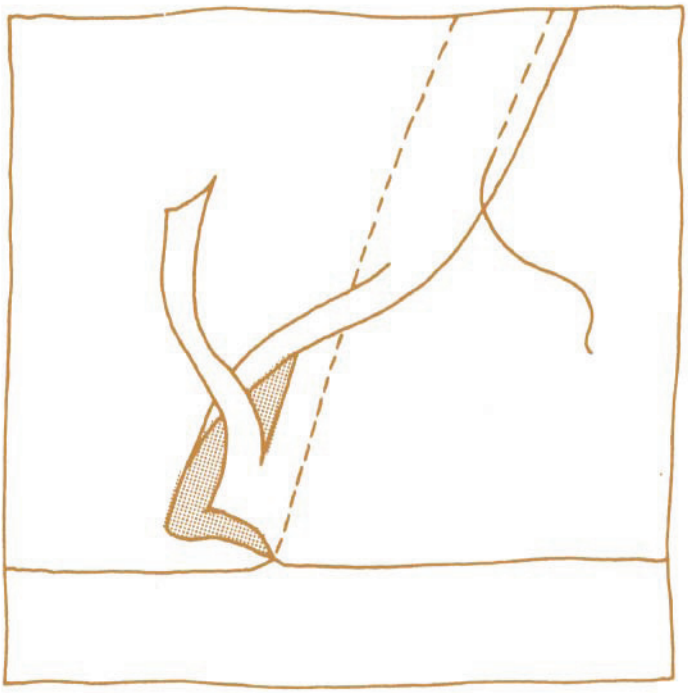


Finish the edges either before or after sewing a regular seam.

*Here are some appropriate seams for medium to heavyweight handwovens:*

## Regular Seam

Place right sides together and stitch through both layers with a ¾" seam allowance. Press the seam open. If the seam allowance needs help in lying flat, it can be slip stitched invisibly to the garment. Use one of the edge finishes on the raw edges, preferably before stitching the seam.



A modified flat fell seam is good for bulky wools.

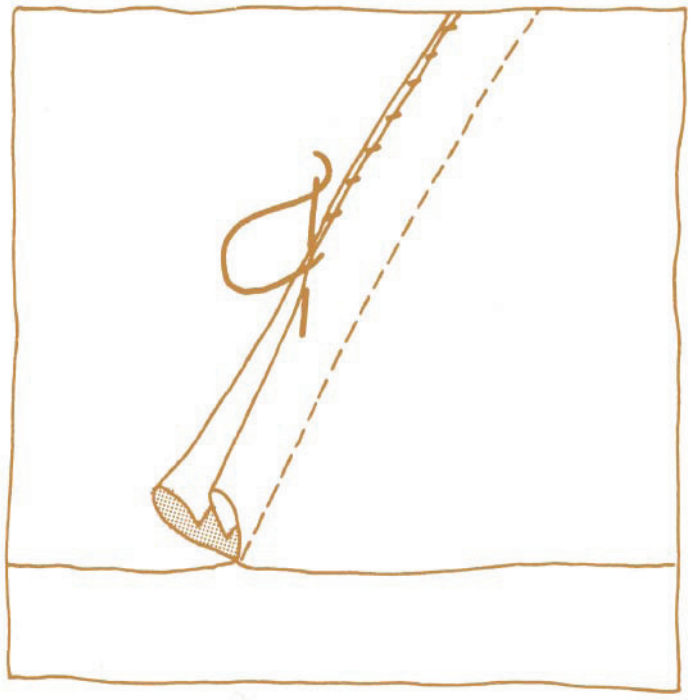
## Modified Flat Fell Seam

Stitch the seam as for the regular seam, but press both seam allowances to one side. Trim the underneath seam allowance to half its width and finish the edge of the upper seam allowance. Machine stitch through the upper seam allowance and the garment—a line of stitching will show to one side of the seam on the right side. Note that this seam needs an edge finish on the untrimmed edge.

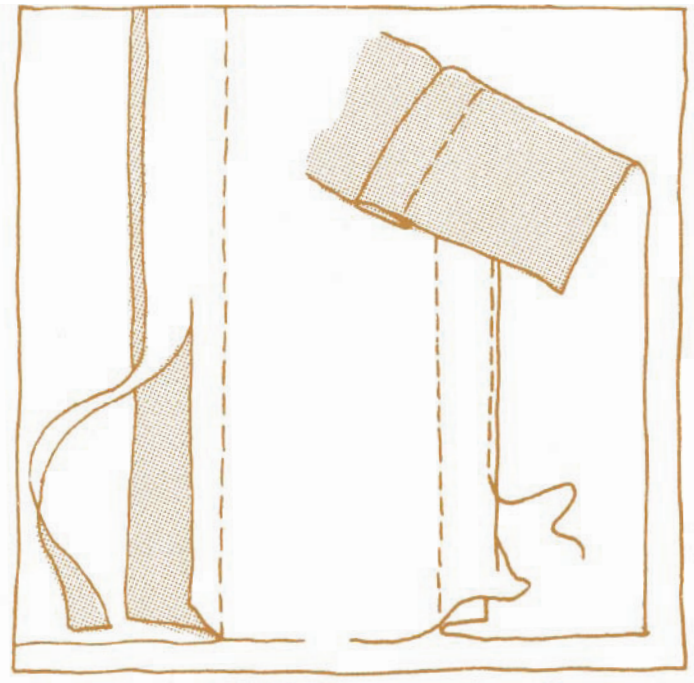
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## Modified French Seam

Stitch the seam as for the regular seam. Turn in the edges of both seam allowances ¼" toward each other and handsew the folds together. The folds can also be machine stitched together with straight stitch or zigzag. This seam requires no edge finish, but a line of stitching close to the raw edge makes turning easier.

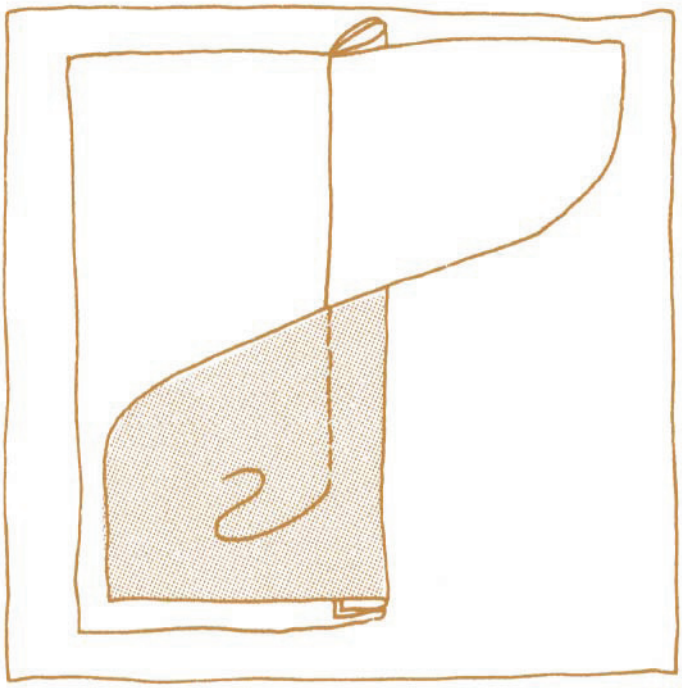


A modified French seam is handy for armhole seams.



A flat fell seam is flat on both sides.

*Thin handwoven fabrics for blouses and dresses can be sewn with ordinary seams. Here are some seams for thin handwoven fabrics:*



A French seam is nice for blouses and dressy clothes.

## Flat Fell Seam

Stitch the seam as for the regular seam, but press both seam allowances to one side. Trim the underneath seam allowance to half its width or a little less. Fold the edge of the upper seam allowance around the trimmed seam allowance and machine stitch through all layers close to the fold. A line of stitching will show to one side of the seam on the right side.

## French Seam

With reverse sides together, sew with a ¼" to ⅜" seam allowance. Press the seam allowances open, turn the fabrics right sides together encasing the seam allowances, and stitch again with a ⅜" seam allowance. The width of the seam allowances can be adjusted according to the weight of the fabric.

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## Hems

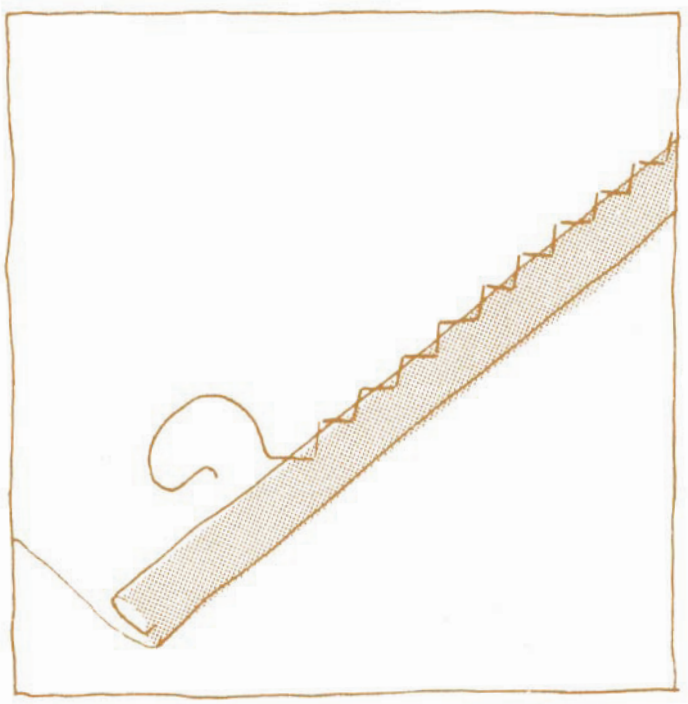
Although both wide and narrow hems are useful, narrow hems have a definite advantage in reducing bulk. A wide hem adds weight and importance to an edge; it's usually best for hems of coats and jackets.

## Wide Hem

Use an edge finish on the raw edge of the hem. Turn under the hem 1" to 1½" and handsew or machine stitch through both layers. Try zigzag or stepped zigzag; sometimes they blend into the fabric better than straight stitch.

## Narrow Straight Hem

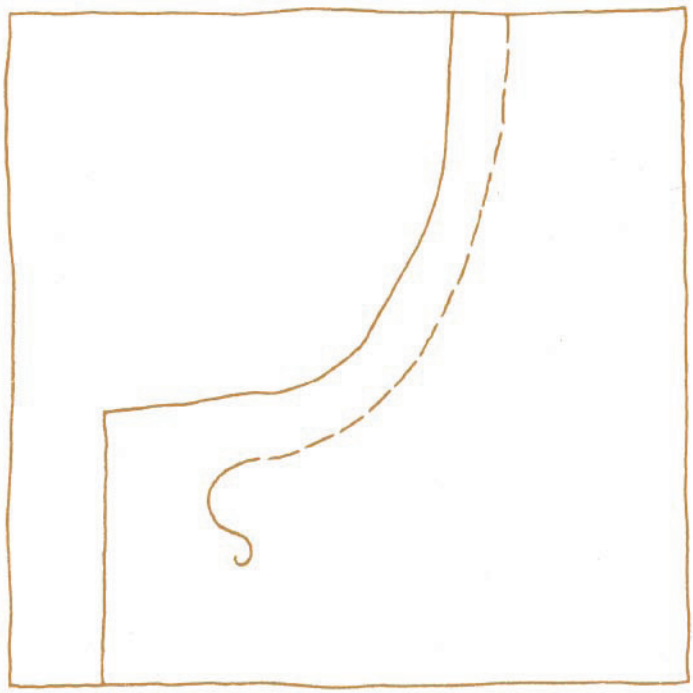
Turn under ⅜" twice and handsew or machine stitch. (On thin fabrics, trim off ¼", then turn under ¼" twice.) Try stepped zigzag on this one, too.



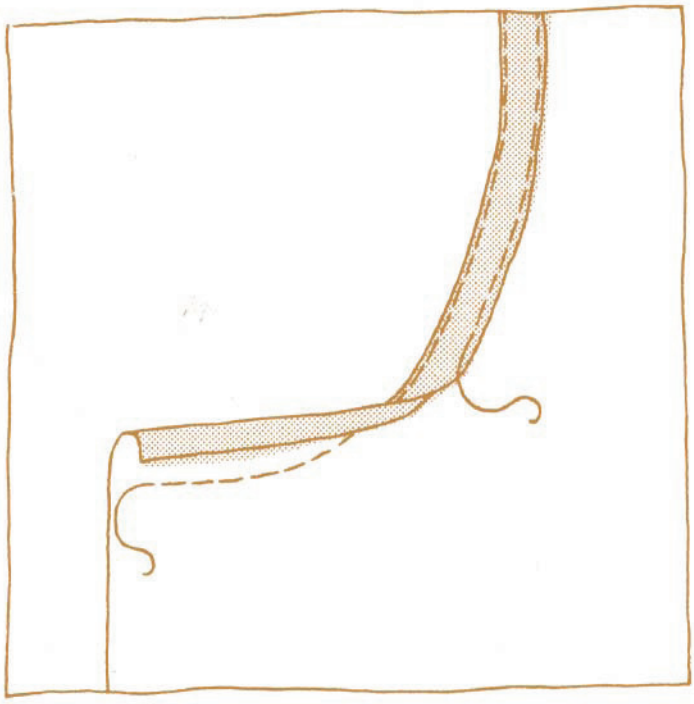
A narrow straight hem gives a nonbulky edge.

## Narrow Curved Hem

This is primarily for curved necklines. It is worked on a raw edge without an edge finish. Stitch a line of straight stitch just outside the seam line where the edge of the hem will be. On the ironing board, turn under ⅜" twice, so the stitching is just inside the edge. Pressing as you go, coax the hem around the curves. Occasionally (very occasionally) the edge may need to be clipped in center front and back where the hem is on the straight grain. Machine stitching is usually best to finish this hem. (On thin fabrics, trim off ¼", then turn under ¼" twice.)



Narrow curved hem—first, stitch along the seam line, not ¼" from edge.



Narrow curved hem—next, turn the hem and stretch it around the curve.

## Bias Fabric Binding

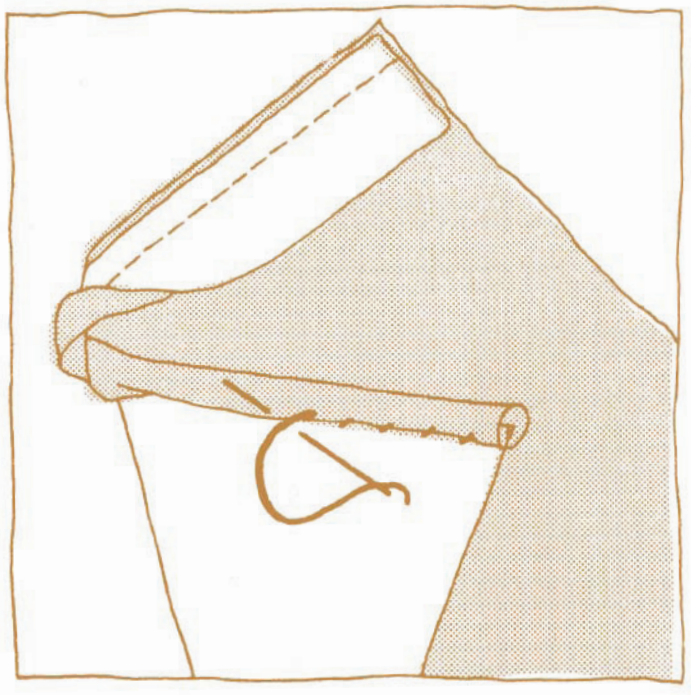
This method finishes the edges of jackets, coats, ruanas, and other garments. It looks like a corded edge both inside and

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out. When it's done well, both sides look identical with no stitching visible on either side.

Cut strips from purchased or handwoven fabric. Strips cut on the straight grain can be used for stability in binding straight edges, but bias strips are essential for curved edges. Gauge the width of the strips by cutting and sewing some samples. Sew the strip to the fabric with right sides together and a ¼" seam allowance. On some edges, such as necklines, you may have to trim away the original seam allowance since the cut edge of the fabric will be the edge of the finished garment. If you don't cut away the original seam allowance, the neckline will be too small.

After sewing, fold the strip around the edge of the fabric, turning under the raw edge of the strip so the fold meets the stitching line on the reverse side. Handsew the fold to the stitching line.



Bias fabric binding is an elegant edge in wool, suede, or kid.

## Ideas for Combining Techniques

Handwoven fabric can be the most important design element of the outfit or just the starting point for an ensemble that includes many techniques such as knitting, crochet, embroidery, and other textile techniques. Some handweavers like these techniques for finishing edges, making seams and joinings, creating shape through gathering fullness—in other words, to finish the garment while showcasing the handwoven fabric. Other handweavers use their fabric as a blank canvas for a lively decorated surface. Their fabric is the starting point for embellishment.

Keep in mind the effect you want to achieve. Decide which technique is meant as the focal point and which should be the background. Sometimes a trim meant to finish an edge can become so overpowering it detracts from the fabric itself. For example, an elaborate crocheted edge could detract from a highly patterned fabric. On the other hand, handwoven plain weave can be background for extensive embroidery.

## Crochet

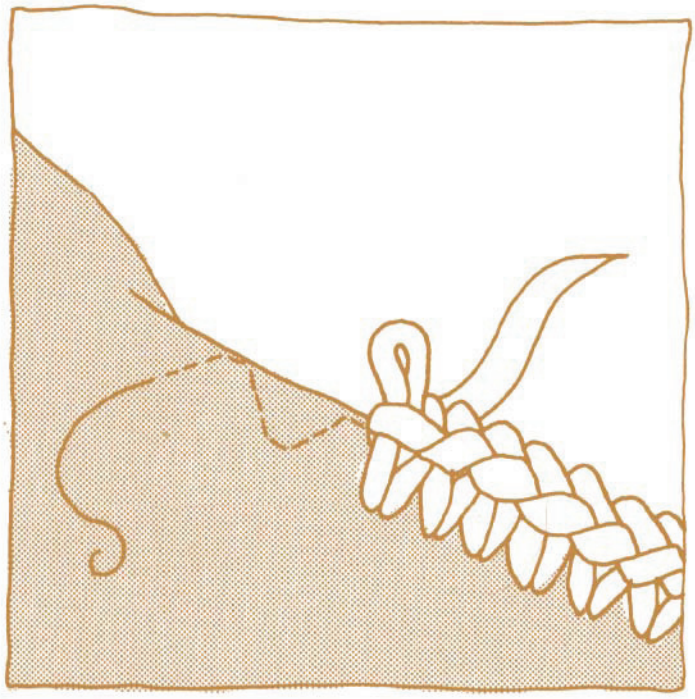
Crochet is frequently (sometimes too frequently) used to finish edges of handwoven fabric. The edge of the garment is turned under and machine stitched prior to working the crocheted edge.

After the initial over-the-edge row of single crochet, it is often attractive to work some more rows. Most garment edges are continuous (the edge of a sleeve, neckline, pull-over edge), and successive rows can be added going the same direction. Bosnian crochet is done in this manner, working several rows in the same direction, picking up only the back loop of each stitch.

Other easy variations include crocheting three times in the same stitch and skipping the next three stitches.

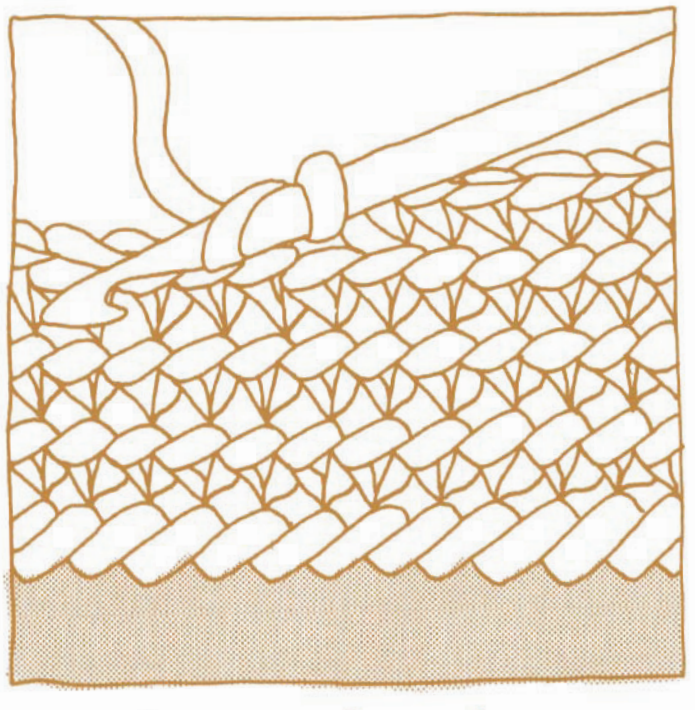
Picots give a lacy look to the final row of crochet. They are worked in a row of single crochet by stopping at intervals to chain a few stitches before continuing.

Another variation for the final row of an edge is to work it in the opposite direction, from left to right, to twist the stitches and make an edge that looks knotted.

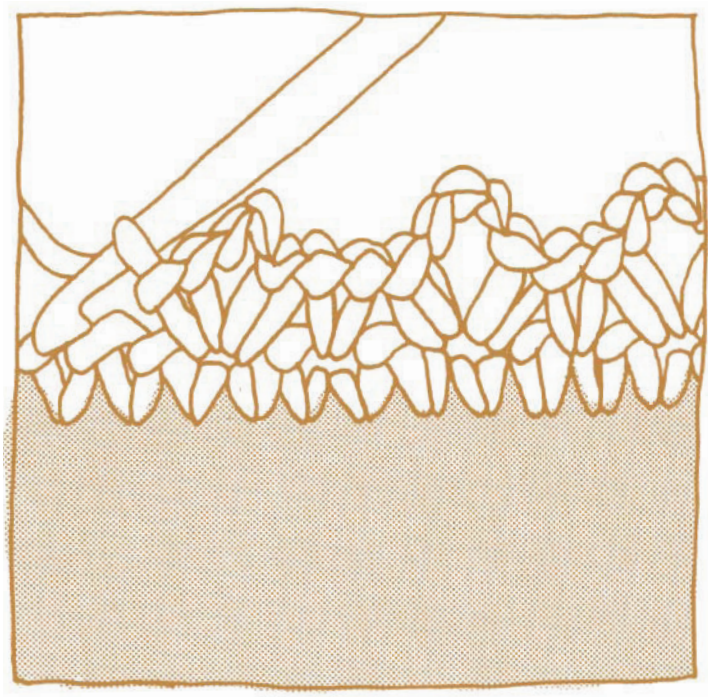


Prepare an edge for crochet by turning and zigzagging.

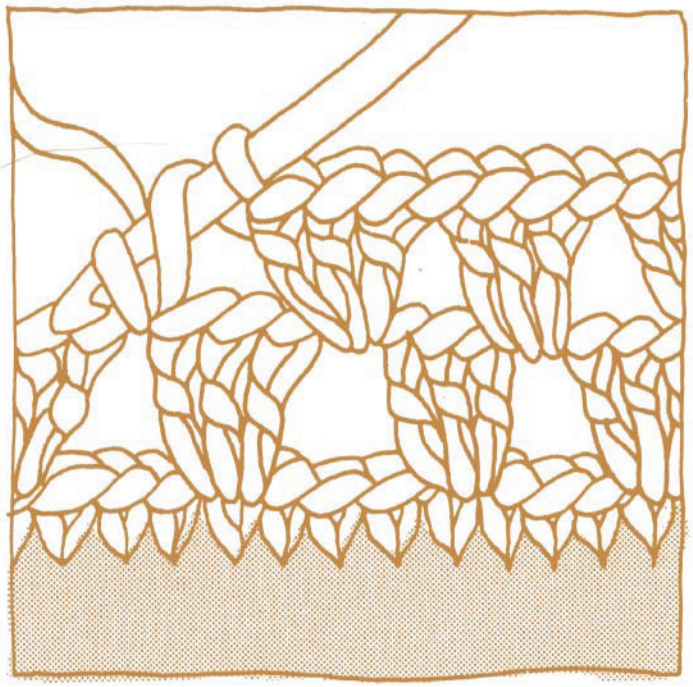
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Bosnian crochet gives a flat finish to continuous edges.



Picots give a lacy look to an edge.



Crochet three times in the same stitch and skip the next three stitches.

## Knitting

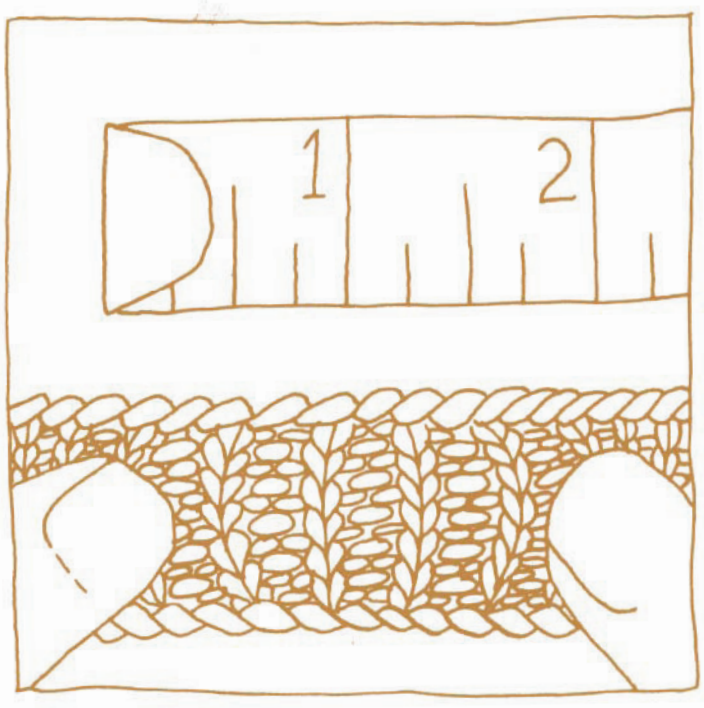
Stockinette stitch and rib knitting are very compatible with handwoven fabric. Because knitting is softer and bulkier than woven fabric, it is often better to use a finer yarn than was used for weaving, especially if the fabric is plain weave. Several yarn companies make different weights of yarn in the same colors that are perfect for this combination of techniques. Make some samples with different needle sizes to find the right ones; smaller is often better here, too.

The best way to add ribbing to a handwoven garment is to knit the ribbing separately and sew it on by hand or machine. Knitting it separately assures you of the right degree of stretch. It's also much easier to knit and attach it evenly than to pick up the right number of stitches evenly.

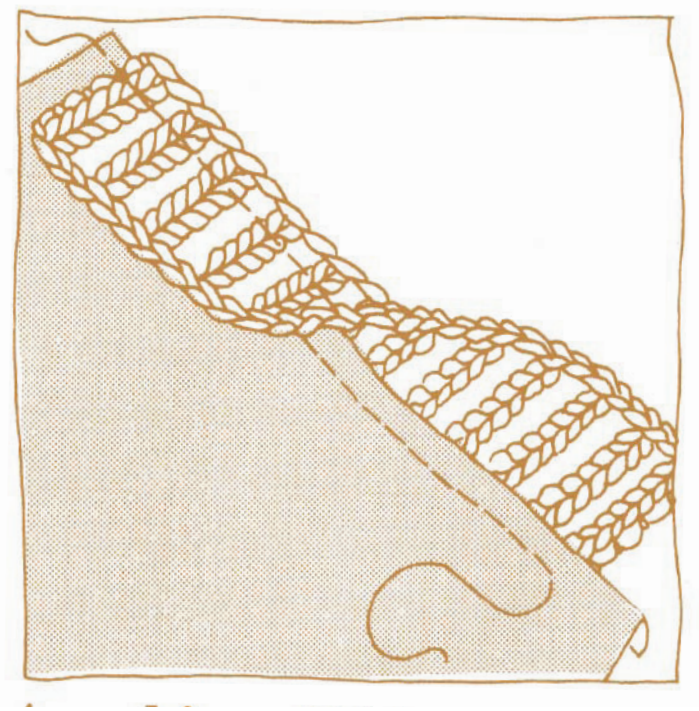
From the sample you've knit, determine the number of stitches per inch. Since you want the ribbing to stretch, measure with the sample moderately stretched, about half of its full stretch. To figure out how many stitches to cast on, multiply the number of stitches per inch in the stretched sample by the distance you want the ribbing to cover. Cast on loosely, work the ribbing in knit one, purl one or knit two, purl two, and cast off loosely. Sew the ends of the ribbing together by hand using the tail of yarn. The ribbing can be mitered to turn corners if you place decreases above each other in successive rows.

Here are two easy ways to attach ribbing to a garment. With both methods, distribute the ribbing evenly by dividing it into

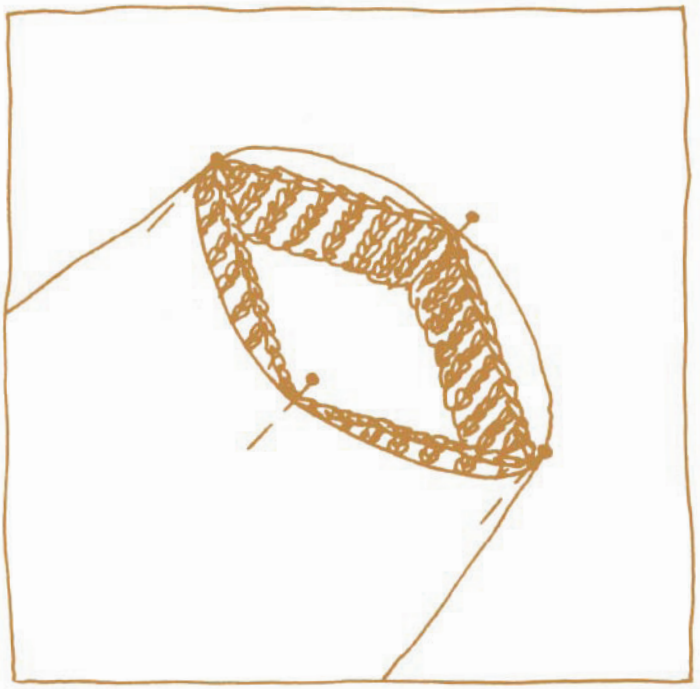
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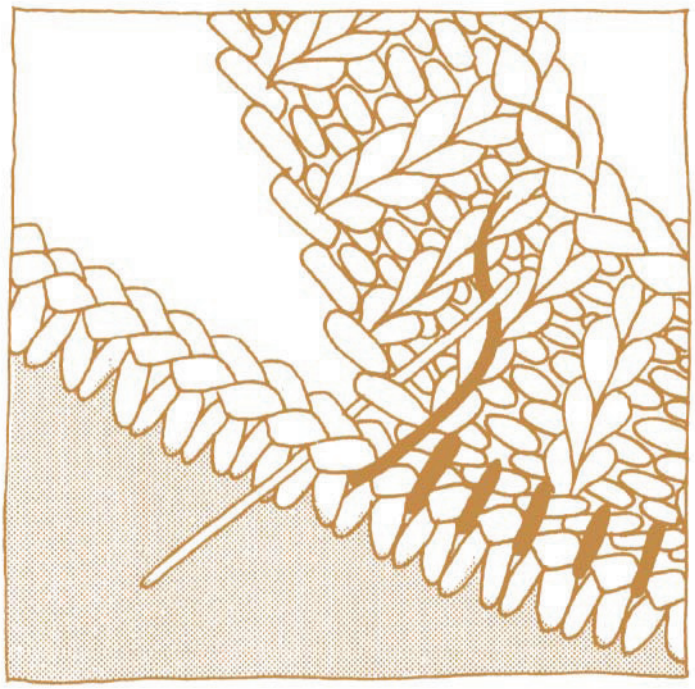

Stretch a sample of ribbing when calculating the number of stitches to cast on.



Attaching ribbing by machine with a modified flat fell seam leaves no raw edges on the inside.



Before attaching the ribbing, divide each edge evenly.



Attach ribbing by hand to an edge finished with a row of crochet.

quarters marked with pins. Divide the garment edge into quarters also. Pin the ribbing to the garment, matching the quarter divisions. Between pins, stretch the ribbing to fit the garment.

The first method is machine-stitched in a modified flat fell seam. To work it, place the ribbing and the garment right sides together. Position the edges so that the ribbing extends about ⅛" beyond the edge of the garment. Sew with a ¼–⅜" seam allowance. Fold the edge of the ribbing over the garment edge and stitch through the ribbing and the garment—a line of machine stitching will show on the right side. You can do the second stitching

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by hand if you don't want the stitching to show.

The second method attaches the edge of the ribbing by hand to a row of crochet encasing the garment edge. To work it, turn under the edge of the garment ¼–⅜" and machine stitch. If this is a neckline edge, trim the seam allowance before turning under so the neckline won't be too small and stitch a second time for reinforcement. Work a row of single crochet over the folded and stitched garment edge, covering the raw edge on the reverse side. Thread a blunt needle with yarn and sew the edge of the ribbing to the crochet edging.

Another attractive knitted edge is bias knitting. It is knit separately and sewn to the garment with yarn; usually it's folded over the edge of the garment to enclose the raw edge like a binding. To work, cast on a number of stitches according to the width you want.

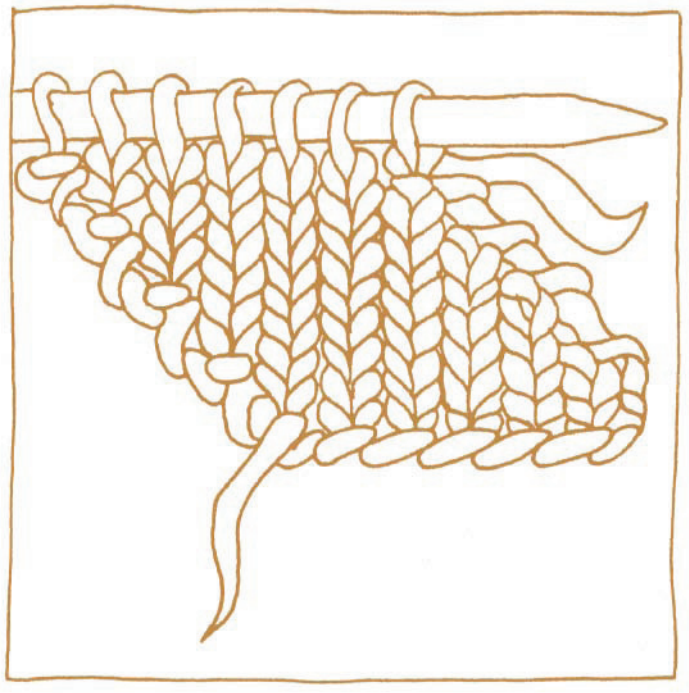
Row One: Knit one, decrease one by knitting two stitches together, knit until there are two stitches left, increase one by knitting in the front and back of the next stitch, knit the last stitch.

Row Two: Purl across without increasing or decreasing. Repeat these two rows for the desired length. After you've finished knitting, shape the binding to follow curved edges by steam pressing. The binding can be knit to fit the point of a V-neck by working increases and decreases.

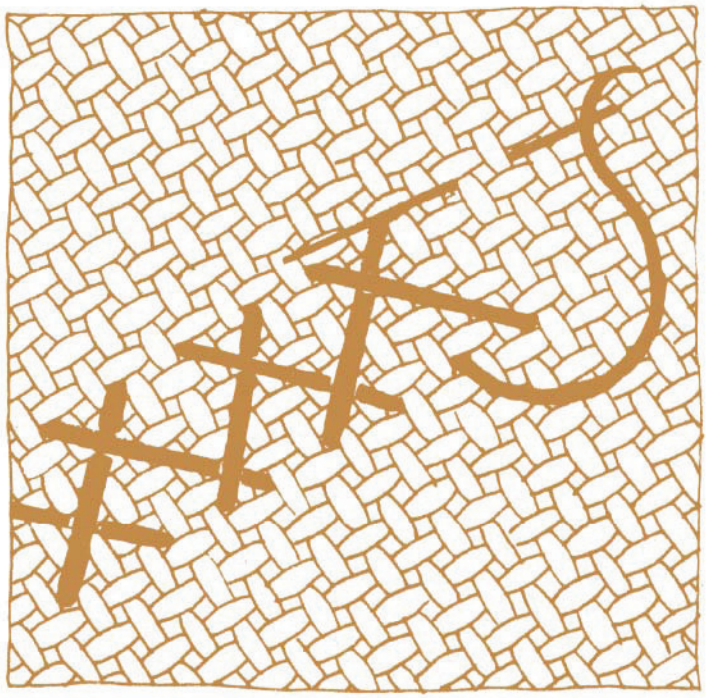
## Embroidery

Embroidery possibilities range from finishing raw edges to decorative embellishment. Most embroidery on handwoven fabric is done with yarn threaded in a blunt needle that slides between yarns instead of piercing them. Counted-stitch techniques are particularly well-suited to handwoven fabrics. The fabric is coarse enough to be easily worked and the regularity of the stitches matches that of the weaving.

Outline stitches, satin stitches, blanket stitches, herringbone stitches, and feather stitches can be worked along edges to ornament, reinforce, or conceal raw edges. Embroidery books will give lots more ideas.



Bias knitting makes a smooth binding.



Herringbone stitch can be both decorative and functional.

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