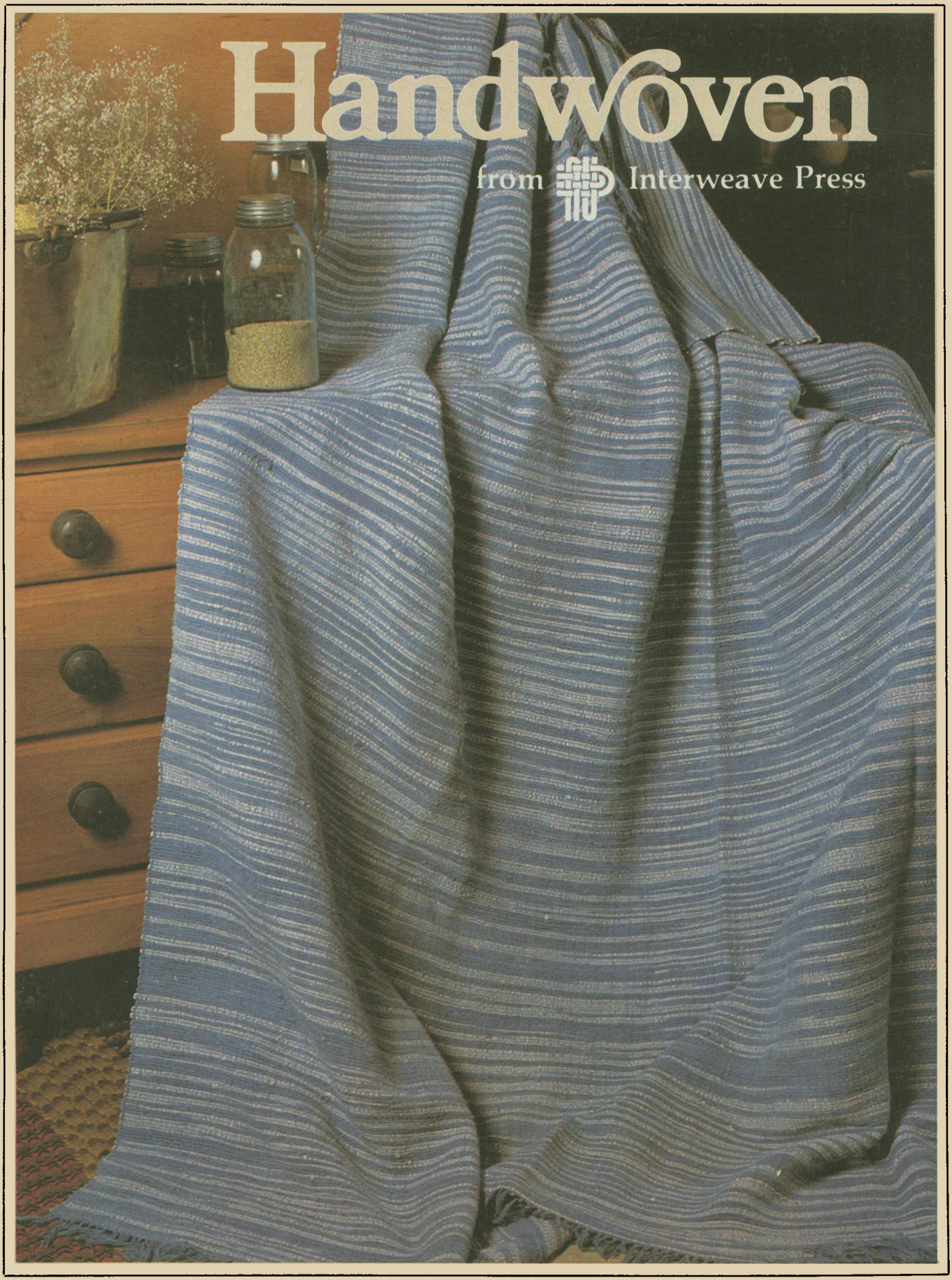

volume II, number 3
May, 1981

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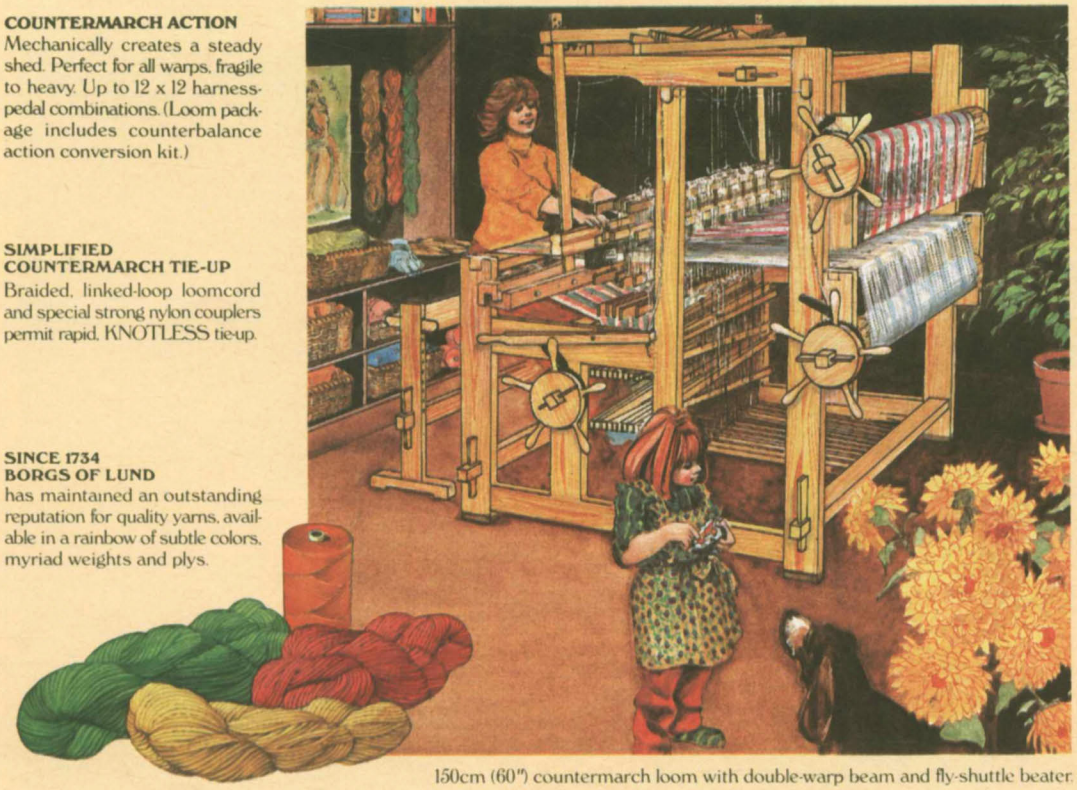

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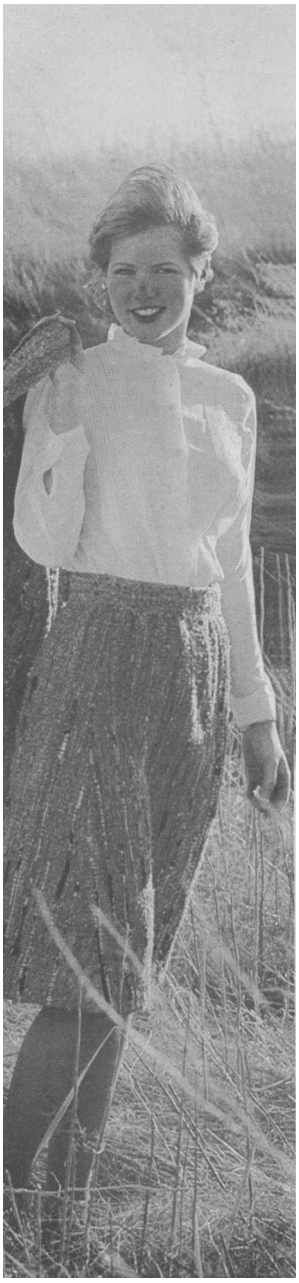
Handwoven

from Interweave Press

volume II, number 3
May 1981



Features

Regular Features

Departments

Projects

ABOUT THE COVER: A seamless double-bed sized *catalogne* —hit-and-miss rag weaving— woven in Wooton, Quebec. From the collection of Lolah Mann. Setting: Antiques at Harmony Hill. Photo by Joe Coca.

EDITOR'S PAGE

The last time I had a genuine case of writer's block was in graduate school, x-teen years ago, working on my thesis. I had pontificated for chapter after chapter on William Faulkner's poetry and was feeling pretty tickled with myself when my adviser, a sweet gentle Papa of a man, said, "But Linda, what are you going to write about the problem of Faulkner's sexual imagery?" Problem? Write?! Child of the '50's that I was, I was struck dumb, and spent literally weeks mentally squirming and doodling away the margins of pad after pad of paper. The problem was only partly naivete; mostly it was a sudden inability to focus, organize and articulate.

Well, somehow I got through that one, and have managed to keep pushing my pencil all these years since—until this issue of HANDWOVEN. I have to confess that it's been such a bad case that I actually sent the magazine to press with the editor's page blank, telling the printer I'd fill it up with *something* on the final proof.

What I've figured out in my days of borrowed time waiting for that blank proof page to come back, is that we probably all go through spells where it's neither possible nor even reasonable to produce anything coherent with a beginning, middle and end. I'll bet we all experience times when we get so stimulated with new thoughts and experiences that our minds just splinter off in a dozen directions. Maybe you've had this happen in your weaving—suddenly the choices seem so overwhelming that you can't bear not to try everything at once. Often, this initiates a period of frantic sampling and experimenting, and while the end result is a lot of bits and scraps rather than one grand *chef d'oeuvre*, it's still a good use of time and energy. In a way, it's like planting time as opposed to harvesting time.

So having rationalized my state of mind, what I'd like to share with you is a few odds & ends, bits & pieces, flotsam & jetsam, if you will. Remember not to watch for a July issue, because there's not one.

Til September, happy weaving —

LINDA LIGON, editor

ITEM:

Much has been made of Sheila Hicks' laundry (those mammoth piles of hospital sheets that she installed as her "tapestry" entry in the last Lausanne Biennale); comments have run the full range. Focus has been largely on the magnitude of her piles. More interesting to me, and I'll bet to Sheila too, was the fact that the sheets were very old, very used cotton ones that had been immaculately maintained with careful hand darning over a period of many years by nuns in provincial France. So they weren't just sheets; they were examples, mountains of examples, of good cloth enriched many times over with love, devotion and skillful but unassuming handwork. Question: what were the sick Frenchmen doing for bed linens while the show was on? Question: when was the last time I hand-darned anything, and why not?

ITEM:

For the past year or so it seems every magazine I pick up has ads and articles about knitting machines. I've seen great wall hangings, great one-of-a-kind garments, patterns in grocery store craft magazines—we even have a pattern for a really handsome machine-knit jacket using handspun yarn in this issue (p. 62). In an effort to understand what this was all about, and how or if it related to weaving, I bought an old knitting machine and spent a few days teaching myself how to use it. What I found was 1) It's every bit as complicated to learn as weaving. 2) The machine is a lot harder to understand and a lot less friendly than a loom. 3) You can do a huge variety of things on a k.m., but it's nowhere near as versatile as a loom, or as loveable. 4) Actual production time making the fabric is comparable to weaving. It's the fact that you don't have to warp a k.m. that gives it such an edge for speed. 5) I'm glad now that I have both.

ITEM:

Sharon Alderman, who has had her work hung in many prestigious shows, called me up one morning. She had been working on the bead leno article for this issue, and took the sample she had woven and made it into a little curtain for the kitchen door at the head of her basement stairs. "I called to tell you," she said, "that every time I come up the stairs from weaving in my basement studio, or from doing some laundry, I see the light coming through that curtain and it gives me a great rush of pleasure. And I think to myself, 'That's what weaving is all about, isn't it?'."

ITEM:

While helping with the judging of our "Teach a Friend To Weave" contest this winter, the judges and I all noticed some few pieces that worked a curious effect on us: they made us catch our breaths, want to cry. They were all simple, unassuming pieces—a little handtowel with rosepath border, a table mat, natural with a bit of brown stripe, a baby-soft little white blanket. None were prize winners; they didn't call attention to themselves, they weren't what you'd call original, although they were unique. The curious thing was that we all were touched in the same way by their poignance and perfection. I've thought about that a lot, but I don't understand it.

Incidentally, we *do* plan to do the contest again, but won't be ready for a firm announcement 'til September. The rules and timing will probably be a little different, so we hope you don't jump the gun and start coaching anyone for it until the plans are firmed up.

ITEM:

Airplane seat upholstery is worth some careful scrutiny. It's the major

design element in a plane, and people are cooped up to stare at it for hours on end. Sherri Smith once designed upholstery for Continental, I think (one of the most satisfying pieces of work she's done, she says). Somebody I haven't been able to track down did some striking sculptured pile wall rugs for United. They're signed, but I don't know if that means hand crafted or not. Another airline puts a variation of the same warp on each of the three seats across: a plain navy blue warp with white weft in plain weave, twill and half-basket. Subtle, but not boring!

NATIONAL WEAVING & SPINNING WEEK COMING UP

Something that's been quietly developing for the past year that you should all know about is the formation of an association of weaving and spinning suppliers. So far, it's a loose organization of about 35 manufacturers and wholesalers of looms, yarns, spinning wheels, etc.; we hope it will soon include retail shops as well.

The main purpose of this group is to promote weaving and spinning and related crafts, and one of the activities it has set up is a National Weaving and Spinning Week this October 5 through 11. This will be a time of special exhibits, demonstrations, sales, etc. If you'd like to help out by getting some local newspaper publicity for your craft, just drop me a line here at Interweave and I'll see that the association provides you with a press release and some other materials for your local newspaper. You might also drop me the name and address of your local weaving guild, because there are some special activities to be coordinated through the guilds.

SUMMERTIME, AND THE LIVING IS . . .

We're not exactly going to loaf off here at Interweave Press this summer, even though we won't be putting out a magazine in July. Other activities that we're currently involved with are the White Papers, and the first HANDWOVEN project booklet, a collection of a dozen or so designs with instructions. The first booklet focuses on simple summer tops, and should be ready to put in the mail in July. These publications are described on p. 13.

Another project that's very important to us, and we hope not too much inconvenience to some of you, is a readership survey that will go in the mail toward the end of May. We surveyed our *Interweave* readers back in 1978, and found the information we gained just enormously helpful in planning the magazine. It was quite instrumental in the decision to launch HANDWOVEN, too. So now that the magazines are merged, and there are lots more of you out there reading it, it's high time we took an official "pulse" again. About 10% of you will be getting our fat little envelope—but we'd be glad to hear from any and all.

We also look forward to getting out of the office a little: Sharon, Allison and I will be attending the Northern California conference in San Rafael, and I will be at the Midwest Weaver's Conference in Columbia, Missouri. We hope to cross paths with a lot of you!

Headline from *Consulting Opportunities Journal:*

Nationwide Postal Strike Looms

Sometimes they strike weaving magazines, too, like with a rate increase next September. Why don't they strike potter's wheels instead?

Linda C. Ligon editor/publisher
Kathryn Wertenberger, Sharon Alderman, Debbie Redding, Anne Bliss, Brucie Adams, Barbara Liebler editorial contributors
Solveig Lark photography coordinator
Allison Lockwood Rizzo advertising
Sharon Altergott circulation
Diana Roberts, Jane Patrick, Donna Melton, Lois Biederstadt staff

All photography by Joe Coca, except where noted. Typography by Qualitype.

HANDWOVEN is published five times a year (January, March, May, September and November) by Interweave Press, Inc., 306 North Washington, Loveland, Colorado 80537 (303/669-7672).

ISSN 0198-8212 (USPS #129-210)

Subscription rate is $15/year in the U.S., $18.75 in Canada and other foreign countries. Second class postage paid at Loveland, Colorado and additional offices. POSTMASTER: send address change form 3579 to Interweave Press, Inc., 306 North Washington, Loveland, CO 80537. Subscribers please allow 6 weeks for processing address changes.

BOUNCE BACK

One? No. Single? Yes!

To Jo Hartbower and anyone else interested—my pet peeve is the word "one-ply". There really isn't such a thing—ply means two or more; what is really meant is *single*. But even educated publishers allow the wrong phrase to get into their magazines either in articles or advertisements.

Ethel G. Simpson
Winfield, New Jersey

Furgive us!

We much enjoyed your article in the last issue of HANDWOVEN on the results of your "Teach a Friend to Weave" contest. However, we would like to point out one serious omission. You pictured the winning entries, and described many of the contestants, but *you didn't show any pictures of the cat!* We were terribly disappointed at this and we hope that next time you will give felines more fair treatment.

Janet & Mustie Strickler
Boulder, Colorado

Here's Siamese Sam of Nederland CO—taught by Anne Richards.

Moving ahead

I received my *Interweave* with the announcement of change to HANDWOVEN. I felt as I feel in each step of a project—sad at an ending and excited by the possibilities of what lies ahead. I was reminded of Ric Masten's poem "The Caterpillar and the Butterfly" in Spring 1980 issue of *Interweave*.

I think perhaps the desire for change is what keeps many of us weaving.

Gwen Fowler
McMinnville, Oregon

Hochberg speech draws praise and . . . more praise!

Thank you, thank you for the March issue of HANDWOVEN—especially page 12 "Forum"—the whole thing could not have been said better and expresses the way many of us feel. I am a weaver, and frankly, I really don't care if my weaving is art.

Eunice Lewis
Branchville, New Jersey

. . . My main reason for writing is to thank you for your wonderful article under "Forum" in this first issue of the combined *Interweave* and HANDWOVEN (why didn't L.L. name it *Interwoven*?) For years I've denied being an artist (in spite of some "arty" hangings) insisting instead that I am "a mountain woman who weaves." . . . I fear I have little patience with some of the "far out" shaggy articles produced in the name of art. So you will understand why I've enjoyed your comments on the subject. This bolsters my contention that a weaver of "koverlids", etc., does not have to apologize to anyone. Thank you, thank you.

Adeline B. Lyle
Raphine, Virginia

Thank you! I just read your speech given in Wichita. Had I been there I would still be applauding.

Back in the '50's I allowed myself to be intimidated by those who were creating those "things" one walked through, and phrases such as "expressing one's self", etc. All I wanted to do was just weave! Weave serviceable linens, long-wearing rugs, fabrics that draped well. Then that was not enough.

Now after a career in the sciences (I'm a geologist) I've gone back to weaving. At least I can find people to teach me and can buy books with the technical information I wanted 25-30 years ago. If I want to make a sculpture I'll use stone!

Again, thank you for having the courage to say what many weavers think. To have someone of your stature in the craft making such a positive statement cannot but help turn others toward a more positive goal—that of excellence in craftsmanship.

Claire Dolliver
Tucson, Arizona

I am finally getting around to writing you the letter that I meant to write when I read your Kansas State Weavers' Conference address in HANDWOVEN. (Anything to get out of figuring my income tax!)

You gave me an ego boost that hasn't stopped! "Fiber artists" who announce themselves as such have always given me an inferiority complex that anyone knowing me wouldn't believe. I either drop out of the conversation or, if they don't know me, act like I don't know how to weave.

Now, thanks to you, I am prepared to look them [fiber artists] in the eye and say, "Yes, I weave. I weave placemats that will enhance your best china, stoles that set off and complete your new outfit, and baby blankets that grandmothers croon over. And when I do this by technique, color and functional design I am as truly creating a work of art as your leftover twined warp ends hanging on the wall."

Thank you for speaking out.

Sarah Warren
LaJolla, California

BRAVO! As a new spinner and weaver I would like to share the two ideas that have impressed me the most.

The first, from Harriet Tidball, *The Weaver's Book:* "Be concerned with expressing your own ideas and not trying to be original. With the history of textile creation almost as long as the history of mankind (sic—womankind too), there is slight possibility that any individual can originate something which has not been known and done before. The thing the handweaver can do is to bring a fresh interpretation and a new idea to something already known." Forced originality—that is, the conscious effort to do something different, will betray itself in poor designing and inadequate function.

A second thought comes from Harriet Boon, master level spinner of Bluevale, Ontario: "To be handspun—does not mean to be inept."

Count me as one who will strive to foster quality craftsmanship—with a small hope that perhaps just one small piece of my craft will bring joy—and delight in the work of one's hands. What I do: I strive to constantly improve and do well!

Moira "Patti" Wilson
Sault Ste. Marie, Michigan

. . . I read your article in the latest HANDWOVEN without knowing you had written it. While reading I kept saying to myself, "Yes, yes, exactly." I have been feeling the same way for many years. Naturally, it never got as far as the written word. Thanks for expressing it so well.

Candy Gohn
Chimacum, Washington

The Wall. Pink Floyd writes songs about it. Curators make decisions about it. Artists scratch their heads over it. Since earliest times we've been confronted with the Wall. Is it the 'statement' which is of concern, or is it the Wall?

The problem with the Wall began a long time ago. When it was O.K. to hang a skin in a cave for added warmth and insulation, man's preoccupation with the Wall began. The problems with the Big A began. What is ART? What belongs on the Wall? Who is to decide?

It is difficult to establish standards of judgement regarding the Wall because of change. The 'ism' of today may become the dimmed prism of tomorrow. Art historians note the most visible constant in Art is change. Of particular interest today is the tendency for Art now to move from the Wall of the museum or gallery into the environment. Tomorrow, there may be space for a shawl on the Wall. Or in a Case. Or on the Floor. The skin may return to the Wall.

Toni Rubbert
Bakersfield, California

Dear Readers,

I don't think I've ever published anything before that drew such a one-sided response as Bette Hochberg's speech in the last issue. I can't believe weavers could be that unanimous about anything. Where are the tomatoes? I'm waiting!

—ed.

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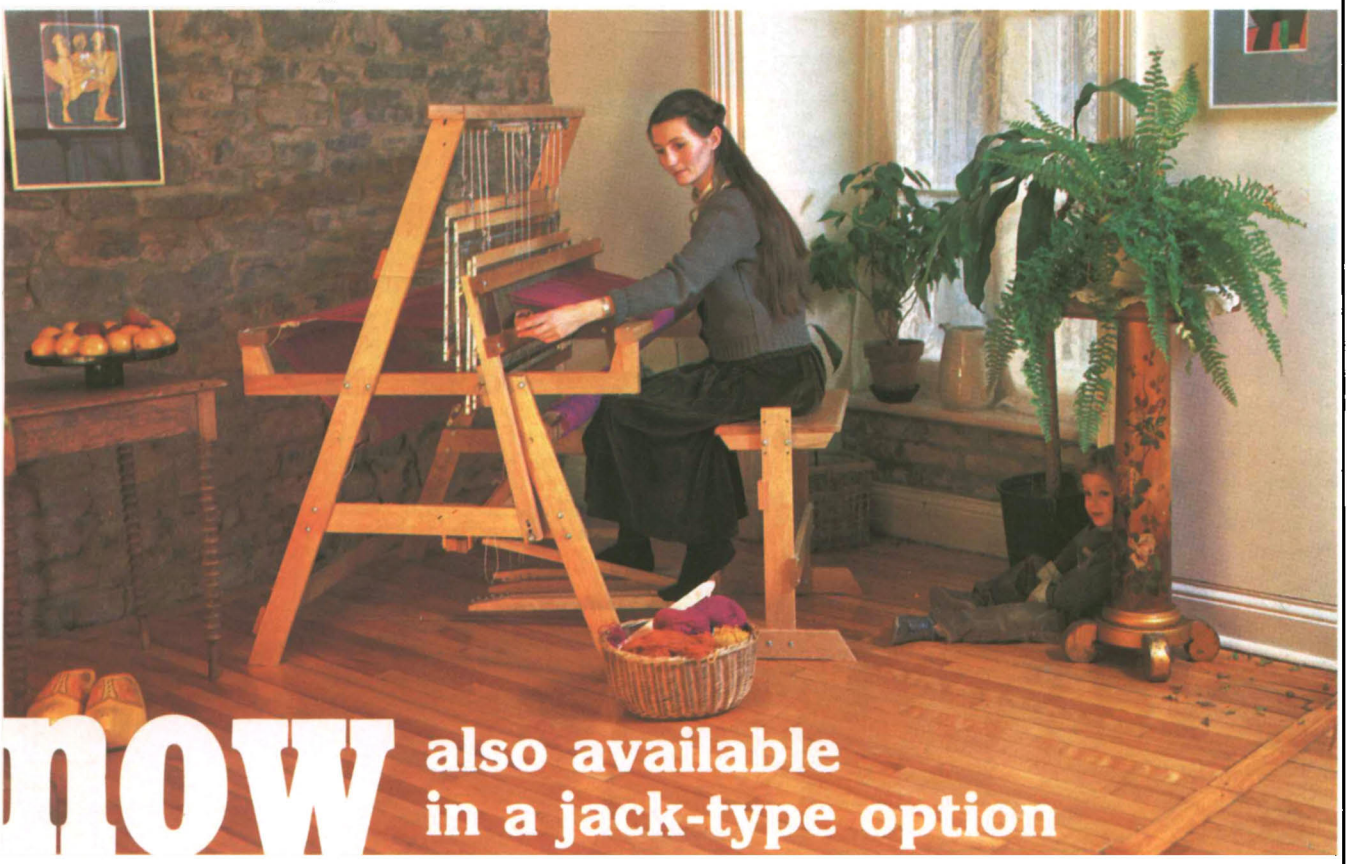

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Win a few, lose a few . . .

I just received the March 1981 issue of HANDWOVEN, and I am thrilled! You couldn't have made a magazine more suited to my needs if I had ordered it myself!

Pam Raiko
Dayton, Ohio

Just had to say that I very much liked the latest edition of HANDWOVEN! Nice paper, nice layout, nice photos, nice articles. It looks like a rousing success to me, and if our weaving students are any gauge, you are the most-read, most-used weaving magazine around.

Serena Johnston
Deadwood, Oregon

Beautiful issue—I like the combination of the two nice magazines into an interesting, informative, stimulating one magazine.

Olive Linder
Sun City, Arizona

I have just leafed through the new HANDWOVEN (March 1981) and I think it's lush and terrific—*much* better than either magazine was before. It seems that you've managed to combine the best of both somehow. The articles and photos come across as professional, technical and artistic, yet so appealing and tempting that the greenest weaver will want to try all the "projects" (I'm not fond of that word, but you know what I mean).

Jennie Yancey
Philadelphia, Pennsylvania

You asked for opinions on the new HANDWOVEN. Well, to be honest, it is a great disappointment when compared with the first three issues of HANDWOVEN. Just look at the last issue of HANDWOVEN, 84 pages long, and this new issue also 84 pages. . . .

The last issue had about 36 projects of the greatest variety—curtains, blankets, jackets, robe, coat, pillows, rug, shawls, vests, coverlets, runner, table cloth, tea cosy, children's outfits, scarves, tie, Christmas cards . . . plus some interesting articles.

The first two issues were equally full of a variety of proj-

ects, but your last issue . . . there were 14 projects of which seven were ethnic clothes . . . shirts or jacket/coat, eight if one counts the ruana, a ninth was another blouse. (Suppose one is not interested in ethnic clothes?) The rest being seersucker pants, two rugs, overshot placemat, and one rigid heddle project.

I am sorry to write this, but you asked . . . and we had been so delighted with HANDWOVEN because of its *many* and *varied* projects. We hope that you go back to the old form, but realize that perhaps most of the readers prefer the new. God bless you.

Mother Mary Joseph, OCD
Carmelite Monastery
Flemington, New Jersey

In case others of you are feeling let down because each issue has fewer projects, we'd like to try to reassure you with a little arithmetic. Instead of 36 projects twice a year (total 72), you will get an average of 15 projects five times a year (total 75). If you don't like ethnic garments, wait 60 days (not 180) and see what's in the next issue—it will be something different. And if the magazine just doesn't satisfy your need for more project information, keep an eye out for project booklets, *the first of which will feature simple summer tops and come out late this summer. Future ones will be devoted to linens, outerwear, and yardage, to mention a few. We're trying, we really are, to give the most we can to the greatest number of people. Constructive criticism like Mother Mary Joseph's is needed and appreciated, even if it points up the frustrating fact that we can't please everyone* all *the time.*

—ed.

My subscription almost lapsed because I subscribed to *Handmade* thinking it was HANDWOVEN. How terrible—HANDWOVEN is the best!

Lynn Barnett-Westfall
Tallula, Illinois

Now that there are two textile craft magazines with such similar names, we'll all have to watch out for similar confusions—maybe put the accent on the second syllable? —ed.

Counterbalanced Krokbragd

Re: Sharon Alderman's excellent article on Krokbragd.

Weaving Krokbragd on a counterbalanced loom is actually very easy. Thread through harnesses as usual leaving harness four empty. In the tie-up, the empty harness four is used to balance the single harnesses and the weaving proceeds easily.

Jean Scorgie
Portland, Oregon

Ah! My acheless back

In the Autumn 1980 edition of *Interweave*, M.D. McPhearson wanted advice on what to sit on when spinning as his back was protesting. I've tried all kinds of chairs and stools but find an ordinary kitchen chair the best—however, my back still aches after a short while of spinning. Perhaps M.D. McPhearson would find the following exercises helpful:

1) Stand with feet slightly apart and bend forward with arms and head hanging down loosely. Bring arms forward in a continuous circle—like a windmill—do this 30-40 times.

2) Stand with feet slightly apart with arms hanging loosely at sides of body. Shrug shoulders in a circle, making as large a circle as possible while holding the head and neck as straight as possible. Do this exercise 20-30 times.

3) Stand with feet wide apart and bend forward at the waist. Try to relax. Clasp hands behind back at waist level—while remaining bent at the waist, lift head, arch back and pull shoulder blades sharply together. Hold for a count of 10, then relax forward again. Repeat 10-20 times.

These exercises may be found in *You Don't Have to Ache*, by Arthur A. Michele, an American orthopedic specialist, published by Pan Books, Ltd., London. I suffer from arthritis in the spine, but find I can spin hour after hour if I take breaks to do these exercises.

Irene Laudless
Karratha, W. Australia

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These looms are made mostly of hard eastern maple, some birch and other hardwoods. All wood parts are finished with a semi-gloss interior clear wood finish and waxed prior to the assembly.

Note the slanting seat of the bench for more comfort when weaving than one with a flat seat. Full length drawer which will extend out either end.

The loom illustrated is 40" 4 harness—our most popular size. These compact looms are available in 4 and 8 harness and in 22", 32", 40", 46" and 54" widths.

WRITE FOR A FREE BROCHURE

TRICKS of the TRADE

Electronics and colonial overshot are worlds apart in time yet compatible in use. I use a tape recorder to check threading of a complicated pattern. As I thread the heddles I tie warp ends of each pattern repeat into bundles. As I suppose everyone does. When I have finished the threading I "read" the heddles using a cassette tape recorder. I then listen to the tape as I follow the pattern as it is written.

Hilda Dailey
Newport, Virginia

Having three teenagers that deliver local newspapers, I started saving the flat plastic binders that the papers were bundled in. I use these as spacers before starting a rug or mat or blanket. The excess I take to our weaver's guild meetings and share.

Florence Highfield
New Waterford, Ohio

An easy and convenient way to move a loom to and from workshops, for example, is to use a suitcase caddy such as passengers often use to wheel luggage from gate to gate in airports. By "suitcase caddy" I mean one of those gizmos with a telescoping pole, heavy elastic loop and two little wheels and a platform at the bottom. The whole caddy breaks apart and fits into a small tote bag which comes with the caddy.

My 8-harness table loom fits the caddy exactly and with a slight extension of the original loop (by adding a second loop at the top) floor looms can be moved as well. These caddys are generally available at large department stores or mail order houses.

Virginia G. Turnbull
Esmont, Virginia

Ever had your yarn slip off the end of a cardboard bobbin while weaving? Very frustrating! A simple solution is to wrap rubber bands around both ends of your bobbin—use different colored bands for different size bobbins—I use very small bands and wrap two together to build up a "non-skid" end. I stand mine on end and know that when I reach for a "red end" I'll get a 6" bobbin and a "blue end" will produce a 5" bobbin.

Mary Buie
Rison, Arkansas

Dumb beginners sometimes come up with ideas out of necessity. I found, to my horror, when making the second length of a two-piece coverlet that my warp was short. A big-eyed needle allowed me to keep on weaving when I had only ½" shed left, and saved the day.

Hazel Krantz
N. Bellmore, New York

When warping from back to front, I use a cardboard tube from old giftwrap to cover the knots, used to tie on the warp. This roll cut once lengthwise and then cut to the correct width works just fine to slip over the back beam nicely hiding the knots and making it easy to wind on the rest of the warp.

D. Wilson
Fair Oaks, California

To keep excess heddles from creeping over into the actual working area during weaving, I use small metal clips which I attach to the top or bottom metal holding bar as a brake. They are always easy to remove or adjust.

Kathleen Farling
Oxford, Ohio

After many a bout with a warp-eating raddle I decided to count off the warp in the appropriate number of ends per inch, instead of the usual ten as I had been taught. This 20" wide at 12 e.p.i. becomes 240 ends divided into 20 groups of 12 ends each. This may not be new to some weavers; in fact, it was suggested at a recent workshop, but it has cut my loom dressing time considerably for the last few years.

Elizabeth Kibby
Florence, Alabama

When treadling a floor loom doing overshot, keep your foot lightly on the pattern treadle without depressing it while your other foot is depressing the tabby treadle. This helps you find the correct treadle without looking or feeling for it.

Bonnie Rae Weidert
Scottsville, New York

Last summer while finishing a mohair stole (in the bathtub) I dumped in some water softener as well as fabric softener in the final rinse (our water is *very* hard). What a disaster! The mohair had lost its glossy softness and had become "chalky" to the touch. Since it was a commission and already a bit late I was in a panic. I let it dry, rinsed it again—no luck—washed and rinsed it again—still it was "chalky". While sitting on the side of the tub thinking about the problem I noticed my son's "Revlon Flex Shampoo" for oily hair and the light finally dawned. This "hair" needed a shampoo with a conditioner. The effect was remarkable. The shampoo stripped off the chalk percipitate and left the mohair soft and glossy..

Margaret McKinley
Albany, New York

When making rag rugs or placemats, use a twill instead of tabby. You will need more material but your weavings will come out thicker and nicer. It's better to use 5 or 6 ends to the inch.

Anita Bell
Lubbock, Texas

I have a hint for weavers like myself who can't remember how many times to do a certain step.

I originally bought a child's slate to mark with chalk but that wasn't too good. At the top of the slate was an abacus with 10 beads. I turned it upside down, slipped it under my loom and now I have no more trouble keeping track.

I also use one of those large plastic paper clips to slide up and down my sheet with treadling. That works better than a pin, etc.

Helen Gaderlund
Pagosa Springs, Colorado

. . . I'd like to share an idea for tapestry weavers. I like to weave a tapestry in the traditional manner, using a cartoon, with the wrong side of the work facing me. When I first began weaving tapestries, I would enthusiastically draw my cartoon and then have to reverse it in order to make the design come out properly on the right side. After trying various methods, I've found an easy way to do this.

I lay down newspapers to protect my work surface and then put down a piece of brown wrapping paper. On the wrapping paper I draw the outline of my design in pencil, just as I want it to appear when finished. I then go over the outlines with a heavy black permanent marker. The design "bleeds" through the wrapping paper and comes out in perfect reverse on the wrong side. I then color the design on the wrong side and I have an exact reverse cartoon to work from. I've found this to be much faster than any of the other methods I've used previously. Hope this will be useful.

Celeste E. Sefranek
Portsmouth, Rhode Island

Here is a tip for repairing those useful ball winders. As the instructions warn, the gears can become stripped with hard usage. If this does happen don't throw it away! It can be repaired!

Remove the plastic spool and underneath you'll find two gears, a small white one and a larger gray one. The smaller gear should be solidly in place and you shouldn't be able to turn it. If that gear does move, the ball winder will not work. Using pliers with protected tips, remove the smaller gear. Place a tiny piece of paper in the hole then insert a strong glue which has been recommended for metals and rigid plastics (Devcon Epoxy®). Force the gear back into the hole then press firmly until set. Make sure excess glue doesn't lock the two gears together. When the glue is firmly set, the gear should remain stationary, and you're back in business!

Hope this tip can help someone with a similar problem. Keep up the good work!

Nancy McManus Olson
Rockford, Illinois

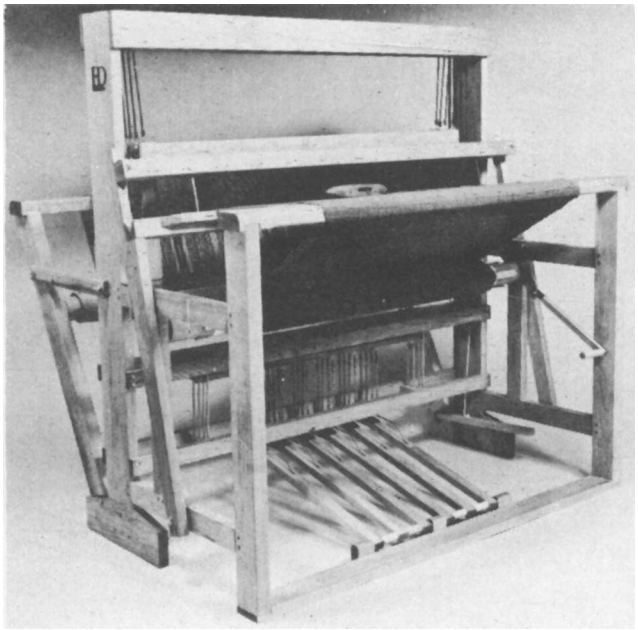
Temples are apt to be heavy, awkward and expensive. Save pieces of wood ¼" thick and about 1" wide. When needed cut ½" longer than the width of the warp. Drive sharp ¾" brads at an angle through the wood ½" from each end, 3 brads per end. These temples are lightweight, very flat, not adjustable, but cheap and simple to make—they cost a few cents each and a few minutes labor.

Take a roll of very heavy brown wrapping paper slightly wider than your loom's maximum width. Put this roll on an old broomstick and fasten the broomstick with clips to the loom below the warp roller. Fold over the free end of the paper to give a strong edge. Then attach to warp rod by loops several inches long. The paper automatically rolls up with the warp. As the weaving advances and the paper unrolls it is simple to roll it up again on the broomstick. NOTE: If the paper does not come on a cardboard roller, tape it on one for easy rolling up. Also, when first put on, the paper has to be adjusted so it rolls up straight, but then it stays on permanently and one does not have to creep under the loom when starting a warp.

Mother Mary Joseph, OCD
Flemington, New Jersey

Have a trick to share? Shortcut? Nifty threading draft? Send it to Tricks of the Trade, Interweave Press, 306 N. Washington, Loveland, CO 80537. For every idea we use, we'll send you a surprise small weaving tool.

The New Harrisville 40" Loom



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ACTION

CABRILLO COLLEGE STROKE CENTER

by Wendy McKay

It is thoroughly satisfying to take available and often unused resources in the community, add a bit of volunteer help, and create a vital and exciting new entity—one which adds creativity and usefulness to the lives of the participants as well as the volunteers. The weaving program at the Cabrillo College Stroke Center in Aptos, California, is just such a success story.

The Stroke Center was designed to help victims of stroke and disabling accident to overcome their handicaps through a broad range of therapeutic programs. When we were first asked if we could start a weaving class we had no money, no equipment, no materials and no previous experience in working with the handicapped. We were, however, experienced weavers. By reaching out into the community we have, in the past three years, assembled a well-equipped studio capable of serving as many as 15 participants at a time. In these years we have learned a great deal: ways of adapting equipment; which weaves are most suitable; but perhaps most important, that handicapped needn't mean "dis-abled". In the past keeping the handicapped busy was considered sufficient, but busy does not mean happy. If one substitutes creative, in the best sense of the word, for busy, then unexpected results may follow.

Although none of the participants has had previous experience, many of them received ribbons from the textile division of the Santa Cruz County Fair in 1978 and 1979. Friends and families are eager recipients of the handwoven scarves, table runners, garments, placemats, handbags, pillows and shawls. An exhibit of Stroke Center textiles at the Santa Cruz Public Library was much admired. These tangible results have been gratifying to everyone connected with the weaving room, but the principal reward is the sense of competence which grows from patient effort.

Among the crafts, weaving is particularly adaptable to special needs. With appropriate equipment, weavers can overcome many physical limitations. A stroke victim who has the use of only one hand can operate the table loom such as the Schacht because it has levers at the center front. Floor looms can be operated with one foot, provided that they are equipped with a system which enables you to tie more than one harness to a treadle. It is also possible to use direct tie-up looms; however the design possibilities are limited and color and texture must play a greater role.

Shuttle type seems to be a matter of personal choice. We always start people with stick shuttles, but because we think much is learned by trying new and different tools, we encourage the use of boat and ski shuttles.

In the beginning we had to prepare all the warps. Now some of our weavers are able to make their own while others are able to assist. Individual needs dictate the choice of C-clamp posts, warping board or warping mill. We have found all three useful.

When we began, we depended on donated materials. A gift of bias binding from a clothing factory proved to be a suitable weft for placemats woven on a closely set cotton warp. However, we have learned that we must not accept any and all donated yarns. Many mill end wools, for example, proved unattractive as well as difficult to work with. We feel it is essential to use beautiful materials when technique possibilities are limited. When asking guild members for donations we stress that we can't use their discards any more than they can. Some of our most beautiful materials have come from people who are no longer weaving and have given us old yarns of a quality no longer available. When dealing with donations we have found the McMorran yarn balance invaluable. With the balance and a scale one can compute an accurate yard count and hence know whether there is sufficient material for a given project.

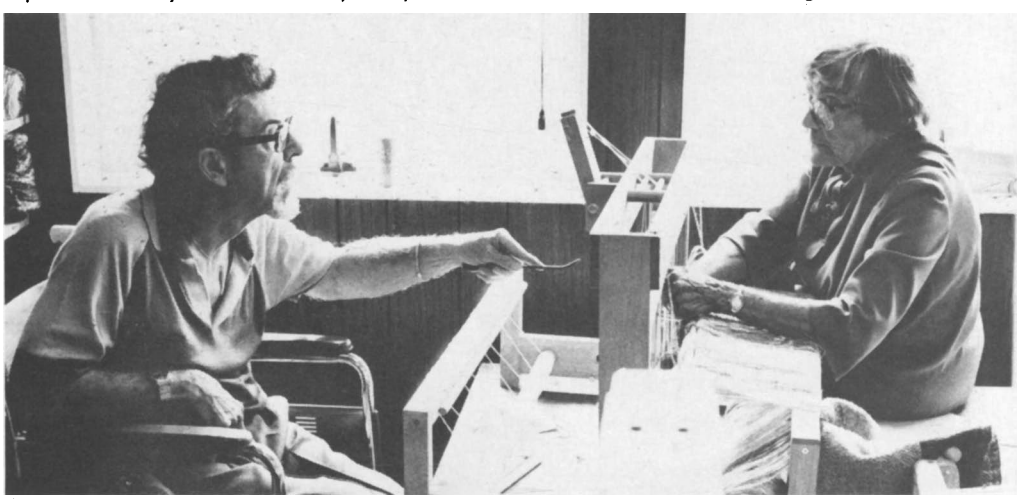
Hilding Carlson uses one arm to throw shuttle. Central levers make changing shed easier.

Weaving lends itself quite naturally to graduated projects. We like to start people with two-harness rag placemats because they are quickly made and inexpensive. Narrow cotton bands, suitable for belts or guitar straps, are easily woven on small two-harness looms. After making mats and bands, most people are eager to take the extra time needed to work with finer materials and wider widths. Two-harness mattor, spaced warp and/or weft and Brooks Bouquet make interesting elaborations of plain weave. Bands of twill on a plain weave ground can be used as a transition to the point twills with their rich patterning.

We have found in our experience at the Stroke Center that disabilities vary widely and that certain treadling sequences present conceptual difficulties. Therefore we stress that projects be carefully selected to suit each individual. We have also found that it is important to guide new weavers in choice of material and color, giving them more freedom as they grow in experience.

At the turn of the century the editor of the influential magazine *The Craftsman* wrote, "We believe in the immense influence of good in the development of character that is exerted merely by learning to use the hands." The truth of this statement has been proven to us by our years at the Stroke Center.

Clyde and Esther Smith overcome warping difficulties by working together—one at the back to separate threads from cross. Most participants now wind on and work on threading.



Photos by Bob Marshak

New Publications Complete Interweave Press Spectrum

Technical papers for the tenacious among us; project booklets for the prolific. Whether you have a boundless appetite for more and finer details or whether you are able to produce handwoven creations faster than we can produce *Handwoven*, Interweave Press fills the need.

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The first mailing of *Interweave Press White Papers* includes articles on "Hemp Weaving: Reviewing an Ancient Art", "18th & 19th Century Handweavers' Pattern Books; A Sourcelist", "Adding a Doup Stick to Collingwood's Shaft Switcher", "Panos: Ikat Shawls of the Cuenca Valley", and "Unblocking the Block: A Freeform Design Technique".

When you buy the papers at $10 per year, you will receive a ring binder and *at least* 50 pages of solid information—no ads, no fillers, no frills.

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Future booklets will feature table linens, outerwear, yardage and handspun projects. They will be sold individually in shops and by mail.

Simple Summer Tops will be available late this summer for $4.50 first class postage paid.

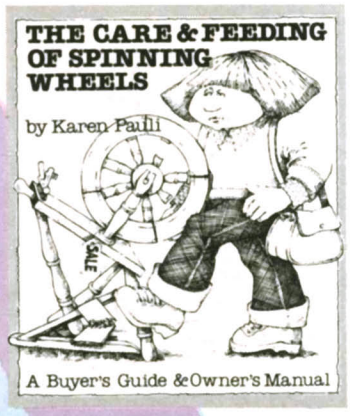
There is still more that's new at Interweave Press. . . Three books, for example.

The New Dyer

by Sally Vinroot and Jennie Crowder is the only comprehensive guide for obtaining controlled, repeatable results with synthetic dyes in the home studio. Detailed procedures for acid, fiber-reactive and disperse dyes. Lay-flat wire spiral binding and tabbed section dividers make for a functional reference tool. Plus an innovative color mixing aid for actually seeing and analyzing over 14,600 colors. $19.50 ppd.

A Twill of Your Choice

by Paul O'Connor pictures nearly 1,700 twill patterns. They are color and weave effect straight and broken twills on 2 to 8 harnesses with computer-generated drawdowns. Photos of many samples are included. $8.50 ppd.



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VIEWS

FROM THE FAR WEST: Carpets and Textiles of Morocco

by Virginia West

The two-level gallery court of the Textile Museum in Washington is radiant with the burnt orange, yellow, gold, rich brick-red and wine red of "Carpets and Textiles of Morocco". This is a blockbuster of a show, resplendent in color, creativity and originality. It's spellbinding effect drew me back time and time again. What was it that so transfixed a contemporary weaver?

This is the first major exhibition of Moroccan rugs and textiles ever shown in the United States; when it leaves the Textile Museum on April 30, it will travel to the Los Angeles County Museum of Art where it will be from July 23 to September 20 and then to the Elvehjem Museum of Art in Madison from October 18 until December 13. Included in the exhibit are 25 carpets never before shown outside Morocco, examples of both flat weave and pile surface, and other textiles such as tent bands, saddle bags, blankets, pillows, shawls and other garments. There are altogether 100 items loaned from United States and Moroccan private and museum collections.

Three times I have returned and stood in wonderment before those intricate, geometric mazes, attempting to follow pattern along endless oblique axes, warmed by the sunshine of color emitted from the rugs. I sensed the ritual and the implied religious beliefs in the weaving, and I put myself in the place of a Moroccan woman, trying to imagine sustaining her lyrical mood through the weeks and months she must have spent involved in her work. I tried to conceive the staggering amount of time required to produce textiles such as these. I admired the commitment of the weavers to their work. Each weaver has incorporated a part of herself,

Contemporary Zemmour saddle blanket, 4'5" x 3'4". This rug displays an unusual amount of white, and an optical effect in the vertical stripe. The Zemmour Confederation is one of the most important tribal groups in the middle Atlas.

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a chapter of her life, into each textile, and the work has become the fabric of time; it is there forever.

Then I read the magnificent catalog that accompanies the exhibit and I was able to fill in my knowledge of Moroccan weaving tradition. Every fiber person knows about Morocco. It's one of the "musts" on the list of places to visit. Next to Peru, it is a superabundant resource for textiles, and along with Guatemala, a country that still supplies its own textile needs—long strips that are sewn together for tents, rugs and cushions that constitute the entire furnishings for the tent, decorative strips for tent bands, clothing and blankets for the family, and magnificent saddle bags for camels and horses.

You've got to know the geography and something of the history to understand the artistic and stylistic peculiarities of each region. Morocco is a land of snow-capped mountain peaks, exotic walled cities, Berber fortress towns, fertile plains and vast stretches of desert, and always those Atlas Mountains. It is linked historically with the Mediterranean trade of the Phoenicians, Carthaginians and Romans, and with the Arab conquest from Andalusian Spain in the 8th century, where Moslems led the world in science, philosophy and art. The fusion of racial characteristics coupled with the geographic and climatic diversity has fostered a variety of ways of life.

No one knows exactly where the Berbers originated, but they are an indigenous Caucasion people of Mediterranean stock who have inhabited the Atlas Mountain regions since the 7th century. There is a loom in every tent and all Berber women weave or know how to weave. A skilled weaver has better matrimonial prospects. A little girl sits beside her mother at the loom and acquires the vocabulary of the loom as easily as she learn to speak. She learn quickly what can be done and what cannot. She absorbs the elements of pattern and structure so thoroughly she does not need a plotted design; she can improvise as she wills. She masters the techniques early, then she concentrates on how to express herself. Our Western culture labels such self-expression "art". Here then is a true art form. Aesthetic and artistic excellence is sure and firm.

Berber custom imposes seclusion on their women; it is considered a loss of status for a woman to work outside the home. Childbearing and household chores are their proper domain, and the production of household furnishings by weaving, as well as the processing, spinning and dyeing of wool. The sheep is a blessed animal, and it is said that on her marriage day the bride touches the lamb's neck and says: "I am leaning on you; only when you leave your soul will you leave me." Tufts of wool in the hair act as a talisman, and a wool thread around the leg of a mule, horse or cow protects it from illness and injury. The Berber loom consists of two solid wooden vertical posts supported by two horizontal beams, which act as braces. There is a ritual for setting up the loom, and a tea ceremony to celebrate the completion of the warping process. Nomadic tribes move the loom with them, and even the more settled tribes will move the loom from the house in the summer to their cooler tent nearby. Goat hair is woven into long black strips for tents. Large rugs with thick, long pile and geometric mazes of pattern serve as beds for each member of the family. The pile surface is so thick and shaggy that pattern is all but obscured, except on the underside. Both flat and pile sides of a rug are used, depending on which surface is appropriate for the weather. Functional capes frequently have pile on the inside for warmth in inclement weather. Could this be the origin of the mink-lined raincoat?

There is a stylistic difference in the patterns woven by the Berber nomads of the Middle Atlas Mountains and the settled farmers of the High Atlas. The nomad's rugs often lack a border, give an impression of extending space beyond

the edges of the rug, reflecting their wandering lifestyle. The more sedentary tribes weave stripes along the border, which may signify limits of space.

Another weaving tradition may be traced to the Arabs who settled in the Tennsift River basin, which flows west to east in south central Morocco, near Marrakesh. In contrast to the geometricity of Berber design, Arab imagery is often figurative and marvelously improvisatory. They incorporate animals, teapots, tent encampments, a fleet of taxi cabs, and so on. Chiadma carpets from this same region have remained free from restraining influence of hierarchic society and its inevitable stylization, and seem more lively and individualistic in expression. Time and space flow in fantasy—a chain of diamonds meander lengthwise like rivers through mountains. Clumps of color blocks on another rug are freely placed, reading like an abstract painting. This one is less than technically perfect, one end is 4" wider than its opposite, and uses burnt orange, gold and lavendar all in the same piece. I forgive the imperfection and delight in the color, my favorite palette.

The third tradition is from the urban cities of Rabat and Medouina (a settlement close to Casablanca) that reflect Persian and Turkish influence. Finely textured rugs feature floral designs, repeated horizontally and vertically in alternate borders, separated by narrow stripes surrounding a central field and focal point, usually red, covered with stepped medallions. A stepped angular arch often appears at both ends of a central medallion, in contrast to a single prayer niche at one end of its Anatolian counterpart. These are the most sophisticated of Moroccan textiles, the most technically refined, and the most likely to be woven in a rug manufacturing workshop.

Zemmour carpet, 20th century, 10'2" x 6'.

The definitive catalog for this show contains 50 color and 50 black and white illustrations, and essays by five scholars. The text is in French and English and the price is $37.50 (or $30.00 to Textile Museum members). The Museum has recently completed renovation of its galleries, installed its world famous collection of Peruvian textiles, and sponsors a unique program of vital interest to every textile person in the United States, including a tour to Morocco March 6-21. Write the Textile Museum, 2320 S Street N.W., Washington, DC 20008.

CALENDAR

CONFERENCES

Arizona Federation of Weavers and Spinners Guilds, State Conference, June 19-21, 1981. Contact: June Brightman, 555 N. Pantano Rd., #467, Tucson, AZ 85710.

10th Biennial Northwest Weavers Conference, June 25-28, 1981 at the New Eugene Oregon Convention Center. Contact Rosalie Neilson, Registrar, Portland Handweavers Guild, Northwest Weavers Conf., 17506 SE Walta Vista Dr., Milwaukie, OR 97222.

Michigan League of Handweavers Biennial Conference at Michigan State Univ., East Lansing, MI June 26-28, 1981. Contact Brenda Mergen, 8437 Sprinkle Rd., Portage, MI 49081.

The New England Weavers Seminar, July 20-24, 1981. Univ. of Massachusetts, Amherst, Contact Mrs. Mary Yusko, 17 Stanley Rd., Norwell, MA 02061.

First Mid-Atlantic Fiber Conference. July 31-August 3, 1981 Rider College, Lawrenceville, NJ. Contact Lois Breslauer, Registrar, 657 Shadowlawn Dr., Westfield, NJ 07090.

Maryland Coverlets and Their Weavers. Univ. of Maryland College Park Campus, Sept. 11-12, 1981. The first conference of its kind to be held in Maryland.

New York-Eastern Great Lakes Fiber Conference Art Fiber/Fashion Fabric. Oct. 2-4, 1981. Americana Hotel, Rochester, NY. Speakers—Don Bujnowski, Albertje Koopman, Max Lenderman and Irene Waller. Commercial exhibitors contact Daryl Patterson, PO Box 148, 13384 Main Rd., Akron, NY. (716) 542-4235. For registration info contact: Betty Anne Reininga, Shore Acres, Dunkirk, NY 14048.

The Natural Colored Wool Growers Assoc. will hold its annual meeting at the Altamont Fairgrounds, Altamont, NY, Sept. 26-27, 1981. Associated with this meeting will be a Natural Colored Sheep Show and Sale featuring colored sheep from many states to be held Sept. 26. Also sheep dog trials, sheep to shawl contest, spinning and weaving guild exhibits and commercial exhibits. All events open to the public. Exhibitors of sheep, fleeces, spinning or weaving products contact Mary Williams, 114 Central Ave., Albany, NY 12206.

Surface Design Association Southeast Regional Conference, "Japanese Dyeing". Sept. 30-Oct. 3, 1981. Arrowmont School, Gatlinburg, TN. Six different subjects covered by six guest instructors. Contact Zoe Lancaster, Art Dept., Georgia State Univ., Atlanta, GA 30303.

Call for Slides: International exhibition of surface design work dealing with the kimono as art form in conjunction with Southeast Surface Design Conference, Sept. 30-Oct. 3, 1981. Gatlinburg, TN. Send original slides with complete descriptions and stamped return envelope to Nicole Mills, 414 Emory Dr. NE, Atlanta, GA 30307. Deadline July 30, 1981.

WORKSHOPS

Elkhorn Mountains Weaving School, SR Box 165, Clancy, MT 59634, offering summer classes starting May 2 with an Open House and continuing through October 9, 1981. Contact Joanne Hall, (406) 442-0354 for more information.

Colorado Mtn. College announces 1981 Summervail Workshop for Art and Critical Studies, June 22-Aug. 7, 1981. Contact: Director, Summervail Workshop, Box 1114, Vail, CO 81657. (303) 827-5703.

Glimåkra Looms 'n Yarns announces workshops featuring Loom Shaped Fashions with Albertje Koopman at the following Glimåkra weaving studios: May 11-15, 1981, The Weavers Shop & Yarn Co., Rockford, MI; May 18-22, 1981, The Glimakra Weaving Center, Rocky River, OH; June 5-9, 1981, Arachne FiberArts, Inc., Santa Fe, NM. Contact Glimåkra at (216) 333-7595 for more information. Space is limited.

Spinning in the Redwoods with Paula Simmons; Redwood Lodge in Arcata's Redwood Park, May 30-31, 1981. Contact: The Camel, 935 G St., Arcata, CA 95521. Limited to 24 participants.

Peters Valley Craft Center, Layton, NJ 07851. Fiber Conference with Chris Craig, Pam Scheinman, Betty Park and Lisa Martin. June 6-7, 1981. Contact Sherrie Posternak, Admin. Ass't. for more info.

Arrowmont School '81 Summer Sessions include the following fiber classes: Virginia West—Fashion and Fabric, beginning to advanced, June 15-26; Henry Easterwood—Tapestry, intermediate to advanced, June 29-July 10 and Design and Color in Fiber, intermediate to advanced, July 13-17; Diane Itter—Small Scale Fiber Art, intermediate to advanced, June 29-July 10; Charlotte Funk—Loom Weaving, beginning to intermediate, July 27-Aug. 7; Arturo Sandoval—Plaited Tapestry, intermediate to advanced, Aug. 10-14. Contact: Arrowmont School of Arts and Crafts, Box 567, Gatlinburg, TN 37738. (615) 436-5860.

Bishop Hill Textile Workshops—1981. "ABC's of Weaving", June 22-26. "Designing Woven Wearables", July 20-24; and the fourth annual Coverlet Workshop including "Spinning and Dyeing", Aug. 3-7, and "Weaving a Coverlet", Aug. 10-14. Write: Bishop Hill Textile Workshops, Box 18d, Bishop Hill, IL 61419. Or contact Marge Rohrer, Director, (319) 263-1425.

Truro Castle Hill Center for the Arts, Box 756, Truro, MA 02666, announces the following summer workshops: Beginning Weaving, July 6-10; Weaving Problems, July 13-17; Basic Weaving, Aug. 17-21; Weaving Wallhangings and Rugs, Aug. 4-27; and Basketweaving, Aug. 17-28.

Navajo Weaving Workshop with Noël Bennett, July 8-12, 1981 at the Denver Museum of Natural History, City Park, Denver, CO 80205. (303) 575-3964.

Fiber Commission Workshop; Univ. of Minnesota Duluth, July 12-17, 1981; opportunity to design, weave, assemble and install a completed professional hanging under the guidance of Ken Weaver. Contact the Continuing Education and Extension Office, UMD, Duluth, MN 55812. (218) 726-8113.

Handspinning Workshops by Priscilla Blosser-Rainey. July 17-18 for beginners; Aug. 14-16 for intermediate spinners. Contact Priscilla Blosser-Rainey, The River Farm, Rt. 1, Box 401, Timberville, VA 22853. (703) 896-9931.

Oregon School of Arts and Crafts Summer Workshops. July 27-31, 1981. Feltmaking and Controlled Use of Acid Dyes; Aug. 3-8, 1981, Spontaneous Color for Weavers; Aug. 10-14, 1981, The French Gobelins Method of Natural Dyeing; Aug. 17-28, 1981, Master Class in Gobelin Tapestry; and Aug. 31-Sept. 11, 1981, An Introduction to Aubusson French Tapestry. Contact the school at 8245 SW Barnes Rd., Portland, OR 97225. (503) 297-5544.

Great Oaks Studio, Creswell, Oregon, new center for textile arts where people can become involved in the world of handmade and art fabrics at any level from consumer to producer. Barbara Geshwind is the originator of the studio. For information on programs available contact Great Oaks Studio, 82644 N. Howe Ln., Creswell, OR 97426. (503) 895-2440.

Sheridan College, School of Crafts and Design, Mississauga, Ontario, Canada. Canada's largest and best equipped facility, devoted exclusively to crafts education. Open house show and sale, May 9-10, 1981, featuring work of students.

National Knitting Machine Seminar. August 21-23 1981, Sheraton National, Arlington, VA. Contact Trinka Reddie, 4558 Beech Rd., Marlow Heights, MD 20031. (301) 423-7080. Wed.-Sat., 10 am to 5pm.

Santa Fe Textile Workshops will include a course on woven miniature books with Kay Sekimachi, July 20-24. For complete listing of workshops write: Textile Workshops, Inc., 207 Shelby St., Suite 213, Santa Fe, NM 87501.

TO ENTER

Pacific Northwest Shepherds' Extravaganza. May 23-25 at the Seattle Center as a featured attraction of the Northwest Regional Folklife Festival. Sheep to Shawl contest, youth judging contest, sheep and fleece judging, exhibits and workshops. Contact Billie B. Eby, 1482 Dunbar Ln., Mt. Vernon, WA 98273.

Vahki Competition. City of Mesa Arizona Cultural Activities Dept. will present the third annual Vahki Juried Competition June 5-26, 1981. Open to all Arizona artists submitting entries in categories including fiber. Entry deadline May 26, 1981. Fee $5 per entry. Contact Margaret Peterson, 155 N. Center, Mesa, AZ 85201. (602) 834-2242.

6th Annual Fiber and Textile Exhibit. Sponsored by the Whitewater Spinners and Weavers Guild will be held July 12-Aug. 6, 1981 in the Crossman Gallery on the Univ. of Wisconsin (Whitewater) campus. For entry forms or information contact Mary Hjelter-Squire, 358 Wilson Ave., Janesville, WI 53545. (608) 756-0589.

Kansas Designer Crafts Exhibit, 1981. Juror Neda Al Hilali. Slides and $10 entry fee are due July 30, 1981. Open to all residents and former residents of the state of Kansas. Exhibit Oct. 4-24, 1981. Contact Eileen Murphy, Chairperson, KDCE, 81, 300 Art and Design Building, Univ. of Kansas, Lawrence, KS 66045.

2nd Annual Spin, Weave and Wear Contest. Aug 30, 1981. Colorado State Fair, Pueblo. Deadline for team entries, Aug. 1, 1981. For more information contact Priscilla Plate, 3061 S. Yates, Denver, CO 80236.

Fourth Annual Open Sheep Show, Aug. 8-9, 1981 at the Sussex County Sheep Breeders Assoc. Farm Show in Newton, NJ 07860. Linda Berry Walker, judge. Deadline for mailed fleeces, Aug. 5, 1981. Contact Nancy M. Dunn, R.D. 4, Box 87, Newton, NJ 07860.

St. Augustine Art Association. "Wearable Art", Aug. 29-Sept. 13, 1981. Deadline for entries, 3 pm Aug. 22, 1981. Contact Gallery Director, 22 Marine St., St. Augustine, FL 32084.

CraftAdventure '81, Eastern States Exposition. Aug. 29-30, 1981. Contact Helen H. Bardwell, Creative Crafts Director, 1305 Memorial Ave., West Springfield, MA 01089. (413) 732-2361 for entry forms and information.

Missouri Fiber Arts and Wool Crafts Festival at Historic Bethel, Missouri on Labor Day, Sept. 7, 1981. Twenty-one trophy awarding events and contests. Contact American Sheep Museum, Historic Bethel, MO 63434. (816) 284-6628.

"The Fan: New Form, New Function". National juried exhibition sponsored by Arrowmont School, Dec. 5, 1981-Feb. 6, 1982. All 2- and 3-dimensional media. Slide entries due Oct. 10, 1981. Entry fee $10. Write Arrowmont School, Box 567, Gatlinburg, TN 37738.

Sedona Arts Center presents "Arizona Weavers 1981" Sept. 29-Oct. 25, 1981. Open to members of Arizona Handweavers Guilds. Categories: Wearables, Functional Fine Arts. For info write Lenore Eberle, R.R. 4, 88 Cougar Dr., Sedona, AZ 86336.

EXHIBITS

The Art Fabric: Mainstream, a major exhibition focusing on the important accomplishments of the worldwide art movement in fiber during the decade of the '70s, begins a two-year tour of U.S. museums this spring. Organized by American Federation of Arts and supported by two grants from the National Endowment for the Arts, the exhibition features over 75 works by over 60 artists from the U.S., Europe, Canada, Japan and Australia. Dates and locations: May 21-July 5, 1981: San Francisco Museum of Modern Art; Aug. 9-Oct. 4, 1981: Minnesota Museum of Art at Landmark Center, St. Paul, MN. Nov. 6, 1981 through Jan. 3, 1982: Brooks Memorial Art Gallery, Memphis, TN; and Mar. 7-April 25, 1982: Portland Art Museum, Oregon.

FIBERS UNLIMITED 1980: Whatcom Textile Guild

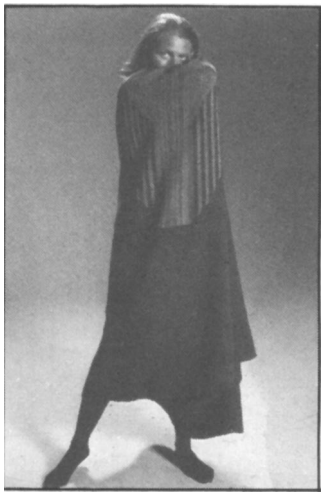
by Peg McNair

The diversity and vigor of the fiber arts in northwest Washington became clear in *Fibers Unlimited 1980*, the 7th annual juried exhibit sponsored by the Whatcom Textile Guild at the Whatcom Museum of History and Art in Bellingham, Washington. The guild this year chose to broaden their own understanding through an open jurying by eminent textile designer Jack Lenor Larsen. Of a record 280 entries from Whatcom, Skagit, Island, San Juan and Snohomish counties, Larsen selected 65 works after analyzing the strengths and weaknesses of each submission to a very large and most attentive audience of fiber artists/designers.

Distinguishing between the differing natures and purposes of traditional, production and innovative (art) fiber work, Larsen pointed out the need to judge each work according to its intent and nature. Vigorously and explicitly, he judged each work on how well every aspect of that work supported its stated intent: conception, color, materials choices, technique, finishing and hanging devices.

The four prize winners reflected Larsen's search for the most thoroughly conceived and finely executed works. The winners were not flashy, experimental, or very innovative, but solid, somewhat understated, fully conceived and done well. First prize went to a "Man's Jacket" by Clara O. Chapmen. Clearly wearable, strong in the simplicity of its loom-shaped design and attention to every finishing detail, a delight to the hand in its mix of beige wool and loop mohair fibers, the jacket must be worn (not only viewed) to sense its success, to see how it would move, breathe and enrich the wearer. Anita Mayer's swirling caftan (#4 winner), adapted from a Middle Eastern ethnic garment, was indeed "freshly rendered, a very weaverly garment." The calf-length caftan in deep plum has wide cape-like "sleeves" which enfolded the wearer. Down the back on the right shoulder was an inspired tapestry design of simple lines and twill chevrons in burnished gold, a swirl of the arm bringing the design around to the front. Though the embroidery detail was not as fine as it could be, the caftan was beautiful, dramatic and wearable. The garments in general in this exhibit showed the most consistent design strength.

Though "Corrugated Tin", a rug by Linda E. Rees (#2 prize) attained a similar integration of form and function, the superb craftsmanship tended to overpower the design interest. The deep gray and lightly variegated rusts were rich colors, deftly handled in eccentric stripes which dovetailed in the center of the rug. The only winner with a clear "art" fiber intent was Carolyn Moore's tapestry "Southwestern Landscape #7" (3rd place). Fine craftsmanship, good landscape composition with large and small shapes, revealed a clear intent, though the same black outlining of all shapes produced a static quality. The colors in the prizewinner were less appealing than those in a second entry from Moore's same series.



Though the prizewinners displayed the most consistency and unity, other works excited the imagination or tried to reach further. Mary McIntyre's airy, woven linen "Doorway" captured a mystic sense of space beyond the door. There was a subtle play of light and color, and tension in the loose yet confined unwoven warp and weft floating in the doorway. In a disappointing, unusual instance of

a theme taken too literally, Lerrigo Stone's large woven felt-strip work "Night Blind" was too dark to illustrate the fine scale of the materials, and the intriguing, deftly handled rag strip details that a very close viewing revealed. Promise of future original work was hinted in Whitney Johnson's subtle colors and mix of fibers in the inlaid tapestry "Cattle Point Window", though only parts of this piece worked.

Jack Lenor Larsen was very positive in emphasizing the strengths of each work, and open, clear and professional at pointing out weaknesses. Several weaknesses were common to many of the submitted works, and his comments would undoubtedly apply to any similar juried show in the nation. Three specific judgment errors were frequent:

1. Choices of materials are in conflict with the intent: yarns or cloth too harsh, heavy, sleazy; material inappropriate to its use (i.e., too soft for relief); stuffing poorly handled.
2. Works are not properly finished: improper blocking, washing, fulling, lining, pressing; choices of edge finishes, attachment, fringes, hems not consistent with design.
3. Hanging and framing devices in conflict with intent: heavy, obtrusive, conflicting with the flow and texture of textiles; wooden bars, frames, branches or plexiglas boxes overriding the fiber work.

Larsen concluded with two broad suggestions for students and fiber artists. The artist needs to think through and clarify the intent of each work, avoiding trivial ideas, building the materials into something better. And second, study and learn from the traditions: measure your own work against work from the past, not just against other contemporary fiber work.

This year's *Fibers Unlimited* show was itself an appealing array of high quality, energetic fiber work of all genres. And judging from the response to the open jurying, there is exciting promise of very good work to come. □

IT'S GOOD

From listening to my students and from judging the "Teach a Friend to Weave" contest, it has become evident to me that a beginning weaver's greatest fear is of washing the fabric, especially if it is wool. We've all been told for many years that wool must go to the dry cleaners, and so the thought of intentionally getting any wet is unthinkable. Let me tell you some facts about wool and weave structures that may help.

First of all, sheep do get rained on. It is true that a growing fleece is not exactly like a sheared one, but there are some similarities. I don't know exactly when dry cleaning was developed, but I'd be willing to bet it's been around less than 100 years, whereas wool has been one of the most common household (or tent-hold) fibers for 5000 years. It seems very likely that in the 4900 years before dry cleaning, wool clothing got washed with water, and the cleaning agent was probably not Woolite.

The nature of a single wool fiber is that it is a hollow shaft with scales around the outside. In an acidic solution the scales will close up, stay tight against the central core; in a basic solution the scales will open out like a blossoming flower. Soap and water create a basic solution. Vinegar and water create an acidic solution.

Certainly it is true that you can ruin a wool garment by improper treatment. The destruction—shrinking and/or matting—is really a felting process, and what's happening is that the individual fibers have opened up, reached out to the next fiber over, and sort of dissolved together. The scales get so entangled in each other that they cannot return to their own original shape. The three fastest ways to make felt are to have a basic solution, use a lot of agitation, and subject the wool to sudden extreme temperature changes. Any one of those alone may cause minor felting, but all three together will really do the job.

So if you don't want to felt your work to excess, use warm water, not more than 90° F. or so. Use only as much soap as needed, which sometimes is none. And most of all, don't over-agitate! Hand washing is almost always perfect because the water temperature must be comfortable to your hands, you don't use too much soap because it's tiresome to rinse out more than was necessary, and gentle squeezing is sufficient to get the washing done. Most new washing

TO BE ALL WET, SOMETIMES

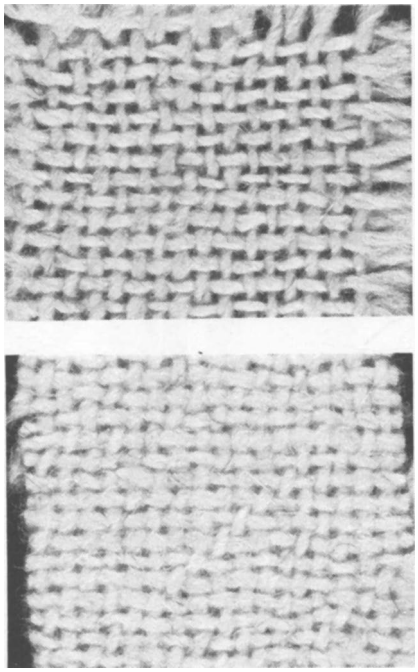
by Debbie Redding

machines have a gentle or handwash cycle; try yours to see if it's gentle enough. Whether machine or hand washing, avoid letting the water hit the fabric hard as it comes out of the faucet—that pressure is essentially the same as severe agitation. Once you've washed and rinsed the piece, spin the excess water out in the spin cycle of your washing machine. There's no agitation, only centrifugal force, and not only will your piece dry much sooner, you don't risk the water weight pulling it out of shape.

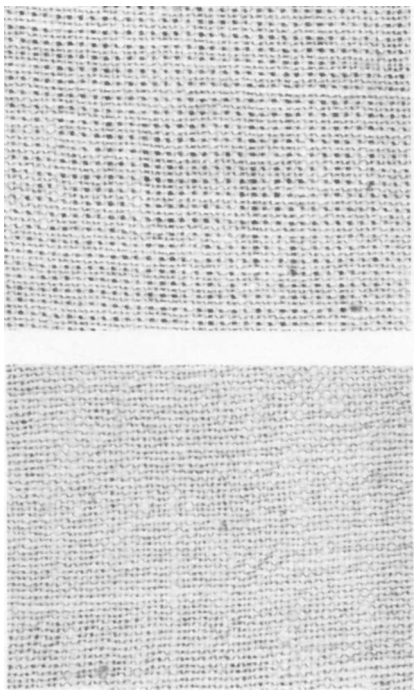
All of that tells you how to wash but I haven't yet said anything about why. There are several reasons, each having a different degree of importance for each piece.

Wool yarn that comes on cones is often flattened out, you may have noticed. Instead of a nice round fluffy yarn (like most skeined wool) it looks sort of skinny and misshapen, not soft and appealing. That's because the yarn is wound onto the cone with a certain amount of tension and is then packed solidly between the cone and the outside layer of wrapping. In addition, most wool mills are very humid places and so the yarn is a little damp going on, even more susceptible to being set into a shape (like hair and hair curlers). Once off the cone, however, and steamed or soaked and allowed to dry in skein (or warp) form, the yarn blooms, swells, fluffs to the beautiful yarn it really is. Maypole yarns are a good example and one you may be familiar with. In our shop we have a piece of washed Maypole fabric hanging near the Maypole yarns; most people refuse to believe that it is the same yarn because it has changed character so much. Look for coned wools with that in mind. Many yarns are like the frog-prince—given the right kind of attention they change from ordinary to magnificent.

That kind of change can be achieved before weaving instead of after, so it's only a partial case for washing the finished fabric. Here's more. On the loom, under tension, the warp and weft are put and held in place very rigidly. In most cases the yarns stay where they are put, parallel and perpendicular to each other. But in a nicely finished piece the threads all bend and curve around each other, making the fabric drape nicely instead of remaining stiff. Washing the fabric allows the threads to relax more, to move around into their optimum relationships with each other. In some weaves, like harness controlled lace weaves (Atwater-Bronson, Swedish, etc.) the pattern doesn't even really appear until that relaxing has taken place. In others the change is less dramatic but equally important.



Woolen singles, before and after finishing (courtesy Harrisville Designs).



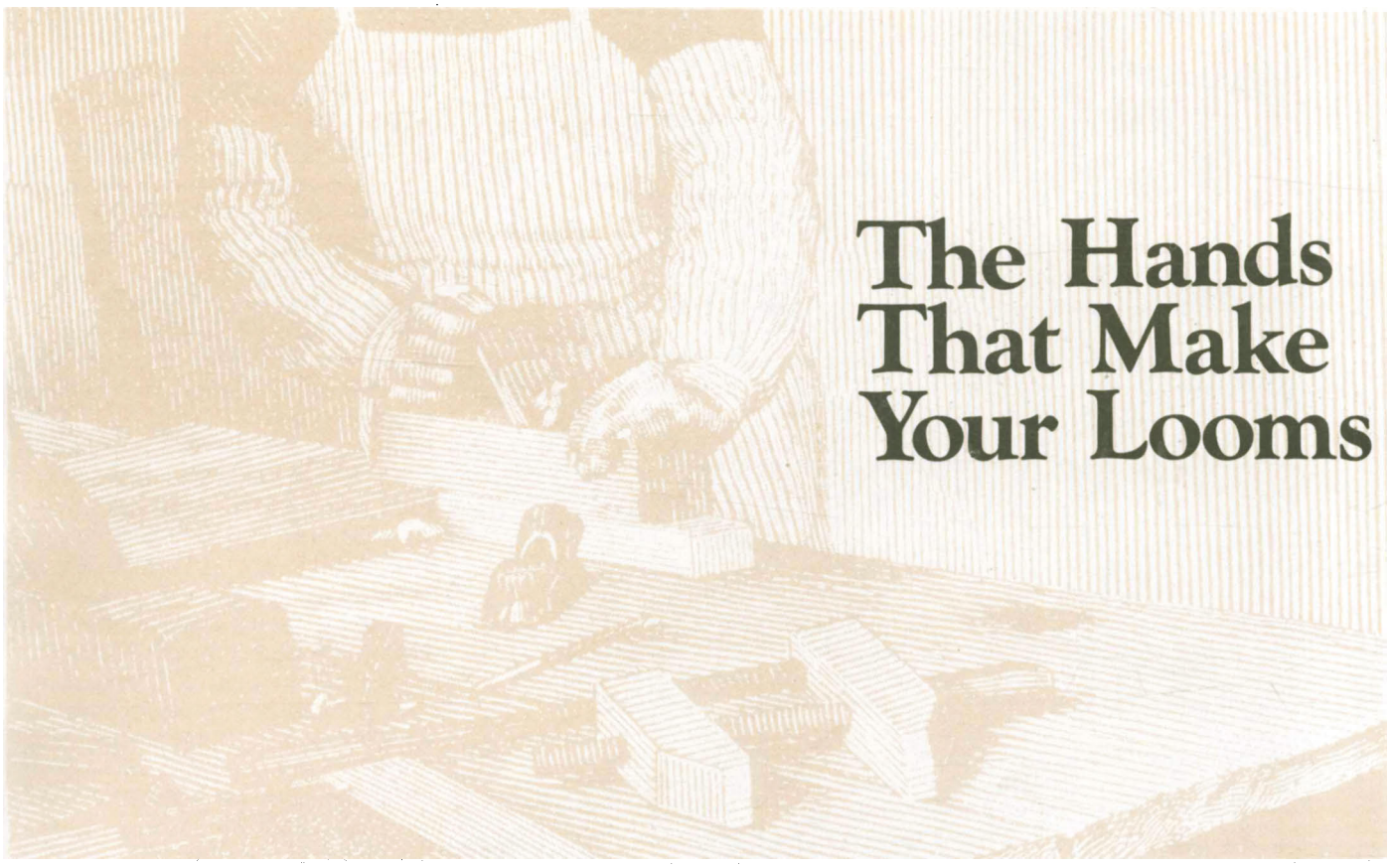
Handspun cotton singles, before and after finishing (courtesy Harry Linder).

And finally, in most cases the fabric will soften to the touch as well as to the hand with washing. A very small amount of felting means that your fabric will become a little fuzzy all over, and as a result be softer to pet and a little stronger since there is now a bond between the yarns as well as within the yarns. A fabric woven with fine single ply wool is the best example of a fabric that changes from being so harsh that it is unpleasant to touch to being truly soft and lovely with washing. Visually it quits being a lot of threads and becomes one fabric.

One last note: Wool can withstand any temperature as long as it's gradually achieved. Most wool dyes available to handweavers require simmering for the color to be fast. That's no problem. Put the yarn or fabric in a dyepot of warm water and bring it up to a simmer very slowly. Simmer it for a while then turn the heat off and let it cool down gradually. A little vinegar in the dyebath helps keep the scales closed up (don't put in too much—you want the dye to be able to get in). And when you stir it, stir the bath, not the yarn, and do it gently—minimal agitation, remember? With those precautions you should have few if any problems dyeing wool.

Over time you will develop your own favorite way to wash your weavings. Obviously different sized pieces will require different methods—a scarf can be done in the sink but a bedspread needs a bathtub. And in your reading you'll come across more information on how and why. (Watch for next November's HANDWOVEN for lots more on this subject.) For now just don't be afraid—learn what it's all about. You know all those samples you're weaving to learn what's going on? Well, practice finishing on them, learn even more. Measure them before and after to determine shrinkage, and keep records of what happens with each yarn. Cottons, linens, silks and everything else, too. Only wall hangings are exempt, and only some of them.

In serious weaving circles it's a rare piece that is considered finished until it's been washed, so turn on the water and join the fun. □



The Hands That Make Your Looms

THE LOOM YOU WEAVE ON . . . if you're a serious weaver it's more than a tool. The "right" loom takes on personality, becomes friend, partner, companion, accomplice—an inseparable part of life and work. And unlike other tools and appliances you live with, looms don't just come rolling off a faceless assembly line; they're very much the result of one craftsman producing for another. Where do your looms come from? Let's take a quick overview.

In the U.S., there are perhaps 30 generally recognized loom manufacturers; many times that number are one-man operations with a local, word-of-mouth clientele. In addition, a number of foreign manufacturers have distributors in this country. Available looms range from small, simple frame and inkle types to table looms, floor looms, complex dobby and damask models. Probably at no time anywhere in the world have handweavers had access to such a varied and high quality selection of tools.

As for the people who make this wonderful wealth of looms, it's hard to generalize. They range from under 30 to over 80 in age; they work alone, as couples, families, or sizeable corporations; their backgrounds range from engineering to psychology to housewife; they can be found in big cities or small villages. They may or may not be weavers themselves.

One common trait that seems to run throughout this mixed tribe is a deep love of wood. Just as weavers love their yarns, the joy of their work for many loom makers comes from turning beautiful wood into handsome, functional tools. Paulina Mack of Crisp Woodworks in Portland, Oregon, rings a common theme when she explains, "Crisp was started originally to produce custom furniture. We found that we knew quite a few weavers who liked our approach to woodworking. So we transferred our respect for the material (hardwoods) and love of functionality to our work on textile equipment. We've always been inspired by the Shaker maxim that the most beautiful piece is the one in which form follows function."

Some loom makers have favorite woods that become almost a trademark; cherry at Norwood, walnut at Willowtree, for instance. Dale Johnston at J-Made Looms in Oregon City, Oregon, especially enjoys working with Hawaian koa wood—"The wood has infinite variety, and each tools looks different from the last," Serena Johnston explains.

Loom companies range in size from "mom and pop" companies producing a few looms each year to upward of 100 workers turning out looms by the thousands. Yet whether small or large, most are doing what they're doing on the basis of carefully chosen life values. For some, like Leclerc (see box) it's the continuation of an important family tradition; for others, it's the beginning of a new one.

Take Schacht Spindle (see box), two brothers with a variety of skills combined into loom manufacturing, for instance. Or Beka, Inc.—a free-form collection of family and extended family in St. Paul, Minnesota, that runs three yarn shops, makes rigid heddle looms and other weaving tools, distributes imported wool yarn, rehabilitates old buildings, and runs a Vietnamese restaurant. (Part of the "extended family" has included sponsorship of Vietnamese refugees.)

At the heart of the organization are three Kreisman brothers, Peter, Jamie and Richard, and several close friends, spouses and all their collective children. "Our goal," Jamie says, "is to develop lives that are integrated with

NILUS LECLERC, INC.

Although weaving is an ancient craft, most handloom manufacturers in business today have brief histories. An exception is Nilus Leclerc, Inc., of Quebec, a company that spans more than 100 years and is reaching for a fourth generation of leadership in the same family.

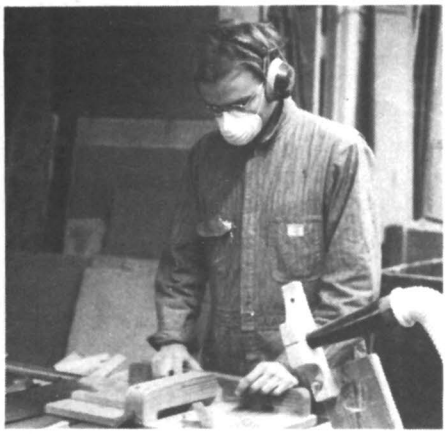
Located in L'Islet, a small village on the St. Lawrence River north of Quebec City, the company was founded by Alfred Leclerc in 1876 as a woodworking factory with hydraulic mill. Early products included household furniture, church pews and doors as well as handlooms. In 1902, control of the company passed to Alfred's son Nilus; growth and expansion continued steadily, and the years were marked by small milestones that deepened its involvement in the textile crafts: building sheep baths to promote quality wool growing; designing a home-sized loom to replace the older "barn" type rug looms; and finally, in 1940, abandoning all other product lines to concentrate exclusively on loom manufacture.

Because of the agricultural nature of Quebec Province, and the French Normandy heritage of its populace, handlooms were an essential piece of farmstead equipment well into this century. For that reason, when WWII forced other loom manufacturers to direct their production facilities to making other goods for the war effort, Leclerc was able to maintain their loom production continuously, their products being classified as "farm machinery". Much of their output during this time was specially-designed exercise looms for military hospitals and rehabilitation centers.

It was during the early 1940's, too, that Leclerc began to make serious distribution efforts in the U.S. Their general availability and full line of over 20 different looms and complete accessories have undoubtedly contributed to the rebirth of the craft in this country.

A distinguishing characteristic of current president Robert Leclerc (grandson of the founder) is his deep personal interest in weaving. He threaded his first loom at age nine, and over the years has devoted much time at the loom. He was instrumental in the original publication of Stan Zielinski's "Master Weaver" series, and today is overseeing their reissue in updated format. Hand in hand with this educational effort is Leclerc's interest in and support of teaching programs—including the equipping of a weaving school in Quebec City.

Today, over 100 years after its founding as a simple mill, Nilus Leclerc Inc. hums with activity; telex, computer and other modern management tools insure an efficient operation, while the quality of the products continues to rest, as always, in the hands of the craftsmen who make the looms. □



Beka, Inc.

our work. We live/work/love within a positive framework that we built and that we maintain. Our work reflects our hopes and ideals, and our lifestyle. None of us make much money, but we are all rich—by almost anyone's standards."

Making a fresh start at carrying on an established tradition was the motive for John Colony III ("Chick") and his wife Pat of Harrisville Designs. Harrisville, New Hampshire, was a textile mill village for over 150 years, and one of the best-preserved 19th century industrial communities in the nation. But the closing of the mills in 1970 threatened the very life of the small community. Just out of the military and with his future not yet firm, Chick made a quick but committed decision to join with a few others in forming Historic Harrisville, a non-profit preservation foundation. A fundamental choice was to keep Harrisville a working community, and not a "museum" village like Sturbridge or Williamsburg. The Colony's moved into one of the buildings rehabilitated by the foundation, rescued some of the old spinning equipment, and put it back to work—spinning yarns in appropriate types and quantities for the craft market, not in the industrial quantities at which it had failed.

Manufacturing loom kits was started almost as an afterthought, and in response to the demand for a small, inexpensive floor loom; this has become a significant division at Harrisville Designs, though, and along with the mill and a solar device manufacturer, has been largely responsible for keeping the village alive.

Working together as a couple, as do the Colonys, the Sweatts (Fireside Looms), the Johnsons (Norwood), or the Strimples (Herald) is one of the important fringe benefits for a number of loom companies. In many cases, a wife's involvement in weaving has provided the impetus for her husband to get into manufacturing. In other cases, it's a mutual decision to pool talents for an independent livelihood.

Bill and Margi Kennedy of Willowtree Looms provide, perhaps, an extreme case in point—they not only work together, but since making a recent move to the Ozarks, live right in the midst of their shop. They look forward to expanding the facility soon so they can get the kitchen and dining room out from under its layer of sawdust. "I know you need fiber in food," Margi deadpans, "but this is just too much."

There are as many roads to becoming a maker of looms as there are to becoming a weaver. Some, in fact, do begin as weavers and then go on to design the tools, Jim Ahrens, for example, or E.E. Gilmore.

Everett Gilmore at the loom

Everett Gilmore had been weaving for six years when he made and sold his first loom—a 36" 10-harness—in April of 1936. During a hiatus of several months after a heart condition forced him to give up the planing mill business he ran with his Dad, he loaded a prototype of his jack-type loom into the back of his Ford convertible and went travelling. He

visited Mary Atwater in Basin, Montana, and at the first weaving conference at Palmer Lake, Colorado; Edward Worst at Penland in North Carolina; Structo Looms in Illinois; and Gertrude Howels in Las Cruces, New Mexico. Winding up back home in Stockton, California, his doctor suggested that making looms would be a good trade for him—a good pace, appropriate physical demands.

Forty-four years and some 4500 looms later, Gilmore, at 81, still puts in four hours a day at the loom factory, and at least two hours a day at the loom. Inventing complex weaves like the one he shares here (see box), or planning ingenious projects like his aromatic hot mats filled with cedar slats, are what keep weaving always fresh and challenging. And the same sense of perfection that he puts into his weaving is what has given him a reputation for well-made, durable tools.

Schacht Spindle

Loom makers tend to be independent-minded and fiercely entrepreneurial—though the profit motive is often a quite secondary consideration. "We've opted to pursue excellence, even though excellence doesn't necessarily 'pay off' in the short run," says Paulina Mack. "Ours is, rather, a business of private satisfactions in the knowledge that we're not compromising our standards."

Vavstolfabriken Glimakra

Besides their personal lifestyles, another major concern among loom manufacturers is weaving education. Glimakra has helped set up teaching studios at various retail outlets around the country; Leclerc publishes a lot of instructional material. Walter Schutz, of Seivers Looms on Washington Island, Wisconsin, converted an old school house into a teaching studio summer before last, and has been amazed at its rapid growth. The summer of '79 saw 30 students come for intensive classes; within a year, the number had grown to 146. Schutz's School of Fiber Arts will have 22 teachers offering over 30 courses this summer, and residence space and an additional studio have been added. His theme is "Happiness is in your hands—and it keeps you young"; especially apt considering the dynamic pace of Seivers Looms, and Walter's age of 80+.

Seivers Textile School

Of all the loom manufacturers we visited, or corresponded with, or chatted with on the phone

SCHACHT SPINDLE COMPANY

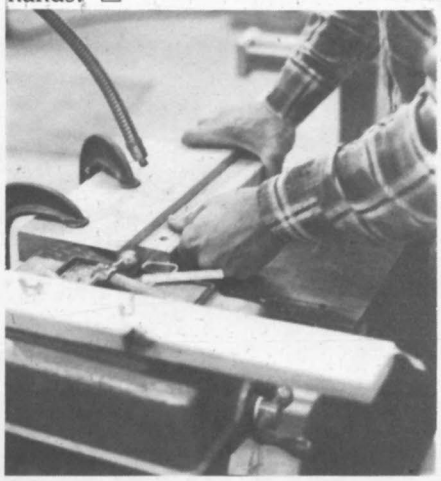
A look at the 1971 edition of *The Last Whole Earth Catalog* tells the story: it lists a small handful of "old line" loom manufacturers—Gilmore, Macomber—who are with us still; and a big handful of small newcomers that came and went with the craft boom of the early '70's. Wind Bell Inkle? Good Kharma? Nelson? Swearingen? Schacht Spindle Co.? That last one has a very familiar ring, of course, because of all the loom company start-ups of the past decade, Schacht not only has hung on, but has grown and developed to become a leader among domestic manufacturers.

The beginning was typical: girlfriend wanted to learn to spin and weave, but equipment was scarce. Brothers Barry and Dan Schacht were clever at designing and making, and pretty soon lots of other people around Boulder, Colorado, wanted their drop spindles, inkle and tapestry looms and rope machines. Where the Schachts parted company with most of the other small enterprises of that period was that they were "finishers" by nature, and Barry had as keen an interest in good business and planning as Dan did in good woodcrafting and quality control. So the past ten years for Schacht Spindle have shown a thoughtful evolution from small tools to large floor looms, and from "back of the van" sales to a nationwide network of active dealerships. Current activities continue the same growth pattern: expanding the market into Germany, Japan and Canada, and further expanding their line of looms and accessories.

While neither brother is involved in the craft as a weaver, they find it a good field to be in. "People are nice, genuine, easy to deal with," Barry points out. "Sometimes it's hard as a businessman, because our market isn't particularly business-oriented. This is offset, though, by people being incredibly honest."

After ten years, the Schachts continue to feel a strong commitment to serving the craft. "It's not just our livelihood, it's our life," they say. "And there's still plenty of room for it to be a very creative business." They view the future as a challenging time when people will be increasingly interested in doing for themselves, in supplying their personal needs in creative ways. And, among other things, that means weaving. □

in preparing this story, the one message that came through clearly is this: It's not *them* and *us;* we're all in the craft together. Good tools make weaving easier, more fun, more satisfying. Interest, constructive criticism, encouragement and support from weavers help loom makers respond to our needs. Next time you sit down at your loom, think of the hands that made it—a craftsman's hands. □



Schacht Spindle

Vavstolfabriken Glimåkra

Leclerc

UNION LOOM WORKS

You've been going to auctions and rummaging through old barns looking for a well-built but slightly dusty loom you can restore for your own use. And at last you've found it! The label says it was made by the Union Loom Works. Never heard of them, you say? Well then, sit back and let me tell you about John and Ben Elsaseyer.

John's grandfather had been a handweaver at a time when weaving was a financially practical craft. He loved weaving and taught his grandson. Now in 1897, John was making and selling small furniture such as stools and hall trees. Union Specialty Works came into being when John and his son, Ben, incorporated in 1918. Although John didn't weave much, in the back of his mind he cared about the looms weaving was done on. So in 1922, long after his grandfather died and approximately four years after he and Ben had started their small furniture business, they started building looms. They also changed the name of the business to Union Loom Works.

The company started with three basic two-harness, counterbalance looms. The advertising leader was called the Union Home Loom and sold for $9.90 (or $12.85 if you wanted it prewarped). It was not practical except for hobbyists. The Union Special Loom was the most practical and the most popular. It had a weaving width of 36" and sold for $29.50. The third loom was the Union Custom with a weaving width of 45". From the very beginning all Union looms were designed with rug making in mind.

Another son, Carl, joined the firm in 1923 and did odd jobs around the factory. The Elsaseyers prospered until the Depression finally caught up with them; they liquidated the business in 1930. Though the Depression meant the end of Union Loom Works, Union looms helped many a housewife make ends meet during that period, weaving rag rugs as a spare-time business.

John died in 1934, and both sons started new businesses. Carl began Carl Craft Company, which to this day sells carpet warp. Ben continued to make and market looms and small furniture.

Business for Ben began to pick up and at peak production, about 1948, he sold 1800 looms in one year. In the total history of Union Loom Works over 40,000 looms were sold. But the cost of materials for building looms increased and the demand for these simple looms dropped. Sales began to decline and in 1969 Ben sold his business to the Oriental Rug Company of Lima, Ohio. At that time the Union #36 loom, a descendant of the old Union Special, was selling for $110.

Today there's a vacant lot where the bustling Union Loom Works factory once proudly stood. □

TWILL woven in Summer & Winter weave
by E.E. Gilmore

This project was woven with five colors of weft to match the furnishings in a motor home and used as a curtain to close off the cab so it does not have to be heated in cold weather.

The warp is #6 4-ply natural cotton set 30 e.p.i., 5 ends per 6-dent reed. The weft is a variety of yarns, all about 4-ply knitting worsted weight.

I chose two units for each block, and there are five blocks in each repeat because of the five colors and each color is woven on a separate harness.

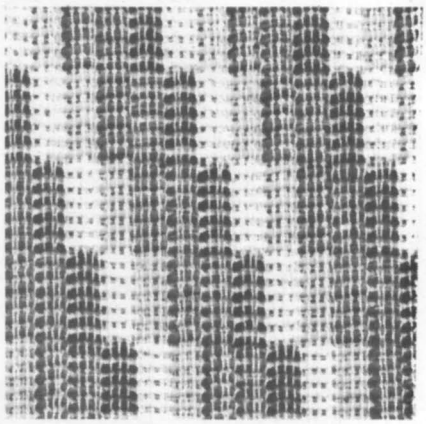
For people unfamiliar with this weave, the first two harnesses are called the "tie harnesses" and the first block was threaded on harness #3, the second on #4, etc. The first was threaded 1-3-2-3-1-3-2-3; the second was 1-4-2-4-1-4-2-4, etc.

This was woven with a straight "tie" so #1 harness was raised every pattern shot, so the warp ran straight, #2 harness was only raised in the "A" tabby with #1. "B" tabby was 3-4-5-6-7.

All five pattern treadles in turn were used for each "pick", so that each color showed in blocks across the warp. I started with black on #1, orange on #2, dark brown on #3, light brown on #4, and white on #5, and then both tabby shots—first A and then B. Then the colors were shifted so black was on #2, orange on #3, dark brown on #4, light brown on #5, and white on #1. Again, this sequence was woven a total of six times, with both tabbies thrown after each five-color weft "pick". The colors were shifted one harness and blocks of six picks woven a total of five times, until black was #1 again. Then the whole thing repeated.

This was woven full width on a 32" loom, two pieces 5' long and sewed together. This is a one-sided fabric, but the back is attractive too—but not as distinct as the front side.

To keep the yarn from being too tangled I started with my tabby at the left and both browns, and the others at my right. It was fun to weave and went fast, too.



I truly hope that some of you who read this article will do some of the experimenting yourselves if only with four harnesses.

E.E. Gilmore

AHRENS AND VIOLETTE

American handweavers are so accustomed to admiring and borrowing from more primitive weaving technologies that it might seem strange to think of the information flow going the other way. However, a number of loom manufacturers in this country have exported equipment to production workshops in Third World countries over the years. Ahrens and Violette, best known for their dobby looms, are currently involved in providing "intermediate technology" looms to handweavers in such far-flung places as Bangkok and Mexico.

At a "Technology for the People" fair in Geneva, Switzerland, in the fall of 1980, Jon Violette and Jim Hutton found that in such places as Asia and Africa, lower standards of living and an abundance of labor combine with an unbroken weaving tradition and locally produced fibers to make a handweaving industry possible.

"People at the fair were excited about the availability of an intermediate technology handweaving loom that would enable their country's craftspeople to become several times more productive and to be able to introduce new types of woven products without needing huge capital outlays and technical expertise," Violette explains. "They are continually looking for new equipment with the potential to create sorely needed jobs but which do not require people to relocate in already overpopulated cities."

An interesting case in point is the Thai Silk Company of Bangkok, Thailand, which is now testing an A&V dobby loom. This firm exports over 750,000 yards of handwoven silk each year. The company is looking for better ways to produce their country's unique silk (known throughout the world for its irregular thread density—a quality which makes it difficult to machine weave). For many years they have wanted to add pattern to their line of brightly colored fabrics. A dobby that can produce pre-programmed patterns with just two treadles will enable these traditional weavers to produce new fabrics and expand the market for Thai Silk.

Other American-made looms, like the Gilmore and the Mailes fly-shuttle, have also found their way to Third World handweavers. With such technologically advanced handweaving equipment, the future is looking brighter for handweaving throughout the world as an increasingly viable means of livelihood.

GLIMAKRA

Back in 1951 in Glimakra, a small village in the forests of southern Sweden, Lennart Persson was working hard to become a master carpenter. A handloom was the project he chose to demonstrate mastery of design and working skills; his model attracted the attention of weavers who recognized its exceptional quality, even in a country where looms have always been common household items.

Persson's "model" loom, of typical Swedish counterbalance design with built-in bench and suspended beater, soon became the cornerstone for a thriving family business which he founded in partnership with Yngve Nilsson. By 1975, enthusiastic demand had caused "Vavstolfabriken Glimakra" to grow so large that outside capitalization was indicated. It was bought by Bonnier AB, a large and diversified conglomerate with interest in many leisure-related businesses—craft/lifestyle publications, games, toys and backpacking equipment to name a few.

Today, Lennart Persson has gone full circle and once again runs a small family business, this time making flax processing tools and other small items. But his concern for good design and craftsmanship are carried on with great fidelity by the 100-plus employees and professional managers who now run Vavstolfabriken Glimakra. Company philosophy is more product- than profit-oriented, and the power hierarchy so evident in many larger corporations is greatly tempered at Glimakra. Top managers punch time cards alongside production workers, and the most valuable employee is acknowledged by all to be the man who sorts, evaluates and assigns for use each piece of lumber that comes into the factory. These attitudes result in a continuation of the kind of concerned family atmosphere that existed in the beginning, when a few hundred looms were being made each year instead of many thousands.

Interest in weaving does not stop with making the looms at Glimakra. A large, well-equipped weaving studio allows for company-sponsored classes as well as teaching programs run by the labor unions and various community and government agencies. One way or another, a very large percentage of Swedish women learn to weave!

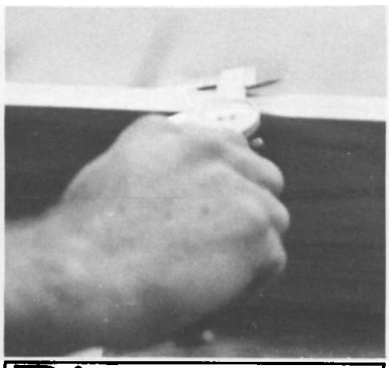
The looms are counterbalance, countermarche, damask—quiet, efficient, handsome machines evolved especially for weaving off the long, bright yards of table linens and other household goods that continue to be treasured in post-industrial Swedish homes.

Today, subsidiaries in France, Germany and the U.S. are dedicated to sharing Swedish tools and spreading Swedish standards of craftsmanship throughout the weaving world. □

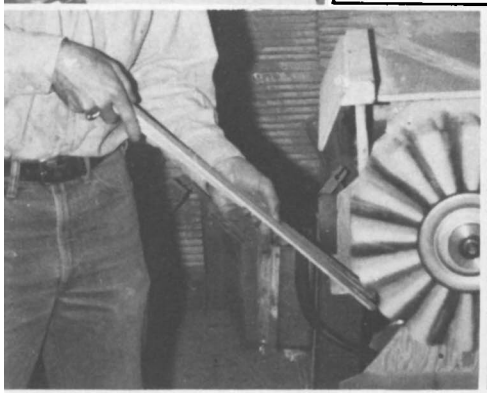
Willowtree Looms

Schacht Spindle

Leclerc



Directory of Loom Makers



ARIZONA

Sedona 86336. The Pendleton Shop, P.O. Box 233. (602) 282-3671. RH, 4H, 8H, O (yarns of all kinds, spinning wheels & supplies, books, instruction). Catalog $1.

ARKANSAS

Lincoln 72744. Willow Tree Looms, Rt. 1, Box 108. (501) 824-3920. RH, 4H (table model), O (inkle looms, spinning wheels, drop spindles, warp frame/spool rack combo). Catalog n/c. See ad p. 14.

Stockton 95205. E.E. Gilmore Looms, 1032 N. Broadway. (209) 463-1545. 4H, 6H, 8H, O (benches, warping frames, warping reels). Free brochure. See ad p. 8.

Tarzana 91356. Studio of Handcrafts, P.O. Box 686. (213) 345-2380. 4H, 6H, 8H, O (adjustable bench, table looms 4-16 harnesses). Catalog SASE.

COLORADO

Boulder 80306. Schacht Spindle Co., Inc., P.O. Box 2157. (303) 442-3212. RH, 4H, 6H, 8H, O (all accessories). Catalog n/c. See ad p. 31.

CALIFORNIA

Chico 95926. Ahrens & Violette Looms, Inc., 601 Orange St. (916) 893-4915. 4H, 6H, 8H, O (10- and 12-harness and 12-and 16-harness dobby looms). Catalog $2. See ad p. 3.

Placerville 95667. Brittany Looms, 3461 Big Cut Rd. (916) 626-3835. RH, O (walnut knitting needles & crochet hooks). Catalog n/c.

Littleton 80160. Loomcraft, P.O. Box 65. (303) 789-3066. 4H, 6H, 8H, O (weaver's bench). Catalog n/c. See ad p. 18.

CONNECTICUT

Storrs 06268. The Norrises of Storrs, 52H Willowbrook Rd. (203) 429-2986. 4H, 6H, 8H, O (14" & 18" table looms; 4-, 8-, 12- & 16-harnesses). Catalog SASE.

MAINE

York 03909. Macomber Looms, Beech Ridge Road. (207) 363-2808. 4H, O (up to 32-harness looms). Catalog n/c. See ad p. 6.

MARYLAND

La Vale 21502. Whitehorse Mountain Woodworks, 524 Mill Street. (rugs & tapestry looms, spinning wheels). Catalog SASE.

MICHIGAN

Fremont 49412. Norwood Looms, P.O. Box 167, (616) 924-3901. 4H, 8H. Catalog $1. See ad p. 59.

MINNESOTA

St. Paul 55105. Beka Looms/ Beka, Inc., 1648 Grand Ave. (612) 222-7005. RH, O (hand-weaving tools: beaters, shuttles, battens, warping boards, books; yarns). Catalog $.50. See ad p. 24.

MISSOURI

Columbia 65201. Columbia Loom & Stool Co., 410 E. Rockcreek Dr. (314) 445-2259. 4H, 8H, O (36", 44" & 48" width looms & accessories). Info available upon request.

NEW HAMPSHIRE

Harrisville 03450. Harrisville Designs, Main Street. (603) 827-3333. 4H, 8H, O (convertible looms, flyer attached). Catalog n/c. See ad p. 11.

NEW YORK

Buffalo 14210. Kyra Loom Co. 110 Duerstein St. (716) 828-0326. 4H, 8H, O (22" table loom-converts to portable floor loom). Catalog n/c. See ad p. 73.

Plattsburg 12901. Leclerc Corporation, P.O. Box 491. (518) 561-7900. RH, 4H, 6H, 8H, O (production loom). Catalog $1. See ad p. 5.

Stillwater 12170. Dorset Looms, P.O. Box 520. (518) 664-3668. 4H. See ad p. 76.

OHIO

Lodi 44254. Herald Looms, 118 Lee St. (216) 948-1080. 4H, 8H, O (related accessories, weaving bench, spool racks, shuttles). Catalog n/c. See ad p. 16.

Rocky River 44116. Glimakra Looms 'n Yarns, Inc., P.O. Box 16157. (216) 333-7595. 4H, 6H, 8H, O (table, multi-harness and damask looms; small looms & accessories). Catalog $2. See ad inside front cover.

OREGON

Deadwood 97439. Fireside Looms & Weaving, 91600 W. Fork Rd. (503) 964-3771. 4H, 8H, O (shuttlemobile, bookmobile, temples, warping equipment). Catalog $1.

Falls City 97344. Cascade Looms, 410 Lewis St. (503) 787-3885. RH, 4H, 6H, 8H, O (12-harness looms, wheels, drum carders, weaving & spinning tools). Catalog $1.

McMinnville 97128. Robin and Russ Handweavers, 533 N. Adams St. (503) 472-5760. 4H, 8H, O (books, weaving accessories). Catalog $2.25 + $1.50 includes yarn samples.

Portland 97214. Crisp Woodworking, 333 S.E. 3rd. (503) 238-0503. RH, O (vertical looms, tapestry looms). Catalog $1. See ad p. 73.

UTAH

St. George 84770. Wacousta Looms, Box 1109. (801) 673-3273. 4H, 8H. Brochure SASE.

VERMONT

Fair Haven 05743. Tools of the Trade, RFD 1. (802) 537-3183. 4H, 8H, O (12-harness looms, benches, accessories. See ad p. 77.

WISCONSIN

Fort Atkinson 53538. Nasco, 901 Janesville Ave. RH, 4H, 8H, O (weaving supplies). Catalog n/c. See ad p. 14.

Washington Island 54246. Sievers, Jackson Harbor Rd. (414) 847-2264. 4H, O (wheels and instruction). Catalog $.50. See ad p. 21.

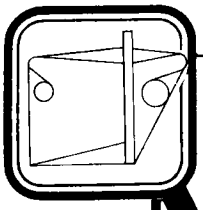
Wauwatosa 53005. Kessenich Loom & Knit Shop, Inc., 7463 Harwood Ave. (414) 258-2025. 4H, 6H, 8H, O (weaving accessories). Catalog n/c. See ad p. 91.

CANADA

Montreal, P.Q. H2Y 2T2. Atelier Beauregard, Regd., 477 St. Francois Xavier. (514) 843-3187. O (tapestry looms & accessories; instruction).

Oakville, Ontario L6J 1P7. Sue-Sam Products, 120 Randall St. (416) 827-6474. RH, 4H, 6H, 8H, O (made to order looms). Catalog $1.

KEY: RH=rigid heddle, 4H=four harness, 6H=six harness, 8H=eight harness, O=other.



DO-IT-YOURSELF MAINTENANCE

by Eric Redding

Not all looms do the same thing and not all looms are made the same way, so this article is very general. If your loom is giving you specific problems not covered below contact your local supply shop, the manufacturer, or me through this magazine.

YOUR LOOM is a piece of furniture as well as a tool to make fabric. The care and maintenance of your loom is simple. There are three basic maintenance components to your loom. The first is the wooden framework; the second deals with the moving elements or mechanical care; and the third concerns the general care and well being of the entire unit.

First, the wooden framework. You know that furniture lasts longer and looks better when the wood is properly cared for. Varnished, waxed, stained and/or oiled, wood needs care to retain its natural beauty and dimensional stability. Depending on where you live or the season (winter dryness for instance), the wood can dry out. If your loom is varnished, I recommend that you use a good quality furniture polish. The polish not only cleans but also leaves a protective wax coating that can further protect your wood. If your loom has been oiled, reoiling with danish oil or linseed is good. Use the same type of oil as the original finish. The timing of the care of the wood is up to you, but as with furniture, your wood will look better and hold up better if it is cared for more often.

Another item to consider is, keep your loom away from intense heat sources such as space heaters or heating vents. The heat blasting on one side or one leg of the loom can cause that side to dry out. As the wood dries it shrinks. Shrinkage can cause weakness in the joints as well as in the wood's grain.

Second, mechanical care. Since your loom is also a tool it will also need mechanical care—lubrication of sliding and pivoting and turning points, specifically. Using oil to lubricate is okay but it tends to become black and greasy and all the fuzz from your yarn will stick to it and will generally gum up the works. Silicon spray is a good lubricant except for metal-on-metal friction points; it's fast, easy, and cleaner than oil. Since it comes in a spray can you can easily point and spray and get to those difficult-to-reach spots under the harnesses. Where oil is indicated, use sewing machine oil. It's lighter and "cleaner" than other household oils.

Oftentimes a good cleaning under the harnesses and lams and around the pulley turning points (on counterbalance looms) is all a loom needs for smooth operation. How much you weave will determine how often you need to clean and lubricate. I strongly recommend a thorough going over at least twice a year, even if your loom sits idle a lot. For production work, maintenance must be constant and on-going. Your loom will operate more easily and your comfort while weaving will improve.

If your harnesses rise and fall in tracks, these tracks should be kept clean and smooth. With use the ends of the harnesses and the tracks will become smoother, but if lubrication is needed, use paraffin or paste wax (for wood on wood) or spray silicon for wood on metal. If a harness tends to stick, first check its balance. Sometimes if you have all the unused heddles on one side, this imbalance can tip the harness and cause it to stick. If this isn't the answer, take a rag or fine steel wool and clean the track and the end of the harness.

Another mechanical device that may need your consideration is the friction brake on the back beam. This brake is designed to hold firm using the frictional drag between the brake cable and brake drum. Do not lubricate the friction brake cable and brake drum! If the brake is not releasing or tends to stick in places, chances are that dirt or weaving fuzz has gotten between the cable and the drum. Remove the cable, taking care to note which direction it was wrapped so that you will replace it the same way, and wipe the cable and the drum with a rag. Rubbing the brake drum down with fine steel wool is also a good idea. Rewrap the cable around the drum and check how easily it releases. A properly functioning brake should allow you to release the warp's tension just slightly or fully or somewhere in between. If you are still having problems, check the attachment between the brake treadle and the brake. Is the cord too long? Shorten it if this is the case. Is the cord too short? Lengthen it. On most looms, the brake treadle should be depressed only 1"-3" to release the brake either a little or a lot.

If the brake still does not release smoothly, you may need a new cable. The slightest kink or bent spot in the cable can keep it from releasing properly. If you think that this is your problem, replace the cable. Again, when in doubt, contact your local supply shop or the manufacturer.

A final note about friction brakes: new looms seem to need a short period of time to break in. That is to say, if your friction brake is not releasing easily and smoothly right away, give the cable a little time to smooth the brake drum.

Third, the general care and well being of the loom. Insofar as the structural integrity of the loom is concerned, it is a good idea to check the tightness of the bolts, screws, nuts and wedges periodically. When you are weaving, your loom is vibrating; this vibration will loosen some very important bolts, etc. Some bolts and screws are meant to be tight and some not so tight. So when you and your wrench or screw driver are busy tightening, take care not to tighten bolts that are meant to remain somewhat loose, as is the case with beater pivot points on most bottom pivoted beaters.

Another item to consider is, is your loom level? If not, your fabric can skew. Warp and weft, in most weaves, should interlace at right angles. If the loom is not level, you can expect that the beater and the beams might not be

square to each other; this can lead to tension problems and/or non-straight beat. Are both sides of the beater resting against the castle when the beater is pushed back? If not, lift one of the loom's uprights and see if that balances the beater; or lift the other one and see if it does. Place a shim (a slim piece of wood or cardboard) under the upright that was the right one.

If you have a top mounted beater, pull it toward you. The beater should come up flush against the front of the loom. If the loom is not level, level it up as above.

Sometimes a beater not beating straight can be caused by the bolts attaching the uprights to the top and bottom of the beater rails. If the shimming of the loom's upright does not work satisfactorily, try this. Loosen the four bolts holding the two horizontal beater rails. Retighten these bolts in pairs, i.e., tighten the two on the left and then the two on the right. Tightening the bolts in such an order, if necessary, will straighten your beater. If you still have problems, check the loom over carefully making sure that (1) you have assembled it correctly, and (2) that all of the holes, notches, etc. in the loom have been correctly placed.

Another item that can cause problems is rust. Rust is often found on the reed but it can show up on any unprotected metal part. On the heddle bars and along the length of the heddle, slight rusting is only unsightly and will not cause enough damage to affect the loom's function. However, when rust gets in the reed and the heddle eyes this can be quite a problem. Not only is it unsightly, but it can soil and abrade the warp as well. As a general rule, clean rust spots immediately with steel wool and/or naval jelly. For an extreme problem, have a glass bead blasting by a machine shop. Your hardware store has such items as spray plastic that can be applied to metal to help keep rust from reappearing.

A problem that most frequently occurs in older looms, though not unique to them, concerns worn or stretched ropes or cords. The biggest problem is that some cords get longer than others in the same set. For instance, notice the ropes that are attached to the harnesses and go around the pulleys on a counterbalance loom. If one cord is slightly longer than the other then the result will be a tilting shed, an obvious problem when you consider the path of the boat shuttle. If your loom is older, inspect all other ropes. If any appear worn or if some that are part of a set seem longer, replace or at least retie the knots so that all cords in a set are the same length. New cords are easily obtained from the manufacturer or the hardware store.

A common occurrence when a new weaver gets a floor loom is that he may use only half of the treadle tie-up cords. The other half may be put aside until more exotic weaves are explored. No cord is totally immune to stretching, and/or no new knot is as tight as it is going to be. With use a treadle cord may either stretch slightly or the knots making the cord into a loop may tighten. If either of these occurs, however slightly, and if you have only used a part of the bundle of cords that came with your loom, the half that has been used will be a different length than the half you put aside. I suggest that you try to use all of the cords equally. If there is any stretching, they will all stretch the same. It is very important that the treadle cords be the same length. If they are not, some of the harnesses will not rise as high as others, giving you a split shed—again a problem if you want to throw a shuttle. Regardless of the tie-up mechanism—cords, link-cord, chains, wires, etc.—I strongly urge you to use them all equally in your weaving.

Suffice it to say that with care and common sense, your loom, your beautiful loom, will help you make beautiful weavings for a long time. □

ON BUYING USED LOOMS

by Kathryn Wertenberger

Before you go used loom hunting, do your homework. Read books and all the loom catalogs you can and go to see as many looms as possible. Make a list of the features you'd like to have and rank them in order of importance. Keep in mind that because the selection is limited you probably won't get everything! Have a rough idea of what the budget will stand. Expect loom prices to vary considerably. Looms have more than tripled in price in the last 15 years so the age may make a difference in how the seller values it. Age actually makes little difference as there have been few changes and it's hard to hurt a loom.

Where to look

Tell everyone you talk to that you are looking for a loom. It's amazing how many people know someone who used to weave. Check with weaving teachers, schools, shops and guilds to see if they keep a bulletin board of equipment for sale. If you know anyone who works in a nursing home or in therapy projects, ask them. Looms are given to these places and they have no space or personnel for weaving projects. Often these looms may be traded for, borrowed, bought or rented perhaps in exchange for your services. Watch for newspaper ads. Particularly look in the miscellaneous for sale, craft and hobby equipment and garage sales. Sometimes they are listed under antiques, but watch out to be sure that they are not overpriced. There are many old looms but few antique ones! Place an ad yourself that a loom is wanted. This seems to work well in small towns.

Evaluating what you find

Note for each loom you look at the width (measured inside the harness frames); the number of harnesses and their action i.e. counterbalanced, jack or countermarch; the number of treadles. Judge the general condition of both the wood and metal parts. Metal reeds and heddles are easily replaced, but missing beams may not be. Take some yarn such as carpet warp with you and tie six or eight warps on to judge the size of the shed. Sit down at the loom and try the treadles to see if everything works smoothly. Check also to see if the loom fits you. Is there room for your knees under the front and cloth beams? Can you reach the treadles? How convenient is the warp release? How easily is the tie-up changed? The reed? Can the breast and back beams be removed for warping? Is the frame sturdy? Is the loom commercially made or home built? Be particularly careful if the loom is home built. Every home carpenter thinks he is going to "improve" the design he is using for his loom, but a great many don't know what they're doing. A counterbalanced style has a better record of success than a jack style.

At this point, get some advice if you can. Talk to a weaving teacher and others who own similar looms. HINT: Don't ask them if they like their loom—they quickly become defensive. Ask them if they would buy the same kind again. You'll often get quite a different answer.

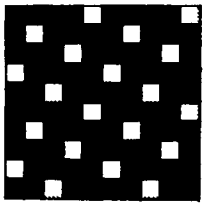
Now, check the asking price against the price of new looms. If you have to pay near new price, then why not buy new and get the features you want? But if the price is fair, then check the features against your want list. Are any books or accessory equipment included in the price? Do you need them? Then consider their value, too. Keep in mind that if you are agile, perhaps you can put up with quite a bit of inconvenience to keep within your budget. But don't buy a loom that you really don't like. You'll not use it. A final word, act quickly, good used looms go fast.

SATIN-ON FOUR

by Miranda Howard

MANY WEAVERS want to weave a fabric with the look and feel of satin, but do not have an eight-harness loom to use. But now with a four-harness loom weavers can weave a fabric with the smooth, draping quality of satin.

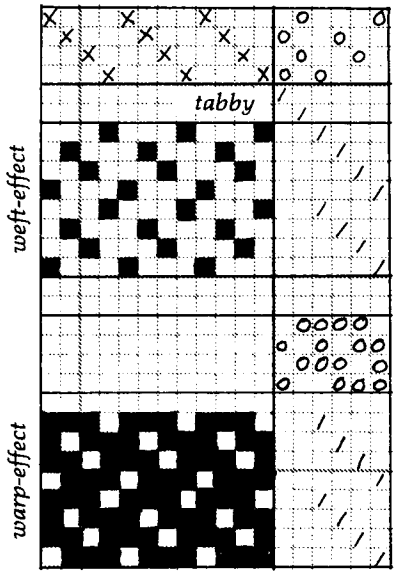
A true satin weave is woven on an odd number of harnesses, no fewer than five. Within the weave structure there are no two intersections of warp and weft adjacent to each other. Four-harness satin weaves, as the name implies, are woven on four harnesses and are technically broken twills. Since they are broken twills there are warp and weft intersections adjacent to each other throughout the weave structure. Because these broken twills do resemble satin weaves they have become known as four-harness satins or mock sateens.



Five-harness satin weave, note no adjacent warp and weft intersections.

There are many advantages to four-harness satins besides being able to do them on a four-harness loom. One of these is that tabby can be woven in conjunction with the satin to expand design possibilities. Like all satin weaves, four-harness satin is threaded on a straight draw threading. When using four harnesses with this threading an odd number warp is always next to an even number warp, allowing the weaver to weave a correct tabby with the weft under one, over one. With true satins, however, where an odd number of harnesses are used, odd number warps appear next to each other making a tabby impossible as the weft would end up over one, under one, over one, under two . . . and so forth. By having a correct tabby, with a four-harness satin the weaver can mix weft bands of satin with tabby. The satin bands will be slightly raised and have a smooth surface in comparison to the tabby stripes. Weaving a stripe pattern of this kind is more decorative than having all tabby stripes. National costumes from many Northern European countries are woven in this manner. Skirt fabrics for the costumes are woven with satin and tabby stripes in the weft, but the pieces of the skirt are cut crosswise on the grain of the fabric creating a vertical stripe when the garment is sewn together.

Four-harness satin weaves are easily changed from weft effect to warp effect. That is, a weave that has a dominant weft can become a weave with predominant warp. To do this the tie-up of the loom is changed. This can be done with a true satin weave as well, but is faster to do with four-harness satins as only four treadles are being used. Design possibilities for overall stripe patterns widen when changing from weft effect to warp effect. Both effects will appear sturdy and smooth. If using a striped warp, the warp stripe will show up in the warp effect but will be unnoticeable in the weft effect weave. While both sides of the fabric are opposites of each other, they are equally attractive.



Four-harness satin weave, warp and weft-effect. Note adjacent intersections.

The weaver can see that odd number harness satins must be woven with fine yarns at close setts (36 e.p.i. or more) because warp and weft intersections are not adjacent. Four-harness satins do have adjacent intersections, and therefore, they are tighter, more durable fabrics. Because they are tighter weaves, the weaver has the choice of using thicker yarns at moderate setts (15 e.p.i. to 30 e.p.i.) as well as fine yarns at close setts. Because thicker yarns can be used, dressing the loom and actual weaving time can be cut down. This is especially helpful to those weavers who would like to weave fabrics but are finding their weaving hours fewer and fewer.

There are many uses for four-harness satin weaves, from clothing to household articles. The draping quality of this weave makes it ideal for well-fitting clothing and draperies. The tightness of the weave makes it appropriate for upholstery. Weavers will also find it suitable for table linens as it lies very flat.

When beginning a project in four-harness satin weave, materials must be chosen carefully. Even, tightly spun yarns like perle cotton, worsted wools, cottolins and linens are best for warp and weft. Novelty yarns are not suitable as they often overwhelm the beauty and simplicity of the weave. Warp sett should not be under 15 e.p.i.; even this is inappropriate for anything finer than 5/2 perle cotton.

As mentioned earlier, clothing fabric can be woven by mixing weft effect satin with tabby for a uniform stripe pattern. This is how the fabric for the jacket shown here was woven. The fabric was woven with a weft stripe of satin alternated with tabby stripes. The pattern pieces of the garment were cut crosswise on the grain of the fabric so they would become vertical stripes when the jacket was completed. A Marimekko Farmer's Shirt pattern was chosen for this jacket, though any jacket pattern with simple lines will work. Cottolin in 22/2 weight was chosen for both warp and weft. The pattern required $2^3/_8$ yards of 30" fabric. Considering that cottolins shrink approximately 15%, more length and width were added. The warp was 4½ yards long to accommodate for shrinkage and loom waste and 36" wide sett at 20 e.p.i. Resulting total warp yardage was 3250 yards. Weft yardage was approximately 2500 yards, just over 75% of the warp yardage.

Proper fulling of all fabrics is important as it closes up any gaps between warp and weft as well as preshrinks the fabric before it is sewn. After this fabric was woven, it was gently fulled by soaking it in hot water

photo by Joe Coca

Cutting diagram for Miranda Howard's sateen Farmer's Shirt is on p. 76.

for an hour, then hung to dry over a shower curtain rod. Estimated shrinkage was correct and the fabric came out just over 2⅜ yards long. The jacket was then sewn according to the pattern instructions.

Every weaver can enjoy the simplicity and beauty of satin weaves, even with four harnesses. Weave samples, then perhaps move onto a table runner or placemats in preparation for weaving a unique fabric for your home or wardrobe.

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LOOMS FROM THE PAST

by Ken Colwell

RESCUING A BEAUTIFUL hard maple 1840's loom from an antique dealer who had purchased it for its carvings and fine workmanship was the start of the extensive textile equipment collection I have gathered at the "Looms", a museum—studio—shop in Mineral Point, Wisconsin. Although there is little indication that many displaced professional weavers of fancy goods from Europe settled in Wisconsin, the state's strategic location at the meeting of the St. Lawrence and Mississippi waterways, plus its varied topography, attracted settlers from almost 50 nationality backgrounds. Thus the equipment I've collected in this area is quite varied in design and in the functioning of such minor mechanisms as brakes and shaft supports. The equipment was intended for use by home weavers or professionals who made simple functional fabrics. There are no looms with evidence of ever having more than four shafts.

When I began pursuing leads on old looms about 12 years ago, it became obvious there was a definite distinction between the pioneer ethnic looms and a later manufactured variety designed for a specific purpose. Local production of fabrics for home use gave way to the purchase of the factory-made products after the Civil War and the newer looms were designed for the production of rag rugs as a cottage industry. They functioned with varied levels of sophistication, from simple two-shaft to automatically sequencing four-shaft with sectional beams, fly shuttles and automatic tensioners. A rare, small rigid heddle loom was sold as a package with instructions and linen for the production of napkins. Although the company marketing this was to purchase the finished products, it would appear that their major motivation was the selling of the equipment and supplies.

Even later, a third type of loom entered the picture. Equipment developed for the 'hobby' weaver—the weaver motivated by the need for artistic expression, pleasure or profit. Some of this early equipment, such as the Devereaux or the plans published by Edward Worst have strong similarities to the pioneer looms, but they developed into the compact, usually jack action equipment of today. As sophistication grew we see the addition of shafts up to 16 or 20, double warp beams, sectional warping, dobbies, double harnesses and fly shuttles.

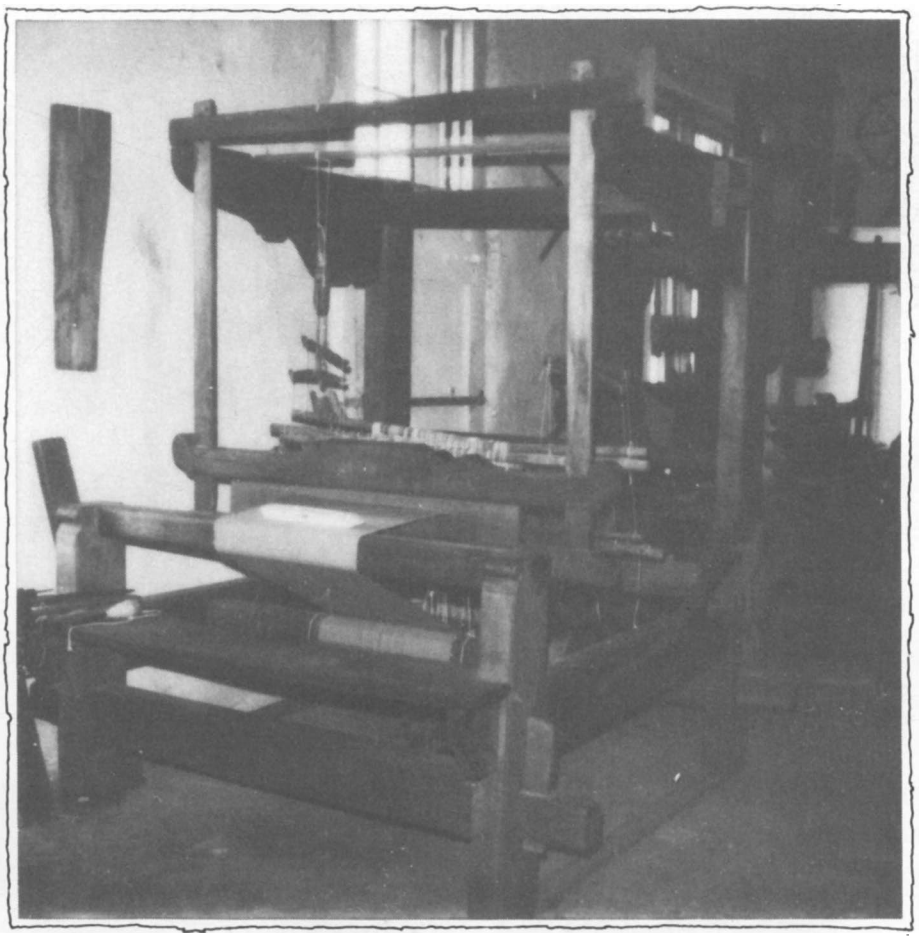
Today's handweavers are interested in a wide variety of techniques and equipment. There seems an increasing interest in complex weave structures and thus the complex equipment. But with old books being republished, conferences devoting time to weave structures, and the rapid expansion of the Complex Weavers* group, it seems a time to look backward.

What do the old books, drafts and equipment have to offer us? Does current equipment meet all our needs or did the huge, heavy looms of the past have their advantages? And what of the time-honored techniques of dressing the looms and weaving on them—can they be useful to us? Do our fellow artisans of the past have a heritage to pass along?

The "Looms" was fortunate in having Mary Beth Burkholder of Ohio's pioneer village in residence during a recent summer. Her function in Ohio was to demonstrate the techniques and practice of a professional production weaver of the early 1800's. To demonstrate the efficient production of yardage she chose the first loom in the collection with its overhead beater, four shafts with string heddles, no lamms and counterbalanced action. Her speed almost matched that of another very competent weaver using a dobby with a fly shuttle, and was an inspiring example of rhythmic motion and economy of effort.

Modern weavers are familiar with the four harness floor loom in its many varieties. Except for the Scandinavian looms, this typically means a compact, partially folding loom with a jack action and underslung beater. Less typical would be the addition of more harnesses, two warp beams, perhaps sectional beams and, rarely, a fly shuttle.

Compared with these modern looms, what did the old loom have to offer? It is very heavy and strong. It does not "walk", can take incredible tension. Although it seems very permanent the removal of six wedges permits it to be collapsed for movement or storage. Its back beam is controlled



The original Norwegian loom of the "Looms" collection.

Complex Weavers: Eleanor Best, 7130 Eastwich Lane, Indianapolis, IN 46256.

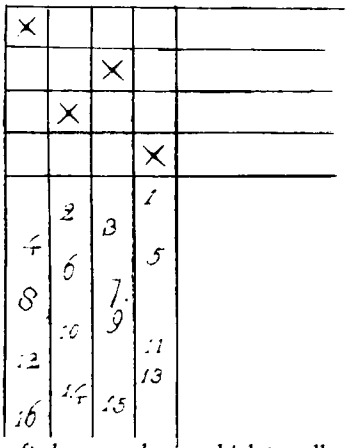
by a ratchet, but the weight of it prevents it from spinning when released. This beam is grooved to hold a cane stick, a simple stick that goes through the uncut loops of the end of the warp and is then inserted in the groove. This provides a perfectly smooth surface with no knots or other protrusions to alter the warp length.

The beater swings from above, can be raised and lowered, moved toward the weaver or away and is quite heavy. Its swinging motion is strange at first but it does not have the dead feel of an underslung beater and it encourages the development of a rhythmic motion.

The harness is suspended from the upper rails and it, like the beater, can simply be lifted off, opening up the entire loom for the warping process. The heddles are string; quite easy on the warp and light to lift. The harness is counterbalanced with a combination of pulleys and horses and each shaft is directly connected to a pedal, there being no lamms. Balancing or gaiting the harness takes patience until one has experience with the peculiarities, but the light, easy action has its advantages when compared to lifting the weight of the jack-type harness. Pedals are hinged from the rear, increasing the power ratio of the feet. The tendency for them to flop about is resolved by dowels in a board protruding up between the pedals and controlling their sideways movement.

One of the great advantages of the old loom is the distance from front to back beam. More space is provided for the warp to stretch and adjust itself. This is a particular advantage with a fiber such as linen which is non-elastic.

What seems to be a significant disadvantage is the lack of lamms and only four pedals. Yet our early fellow artisans turned this to an advantage. A system of "walking the treadles" was developed. The second and third shafts were tied to the third and second shafts respectively. This permits a tabby shed to be formed by one foot pushing pedals one and two and the other shed by action of three and four. In

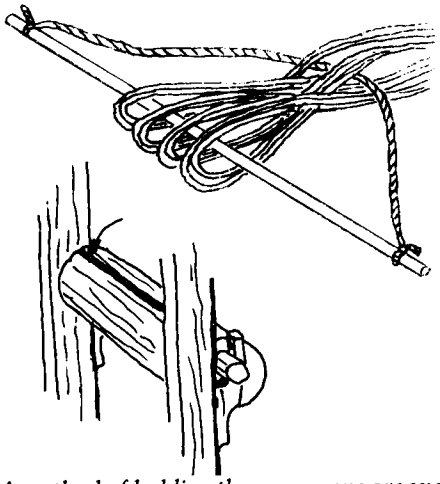


Old draft shows order in which treadles were "walked".

weaving twill, shafts 1-2, 2-3, 3-4, 4-1 are lifted sequentially—but with this tie-up the pedaling becomes 1-3, 2-3, 2-4, 1-4. A moment's thought shows that one foot always remains on the same pedal from one shed to the next. This steadies the weaver's body, and is a quicker motion with less chance of hitting the wrong pedal. This technique was also used in more complex pedalling sequences even where lamms were used.

The old looms were dressed from the back. Reprints of the Hooper and Worst books plus other less frequently seen ones explain this method. The system is also common in other Western countries and the American weaver seems alone in using the "from the front" method. Starting from the front does save the need for a raddle and if the warp is short the snarls and tangles would compound themselves as the length increases. The weaving revival in this country has been characterized by experimentation, requiring frequent changes in drafts and warp materials. Thus the need for economy of effort and time in making long warps were secondary considerations.

In dressing their looms from the back, our weaving forebears prepared a warp with two crosses, a singles cross for entering through the heddles and a cross grouped so each bundle contained the ends per inch or a fraction thereof. This second cross could readily be entered into the raddle and after the end loops were secured by the cane stick and fastened into the cane roller, the winding on could proceed. Once on, the lease sticks were inserted into the front singles cross, the harness was rehung and the heddles threaded. Then the beater was hung and the warp reeded.



A method of holding the cross; cane groove on warp beam.

This system works best with two people; if there is adequate space in front of the loom the warp is unchained as far as possible, allowing it to adjust itself somewhat. Only rarely is there a loose warp end and if the temptation to adjust it is resisted it seems to disappear in the weaving process. The great advantage of this system relates to a process that happens to the warp as it is reeled or measured. Each bout of warp develops a cohesiveness within itself and the individual ends cling more to the other ends in the same bout than they do to adjacent bouts, much the same way a crowd of people tends to break up into small groupings. The old system does not disturb the groupings, but warping from the front breaks up these bouts. Then if the ends are not tied to the back apron very carefully, some are longer than others. These two factors seem responsible for the snarls and tangles, the frustrations and the unnecessary wearing of the warp that often occur in warping from the front. This fundamental warping method is only one of many areas in which the old weavers and their looms can instruct us.

What of the specialized rug looms? Commonly they have sectional beams. Very long but even warps could be made by one person working alone. There was little or no need to alter drafts, since the primary design elements in most rag rugs is dictated by the colors of the rags provided the weaver by the customer. The "Looms" collection has two looms from the same manufacturer and there are others where the same warp design apparently has been on the looms since their purchase three or four decades ago. This lack of emphasis on weave structure and warp design makes the use of cam-controlled harness (an automatic shed-sequencing device) quite feasible; and the more complex rug looms had either this feature or a punched tape control which was very repetitive. The rug loom was so specialized that it seems to have little to offer the current weaver.

The present-day weaver has a great variety of equipment available. Although most modern looms are not as confining as the rag rug loom, many serve some needs better than others. The type of equipment a weaver selects should relate to the type of weaving to be done. Knowledge of the equipment and, if possible, experience with it before purchasing can eliminate the miseries of tolerating the wrong loom. The old looms, both simple and complex, were modified and refined over long periods and the techniques which exploited their particular advantages are indeed relevant today. As weavers, we have a long heritage—and a part of this heritage is maximizing the use of the available tools. □

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LOOM-CONTROLLED LENO

by Sharon D. Alderman

ONE OF THE prettiest of the lace weaves, leno, is also one of the most time-consuming to weave. Weaving leno is a way of getting an open, lacy fabric that is stable to washing and wearing. The good news is that leno may be woven with the help of your loom!

Weaver-controlled leno is woven by picking up warp ends, twisting them around each other and holding that twist on a rod or a pick-up stick until all the warp ends which are to be woven have been secured. The weft is inserted in the opening held by the stick and then the stick is removed. The next pick is woven tabby to permit the warp ends to twist back, completing the sequence. The process of twisting all the pairs of warp ends is tedious work but the effect is quite lovely (fig. 1).

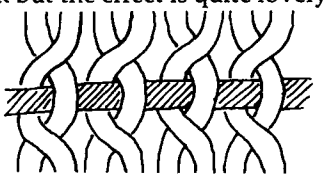


Fig. 1. One-around-one leno

The loom-controlled leno described here is the simplest one to use. It is called "bead leno". In times past glass beads were used; they needed to be the right size and had to be perfectly smooth inside to avoid snagging or cutting the warp. Today's handweavers need not search for such beads but may make their own out of plastic drinking straws. The best straws for this purpose are ¼" in diameter (the box tells the diameter) and are perfectly round. (Sometimes a box will reach the market shelves with a crimp that runs along the length of the straws. These crimped straws function satisfactorily in their intended use but will break when used as beads.) Open the flap carefully and peek to be sure they are round. The beads are made by cutting the straws into ¼" lengths. (I have found that 1/8" sections tear in prolonged use and 3/8" sections are wastefully long and may reduce the size of the shed opening a little bit.) It is easiest to use a pair of scissors and a deep bowl or kettle or wastebasket. Cut the straw while you hold it near the bottom of the container. The little sections tend to spurt away from the scissors so a deep container will keep them from flying about. We had a cat who was simply mad about them and would chase them all over the room and bite them, ruining their shapes, so be warned! Once the straw segments are cut, they may be saved from one bead leno warp to the next and used over and over again.

Bead leno requires a four-shaft loom, jack or countermarch. The deeper the weaving space (the distance between the breast beam and the beater), the easier the weaving will be. Dress the loom in your usual way; weavers who beam first and then thread will be at an advantage here. Thread the warp in a straight draw: 1, 2, 3, 4, 1, 2, 3, 4, etc. The beads are installed between the heddles and the reed, so if you sleyed, threaded and then beamed the warp, you'll need to pull the warp ends out of the reed. If you beamed your warp and then threaded it, you will be all ready to go.

Think of four warp ends as one unit. The threads that pass through heddles on shafts one and four go through the bead together. The threads that pass through heddles on shafts two and three, go *over* the bead (fig. 2). Knot these four ends together in a slip knot so that the bead will be held securely while you install beads all across the warp. When all the beads are in place, put the warp through the reed. *The four ends making one unit must pass through the same dent.*

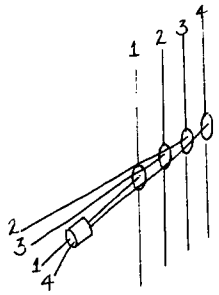


Fig. 2. Bead placement

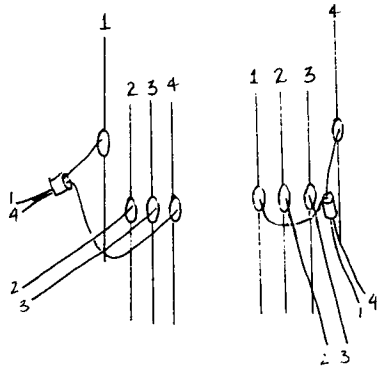


Fig. 3. Leno sheds

The warp ends will act in pairs: 1 & 4 together and 2 & 3 together. To weave tabby, lift shaft 1 and then 2 & 3. To weave leno, lift 1 and then 4; figure 3 shows what happens. Lifting shaft 1 brings the bead and its threads to one side of the ends on shafts 2 and 3. Lifting shaft 4 brings the same pair to the other side of the 2, 3 pair.

The four-shaft and bead arrangement can be thought of as a unit in a block weave. If your loom has eight shafts it is possible to weave bead leno in two blocks. One block is made up of 1, 2, 3, 4 units repeated as desired. The second block is made up of 5, 6, 7, 8 units repeated. The bead in the second block carries warp ends on shafts 5 and 8, with warp ends on 6 and 7 lying above the bead. Figure 4 shows the treadling for all four possibilities: tabby everywhere, leno everywhere, leno in the first block only, and leno in the second block only. If the blocks are

8				o			o
7		o				o	
6		o				o	
5	o		o		o		o	
4				o		o	
3		o					o
2		o					o
1	o		o		o		o	
tabby	✓						
everywhere		✓					
leno			✓				
everywhere				✓			
leno 1st					✓		
block only						✓	
leno 2nd							✓
block only							✓

Tie-up for 2-block leno

Fig. 4. Tie-up for two-block leno

woven equally, take-up will be the same in both blocks and tension problems will not arise. Bear in mind, too, that the tabby sections beat more closely than the leno sections (an open cloth was the whole idea!) so extra picks of tabby will be required in the tabby blocks to give a balanced weave there.

Bead leno has its limitations, like everything else. When working leno by

hand, the weaver may introduce small sections of leno anywhere in the web. The weaver may twist one warp end around one warp end, two around two, three around three, one around three, in short, any combination limited only by aesthetic and structural considerations. Bead leno is limited to the use of two warp ends twisted around two warp ends.

The tabby region is limited to a sort of half-basket weave: two up, two down. If the same yarn is used for warp and weft, then the tabby sections will be strongly warp-faced. The warp will show about twice as much as the weft does. There is no way to get around this effect with this technique but there are ways to compensate. If the weft is doubled on the bobbin, the tabby sections will be balanced. Alternatively, a weft may be used that is twice the weight of the warp yarn, as in the curtains shown here.

The action of the loom is also somewhat limited: most of the sheds generated are rather small. Weavers are innovative and imaginative, so small sheds don't need to be an impediment. Here are some helpful hints:

- Help yourself by choosing your lowest profile boat shuttle; a shuttle about 1" high works well.
- Do not be tempted to over-fill your bobbins. They must not be so full that the yarn shows over the top of your shuttle when viewed in profile because they will catch in the shed.
- Advance your warp often; the longer the weaving space, the better. Ten inches between the reed and the fell is ideal, but I have woven bead leno on a table loom successfully.
- Strumming the warp lightly with your fingertips will help the beads on the other side of the reed to slither into position.
- Keep the warp under modest tension. Think about it for a moment: the warp ends that shift to the left and right need a little slack to permit them to move easily. Start with the warp fairly loose and tighten it slightly until the sheds are made with the greatest ease. A little experimentation will show which tension is right.
- Finally, when weaving leno, it is a good idea to treadle 1, send the shuttle across, lift 2 & 3 to free the beads, and then lift 4 to weave the next pick. You will be surprised at what a difference the addition of an intermediate, but unwoven, shed makes.

The most effective yarn choices for this technique are the same as those for leno in general. The lace weave shows to best advantage if the yarns used are simple, that is, smooth with a consistent diameter. The warp yarns for bead leno must not be fuzzy or "sticky" so that they cling to each other and make it impossible to open a shed. I prefer to use only one color in warp and weft when weaving leno because the interlacement is "where the action is". The weave structure is important.

Instructions for Sharon's curtains are on p. 82.

MORE HARNESSES MAKE THE DIFFERENCE

by Kathryn Wertenberger

To understand the value of more harnesses, one must learn to recognize blocks. Blocks are areas that weave alike. To identify blocks, look at figure 1 and divide it into three *vertical* columns where the pattern breaks (Fig. 1a). The first and third columns are alike, the middle one different. Thus, there are two different things happening which means that it is a two-block pattern. To simplify designing and threading, a profile threading draft is used (Fig. 1b). The profile only shows the size and relationship of the blocks, i.e., that the areas to be threaded are all the same width (though they don't have to be) and the first and third areas are alike. Blocks are customarily labeled A, B, C etc. The profile does *not* show on what harnesses that warp is threaded—more on that later.

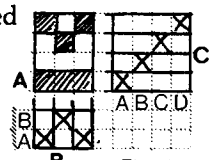


Fig. 1

Now look at the horizontal rows of Fig. 1. It divides into four different areas. A treadling profile can be developed which shows that there are four blocks all the same height and each one is different (Fig. 1c).

Look at Figure 2. How many different threading blocks are there? Don't be fooled, there are two different ones forming the butterfly, but we must allow for the background space between them. There are three blocks and the profile looks like Fig. 2b. The treadling profile, Fig. 2c, shows four different treadling blocks, two of them repeated.

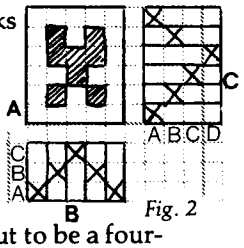


Fig. 2

Figure 3 works out to be a four-block threading profile and a six-block treadling profile.

Figure 4 is a five-block threading profile and a seven block treadling profile. Figure 5 has a seven-block threading profile and an 11-block treadling profile. Figure 6 is the final exam! Did you get 14 threading blocks? Did you remember to include blocks for the background and the border? Treadling is 30 blocks.

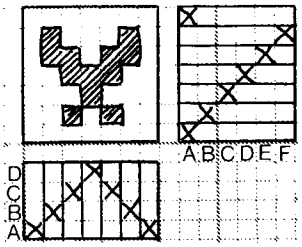


Fig. 3

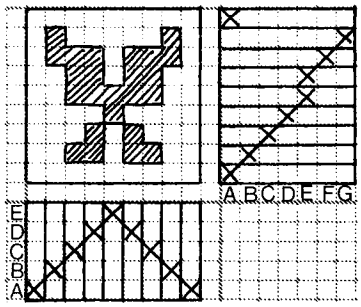


Fig. 4

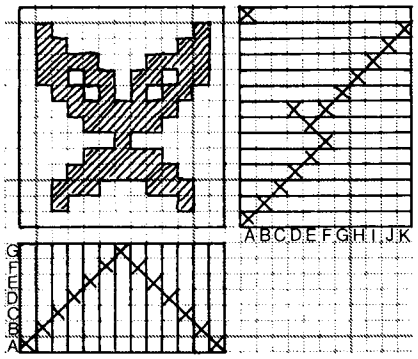


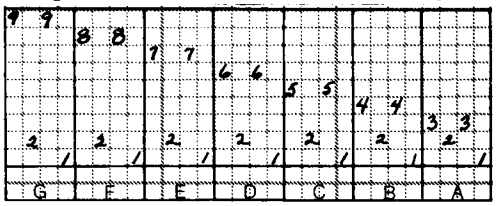
Fig. 5

Do you now see how more blocks make a design more complex? Conversely, do you see how your designs can be simplified? Try some block designs of your own such as flowers, hearts or elephants. You'll see that designs that are symmetrical, such as butterflies or hearts, require fewer blocks. Elephants, on the other hand, require more but can be very interesting.

THREADINGS

Because the designs require that adjacent blocks be combined to form solid areas, any of the unit class of weaves may be used. Among these are summer and winter, bronson lace and damask. *The Handloom Weaves*, by Harriet Tidball, HTH Publications, is recommended as a comprehensive guide to these and other weave structures.

Look at the chart with the threading draft for summer and winter (Fig. 7). The draft is broken up into units of four threads each labeled A, B, C etc. These correspond to the blocks so labeled in your profile draft. If the profile indicates A block one time, you would thread $^{3}_{2}{}^{3}_{1}$. B unit would be threaded $^{4}_{2}{}^{4}_{1}$ etc. If you want the design larger, then let one unit of the profile represent three units of the threading as

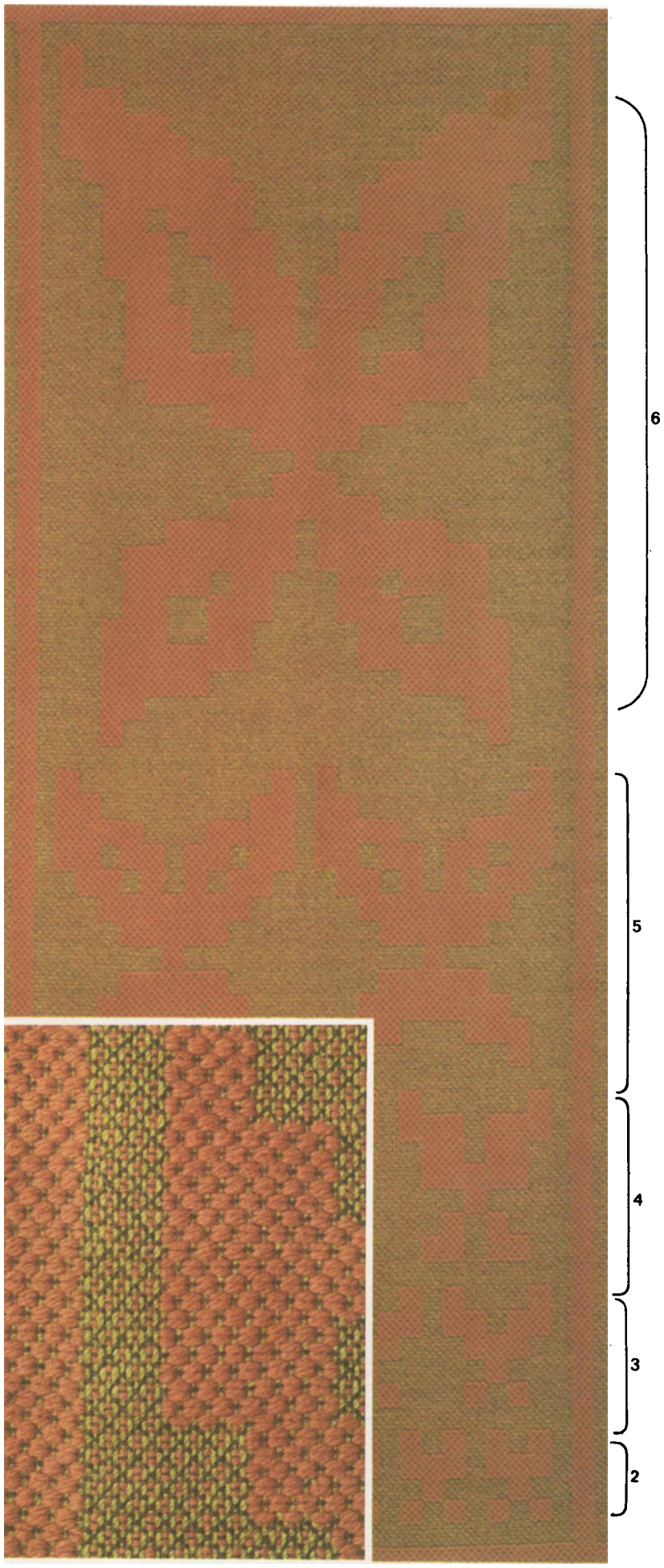


in the hanging pictured. Look back at Figure 2. The profile determined that three blocks are used. The chart shows that five harnesses would be needed to weave this design. The butterfly in Fig. 3 requires six harnesses, Fig. 4 seven harnesses, Fig. 5 nine harnesses. It can be determined then, that for summer and winter weave, harnesses 1 and 2 are the ground harnesses in each block and one additional harness is needed for each pattern block.

TIE-UP

Examine Figure 1 again. The pattern thread floats over three warps and under one or goes under three warps and over one. These points where the float is secured are called tie-downs (not to be confused with a tie-up of the loom). Two tie-down points are noted. These are the ground harnesses 1 and 2 and are designated x and y. There are various ways of using the tie-down points. Our example uses y, x, x, y meaning that the first pattern row has y tie-down (harness 2), the second row x (harness 1), the third x and the fourth y again. This causes a pairing of the pattern weft shots. Other possible combinations producing other textures are x, y; x, y, y, x; x alone or y alone.

To determine the tie-up for each treadling block, look to see which blocks of the threading profile are to weave the background texture. The pattern harness for these blocks must be raised. For example at the bottom of Figure 2, only the background is showing; therefore, the pattern harness for each of the blocks A, B and C, harnesses 3, 4 and 5, must be raised so these are tied to a treadle. In addition, the tie-down threads must be raised alternately. There are two choices here. The tie-down harness may be added to the pattern treadle meaning that there will be harnesses 1, 3, 4, 5 tied to a treadle and 2, 3, 4, 5 tied to a treadle. Alternatively, the x and y may be tied to their own treadles and two feet used to lift the combinations. One foot raises harness 1 while the other



foot raises harnesses 3, 4, 5. Then harness 2 is raised with one foot while the treadle with 3, 4, 5 is depressed with the other foot. This requires fewer treadles in the long run, but more feet.

To further confuse things, summer and winter uses tabby as noted on the tie-up after each pattern shot.

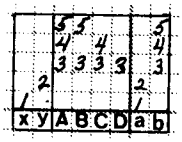
The second block of the profile shows that the A and C blocks weave in background. Therefore harnesses 3 and 5 are tied to a treadle and must be woven with the tie-downs previously discussed.

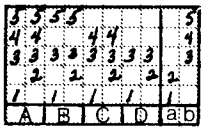
The third profile block weaves A and B in background so harnesses 3 and 4 must be tied to a treadle.

The fourth block has only A in background so harness 3 is tied up.

The fifth area is like the second and the sixth like the first, so they need not be re-tied.

To summarize the tie-up: If a short form tie-up is used, x and y each need a treadle, four treadles are needed for the treadling profile blocks and two tabby treadles are used, totaling eight treadles (Fig. 8). To use a long tie-up, a treadle for each profile block with x tie-down and a treadle for each block with y tie-down is needed plus two for tabby, equalling ten treadles needed (Fig. 9).





You can see that summer and winter patterns can require a lot of treadles. Sometimes one foot can operate two or more treadle combinations. Occasionally, as for the largest butterfly, the loom may need to be re-tied for each profile block.

Combining the rows of butterflies as has been done in this hanging requires some more pencil and graph paper exercises. Graph out the motifs to be used together. The threading profile is determined by examining the combined vertical columns from top to bottom. Each that is different will require its own harness. To weave both rows one and two, seven pattern harnesses would be needed plus two for ground, but rows one and three can be combined on only five. To add row four gets it back to seven again.

The yarns used in this hanging were Oregon Worsted Nehalem at 2160 yd/lb (5342m/kg) set at 10 e.p.i. (40/10cm) for warp and tabby, and Brunswick Knitting Worsted at 1000 yd/lb (2015m/kg) for the pattern. □

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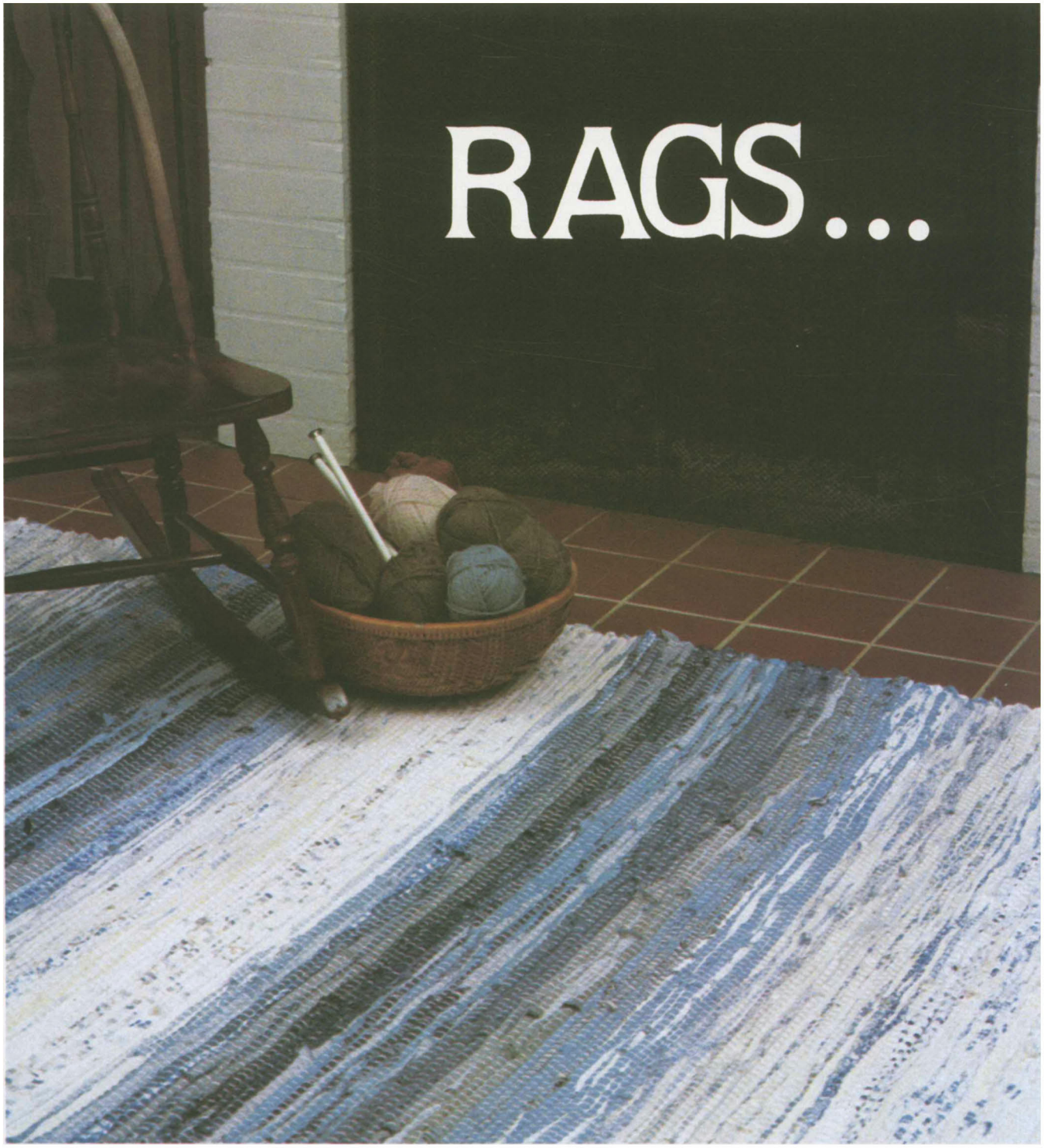


For many weavers of the past, rag weaving was a matter of necessity, and a "waste-not want-not" philosophy had virtue by default. Scandinavian *ripsmatta*, French-Canadian *catalogne*, Shaker twisted weft, all reflect ingenious responses to need.

For most weavers today, weaving with rags is less a matter of necessity than choice. It means the thoughtful recycling of materials at hand in ways that are not only thrifty, but also creative. From the simplicity of a tabby rug to complex weaving experiments to stylish, timeless garments, the designers sharing their work in this special section prove again that it's the endless opportunities for creative expression that make weaving such an exciting craft.

The full double bedspread on our cover—a *catalogne* from Wotton, Quebec—is impressive in its grandness of scale and meticulous craftsmanship. Hit-and-miss blue and white rags are woven seamlessly on a 100" fly shuttle loom; it scarcely shows its more than 20 years of constant use.

Serene and subtle are the words for Susan Snover's fireside rug shown here. Susan, a Seattle designer who has made something of a specialty of rag weaving, enriches a plain weave rug with the soft colors and textures of old jeans. Cutting the legs spiral-fashion into long continuous strips, Susan lets the leg seams create "blips" in the surface texture. Old blue and white draperies provide a foil for the many blues of the faded denim. The warp sett is 5 e.p.i. with cotton rug warp used double. The finished rug is 47" x 82".

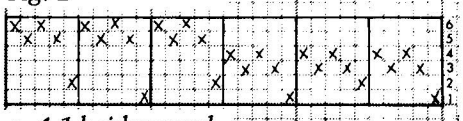
RAGS UNLIMITED

by Jane A. Evans

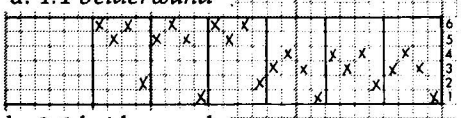
Imported from Germany, beiderwand (bi'-der-vand) weave is not very commonly used in North America, probably because it requires multiple harnesses. It makes an attractive reversible fabric in block patterns. Structurally it is a two-tie weave, with harnesses one and two used alternately across the entire threading as tie-down harnesses.

Between these tie-down ends are groups of pattern warp ends. The group can vary in number, with four being used on the rug shown. This is denoted as 4:1 beiderwand, relating the number of pattern warp ends to the tie-down ends per block. If an uneven number of pattern warp ends are used (3:1 or 5:1), the pattern threading should continue from one block to the next in a regular odd-even order of harnesses, *excluding* the tie-down ends from consideration. The tie-downs are always threaded in their order (harness one, harness two, etc.) no matter how many pattern ends come between them. Fig. 1 shows (a) blocks with even number pattern ends in 4:1 beiderwand, and (b) blocks with odd number pattern ends in 3:1 beiderwand.

Fig. 1



a. *4:1 beiderwand*



b. *3:1 beiderwand*

Usually beiderwand is woven to give a cloth with areas of single weave and areas of double weave. This rug's interlacement eliminates the double weave areas for increased stability. This structure is called tied beiderwand. There are the two sets of warp already mentioned plus two sets of weft, one for "tabby" and one for pattern. However, there is no true tabby to the weave when the tie-down warp is combined with the pattern warp for tied beiderwand. Traditionally the two wefts are nearly the same size, but in the rug the ratio is vastly distorted to give two different surfaces.

As a block weave, beiderwand designs with greater flexibility on more harnesses. The two tie-down harnesses

The author's beiderwand rag rug, showing warp-face stripes on the reverse, rags on the top surface.

are inescapable, and two harnesses are used for each pattern block. To determine the maximum number of design blocks for a loom, subtract two from its number of harnesses, then divide that answer in half. For example, a 16-harness loom offers: 16 - 2 = 14; 14 ÷ 2 = 7 blocks.

The two-tie structure is a natural for a rug because it ties the long background floats around the design motifs. The motifs can be widespread without dangerous weft floats forming. The rug's tie-down warps are spaced about every ½", and of a color to blend into the background rags' color. They continue in the same color even in the design areas to set the pattern off more. This means during warping on the frame a bit of counting and dexterity is needed to get the right color in the right order. It could be done with two warps, later combining these on one warp beam.

I find it important to consider tonal (light/dark) contrasts when selecting rags. Strong tone contrast is good for strong pattern differentiation, so using rags quite different from the pattern warp tone is desirable. Mottled rags give a nicely graded background to the pattern, but too great a tonal contrast distracts from the pattern warp's contrast to them. When deciding on fabric to be cut into rags, try to assess what percentage of the surface is given to each color and tone, to get an idea of how it will relate to the pattern warp's effect.

Beiderwand woven in traditional materials of wool and cotton gives vertical ribs on one side. For a rug this is not necessary. The sett should be close, in the vicinity of 1½ times a balanced plain weave sett. One side of the rug is then predominantly the warp material and one side is mostly the rag material. The rags are cut wide enough to dwarf the tabby shot which becomes invisible in the furrow between rags. Beat the rug firmly to achieve this configuration.

Only one warp beam is needed for beiderwand. There is take-up on the whole warp if large rags are used. Sample first to find out how much for each particular project.

Following are details of the 16-harness rug pictured.

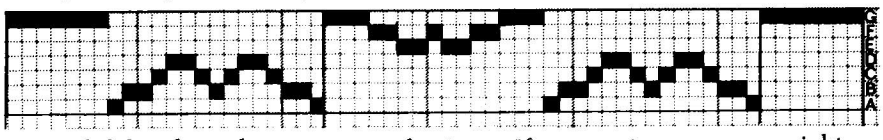
FINISHED SIZE: 27½" x 48½".

WARP: 8/4 cotton, natural, bright, blue and brown. Source: Sutton Yarns, Sutton, Quebec; or CUM Mayflower 8/4, or Belding Lily.

WEFT: 8/4 cotton, natural—tabby. Fabric strips about ½" wide, flannelette (pre-shrunk).

REED: 12 dents/inch. Sett 24 e.p.i. (double in reed). Picks/inch equals 15 tabby and 15 rags.

THREADING:

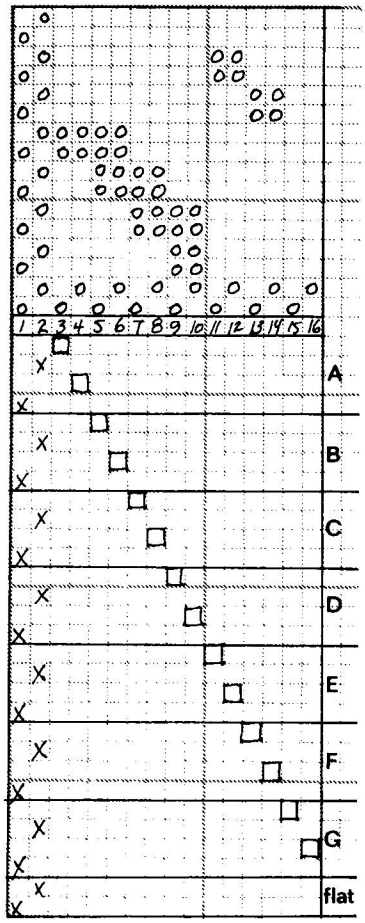


left border only — basic motif, repeat 4x — right border

Blocks
A = T3434
B = T5656
C = T7878
D = T9 10 9 10
E = T 11 12 11 12
F = T 13 14 13 14
G = T 15 16 15 16

T is harness one or two, as required in alternation across the whole warp regardless of what block is being threaded. T = Tie-down end.

Warp color order: pattern ends for blocks A, B, C and D are all blue. Pattern ends for blocks E and F are all brown. All tie-down ends and all pattern ends for blocks G are natural color.



Treadling
X = 8/4 cotton
□ = fabric strip

Treadling order for blocks:
Flat (hems); G, *A, B, C, D, C, B, C, D, C, B, A, G, E, F, E, F, E, G, repeat from *, end with flat hem.

References:
Anderson, C., Gordon, J., Towner, N., *Weave Structures Used in North American Coverlets*, Portfolio, 1979.
Gordon, J., "Beiderwand," *The Complex Weavers Newsletter #2*, February, 1980.
Regensteiner, Else, *Weaver's Study Course*, Van Nostrand Reinhold Co., 1975.

Ripsmatta is a traditional Scandinavian rep structure used for rugs and table mats. The simplest form is seen in the table mat on p. 50. Characteristically the warp alternates two colors, and the weft might alternate between a heavy and light weight.

Diane Tramba has designed a 6-harness ripsmatta pattern for the rug shown here. The rag weft is all but concealed by the close-set warp in colors of sea and shore. Instructions for Diane's rug can be found on p. 83.

Additional information on rep and ripsmatta may be found in the Manual of Swedish Handweaving *by Ulla Cyrus-Zetterstrom (Charles Branford Co.), or* New Key to Weaving *by Mary Black (MacMillan).*

RIPSMATTA

GLAD RAGS!

the designs of Rose Jurisich

photos by Joe Coca Setting: Antiques at Harmony Hill

If you visualize a rag weaver as someone who just sits around snipping all day, consider Rose Jurisich of Lethbridge, Alberta.

Rose is a junior high typing teacher—not the most placid of jobs—who manages in her spare time to produce some of the most imaginative, becoming fashions we've seen.

Rose carefully orchestrates her rags by color and texture, and uses them for entire garments (as in the jacket on the next page) or as design accents, much as another weaver might use a special fancy yarn.

One trick that makes Rose's garments especially wearable is that many are cut so that the weft is vertical, allowing for better drape. The gray skirt-vest ensemble at left, for example, is a rather irregular handspun brown/gray weft on a fine olive brown wool warp set at 24 e.p.i. Rags of a predominantly red-orange and gold print are laid in at frequent intervals, creating strong vertical lines for the A-line skirt and simple loom-shaped vest.

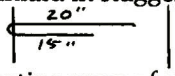
Careful finishing details include handwoven warp-faced wool facings on the vest, and 1½" wide handwoven wool tape for all seams and hems.

The patchwork skirt at right represents a truly ingenious use of rags. On a 5" wide warp of 20/2 worsted set at 24 e.p.i., Rose wove 14 30"-long strips. Five inch sections of plain weave with wool weft alternate with 5" sections of fine (¼") rags. All strips begin and end with 2½" of plain weave to allow for hems and gathers. Seven strips begin with rags, seven with wool (in different weft colors—wine, navy, teal, rust, etc.). When the strips are joined, a patchwork effect results.

The wrap skirt is gathered onto a long plain weave strip, which is folded in half to form the waistband and ties. The hem is finished with ½" warp face palin weave hem tape.

Another wrap skirt that makes surprising and effective use of accent rags is the blue one above. Not only do the inlaid rags provide color and texture, but their turnings on the unhemmed bottom edge add a delightful and unexpected finish.

The warp, again, is 20/2 worsted in teal blue set at 24 e.p.i., 30" wide (this measurement is the length of the skirt). Rags are inlaid in staggered lengths:



Compensating rows of wool are used at the top to maintain an even weave. Rose has allowed about ½" of plain weave between pattern rows.

Alternating picks of 20/2 wool and 1" rags in assorted shades of red and orange result in a stable, pliable fabric for Rose's classic bog jacket. It is distinguished by being cut with the warp running horizontally; the 24 e.p.i. warp was 40" wide, and was woven to a 60" length. Typically careful finishing details include 2" wide warp face cuffs and a handmade leather button.

Studying these samples of Rose Jurisich's work is like a minicourse in design; we can all learn from her inspired ideas and careful execution.

MORE RAGS

Portland weaver-designer Jean Scorgie does it again—with a colorful, breezy, very wearable hooded, zippered jacket. Cottolin in shades of blue green, green and purple are sparked with colorful rag accent wefts, laid in to create a sporty fringe.

WEAVE STRUCTURE: Plain weave with weft floats.

SIZE: Woman's size 10 (40" [*102cm*] jacket circumference, 30" [*76cm*] long). If unwashed, size 12 (44" [*112cm*]). See finishing instructions.

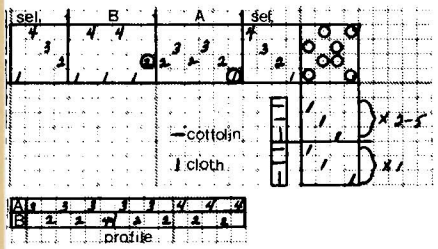
EQUIPMENT: 4-harness loom. 33" (*84cm*) minimum width. 15-dent (*60/10 cm*) reed. 1 boat shuttle, 1 stick shuttle. Sewing machine.

MATERIALS: Warp—CUM cottolin at 3200 yd/lb (*6432m/kg*), one 5½ oz (*156g*) spool of #9085 bluegreen, #9060 purple, #9081 lt. green, #9082 dk. green. **Weft**—CUM Cottolin as above, 2 spools each of #9081 lt. green and #9082 dk. green. 100% cotton fabric, ¾ yd (*.69m*) of each color cut into 3/8" (*1cm*) strips: lilac, lt. avacado, teal blue, reddish purple, grass green, medium blue. Or use poppana bands (Scantex or Schoolhouse Yarns; see Shopping Guide on p. 75). Green sewing thread. 22" (*56cm*) plastic separating zipper.

WARPING: 15 double e.p.i., 32.8" (*83.3cm*) wide, 492 doubled strands (984 single strands), 4½ yd long (*38m*), which allows 1 yd (*90cm*) for take-up and loom waste. Color arrangement random. Make warp using one strand from each spool. Select random pairs from this group for threading.

SLEY: 1 double end per dent in a 15-dent reed.

THREADING, TIE-UP & TREADLING: Follow profile, omit circled harness when changing blocks.



WEAVE: Tabby is 2 colors of cottolin wound together on the bobbin. Pattern is cloth strips. There will be 12 rows per inch including 4 pattern rows.

To weave, use short lengths of cloth strips between 30" and 45" (*76cm and 114cm*) long. Poke a strip through the shed with the stick shuttle. Cut the ends of the strips on a long diagonal and overlap the ends generously with a strip of another color for a random color effect. Follow the diagram measuring under tension on the loom. Weave 1" (*3cm*) in plain weave (no cloth strips) before and after each piece for seam allowances. Leave loops and cloth strip extending 1" (*3cm*) for fringe as indicated on the diagram. Weave sleeves and hood with separate wefts if desired, or stitch and cut apart when off the loom.

FINISHING: Machine stitch with zigzag or straight stitch between all pieces leaving a 1" (*3cm*) plain weave seam allowance on each piece. Machine wash on gentle cycle and tumble dry with several bath towels. Trim ravelings. Dry clean when future maintenance is needed. Cut pieces apart.

ASSEMBLY: Turn under the front seam allowances and hem to the wrong side. Insert a separating zipper at the center front. After all seams are sewn, turn under the raw edge of the seam allowance and hem it down by hand to finish the inside of the jacket.

Hood—The front edge of the hood is fringed, the neck edges have a 1" seam allowance and the remaining edge is the back of the hood. Sew this back seam and stitch down the seam allowances. Sew the shoulder seams (selvage edges) using a ½" (*1.25cm*) seam allowance and leaving a neck opening the same length as the plain weave seam allowance on the hood. With *wrong* sides together, sew the hood to the neck opening clipping carefully at the intersection with the shoulder seam. Fold the seam allowance of the hood down over the neck seam allowance of the body pieces and stitch by hand, turning under the raw edge. Center the sleeves on the shoulder seams and stitch with right sides together. Stitch the underarm seams. Stitch the side seams leaving the lower 12" open for the pocket and side slit.

Pocket—Place a 9" (*23cm*) edge of pocket, right sides together, on the back just where the side seam ended and seam it for 7" (*18cm*), backstitching at both ends. Hem the back slit below the pocket. On the front, hem under the entire 12" (*30cm*) to the bottom edge of the jacket. Overlap the front over the pocket and topstitch around the pocket except for the 7" (*30cm*) opening for the hand. Handstitch all the remaining seam allowances on the sleeves and armhole seams. Make a tassel for the zipper pull.

Cutting diagram and pocket assembly on p. 81.

GLAD RAGS!

Here's a mixed bag of rag projects, each with a secret design twist. At left, Susan Snover's log cabin vest alternates picks of gray rags with blue chenille for a wonderfully touchable texture. Instructions on p. 76. A tote bag by Connie Farnbach picks up the rag's colors in a simple and sturdy inkle band strap. Unfasten two concealed hooks inside the bag, and it grows and grows. The bottom expands down to hold all the diapers or beach gear you could desire. Instructions on p. 79. Log cabin threading in gold and white with white polyester knit rags for weft, make a table mat and runner that are not only handsome, but almost indestructible. Instructions on p. 78.

The surprise in the rug below is that is's not really rags at all, though it has that charming country look. The warp is linen and the filler a heavy linen roving in matching colors. Complete instructions are on p. 82.

photos by Steve Burger

PUSHING THE LIMITS WITH RAGS

by Olive Linder

Actually, I began to weave rag rugs by default. We had all these rags and we could not make them work in other applications. The rags were new material, industrial waste probably, in long strips sometimes 4" by 10'. They were polyester knits. The colors were hard and intense.

Now polyester rags are difficult to deal with. They dull shears and blunt needles. They have a drying and coarsening effect upon the hands. And care should be taken to avoid dust inhalation. Polyester does not beat into the web and stay put, but bounds back with stubborn regularity.

We tried weaving, sprang, knitting, twining, crochet. We tried re-spinning them and setting the twist in the microwave. We tried placemats, bags, sculptured forms, rugs and hats. We tried small looms, frame looms, Navajo looms, warp weighted looms and big floor looms.

We always got something, but rarely anything that was desirable.

Finally those rags beat us into submission and it became evident that a certain amount of discipline must be applied.

Because of its good wearing qualities, the rug became the product of the rag. Because it is a washable material, a washable warp yarn was necessary. With the harsh colors of the polyester to consider, the warp color was very important as a cohesive agent and in some cases as a dilutant. A heavy floor model loom with a weighted beater was required.

Cutting the rags became a task of major proportions. I used a cutter that is marketed by the Oriental Rug Co. of Lima, Ohio. It has a rotary blade with adjustable tension screws and width controls. Although there were no instructions on this point, I did discover that the rags would not slide through easily if the tension on the blade was too tight, especially when I had been cutting long enough to build up heat by friction on the cutting edge. Heat causes expansion of metal.

I set the cutter up on the end of a kitchen counter and it seemed as if I spent every waking moment turning the crank. Cutting the rags to uniform size, discarding the unusable parts, and sorting by color, was essential as a first step. For most of the rugs, I used a ½" width. There was one exception that I will point out later.

When all the rags were cut, they then needed to be sewn together. I did it on the sewing machine. Overlapping the ends of the strips about ½" to ¾", I stitched down the middle:
An hour-glass nip out of the sides prevents an unwanted bulge in the fell line:

There are other ways of joining rags for weaving, as you can see on p. **53**. I chose this method because it was the least bulky and the most secure. There is a grave temptation to use the rags without sewing them. I tried that too, and recalled my mother's voice saying "Lazy people take the most pains." If rags are to be stored for some time, it is a space saver to roll them into balls.

Above, *the author's double binding rag rug in gold, rust, blue and green.*

Boil proof cotton carpet warp size 8/4 was used in all cases.

With all these details settled, technique was the next decision. My grand scheme in its initial glorious conception was to weave rags in ten classic rug drafts. My own list of "classics" was plain weave, log cabin, double binding, crackle weave, summer & winter, ripsmatta, stuffer warp, double twill binding 6H, 3H double faced twill and double corduroy.

Harry, my husband, says I always make ten-yard samples. Ten yards seems like a good round figure to me, so I planned to make ten yards of each of the weaves on my list. As I settled down to make my first warp, tabby didn't seem very interesting, so I skipped it and warped for log cabin. I began with a profile draft and at 16 e.p.i. made a warp of brown and natural plus green and natural carpet warp.

A ten-yard warp will make four rugs. I wove the first one with all black rag filler. The black rag made the brown, green and white show up well.

The second rug on this warp was woven with a sort of grayish blue rag which I refer to as 'teal'. What magic on the loom, for the whole warp changed hue along with the change in weft.

A sort of mottled purple rag was used on the third essay and to my delight and surprise, a lovely soft, muted rug with very little block pattern showing through the subdued purple weft was the result.

Throwing caution to the winds after that success, I used a bright red rag that had an all-over black print on it (*brown, green, white, red and black?*). It came out looking like warm, used brick. Just right for a fireplace hearth rug.

Since I had suffered trauma on the color choice of that first warp, and notwithstanding it had turned out well, I became a conservative on the second ten yards. It was warped entirely in black and white blocks for a double binding series.

Double binding is a Swedish rug weave that requires no tabby shot as log cabin does, and therefore, is more solid and thicker. It is reversible like log cabin. It is, however, a two-shuttle weave with both shuttles carrying rag.

The first rug was black and white warp with gray and black rag filler. A small sized rug, very elegant and discreet.

Number two on this warp also featured black. I had boxes and boxes of solid black polyester rags and boxes and boxes of rolled up black rags. I just felt compelled to *use up those black rags*. I am not fond of black. Cheering myself with the thought it would make good floor covering because dirt would not show up on it, I used black on one shuttle for this effort plus a varicolored rag that was vying in my estimation for ugliest rag in the world. When I cut this warp from the loom, this rug was my all-time favorite.

A black and red rug came next and by this time I was getting used to success so this particular item was just one of the group . . . nice, but . . . aren't they all?

I did feel that I was ready for a challenge, so I dived into the box that held bright, almost fluorescent pink rags. I thought it came out nicely in the black and white warp, but from the cries of pain, scorn and derision of everyone who came by, I realized that pink is not everyone's favorite color for a rug. My daughter, bless her, pointed out it would be tolerable in an art deco bathroom!

Because the first rug on this warp had been small (31" x 31") I had room for one more rug by using the warp up to its ultimate. I picked a bright, hard blue rag plus a figured rag that had blue, brown and black in it and it redeemed my reputation after that pink!

On my list, crackle weave came next. Harry said, "I believe I'd do something else if I were you."

When an experienced weaver says something like that, one ought to pay more attention than I did at the time. I put on a ten-yard crackle warp.

Perhaps right here I ought to tell you that in my criteria for a good rug, at the top of the page, it says: a good rug must lie flat on the floor.

Even on the loom under a good taut tension, that rug did not stay flat. Well, I worked it short and analyzed that I had not allowed enough bubble in the weft. The second try looked just as much like a cup and saucer as the first in spite of extreme caution while weaving.

I cut these two off the loom, twisted the fringes on the ends and threw them in the washing machine. Surely all would be well once they were blocked.

Well, they lay on the floor and each looked like a basket of puppies. For several evenings, the favorite game was suggesting uses for these unfortunate creations.

The daughter that solved my pink and black rug dilemma came through again: "Mother, if you will give me those rugs, I can catch the oil drips under my car." She got the rugs!

Well, I still had a lot of warp on the loom threaded to crackle. Re-thread? Never! That weave has been used for rugs by others. All I had to do was figure out how to be the master instead of the slave.

Deciding the block design was too choppy, I spread the blocks out by treadling areas of tabby between pattern shots. It made a pretty rug, but it lives lumpily on the floor of the dye kitchen.

So that is how I finally made a plain weave rug; with the dregs of the crackle weave warp. And Harry said, "I didn't *think* it would work with those polyester knit rags."

Tossing failure behind me, I decided to go into double corduroy. Getting Collingwood from the bookshelf, I warped five yards at 6 e.p.i. and since I had not settled on a specific weft yet, I put on a multicolor warp, figuring that whatever I used to weave with would harmonize somehow and it would make colorful fringes (how's that for *design?*).

The first one of this group I call Astroturf; the weft is two shades of green rag. I like the technique and I liked the result, but—oh—the cutting necessary on the pile was difficult and painful to the hands.

The second corduroy rug was worked in that purple rag I used back there in the log

Log cabin rug with warp of brown/natural, green/natural. Weft is teal blue rags. At right is a double binding rug with black and white warp, gray and white filler.

cabin series. This time I cut the rag in ¼" strips and used it double on the shuttle. It was a pleasing weft and I call it Field of Violets. It was, however, a bear-cat to cut and my hands were really suffering.

I made a small piece in black and red using Collingwood's color sequences. It was a smashing combination of color and design but by the time I had woven 24" and cut the loops, I decided my hands were more important than the rug. I aborted the mission by cutting the warp off the loom.

Licking my wounds, I went back to log cabin and wove off two more rugs. Log cabin goes fast and is satisfying, but it seems thin after the heavier textured weaves.

I could have gone on with my "list" but I did not have double corduroy out of my system. And defeat is not pleasant. I needed some way to cut those tough rags. A trial with electric shears proved ineffectual. I searched the Yellow Pages for industrial shears. We had all the scissors in the house sharpened and it was such an improvement that I decided to have another go at double corduroy. While weaving one day, one of those happy accidents occurred. I had advanced the warp, but had not tightened it up to working tension when I noticed that I had not cut the last run. Inserting the plough in the loops, I was able to cut with no more than slightly heavy pressure! With one hand! Thereafter, using slack tension, I completed five more double corduroy rugs in both plain and patterned designs. Easy does it.

By this time I had a stack of rugs each weighing approximately three to four pounds. Some of the color combinations of rag material was exhausted although I still had a great many black and red rags.

"Aren't you through with polyester rugs?" Harry asked.

Well, one more double binding warp. Just five yards. To use some gold and rust together with brown and green.

And then I said, "Just one more try at the 'list'. I'll do my last rug in summer & winter and then I'll retire."

So there was this ugly rag. You remember the one I thought was the ugliest rag in the world? I chose a warp that picked up the colors in the rag. While I was threading, a visitor came through our studio and I said, "I'm weaving a rug with this ugly rag."

And she said, "And you will have an ugly rug."

Do you know, she was right? And not only that, it turned out like the crackle weave. My conclusion is that the very resistant rag of knit construction together with its considerable body does not combine well in complex block weaves.

So the last rug was a failure. I have it by the kitchen sink to keep me humble. I have tucked the "list" away for another time. And by culling the failures and discards from the stack, I have ended my love/hate relationship with polyester rags with a collection of 20 good rugs.

RAG PREP

Making a rag weaving seems as if it should be an easy job but somehow it doesn't always turn out that way. A friend of mine once said, "It only takes me one day to weave a rag rug but three days to prepare the rags." That really is true. When preparing rags you have to clean them, cut or tear them to the size you need and then join the pieces into one long rag suitable for weaving.

When starting rag preparation the first thing to remember is to use strong, sturdy and clean material. Then think about what you'll be making. Heavy rags are best for carpets while fine rags are better suited to upholstery, couch throws and cloths. By heavy and fine I don't mean wool versus silk, although that's another thing to consider. I'm talking about the weight of the rag which is governed by how wide you cut it. Heavy rags are cut or torn so that when twisted tight in your hand the bulk will equal $^3/_8$" to ½" in diameter. Medium weight rags will have a ¼" to $^3/_8$" diameter and fine will be $^1/_8$" to ¼".

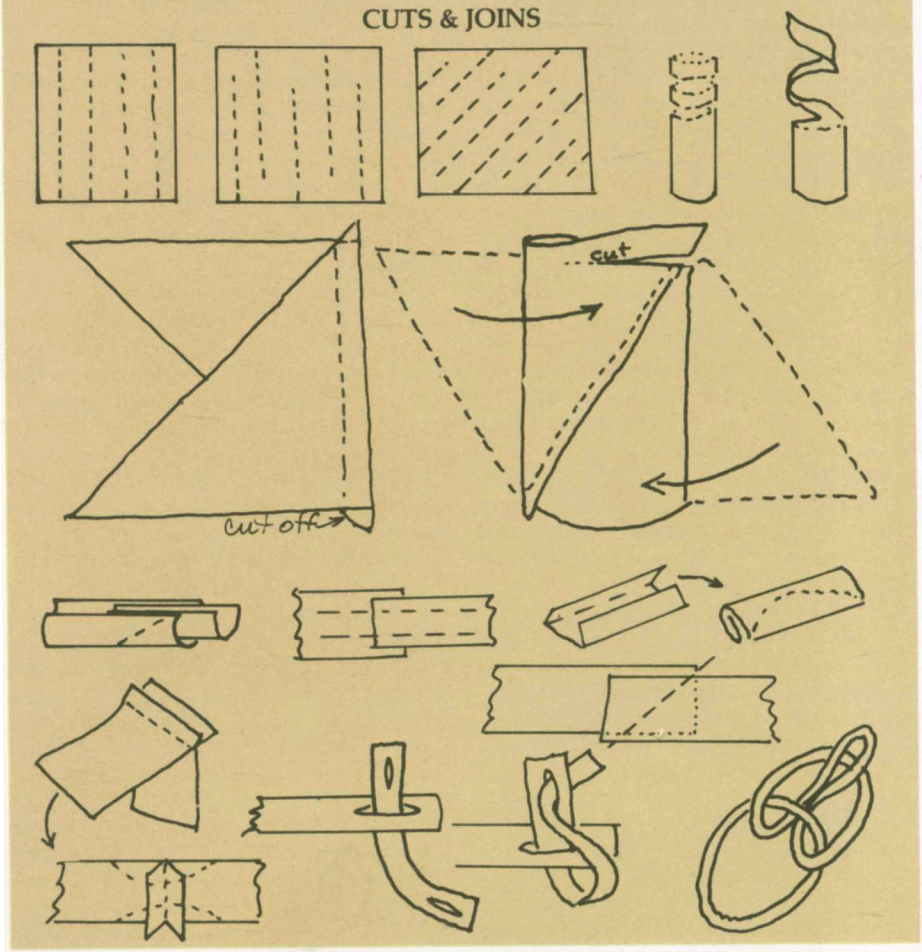
Then there are always the controversial questions of cutting your rags versus tearing them, and preparing them on the straight or on the bias. Basically, you need to consider what you're making, the nature of the rags, the final effect you want to achieve, and how much time you're willing to spend on rag preparation.

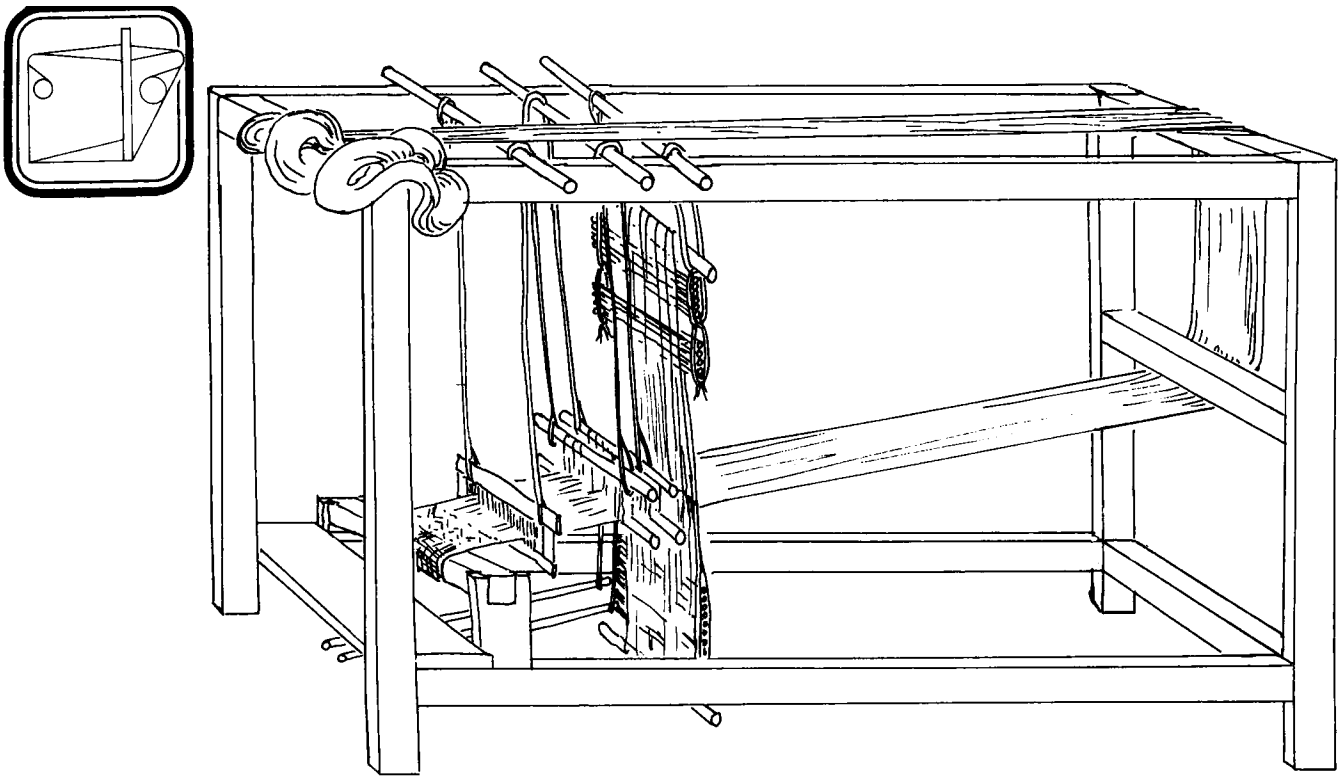
Tearing rags is usually faster but you may choose to cut your material. That's fine, except cutting takes so long and your finger and thumb may hope they never see another pair of scissors again. Try a rag cutter or stripping machine. But be forewarned, many rag cutters require two people to operate them. One person guides the material and pulls it through the cutter while the other person turns the handle that controls the cutting mechanism. Rag cutters usually have some sort of vise grip or similar device to attach them to your table so they don't move around as you work. Some even come with more than one cutting blade. Other things to consider before investing in a rag cutter include: 1) ease of maintenance, 2) cost of repairs or replacement blades, and 3) does it include operating instructions (some models don't).

If you don't like the idea of cutting your own rags or simply don't have the time, you might consider purchasing precut rags such as Poppana, Ragtime or Tahki Raggs. Or even bias tape, which is wider and pre-folded.

Shown below are some ways to cut and join your rags. When joining your pieces be certain the right side will always be exposed when you twist the rags. This will ensure brighter and prettier weavings. Do a little experimenting to see which method or methods best suit you. —*Diana Roberts*

CUTS & JOINS





PATTERN WEAVING, LAOTIAN STYLE

by Doramay Keasbey

WHILE RESEARCHING unusual devices for weaving patterns, I encountered a particularly intriguing account by Anne Blinks about a remarkable pattern loom which she discovered in Bangkok in a workshop run by Laotion weavers. This left me with many questions begging for further investigation. Unfortunately, circumstances of war and political upheaval in that part of the world have not encouraged on-the-spot exploration. And nothing more on that specific mechanism came to my attention.

So it was truly exciting to discover in the United States an expert weaver from Laos who had spent most of her life perfecting a skill seemingly almost unknown outside of a small geographical area in Southeast Asia. In view of the scarcity of information on the subject, I felt it was indeed a rare privilege to be invited to visit Sing, a specialist in Laotian style pattern weaving, and to be given the opportunity to watch her weave on her handmade loom with its traditional features which make it a very near relative of the drawloom yet much simpler in construction.

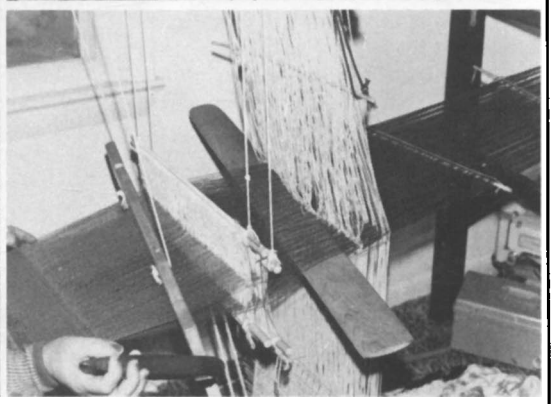
She and her whole family were most gracious in sharing their time and knowledge with me, a complete stranger. Our common bond was an intense interest in weaving and a sincere desire to understand and help each other. Communication was hampered by limited English on her part and total lack of her native language on mine, but we had the help of a family friend and Sing's eldest son Phetsvanh who could translate when needed. However, language was no barrier to her willing demonstration and my eager observation. Previous experience and experimentation made the weaving process seem quite clear, even predictable. Sing's hands moved rapidly and surely with no wasted motion. She made no effort to slow down or explain as she went along unless I requested it, and then she patiently did her best to oblige.

What follows is an account of the technical details observed during one afternoon in which Sing wove the patterned portion of a stole.

In size and shape the basic loom frame looked somewhat like a large bedstead with an upright post about 5' high at each corner and long pieces of lumber connecting the corners around the top, essentially outlining the edges of an open box. A flat seat at one end, a horizontal wooden beam supported by short upright pieces, and a stationary horizontal beam at the opposite end about 3' from the floor completed the frame. Sing's husband Bounsavath had built the loom for her with materials from a local building supply store after they arrived in this country two years ago. Now he has found a source for hardwood and plans to replace the first loom with a sturdier one and to build more for other Laotian women who have settled in their area.

Sing had finished a piece of weaving on a green warp and was preparing a new warp in a different color. Several yards of the new blue warp already had been measured by winding on a large pegged warping frame. The warp had been removed from the frame and the bulk of it piled on top of the loom crossbar directly over the weaver's seat. It did not appear to be chained. A portion of the warp was looped around the crossbar and tied to itself to anchor the warp. From this knot the remaining warp passed above the loom to the back, over the back top crossbar, down and around a lower crossbar, and toward the front of the loom. Lease sticks in the warp near this end were supported temporarily for the threading stage by a pair of ropes which followed the same course as the warp, extending all the way to the breast beam to which they were tied. The lease sticks, about 6" apart, were not tied together, but each had a string running over the warp and tied to the ends of the stick to prevent the warp from sliding off.

Sing knotted the new warp ends to the old. The finished fabric with what remained of the old warp still threaded through heddles had been wound up, heddles, heddle sticks, reed and all. This bundle rested on the supporting ropes between Sing and the new warp. The end of the new warp had been cut evenly to free the individual threads. The old warp had been cut evenly a few inches from the finished fabric. One at a time Sing selected a warp thread from the new warp and matched it to one of the old. She held the two threads together and quickly tied an overhand knot as close as possible to the end. She progressed from right to left until all of the new warp had been tied onto the old. Then she untied the supporting ropes from the breast beam to get them out of the



Clockwise from top left: *Sing ties the new warp to the ends of the old. The pattern heddles hang temporarily in front of her with pattern rods visible near the floor. Brocaded figures appear in the fabric already completed in her lap. Sing weaves accompanied by her youngest child. Note the long pattern heddles laced with rods near top and bottom. The pattern shed is held open by the sword placed on edge behind the short ground heddles. The separation of the long pattern heddles is created by manipulating one pattern rod. Note the distortion of the string heddles to accommodate the opening of the pattern shed within the clasped ground heddles. During plain weave controlled by the ground shafts the sword is turned flat and pushed back.*

Brocaded pattern illustrating use of discontinuous wefts in different colors to produce isolated motifs.

way but allowed them to remain hanging over the back of the loom.

Next she unwound the bundle carefully. This exposed the pattern harness first. It consisted of very long clasped string heddles, altogether about 4' long, with supporting wooden rods laced through the ends of the heddle loops. A rope with a loop at the end was tied to each end of the top heddle rod. Sing placed a thick dowel through these loops in the rope and lifted the dowel above the loom to rest crosswise on the upper framework. A weight tied to the center of the lower heddle rod hung down nearly touching the floor.

Next the ground harness was unrolled. This was two sets of short clasped string heddles, only about 6" altogether in length, mounted on rods. The upper rods were connected to each other at each end by a length of rope. Sing passed a thick dowel under the ropes and lifted it to rest across the loom's upper framework so that the heddle rods hung counterbalanced. A rope tied to the center of each lower heddle rod was connected to the end of a treadle. The treadles were simply two wooden dowels about 30" long unattached to anything except these ropes. They were placed lengthwise so that their loose ends rested on the floor under the loom seat, the ends tied by the ropes floating a few inches from the floor directly beneath the heddle rods.

Finally the beater was unrolled. It consisted of a commercially made metal reed mounted in a thick wooden frame. Sing's first reed had been made by her husband from bamboo salvaged from a window blind. At each side of the reed frame a rope was tied. The other end of each rope had a knotted loop. Sing passed a third thick dowel through these loops and placed the dowel across the upper framework of the loom.

Now the working parts of the loom were assembled, but no tension had been applied to the warp. Gently Sing pulled the knots connecting the old and new warp toward the front bunch by bunch through the series of heddles and the reed. This method was probably less tedious than threading the cut ends of the new warp directly through the clasped heddles each time a new warp was made. From back to front, pairs of adjacent warp ends passed through each pattern heddle, then singly through the ground heddles alternating on shaft 1 and shaft 2.

Next she placed the finished fabric from the old warp across the front beam. A slot ran along the upper surface of the beam. She placed a thin dowel across the fabric and pressed the fabric and dowel into the slot. This fastened the fabric to the beam in a straight line near the end to which she had knotted the new warp. The rest of the fabric lay loose in her lap. Then she lifted the beam out of its notched upright supports, advanced it one quarter turn and replaced it in the notches. The square cross section of the beam fitting into the square-cut notches prevented its turning or unrolling by itself. Sing adjusted the knot in the warp overhead to tighten the warp. The height of the front beam was intentionally lower than the stationary horizontal beam at the back of the loom so the warp sloped slightly downward toward the front. Finally she checked the level of beater and heddles and made slight adjustments in some of the ropes by which they hung by retying the loops at the overhead dowels.

Sing wove a few inches of plain weave by depressing the treadles alternately and passing a shuttle with blue weft like the warp through each shed. Sheds were about 2" deep when the reed was pushed back to make room for the shuttle. The warp was

about 15" wide and spaced evenly by the reed at 36 e.p.i. It was spread approximately the same density through the heddles and at the back of the loom, but as it approached the front overhead it tapered to where it was gathered into the knot which anchored it to the loom's upper cross piece. As weaving progressed this knot was loosened, the front beam was turned, and the knot was tightened to restore tension.

The simplicity of this system is noteworthy for its effectiveness without need of rotating beams, cranks, ratchets, brakes or other precision parts. The dowels laid across the top of the loom were not fastened in place in any way except by gravity and friction. The treadles pivoted from the ends where they touched the floor, but they were not secured to any fixed object. The beater hung from flexible ropes. Its level with respect to the warp had been adjusted and was maintained, but no rigid side pieces with fixed pivot points ensured a perfectly perpendicular angle to the warp. Yet the weaving developed squarely and evenly through Sing's skilled and efficient motions. Years of practice and a thorough understanding of her mechanism and method gave her weaving rhythm and brought about admirable results.

Sing has been weaving since she was nine and was accustomed to a similar style loom in her mother's home. Although she did not claim knowledge of the loom's history, she indicated that it has been in common use in Laos for many generations, quite possibly for centuries. Whether this style of pattern loom is used in neighboring Southeast Asian countries she could not tell with certainty, but felt it unlikely as she considered this design to be typically Laotian.

The most interesting feature of Sing's loom was its pattern harness. Thin rods marking the pattern of her already completed fabric were still laced through the long heddles. When weaving on the new warp had progressed to the point where she judged it was suitable to begin a pattern band, she introduced a second weft in a contrasting color. This was similar or just slightly thicker than the plain weave weft which continued to alternate through the piece as tabby. For economy and convenience Sing chooses her yarn from various local sources and finds that generally the fine yarns suitable in texture and color for her work tend to be synthetic although her preference is for natural fibers. She could not identify the yarn she was using. In size it appeared similar to 20/2 cotton but was softer yet strong. To open the first pattern shed Sing reached forward and grasped the end of the topmost rod laced through the pattern heddles below the warp. She lifted it upward, at the same time waving it back and forth to separate the heddles. This pushed the unwanted heddles back and the chosen heddles forward forming a diamond-shaped opening in the bank of heddles when viewed from the side. The heddles in front of the stick lifted the warp slightly when forced forward due to the slope in the warp. Then she set the rod down and picked up a flat, blunt-ended weaving sword about 5" in width in her right hand. With her left she grasped a handful of the pattern heddles at the right side which had been separated and which passed in front of the pattern rod. She lifted these by hand, causing the warp threads to separate further and inserted the flat sword into the opening in the warp immediately in front of the pattern heddles but behind the ground heddles. She repeated the process of lifting portions of the warp from right to left and inserting the sword until it extended through the entire warp width. This first pattern row was simply two warps up, two warps down across the warp. She turned the sword on edge. This created a shed which was able to form through the clasped loops of the ground heddles due to their flexible nature and because they were slack at this stage, that is, without tension from treadles. In front of the reed she passed the pattern weft through the shed and beat it into place with a sharp double beat. Because she planned to repeat the pattern shed she did not remove the sword but turned it flat so it would not interfere with the tabby shed which followed. After treadling and passing the plain weft through its shed and beating it, she turned the sword on edge again and repeated the pattern row. This completed a simple colored border. The sword was withdrawn. A few picks of plain weave in the warp color followed. Then the main pattern band was woven.

The sticks marking the main pattern were already laced through the pattern heddles above the warp and suspended close to the top by slings created by a loop of thin rope hung from each end of the top bar holding the pattern heddles. The procedure for opening the pattern sheds was the same as just described except that Sing reached up, removed the lowest rod from the sling, and after waving it to separate the heddles, placed the rod behind the same heddles below the warp. For this pattern the sword remained in each pattern shed for two pattern picks with tabby between. Each time the pattern shed was changed the lowest pattern rod in the sling was placed below the warp to retain the marking for that shed. At the midpoint in the pattern the shed order was reversed, and the rods were used one by one from below and stored in order above in the sling again. Pattern weft for this wide border passed from selvage to selvage. Beyond the border Sing attached several separate colored threads and demonstrated brocading isolated motifs using the pattern rods to open the sheds but laying in the wefts under counted pattern units.

In the article by Anne Blinks the pattern was marked similarly by rods in the long pattern heddles which were suspended close to the back beam. These were handled in a similar way to create pattern sheds and stored in the heddles for future use. But as the rods were moved, the pattern sequence was transferred to a series of additional rods placed in the horizontal warp to mark each shed. Only after these rods were in place was the weft inserted in successive sheds as the rods in the warp were withdrawn one by one to be replaced by the sword. This seems an efficient method, especially when the distance from the weaver to the pattern heddles is too great to reach them without moving from the weaver's seat. Sing could reach her pattern heddles by leaning forward, and the short space between the pattern heddles and the ground harness would not have accommodated a long series of pattern rods in the warp. Her method allowed her to separate the warp threads a few at a time creating a fairly clear opening for insertion of the sword.

No doubt there are many variations possible in loom design and weaving methods to achieve similar results. The dowel supporting Sing's pattern heddles could have been moved to the back of the loom to provide space in front of it if she had chosen to transfer the series of sheds to sticks in the warp. Presumably the number of threads enclosed by each pattern heddle could vary. One of her finished fabrics had the effect of a fancy twill with tabby, probably controlled by a single warp in each pattern heddle since each step in the pattern was a single thread. In some of the brocaded patterns each step was several threads indicating the likelihood of two or more threads per heddle.

An attractive feature of this loom is the portability of the working mechanism. In her workroom Sing had bundles containing the heddles and reed for other projects. Due to the manner in which the warp is secured at both ends so it may be attached and detached easily, and the way everything else is hung from above, it would be possible, theoretically at least, to remove weaving while in progress and replace it on the loom frame with a different set of heddles with threaded warp if desired. In practice, however, a warp is probably finished once started. The slotted front beam is an efficient device for securing the warp instead of using time-consuming tying-in procedures.

Experimentation with extra-long pattern heddles such as those described here is tempting. Unfortunately, many American floor looms lack the superstructure needed to support such a pattern mechanism. But weavers who have looms of the four-poster type with simple rods instead of rigid frames to carry string heddles might adapt the idea for greatly increased loom-controlled pattern making. All that is required is to tie the special string heddles and insert a few sticks! □

SALUT, MONSIEUR JACQUARD!

by Joyce Marquess Carey

JACQUARD-WOVEN silk pictures are tributes to the age of technology that flourished in the 19th century. The greatest number of silk pictures were woven in Europe, especially in France, although a considerable number of them were also woven in America. In subject matter, they range from heroic to religious and political; in size, from poster to bookmark. The same basic principles of jacquard loom controlled weaving were applied to detailed portraits of almost photorealistic quality, and to pictorial commemoratives celebrating one or another of America's numerous expositions.

Throughout the history of textile technology, silk weaving has always required the highest level of artistry, both in designing and in technical skill, of any of the fiber arts. Silk possesses qualities totally unique from all other natural fibers. The exquisite fineness, uniformity and brilliance of high-quality silk lends itself to precision and splendor in woven goods. With the development of the jacquard loom early in the 19th century, textile designers brought mechanical genius and artistry together in producing jacquard woven silk pictures.

Detailed patterning in silk weaving is not unique to jacquard woven fabrics. Chinese weavers were creating intricate and elaborate designs in silk with the drawloom from earliest times. It was from China that the western world learned its skill in drawloom weaving, especially in Italy, France, and eventually England. The drawloom is an incredible device, capable of producing fabrics virtually unlimited in design complexity. Nonetheless, the process is expensive, slow, meticulous, labor intensive, and requires a high degree of training and skill. Inventors as early as the 16th century have tried to substitute all or part of the expensive hand-controlled weaving process with mechanical devices in order to produce a greater quantity of goods at lower cost. When the genius of several inventors culminated in a practical automatic shedding device by Joseph Marie Jacquard, patterned weaving captured the imagination of pictorial technicians who could reproduce engravings and paintings with draftsmanlike accuracy.

The art of reproducing paintings in fiber was not a new concept with jacquard weaving; European tapestries were similarly imitative of paintings, although the weaving process was completely different. In contrast to pictorial tapestries, which are woven of small color areas in a very painterly fashion, most jacquard pictures are woven in black and white and depend on variations in shading for their verisimilitude. Fine black or white silk threads are intricately interlaced, allowing for totally black or totally white areas and every shade of gray. The subtlety of shading that is possible produces pictures that are photographically realistic. At a small distance, the casual viewer could easily mistake a fine woven silk picture for a photograph or engraving.

From top: *a commemorative portrait in silk of Jacquard; detail of "Visit to Atellier of Carquillat", showing jacquard loom and tiny picture within a picture of Jacquard; and closeup detail of the small portrait in the previous picture. Photos courtesy Smithsonian Division of Textiles.*

Planning a design for either the drawloom or jacquard loom requires similar technical processes. Both mechanisms are capable of raising warp threads in almost infinite combinations: the drawloom is controlled by the weaver or drawboy as the pattern progresses; the jacquard loom is preprogrammed by means of punched cards, and the warp threads are raised mechanically. For either loom, the entire pattern repeat is drawn, thread by thread, on squared or point paper. The resulting picture of *mise-en-carte* shows exactly which threads are to be raised in every woven row. For jacquard fabrics, each row of the repeat is controlled by one card, which is perforated to correspond to the blacked-in squares of the graph paper picture. The cards for the entire repeat are linked together to form an endless chain which feeds through the mechanism, carrying the "code" for the final woven design. The artist who prepares the mise-en-carte is as essential to the success of the final product as is the weaver. It is he who pays exact attention to the proportions of black and white, duplicating subtleties of shading that define a facial expression or an architectural feature. In very fine quality silk pictures, credit is often given to this designer, and to the weaver, as well as to the manufacturer.

Without doubt, the most detailed, finely wrought silk pictures were woven in France. This is hardly surprising, since France, particularly

Silk picture commemorating the Louisiana Purchase Centennial, 1904.

Courtesy of Smithsonian Textile Division.

Lyon, has been Europe's silk weaving center for many centuries, and is also the birthplace of Jacquard and his revolutionary invention. This famous portrait of Jacquard was woven in Lyon by Didier and Company in 1839. A picture of even more astonishing detail is this view of the interior of Carquillat's atelier, showing a Jacquard loom, which presumably has just produced the silk portrait being admired by the gentlemen in the picture. The tiny Jacquard portrait, which is perhaps a sixty-fourth of the whole scene, is shown here in a detail photograph. In this scale, one can appreciate that it is indeed a woven textile, and even to study the interlacements.

Probably the most well-known silk pictures of the late 19th century are those woven by Thomas Stevens of Coventry, England, known as Stevengraphs. England had a well-developed silk weaving industry, producing both yardage and decorative trims and ribbons. "Coventry Ribbons" were highly colored patterned silk ribbons of very high quality. Changing styles left English ribbon manufacturers with machinery, manpower and a dwindling market for flowered silks. Stevens began manufacturing little pictures with his ribbon-making machinery. His subject matter included scenes, buildings, sporting events, as well as portraits and commemorative pictures.

Silk pictures woven in America seem to be almost exclusively of a commemorative nature. Our centennial provided a marvelous opportunity for the fast growing textile industries of this country to flex their muscles and show off. William Wyckoff, writing in *The Silk Goods of America* in 1880 says:

> ". . . jacquard work can follow any course of outline and has been employed for all sorts of pictorial reproductions, such as leaves, flowers, birds, landscapes, portraits, etc. Pictures in silk, produced by machinery of this sort before the eyes of visitors, were among the most attractive things of the Centennial Exhibition."

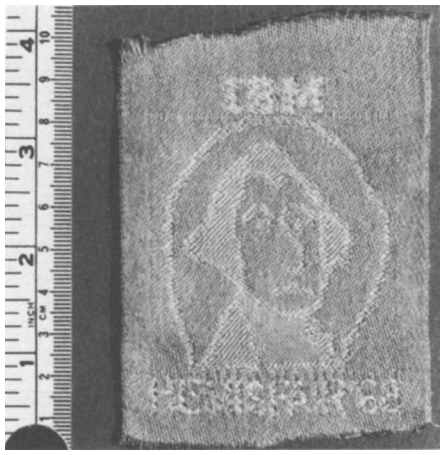
A number of commemorative pictures and bookmarks must have served not only to celebrate a particular person or event, but also to advertise the weaving skills of the manufacturer. Frequently, the name of the manufacturer is prominently featured, along with the name of the person or event which is the subject of the textile. The heyday of American pictorial silk weaving began around the time of the centennial and lasted for about three decades. The easiest pieces to date are those that are directly connected to a specific occurrence, for example:

> The Philadelphia International Exhibition, 1876
>
> The World's Industrial and Cotton Centennial Exposition, 1884-85, New Orleans
>
> Louisiana Purchase Exposition, St. Louis, Missouri, 1904
>
> The Pan Pacific Exposition, 1915

The manufacturers whose names appear most often are Anderson Brothers, Phoenix, Johnson Cowdon Co., John Best, W.H. Grant, and W. Strange Co., all of Paterson, New Jersey. The Paterson Silk Institute produced a page-sized picture of Theodore Roosevelt, and Arlington Mills of Lawrence, Massachusetts created numerous versions of Columbus Sighting America for the Columbian Exhibition. The most unexpected manufacturer was the Salt Lake Silk Factory, which produced a Brigham Young bookmark, among other silk goods manufactured within the Mormon community.

The practical production of rayon saw an end to silk weaving for other than luxury fabrics. What remains of narrow pictorial weaving in the United States are a few manufacturers who produce woven labels and bookmarks. In other countries, these silk curiosities are still being made. The Cash Company of Coventry still makes colored pictures, and occasionally one sees an advertisement for a portrait of Queen Elizabeth, or of Chairman Mao.

After a lapse of 80 years or so, there was a little encore of the type of fancy exhibition weaving that Wyckoff found so outstanding at the centennial exhibition. In Texas, at the Hemisfair of 1968, IBM displayed a computerized loom for pictorial weaving. Ironically, the jacquard principle has frequently been described as a sort of prototype to computers. Participants could draw a picture and choose among three weave structures, and see the results of their artistry woven before their eyes. It must have been a fascinating novelty for fair-goers to see the magic of pictorial weaving appearing at breakneck speed on looms of Buck Rogers futurism. But when one compares the cartoon likeness of poor Mr. Washington with the finely modeled forerunners created with 19th century looms, it's inevitable to wonder whether technology has really made such astonishing advances, after all. □



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I would like to thank Katherine Koob, Curator of Textiles at Merrimack Valley Textile Museum, and Rita Adrosko, Curator of Textiles at the Smithsonian, for generously making materials, resources and advice available to me.

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INDIGO - THE ALL TIME FAVORITE BLUE

by Anne Bliss

Indigo is perhaps the most widely used dyestuff of all time. Its use many centuries before the Christian era has been noted in the Far East (China, Japan, Indonesia). Marco Polo noted great quantities of indigo being prepared in China during the 13th century; at that time European dyers were obtaining blue colors from woad (*Isatis tinctoria*) which also contains the indigo molecule. Traditional methods of indigo vat dyeing can be observed today in Africa, Mexico, India and Japan; in fact, you can find indigo vats in almost any country in the world, as dyers have adapted age-old techniques to suit their personal situations. Indigo blue is the all-time best natural blue.

Indigo is obtained from various plants which contain the indican molecule $C_{14}H_7O_6N$, $3H_2O$). These plants belong to different plant families; the most commonly recognized are of the genus *Indigofera* (*tinctoria, suffruticosa*), but they also belong to others including the buckwheat family (*Polygonum tinctoria*), the *Lonchocarpus cyanescens* found in Africa, or the Indonesian *Marsdenia*. Woad (*Isatis tinctoria*) was discussed in an earlier article (*Interweave*, Vol. III No. 1, Fall 1976). Although the indican molecule is contained in all these plants (and in others), you usually have to do a bit more to get it to produce the traditional blues than merely steeping the plants in a non-reactive pot full of water, as is the "regular" process for dye plants.

The first problem one encounters is the indican molecule which doesn't "make blue" until it's oxidized. If you could repeat Bancroft's little experiment of squashing fresh indigo-bearing leaves onto clean white cotton fabric, you would probably note a blue color fixed to the cloth where the indican oxidized directly onto the fabric. I have had this experience with woad leaves, but it is not a practical dyeing method.

Instead, you can create a vat dye by placing the fresh indigo bearing leaves in a water-filled non-reactive pot (your "vat"). Cover the pot tightly, place it in a warm spot (south sunshine is good), and let it set for a day. Siphon off the dye liquid; avoid letting oxygen get to this dye. Then you can immerse your wetted fabric or yarn in the dyebath (avoid splashing, letting oxidized dye drip back into the vat, stirring in oxygen, etc.). Remove the fabric/yarn and air it by hanging it on a line or rod. This will oxidize the indigo and your material should turn a light blue. The more times you repeat the immersion-oxidation sequence, the darker the blue will be. Imagine that indigo is like paint—with each successive layer applied, the color becomes more intense, and if it adheres well to the layer below, it won't chip off.

This "fresh" vat method of dealing with indigo presents some problems. You may not live in an area where indigo-bearing plants will grow except in a greenhouse. Some species will grow in the warm south and in California; in fact, *Indigofera suffruticosa* is found "in the wild" in the southeastern U.S. Also, the working method for fresh indigo requires that the dyer not let the vat oxidize, and this requires some care. Finally, the amount of indican available varies from plant to plant, so it's difficult to know how blue your blue will be!

Perhaps you've seen advertisements for indigo, or your local supplier has some indigo on the shelf. This prepared indigo is really the most reliable for home and studio dyeing. You should be certain the product you purchase is "natural" indigo. Synthetic indigo, prepared in the laboratory, contains the identical molecular structure as the natural indigo, but it usually has a much higher percentage of indigo per weight than the natural indigo. Consequently you will have to adjust the amount you use. If you're a purist, you'll choose only the natural indigo obtained from dehydrated plant-water vats; if you just want the color, you might select the synthetic product. I would suggest using ¼ to ⅓ as much synthetic indigo as natural.

Natural indigo can be purchased in several forms: powder, lumps, liquid extract, dried plant, composted plant (I have a small bag of this from Japan, and the smell is pretty foul). Liquid extract of indigo is available from several sources which supply instructions and other required materials. Powdered and lump indigo are available from many sources; sometimes it is accompanied by instructions, but more often not. My personal preference is to use the dry powdered or lump indigo which usually has been produced by evaporating the original plant-water bath. The powdered form is easiest, as the lump indigo must be ground or pounded to reduce it to a granular or powdery form for use.

As mentioned earlier, the indigo molecule does not produce blue color until it is oxidized. When you purchase powdered or lump indigo, you will notice that it is a dark blue; it has been oxidized. This blue will not dye your fiber, even if you try hard. The blue powder must first have the oxygen in it "reduced" or removed. This is done by adding a chemical called sodium hydrosulfite (or sodium dithionite $Na_2S_2O_4$) to the indigo vat during its preparation. The other interesting thing about indigo is that it is not soluble in water, but it can be dissolved in an alkali (caustic soda, ammonia). To dye, what must happen is that the indigo blue powder is dissolved in an alkali bath with the oxygen removed. The dye substance in the bath is now called "indigo white". When the indigo white is oxidized it turns back to blue ("indigo blue").

The trick is to get the "indigo white" in the bath to (1) attach to your fiber and (2) to turn blue while still attached to the fiber. This is accomplished by

immersing the wetted (but not dripping) fiber/yarn/fabric into the indigo bath, leaving it under the surface for a period of time (5-10 minutes), and then removing it carefully to prevent dripping, splashing and the introduction of oxygen into the bath. When the fiber/yarn/fabric is removed, it turns from yellow-green to blue. The indigo white that was in the bath and is now attached to your fiber becomes indigo blue when it obtains oxygen from the air.

Most references indicate that the time the fiber spends in the bath should equal the time the fiber is exposed to the air before subsequent immersions. Remember that indigo builds color, so the more immersion-oxidation cycles, the deeper the color. From mechanical tests for lightfastness in a weatherometer, I have also found the fastness to light improving with deeper colors, i.e. more immersions and oxidations, thus more color buildup. Indigo dyed materials are also very washfast, since the indigo blue is not water soluble, except in an alkaline wash.

If you find that your indigo dyed material seems to have the color rubbing or "crocking" off, the fabric did not have the indigo attached well. Your alkali bath may have been too weak to dissolve the indigo completely, or the fiber itself may not have been ready for the indigo vat, as it should be well-wetted but not dripping wet. I like to soak my yarn/fiber/fabric for 30 minutes in warm water, then gently squeeze out the excess water and let it drip through a colander for another 5-10 minutes. Then it's wet-damp but not dripping.

The fiber may also have been too "slick" for the indigo, which may occur if too much sodium hydrosulfite is added to the vat. Or, the indigo may simply not have penetrated the fibers. Sometimes it helps to "work" the fiber/yarn/fabric below the surface of the dye while it is immersed—gently squeeze the liquid through the fiber, rub the fibers gently together, move the fiber back and forth through the bath, or wring the material very gently. Wear rubber gloves when you do this, and be careful not to introduce oxygen into the bath.

Here's a pet recipe for indigo that will dye about ten pounds of clean, dry cotton, wool or silk. You can also dye flax (linen), jute, ramie, viscose rayon and other natural fiber. Some polyester and nylon fabrics will also accept indigo, though not so well as the natural fibers. If you don't want to dye ten pounds, you can adjust the recipe. The vat will keep for 2-6 weeks if you cover it and add additional sodium hydrosulfite to reduce any introduced oxygen (add about 1 tablespoon at a time). Store the vat in a warm place (sunny south) if possible.

SUPPLIES

1 gallon glass jar with lid
Stir sticks including at least one long enough to reach the bottom of garbage can
1 30-gallon plastic garbage can with lid
Rubber gloves; apron or old clothes; respirator mask if desired
Sink or tub for rinsing with water supply
Clothesline, rod or fence for airing
Good ventilation—preferably outdoors

STOCK SOLUTION

Mix into a paste in the gallon glass jar:

- 2 oz. powdered indigo
- 2 oz. sodium hydrosulfite
- 1 cup warm water

Let the paste sit, covered, for 10-20 minutes. Then add non-detergent household ammonia to fill jar; stir well. Replace the lid and let the solution stand untio you note a whitish percipitate at the bottom and that the liquid has cleared and is yellowish. This usually takes 30-90 min.

VAT: Preparation and Dyeing

Fill your garbage can ⅔ full (20 gallons) with hot tap water or water heated no higher than 140° F. Indigo can also produce shades from lavender to chocolate brown, and this color change occurs at temperatures over 140° F. Indigo brown is a recognized color in the dye industry, but most of us using indigo want blue—not brown.

When the water is in the can, add 1 tablespoon sodium hydrosulfite to the water and stir. Cover and let the hydrosulfite reduce the oxygen in the water; this will take about 20 minutes. Then gently add about ½ of your stock solution to the vat. I often lower a glass measuring cup into the glass jar, fill it with dye and then lower it into the vat. This helps prevent oxygen from entering the vat, which would occur if you simply poured the stock solution into the vat. Also, the white percipitate in the stock solution jar may contain undissolved indigo which won't help your dye in the vat.

Now stir very gently so as not to introduce oxygen and then cover the vat for another 20-30 minutes.

You're now ready to immerse your wetted fiber/yarn/fabric into the vat. Lower it gently into the vat with your stir sticks or rubber-gloved hands. One dyer I know likes to use chopsticks when working with smaller amounts of dye, but full length (3') ¾" dowels work well with a 30-gallon vat. If you place a rod across the top of your can/vat, you can loosely tie around it and through a skein of yarn. This will enable you to "work" the yarn under the surface without immersing your whole arm in the vat.

As you remove the fiber from the vat, do not allow oxidized liquid to drip back into the vat or stir air into the vat. You have gone to some trouble to remove the oxygen—don't put it back in. Hang the dyed fiber on a clothesline, rod or fence to air/oxidize. You will note that the color changes from yellow-green to blue. Keep immersing and oxidizing until the desired blue is obtained. When you like the color, thoroughly wash your dyed fiber, rinse it well, and hang to dry.

Unless you're working with all ten pounds at once, you will not need to add all the stock solution at the beginning. So as your dyebath gets depleted (the blue doesn't get darker), you can add more stock solution. If the vat bath turns blue, it means there's oxygen in it, so add more sodium hydrosulfite, 1 tablespoon at a time, and let the vat rest for 15-20 min. after each addition.

HAZARDS

1. Sodium hydrosulfite (sodium dithionite) is dangerous. Handle it carefully and don't inhale it (it's a fine white powder); wear a respirator/painter's mask if you have a tendency to inhale things. Working outdoors and carefully measuring with spoons (not just shaking some in) will help. Be cautious if there's a breeze, as the powder becomes airborne easily. Also, this chemical ignites, so keep it away from sparks, fire, etc. Store in a labeled, covered dark glass jar away from children or other unsuspecting people or pets.

2. Ammonia doesn't smell very good and is a respiratory irritant. Use good ventilation (outdoors). Don't drink it or stick ungloved hands into it.

3. Indigo powder or lumps will adhere to your skin, and behold, you may find a blue you! Wear rubber gloves and either old clothes or a rubber lab-type apron. I wear my old blue jeans, and occasionally even toss them in the indigo vat, as they've nearly all been dyed with synthetic indigo (or perhaps another synthesized blue if they're not cotton denim), and a layer of genuine natural indigo won't hurt them.

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WEAVING - ON A KNITTING MACHINE

by Brucie Adams

My previous experiments with handspun yarn used on the knitting machine left me dissatisfied as I felt there had to be some special way to use such yarns. Although the knitting machine functions well in duplicating handknitting with a great savings in time, it also has specialized abilities which are able to achieve effects not easily duplicated by handknitting.

One such technique that would be almost impossible to accomplish by hand is called, interestingly, weaving. This mode of machine knitting involves the use of a fairly fine backing yarn, plus a heavier thread which is laid on the surface. The result more nearly resembles fabric, although it is certainly knitted. Almost any yarn can be used for the surface thread for it does not pass through the needles. Novelty yarns, including handspun, are excellent to use because the nature of the yarn is not concealed by the knitting technique. The back of the fabric looks almost like plain knitting, since the backing thread is knitted around the weaving thread, which appears only on the right side. Floats of up to three stitches can be used, and in fact are recommended, as these best show the character of the yarn. For experimental purposes, many patterns can be tested by simply punching one row and locking the card. This row can then be repeated as desired. This is not a good general practice as it wears out the card, but it is a way to determine if it is worthwhile to proceed to punch an entire card with a particular pattern.

Finally, very small amounts of the weaving yarns are needed. The jacket I made took only about nine ounces of handspun. Therefore this is a great way to use up those odd bits of yarn.

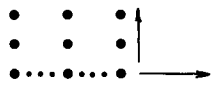
As can be seen from the diagrams, the parts of the garments look a lot like those seen in various books and directions for loom-shaped clothing. In fact, there is no reason why one's favorite directions for this sort of garment could not be used on the knitting machine. However, it is of great importance to make a gauge. I was so excited to get on with my first "weaving" project that I just followed a given set of instructions, with the result that my jacket would have fit someone several sizes larger than I.

The pieces should be knit in the following order: the two fronts, then the back; after the shoulders are joined the sleeves are knitted. When the final two rows of weaving are completed for a sleeve, leave the stitches on the needle, hang the jacket body on the needles

The author's knit-woven jacket uses 9 oz. of handspun (variegated 'Rainbow Batts' wool). Pattern thread is tied down at every third stitch by the firmly knitted base fabric. Pattern layout on next page.

matching the pattern, and chain off.* Repeat for the other sleeve. The shoulder seams and the underarm and side seams were sewn on the sewing machine using a stretch stitch.

Because different machines function in various ways, specific instructions for weaving are not given. Consult your instructions. The pattern card was punched as follows:



repeated across the card. This makes a simple 3/1 weave so the vertical lines are punched out for the length of the card. The pattern in this case was knitted by weaving for two rows, plain knitting for two rows.

Left front: use an "e" wrap to cast on a total of 145 stitches (60 to the left of "0" and 85 to the right). Knit 30 rows in pattern, knit one row at loosest tension (afterwards referred to as max tension; on my machine this is 10), knit 32 rows more. Increase one stitch every other row on the left 5 times, then "e" wrap increase to 85 stitches on the left. The row counter should be at 73 now. Continue knitting while decreasing 1 stitch every 10 rows on the left for the shoulder, starting at row 80. Knit to row 190, which should leave about 73 stitches on the left. Knit 2 rows at max tension and chain off.

Right front: reverse all directions. All increasing and decreasing are done on the right side. Complete directions are not given for the back as the diagram should be sufficient.

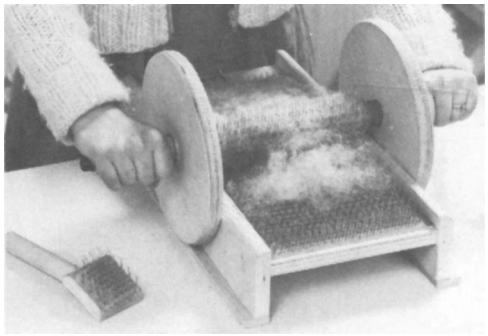
CHECK YOUR GAUGE! If your dimensions do not work out with YOUR gauge, the number of stitches and rows given here will have to be changed. These are given ONLY as a guide.

The bottoms were faced by hanging the pieces with the wrong side facing, knitting 10 rows, then one row at max tension and chaining off. This was turned in and sewn down.

I owe many thanks to Aldwyn Roberts who learned about weaving with the knitting machine in her home in South Africa. She generously shared her knowledge with me.

*The chain off is done as follows: knit one row (or two depending on the desired effect) at max tension, pull the needles to the D (furthest forward position) and chain off with the crochet tool, starting at the side opposite the carriage. This is the basic casting off procedure. It is also used as a decorative technique. For example, the row knit at max tension which makes the turning line for the front facings can be hung on the needles, knit and chained

ever wish someone made spinning equipment that worked better?



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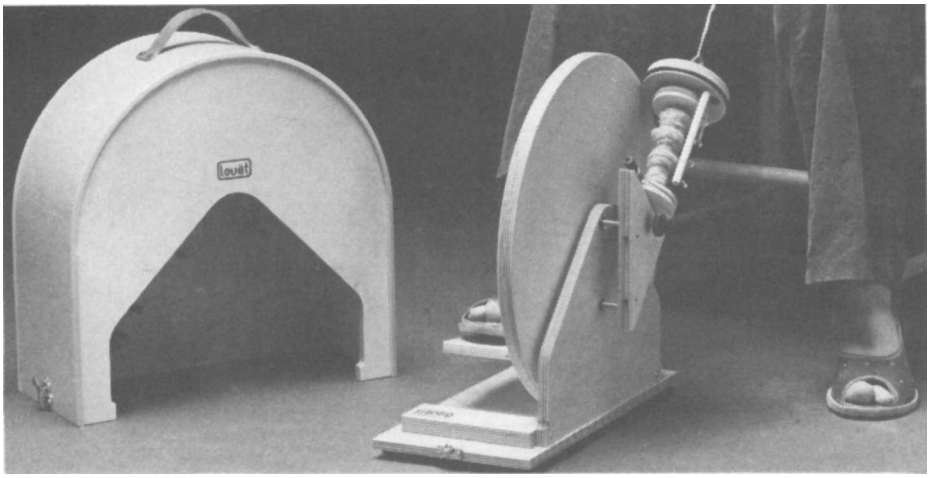

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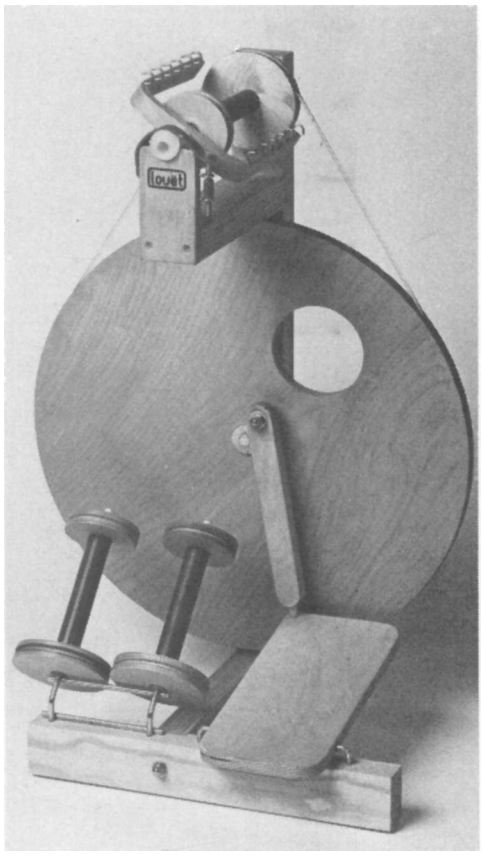

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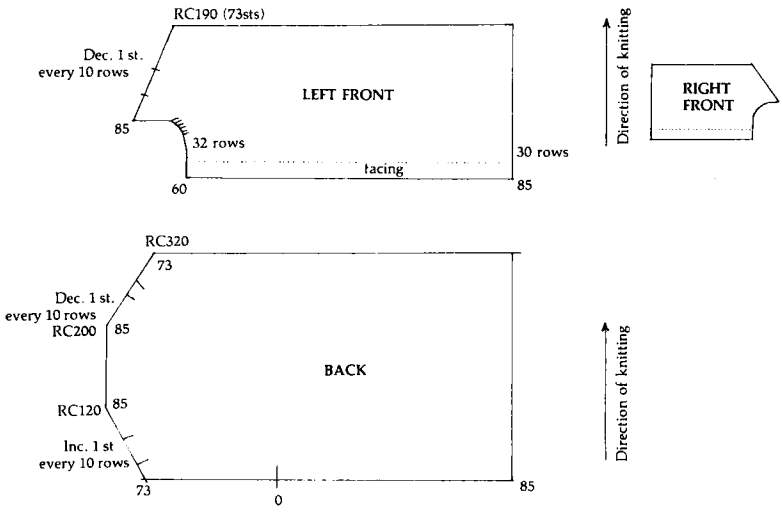
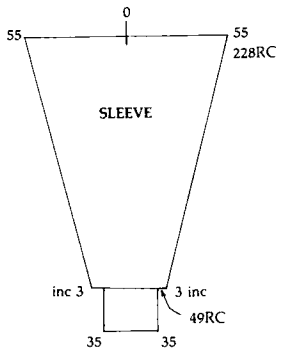
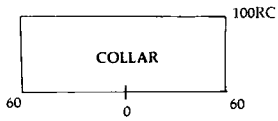
off. This makes a nice definite line. As there is a knit side and a purl side to chaining off, make samples of each so you can determine the effect you want and hang the work facing the appropriate side to get this effect. □

2-ply commercial wool handspun singles used in this project.

HELP PLEASE! In my next article I would like to present a compilation of prepared wool fibers for spinning, including such things as breed, grade, colors available, put-up, cost, etc. If anyone supplies sliver, tops, etc., and would like to be included in such a listing, please contact me at the address below. This is not to be a critical review, but rather a resource directory. **Brucie Adams, P.O. Box 115, Laramie, WY 82070**







Know Your Sheep

BORDER LEICESTER

by Linda Berry Walker

Border Leicester yearling rams bred by Gerald Hunter, Ontario. Photo by Fred Walker.

BREED ORIGIN: The border country of England and Scotland.

MOST PREVALENT LOCATION IN NORTH AMERICA: Canada.

ANIMAL SIZE: Rams 170 to 200 lbs. Ewes 150 to 160 lbs.

FLEECE WEIGHT: 8 to 15 lbs.

WOOL TYPE: lustrous longwool.

NUMERICAL COUNT: 44's to 48's

STAPLE LENGTH: 6" to 10"

SHEEP TIPS: Although the Border Leicester has not had great popularity in the United States, it is a prominent dual-purpose crossing breed throughout the world. The Border Leicester sire is crossed with nearly all breeds to produce an excellent commercial sheep. He is ideally suited to this purpose as he is able to pass onto his progeny the thriftiness, prolificacy and ability to look after itself that this breed is so well known for. These big, well-proportioned animals are graceful and stylish with no wool on the legs or any part of the proudly held head. The ewes have many assets—hardiness, sound feet, early maturity, and exceptional prolificacy. Twins or triplets are expected, with the lambing percentage of 200% to 210% being one of the highest of any breed. The Border Leicester's intelligence, easy care qualities, milking ability and both meat and wool production make them very attractive to both purebreeders as well as commercial growers.

SPINNING POINTERS: Border Leicester is a good learn-to-spin breed; the fleeces are easy to prepare and quick to spin. A good fleece will be of equal quality throughout, and have a soft luster. The individual staples separate easily, ending in a small curl, with some fleeces having a corkscrew appearance. In preparation tease open the locks by hand or by hackling. (To hackle, clamp a coarse hand card onto a table; grasp the lock by the tip and throw onto the card, pulling the wool towards you. Repeat, holding the lock by the shorn end.) This wool is best spun firmly and plyed lightly, if plying is desired. It is an excellent choice for singles warp, embroidery yarn, and dyeing in the fleece or as yarn. Knitters will find it a good wool for medium to heavy long-wearing garments, while weavers will enjoy using it by weaving in washed unspun locks for a sheepy shag.

BREEDERS' ASSOCIATION:

American Border Leicester Breeders' Association, Mrs. Beverly Tiffany, Secretary, 7594 State Rt. 534, West Farmington, Ohio 44491.

TWO WEAVERS

A business association which *works!*

by Constance La Lena

Cris Urbonas of Boulder, Colorado, and Arianthe of Oak Creek, Colorado, have maintained a ten-year friendship while developing a profitable business association, even though they are geographically separated by 190 miles of Colorado's rugged Rocky Mountains. The business association was not deliberately planned by either of them, but grew by steps as need arose and as their application of production/marketing/sales techniques gained in sophistication. Without losing their individual identities or artistic expression, as an associated pair they can accomplish far more than could either of them individually. They have a business association which *works!*

Kris and Arianthe met in Denver in the early 1970's, and though their backgrounds are different, there are some interesting parallels. Kris was born in this country of Lithuanian parents, and she grew up steeped in the strong ethnic tradition of craft in needlework of all kinds. She graduated in 1964 from St. Xavier College in Chicago in craft design, and a family move in 1970 took her to Colorado from the Midwest. At that time she had been weaving, showing and selling her work for about six years, and in Colorado she continued to weave and to show the hangings, scarves, ponchos, afghans and pillows she was making. Arianthe was born in this country of Greek parents and her childhood memories include coverlets and blankets spun and woven by distant relatives in Greece. Her family had lived in Colorado since Arianthe was in her early teens, so upon graduation in 1969 from San Francisco State University with a degree in creative arts, it was natural for her to return to Denver to live and work. Arianthe's work at that time was primarily wallhangings, though she also produced occasional fabrics in the form of scarves and ponchos. In addition to weaving, she also taught weaving, and she first saw the work of Kris Urbonas when she took her students on a tour of Denver craft galleries. Arianthe remembers, with a smile, telling her students, "Now *there's* someone who looks like she has her act together!" For a person as gregarious as Arianthe the next natural step would be to phone Kris in nearby Boulder and ask to meet her, which is exactly what she did. They met at Kris' house, over tea, and besides sharing a seriousness and professional attitude toward their weaving they discovered that their work itself shared a similar "look", probably because of their mutual love of color and rich texture.

Arianthe and Kris with yardage in camel/gray colorway.

Kris is a person who maintains active contact with many other weavers and keeps in touch with what they are doing, while Arianthé keeps in touch with what is happening in the art and business world as a whole. It was natural that they share this information, and from the beginning of their acquaintance they also traded information about weaving and finishing techniques, yarn sources and dyeing. When Arianthé moved to Oak Creek in the mountains of northwestern Colorado, Kris continued to keep her informed of arts happenings and opportunities in the Denver and Boulder area.

Instead of viewing each other as competitors, they recognized the compatibility of their work and began to share booth space in local (Colorado) craft fairs and shows. They formalized their association to the extent that they gave it a name—Colorado Software—which allowed them to share booth space in fairs which otherwise would have required two booths. More significant, however, the name was the first step in building their collective image. At the same time, they both began to move away from weaving wallhangings as they started to enter more functional pieces in shows and fairs. Sales for both of them at this point were primarily within the state of Colorado and were conducted through fairs, crafts shops and special commissions.

For two years, 1974-76, Arianthe lived (without a loom) in Iran. This period was a time of self-evaluation and exploration for both her and Kris, who during the same period had an association in Boulder with a wholesale/retail yarn business and weaving school. They continued to keep in touch through letters which almost served as a diary of Arianthe's stay in Iran, and when she returned to the United States, both she and Kris found that their ideas about their own work were much more focused than they had ever been: it was clear to both of them that limited production was the business way to go.

The turning point for them was a workshop on production given at Haystack Mountain School of Crafts in the fall of 1976 by Jack Lenor Larson and his long-time assistant Barbara Wallace. The workshop was part seminar and part practical application, and both Kris and

Arianthé say that they still find fresh inspiration from applications of that workshop. Larson began by defining what (in industry and in the textile world) a collection *is*, and simply stated it as a way to define limits. He stressed business practices, organization and presentation and gave students two weeks of class to design a collection, make samples, provide sales materials and make a sales presentation to a potential buyer (the class) based on each student's own assessment of market potential, kind of collection and limitations the student had defined for himself and the market.

With newly focused creative ideas and some solid business information and marketing know-how Kris and Arianthé were ready to move from selling at small local fairs, shows and shops into a situation with better potential for sales. But opportunity was slim in the Rocky Mountain states in 1977. Through the 70's major wholesale/retail craft fairs emerged as a valid sales medium for the crafts producer. But American Craft Enterprises, the marketing arm of the American Crafts Council and sponsors of the two biggest of those fairs (Northeast Craft Fair in Rhinebeck, New York, and the Pacific States Fair in San Francisco) limited eligibility to craftspeople working in their immediate geographical area, thus excluding from this sales opportunity virtually all the craftspeople who lived between coasts! And the Baltimore Winter Market and Dallas Craft Market had not yet come into being. Opportunity for Colorado Software came instead in the form of Noel Clark whose National Crafts Ltd. shows pioneered major whole/retail shows in the Rocky Mountain region.

Kris and Arianthé participated in Clark's first Rocky Mountain Craft Fair in Denver in the summer of 1977, and it opened up a whole new marketing avenue for them. For the first time they realized that there really *were* great numbers of people willing to buy the kind of handwoven things they were making, and this fair gave them the impetus to test markets in the East. That year, they also participated in the National Craft Fair in Gaithersburg, Maryland, their first business venture out of the Rocky Mountains and into the lucrative East Coast markets. They were astounded at the response of the East Coast public to their work. Arianthé sums it up by saying, "In Colorado, what we found was that people were interested in our work because they wanted to make it themselves—in the East, people *bought* it!"

During the following two years, Kris and Arianthé worked in an entirely parallel way: they continued to do independent designing and weaving, but joined under the name Colorado Software to sell their work. They discovered through shows that their Western idea of rich full-spectrum color introduced to their new Eastern markets, which apparently had been used to rather somber colors in handwovens, proved irresistible to buyers. Kris had for years been dyeing much of her yarn with Cushing's dyes, and when Arianthé developed a personal spectrum of colors in acid dyes she urged Kris to use them too. By 1977, they were both using the acid dyes and swapping color formulas. They each developed colorways for their warps, and each one was different. Except for agreeing on some standard sizes (like for shawls and mufflers), all their work was individual in idea and execution. According to them, it "just worked out" that their things were so harmonious when shown together.

After three years of experience showing and selling through major shows in the Rocky Mountains and on the East Coast, they analyzed response to their work to discover patterns in buying, then formulated a new direction. They had participated in the American Craft Enterprises' Pacific States Fair for the first time in 1979, and they discovered that there was quite a difference between the buyers at the American Craft Enterprises fairs and the National Craft Ltd. fairs. The National Craft Ltd. fairs were strong fairs, but because of their geographic locations and their timing they generated only a small amount of wholesale business. The American Craft Enterprises shows, on the other hand, have strong wholesale followings, and their first exposure to the strength of this wholesale market at the Pacific States Fair prompted them to make a dramatic change in their strategy. Participation in the Pacific States Fair in 1979 made them eligible to apply to Rhinebeck in 1980 (the geographic restriction was lifted for those who had previously participated in a regional American Craft Enterprises show), and they wanted to be sure they were ready for the huge wholesale response they expected at that important fair.

For the first time, their long-time friendly association took on the additional structure of a serious business proposition when they decided to design a collection togather. They began by analyzing the pieces which had sold during the previous several years and limited the collection to just six of those pieces, sharing the design development of them. Now, when a wholesale buyer asks what sells, Kris and Arianthé can tell him not only "what", but "when", "what color", "why", and "to whom"! Next they limited their color spectrum to just six colorways. Kris and Arianthé each designed three of the colorways with one eye on colors currently popular in the fashion marketplace and the other eye on colors which are attractive to certain skin and hair types. This latter approach to color is one which they adopted after a personal color workshop with Suzanne Caygill, a color consultant from Sam Francisco who specialized in the development of personal wardrobe color pallets based on one's one skin, hair and eye color. For Kris and Arianthé, this idea turned their color sense from the abstract to the practical. Now, their colorways are designed with specific hair/skin/eye types in mind.

In the area of business organization, they recognized that they both had been working very hard duplicating each other's effort in many ways, so they formally split jobs and duties according to ability and inclination. Arianthé does all the business analyses, projects costs and prices, and answers inquiries. Kris is responsible for all the shipping (UPS is much more accessible to her) and does artwork, layout and printing of all their promotional material.

Fabric designs are not fixed thread for thread, so Arianthé and Kris still design and weave individual warps for the collection within the constraints of the colorways and pieces. Thus, while fitting within the collection, each warp they do tends to be a little different: a series of scarves done by Arianthé would vary slightly from those done by Kris, even though they both were designed for the same colorway.

They share orders by keeping a close tally on their sales and who has what in stock. Their association is still not a legal partnership—they each keep their own set of books, splitting the expenses for promotional materials—but their public image is collective. Though they each have labels woven with their own names which are sewn into pieces they make, the hang tags say "Colorado Software". They both continue to weave and sell work outside the Colorado Software collection, but their collective work is their bread and butter. It's a steady market, and it's nearly all wholesale.

Kris and Arianthé are both strong individuals with definite ideas, yet ego has never threatened their mutality. They have very different ways of working: Kris' studio is every place in her house, and her life is filled with a disruptive progression of friends, family and projects, all blending together. Arianthe's studio is physically separated from her living quarters, and she works hard to keep her professional life apart from her personal one. They admit that if they actually had to *work* together (in the same studio) for any length of time they would drive each other up the walls. But they see each other only five or six times a year, and that amount of individual space keeps their association from being confining for either. Regular communication is accomplished through long distance calls (before 8:00 A.M.).

The basis and strength of their association is their identical philosophy toward their work and their shared standards of quality and excellence. They have found that they are helpful for encouraging one another—certainly more rewarding than "going it alone". Best of all, they have evolved a prime type of production organization, through sharing, that ensures that Colorado Software does not get overcommitted on orders that can't be delivered

continued on p. 83

Origins: DAMASK

by Kax Wilson

Damask, as an historic textile, can be many things: there are more than 75 varieties. Yet, there are some definite criteria that a fabric must meet in order to be called damask. Structure must be simple, that is, there will be no more than one set of warp and one set of weft. Pattern will be achieved by combining two weaves (or *turning*) to give warp floats in the ground and weft floats in the pattern (or conversely), yielding the two most characteristic features of damask design—reversibility and flatness. Float length is constant. To historians "true" damask implies satin weave, and the term *damasse* is used to describe the use of two different weaves (no matter which ones) to achieve damask-like patterns.

Damask is also characterized by large stylized patterns, simple, and having few delicate details. Distinctive visual effects are caused by the contrasting light reflection from pattern and ground. Generally, damask is considered to be a monochrome textile, although, certainly, this is not always the case.

Historians agree that damask was named for the Syrian city of Damascus, an important weaving and trading center, especially famous in the 12th century. No doubt the fabric was at times woven there but it did not originate there. Damask's precursor is said to be a monochrome silk called *Han damask* that was woven in China during the Han dynasty (202B.C. to A.D.220). Damask is really a misnomer for this fabric because it was a plain weave patterned by areas of 3-span warp floats. The Chinese, however, were probably weaving true damask by the 4th century.

The development of damask in China and Japan and in the Near East is associated with the development of the drawloom. It is thought that the Crusaders introduced both the fabric and the means for weaving it into Europe, although Marco Polo is credited with introducing damask to Italy in the 13th century. Many oriental damasks became treasured church vestments and hangings.

Silk damask was a dominant textile in Europe from the 15th to the 18th century. But even as early as the 14th century, damasks depicting animals and plants of Chinese inspiration were being woven with a high degree of perfection in Lucca, Florence and Venice. Throughout the 17th and 18th centuries, Italy, and especially Genoa, produced Europe's finest large-patterned furnishing damasks.

By the middle of the 15th century, weavers in Lyons were copying damasks made in Venice and Lucca; most of these weavers were Italians brought to France by Louis XI. By the end of the 17th century the systematic training of designers, encouraged by Louis XIV's comptroller general of finances Colbert, brought French garment damasks to a perfection unequaled anywhere else. The French revolution destroyed the luxury textile industry in France; damask did reappear, but as a jacquard fabric without its former glory.

Linen damask was strictly a European innovation. The blue and white towels, woven in Perugia in the north of Italy during the 14th century for both church and secular use, had figured borders depicting horsemen, animals and monsters, and they were considered to be the ancestors of the costly linen damasks woven in the Low Countries.

The Flemish town of Courtrai was famous in the 15th century for linens showing complicated Biblical scenes and family coats of arms. Haarlem, a world-famous bleaching center, was also an important damask weaving town in the 16th and 17th centuries. In the 17th century French and Dutch Protestants established the damask industry in Ireland.

The truly elegant damasks belong to past centuries and to the drawloom. The method for working weave and light reflection, however, remains a viable technique. □

BOOKS

Weaving Tricks *by Susan Gilmurray. Van Nostrand Reinhold, 1981. 189 pp., $12.95 hardbound.*

"The weaving process abounds with tricks and secrets, most the result of years of experience," says Susan Gilmurray. She has written a book to share those miscellaneous bits of weaving information.

Trick and secret are words that imply mystery or guarded information. The struggling new weaver might hope that here, finally, is a book to solve all problems, to prevent all frustrations. Privileged at last to partake of those inner, sacred truths she looks to a future of smooth warps, of perfect projects. Not true, of course. The 'tricks' are lesser known techniques that have helped some weavers sometimes in some situations. One person's trick may be another's tragedy. However, the more methods you learn, the more likely you are to find the ones that suit you best. Just one new idea that works for you may be worth the $12.95 price.

The book is indeed full of diverse ideas. It must have been difficult to decide what to include that is unique enough to be beyond the scope of general weaving knowledge and then how to organize the myriad of miscellaneous tips. The author has solved these problems quite well. For the most part, the material is suitable for the person who has had a beginning weaving course; for one who has absorbed some basics from friend, teacher or beginning text. If that is your level of competence, you must, even so, expect to encounter some/much that is not new to you; some/much that is not applicable depending on your background, your loom, your interests. You must also be prepared to read the book closely to find the 'tricks' important to you because good ideas are in some cases hidden in unexpected sections. The material is organized into chapters on equipment, fibers, designing, warping, weaving and finishing. An index also helps to locate pertinent information.

The weakest areas are the sections on looms and fibers, which are relatively routine. Unfortunately, these are the first two chapters. Do not be put off; keep reading. Also unfortunate are the brief explanations of specific weave structures in the section on blocks. They are difficult to understand unless you are already so familiar with those weaves that explanations are not necessary.

The strong areas of the book, in addition to the generous supply of weaving tips, are excellent line drawings to clarify ideas throughout and a good glossary of weaving terms. The latter is included because Susan maintains, "One of the biggest secrets of weaving seems to be terminology. Not only does spelling change; meanings vary, with some terms having several, somewhat contradictory meanings."

The few hours I spent reading *Weaving Tricks* were rewarded by several 'tricks' I will try in coming warps. Most weavers of moderate experience are likely to be similarly compensated.

Louise Bradley

Drafting Primer *by Susan Guagliumi. The Unicorn, Box 645, Rockville, MD 20851, 1978. 64 pp., B/W, softbound.*

Do you remember those elementary school readers which had the supplementary workbooks to go along with them? After each reading lesson you would sit down at your desk and labor over the day's accompanying assignment, the idea being that this would further assist you in the development of your reading skills. Susan Gualiumi has this concept in mind in her *Drafting Primer*. Through a "workbook" approach the intent of this book is to help the weaver better understand the mechanics of drafting. It is not an in-depth study of weaves or drafting but rather a study guide for both.

After an all-too-brief discussion of reading drafts, *Drafting Primer* includes sections on drafting various kinds of weaves. A brief introduction is given to each weave and is followed by exercise assignments. The reader is asked to complete unfinished or problem drafts on the graphs provided. References are made to previous assignments with some helpful exercises in adapting designs from one weave to another.

Beginning with twills and thread-by-thread designing, sections are included on block designs and profile drafting covering such weaves as crackle, summer and winter, shadow weave and overshot. Exercises are provided for each weave with answers listed in the back (no fair peeking). Emphasis is on 4-harness, though some attention is given to multi-harness drafting.

Drafting Primer could serve well as a supplement to a weaving class or to books offering more in-depth information about weave structures and drafting. I would not recommend this book as a sole source in learning drafting, for more explanation is needed to gain full understanding. If you are one of those people who needs a little "doing" to comprehend what you've just read, then this just might be the answer. At an affordable price, it's worth a look.

Jane Patrick

Mushrooms For Color *by Miriam Rice and Dorothy Beebee, 1980, Mad River Press. Rt. 2, Box 151-B, Eureka, CA 95501. 145 pp., 70 B/W drawings, color photos of 54 dyed wool samples. $7.95 paperbound.*

Miriam Rice is a pioneer in the field of using mushrooms as dyes. Her work in this area began with a moment of serendipity—while cooking mushrooms she'd gathered for culinary purposes, she decided to throw some premordanted wool into the pot to "see what would happen". What happened was a surprising range of rich, very light-fast colors. Rice found her results so pleasing that she went on to experiment with hundreds of mushrooms and to create a color-wheel of 165 mushroom-dyed skeins.

The authors have made their findings in the area of mushroom dyes most accessible. In this book Rice's working method is fully described and clear directions for producing a wide range of colors using mushrooms and standard mordants are given.

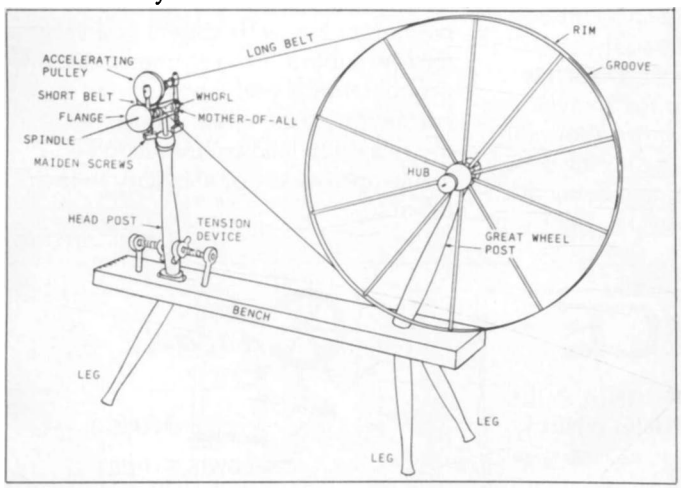
A section on "Identifying and Classifying Mushrooms" by Susan Libonanti-Barnes along with the informative drawings of mushrooms by Dorothy Bebee make mushroom collecting seem a fairly straightforward proposition. Of course, as the book cautions, one should look for other references when identifying mushrooms to be eaten.

Mushrooms For Color has a nice homey flavor, but that doesn't stand in the way of good, intelligent, well-organized writing. Miriam Rice is as clear and open about what she doesn't know as she is about what she does. This, combined with the color illustrations of the mushroom-dyed color wheel, will have a lot of dyers poking through the woods and omlettes with new interest.

Jessica Scarborough

The Legacy of the Great Wheel *by Katy Turner. Select Books 1980. 128 pp. Paperback. ISBN 910 458-15-4.*

This is a very complete little book. While not going into great detail, it manages to cover a lot of ground in adequate fashion. Included is something about the history of spinning wheels, techniques for spinning on the great wheel, including fiber preparation and spinning techniques for a variety of fibers. What makes this book so enjoyable is that Turner's enthusiasm and spinning philosophy are apparent. We know not only how she spins by *why* she does. The basics of spinning are well, and economically, covered. The thorough coverage of fiber preparation no doubt results from its importance in spinning on the great wheel. Since drafting is done with only one hand, it is essential that the fibers flow smoothly.



The book includes two bibliographies, an appendix for wool scouring, two glossaries and an index.

I am not in total agreement with Turner's assessment of the spinning characteristics and problems of various wool breeds as outlined in her chart n pages 66 and 67. It has been my experience that animals grown primarily for meat, such as the Suffolks and Hampshires, yield an extremely harsh wool, not nice for spinning at all. I would hope that beginners would not be turned from the Columbia and Corriedale. There is a wide range of count in these breeds and some of the coarser fleeces are ideal for beginners and yield a much nicer yarn than the Blackfaces. The only other criticism I have is that the photographs of spun and unspun fibers, shown on page 97, are so small that it is impossible to see what these are attempting to show.

Brucie Adams

How to Weave Fine Cloth *by James D. Scarlett. Reston Publishing Co., Inc. A Prentice-Hall Company, Reston Virginia 22090, 1981. 204 pp., $14.95, B/W, hardbound.*

With weavers using more and more fine threads from which to make yardage, it is timely that a book on the subject be published. I had hoped James D. Scarlett's *How to Weave Fine Cloth* would prove itself a valuable resource on the do's and don'ts of cloth making. Unfortunately, Scarlett misses the opportunity to give us something we all could use.

How to Weave Fine Cloth is directed toward the "amateur" weaver or what appears to be the beginning weaver. It is really more a textbook about learning to weave than it is a book on making cloth. Written to a British audience, many terms are British and could certainly confuse the beginner in this country. While I found some of the information interesting, sufficient data is not provided for the novice to clearly understand the weaving process. If viewed from a more advanced weaver's perspective, many of the explanations become unnecessary and therefore tedious.

The book begins with a discussion of looms and various kinds of weaving equipment and then gives instruction on warping the loom and preparing to weave. A small section appears next on the actual weaving and finishing of cloth. An overview of cloth making, it is not enough instruction for the beginner and not in-depth enough for the experienced weaver. Finally, Scarlett touches briefly on drafting, tartans, district or estate checks, knots and cords, loom care, and how to modify an English pattern loom. I did read with interest the information on tartans and checks and felt the section on loom modification might be helpful to the person embarking on such an endeavor.

Scarlett fails to teach us about weaving fine cloth. It is too bad so little attention is given to the subject for which the book is named. Does this book have a place? For the weaver interested in knowing more about different kinds of looms, gathering some historical information, and being introduced to tartans and checks—all from a British perspective, then you might want to look at this book. If you want to learn to weave fine cloth, then I suggest you wait for another book.

Jane Patrick

Doup Leno: A Quick and Simple System for Weaving Loom-Controlled Leno *by Hella Skowronski and Sylvia Tacker. Shuttle Craft Guild Monograph 32. Available from HTH Publishers, P.O. Box 468, Freeland, WA 98249. $7.75.*

This new monograph in the Shuttle Craft Guild series is, like most of its predecessors, thorough. It presents the author's doup leno method in clear, step-by-step diagrams and photographs. My only criticisms of the monograph are that (1) the illustrated examples of doup leno uses are uninspiring, and (2) the price seems a lot to pay for a narrow treatment of a very narrow subject. My recommendation: probably most useful to weavers of curtain or garment fabrics who want to use this doup leno technique to add stable openweave or elasticity to their fabrics.

Carol Strickler

The Essentials of Handspinning *by Mable Ross. Potten, Baber and Murray Limited, Bristol, England, 1980. 40 pp., line drawings. $5.95. U.S. distributor: S. Gelbwaks, R.D. 1, Route 23, Hermon, NY.*

Just as it says: the essentials of handspinning; they are well presented here in an easy to read format with step by step instructions and clear drawings to take you through wool preparation, drop spindle and wheel spinning, plying and finishing processes. The author explains a variety of preparations and spinning techniques to produce woolen, worsted, 'semi-woolen' and 'semi-worsted' yarns. Her description of spinning wheel mechanics is brief and directly to the point of learning control of your machine. She is most interested in producing yarns for knitting and presents a method for matching homespun yarns to their commercial equivalents so standard patterns can be used. A handy table of spinning faults and remedies concludes the book. Missing is any mention of fancy plies and yarns or of fibers other than wool.

Louise Bradley

GENERAL INSTRUCTIONS & YARN CHART

Remember the old adage "when all else fails, read the directions"? With weaving it's almost guaranteed! Do read the directions completely before starting any of the projects. Particularly note the size and type of yarn needed, the width of the loom and the size of the finished item. Look for the boxes which will give additional information about particular weaving problems. Check the index for similar items and read the information given for them too. The instructions in this issue assume that you know how to warp a loom and read a draft. Additional information can be found in *The New Key To Weaving* by Mary Black, *The Shuttlecraft Book of American Handweaving* by Mary M. Atwater and *The Weaver's Book* by Harriet Tidball (all from MacMillan).

Making substitutions

Though we've mentioned specific yarns and colors for most of the projects, feel free to substitute. This is where you become the designer. It's quite safe to substitute one yarn for another if the texture is similar and the yards per pound are about equal. Check the yarn chart opposite to see comparative sizes and textures. Don't overlook smaller yarns that may be doubled to equal larger ones. If the texture is not the same, a sample is in order to be sure that the hand is what you want. If the yarn that you choose has a different number of yards per pound, then the ends and picks per inch and yardage needed will have to be refigured.

Finishing

Finishing instructions have been given for each project based on the experience of the designer. Most involve washing in some manner. The water temperature, amount of agitation and drying method will determine the amount of shrinkage of all fibers and the amount of felting of wool. If another method than the one suggested is chosen, proceed cautiously as shrinkage and felting are irreversible.

Weaving with "Tabby"

Some weave structures such as overshot and summer-and-winter require two weft threads—a pattern thread and a tabby. A tabby is a binder that interlaces with the warp in plain weave. A tabby is used after each pattern pick. The tabby picks, which are designated tabby a and tabby b, are used alternately. An easy way to remember which tabby to use next is to note on which side the shuttle lays. If on the left, use tabby a, if on the right, use tabby b.

Calculating warp

NUMBER OF WARP ENDS

x number of ends per inch (sett)
number of inches wide the finished piece will be before washing + ½" for drawing in

=total number of warp ends needed

LENGTH OF WARP

finished length of piece before
\+ washing
loom waste (up to 1 yd. for a large floor loom, 12" or so for a table loom. Consult your loom instructions).
\+ takeup (as much as ⅛ of finished length for a stretchy wool warp, as little as 5% or 10% for cotton).

=total length of warp

YARDAGE NEEDED FOR WARP

x total number of warp ends
total length of warp *in yards*

=total yards of warp needed

Calculating Weft

For a balanced weave, buy the same number of yards of weft as you do for warp. This will be a generous amount, but better not to run out in the middle of a project. For a warp-face weave, buy about ¼ as much weft as warp. For a weft-face weave, buy at least 5 times as much weft as warp.

The symbols used in this issue indicate the kind of loom needed for each project:

RH Rigid Heddle

2 2-Harness

4 4-Harness

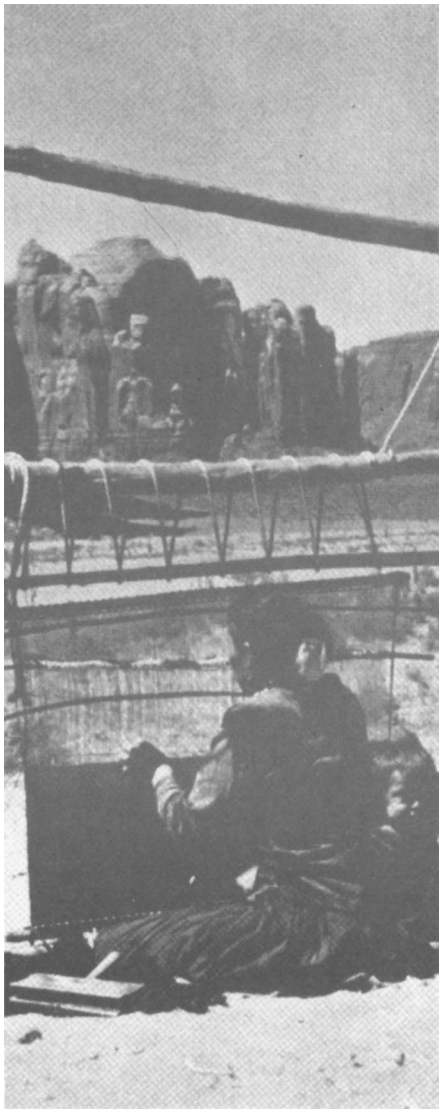
△ More than 4 harnesses (number indicated)

Threadings, Tie-Up & Treadlings

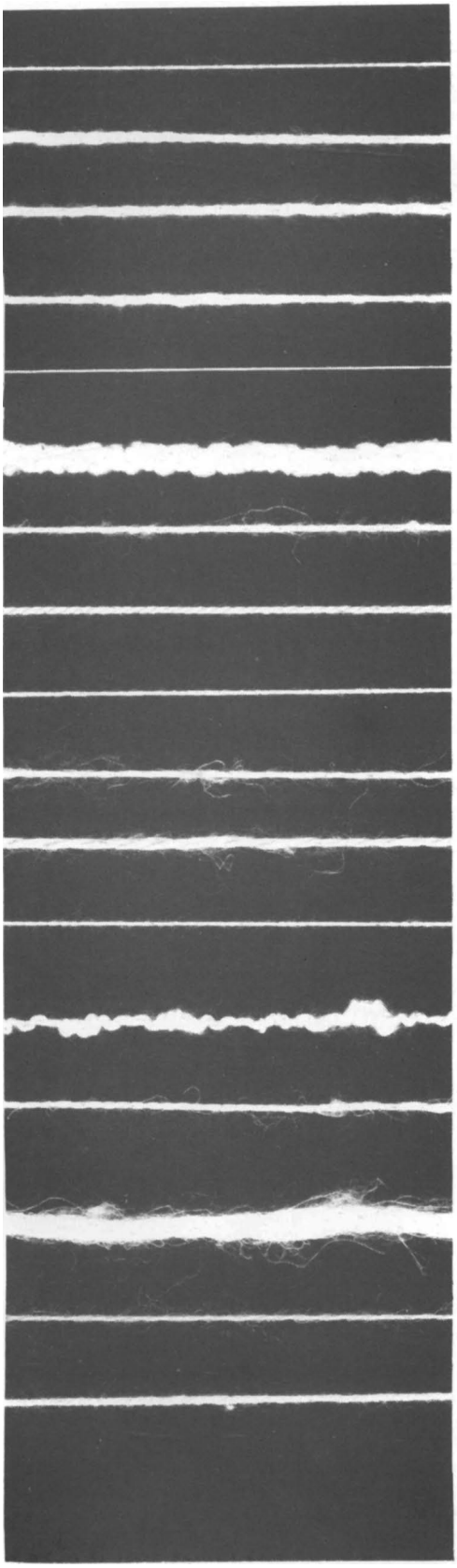
Threadings are written to be read from right to left, the easiest for right-handed people. Lefties read from left to right, but be sure that you start in the correct place if the draft is on two lines. The threadings are given for the minimum number of harnesses. For example, plain weave threadings are given for 2-harness looms. Weavers with 4 harnesses will want to thread 1, 2, 3, 4 etc.

Tie-ups are given for rising shed (jack) looms. If your loom is counterbalanced, you will need to transpose the tie-up. If our tie-up indicates to raise harnesses 1 & 2, you will lower harnesses 3 & 4, etc. If you fail to do this, pattern weave will appear face down.

Treadlings should be read from bottom up. Horizontal line indicates repeat.



Use this yarn chart to help you make calculations and creative substitutions in your weaving. Or try to match these yardages with your handspun yarn for truly unique interpretations. We've listed some sources, but consult the ads in this issue and your local weaving shop for other possibilities.



20/2 pearl cotton. School Products and other suppliers. 8400 yd/lb (17,000m/kg)

3/2 pearl cotton. School Products. 1260 yd/lb (2533m/kg)

8/6 ply carpet warp. (2251m/kg)

8/4 carpet warp. Lily, Oriental, Kamouraska. 840 yd/lb (1688m/kg)

50/3 sewing thread. 14,000 yd/lb (28,140m/kg)

6-cut chenille. Belding Lily. 1600 yd/lb (3216m/kg)

22/2 cottolin. CUM, Borgs, Marks. 3200 yd/lb (6500m/kg)

5/2 pearl cotton. School Products, Belding Lily. 2000 yd/lb (4020m/kg)

10/2 pearl cotton. School Products. 4000 yd/lb (8040m/kg)

Linnay singles. Scott's Woolen Mill. 2400 yd/lb (4824m/kg)

Linnay 2-ply. Scott's Woolen Mill. 1200 yd/lb (2412m/kg)

16/2 Durene cotton. Scott's Woolen Mill. 6720 yd/lb (13,507m/kg)

Cotton "Twirly". Henry's Attic. 970 yd/lb (1950m/kg)

10 lea 2-ply linen. Novitex. 1500 yd/lb (3015m/kg)

rove-spun linen. Novitex. 225 yd/lb (452m/kg)

20/2 worsted. Oregon Worsted, Frederick Fawcett. 5600 yd/lb (11,256m/kg)

12/6 cotton Mattvarp. Borgs of Lund. 1560 yd/lb (3186m/kg)

Index to Instructions

Look for additional project instructions where their pictures appear.

SHOPPER'S GUIDE

Weavers Way. 306 E. Goldsboro St., Crown Point, IN 46307. 20/2 mercerized cotton.

School Products. 1201 Broadway, New York, NY 10001. Extensive line of pearl cottons.

Oriental Rug Company. Dept. 9080, Lima, OH 45802. Carpet warp, boil-proof colors. Rag cutter.

Belding Lily Company. P.O. Box 88, Shelby, NC 28150. 6-cut chenille, 8/4 carpet warp, pearl cotton.

CUM U.S.A. P.O. Box 408H, Sonoma, CA 95476. Several lines of cotton yarns; cottolin. Many colors.

Marks
Cottolin, cotton yarns. Available at some weaving shops.

Borgs of Lund, Glimakra Looms n' Yarns, P.O. Box 16157-HW, Rocky River, OH 44116. Cottolin, Mattvarp, other cotton yarns. Many colors.

Scott's Woolen Mill. Dept. H, Elmsdale Road, Uxbridge, MA 01569. Linnay, Durene cotton, cotton novelties.

Henry's Attic. 5 Mercury Ave., Monroe, NY 10950. Cotton novelties. No direct sales; write for dealer nearest you.

Novitex, Inc. 250 Esten Ave., Pawtucket, RI 02862. Linens, blends.

Oregon Worsted Co. Dept. H, P.O. Box 02098, Portland, OR 97202. 20/2, 20/3 worsted. Many colors.

Frederick J. Fawcett, Inc. 129 South St., Dept. H, Boston, MA 02111. Wide range of linens. Also 20/2 worsted.

Scantex. P.O. Box 552, Larkspur, CA 94939. Pre-cut cotton Poppana bands.

Schoolhouse Yarns. 14711 S.E. Anderson Road, Clackamas, OR 97015. Pre-cut cotton Poppana bands.

Laines Kamouraska Yarns. P.O. Box 280, St. Pascal CTE, Kamouraska, Quebec, Canada G0L 3Y0. 8/4, 16/2, and —/2 cottons.

MARIMEKKO FARMER'S SHIRT

Size: small
p. 35

4

PATTERN AND SEWING INSTRUCTIONS

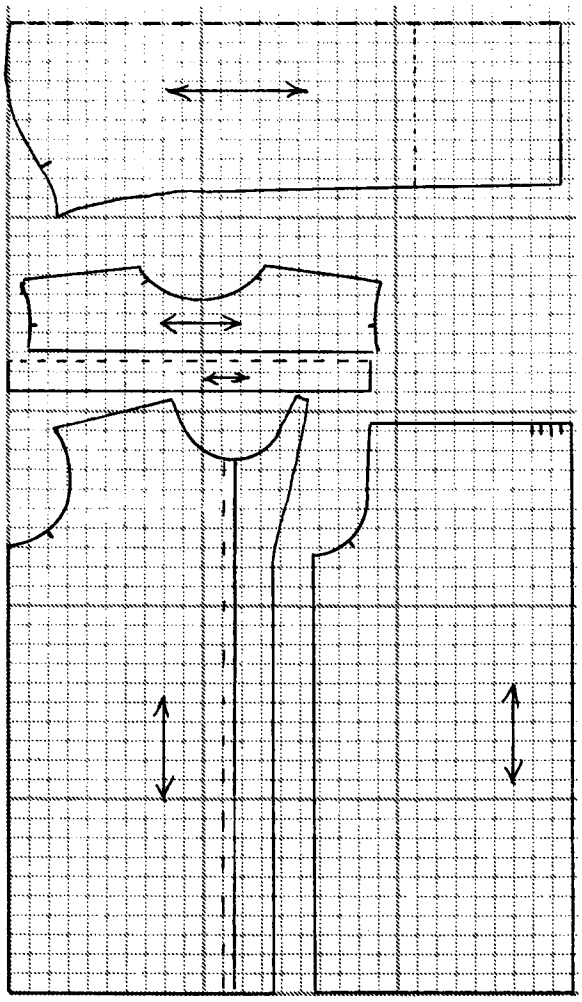
Fold pleats in back as marked; attach yoke, allowing 3/8" (*1cm*) seam.

Sew collar ends allowing ¼" (*.5cm*) for seam; turn collar and press.

Sew shoulder seam; place sleeves in the armhole as marked and sew; sew side and sleeve seam as one, allowing 3/8" (*1cm*) for seam.

Fold front edges as marked; place collar to neck as marked; sew collar allowing ¼" (*.5cm*) for seam.

Sew shirt and sleeve hems. Sew buttonholes and fasten buttons.



BLUE RAG VEST

p. 50

2 RH

WEAVE STRUCTURE: Plain, log cabin.

SIZE: Woman's small, 6-8.

EQUIPMENT NEEDED: 2-harness loom, minimum width 20" (*51cm*), 5-dent (*20/10cm*) reed or equivalent. 2 boat shuttles, 2 ski shuttles, 2 rag shuttles. Tapestry needle. Sewing machine.

MATERIALS: Warp and facings—Oriental Rug Company 8/4 carpet warp at 1600 yd/lb (*3216m/kg*), 8 oz (*226g*) tube of light blue and gray. **Weft**—Belding Lily 6-cut chenille at 450 yd/lb, 4 oz (*113g*) #752 slate blue. 9 oz (*255g*) ¾" (*2cm*) bias cut rags, light gray. Unfolded commercial bias tape can be used.

WARPING: 20" (*51cm*) wide, 10 e.p.i. (*40/10cm*), 200 total warp ends, 2 yd (*1.8m*) long which allows 22" (*56cm*) for take-up and loom waste. Wind warp using two ends together, one blue, one gray.

SLEY: 2 ends per dent in a 5-dent reed or equivalent.

THREADING, TIE-UP & TREADLING: Thread the colors alternately except randomly thread two consecutive colors to shift

the log cabin blocks. Plan a block shift exactly in the middle to form a definite color change for the front opening. Example: B G B G B GG B G B G BB G B G B G. Make blocks from 4 to 16 ends wide.

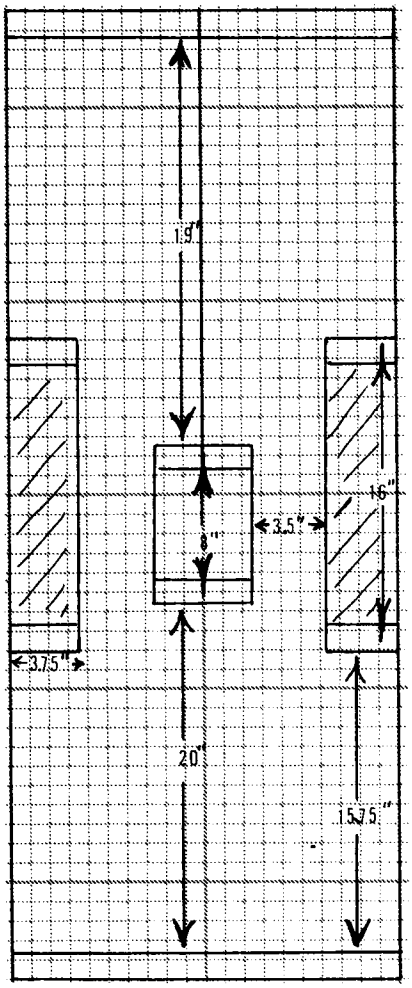
WEAVE: About 8 picks per inch.

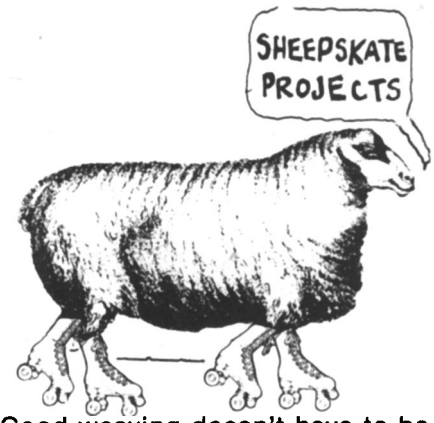
1. Start at bottom edge of back. With boat shuttle, weave 20 picks using carpet warp for facing. Be careful to weave loosely and not pull in sides.
2. Two picks chenille with ski shuttle.
3. Alternate picks of rags (rag shuttle) and chenille for a random number of picks, but keep track of what was done so it can be repeated at the front so the side seams will match.
4. Two picks chenille to change the log cabin pattern.
5. Repeat steps 3 and 4 until desired length to underarm is reached.
6. Using 4 shuttles: 2 boat shuttles with carpet warp; 1 rag shuttle with bias rags; 1 ski shuttle with chenille.

Weave 20 picks carpet warp for armhole facings and at same time continue weaving back of vest up to neck opening. More picks of carpet warp will be needed to compensate for the thickness of the rags.

7. Weave neck facing and both sides of shoulders (5 shuttles).
8. Split warp in center for front opening. Weave 20 picks of carpet warp for neck facing while continuing rags and chenille (6 shuttles).
9. Weave armhole facings as above.
10. Weave fronts following color sequence used on the back.
11. Weave 20 picks of carpet warp for hem facing.

FINISHING: Remove from loom. Machine stitch or zig-zag facing edges. Turn under facings and hand sew facings in place. Lace side seams together with carpet warp. To give fit to armholes, sew a running stitch with one strand of carpet warp along the armhole opening and gather slightly; secure both ends.





Good weaving doesn't have to be terribly expensive or take forever. And rag weaving doesn't have to be mundane. Here are 4 projects selected because they conserve time and money—3 rag items, and a stole of scrap yarn. Enjoy!

RAG PLACEMAT

p. 50

WEAVE STRUCTURE: Plain weave, log cabin.

SIZE: 11¼" x 15½" (*28.5cm x 39cm*) + fringe.

EQUIPMENT: 2-harness loom, minimum width 12" (*31cm*). 8-dent (*30/10cm*) reed. 1 boat shuttle, 1 rag shuttle. Sewing machine.

MATERIALS: (to make 4 mats). **Warp**—10/2 pearl cotton at 4200 yd/lb (*8442m/kg*) used double, 480 yd (*439m*) white; 480 yd (*439m*) gold. **Weft**—10/2 pearl cotton at 4200 yd/lb (*8442m/kg*), 125 yd (*114m*) white. 125 yd (*114m*) 1" (*3cm*) wide white knit synthetic fabric strips. Sewing thread.

WARPING: 16 doubled e.p.i., 12" (*30.5 cm*) wide, 192 total warp ends, 2¼ yd (*2m*) long which allows 18" (*46cm*) for take-up and loom waste. Warp alternate double ends of white and gold.

SLEY: 2 doubled ends per dent in an 8-dent reed.

THREADING, TIE-UP & TREADLING:

Use ends double. Thread W, G for 36 ends; G, W for 6 ends; W, G for 108 ends; G, W for 6 ends; W, G for 36 ends.

WEAVE: 4 picks pearl cotton; 1 pick rag; 4 picks rag alternated with pearl; 3 picks rag; 4 picks rag alternated with pearl; 3 picks rag; 4 picks rag alternated with pearl; 2 picks rag. 28" (*71cm*) measured under tension, pearl alternated with rags. End with pearl. Reverse border. Leave 1" (*3cm*) fringe on each end.

FINISHING: Machine stitch ends. Cut runners apart. Steam.

RAG RUNNER

p. 50

WEAVE STRUCTURE: plain weave, log cabin.

SIZE: 10½" x 30" (*27cm x 76cm*) + fringe.

EQUIPMENT: 2-harness loom, minimum width 12" (*31cm*). 8-dent (*30/10cm*) reed. 1 boat shuttle, 1 rag shuttle. Sewing machine.

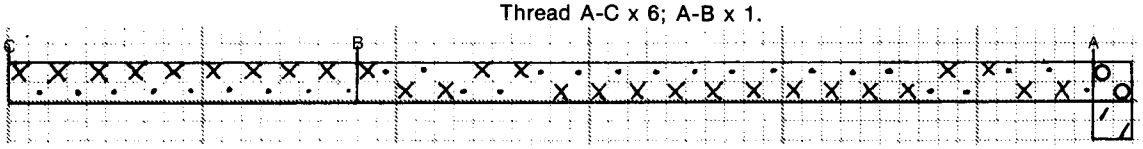
MATERIALS (to make 2 runners). **Warp**—10/2 pearl cotton at 4200 yd/lb (*8442m/kg*), 480 yd (*439m*) white; 480 yd (*439m*) gold. **Weft**—10/2 pearl cotton at 4200 yd/lb (*8442m/kg*), 125 yd (*114m*) white. 125 yd (*114m*) 1" (*3cm*) wide white knit synthetic fabric strips. Sewing thread.

WARPING: 32 e.p.i., 11.7" (*30cm*) wide, 374 total warp ends, 2½ yd (*2.3m*) long which allows 18" (*46cm*) for take-up and loom waste. Warp colors alternately.

SLEY: 4 ends per dent in an 8-dent reed.

THREADING, TIE-UP & TREADLING:

Thread A-C x 6; A-B x 1.



WEAVE: Border—4 picks pearl cotton; 10 picks alternating rags with pearl; 2 picks rags; 1 pearl; 2 rags. Weave 106 picks alternating pearl and rags; 1 pearl. Reverse border. Leave 1" (*3cm*) fringe on each end of mats.

FINISHING: Machine stitch ends. Cut mats apart. Steam.

RAG BAG

p. 50

WEAVE STRUCTURE: Plain.

FINISHED SIZE: 16" (*41cm*) wide x 14" (*36cm*) long, extends to 21" (*53cm*) long.

EQUIPMENT NEEDED: 2-harness loom, minimum width 15" (*38cm*). 10-dent (*40/10 cm*) reed or equivalent. Inkle loom or 12-dent reed for band. Rag shuttle. Sewing machine.

MATERIALS: Warp—4- or 6-ply carpet warp or #3 pearl cotton at about 1260 to 840 yd/lb (*2532 to 1688m/kg*) in white or color to match. **Band**—#3 perle cotton at 1260 yd/lb (*2532m/kg*), about 300 yd (*274m*) in harmonizing colors. **Weft** — about 90 yd (*82m*) of woven or knitted rag strips about 1" to 1¼" (*3cm*) wide in solid colors and prints. Two heavy-duty hooks and eyes.

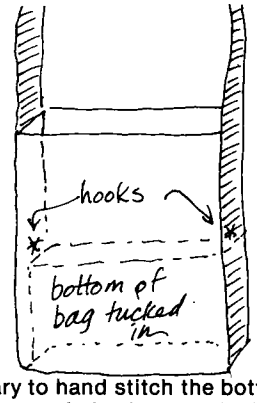
WARPING: 15" (*38cm*) wide, 10 e.p.i., 150 total warp ends, 63" long (*160cm*) which allows 18" (*46cm*) for take-up and loom waste. **Band**—2½" (*6cm*) wide, 36 e.p.i., 2¾ yd long (*2.5m*) which allows about 18" (*46cm*) for take-up and loom waste. Warp color sequence of your choice to harmonize with weft stripes.

SLEY: 1 end per dent in a 10-dent reed or equivalent.

THREADING, TIE-UP AND TREADLING:

WEAVE: About 4½ p.p.i. Weave 3" (*8cm*) background for hems and top. Weave three 2½" (*6cm*) pattern bands separated by three picks of background. Weave background 22" (*56cm*). Repeat stripe pattern and background for hems. **Band**—weave warp face strip at about 7 p.p.i.

FINISHING: Machine zig-zag to secure ends. Turn a ½" (*1.3cm*) under hem and a 1" (*3cm*) hem and whip by hand. Sew strap to sides of bag forming a gusset. It may be



necessary to hand stitch the bottom. Push the bottom of the bag up inside to the shortened length of 14" (*36cm*). On the inside of the bag, sew heavy hooks to the bottom corners of the bag. Sew eyes to match the inside of the side gusset strap.

STOLE

p. 88

WEAVE STRUCTURE: plain weave.

FINISHED SIZE: 15" x 60" plus fringes.

EQUIPMENT: rigid heddle or 2- or 4-harness loom with weaving width of 18" or more.

MATERIALS: Warp: You need a total of about 325 yards. Find several different color-related yarns in your scrap basket. I used five different hues—a Harrisville 2-ply in blue-purple heather, a light periwinkle 2-ply from Glass House Fibers, a medium blue Scottish tapestry yarn (2 balls of this), and a Prussian blue 2-ply mill end. These varied in weight, and the colors didn't look too wonderful together—but they were all blues in the medium weight range. You need a total of about 5 ounces of warp. **Weft**—two 50-gram balls of Stanley-Berroco Dji-Dji; I used sky mist to relate to the warp colors. This is a variegated brushed wool yarn.

WARPING: Wind the warp using all five (or however many) yarns as one. *This cuts your warping measuring time by 80%* if you're using five balls of yarn.

Measure 26 quintupled ends (a total of 130 ends) 2½ yards long. Don't worry if you run out of one or more yarns before you finish; the width of a shawl is not sacred—a few threads more or less won't matter.

Sley the reed 1 end per dent in an 8-dent reed (or equivalent). DON'T try to take the different yarns in any particular order; let them fall in a random sequence in the reed. This saves time and nerves and creates a more pleasing effect to boot.

WEAVE: Weave several inches with a filler—you'll want at least 10" total free warp on each end to tie a generous fringe. Weave abut 64" using brushed wool weft. Beat very lightly—5 picks per inch.

FINISHING: Remove from loom, tie fringes in groups of 6 threads each; hand wash in warm water with mild soap, adding fabric softener to the final rinse. Lay flat to dry.

ESTIMATED TIME: Getting ready to weave: 45 min. on a floor loom, 30 min. on a rigid heddle (5 min. to measure warp, 15 min. to sley reed—that gives you more than 5 sec. per end. 15 min. to thread heddles, 10 min. to wind on.) Actual weaving: 30 min. (5 sec. per pick, about 320 picks). Finishing: 15 min. = Grand total, 1 hr. 30 min.

ESTIMATED COST: $6.00 for 2 balls of Dji Dji at the time of this writing. You'll have quite a bit of the second ball left over, too (in fact, you could use part of it as one of your warp yarns).

SHEEPSKATE TIP: There's less loom waste on a narrow piece than on a wide one of the same e.p.i. (fewer ends, hence fewer 18"-24" leftovers to throw away). So if you have more time than money, design your piece on as narrow a warp as possible.

WEAVING WITH RAGS

Rag projects can use a wide variety of materials. Warp yarns must be matched to the use of the textile. For durable items such as rugs and bags, choose tightly spun cottons, linens, wools or synthetics. If the warp is to form a fringe, be sure that the yarn holds a tight twist or plan to ply or braid the fringes.

Warp setts for sturdy projects are usually close, which makes the fabric stiff. Warp stripes are very effective; other warp patterning such as the log cabin effects used on the runner and placemat on page 50 show strongly. Some of the wear that normally falls on the warp may be shifted to the weft by leaving an empty dent in the reed every 4 or 5 ends. The weft will puff up at these points and make ridges for the rug to ride on.

Garments and table linens may have more open setts. The resulting fabrics will be softer and the weft material will show more. Warp yarns may be smaller and softer; warp coloring will show more subtly. These items will probably have to be hemmed or bound rather than fringed. Finely cut panne velvet or old silk scarves both make elegant fabrics woven on a silk thread warp at 18 e.p.i. We've also seen a raincoat woven of plastic produce bags!

Weft rags can be of woven or knit fabrics. Our designers have successfully combined the two in some cases, but be sure that the fabrics have been preshrunk. Nylon stockings present a subtle range of taupes; processed in Rit color remover, they turn various shades of blue or green. For sturdy floor coverings, weave bias-cut wool rags on a twill threading. The weft will pack in tighter. Recycled bath towels make practical rag fillers for bath mats.

Woven fabrics may be cut or torn on the straight of the goods or on the bias. Bias strips do not ravel, but require more preparation (see "How to Prepare Rags" elsewhere in this issue). Straight cut fabrics with a high natural fiber content may be pressed into double folds to hide raw edges. Sturdy fabrics usually have wider rags beat very firmly; soft fabrics use narrow strips beat softly.

The quantity of weft material can be roughly estimated by twisting the weft strip very tightly to simulate the packed strip and estimating the number of picks per inch. Multiply by the number of inches long and the width to determine the length of weft needed. Be sure to allow for going "around the corners". A more accurate way is to measure and weigh a woven sample.

Some sources of commercially prepared rag weft are Ragtime, Knitting Fever Inc., 90 Cedarhurst Ave., Cedarhurst, N. Y. 11516; Tahki Raggs, Tahki Imports Ltd., 62 Madison St., Hackensack, N.J. 07601; Poppana bias cotton strips, Schoolhouse Yarns, 14711 S.E. Anderson Rd., Clackamas, OR 97015, or Scantex, P.O. Box 552, Larkspur, CA 94939; and Oriental Rug Co., 214 S. Central Ave., Lima, OH 48502.

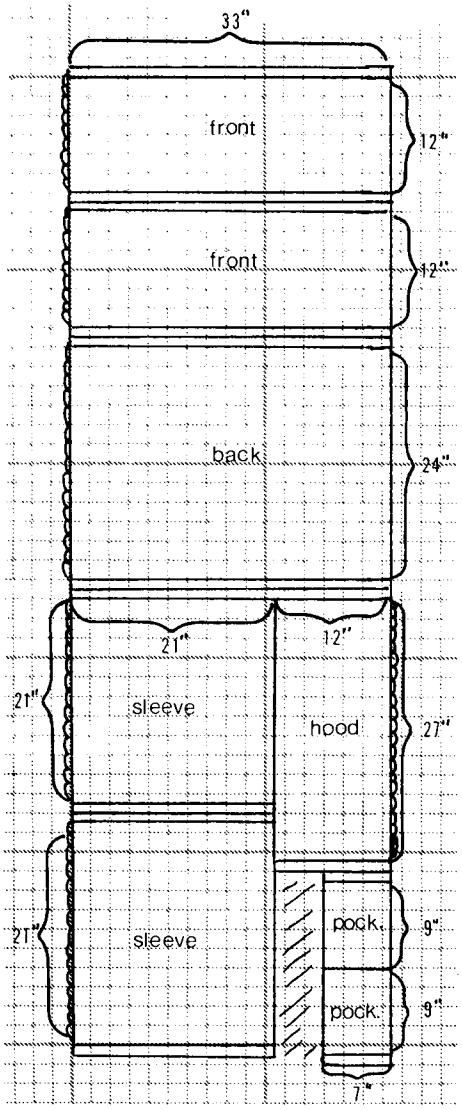
Additional information on weaving rags can be found in:

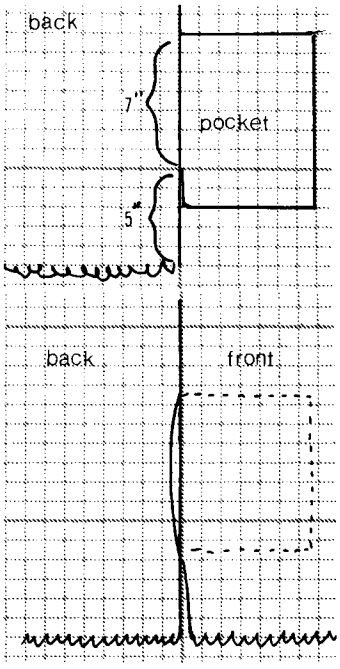
The Joy of Handweaving by Osma Gallinger Tod, Dover Publications, Inc., N.Y. 1977.
Rug Weaving for Everyone by Osma Couch Gallinger and Josephine Couch Del Deo, The Bruce Publishing Co., Milwaukee, WI, 1957.
Rags by Linda & Stella Allison, Clarkson N. Potter Inc./Publishers, NY, 1979.

HOODED RAG JACKET

p. 49

CUTTING DIAGRAM:





BEAD LENO CURTAINS 4

p. 38

EQUIPMENT NEEDED: four-shaft floor loom. The width may vary. These curtains were woven 40" (*102cm*) wide, but narrower cloth may be seamed. 8-dent (*32/10 cm*) reed, plastic straws cut to ¼" lengths (eight segments per inch of warp width [*32 segments/10cm*]) tapestry needle, sewing machine.

MATERIALS: Warp—20/2 pearl cotton, natural, 8400 yd/lb School Products, Inc. 1300 yd warp yarn for one sq. yd. finished fabric. **Weft**— 10/2 pearl cotton, natural, 4200 yd/lb School Products. 800 yd for one sq. yd. of finished fabric. Matching sewing thread.

WARPING: 32 e.p.i. (four ends per dent, as described in text). Thread to straight draw on four shafts. Insert beads between heddles and reed as instructed on p. 38. (Warp four yd 10" for these curtains.)

WEAVING: specific for these curtains. 10" tabby (hemstitched on the loom); leno 1, 4, 1, 4; tabby 1, 23, 1, 23; leno 1, 4, 1, 4; tabby 1, 23, 1, 23; leno 1, 4, 1, 4, 1, 4; tabby 1, 23, 1, 23; leno 1, 4, 1, 4; tabby 1, 23, 1, 23; leno 1, 4, 1, 4 end of border (border measures 4¾"); and tabby to 57" total.

The second panel was woven exactly the same way so that the borders matched. It is a good idea to weave the border first so that when you get close to the end of the warp where it is harder to make a shed the harder part is done. Hemstitch the other end.

FINISHING This fabric was machine washed, hot, regular cycle. It was taken out of the machine, shaken, hung to dry a little and then ironed. This initial washing liberates a lot of lint (from the warp fringe?); a second washing after construction is completed is a good idea.

CONSTRUCTION: These curtains were made to fit the standard curtain rod. The panels were cut apart and the cut edges stay-stitched for security. The upper edge (away from the leno border) was turned under 1/8" and machine stitched to give a finished edge. The top was turned under 2¾" to the back side and stitched along the turned edge. The casing for the curtain rod was made by stitching again 1½" from the first stitching. The remaining 1¼" forms a little ruffle above the rod.

The hem is finished by turning the raw, unstitched edge under ¼" by machine and then turning up a 4¾" hem. Slip stitch the hem in place by hand. Note that the hem is stitched into the tabby part of the curtain, not the leno.

These curtains are 48" long woven, finished, and constructed this way.

VARIATIONS: Suit the proportions of the curtains to the proportions of your windows. If you need floor to ceiling curtains, increase the depth of the leno bands. Broken at intervals by small tabby bands, as this border is, the leno is completely stable to washing by machine. A curtain with leno bands that repeated at regular intervals all the way up its length would be charming. Be sure to beat evenly (all irregularities show with sunlight coming through the cloth) and to measure so that the leno bands on adjacent panels will match.

LINEN RUG 2 RH

p. 50

WEAVE STRUCTURE: Plain weave

SIZE: 24" x 45" (*61cm x 114cm*) + fringe.

EQUIPMENT: 2-harness loom, minimum width 24" (*61cm*). 8-dent reed (*30/10cm*). 1 boat shuttle, 4 rug shuttles.

MATERIALS: Warp—Novitex 10 lea, 2-ply linen at 1500 yd/lb (*3015m/kg*) used double, #323 natural, 340 yd (*311m*); #306 bittersweet, 160 yd (*146m*); #317 black, 175 yd (*160m*) which includes 15 yd (*91m*) for weft; #318 chestnut, 152 yd (*139m*). **Weft**—Novitex Rove-spun at 225 yd/lb (*452m/kg*) used triple, #123 natural, 114 yd (*104m*); #110 brass, 33 yd (*30m*); #118 chestnut, 198 yd (*181m*); #117 black, 75 yd (*69m*).

WARPING: 8 double e.p.i., 24" (*61cm*) wide, 192 total double warp ends, 2 yd (*1.83m*) long which allows 27" (*69cm*) for take-up, loom waste and fringes. Color sequence: 34 natural, 4 bittersweet, 16 black, 4 bittersweet, 38 chestnut, reverse.

SLEY: 2 double ends per inch in an 8-dent reed.

THREADING, TIE-UP & TREADLING:

WEAVE: 9 picks black 10 lea at each end. Roving is used triple at 5 p.p.i. Color sequence: 20 natural, 2 brass, 9 black, 2 brass, 48 chestnut, 2 brass, 9 black, 2 brass, 10 natural, reverse.

FINISHING: Tie fringe in groups of six ends in an overhand knot.

JACKET FABRIC

Swatch Collection, p. 87 (2) RH

WEAVE STRUCTURE: Plain.

EQUIPMENT: 2-harness loom. 6- or 12-dent (*25/10cm or 50/10cm*) reed. Boat shuttle. Tapestry needle.

MATERIALS: Scott's Woolen Mills 2-ply Linnay at 1200 yd/lb (*2412m/kg*), tangerine. Allow 1000 yd (*914m*) for 1 sq. yd. of finished fabric.

WARPING: 12 e.p.i. (*50/10cm*).

SLEY: 2 ends per dent in a 6-dent reed or 1 end per dent in a 12-dent reed.

THREADING, TIE-UP AND TREADLING:

WEAVE: Beat to square.

FINISHING: Hemstitch on loom or machine stitch to secure. Machine wash warm, gentle cycle. Shake out, smooth by hand and hang to dry. Steam press while still slightly damp. Fabric will shed lint in this initial washing. Expect 10-11% shrinkage.

ALTERNATIVES: If the skirt is woven using blue and natural, the jacket can be made of blue only or natural only.

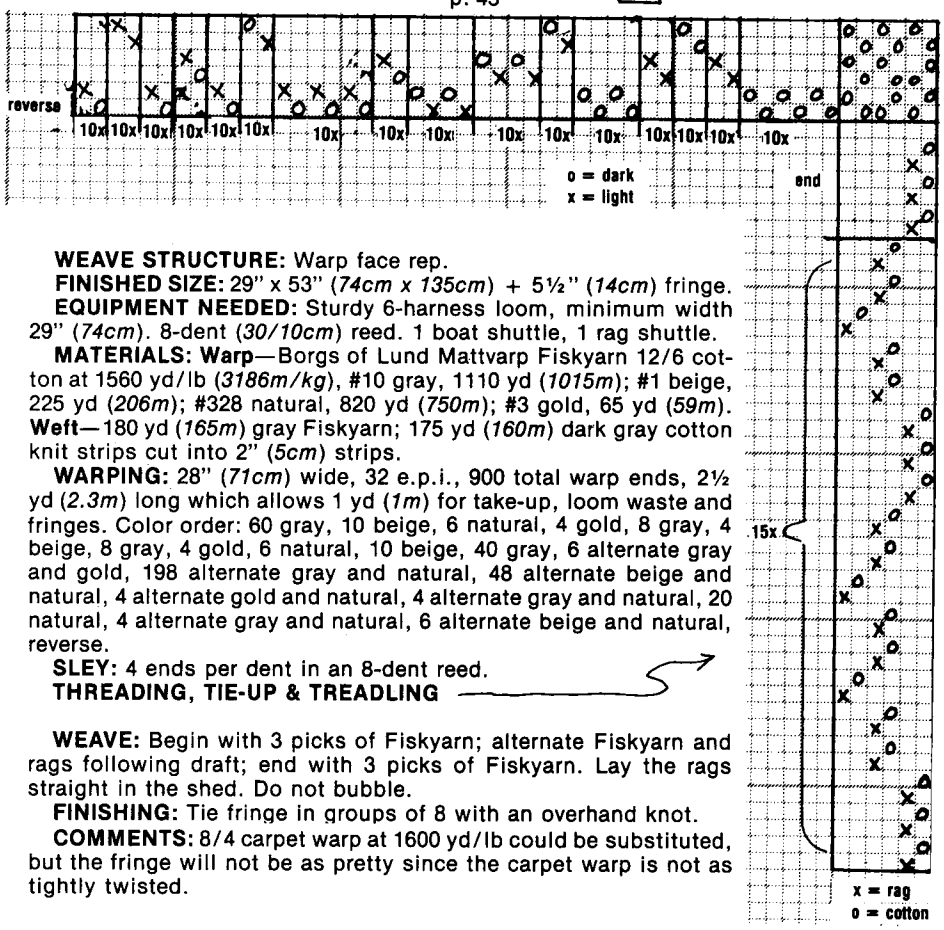
PATTERN SUGGESTIONS: This fabric is rather bulky and is best made in a style without a collar. The following Vogue patterns give jackets that would be suitable: #7919, #7788, #7830 and #7860. This fabric would work nicely for a long vest without lapels.

A vest finished with a binding (cut from the skirt fabric) in place of front facings would be very attractive.

Staystitch cut edges before garment is assembled.

RIPSMATTA RUG

p. 45 (6)



WEAVE STRUCTURE: Warp face rep.

FINISHED SIZE: 29" x 53" (*74cm x 135cm*) + 5½" (*14cm*) fringe.

EQUIPMENT NEEDED: Sturdy 6-harness loom, minimum width 29" (*74cm*). 8-dent (*30/10cm*) reed. 1 boat shuttle, 1 rag shuttle.

MATERIALS: Warp—Borgs of Lund Mattvarp Fiskyarn 12/6 cotton at 1560 yd/lb (*3186m/kg*), #10 gray, 1110 yd (*1015m*); #1 beige, 225 yd (*206m*); #328 natural, 820 yd (*750m*); #3 gold, 65 yd (*59m*). **Weft**—180 yd (*165m*) gray Fiskyarn; 175 yd (*160m*) dark gray cotton knit strips cut into 2" (*5cm*) strips.

WARPING: 28" (*71cm*) wide, 32 e.p.i., 900 total warp ends, 2½ yd (*2.3m*) long which allows 1 yd (*1m*) for take-up, loom waste and fringes. Color order: 60 gray, 10 beige, 6 natural, 4 gold, 8 gray, 4 beige, 8 gray, 4 gold, 6 natural, 10 beige, 40 gray, 6 alternate gray and gold, 198 alternate gray and natural, 48 alternate beige and natural, 4 alternate gold and natural, 4 alternate gray and natural, 20 natural, 4 alternate gray and natural, 6 alternate beige and natural, reverse.

SLEY: 4 ends per dent in an 8-dent reed.

THREADING, TIE-UP & TREADLING

WEAVE: Begin with 3 picks of Fiskyarn; alternate Fiskyarn and rags following draft; end with 3 picks of Fiskyarn. Lay the rags straight in the shed. Do not bubble.

FINISHING: Tie fringe in groups of 8 with an overhand knot.

COMMENTS: 8/4 carpet warp at 1600 yd/lb could be substituted, but the fringe will not be as pretty since the carpet warp is not as tightly twisted.

PROFESSIONAL PURSUITS ..... *continued from p. 67*

in time. Their delivery record is excellent—a must for a successful wholesale business.

One is tempted to call Arianthe and Kris the "dynamic duo", but that's been used before. Dynamic they are, however, and they certainly don't consider that they have "arrived". Even as they tackle the present, they are planning future moves: a broadening of their market by pulling away from a specific crafts focus and targeting sales efforts in much the same way that any other small business or manufacturer would do. Also planned is a name change to more accurately reflect the image of designer wear. Whatever the direction they chart for the future, one can be sure that it will be developed through intelligent market analysis, high standards and plain hard work. Success for them is a virtual certainty, for they know their business association *works*. □

A QUESTION OF DESIGN

A WASTELESS, WAISTLESS DRESS

by Marilyn F. Holtzer

What do you do when you've invested over $50 in materials and more than 20 hours in preparing an ikat-dyed, silk warp for two triangular shawls, and after finishing the first one find that you have produced your ugliest and technically worst piece of weaving ever? First you weep, then you consider giving up weaving, hiding the shawl in a drawer, and leaving the rest of the warp on the loom as a conversation piece. This was exactly my reaction to my weaving disaster of a few years ago. However, since I am too old to cry and too young to retire, I corrected the technical problems, then "invented" my "wasteless, waistless dress", a halter dress that could be constructed from the rectangle that I could weave from the remaining warp.

By judiciously placing slits in the cloth during the weaving, and by utilizing the fringe as a hem, I was able to eliminate virtually all waste and to minimize the amount of cutting, sewing and finishing required. It required only three crosswise cuts to separate the two pieces and three straight seams to assemble them; of course, fringes, hems, elastic casings, etc., as desired, are then required to finish the dress.

My original technical flaws included too wide a sett, use of a textured weft that almost completely covered all that carefully dyed warp, and just bad technique in forming the selvedge along the diagonal. To correct the first two, I resleyed to decrease the sett, rebeamed, and used a plain weft and a 3/1 twill weave to emphasize the warp. After finishing the rectangle for the dress I tied the triangular shawl back onto the loom, unwove it, then rewove it as a matching rectangular shawl. I was quite finished with triangles!

In this article I will give directions only for weaving the rectangle with slits and for constructing the dress from it; the choice of materials and weave are left to the individual weaver. The diagram on the next page shows the back view of a second example of the dress woven of cellulosic fiber in plain weave. The dimensions given are for a size 10 tall; the 1" seam allowances called for can be adjusted to give sizes 8 and 12, and the length can be adjusted as necessary. For other sizes both the placement of the slits and the total width may have to be adjusted.

First make a muslin according to the pattern given in Fig. 1; make all necessary adjustments in the dimensions; then draw a new pattern. Warp the loom according to the dimensions required by your fitted muslin, allowing for loom waste, take-up, draw-in and shrinkage. Weave a rectangle with slits placed as indicated by the solid lines in Fig. 1. Carefully identify the front and back sections; cut the front from the back as indicated by the dashed lines in Fig. 1; and zigzag the cut edges on the sewing machine. Figure 2 shows the upper part of the back and front sections after they have been cut apart.

To assemble the dress, fold the back section along the center back line with the right side inside, matching the large dots (•) as shown in Fig. 3; stitch parallel to and 1" away from the slit from the upper edge to the large dot (•). Baste along a continuation of this line to the hemline. Press the stitched seam open. Turn right side up; align the basted seam directly over the center back line and press to form an inverted pleat. Topstitch crosswise to hold the pleat in place as shown in Fig. 4 and Photograph B. Stitch the now completed back section to the (side) front section along the selvedges. Press the seams open.

To finish the dress fold the underarm facings back along the diagonal dotted lines indicated in Fig. 2 and secure; make a casing for elastic across the back by turning under the top 3" section from side slit to side slit; finish the neckline as desired (for drawstring or

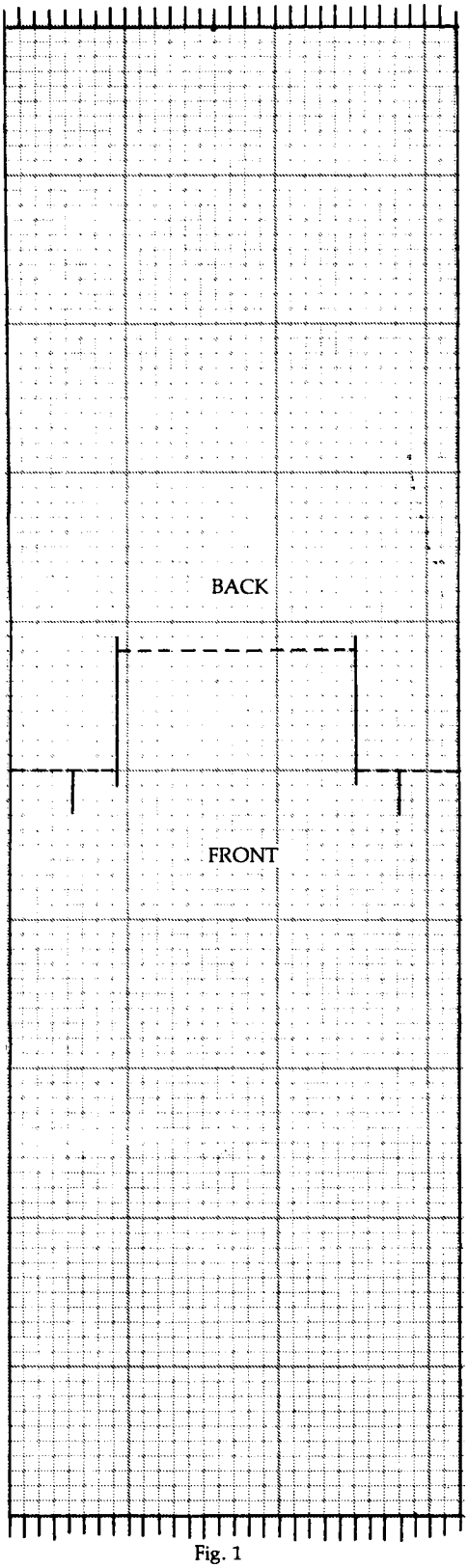


Fig. 1

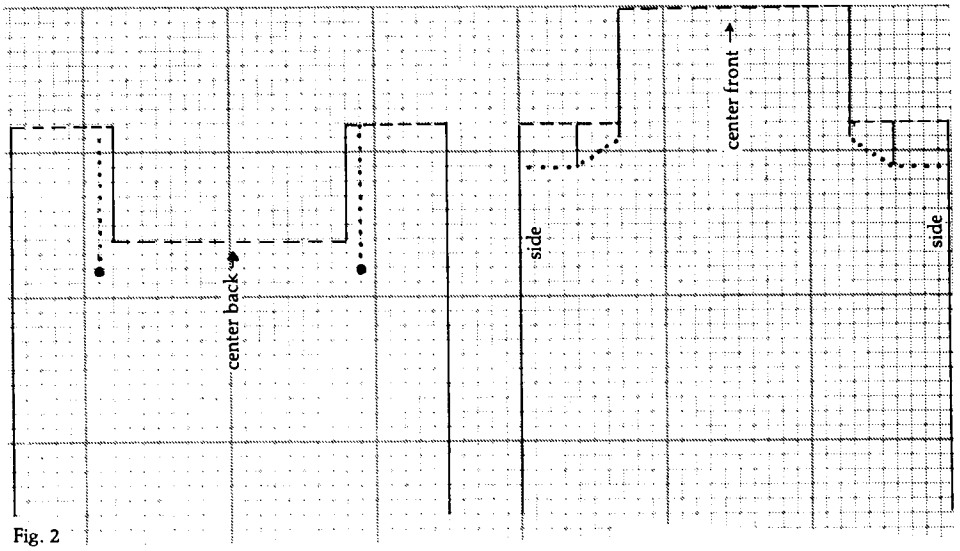
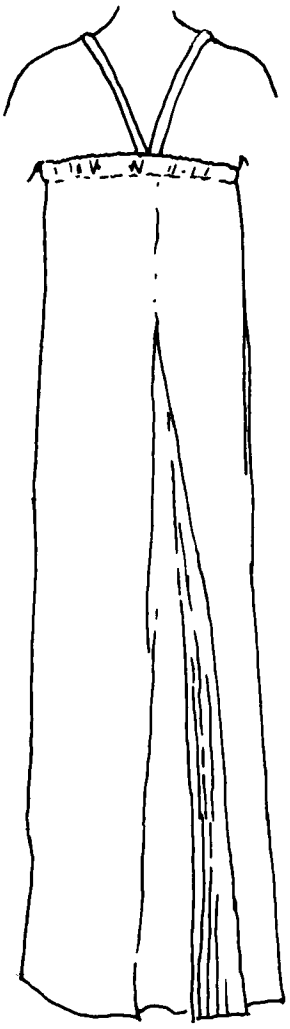


Fig. 2



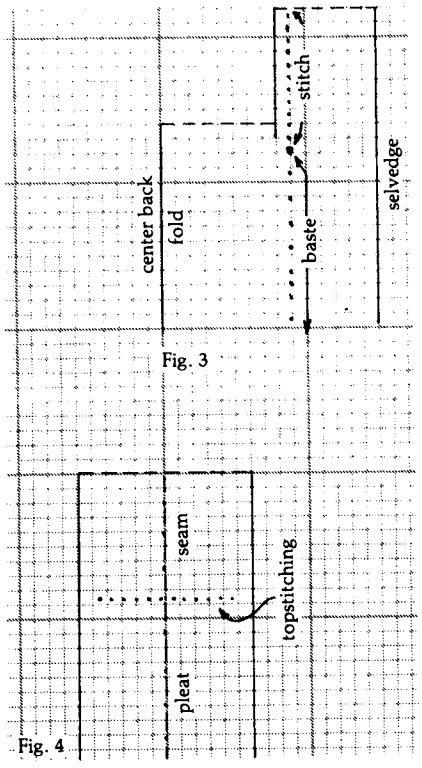


Fig. 3

Fig. 4

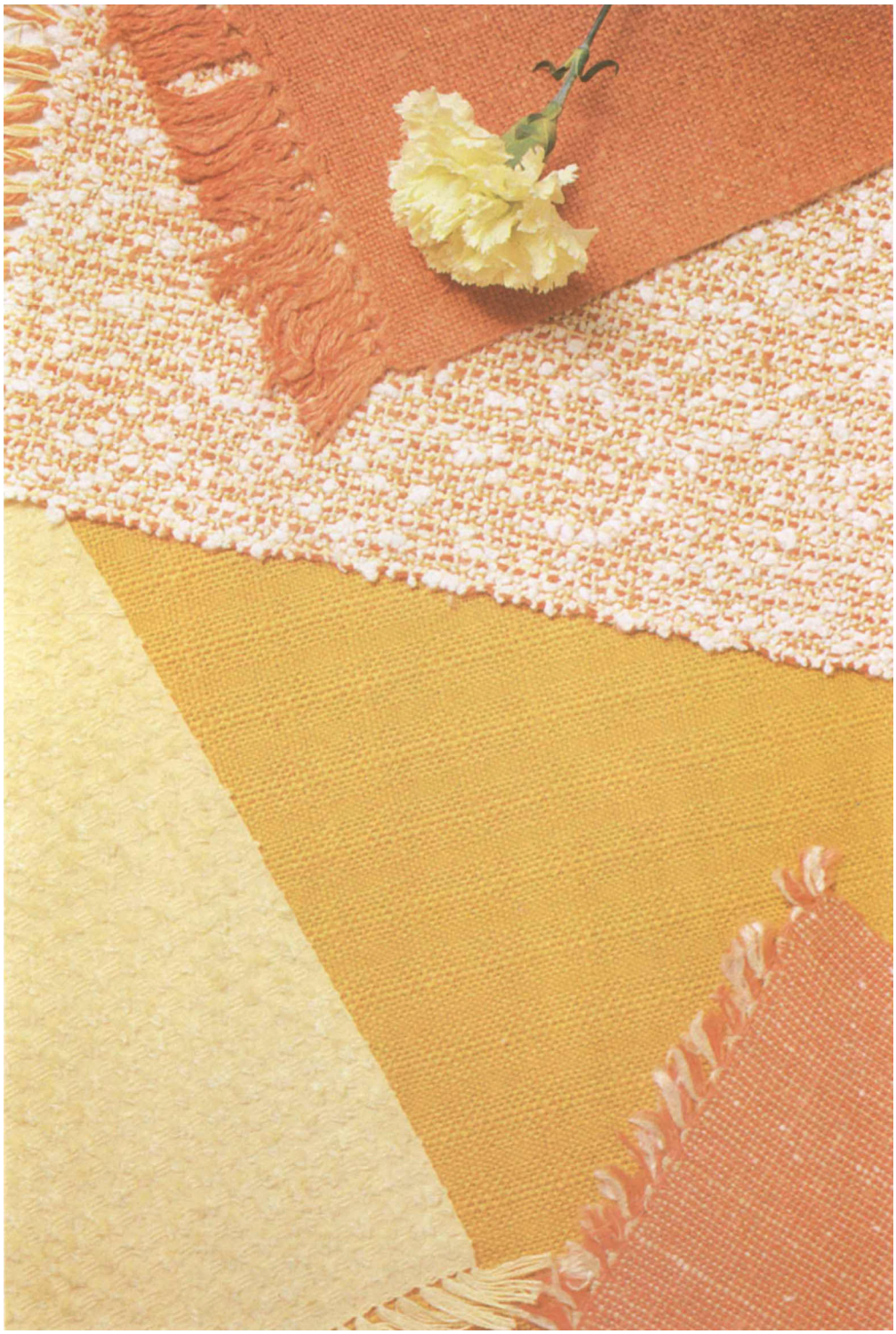
straps); remove the basting stitches in the pleat; and finish the bottom edge as desired. Interfacing may be used where and if desired.

Thus, the construction of this, as of other loom-designed garments, requires a minimum of cutting, sewing and finishing. However, the rectangle with slits used here is more easily and quickly woven than are pieces having shaped necklines, armscyes, etc.; and its subsequent utilization more complete. Furthermore, this, unlike many other loom-designed garments, has a dressy appearance owing to its classic lines.

Success in my original endeavor would have resulted in two nice, but ordinary, shawls. Failure, however, led me to create a loom-designed dress that is different from any I have seen. Indeed, "It's an ill wind . . ." □

I wish to thank Gwynne Lott for her expert advice concerning the sett and weave appropriate for emphasis of the ikat-dyed warp, and for referring me to the excellent article by Albertje Koopman Haynes (SS&D, IX[1], p. 83, winter 1977) on some general principles of designing loom-shaped garments.

HANDWOVEN SWATCH COLLECTION #4

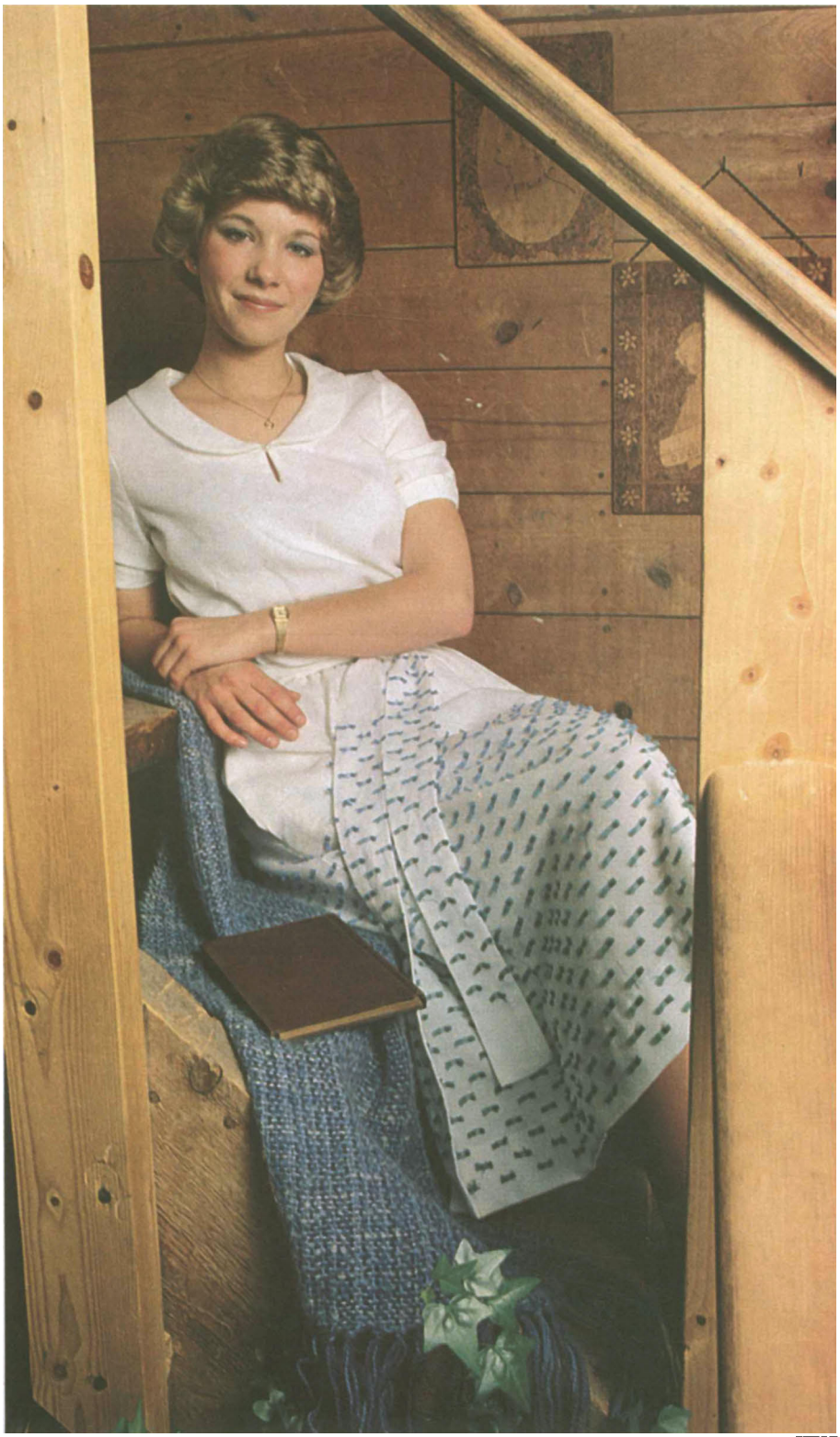


From the top: *Jacket-weight linen-rayon blend. A shawl of shrug fabric with lovely drape; a miscellany of warp threads are pulled together with the white novelty cotton weft. A mock-honeycomb effect results from using 3/2, 5/2 and 10/2 pearl cotton in both warp and weft. Several spools of sewing thread packed on your boat shuttle make weaving this brocaded cotton "eyelash" blouse fabric a snap. A quiet, nubby texture plays against the tiny straw and tangerine check of this linen-rayon skirt fabric. Instructions being on the next page.*

A rich interplay of texture and sunshiny color marks this season's handwoven fabric collection by Sharon Alderman. Interlacements are simple plain weaves except for the sheer cotton "eyelash" blouse fabric in butter yellow which is embellished with an all-over loom-controlled brocading. Sharon's golden cotton dress fabric achieves dimensional interest by simple sequencing of three different weights of pearl cotton. Linen/rayon blends in her coordinated tangerine jacket and skirt fabrics are cool and crisp, while the heavily textured, loosely woven shawl fabric pulls the whole collection together.

To demonstrate the versatility of these fabric designs, Sharon has adapted the cotton "eyelash" material to a different weight, threading and colorway for the coolly romantic dress on the next page. Imagine your own variations!

By the way, even if you're not a yardage weaver, we urge you to read Sharon's instructions through —you'll be amazed at all the useful tips and ideas you can pick up from this master weaver. Instructions on next page.



Subtle shading from jade green to clear blue create color interest in the swivel-weave border or this all-cotton dress. Blues are picked up in the quick and easy shawl, a "Sheepskate" project (instructions on p. 79).

WHITE DRESS 6

WEAVE STRUCTURE: Plain weave with swivel borders.

FINISHED SIZE: Ladies' size 10, average height. Check layout for other sizes.

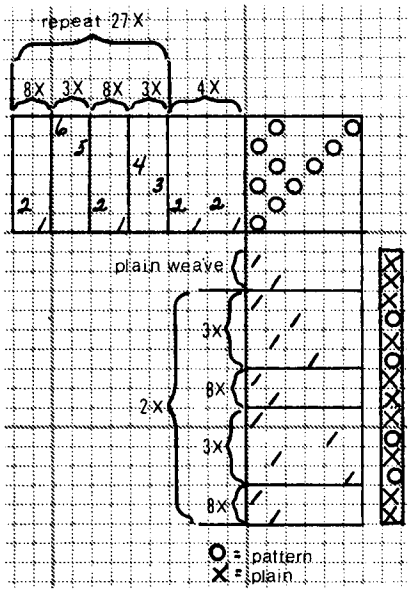
EQUIPMENT NEEDED: 6-harness loom, minimum width 40" (*102cm*). For 4-harness threading, see swatch collection. 15-dent (*60/10cm*) reed or equivalent. 2 boat shuttles. Sewing machine.

MATERIALS: Warp and weft—School Products 20/2 pearl cotton at 8400 yd/lb (*17006m/kg*), 23½ oz (*666g*) white. **Pattern**—J&P Coats Dual Duty Plus sewing thread at about 14,000 yd/lb (*28,140m/kg*), three 150 yd (*137m*) spools of each: #57-C green, #122C blue green, #4 A blue. Do not substitute larger spools, as these will be used as bobbins. 5-3/8" (*14cm*) buttons. Vogue #2065 or McCall's #2065 pattern. Interfacing. ¼" elastic. Sewing thread.

WARPING: 40.13" wide (*102cm*), 30 e.p.i. (*120/10cm*), 1204 total warp ends, 5⅓ yd (*4.8m*) which allows 18" (*45cm*) for take-up and loom waste.

SLEY: 2 ends per dent in a 15-dent reed or equivalent.

THREADING, TIE-UP & TREADLING:



WEAVE: Weave 3½" (*9cm*) plain weave, weave border to 22" (*56cm*), plain weave to 148" (*376cm*), then reverse border and hem, total 160" (*406cm*). **Border**—Use three thread spools as bobbins on the shuttle at once. Be sure that the first spool of a color added is the first spool dropped later or you will not have enough thread on the spools. Weave treadling sequence 2 times for each color combination. **Color sequence:** 3 green; 2 green, 1 blue green; 1 green, 2 blue green; 3 blue green; 2 blue green, 1 blue; 1 blue green, 2 blue; 3 blue.

FINISHING: With sharp scissors, cut the floats carefully while the fabric is still on the loom. Trim float fringe to about ¼" (*.6cm*). Hemstitch ends or machine stitch to secure. Machine wash, hot, regular cycle. Iron while slightly damp. Expect about 9% shrinkage.

LAYOUT: Pattern layout will be altered to give the front at one end, the back at the other. Sleeves and collar in the middle. Belt is along the sides of the skirt.

ASSEMBLY: Follow pattern guide. Be sure to interface collar and cuffs. Zig-zag seam edges.

COMMENTS: Petite figures may benefit from a 1½ times repeat of the border sequence for shallower bands.

ALTERNATE COLORS: Any analogous colors such as pink, salmon, orange. Background may be a harmonizing tint.

BLOUSE FABRIC 4

WEAVE STRUCTURE: Plain weave with loom controlled brocading.

EQUIPMENT: Jack or countermarch loom, 3 harnesses used. 15-dent (*60/10 cm*) reed, do not substitute. 2 boat shuttles. Tapestry needle. Slender scissors that have one blade rounded at the tip. Do not use embroidery scissors with points, as cutting the floats without cutting the ground is tricky if both blades are pointed.

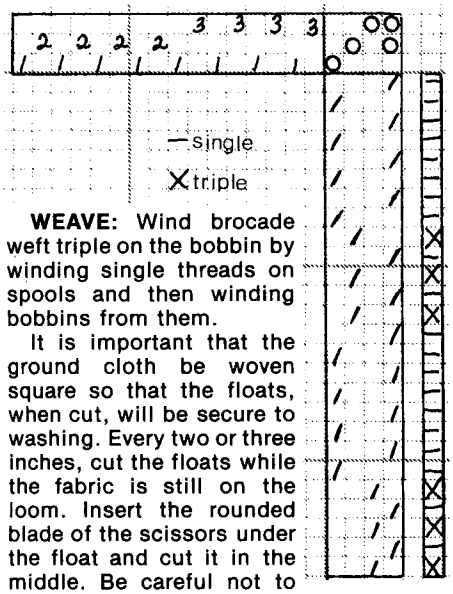
MATERIALS: Scott's Woolen Mills 16/2 Durene cotton at 6700 yd/lb (*13,467m/kg*),

color banana. One sq. yd. of finished fabric (solid brocade) requires 9 oz (*255g*). Plain weave with no brocade will take about 5-6 oz (*142-198g*) per sq. yd.

WARPING: 30 e.p.i. (*120/10cm*).

SLEY: 2 ends per dent in a 15-dent reed.

THREADING, TIE-UP AND TREADLING:



WEAVE: Wind brocade weft triple on the bobbin by winding single threads on spools and then winding bobbins from them.

It is important that the ground cloth be woven square so that the floats, when cut, will be secure to washing. Every two or three inches, cut the floats while the fabric is still on the loom. Insert the rounded blade of the scissors under the float and cut it in the middle. Be careful not to cut the ground.

FINISHING: Hemstitch on the loom or machine stitch ends to secure. Machine wash warm, gentle cycle and line dry. Steam press from the wrong side; fluff the right side with the fingers while still warm and steamy. The cut ends become velvety.

ALTERNATIVES: If the blue/natural color combinations are used for the skirt and jacket fabrics, this fabric can be woven of natural color Durene cotton.

The floats can be woven with a contrasting color (the stronger the contrast the more dramatic the fabric, so be careful). An example of this approach is shown on the dress opposite. If the floats are not cut, but the fabric washed, the floats fluff up for an interesting fabric.

Do not weave this fabric with a heavier yarn for a blouse. A skirt could be made of a slightly heavier yarn such as 10/2 cotton. Place the brocade just above the hemline as in the dress. The floats might be handsomer uncut.

PATTERN SUGGESTIONS: This velvety fabric, the handweaver's answer to velour, would be quite effective made into a camisole top. Vogue patterns #7607 and #7655 would be suitable. If this fabric is used for a blouse, use the brocaded areas with restraint. Vogue patterns #7321 and #7952 both have yokes which would be handsome made with the brocade with the remainder of the blouse in plain weave.

SKIRT/DRESS FABRIC (2)

WEAVE STRUCTURE: Plain.

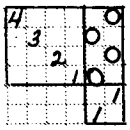
EQUIPMENT: 4-harness loom. 8-dent (*30/10cm*) reed. 3 boat shuttles. Tapestry needle.

MATERIALS: School Products pearl cotton in #111 medium orange. Amounts needed for one sq. yd. of fabric: 3/2 at 1260 yd/lb (*2533m/kg*), 100 yd (*91m*); 5/2 at 2100 yd/lb (*4221m/kg*), 700 yd (*640m*); 10/2 at 4200 yd/lb (*8442m/kg*), 500 yd (*457m*).

WARPING: Warp order is 2 ends 3/2; 4 ends 5/2; 6 ends 10/2; 4 ends 5/2.

SLEY: In an 8-dent reed, 1 end per dent of 3/2; 2 ends per dent of 5/2; 3 ends per dent of 10/2.

THREADING, TIE-UP AND TREADLING:



Double check that the size sequences are correct.

WEAVE: Weave in the same order to square. Allow a couple of inches of warp to get the hang of it. The heavier yarns need a lighter beat.

FINISHING: Hemstitch on the loom or machine stitch ends. Machine wash warm to hot, gentle cycle. Line dry until barely damp and steam press. If allowed to dry without pressing, the fabric has a bubbly surface which is regular and very interesting. Do not overpress; the three dimensionality (thick threads vs. thin ones) is the interesting thing about this fabric.

ALTERNATIVES: This fabric may be woven in a lighter weight in just the same way by using 5/2, 10/2 and 20/2 (16 e.p.i., 24 e.p.i. and 32 e.p.i., respectively). The effect is subtler and less sporty looking, but takes longer too. It would be interesting to weave this fabric in three closely related colors such as pale yellow, yellow, dark yellow or the like to get color play instead of textural play, or to use color and textural play in the same fabric. Be sure to keep the colors very close! School Products has a natural which would work nicely with the color alternatives suggested for the jacket and skirt fabrics.

PATTERN SUGGESTIONS: Vogue #7609 (a lightly A-line skirt, gathered a little into a waistband and embellished with tucks near the hemline) or any of the skirt patterns listed for the skirt fabric would be satisfactory. Vogue #7879, a loose-fitting straight-line dress would be fine.

SHRUG/SHANNON SWEATER/ SHAWL FABRIC (2) RH

WEAVE STRUCTURE: Plain.

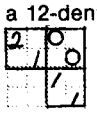
EQUIPMENT: 2-harness loom. 6-dent (*25/10cm*) or 12-dent (*50/10*) reed. Boat shuttle. Large-eyed yarn needle.

MATERIALS: Warp (see other projects in this series for sources and yardages;. Warp is mixed: one end 2-ply tangerine Linnay, three ends banana Durene used as one, one end tangerine singles Linnay, one end 10/2 medium orange pearl cotton and one end singles straw Linnay. One sq. yd. of finished cloth will require 100 yd (*92m*) of each of the yarns except for the banana Durene which will require 300 yd (*274m*). **Weft**—Henry's Attic Twirly at 970 yd/lb (*1950m/kg*). One sq. yd. will require about 380 yd (*347m*).

WARPING: Warp order given above at 12 e.p.i. (*50/10cm*).

SLEY: 2 ends per dent in a 6-dent reed or 1 end per dent in a 12-dent reed.

THREADING, TIE-UP & TREADLING:



With a decorative weft such as this one, an adherance to the exact threading order is more interesting than hit and miss.

WEAVE: Weave 8-9 picks per inch (*30/10 cm*). While on the loom, this fabric looks quite open. In order to avoid beating it too closely, the weaver may want to close the shed before beating (nudging, really) the weft into place.

FINISHING: Hemstitch on the loom or machine stitch to secure. If the fabric is to be used as a shawl, it will be a good idea to finish the warp with a twisted fringe or hem as the linnay yarns become flaky when washed much. Handwash in very warm water. Expect shrinkage of 12% in the weft direction and 10% in the warp direction.

When sewing this fabric be sure to stay stitch the edges as soon as they are cut. Binding the seams will make the garment wear longer and be more handsome as this fabric is designed to be worn unlined.

PATTERN SUGGESTIONS: The loose, open fabric is about the weight of a sweater and is intended to be used that way. It is best in minimally constructed garments. A shawl (which requires no cutting and sewing except hemming), the Shannon sweater shown on p. 52 in *Fashions From the Loom* by Betty J. Beard (Interweave Press, 1980), or the granny shrug on p. 90, same book, are suggested.

ALTERNATIVES: This kind of fabric is a "weaver's delight" because it uses up odds and ends of yarns and gives a rich looking fabric that is seldom found in fabric shops. Almost any variety of yarns can be used this way. As long as they are used consecutively, the differences in the way yarns shrink will not be a problem; the shrinkage will only add to the texture. It is a good idea, however, to be sure that none of the yarns used in a mixed warp like this are going to bleed and discolor the cloth in a way that will be unacceptable.

SKIRT FABRIC (2)

WEAVE STRUCTURE: Plain.

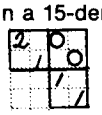
EQUIPMENT: 2-harness loom. 8-dent (*30/10cm*) or 15-dent (*60/10cm*) reed. Boat shuttle. Tapestry needle.

MATERIALS: Warp — Scott's Woolen Mills Linnay singles at 2400 yd/lb (*4824m/kg*), straw and tangerine. One sq. yd. requires 350 yd (*320m*) of each color. **Weft** — Linnay as above, 650 yd (*594m*) for one square yard.

WARPING: 15 or 16 e.p.i. depending on available reed. Alternate colors.

SLEY: 2 ends per dent in an 8-dent reed or 1 end per dent in a 15-dent reed.

THREADING, TIE-UP & TREADLING:



WEAVE: Beat to square.

FINISHING: Hemstitch on the loom or machine stitch to secure. Machine wash warm, gentle cycle. Shake out, smooth by hand and hang to dry. Steam press while still slightly damp. Fabric will shed lint in this initial washing. Expect 10-11% shrinkage. Fabric hand improves with washing!

ALTERNATIVES: If a lighter colored fabric is desired, use the straw for weft. The use of natural and blue gives a predominately blue fabric which some individuals may find more flattering.

PATTERN SUGGESTIONS: Vogue #9562 and #7548 would be suitable. #7830 and #7860 would be good for skirt and include jacket patterns.

See p. 83 for jacket fabric and p. 79 for blue stole.

PRODUCT NEWS

Columbine in Kansas

The Columbine Machine Shop, formerly of Denver, Colorado, is under new management and has been moved to Newton, Kansas. Bill Bainbridge, new owner of the firm that manufactures the Columbine Spinning Wheel, emphasized that hand and electric winders, temples and yardage counters also are being produced.

A free catalog is available. Write to Columbine Machine Shop, 518 Sunnyside Ct., Newton, KS 67114.

Finer Wool Counts

Great Plains Fleece owner Karen McAndrew announces a greater variety in wool count now available to their "wool wise" customers.

To meet the demand, the wool is available in prime pound lots, full or skirted fleeces from the 40's to 70's. Domestic wools now available include Delaine Merino, Great Plains Fleece's Targhee, Corriedale, Finn and Hampshire.

Retail catalog and samples, 50¢. Wholesale prices, free. Write to Great Plains Fleece, Box 34068, Omaha, NE 68134.

Tapestry Yarn for all Techniques

The rainbow is available to rug weavers in the form of TAPI-WOOL, the new rug and tapestry yarn from Novitex. Spun from pure virgin wool, the yarn is applicable to all rug techniques.

The color range forms a full spectrum of interrelated hues, tints and tones. Works of high contrast or softly modulated color blends are equally feasible.

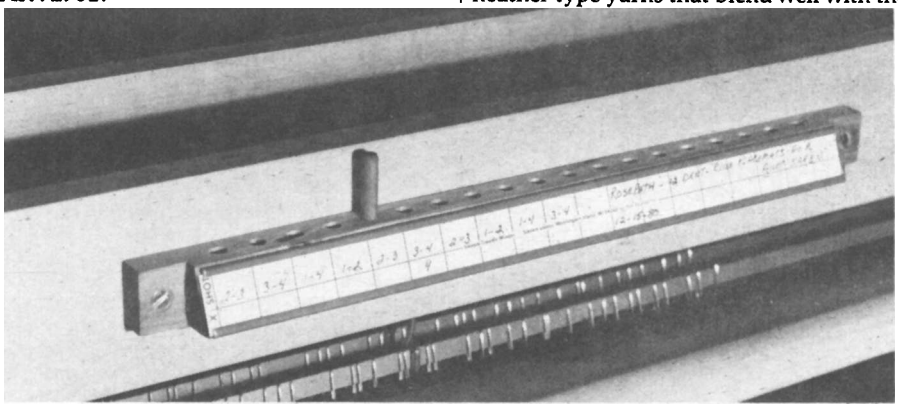
Request more information through Novitex, P.O. Box 440, Pawtucket, RI 02862.

Cotton Catalog

The latest cotton catalog is out from Cotton Clouds of Fayetteville, Arkansas.

The catalog features samples of Aurora Earth, their steady line of 100% cotton, Au' Naturels, Pearly Pearls and Rainbow Ends—a colorful sampling in limited supply.

Information on tools, literature and raw cotton is also included. For details write Cotton Clouds, P.O. Box 651, Fayetteville, AR 72701.



Never Mind the Shot

An age-old need is now filled by the Treadle Minder. This simple guide developed by Sievers Looms of Washington Island, Wisconsin, tells the weaver what the next shot should be.

Called the "Deconfuser" by weavers already using it, the unit consists of a wood bar with a channel on it and a series of holes at the top. Printed cards are supplied on which the weaver marks the pattern. The card is slipped into the channel and lined up with the holes.

As each shot is woven, a red peg is advanced one hole to mark the next shot of the pattern.

The Treadle Minder is made in both horizontal and vertical models. For more information, write to Sievers Looms, Washington Island, WI 54246.

Yarn Colors & Yarn Caddies

"Green Pasture" Perendale wool by Beka/Simpkins is expanded to include five new colors: soft grape, russett, sweet violet, moorland and misty blue.

The new colors, available in 2-ply and 3-ply worsted yarns on 6-oz. skeins, are heather type yarns that blend well with the natural shades already offered.

The same wool is available in natural white as a bulky 3-ply.

To keep the yarns organized, Beka has developed table-top spool/tube racks and yarn trees. The table-top rack is made of cherry wood and can hold up to four standard yarn tubes.

The yarn trees provide handy storage for skeined yarns. Each tree has 18 pegs on each of two sides and each peg may accommodate 2-3 skeins.

Write Beka, 1648 Grand Ave., St. Paul, MN 55105 for details.

CLASSIFIED ADS

SUPPLIES

SPINNING & WEAVING SUPPLIES: Spindles, wheels, carders, looms, etc. SASE for price list. The **Wool Shed,** P.O. Box 115, Sheep Ranch, CA 95250.

LOOMS—dealer for Leclerc, Schacht, and Tools of the Trade. Also Ashford and Pipy spinning wheels. Yarns and spinning fibers and equipment—books. Yarn samples—$1, silk samples—$.50, spinning fibers—$.50 and SASE for all samples. **The Fiber Studio,** Foster Hill Rd., Henniker, NH 03242. (603) 428-7830.

TIRED TEASING FLEECE? The Wool Picker from Paula Simmons *Handweaving Guide for Selling* available for purchase. You can tease one pound unmatted fleece in five minutes. Information send SASE. **Wool Picker,** Rt. 1, Box 28F, Moxee, WA 98936. (509) 453-0183.

DRAW-DOWNER—A unique drafting system for rapid and easy thread-by-thread interlacements, weft pattern (overshot) and/or profile (short) draft draw-downs. Model 4 (4H) $7.95. Model 8 (8H) $13.95. (Postage costs included.) NC residents add 4% sales tax. Order from **Salsbury Associates, Inc.,** 608 Madam Moore's Lane, New Bern, NC 28560.

HARD TO FIND EQUIPMENT now available; yardage counters to measure yarn, electric bobbin and spool winders, hand winders that hold spools, metal temples from 8" to 65", spool and cone stands, and the unique Columbine Spinning Wheel. **We've moved! Columbine Machine Shop,** 518 Sunnyside Ct., Newton, KS 67114 (316) 283-8662.

MONTREAL WEAVERS, Harrisville, Canadian, Swedish, novelty wools. Linens, silks, NZ fleeces, Louet spinning wheel. Classes. Visit **Le Tisserin,** 5731 Monkland Ave., Montreal, Canada.

CORRUGATED PAPER for warping. This tough, reusable paper is convenient and economical. 2'-3'-4'-5'-6' widths, in any length, 10 cents/square foot. $10 minimum order plus shipping. Payment in advance. SASE for free sample & shipping rate info. **The Design Shed,** 3718 Ontario, Ames, IA 50010.

ASHFORD WHEELS — 15% below suggested retail. Write for shipping charges to your area. **Great Plains Fleece,** Box 34068, Omaha, NE 68134.

HANDMADE AUTHENTIC REPRODUCTIONS of antique spinning wheels. $150-$200. Yarn winders, Lazy Kates and all wooden accessories. Repair, restore and make spinning wheel parts. Fibres: Wool tops, fleeces, flax, silk, cotton, mohair, etc. Samples $1. Books for spinners and weavers. Catalog $.50. New handweaving yarns: Wools, linens, cottons and novelties—very reasonably priced. Send $.20 for information sheet. Stop in or write **RR Spinning Wheel Shoppe,** 712 East Elm Avenue, Monroe, MI 48161.

OUR PERSONALIZED, PRINTED fabric labels will make your craftwork distinctive. For samples and catalog of books and patterns send $1.50 to **Pat's Printworks,** Dept. I-2, 4424 West 2nd Ave., Vancouver, V6R 1K5, Canada.

SHIPPING FREE ON MOST LOOMS, all wheels and equipment orders over $50. Locally, WEBS also offers classes, books, yarns and rentals. Brochure. **WEBS,** Box 349, 109 Main St., Amherst, MA 01004. (413) 253-2580. Mastercard and Visa accepted.

NYLON EDGING—(Chifon) Send self-addressed stamped envelope for color samples to: **MAR-VAR,** 1614 E. Workman Ave., West Covina, CA 91791.

NEW RUG WEAVING LOOMS and frames now available $45-$195. Good old Green Spring spinning wheel still available at good old price of $75 ppd. **Whitehorse Mountain Woodworks,** P.O. Box 23, Green Spring, WV 26722.

CANADIAN BIRCH INKLE LOOM $18.20, 20" rag shuttle $5.75, bulky yarn spinner $90.30, bobbin winder $19.45, umbrella swift $28.46. Postpaid. Spinners, weavers tool catalog $.60, refundable with first order. **Woolhouse,** Box 315, Armstrong, B.C., Canada, V0E 1B0.

BULK YARN DISCOUNTS! We pay shipping on Leclerc and Schacht floor looms, Ashford and Louet spinning wheels. Send $1 for our catalog of yarns, looms, weaving tools, books, natural dyes and basketry supplies. Try our Giant sample packet! For $14 you get our catalog plus dozens of sample cards and hundreds of individual samples. **Intertwine,** 880 South 900 East, Salt Lake City, UT 84102.

FIBERS

TRAM SILK—30 gorgeous colors, 2-3 oz. skeins, sold by the skein, $1/oz. Sample sheets, $3. **Custom Handweaving by Nancy,** Dept. I, P.O. Box 477, Redondo Beach, CA 90277.

NEW ZEALAND WOOL — Long stapled unique for ease of spinning. Natural white $3.50. Colored $4. Washed white $4. Natural carded white $5. Colored $5.50. All per lb. Postage included. Minimum order 6 lbs. Inquiries welcome. **Watson,** P.O. Box 12231, Wellington, New Zealand.

WORTH IT JUST FOR READING! 64-page catalog of spinning, dyeing, basketry, 900+ books. Teachers call it a "textbook", 1980-81 edition. **Straw Into Gold,** 5533-I College Ave., Oakland, CA 94618.

WILD AND WOOLEY FIBERS: "In the grease" wool, Rambouillet-Karakul cross, brown, black, gray, white. Also Finn-sheep wool, white. Clean, carded wool, white, colors. Black lambs for sale. Send $1 for samples and price list to 1376 S. Perry Park Rd., Sedalia, CO 80135. (303) 688-4387.

PRIZE-WINNING FLEECE from major American shows. Pound lots or whole fleeces. White and colored. Most breeds available. Sample book $2. The **Wool Shed,** P.O. Box 115, Sheep Ranch, CA 95250.

MOHAIR-RANGE & show fleece from one of Texas' oldest established, prize-winning Angora goat flocks. Send $1, deductible from first order, for samples and brochure. Kathryn Ross Chastant, 10104 Idlewood Pl., River Ridge, LA 70123.

SILK YARNS—SILK COLOURS: Weaving silks, 16 styles on cones. 14 styles of knitting silks in skeins. 45 unique natural dyed colors on silk for embroidery and tapestry. Samples $5. Lists only $1. *A Silk Worker's Notebook,* Handbound or hardbound, 140 pp., $50 ppd. in U.S. **C. Kolander,** 276 North Myrtle Creek, Myrtle Creek, OR 97457.

SHEEPSKIN PIECES from garment maker —finest quality cleaned skeins—random size pieces. Many uses. 1 lb—$4. 5 lbs—$16. 10 lbs—$28. Plus shipping. **Custom Handweaving by Nancy**, Dept. I, P.O. Box 477, Redondo Beach, CA 90277.

SPINNERS CHOOSE THE PARTICULAR fleece you want from the swatches that we send you from our Colorado-grown Corriedale fleece. These fleece are wrapped to unroll just as they came off the sheep making sorting and selection easier. Top quality 4"-5" staple with grades 45's to 60's. Send $1 (redeemable with purchase) for swatches from 8 fleece currently in stock. $1.65 per lb., full fleece lots only. **The Oak Shop**, Box 487, Berthoud, CO 80513.

PROFESSIONAL SPINNERS: Production Spinner's Sample Bag, 16 labeled fibers; tops, slivers, cotton, silk, llama, camel, more. One pound. $11.95 ppd. includes catalog. **Straw Into Gold**, 5533-I College, Oakland, CA 94618.

CHAMPION HANDSPINNING WOOLS—Black, brown, gray, Delaine Merino, Targhee, Corriedale, Finn Hampshire, and Lincoln domestic wools, New Zealand wools, exotic fibers, best-selling handspinning books and spinning equipment. Dealer inquiries invited. **Great Plains Fleece**, Box 34068, Omaha, NE 68134.

MOHAIR loop—11 colors. Send SASE for samples. **Custom Handweaving by Nancy**, Dept. I, P.O. Box 477, Redondo Beach, CA 90277.

COTTON CARPET WARP—Natural, 500-600 yds/lb, $2/lb plus postage. **East Texas Handweaver's Guild**, c/o Sandy Willard; Rt. 1, Box 530, Chireno, TX 75937.

SILK—Beautiful Italian Bombyx Mori and Tussah in five types combed and carded rovings. Cocoons, mawata, thrown waste, printed materials, natural dyed mawata collection and small equipment made from PA cherry. Send $3.50 for generous samples, descriptive information and directions. Free price list. **Fallbrook House,** R.D. 2, Box 17, Troy, PA 16947.

WOOL: Black, brown/black, grays, whites, lovely for spinning, weaving. $1.50 per lb. for white, $2 for colored, by the fleece. **Georgia Wolterbeek**, Fairmount Farm, Rindge, NH 03461.

SILK and wool . . . naturally dyed. Large color selection for knitting and weaving. Samples: Silk $6, wool $4. **Dyeworks** HW1*, 312 S. 3rd St., Minneapolis, MN 55415, (612) 333-7246.

CREATE SUPERB PASTELS AND HEATHERS for your spinning fun from our fine quality dyed wool tips and mohair! Inquire about bulk discounts and special discounts to resale customers. Remember our color catalog is $1, refundable with first order. **The Walking Wheel**, 2498 Stevens Creek Blvd., San Jose, CA 95128. (408) 297-YARN.

BEAUTIFUL HANDSPUN YARNS. Vegetal-dyed in over 40 luscious colors. Also natural shades of Romney, Karakul, Shetland, Merino, Mohair, Alpaca and silk. Retail/wholesale/bulk discounts. Sample card $5. **La Lana Wools**, P.O. Box 2461, Taos, NM 87571.

LUSTROUS LONGWOOL FLEECES in 11 brilliant vegetal dyed colors. Beautiful to blend with natural colored wools. $1.90/oz Samples $1. **WoodsEdge Wools**, Box 464, Kingston, NJ 08528.

BLACK CORRIEDALE and Corriedale-Rambouillet rams for sale. Phone (303) 532-2573 evenings. **The Oak Shop,** Box 487, Berthoud, CO 80513.

FINEST QUALITY RAW GREASY fleece from New Zealand. Exceedingly clean and well skirted. 5"-8" staple permits spinning directly from fleece. Sample cards—$1. **Jan Tarr Wool Imports**, 32751 Navarro Ridge Rd., Albion, CA 95419.

SILKS—Fine quality silk yarns and fibers. Send for samples. **The Silk Tree**, 26727 Ferguson Ave., Whonnock, B.C. Canada, V0M 1S0.

LITERATURE

TAPESTRY WEAVING made so simple that you will be weaving those beautiful tapestries after just one sampler from this book, *Mexican Tapestry Weaving* by Joanne Hall, **J. Arvidson Press**, P.O. Box 4022, Helena, MT 59601. $9.95 plus $1 postage.

BOSTON WEAVERS' GUILD publications; Monograph #2 *Weavers' Wisdom* 250 Aids to Happier Weaving. Helpful suggestions from beginners and experienced weavers. $3.50 ppd. Monograph #3 *Processing and Finishing Handwoven Textiles.* Easily followed directions, essays, bibliography on wet-finishing natural fibers. $3.50 ppd. Boston Weavers' Guild Publications, c/o **M.E. Goodband**, 361 Norwood St., Sharon, MA 02067.

RECIPE BOOK by Mary Meigs Atwater. This hard to find book contains handweavers patterns for coverlets, rugs, drapery and upholstery fabrics, clothing, table pieces, bags, blankets and many other items. A must for your weaving library. $15.95 postpaid. **Intertwine**, 880 S. 900 East, Salt Lake City, UT 84102.

JACOB ANGSTADT BOOKS—Two volume hardbound set: Photographic replica of 18th century manuscript pattern book together with translation; drawdowns of profile drafts; point twills. Designs adaptable to unit weaves on 10 shafts or less. $39.95 plus $1.50 shipping. Publisher-distributor **Ruth N. Holroyd**, 20 Old Farm Circle, Pittsford, NY 14534.

"THE FINISHING OF HANDWOVEN Fabrics"—24 pages describing washing and finishing techniques, diagrams, 4 sets woven samples (originally a graduate research paper)—$5.50. **C. Younie**, 18 Claremont Ave., Pointe Claire, Quebec, Canada H9S 5C5.

UNIQUE DEMONSTRATION APPROACH: "Spinning and Weaving in Biblical Times". Complete lecture with notes for demonstration and visual aids, spiral bound. Educational and inspirational. $3.25. **Joan Holborn**, 500 E. Sanger, Hobbs, NM 88240.

DYEING

DYES & SUPPLIES — Batik, silkscreen, handpaint. Permanent cold-water dyes. Acid dyes for wool, PROsperse dyes for synthetics. Free Procion shade chart and information. Six-dye sampler with directions—$4.75. **PRO Chemical & Dye, Inc.**, Dept. I-S, Box 14, Somerset, MA 02726.

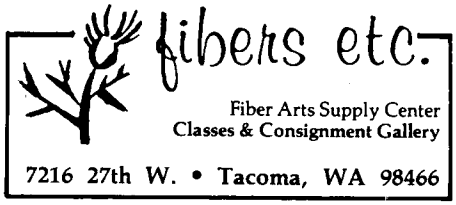
FREE 1981 price list and information for Procion fiber reactive dyes, tools, fabrics and books. **FabDec I**, 3553 Old Post Rd., San Angelo, TX 76901.

DYES AND MORDANTS—4 lb. kit contains 8 different mordants, $10 ppd. Mordant and dye kit contains the above plus indigo powder, cochineal, tumeric, logwood, $18 ppd. Send SASE for price list of individual items. **The Mordant Man,** P.O. Box 57, White Sulphur Springs, WV 24986.

NATURAL DYES FROM THE DESERT. We have: Desert Broom at $5 per pound (1 lb. will dye 1 lb. of wool) and Creasote Bush at $4.50 per pound (1 lb. will dye 1 lb. of wool). Send check or money order to **Dan Beamer**, 1989 W. Amy Pl., Tucson, AZ. Enclose $.30 per lb. for shipping. Allow three weeks for delivery.

INSTRUCTION

BRITISH ISLES TEXTILE TOUR, 1981. Visit Theo Moorman, weaver; Rare Breed Sheep Farms—c/o **Nora Smids**, 10912 S.E. 284th, Kent, WA 98031.



STUDY BACK-STRAP WEAVING this summer in Otavalo, Ecuador with the Tahuantinsuyo Weaving Workshops. Two-week sessions July & August. American and Native instructors. Write for free illustrated catalog to **Wilderness Travel,** 1760-H Solano Ave., Berkeley, CA 94707.

GUATEMALAN STUDY GROUP — Small group will be led by collector Gordon Frost to explore remote yet key centers of weavings and pottery. Send $.50 for brochure: **Gordon Frost,** P.O. Box 471-IW, Newhall, CA 91321.

TRS-80 CASSETTE PROGRAM for automated drawdowns. Up to 8H / 10 treadles / 116 threads. Screen display shows all features of standard drawdown. Complete freedom of choice for tie-up, treadling sequence, thread-by-thread plot, profile draft, B/W color sequence in warp and/or weft. For Model 1, Level II, 16K. Cassette with complete instructions $35. **Salsbury Associates, Inc.,** 608 Madam Moore's Lane, New Bern, NC 28560.

HANDSPINNING WORKSHOPS — beginning or advanced. Wheel, spindle, supported spindle. All fibers. Sandy Willard, **Spindrifter**, Rt. 1, Box 530, Chireno, TX 75937. (713) 854-2571.

MONTANA WORKSHOPS learn to weave tapestry, eight harness, color and weave, rugs, transparencies, spinning and dyeing. Joanne Hall instructor, write for schedule, **Elkhorn Mts. Weaving**, SR Box 165, Clancy, MT 59634.

THE MANNINGS OCTOBER Weaving Workshop—Oct. 28, 29 & 30. Kim Malloy, O.S.B.—Ecclesiastical Weaving; Jane Busse—Rugs; Virginia West — Weaving With Fine Threads; TU—Basketry. For more information & brochure write **The Mannings**, R.D. 2, East Berlin, PA 17316. (717) 624-2223.

THISTLEDOWN HANDSPINNERS Guild 9th Annual Seminar. October 24, 25 1981. Further information, **Jean K. Steiber**, Registrar; 35 Canaswacta St., Norwich, NY 13815. Phone (607) 334-3089.

XENAKIS—GOLDEN FLEECE — Summer Academy of Weaving, July 27-Aug. 7, 1981. Beginning Rigid Heddle Weaving, Multiple-Heddle techniques and theory, also introducing Finnweave and Doupleno for the Rigid Heddle Loom, for further information write or call: **The Golden Fleece**, 126 S. Phillips, Sioux Falls, SD 57102. (605) 338-4333.

MENDOCINO ART CENTER 3 year training program in weaving and fabric printing. Send SASE for brochure and tuition info. **Textile Apprenticeship Program**, Mendocino Art Center, P.O. Box 765-I, Mendocino, CA 95460.

NOTICES

OVER 100 HANDWOVEN, hand-dyed original garments by California artists . . . reasonable prices. Come—be inspired or send $1 and a large envelope for yarn samples. Home-dyed variegated wool yarns, mill ends, odd lots, basketry, spinning and weaving supplies. Wholesale to stores, good discounts for professional weavers & schools. **The Drop Spindle,** 714 E. Main St., Santa Maria, CA 93454. (805) 925-3304.

HAND QUILTING — careful, appreciative work. Also custom make, **Janet Kovach,** 46 Spring St., Edison, NJ 08820.

DRAWDOWNS BY COMPUTER. 6 for $10. Up to 8H / 10 treadles / 116 threads. No limitations on tie-up or treadling sequences. Can provide thread-by-thread or profile drafts. Also can produce b/w color studies of variations in warp and/or weft. Write for information and sample. Enclose SASE. **Salsbury Associates, Inc.,** 608 Madam Moore's Lane, New Bern, NC 28560.

SUSSEX COUNTY FARM AND HORSE show Fourth Annual Open Sheep Show August 8-9. Breed and market lamb classes, judging and auction of handspinning fleeces. **Sussex County Sheep Breeders' Association**, RD 4, Box 87, Newton, NJ 07860.

WILL PAY FOR artwork showing you at your loom. I'm searching for just the right material (any medium suitable for printing) to illustrate a unique publication. Rejects will be handled carefully and returned if you send return postage. **Sue Ellison**, P.O. Box 2193, Boulder, CO 80306.

GROUP OF CANADIAN WEAVERS seeking someone in upper New England to help set up and to manage a commercial weaving operation, to make and market a high quality line of handwoven outerwear. Person sought must be fun, talented, businesslike, energetic, with good managerial and sales instincts. Excellent prospects for someone who can help us build a business from ground up. Contact: David Martin, **Ptarmigan Weavers,** 2612 Fief Rd., Hudson, Quebec, Canada J0P 1H0. Telephone: (514) 458-5461.

NOTEPAPER, scribble pads, bookplates, gift enclosures — featuring textile tools, spinning, weaving, dyeing, sheep. Wholesale/retail brochure, samples $.35. **Weaving and Wood**, Box 7-H, Bayport, MN 55003.

WE WOULD BE INTERESTED in hearing from anyone who has studied with MARJORIE RUTH ROSS, well-known weaving instructor of Ithaca, NY, for an exhibition focusing on her teaching career to be held August 6-9, 1981, in conjunction with the Upstate Craft Fair in Ithaca. Please write or call: **Jean Nowack,** RD 1, Box 346, Spender, NY 14883. (607) 564-9241.

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