

A photograph of a field of blue flowers, likely cornflowers, against a clear blue sky. The flowers are in various stages of bloom, with some fully open and others as buds. The stems are green and thin. The overall scene is bright and cheerful.

The Weaver's Journal

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Volume VII, Number 2, Issue 26

Fall 1982

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The Weaver's Journal

Quarterly Journal for Textile Craftspeople

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Fall, 1982

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LETTER FROM THE EDITOR

"One of the world's most ancient textiles, linen, is also paradoxically riding a vanguard wave in fashion and home furnishing fabrics and wall coverings."*

We have been wanting to feature linen for a long time. It had seemed a difficult thing to do. A few years back linen had lost its popularity with weavers. The big fat gutsy wools were in and weavers were content with just about any type of string for warp. Few weavers had the patience to even sett their warp at 15 epi. Believe it or not, this was considered by many as too fine a weave! Luckily the worm has turned. Both the handweaver and the textile industry are rediscovering the beautiful qualities of linen and fine weaves. The International Linen Promotion Commission is putting on a big campaign to inform the consumer about linen. They have been particularly helpful to *The Weaver's Journal* by sending us FLAX LINEN FACTS. Some of the information has been reprinted in this issue of *The Weaver's Journal* and all of it has been an inspiration for us to explore the various properties of linen for the handweaver. The FLAX LINEN FACTS, published by the International Linen Promotion Commission, and the accompanying photographs, of which many have been reproduced in this issue, have been great reference tools for which we are most grateful. We are equally grateful to the many linen growers, spinners, dyers and weavers who have contributed to this issue. As very little published material is available on this subject, these authors are sharing the fruits of long periods of research, experimentation, sacrifice and finally, gratifying results.

This issue is a true tribute to the spirit of textile craftspeople: learn and share.

Clotilde

*Quote from the "International Linen Promotion Commission".

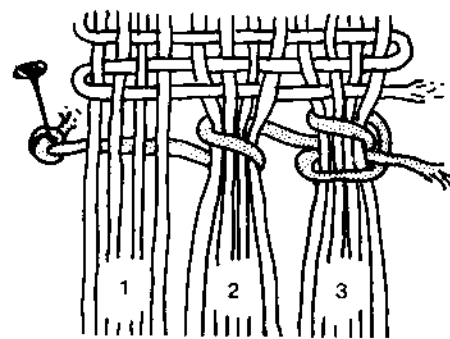
* * * good ideas from our readers

Neolithic tie as a finish of linen cloth.

Linen cloth excavated from the Swiss Lake Dwellings dating back to the Stone Age, and also some ancient Egyptian fabrics, are finished with the neolithic tie.

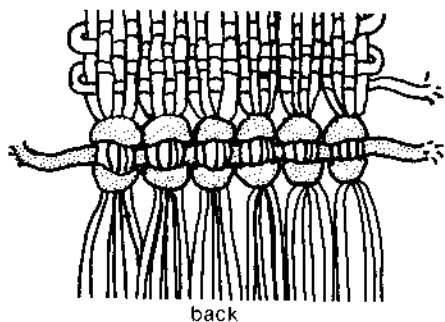
It is easiest to work this fringe with the wrong side of the cloth up.

- Secure an extra piece of yarn by pinning it at one end of the fringe.
- Lay the warp ends of one "tie" on top of the cord.
- Double half-hitch the cord over the bunch of warp ends.
- Lay the warp ends of the next "tie" on top of the cord, etc.

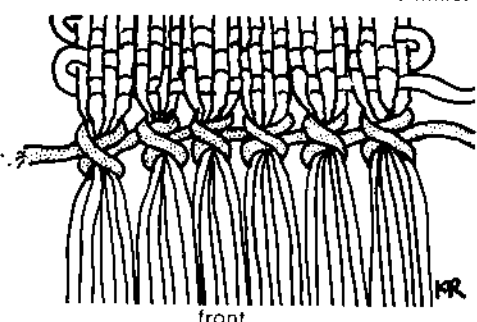


The right side looks quite different from the wrong side.

Suzanne Miller



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front

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MAIL BAG

I must tell you that the Spring '82 Weaver's Journal is, in my estimation, a jewel. Love them all, but this one with the featuring of Quebec really hit home. It was in Quebec that I was first exposed to—and fell in love with—weaving. My husband worked there for two years, in a small town in the northeastern area and weaving was my greatest pleasure. I belonged to a "cercle de fermières" and through the language barrier was no small one, my French-English dictionary helped. Fortunately, I had an excellent English speaking teacher. When we returned to the States, I came home well-equipped with Leclerc looms and accessories

Betty Daunis
Las Vegas, NV

First of all, I want to express my admiration for the last issue of The Weaver's Journal. Right now I was looking for all kind of information on rags and their uses and voilà, here was your magazine at the right time.

Being in a dye class of vegetable dye, your remark about the French settlers using local plants to dye linen (issue 94, page 8, introduction of article "Weaving in Quebec") intrigued me very much. I am a Dutch weaver, spinner and dyer with vegetable materials but never ran into any source of information on linen dyeing with plant materials. Do you know if the book by Oscar Bériau "La Teinture Domestique" is translated into the English language? If not, is there another source for vegetable dyeing with linen? I hope you can help me one way or the other.

Yvonne Kalshoven
San Jose, CA

Enjoy your publication very much. This past issue on Weaving in Quebec and rugs is fantastic. When starting to weave, I used fabric strips cut 5/8" wide for table mats. We got the "strings" (they call them) from a company who cut out childrens' clothing and these were like the trimmings. One edge was uneven where they cut the neck or armholes and shaped the article but many were 20 yards long and some 5-7 inches wide. We also used some, cut wider, for rugs. They would outwear the carpet warp.

Marietta Jones
Youngstown, OH

I read with great interest the #24 of your journal (TWJ, Spring '82). I say "great interest" because I am both Quebecois and professional weaver. I can't help but let you know how I disagree with the picture that these articles convey about the weaving which is done in Quebec today.

It seems to me that we are well out of traditionalism and are sailing toward more contemporary expressions. You probably have only seen a small part of the weaving that is being done in Quebec. These regional aspects of which you wrote remain valid but only in a sense of preservation and it is obvious that they have put their mark on the creative process of its practitioners.

The research that is being done in weaving is very interesting, both on four-shaft and multiple-shaft looms. Many of us are seriously committed to it. If you come back to Quebec, and I think you plan to do so in Spring '83, I would like to let you appreciate the excellent work that is being done in Montreal and other areas of Quebec.

Louise Lemieux Bérubé
Lasalle, Que., Canada

... I was especially fascinated by the section on Quebecois weaving (plus, of course, the sling article).

I was fascinated by the Video Loom II Product Review. It seems perfectly logical, of course, but I just didn't realize such programs were available.

The sling article complements the monograph well and the rest of the issue is beautiful.

Elayne Zorn,
New York, NY

I have found the article (Weaving in Quebec) very interesting. During your short visit to Quebec you analyzed rather well the state of weaving, I think. I have had occasion to talk with several people about the article on Quebec and they found it interesting. I even had a repercussion from France.

Antoinette Tessier
Quebec, Canada

"Thank you for sending your article on Quebec weaving. I found it very interesting. There is excellent work done there and it is good to have it recognized by you—and The Weaver's Journal.

Dorothy Burnham
Toronto, Canada

The Flax Day was a program put on by three or four members of our Guild, who also weave for the Welles-Shipman-Ward House—a 1755 house which has been restored and is owned by the Historical Society of Glastonbury. There are thirteen (lucky number) of us who weave on the old four-harness counter-balanced loom at the house on Sunday afternoons from mid-May to mid-October, when the house is open to the public. Two years ago, we had Mary Chase from Maine as one of our Guild Speakers. She talked about flax preparation and growing a crop, and was so enthusiastic our weaving group decided to grow a small plot of flax. Mary sent us two pounds gratis—and we were on our way. We were fortunate to have some resting tobacco land loaned to us—(all harrowed and ready). We followed Mary's directions, and to our amazement, grew flax that looked just like she said it would. After harvesting, retting in a nearby brook, drying, etc., we decided that a demonstration of the many processes necessary before spinning would make an interesting thing to watch at the house—hence "Flax Day" came to be.

The Society owned a flax brake, but it needed repairing—and legs—the blades were repaired, but unfortunately we had to clamp it to saw horses for our demonstration. That didn't serve to detract from the interest—as we took turns braking, scutching, hutchelling and spinning to an uninitiated gathering. We even had a group of African Museum Directors visiting that day.

We have since had legs made for the brake—and I expect we'll repeat the program next summer. Our flax isn't as long or as bleached as what I buy from Fawcetts in Boston—but of course it has more character—and one day perhaps we can weave a piece for the house from our very own flax.

Betty Billings
Glastonbury, CT

Inspired by the "Rags to Riches" article (TWJ, Winter issue), I have woven the "jacket from rags" and am really pleased with it. It's done in lighter colors of beige, tan, gold, yellow, pink, peach and burnt orange. I bought 1/8 yard of about sixteen fabrics for the strips and came out just right. The finished fabric shrank a little more than calculated and some of the edges "unwove" during the washing cycle even though they had been zig-zagged. It's a beautiful jacket; thanks for the idea!

Vivian Frenz
Boulder, CO

... Could you have a write-up on rainbow dyeing? It sounds easy.

I'm going to try this week to dye weft for an ikat dyed warp for kimonos and shawls. I'm looking forward to the color mixtures that will arrive at random. Also any articles on baby clothing would be an inspiration.

Shelley Guso
Jemez Springs, N.M.

Ed.: We welcome contributions from our readers on these subjects.

In response to your inquiry ... I did write early this year to a small group of people to see whether there is any interest to form a Textile Society. The interest was great, and within five months we have grown to almost 50 members. The aim is to cover all types of textiles. Our first few meetings covered Japanese Kesa's, Pre-Columbian textiles, Amish Quilts, Indonesian textiles and Oriental nomadic village rugs. Our group is well balanced between academicians, collectors, dealers and weavers.

Fred Bosch
Lafayette Hill, PA

"I'm interested in receiving the October 1981 issue with shaft switching. A local weaver, Penny Wakefield, President of the Fairbanks Weavers & Spinners Guild did a beautiful floor covering (or wall hanging) using the technique and used your instructions. It was exhibited in the Borough Wide Juried Craft Show in Fairbanks.

Helen Howard
Fairbanks, AK

Please keep the teaching articles coming. They make your magazine the best. I have enjoyed Martha Stanley's rug articles.

Margie Goodband
Walpole, Mass.

I would like to locate some indigo seeds and also some madder seed. If any of your readers know of a source, I would appreciate it. Also any information on cultivation or how to extract the dyestuff from the plants or any favorite recipes using the dyestuffs.

Stanley Gunn
Dublin, GA

If there are some of your members who would like to exchange seeds for dyeplants, I can give seeds of Chamomile (*Anthemis tinctoria*), Woad and Weld (*Reseda luteola*).

Lieve Verlinden-Hendrickx
Mechelen, Belgium

Ed.: It would be a good idea to contact your local Plant Protection and Quarantine Inspector (US Dept. of Agriculture) for regulations about sending seeds to another country. Some nations are more strict than others.



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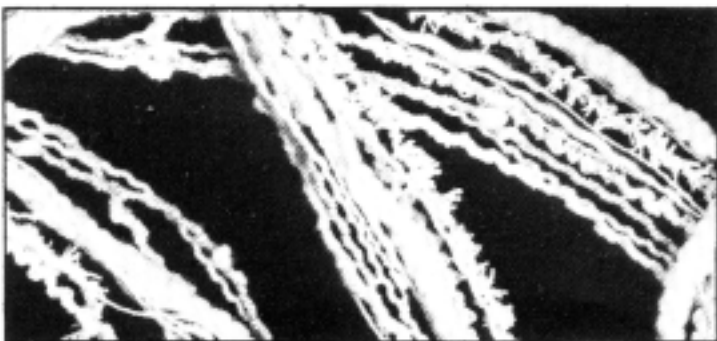
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FLAX PROCESSING

by Mary A. Chase

Natural fibers are coming into their own again. This is good news for those of us who have never forsaken them, either to wear or to use or to work with. Of the four principal ones—silk, wool, cotton and linen,—the last will probably have the hardest time staging a comeback to its former proud place. Of the four, it is the one which is most costly in terms of the labor involved in separating out the spinnable fibers from the raw material. The processing of flax is highly demanding of human skill and has yielded least to technological advances. I am speaking here of the production of fine *linen-line*. Tow and the coarser qualities of line can easily be produced, and this constitutes the major production of linen today, where the fiber is often intended to be chopped up and mixed with other fibers for spinning, to give texture and a “linen” character to fabrics. The world may never again see the like of the fine handkerchief linens of even fifty years ago, or the fine double damasks of our grandmothers’ days. These require the gentle handling, the skilled manipulation and the judgment of long experience to produce. The economics of industry today operate against the possibility, alas.

1. Blue-flowered flax in bloom



It is good to learn, however, that all of the processes, just because they require so much hand work, can be carried out on a small domestic scale today as they have been quite literally from time immemorial. Flax has been grown in the tropical heat of Egypt and in the much cooler climate of the Baltic states as far north as northern Sweden where the long summer days favor the rapid and even development of fine fiber. In fact it is in Sweden, the home of handweaving, that a greatly renewed interest has sprung up among handweavers and community groups in the cultivation and preparation of fine linen for weaving, a revival of a domestic industry which was once a source of great pride, for the Swedes have always had a love affair with linen!

It is possible in almost any part of our country to plant, cultivate, harvest, process, spin and weave a small amount of flax. I say small amount, having first hand experience of the time and labor in-

2. Evening the harvested flax by butting the root-ends



photos by Mary A. Chase except as marked

involved. The quality of the result as well as the yield will depend on many variables. Patience and care are needed, but the result can be very gratifying.

So try a patch of flax!

Prepare a seed bed by cultivating a patch—15' X 15' (4.6 X 4.6 m) is a good size for a start. Solid, heavy clay soil or very porous sandy soil will not do, but a wide range between will do. Do not incorporate manure or compost at planting time—better to have done that the previous fall, as too much available nitrogen will cause rank growth, weak fiber, and lodging. Dig the patch well and pulverize the soil, as early as you can work it. Let it lie a week or two for the first crop of weeds to germinate, and till them under. Now sow 1-1½ pounds of fiber flax seed, broadcast, over the patch. Seed flax which you buy in the health food store is not the same as fiber flax seed. It is bred for heavy bloom and consequent high seed production and yields fiber of poor quality, short and coarse. Fiber flax should be crowded to grow tall, branching very little and bearing only a few flowers to a stalk. A good trick is to divide the amount of seed in half and sow half in one direction and half across it in the

3. Tying handfuls together for drying



other direction—don't choose a windy day! Rake it lightly in and roll it. Early planting is advantageous while early spring moisture is still in the ground and to get the jump on pests and diseases. Light frost will not injure the plants. It is important that the plants have moisture available throughout the growing period so the fiber can develop unstunted. Any sudden check, from heavy frost or drought, will affect fiber development.

It is important to weed carefully by hand but don't be discouraged. One thorough weeding when the plants are 6-8 inches high will do the trick. You may walk lightly—barefooted?—on the closely growing plants without damage. They will bounce back at this stage and, once thoroughly weeded, the flax will crowd out any others. Later it will be impossible to walk through the patch without damage.

At about 60 days the lovely bright green fronds will bloom, each stem carrying only a few nodding sky blue or white flowers, depending upon the variety. A flush of bloom occurs, the blossoms opening during the middle of the day only, and lasts for a few days. Thereafter bloom will be only sporadic.

Harvesting may take place at about 90 days from planting when the lower third of the stems have started to yellow and the leaves to shrivel. If finer, softer fiber is desired, harvest may be carried out

up to two weeks earlier while stalks are still green, but the yield will be less. Later harvest yields more, but coarser, fiber. At 90 days the seed pods will be beginning to mature.

Harvesting of flax is accomplished by pulling the stalks up by the roots, not by cutting. In this operation and in every subsequent one up to spinning absolutely the most important thing to keep in mind is orderliness! The flax stalks and later the stricks of fiber *must be kept orderly*, bundled, with root-ends and tops evenly aligned. Disorder and tangling make it almost impossible to handle flax and results in complete waste. If, on the other hand, the bundles are evened at every stage, tied securely between stages and handled with care, a good yield of spinnable fiber may be obtained.

Pull the plants by handfuls, grasping the stalks firmly about halfway up and giving a sharp tug. Knock the dirt off the roots which loosen easily, butt the root-ends against the ground, and lay each handful carefully aside. When you have four bundles, criss-cross these near the root-ends and tie securely. These bundles may then be hung up out-of-doors on a fence or pole, upside down, to dry. They should

air-dry in a week or two. Some rain may fall on them without hurt but in a prolonged rainy spell they should be hung under cover.

When dry the flax should be *rippled* to remove the seed bolls. A ripple is a comb-like device through which the flax tops are drawn, popping off the dried seed bolls which may be collected as they fall on a tarpaulin or large box placed under the ripple. Lacking a ripple you may pound the bolls with a mallet or crush the tops under a roller to free the seeds from the bolls. Just be careful not to disorganize the straw. Once more evened out, roots butted, and securely tied, the flax may be stored in a dry place for an indefinite period until it is convenient to proceed with retting. With the seed bolls removed (they are too attractive to mice) flax may be stored without detriment at any stage of its preparation for any length of time, provided only that it is kept moderately dry and away from excessive heat.

The next stage, *retting*, is the most difficult for the novice to carry out as experience is the only sure guide to accomplishing it successfully. You need not—probably cannot—ret your whole harvest at one time so you will have several opportunities to try different ways and gain experience. The purpose of retting is to loosen the individual technical fibers from the woody pith and bark-like cuticle of the plant stem. Thus it is a partial decomposition but must be suspended before the

4. A rack of newly harvested flax



5. Rippling flax to remove the seed capsules

photo by Jean Hay



6. Laying flax out to ret on the ground





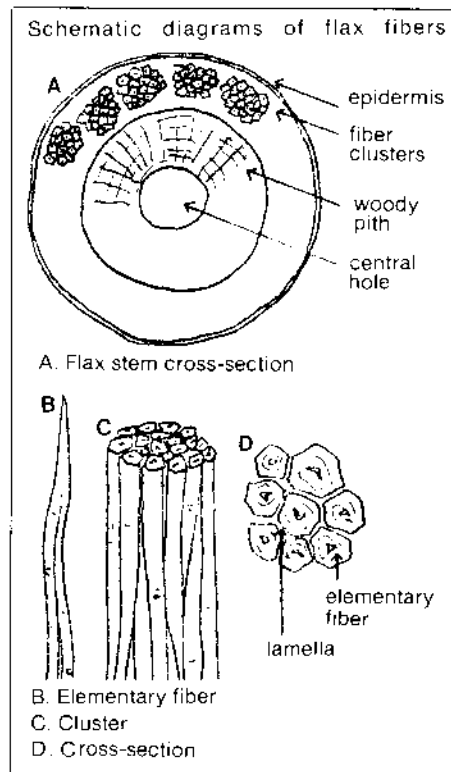
12. Hackled flax: 1. to r. :ground retted line, 2 stricks of water-retted line, and 1 strick of early-harvested water-retted line

fibers are broken down completely into their component single-celled *elementary* fibers. Fortunately the pectins which hold the elementary fibers together are slightly different from those holding the fiber bundles to the pith and cuticle and are slower and harder to dissolve. That is what makes it possible to extract a spinnable fiber from the plant's stalk.

A look at the anatomy of the flax plant is needed in order to understand the processes more clearly.

Under a waxy cuticle or *epidermis* which surrounds the stem lie clusters of single fiber cells in a ring. Within this ring of fiber clusters is a woody, lignous pith, and, in the center, a narrow hole or *lumen*. The single fiber cells or *elementary fibers* are held together and to the core and the epidermis by a pectinous substance, the *lamella*. The single cells are polygonal in cross-

section, tapered at each end to a fine point, and these lie bonded



together and overlapping each other. The flax processor's task is to partially dissolve the lamella so as to separate the clusters from the core and the cuticle without completely dissolving the substance holding the fibers to each other. Each "fiber" that reaches the spinner as "line" is in reality composed of numerous single fiber cells aligned together and still held together by this substance, but the finer the "line" the more refined and fewer the individual fibers. Enough of the pectinous lamella remains to hold the fibers together and, when wetted during spinning, the fiber cells are loosened to glide apart lengthwise and smoothed so that, as the filament dries, the ends lie close and adhere to produce a smooth thread. In dry-spinning the ends of these cells do not lie close but rise up on the surface of the yarn, giving a rough or hairy surface. In hand spinning saliva was often used, the enzymes of which are more effective

tive than water in dissolving the lamella and smoothing the surface of the yarn.

Retting is traditionally achieved either by spreading the flax on the ground in late summer or early fall and leaving it there under the influence of dew, sun, rain, and air, or by immersing it in water where there is only a slight water exchange—a slowly moving stream, a pond, or some sort of tank (an old bath tub will do very well) which can be tapped to let water drain off and to which fresh water may be added. In the former case the retting is brought about primarily by fungus action; in the latter by the spontaneous growth of bacteria. The higher the temperature (it must not go higher than 95° F.) the more rapid will be the process.

Land- or dew-retting on a cut lawn in early fall is an easy way to try first. The grass will have slowed its growth so the flax can be turned without a tangle of grass having grown through it. There is enough warmth in the ground to carry out the retting in 2-4 weeks' time. Spread the flax thinly on the ground in even rows with roots and tops aligned. Leave a few inches between rows to prevent tangling. Leave room at the bottom of the first row so that you can turn each row by standing it on its root-ends and flipping it over. This should be done after 10 days-two weeks and may be done again after another week. Thereafter examine the flax daily to check its progress by taking up a few straws and breaking

and stripping them. When the retting process is completed the pithy core and the bark-like cuticle will break and separate from the fiber which, being strong and flexible, will remain intact as a ribbon of silky, lustrous fibers. If retting is allowed to continue too long the ribbon of fibers will also break apart into short ends. Close attention, experience, and, perhaps, luck will enable you to determine the precise time to suspend retting. Flax retted on the ground should now be gathered up, again in orderly bundles, and stood up in *shocks* or *beets* to air dry.

For water-retting the flax should not be too tightly bundled, as water must be able to permeate it. The bundles are completely immersed in the water and must be weighted to hold them down. The weight must be increased as retting proceeds as the gases formed will cause the flax to rise. There must be some exchange of water. If using a bath tub as a tank, drain off a third of the water and refill with fresh water of the same temperature every day once the retting is well under way—you will be able to tell by the smell which is quite sour and yeasty! Frequent checking will tell you when to suspend retting and remove the flax. At an evenly maintained temperature of 95° F it should take 3-4 days. At a fluctuating temperature between 62°-68° F about 10-12 days.

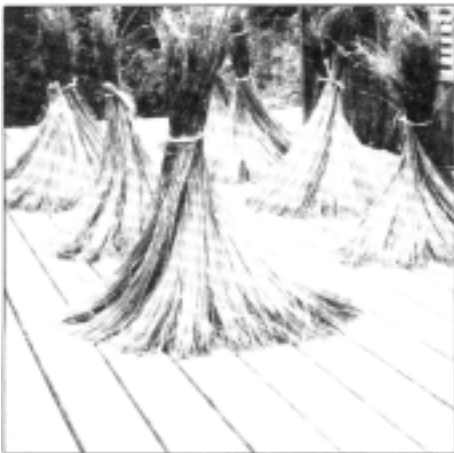
After draining the flax it should be rinsed in clear water or hosed down to halt further bacterial action, and then dried in beets as above described. A beet can have its root-ends nicely fanned out to stand on the ground and let the air flow through to dry it out. Or, several beets can be leaned together to stand. When quite dry the flax may be bundled and stored under cover to await further processing.

When the woody portions of the flax stem have been loosened from the fibers they must then be removed completely. The two steps in this process are called *braking* (or breaking) and *scutching* (or

swingling). Old flax brakes can be found in antique and junk shops in many parts of the country. A handful of retted flax is laid across the jaws of the brake, root-ends first, and the handle brought down smartly across it with a chopping action. This breaks the brittle pith and cuticle, the *shives* or *boon*, most of which falls away, but leaves the long band of fiber intact. Repeat this on the tops and then over the whole length of the straw. You must maintain a very firm grip on the bundle as you work so the straws don't slip through your grasp and become tangled and disarranged. If that is allowed to happen it becomes almost impossible to handle the flax and much of it is lost. As each handful is done lay it down (you will most probably work out-of-doors, but, please, not on a windy day) on a clear surface, giving it a slight twist and keep tops and root-ends aligned. You will notice that the root-ends are slightly fuller, the tops thinner.

Some of the boon will cling to the flexible fiber bands. As the bulk of the straw has now fallen away, you should combine two or three handfuls in one, top ends together, as you start *scutching*. A scutching or *swingling* block is easily improvised with a heavy plank wedged at a slight angle into a log of wood, the top rounded and sanded smooth. A scutching blade is a narrow wooden blade also smoothly sanded. Lay the broken flax over the top of the block, holding it with a very firm grasp and the hand just be-

7. Retted flax drying in "chapelles"



8. Braking flax



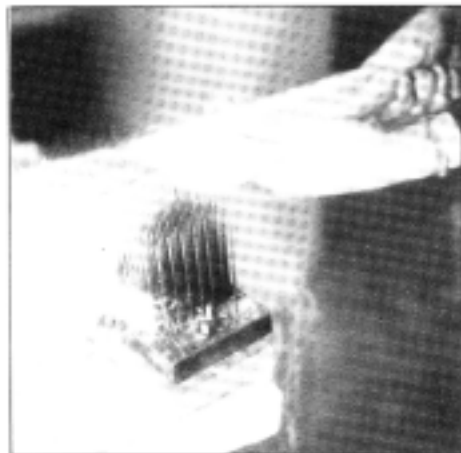


9. Broken flax, ready for scutching

hind the top of the block. The blade should strike the fibers with glancing blows to slough off the remaining bits of boon. Start at the tips of both ends and work up to the center portion, turning the bundle and opening it out as you work, until what you have left is a long *strick* of shining fiber bands, quite free of woody adherents. (If retting was incomplete it will be impossible to free the fiber of its boon, alas. All is not lost, however, as you can put the rest of the unbroken flax back to ret again.) Give each strick a twist before you lay it aside.

The final step in preparing the fiber for spinning is *hackling* or *hetcheling*. A hackle looks like a fakir's bed of nails. Extremely sharp steel

11. Hackling flax



pins are set in ranks in a block of wood. The strick of flax is flipped over the top of the hackle and drawn across it, starting with the ends of the strick and gradually moving nearer the center part. Do not try to pull it deeply into the hackle. Rather, draw it lightly across the top. Starting with the coarser hackle and finishing with the finer, draw the flax fibers over the pins repeatedly until the fiber is silky and smooth and quite free of all bits of shive. Practice will enable you to do this throughout the length of the strick, turning it end-for-end and over-and back without too great loss of fiber. The hackles will separate and split the fibers in the fiber bands into finer and finer filaments leaving in the hackle the shorter, coarser bits, rather like the combings in your hairbrush. This is called *hackling tow*. It should be saved separately from the *line*, to be spun into tow yarn. Skill in hackling will determine the proportionate yield of line to tow, as well as the fineness of the line.

A word of caution: The pins of the hackle are dangerously sharp. Do not allow your hands to pass over the top—only the flax should do that. Keep your hands well back. Difficult at first, you will learn to flick the fiber over the top.

Finally twist your strick of fine, smooth line into a pigtail or lock: double it at the middle, twist the ends and ply them, to keep it smooth and untangled until ready to spin. At that time a flick and a shake will loosen it, ready for the distaff. If the tow is fine and fairly long you may be able to re-hackle it and obtain some nice short line. Otherwise the tow is spun like carded fleece.

There may have been tow which fell from the scutching block as you scutched. Called *scutching tow* it is much coarser but it too may be spun into rough tow yarn. It should be managed separately from the finer hackling tow.

Natural unbleached linen varies in color. Land retting gives a darker, greyer color to the fiber; water ret-



10. Scutching flax

ting gives a lighter color. Flax which has been harvested while still green will retain a greenish color. Bleaching is carried out after spinning or even after weaving, and then all the natural colors are bleached to shining white. Linen which may have been dark when woven will eventually bleach white with use and washing and exposure to light, as it will also soften and become silkier if not subjected to strong chemicals or excessive heat. With care it will last for generations.

There is the old refrain: with care. The finest example of linen cloth that I have beheld with my own eyes is Egyptian, and nearly 5000 years old, but the one which I found most beautiful in quality is only about 75 years old. The hand processes by which it was produced in Sweden were very nearly the same as the Egyptian!

Mary Chase is a weaver, teacher, and lecturer who has specialized in flax and traditional Swedish handweaving. She is a graduate of Radcliffe College and the New York School of Fine and Applied Art (now Parsons School of Design). She is well known for her workshops on flax and linen. In June 1979 she trained demonstrators in flax processing, spinning, and weaving for an exhibit, Linen-Making in New England, at the Museum of Our National Heritage in Lexington, Massachusetts. Mary Chase lives in Brooksville, Maine and is joint owner of a weaving shop there. ■



Irma Green, co-founder with Bill Dyer of Saturday Spinners, Los Angeles, is shown dressing the distaff of her antique Danish spinning wheel. Irma, who also teaches spinning, was the first elected president of Southern California Handweavers Guild.

1. Have apron or cloth on lap. Start by tying small amount, 1½-2 oz (45-60 g) strick of flax to cord around waist.

THE DISTAFF by Susie Henzie

Flax is one of the fibers which should definitely be spun from the distaff. One must be able to make a smooth and continuous draw; proper preparation of the fibers is therefore a necessity. The long smooth fibers which have been combed through a series of hackles are called line flax. Short fibers as well as the outer, broken layer of covering of the plant have been removed after this process. The short flax fibers, known as "tow" and used primarily for coarser yarn, are generally spun from the loose fibers held in an open basket-type distaff.

A very basic distaff for flax is merely a tall stick to which the long flax fibers are tied at the top. To further control the fibers, a ribbon is criss-crossed to hold them in order. Alden Amos, spinner and teacher of Berkeley, California, suggests that the taller the better for distaffs. He feels that there is a smoother draw when the bottom of the flax is 24 inches above the orifice of the wheel.

Somewhat similar is the bat distaff which is basically a broader stick or board with more or less elaborate carvings. Some bats have holes through which the ribbons or bands are tied. At times the shape of the bat itself holds the ribbons in place.

Another handy and simple distaff is the comb. The late "Mama" Gravander, noted Mill Valley, California spinner, brought a lovely 3 slot comb from Sweden. One comb is on the top of the 25 inch board and 2 more are cut inside circles further down. One begins with the flax neatly folded through the top comb. As the spinner uses the longest fibers, the remaining shorter ones are moved to the lower combs to maintain a continuous flow.

Branches of small trees are shaped into a number of different shapes to be used for a distaff. The branches are bent and tied together, forming the shapes of a bell, a cage, or a lantern, etc. Other similarly-shaped distaffs are turned by the wood craftsman.

Originally distaffs were placed under the arm or in the belt to hold the fibers as the spinner walked about with the hand spindle. Sometimes these distaffs were placed in holes in windowsills or posts as a convenience. With the coming of the spinning wheel, they were made free-standing by mounting on legs, or made stationary by setting them into holes on the spinning wheel table.

Distaffs which are shaped from branches (or made by the wood-turner) can be wrapped with paper if further support for the fiber is desired. Also, to hold the fibers in place more securely, a wide cloth band can be used in place of the ribbon. Patricia Baines* in her book *Spinning Wheels, Spinners and Spinning* quotes Richard Hall (1724) as saying "The spinners of Holland have a piece of fine woollen cloth pasted round the Rock (distaff), purposely to prevent the flax from coming down too fast . . ." There is also the suggestion that the small cloth wound round the top of the flax might have been kept damp. This would help keep down the fine dust from the spinning as well as help keep the flax clean.

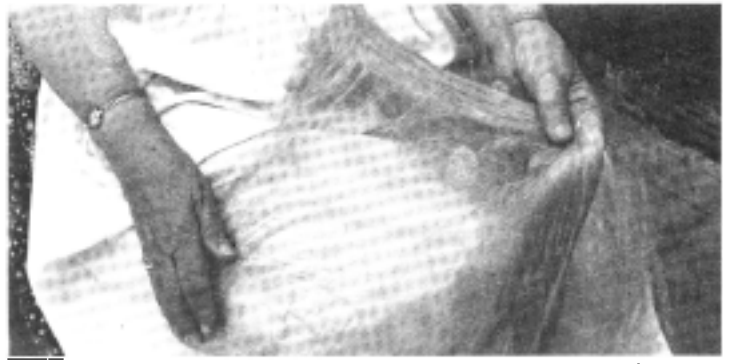
Before beginning to make your web for dressing the distaff, it is wise to shake the flax firmly to remove loose strands. If the flax needs further dressing, you may hackle it through a dog comb, first from one end and then from the other. These important cautions come from Elsie Davenport in her booklet *Your Handspinning*.

The properly-dressed distaff is dressed from very thin layers of fibers which have been spread out, radiating from the point where it is tied to the waist. It is very important to make the fibers cross each other in a fine web. K. Grasett states in *Complete Guide to Hand Spinning* that the fibers "must always be intertwined one with the other, otherwise, when spinning it would be impossible to draw the fibres continuously."

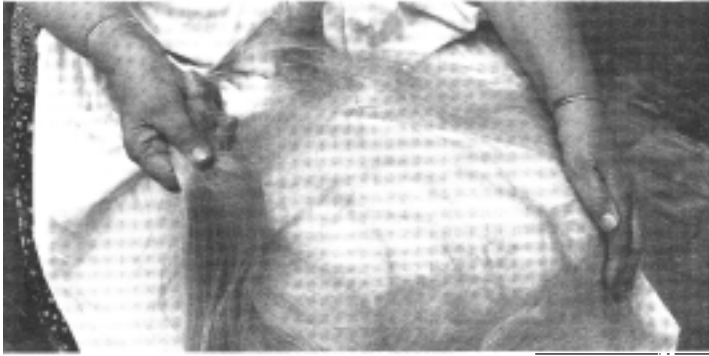
*See Baines also for 2 additional ways of dressing the distaff, on a table top or from U-looped flax, p. 213.



2. Hold strick with one hand, carefully pulling small amount across lap in thin layer. Pat gently into place.



3. Change strick to opposite hand and again fan out gauzy layer.



4. Continue making thin web of criss-crossed (not parallel) fibers.



5. When web is complete, untie from waist. Place top of distaff at center. Tie with 2 yard length of ribbon to top of distaff.



6. Slowly wind distaff across web, patting web into place.



7. Criss-cross ribbon to hold fibers.



8. Place in distaff hold on spinning wheel and tie ribbon at bottom. Fold stray ends under neatly.



9. Draw a few fibers from distaff to begin spinning. The draw continues by gently pulling the fibers. Re-tie ribbons as fibers thin out.

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FLAX

An experience in growing-processing-spinning-weaving flax from seed to loom

by Suzanne Miller

FLAX, BUT NO FIBER

The stems of my retted flax flattened into a grey fibrous pulp of nothingness. This could not be. I took a second handful and broke the stems with my hands. I could have been holding a handful of twigs. What was wrong? Where were the long glistening filaments of linen which I expected to grasp after the straw brushed away—with a few flicks of the wrist and perhaps a few draws through the wide teeth of my antique hackle. "The pioneers did this and made clothing as well. Why can't I? I just want to make several skeins of yarn and weave a 'something.' It's the bicentennial. This is my project. King Tut is coming with his mummies and linen shrouds. This is the year . . . but not my time. I have the flax, but no fiber."

A CROP OF FLAX IS NO SNAP (beans)

My plaint seemed to assume my right to secure fiber from flax. All I needed to do was to plant the right seeds (*linum usitatissimum*) and follow the pictures and directions outlined in books on fiber and weaving under the heading, "flax cultivation". I was eager to cast blame. Obviously there was something more to this than a crop of snap beans. I began the argument again, "Acres of land were devoted to flax cultivation in our country. Our settlers wore linsey-woolsey. They slept under coverlets with linen warps. It had to be easy!"

SEED FROM OREGON

My seed had come from Oregon State University, the department of Agronomic-Crop Science (no longer available). At that time the University was engaged in experiments with flax-seed which included seed for fiber production. Perhaps they could help. I wrote

them outlining my steps from planting to retting. I included a sample of my empty straw.

Re-reading this letter today I am appalled at my abuse of the flax bundles. I had retted the flax by "leaving it on the ground over winter and drying it during the spring and summer." I rotted the whole thing. My correspondent must have thrown up his hands in disbelief at my methods. But the land-grant colleges are dedicated to aiding those "in the field." The return letter outlined the structure of the flax plant to explain how proper retting enables the linen filaments to remain intact while the surrounding straw disintegrates. I was admonished that under-retting as well as over-retting might ruin the fiber. Three possible methods of retting (dew—cold water—warm water) were carefully explained. All was not lost. The university sent more seed.

THE SEEDS FOR SUCCESS

Although chastened by the results of the last two growing seasons, my enthusiasm still prevailed. Blind instinct would be replaced by at least some attention to the nature of the flax and the processing to fiber. I knew I still had much to learn.



A sample of my flax

At the edge of our plowed garden I again broadcast a pound of Cascade flax over a narrow strait about five feet by twenty feet. My pioneer spirit soared as I sowed handfuls of the seed and tamped them into the warm, soft soil with my bare feet. I staked off my claim with broken sticks and string. "Nick, don't you run through there!" I warned my faithful dog. I hope for rain and nature's work. It is early May.

By the end of the month I am not disappointed. The shoots of grass-like plants cover the area. The massed, thin stems of the plants support each other as they mature. This thick growth also encourages a single stalk with branching only at the tips—as trees grow straight and tall toward the light in the forest. An accompanying benefit of this proximity is weed control. Weeds will ruin a planting of flax. (I tried weeding my '81 crop that was losing its battle with foxtail. Flax, with its shallow root system, pulled up with the competition.)

But this particular year all is going well and by June the plants are about three feet tall. The slender stalks, gracefully branched at the top are studded with tiny buds. Overnight the space is filled with small delicate blue blossoms. The strait of flax has become a river of blue that ripples with the slightest breeze. An entire field would be a "fair-field" and heavenly sight.

PULLING THE FLAX

Nick and I keep careful watch now on my crop for signs of approaching harvest. I will not measure in days, but judge by the signs. The flax blooms will fade and drop. Seed pods will form. "Now" (the time is ripe) . . . the stems are turning yellow toward the bottom. The tops are still green. If I wait too long the stems will grow thick and woody. A good harvest day is not

too hot—the soil dry from no recent rain. This is September.

Like the Egyptian painted on the Tomb of Sennedjem at Thebes, and all workers of flax before and since I pull the plants from the soil by their roots. No wonder flax is cultivated where labor is plentiful and cheap. Even though the roots are shallow and pull easily I relate to the steady bending-pulling-straightening of flax workers who worked entire fields. The soil shakes loose as I pull or, if not, soon does as I smack the bunch against my jeans.

Enough work for one day. I let the harvest dry in the sun for a day or two before I ripple for next year's seeds. For the ripple, the long-toothed device to remove the seed-pods from the stalk, I use a strong comb such as is used for grooming the mane and tail of horses. For my small crop, it works well. I spread a wide tarpaulin. The seed pods ripple onto the catch-cloth at the touch of the comb.

To separate seed from pods I use a screen stapled to a frame-box as a winnower. My hand rubs over the seed-pods and the chaff flies away with the wind leaving the shiny, brown, almond shaped seeds. Surplus from large crops would be fed to livestock. I save all I have for next year's crop.

TO RET—A SMALL STREAM

A small stream runs through the back of our property. I decide to use it to ret the bundles. Local streams and ponds were used for this purpose. Realistically scaling down my expectations I reminded myself this was not the River Lys, nor my soil Egyptian loam. "Just try to simulate the work of an Indiana homesteader needing warp for his linsey-woolsey." I needed a light-hearted approach.

COMIC RELIEF

In the field I tie the bundles as loosely as possible to allow the water to flow through the stalks. Then, loaded with bundles, accom-

photo courtesy of International Linen Promotion Commission



Rippling removes the seeds—the chaff winnows easily from the shiny, brown, almond-shaped seeds.

panied by my companion dog, Nick, I trudge to the stream in a ravine about one-quarter mile distant. I slip and slide down the bank to the water's edge.

My bundles float on top of the water. I want them immersed. The weighted crate, early used, would solve this problem. This I do not have. I slosh my bundles up and down as laundry in a tub and weight them with some stones. With a cord I anchor them to the bank in case they have a mind to travel downstream. Each day I trek to my experiment station, turn my bundles over while Nick gets in the way and takes a bath. He is my comic relief.

THE BACTERIA OF IT ALL

Nick and I repeat this procedure for a week—perhaps a few days more or less—while I keep tabs on the not-to-be-forgotten-so-important "science" of the retting process. The first part of retting (leaching) soon passes. The straw is washed by the running stream and excess debris is rinsed away. The waxy covering (cuticle) softens and the

way is prepared for the bacteria to enter. Their action will disintegrate the stem (How this works can be demonstrated at the kitchen sink: take a small bunch of dried, but not retted, flax. Wash under running water. Swish back and forth in warm, soapy water. A vegetable brush will soon remove the outer dark covering exposing the pale inner yellow stalk.)

WHEN TO RING DOWN THE CURTAIN

The front-line attack on the plant cells is led by the aerobic bacteria who break down a portion of the stem paving the way for the second wave. These, the anaerobic, multiply and free the bast fiber by finishing the job on the straw. But this is not visible to the human eye. I give arms and legs to my heroes, the bacteria, and imagine the scenario. I rightfully question, "When do I ring down the curtain?"

The only answer could be: experience and testing will tell you. I was short on the first. But I could test. I dried samples in the sun—in the kitchen—even in the oven set at low heat. I was enjoying my pseudo-scientific approach.

When I was able to flake away the straw after gently pounding the stalk and find some amazingly fine linen strands with length, Nick and I race to the pond. Nick helps pull the bundles from the stream in-between leaps and splashes and gulps of water. I lug them up the bank to dry ground. We are soaked—Nick from his plunge into the stream—I from the load of wet, slimy creek-smelling bundles. But no mind. We have "ret." I untie the bundles and spread them on the grass in the sun to dry.

DRYING THE RETT

After a time (about a week or so) of curing I re-tie the bundles and put them on hooks in the garage. Thru the long, warm days of fall they continue to dry. Flax can be kept indefinitely after retting and drying. Winter was a good time for the homesteader to prepare the flax for



A tiny nest of flax.

spinning, but I am ready NOW. I could—as I was spared other necessary activities of pioneer living while enjoying my play with few props.

SCUTCHING

I do have a scutching knife—a long, flat smooth blade of oak—balanced and honed by use—that scrapes the long fibers free of the broken straw. My support is a board balanced against a tree stump. Frequent shakes help loosen the pieces of straw and send them flying. Time spent here is well repaid. Counting on the hackles to remove straw will take line, tow and all in the tangle. Scrape, shake, until the flax is as clean as possible. Prepare to be exasperated. Keep your sense of humor.

THE HACKLES TAKE THEIR TOW

On an old bench I line up the three sizes of hackles. The hole at the tool's edge placed over a strong nail keeps them in place. I wrap one end of the scutched flax around my

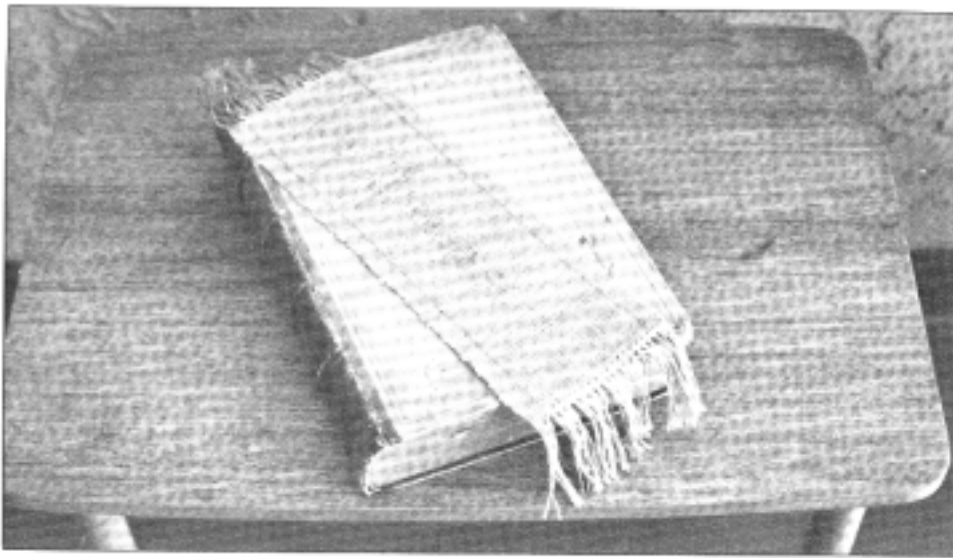
hand and throw the free end into the wrought-iron teeth. They sing in return as they catch the strands of tow and comb the strick. This I repeat with the other end—starting in the middle—working toward the ends. Each strike brings more tow and each hackle takes its share.

A LOT OF TOW

What is left in my hand is the “line”—but alas, there is not much of it. The hackles are full of tow. But I do have a product, something that had eluded me before. Could I spin it?



Three sizes of hackles, wicked-looking tools. Start with the teeth farthest apart to comb the flax. End with the finer tool. What remains of the flax bundle in my hand is the LINE. The TOW collects between the teeth, right.



A SHUTTLECRAFT DRAFT—a biblical bookmark

I repeated the preceding process until I had enough to spin into a small skein, of undeterminedlea. I looked for a weaving project. At this time one of my friends, Mildred Smith, was weaving bookmarks to benefit the Nashville (IN) Historical Society. Here was a perfect small weaving for my linen. She shared her instructions (Shuttlecraft Guild, October, 1953) with me. Threaded in Bronson II, the central design is a cross. I adapted this draft to my threads.

Since there are a number of biblical references to flax and linen it was appropriate that this first piece would serve as a bookmark for our family Bible. The linen threads, used as weft, sad as I thought they were, give the piece a look of antiquity.

A TOUCH-STONE WITH THE PAST

Each year I still plant an area of flax. I save several bundles for processing in order to keep a "touchstone with the past". The remaining bundles are marketed in Helen Kogan's Antique Shop in Zionville, IN, a restored colonial village. They are purchased to lend an authentic aura to homes furnished with early pieces. The bundles keep good company with the antiques.

The flax I use for demonstrations I buy. Time is a real consideration. There is weaving to do. And frankly, the quality and quantity of my spinnable flax is poor. Flax retted in Belgium yields as it should to the break and hackle leaving a good line and usable tow. I enjoy spinning what this supplies.

CENTURIES HAVE PASSED: LINEN REMAINS . . . unchanged

Soon I will have skeins enough to weave a wide piece in plain weave. Hung so the light filters through the interlacing fibers, this web will serve as a retrospectroscope to man's early weavings woven with this fiber. My lumps and irregularly spun fiber will serve to remind me of the skill of ancient workers in flax and linen.² Linen threads and cloth through the centuries have held their status. Contributing to this are improved methods of processing the fiber, mechanization of many hand-operations and most certainly the diligence of craftsmen and guilds. So noble a fiber: "linen is" what it has always been. This "salt of the earth" still weaves the "king of cloths".³

AFTERPIECE

If I did not relate the following I would be overlooking an interesting "afterpiece" of this project—for me, perhaps, the point of the entire project.

While I was engaged in the various activities involved in processing flax another creature was mimicking my efforts with far greater skill and with instincts certain to succeed. This presence was revealed by chance to me the following spring.

I had just returned home from taking some weavings to our guild (IN Weavers' Guild) exhibit. I stepped from my truck which I had parked by a large red pine. I chanced to look down. Slightly to my left was the tiny nest of a bird, perhaps a finch. I marvel at the nests of birds—I automatically picked it up. Looking closely I discovered that the nest was made from flax from my garden. There were a few mashed pods, the pecked and softened fiber from the stalk, the fine ends toward the top of the plant. But more than that . . . the inside of the nest was lined with strands of my hair.

I recalled brushing my hair some time back outside our porch, taking the hair from the brush and trying to get the wind to carry it away. It flew back into the screen and I could not reach it. I was cold, so I left it and thought no more about it until now. This small bird had separated the tangle and the strands were now separate and fine, matching mine without question.

While I was groping to retrace man's initial experiments with flax—a tiny bird took me back one step further into the history of fiber and weaving. From that moment I felt my project a complete success—for thru this "coincidence" of quest I had surely touched the past.

Footnotes

1. *Nat'l Geographic* Vol 151 No. 3, March 1977, p. 310 (picture).
2. Stone-age fragments of linen from Swiss lake-dwelling sites indicate weaving highly developed. *Ciba Review* Basle, Switzerland, Jan. 1947. E. Vogt "Basketry and Woven Fabrics of the European Stone and Bronze Ages"
3. Linen is sometimes referred to as the "cloth of kings" because the pharaohs of Egypt dressed in white linen. ("king of cloths" is a play on words) ■

fashion trends

by Susan Hick



The *Straight Look* is aimed at us this season, but the cuts of the clothes make it far less fitted than we might envision.

Coats and jackets can be described as hulky, with wide sleeves (raglan, dolman) and wide shoulders, narrowing at the hem. The effect is one of roominess and warmth without bulk. They are saved from too masculine an effect by asymmetrical closings, convertible and stand-up collars, or short capes. The extravagant cape-sized cocoon is another possibility for an outer cover-up.

Suits and dresses carry on this big-over-lean design. Kimono sleeves, batwing sleeves, pleated sleeves, dropped shoulders, and flanged shoulders top lowered torsos and tubes, often wrapped at the hip with a self sash or wide leather. Overblouse looks derive from tunics, combined with skirts or standing alone and with long, sleek cardigans. Blouson shapes fall to the derriere and beyond over short skirts, straight or pleated. Floppy cowl collars or rolled collars are



added. Soft, swingy skirts may be split, as culottes, still with a slim look. Suits themselves tend to stay straight and simple. Lengths are dictated mainly by personal preference, from above the knee to the bottom of the calf. Very wide belts define waists when desired, or the tops of pants and skirts may be yoked. Blouses have romantic touches of ruffles, lace, and yokes, while shirts are puffy-sleeved and bib-fronted. Over-all the looks say loose but not voluminous.

Pants are still around. They're a bit fuller and often cropped at mid-calf. They may be cuffed or gathered into bands or even have shirt-tail hems. Unfortunately for some of us, jeans may be headed back to the ranch.

For evening it's into slinky black,

The photographs show outstanding linen fashions of designers honored with "Fil d'Or" awards. Photos courtesy of International Linen Promotion Commission.



preferably velvet. Add some feathers if you'd like. What's glittering is no longer gold, replaced with silver, brass, copper, pewter, and metallic colors. T-shirt shapes in tops and dresses are touched with satin or beads for added elegance. The tuxedo jacket with pants or skirts shines at night, although its influence is felt all day long.

Nothing stamps "special" on a garment like finishing touches. Some free-form trapunto quilting adds interest, as do embroidery and applique. The new super-soft and thinner suedes (natural) and leath-

ers (natural and man-made) are perfect for use as trim and as piping. Many dresses, especially the tubes, have geometric shapes of contrasting colors in various places. Fur at the edges trims coats, capes, and shawls.



Classic men's wear fabrics—Donegal tweeds, houndstooth checks, pinstripes, and glen plaids—have captured attention, although the way they are used for women's clothing is softer and less structured. Windowpane plaids, tattersalls, and tartan plaids continue to be popular, the latter sometimes teamed with velvet or satin. Of more interest to the weaver are the "touch me" fabrics of cashmere, nubby boucle, brushed mohair, and slubbed silk. The most fun is the designers' discovery that mixing fabrics or fibers creates an unequaled richness, and many are including handwovens in their lines. Examples are wool plus cotton or alpaca or velvet, linen and shetland wool, silk and wool tweed, suede and mohair, and leather with linen.

Dark but never somber colors exude a quality that thumbs the nose at the economy: black, gray, navy, royal blue, teal, forest green, red,

berry, plum, burgundy, charcoal brown, cinnamon, and mustard-gold-curry-deep saffron. For lighter



palettes select from candle white, soft peach, rose, moss green, sage, and lilac. Combine black with white, red, or camel.

Several fashion statements from spring and summer have carried over into fall. The prairie princess hangs around, slimmer, more refined and tailored. Sweatshirt shapes have turned into sweater-dressing. Stripes up and down and around continue; less contrast, though, means more subtlety. **And then there's lots of linen. . . .**

For too long the handweaver has been frightened of using linen by dire predictions of disastrous results. Its low elongation and low elasticity, meaning it doesn't stretch much and then doesn't recover much after the stretching, can cause glitches in both the warp and the weft that don't come out in the wash. A little extra care can ease the problem.

To get to know linen and be pleased with the product and your ability to handle it, try it in gradual steps.

Begin with a warp of a different fiber, one you've had comfortable experience with. Cotton is an excellent choice; rayon or wool would also work well. Fill the weft bobbin carefully with linen so it won't fall off the ends or unwind unevenly. Watch while weaving to avoid loops at selvages and across the web. Notice the added stability and body the linen gives to the other fiber. The next warp you try could be a blended yarn, cotton with linen or rayon with linen, still using a linen weft. After all this you're bound to be so confident that linen is manageable, you can use it alone in a warp. Choose a plied yarn; it will be wiry but not brittle like a singles. Remember to pay attention to tension while measuring and when beaming on, especially with wide or long warps. If any threads loosen at random while weaving, fishing weights or spring-type clothes pins can be hung on them at the back of the loom. Linen gains strength when wet, so when using a singles yarn keep spraying warp and weft with water to avoid excessive breakage.

To finish your all-linen fabric soak it well. Give it a rough washing in the machine with warm water and detergent, several times if you like. To minimize wrinkles soften with a conditioner in the rinse and don't wring the fabric but roll it in towels to extract excess moisture. With heavy hand and hot iron press the wet fabric until it's dry. Doing this on the right side of the fabric will bring out the prized luster linen is known for.

Linen can be elegant or informal, and smooth or textured. Most of the commercially woven fabrics for clothing are done in plain weave, from the very fine handkerchief linen to the rough, heavy Polish peasant linen. The characteristics of the fiber itself are enough to be desirable and so are left alone. The handweaver can add more texture, especially with the one-shuttle weaves. So take linen off the table and put it on the body! ■

THE WEAVING OF LINEN

by Mary A. Chase

photo courtesy of Intl Linen Promotion Comm

The weaving of linen is generally held to be difficult. Certainly it is true that a careless or slapdash weaver had better not undertake it, as linen is not a forgiving material. That characteristic of linen, that it is *inelastic*, is what makes it intractable in comparison with cotton or wool, and it is chiefly in its use as warp that problems arise. As weft its lack of elasticity can actually be a boon—the edges stay out so nicely!

This inability to stretch and return to its previous condition means that great care must be taken to make a correct warp with all ends precisely equal. The use of a reel rather than a warping frame is a help, to obviate the possibility that the pegs of the frame may not be absolutely true or may give under tension. Be sure to lay the yarn always on the bare wood of the reel's verticals, not on top of the previously wound bouts, and then push them together if necessary (Fig. 1). If the warp is to be wide it is better to make two or even three chains, rather than to make the whole warp at once in a single chain. This will place less strain on the edges of the warp when drawing the warp onto the loom by reducing the angle and consequent stretching of the edge threads. Once stretched, linen will not snap back but will be permanently weakened.

It is better to wind the warp with a maximum of four ends, eight to a bout, even better with only two.

The Swedish method of pre-sleying the warp in a reed, then hanging the reed in the beater and drawing the warp onto the loom through the reed helps to spread the warp very evenly. Every bout is in its proper place as it passes over the back beam to the warp beam, not bunched together in the wider spaces of a raddle. The lease-sticks, which have been transferred to the back of the loom behind the reed, remain in place throughout the weaving. This helps to tension the warp and, of course, to locate trouble—broken warp-ends, etc.—if any develops.

In beaming the warp, warp sticks, smoothly sanded, are to be preferred to paper for separating the layers of warp on the warp beam. A round of sticks should protect the first layer, then 3-4 turns may be taken without sticks, followed by

another round of sticks, 3-4 turns without, etc. to the end.

If very fine material is being used and the threading is at all complicated it is a good idea, before starting to thread, to count off the warp, at the back beam, in units of ends which correspond in some way to the units of the pattern, and thread through a counting thread of a contrasting color. This will be a check on your threading as you go. As well as being a discouraging nuisance to have to make corrections afterwards, threading, pulling out, and re-threading constitute wear-and-tear which is to be avoided. Such handling roughs up the yarn. In using linen it is well to handle the warp ends as little as possible. String heddles are much kinder to the warp than are metal.

If you should have the misfortune—and most of us do at some time—of making a mistake in the weaving so as to have to backtrack, it may be better to snip out the weft rather than to un-weave it. Let off the warp tension slightly and very gently separate the warp ends at the fell close to one selvedge. With a fine embroidery scissors snip out the wefts as far back as necessary. Repeat this at the other selvedge, and once or twice between (Fig. 2). Then, with a blunt tapestry needle, pick out the cut pieces of weft, being especially careful at the selvedges. Removing the weft this way is less damaging to the warp than unweaving, where you also run the risk of tangling if your shuttle

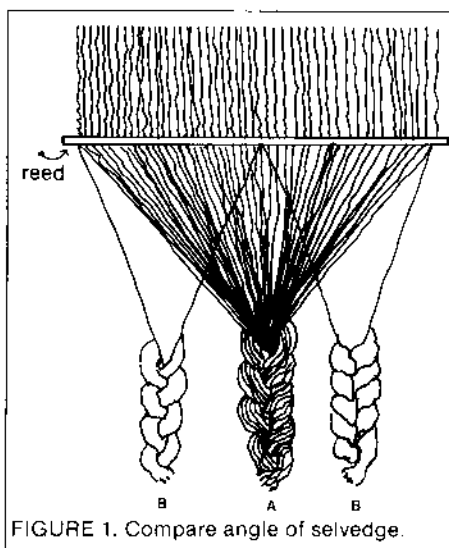


FIGURE 1. Compare angle of selvedge.

inadvertently passes in a wrong shed.

Linen is hygroscopic. It absorbs more water than other fibers without feeling wet. This is what makes it such a comfortable material to wear next to the skin. It also causes it to be affected by the humidity in the air. In former times the weaving of fine linen was often carried on in damp cellars to prevent breakage of fine warps. If you must weave under dry conditions, or if the weather should change suddenly, you may find warp ends breaking. I live on the coast of Maine where the humidity is normally quite high—fine for handling linen. But one fine day when I had a class with several looms in use we were amazed to have warp ends popping all over the place. We were baffled until a look out the window confirmed that the sky was a deep, deep blue—it was one of those rare but glorious days with the wind out of the NW, not a cloud in the sky and the air crackling dry! Now we keep a couple of water atomizers handy and find that an occasional misting of water is a big help as we weave. It also makes the threads easier to handle, less wiry and jumpy, when threading and tying-on.

The warp should not be drum-tight while weaving nor when the warp is standing. Ease it off just a little when you leave your work and never leave it with the sun shining on it.

Linen intended for warp is sometimes sized. Formerly it was possible to obtain, in Sweden, linen yarn specially treated for use as warp, but no more. Handspun linen was sometimes sized by brushing it, on the loom behind the heddles, with a preparation of starch and water or flaxseed gruel—various recipes are suggested in old treatises. The linen yarns of today come from many sources and one cannot always tell in advance how they will behave. Fine yarns, wet-spun, may be very smooth and give us no trouble, even single-ply. Others,

even plied yarns, may be rough and be extremely difficult. We weave at times with a very rough dry-spun tow, in an unbleached natural state. The floor under the loom is covered with fall-out during weaving! But we have learned to make the warp with two ends so, at the cross, the ends are paired 2-and-2—half the friction! We sley it 2 or 3 ends per dent, again reducing friction through the reed. If necessary we spray with water. And we handle it carefully. It is really a terrible yarn in one sense, but quite handsome in a rustic way when woven, and even nicer after a few washings and pressings.

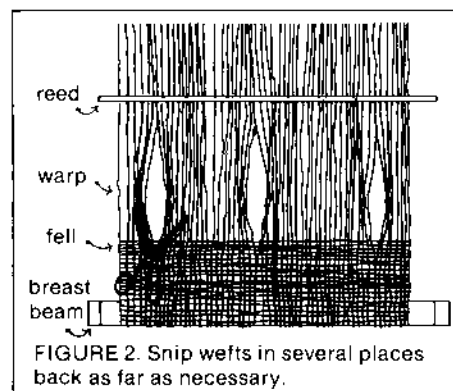
One is often cautioned to use only plied linen yarn for warp. Plying, like twist, gives added strength to a yarn. But, like twist, it breaks up the reflection of light from the surface of a linen yarn. What makes woven linen uniquely beautiful and gives gloss to the material is the way in which it reflects light. Because the fiber, when of good quality, is naturally long and strong, high twist and plying are not necessary for weaving yarns. Yarns which have been skillfully wet-spun by hand are the most beautiful of all, and quite as strong, if not stronger, than commercially spun linen which has undergone many drawings and doublings which inevitably weaken the natural fiber. Commercially wet-spun linen singles make a very good warp and, for most weaves, are more beautiful than those made of plied yarn. Linen singles in cross-section are flatter, like a ribbon, rather than round, like a cable, as plied yarns are. The resulting

weave is flatter and smoother, especially after washing and use.

There are, of course, some weaves, notably open and lace weaves, for which plied yarns are more appropriate and attractive. Where plying and high twist are necessary is when the thread is intended for sewing or, especially, for lace-making where the thread is subjected to far more abrasion and strain than in weaving.

The matter of light reflection is important also to the selection of weave structure for linen. Compare a piece of linen woven in plain weave (tabby) with one woven of the same yarn in five-shaft satin. In the former the weft never floats over more than a single end. In the latter the weft floats repeatedly over 4 ends, the warp on the reverse over 4 picks of weft. It is the floats which allow the linen to shine. In the plain-weave example light is broken up so frequently over the surface that the fabric appears dull by comparison with the lustrous satin weave. Thus the weaves which are most elegant in linen are those with longer floats, and these are most elegant of all in fine counts. While 5- and 8-shaft satin (on which patterned damasks are based) are the most handsome, many four-shaft weaves are lovely, too, among them are: twills, M's and O's, spot weaves (Bronson, huckabuck, Swedish lace), and overshot (contrary to Mary Meigs Atwater's statement, this is a beautiful weave in fine linen, traditionally one of the most popular of all linen weaves in Sweden).

In conclusion, the weaving of linen requires understanding of the properties of the material and its natural limitations, understanding of its special qualities and beauty in choosing suitable uses, and care and gentleness in handling. Always regard your warp as a most fragile and delicate thing to be treated with utmost care. This will become a habitual thing which eventually you will do as a matter of course without having to remind yourself of it constantly. ■



LINE FLAX SPINNING

by Maxine Heyl with Linda Wilson

It has been my experience in studying "How To" books, that the authors often lead the reader to believe that his or her way is the only correct way to perform the task. What is most important for the learner/reader to know, is that the techniques described here are tools intended to help the reader short circuit learning mistakes and achieve an end product—linen yarn. The object is to get linen, in a way that is most comfortable, efficient and enjoyable for you. Too many beginners have been convinced spinning flax was not for them. I feel very strongly otherwise.

Knowing some of the historical background of flax and its fiber characteristics makes the spinning of this fiber, more enjoyable for me. The history of spinning flax into linen yarns dates back over 10,000 years. Linen fabrics found in the Swiss Lake dwellings, show that Neolithic man was skilled in the production of flax. Linaceae Grandiflorum, a bushy red flowered plant, was the flax used at this location. Pre-historic barrows in Britain also yielded linen cloth. The word linen comes from a Celtic word "llin" meaning thread.

Flax from which linen is spun, is a bast (stem) fiber that grows world wide. There are ten species of flax that grow in the United States. Most of them are blue or yellow flowered. It is the long stemmed, common annual, blue flowered flax, or *Linum Usitatissimum* (most useful) of European origin, that is used in the production of fine linen. Flax does well in Colorado. The native blue flowered perennial species growing in Colorado was named for the early explorer Merriweather Lewis (1774-1809). *Linum Lewisii* can be found as far north as James Bay in the Canadian sub-arctic.

Flax is as strong as steel, for the same diameter. It gets its strength

from a more highly oriented molecular structure. The long flax fibers do not need much twist in the spinning for strength.

Flax occurs in many colors—blonde from water retting, grey from dew retting, blue from blue clay pond retting, red from the iron oxides in the soil and green from immature plants; all will eventually bleach pure white in the sun. Over bleaching with chemicals removes the natural waxes, leaving the flax brittle and weak. In the *Complete Guide to Handspinning* by K. Grasett, is a safe recipe for bleaching flax in the home. To one gallon of water add ½ pound (225 g) of pure soap and ½ pound of washing soda and boil till all the ingredients are dissolved. Add your linen to this mixture, being sure the linen is covered with the solution at all times. Add water to the solution, if needed. Boil the linen in this solution for two hours, stirring at intervals with a wooden spoon. Keep the linen in the sun for three days, misting it with water when it starts to dry. Repeat this procedure to get the degree of whiteness desired. This recipe gives the much needed softness to raw flax. The solution will harden when cool, much like home made soap.

As fiber preparation of raw flax is such a lengthy process most spinners will want to use prepared flax line. Other materials you will need are a treadled spinning wheel, a long distaff, three or four yards of ¼ inch (6 mm) ribbon, bath towel, sponge, shallow dish for water and/or a mist spray bottle.

Pull about two ounces (60 g) of flax from the hank, with a sharp snap of the wrist. Give the two ounces of flax a sharp shake at each end to loosen the fibers. The long ribbon, folded in half, is tied to the root end of the hank, in such a way that half of the ribbon hangs to either side of

the hank. Red ribbon is customary for "maidens", blue or green for matrons. Gentlemen may choose their favorite color. A distaff is a device used to hold the flax in an orderly manner, during the spinning process. There are several types of distaffs. Two distaffs will be discussed here. To dress a cage distaff, smooth a terry cloth bath towel on a table or counter top, approximately the height of your waist. The towel prevents the fibers from slipping on the surface. Position yourself in front of the table, with the ribbon tied flax lying on the table in front of you and the end of the ribbon tied to your waist. The right hand grasps the hank of undressed flax. The left hand grasps a few wisps of this hank; the fingers of the left hand are held against the fleshy portion of the left thumb. Move the left hand slowly to the left side of the towel. The right hand is stationary. This action spreads and separates the fibers in a fan-like pattern. Now that your hands are positioned to the left side of the towel, simply reverse the motion. Shift the hank to the left hand, hold on to the fanned out fiber with the right hand and move the right hand to the right side of the towel. This spreads another thin wispy layer of line flax across the towel. Keep repeating these actions until the hank is completely spread out, in filmy layers, across the towel. Untie the ribbon from your waist. Now the fanned-out ends need to be turned up, so the fibers are about the length of your long distaff. Short distaffs are not suitable for line flax. Line flax is often over a yard long. Take your cage distaff and lay it on your fluffy fan of dressed flax, having the top of the distaff matching the knot in the ribbon. Tie the hank to the distaff. Place the distaff either to the right or to the left side of the fan of dressed flax. Slowly roll the distaff

cess. Position the dressed stick distaff on the wheel and you are ready to spin. A hook on the wall can serve as a stick distaff. This is a very simple and direct method of supporting the fiber so that it may be spun.

Flax can be spun on a spindle or wheel. The spinning of vegetable fibers is similar to spinning animal fibers. The important thing to keep in mind is to be sensitive to the fiber and be aware of its characteristics. If you are accustomed to spinning animal fibers, you will have some adjustments to make. Flax has quite a different feel.

Position your dressed distaff to the left of the spinning wheel so that you may reach up and grasp a wisp end of flax comfortably. Have a shallow dish located on or near your wheel, so you may reach it with a minimum of hand and arm movement. The dish contains water to dampen the flax as you spin. A soaked sponge, placed in the dish, will prevent spills and puddles if you bump the dish. Tie a lead yarn on your bobbin, and thread the lead through the orifice of the flyer. Hold the lead yarn with your right hand. Reach up to your distaff with the left hand and grasp a small quantity of wispy ends from the inside of the distaff. Gently tug down some flax and attach it to the lead yarn, that you are holding with your right hand, with a long thin overlap. Saliva makes the natural gums adhere to each other better than water. Use saliva on the joins and water to keep the yarns damp. The damp yarn spins smoother. Flax is stronger when it

Gently tug down some flax and attach to the lead yarn.



is wet. Flax may be spun dry, but it will have hairy ends projecting out of the yarn.

Treadling as smoothly as possible, in a clockwise direction, gently smooth the wispy ends of flax onto your lead yarn. Since most beginning spinners are familiar with the common clockwise motion, which produces a Z twist, I suggest you start to spin in this direction, so at least one of the motions is familiar. The counter-clockwise motion, which produces a S twist yarn has been observed by Harry Linder and others to lay better and is stronger for crochet work. The S twist is the natural direction flax fiber likes to move. For those of you who have spun for a while, and have no difficulty in treadling in either direction, I suggest you spin flax in the counter-clockwise direction. If you have been spinning for a while, you may be aware that some fibers seem to have a mind of their own. Try spinning in both directions and find out which way you like best.

Once you have made your beginning join, you need to establish your drafting area. The drafting area is that distance between your right hand and left hand, where the fibers are distributed and arranged, and where the quantity of fiber in the yarn is decided. The larger the quantity of fibers, the thicker the yarn, fewer fibers results in thinner yarn. If the fibers are in random order, you will have a coarser lumpier yarn. If they are parallel and neat, you will have a smooth sleek yarn. Flax will produce an extremely fine yarn of great strength. You

The stick distaff.

over the dressed flax, to the opposite side. Shape it to the distaff with gentle pats. Note that the wisp ends, just turned up, will be facing inside the distaff. Criss-cross the ribbon around the flax-covered cage. The ribbon holds the fibers in place and gives some resistance to the tugging motion of drawing down the fibers for spinning. Tie the ribbon with a bow knot, below the bulge in the cage. Place the distaff on your wheel. As you pull down on the fibers to spin, the ribbon will need to be repositioned and re-tied.

The stick distaff, as it sounds, is simply a long staff which supports the fibers during the spinning process. It is customary in some Scandinavian areas to dampen and then fold the hank in an accordion style. Then it is tied in a bundle for a period of time before you intend to spin it. This sets a pseudo-crimp in the fibers. When you are ready to spin, open the bundle of tied flax and shake the fibers. Tie it to the distaff by the root end and let it hang freely from the distaff. In some areas the hank of flax is just tied to the top of the distaff without the dampening and folding pro-



Stretch the fibers and gently pull.

are the one who decides these factors and the drafting area is where your creative mind and your technical skill come together. It is important to understand how to control the drafting area.

Speed in spinning is much less important than control. As you develop your spinning skill, the speed will also develop automatically. Old flax wheels are set up with a small pulley and a large fly-wheel for fast spinning motions.

As your treadle, you are putting twist into your yarn. The twist will travel up the fiber supply until something prevents its journey. The thumb and forefinger of your right hand control the travel of the twist. Pinch the yarn with the thumb and index finger of your right hand, while treadling evenly. The twist is building up, but will not travel until you let go, unless you are treadling too fast for the hand movements. This is CRITICAL to all spinning. While you are pinching with your right hand, stretch the fibers between the two hands and gently pull. A quick tug will not get the job done. A gentle pull, smooths out the drafting area. When you need more fiber, tug down some more with the little finger side of your left hand and palm. When you have the drafting area just the way you want it, you can release the pinch of your right hand and let the twist travel up the yarn to your left hand, which now becomes the controlling hand that stops the travel of the twist toward the fiber source. Do not just let go of

the pinch, as the twist will shoot up the drafted area and you will lose control. Slowly permit some twist to travel up your yarn to the fiber source. Once again, with your right hand holding the yarn and pinching off the twist, the left hand is free to pull down more flax and create a new drafting area. As your skill develops so does your speed and these motions are barely perceivable.

Remember to dampen your fingers whenever the flax is beginning to feel dry. Some people hold a damp sponge in the right hand to dampen the yarn. All hand-held sponges, natural or artificial will disintegrate because the flax fiber is stronger and wears thru the sponges. Then there will be sponge flecks in your yarn. The longest-lasting sponge I have found is an imitation one covered with a coarse nylon net, called by the brand name of Dobbie. Moisture is important in spinning a smooth linen yarn. Dampening the flax on the distaff can be done with a mist bottle. In parts of Belgium and France flax spinning was done in damp cellars and in natural caves to maintain a constant high humidity.

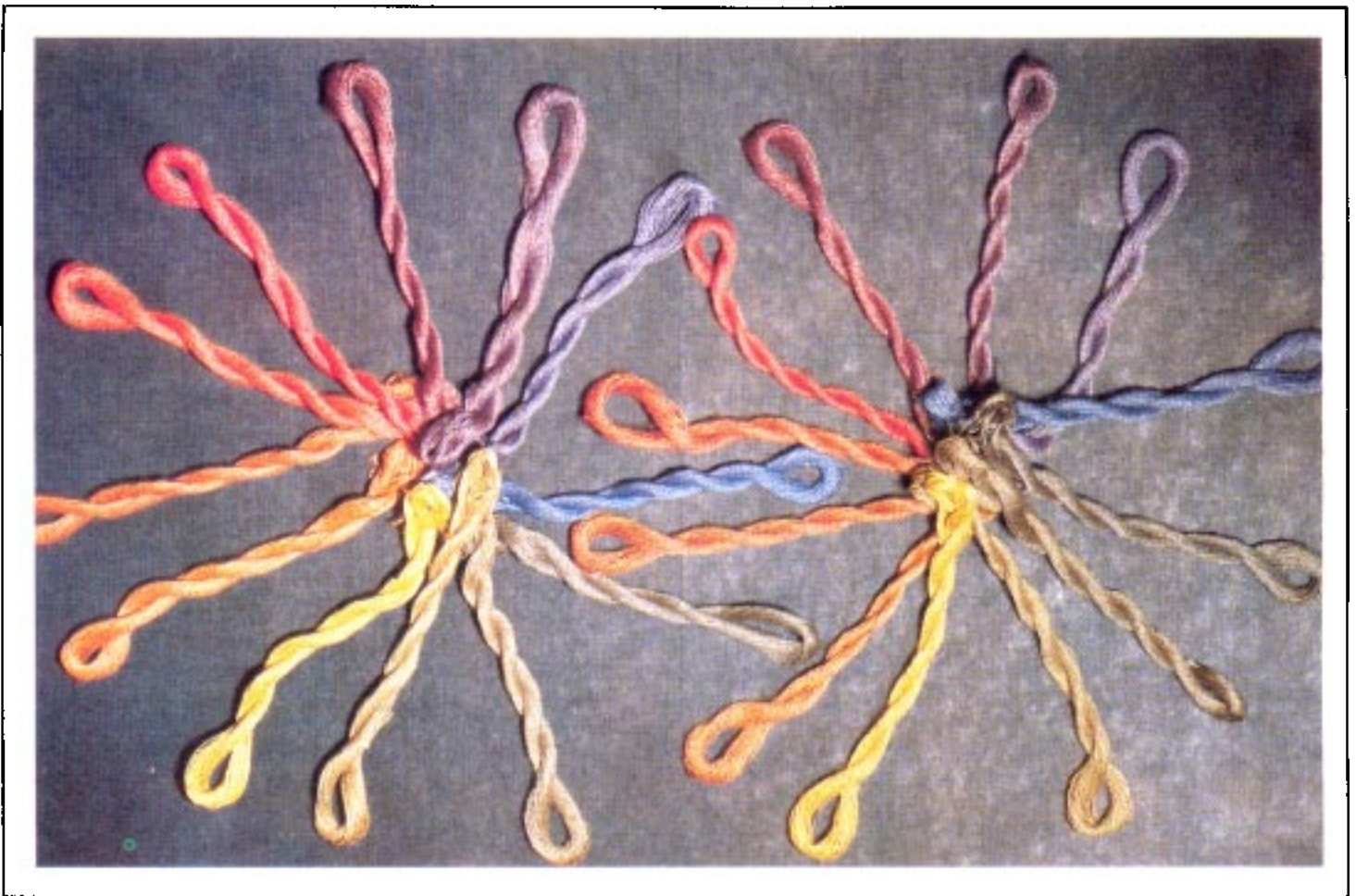
Notice that flax will not untwist once it is spun and when you have stopped your wheel, as wool will. It simply stays spun. For this reason, it is not necessary to set the twist of the yarn as you would with other natural fibers. Once the flax is spun it is called linen. Linen is most often used as a single yarn which

shows off its luster to the best advantage. Linen yarn should have a slack twist, so it appears to have more luster. Plied linen is used where great strength is needed. Linen fabrics need to be "finished". They are stiff and rough to touch after being spun and woven. Historically, it was literally beaten to produce the lustrous surface. This process is called BEETLING. Beetling or beating the linen cloth does not harm the fibers, but makes them more lustrous and absorbent. In commercial mill beetling, the cloth revolves slowly over huge wooden drums. It is pounded with wooden hammers for a period of thirty to sixty hours. Great care should be observed if you try this at home, so you do not hit the fabric at an angle. Alternately dipping the woven linen into boiling water and then into ice water will produce the same result of softness and some of the luster. Ironing this linen when damp brings out more luster. Long periods of boiling the linen fabric DOES harm the flax tissues. This process may be used on skeins of yarn, but you will find some matting will occur.

Good quality spun flax is fine, soft, strong, somewhat cold to the touch, with a glossy sheen.

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1. Color wheels. Left, line flax dyed, using the "Top Dyed" (dipping) method. Right, tow flax, dyed identically in the same procedure and dye pot.

CHEMICAL DYEING OF LINEN

by Elaine Gwynne

How often as a craftsperson have you been unable to obtain the exact colors in your fibers that you have envisioned in the design of your finished art work? Did you ever consider that by dyeing the fibers yourself you could develop the colors you wanted? I would like to offer some suggestions in the field of dyeing linens that I hope will enhance your projects through unlimited color selections with your personal dyeing of the yarns.

I have chosen to outline two methods that will provide both the novice and more involved craftspersons with basic information that will get them started and produce good results as well as allow them to open the experimentation field for individual color design. The first method of "Top Dyeing"

will show the reader how to produce a color-wheel of the basic colors. Most importantly it will show how rapidly the results can change in different samples and how much color you get from specific amounts of dyes. The second method, "Percentage Ratio Dyeing", allows the user to develop different shades or tones and to dye large volumes of yardage with consistent results.

SELECTION OF DYES

I have found that cellulose fibers, especially flax, can produce the desired shades when dyed with direct dyes. One example of this type of dye is the Solophenyl dye made by the Ciba-Geigy Co. and which is available in both Canada and the United States. The company manufactures a complete

range of colors in this dye group. I prefer, however, to mix my own colors and shades through the use of the 3 primary colors, red, blue, and yellow.

I dye both tow and line flax. Line flax is the top quality long fibers, from the flax plant. The colors I obtain on both commercial and handspun line are the same. Tow flax is the lower quality, short remaining fibres from the flax plant. When dyeing tow and line in the same dye bath, the tow dyes a darker and duller color than the line. See the comparison of the two color wheels in the photo.

PREPARING THE SKEINS FOR DYEING

The skeins of yarn we wish to dye must be well tied using figure 8 ties,

to prevent the linen from becoming grossly entangled during the boiling and handling processes of dyeing. The tying figure 8 loops must be loose on the skeined fibers, otherwise your yarn will have tied-dyed marks when you are finished. Always check that you can easily place your finger under the tying loops.

BLEACHING

Dyeing natural colored flax, or bleaching it first to produce more vivid colors, will be your decision. In comparison tests of dyeing after one bleaching process I find very little difference in the color acquired. Using skeins that received at least two bleaching processes, I can visually observe the difference. The bleach dyed skeins have truer colors and have more sheen to the yarn.

BLEACHING RECIPE

Solution:

- 6 oz. (170 g) linen
- 1 oz. (28 g) soap (Ivory Liquid)
- 1 oz. (28 g) washing soda
- 2 gallons (7.6 liters) water
- 3 tablespoons Calgon

Method:

1. Put water into large pot
2. Add soap, soda and Calgon
3. Mix well
4. Add flax skeins
5. Bring slowly to boil and boil for 1 hour. Water will be very tea colored; rinse.

Note: if yarn is not light enough, mix new solution and repeat process until the desired lightness is obtained. I do not recommend repeating the process more than 4 times as the bleaching will break down the yarn.

Rinse well and put to dry.

There are other methods of bleaching but strong alkalis will harm linen. Mild solutions of ammonia, borax or soda may be used which do not cause deterioration of the fibers. Hydrogen peroxide is good, as it has a gentler action. Linen was for many years "grass-bleached" lying outdoors in the sun, or hung on a clothesline.

SAFETY PRECAUTIONS

Many craftspersons are dyeing in their homes and most frequently in the kitchen. For this reason we must be very careful with our dyes and equipment. "ALL FOOD AND COOKING UTENSILS MUST BE CLEARED FROM THE AREAS".

1. Stainless steel, glass or enamel equipment should be used as they don't absorb colors or cause unwanted side effects.
2. A mask should be worn while dyeing with any chemicals to prevent their inhalation. The mask I find useful is produced by the Minnesota Mining and Manufacturing Company. (3M No. 8710) it is lightweight and inexpensive.
3. Work in a well ventilated area; run an exhaust fan if indoors.
4. Wear rubber gloves to prevent chemical absorption through the skin.
5. Lay wax paper, then newspapers on top of counter. When the dyeing process is finished all the papers can be rolled up and put into the garbage. This protects counters in case of spillage, and all traces of dye powders are removed.

PREPARATION FOR DYEING

Skeins of flax must be well-wetted before dyeing. Put to soak in warm water and add a little Ivory Liquid soap for a minimum of 30 minutes before dyeing. If the fibers are not well-wetted all through, you will have a streaked uneven dye job. Large garments or fabric should be left to soak overnight.

DYEING

WATER LEVEL: LIQUOR RATIO

In chemical dyeing, water is a vehicle for transporting the dye color and chemicals into the fiber. Therefore you must have sufficient water to allow the skeins or fabric free movement in the dye pot. A good guideline is a ratio of 30:1 minimum. eg: skeins weigh 1 oz.; water measures (1 oz. X 30) = 30 ozs.

DYES

The chemical names of the direct dyes I use for primary colors are:

- Solophenyl Yellow AGFL
- Solophenyl Red 3BLC
- Solophenyl Blue 2RI.

Mix the dye powders into a dye stock solution.

DYE STOCK

- 1 teaspoon dye powder
- 4 ozs. (113 ml) distilled water

Place 1 teaspoon of dye powder into a glass jar, (8 ozs. or 250 ml jar, tight fitting lid; baby food jars are good) add just enough distilled water to make a paste. Then add more water, heated to make stock solution up to 4 ozs (113 ml). If you add dye powder to the jar first, and then a little water, there are less dye powder particles in the air. Distilled water is used to maintain a true color in your jar and prevent any chance of a chemical reaction from any additives in the water supply. This dye stock may be kept for 4-8 weeks, tightly covered and used as you require.

CHEMICALS NEEDED TO DYE LINEN

Direct Solophenyl dyes require Glauber's salt to aid in the fixation of the color to the fiber. Use 2-20% (based on dry weight of material being dyed) of Glauber's salt. Dark tones require more salt than light shades.

The dye bath must be hot, just under simmer, before the proper dyeing action starts to take place.

PROCEDURES

There are different methods of dyeing and mixing to obtain the color you desire. The easiest for a beginner is to dye one of the primary colors and then top dye into the second primary color until you obtain the color you wish. If using this method, dye the lightest color first; for example, if you wished orange, first dye the material yellow and then top dye into the red dye pot.

Students like to use this process until they are at ease with the dyes.

It is an easy way to see the color change take place. This dipping, top-dyed method does use more dye, as the dyes are not always exhausted (all color removed from the water in the dye pot into the fiber) from the dye bath.

METHOD 1: TOP DYEING

Recipe for making up a dye pot, using small skeins to produce a color wheel. The six skeins together weighed 1 ounce (28 g).

Yellow dye pot

4 quarts (3.8 liters) water
1 tablespoon Glauber's salt
1 tablespoon Calgon
16 cc dye stock solution
(3 teaspoons)

The yellow dye requires a stronger concentration so double the amount used.

Red dye pot

4 quarts water
1 tablespoon Glauber's salt
1 tablespoon Calgon
8 cc dye stock solution
(1½ teaspoons)

Blue dye pot

4 quarts water
1 tablespoon Glauber's salt
1 tablespoon Calgon
8 cc dye stock solution
(1½ teaspoons)

You must also make up a setting pot. Into a large pot, put the same amount of water as you used for the other dye pots (weight of dry material in ratio) plus the same amount of the other chemicals used in the dye pot, Glauber's salt and Calgon. **NO DYES.**

Direct dyes take 45-60 minutes at simmer to be color set. Any time the color you wished is obtained under the 45 minutes, the remainder of the time left to set the dye color must be obtained in the setting pot. For example, if the desired color is obtained after 15 minutes, then an additional 30 minutes must be done in the setting pot.

DYEING TO MAKE A COLOR WHEEL

The dipping method, using 12 skeins in the wheel for twelve different colors. Dye 7 skeins yellow; 1 skein for the primary color, 3 skeins to be dipped later into the red pot, and 3 skeins to be dipped into the blue pot.

Take another 4 skeins and dye them in the red dye bath, 1 skein for the primary red color.

The remaining skein you dye in the blue dye pot, for the primary blue color.

Next take the 3 yellow skeins and put them into a red dye pot and watch for the color change, it may take only 2 minutes to acquire a yellow-orange. Remove this yellow-orange skein for your color wheel; this skein must now be placed in the setting pot.

Now the skein of color which is ½ yellow and ½ red is to be removed and added to the setting pot.

Then when the red-orange color is obtained, remove the skein and add it to the setting pot.

Now repeat the above process using the 3 remaining yellow skeins and work them in the blue dye pot, to receive a yellow-green, a ½ yellow-½ blue, and a blue-green colored skein. Use a setting pot also for these skeins.

As some color does come out of the skeins into the water during the setting time, do not mix blues with reds in the setting pot, etc. This will only muddy your colors.

Repeat the above process taking the reds through purples to blue in the blue pot.

METHOD 2. PERCENTAGE RATIO DYEING

The other method of dyeing with the 3 primary colors is to mix your 3 primary dye stock solutions as previously mentioned. Then mix the colors by percentages of the 3 colors.

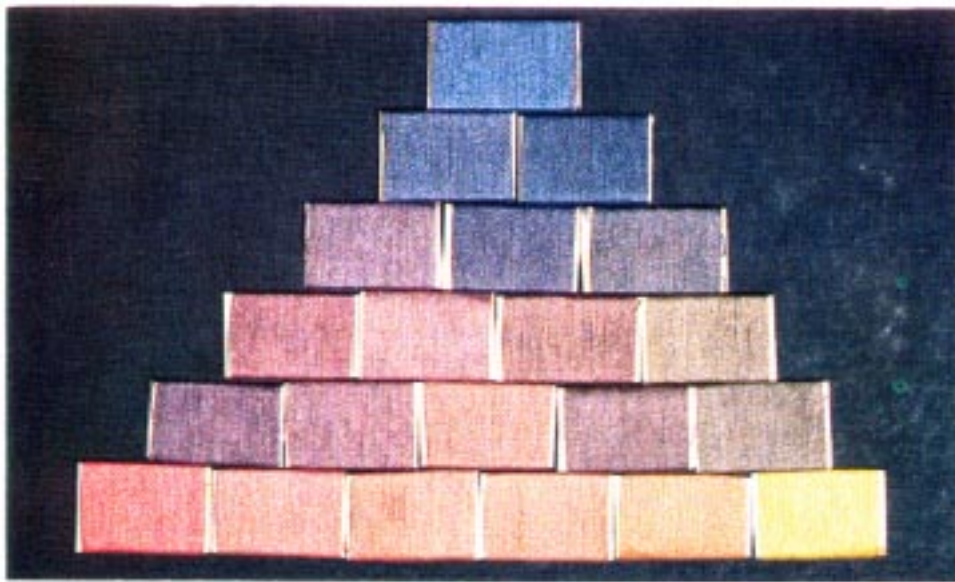
Previous experience in mixing colors is very helpful for this method. A good color wheel may be purchased at any art supply store and this will aid in mixing colors.

I find using a syringe marked in tenths of cubic centimeters very helpful. Or else purchase a one teaspoon medicine dropper and mark off into 1/10-tsp sections. If you use a color as 1.0 you may mix many varying shades combining the 1/10-tsp factor.

Here I have produced a color chart using this method, giving you 21 different colors.

Manufacturer's trade names of direct dyes:	
COMPANY	DYE NAMES
Bayer	Sirius
Sandoz	Solar
ICI	Chlorazol Durozol
Ciba-Geigy	Solophenyl
Chemicals	
washing soda—Sodium carbonate	
Glauber's salt—Sodium sulfate	
Calgon—a water softener.	

Blue					
B. = 1.0					
Y. = 0.0					
R. = 0.0					
B. = 0.8		B. = 0.8			
Y. = 0.2		Y. = 0.0			
R. = 0.0		R. = 0.2			
B. = 0.6		B. = 0.6		B. = 0.6	
Y. = 0.4		Y. = 0.2		Y. = 0.0	
R. = 0.0		R. = 0.2		R. = 0.4	
B. = 0.4		B. = 0.4		B. = 0.4	
Y. = 0.6		Y. = 0.4		Y. = 0.2	
R. = 0.0		R. = 0.2		R. = 0.4	
B. = 0.2		B. = 0.2		B. = 0.2	
Y. = 0.8		Y. = 0.6		Y. = 0.2	
R. = 0.0		R. = 0.2		R. = 0.4	
B. = 0.0		B. = 0.0		B. = 0.0	
Y. = 1.0		Y. = 0.8		Y. = 0.2	
R. = 0.0		R. = 0.2		R. = 0.4	
B. = 0.0		B. = 0.0		B. = 0.0	
Y. = 0.8		Y. = 0.6		Y. = 0.2	
R. = 0.0		R. = 0.2		R. = 0.4	
B. = 0.0		B. = 0.0		B. = 0.0	
Y. = 0.6		Y. = 0.4		Y. = 0.2	
R. = 0.0		R. = 0.2		R. = 0.4	



2. These color cards are line flax, dyed using the "Percentage Ratio" method, and the color chart on page 25.



3. 5 skeins, using the "Percentage Ratio" method. The skeins running from top to bottom are: natural, color A, color B, color C, and color D. The recipes are on page 26, Method 2.

See Photo 2 of the different colors obtained. Using this process, you mix the required amount of dye for colors you wish by multiplying the original color combination times the ounces of material you have to dye.

Here is an example where I have taken 4, one-ounce (28 g) skeins of linen. Using the following measurements and exhausting all the dye colors, I show how the increase in dye concentration in the bath takes the skeins from a pale green, to a light, medium and dark green. Remember that the skeins will be considerably darker when wet.

See Photo 3 of the 5 skeins. One is the natural color of the line flax, the

others are progressing from color A through to color D.

If you keep accurate records of the amount of color dye you use, all the other chemicals, the temperature of the water and weight of fiber, you will be able to duplicate the color at a later date.

Anytime you are dyeing to match a certain color, wet the article you wish to match; this will make it easier for comparison as to when the desired color is obtained.

From this point you may add a black dye purchased from the same family of dyes and proceed on to many beautiful colors, just by adding small amounts of black dye

Color A

1 oz. (28 g) linen
32 ozs. (946 ml) water
40 g Glauber's salt
20 g Calgon
6 cc Yellow dye stock and
6 cc Blue dye stock
brought to high simmer and held there for 35 minutes.

Color B

1 oz. linen
32 ozs. water
45 g Glauber's salt
20 g Calgon
12 cc Yellow dye stock and
12 cc Blue dye stock.
brought to a high simmer and held there for 43 minutes.

Color C

1 oz. linen
32 ozs. water
50 g Glauber's salt
20 g Calgon
18 cc Yellow dye stocks and
18 cc Blue dye stock.
brought to high simmer and held there for 39 minutes

Color D

1 oz. linen
32 ozs. water
60 g Glauber's salt
20 g Calgon
24 cc Yellow dye stock and
24 cc Blue dye stock
brought to high simmer and held there for 45 minutes.

stock.

I hope this article will open up many possibilities for the dye crafts-person.

Elaine V. Gwynne is a spinner and dyer in Calgary, Alberta, Canada. She started spinning in 1973 at Lady Favell's Kingcraft House in King City, Ontario. Later she studied at the Banff School of Fine Arts and has recently completed the final semester of a Master Spinner Certificate from the Georgian College of Applied Arts and Technology in Ontario. Elaine teaches classes in spinning and dyeing in the Calgary area. She works with fibers that range from sheep wool, coarse goat and camel hair to such fine exotic fibers as musk-ox and cashmere. She colors them with natural dyes or chemical dyes, depending on the requirements of the fiber and the design. Elaine is an active member of Handweavers, Spinners and Dyers of Alberta, Heritage Weavers of Calgary, and Sheep Creek Weavers of Millersville.

The BASICS

“THE BASICS”

In keeping with this issue's emphasis on linens, readers will find several of “The Basics” projects using linen fibers. We hope beginners will find the variety of projects enticing, from the rich color of plain woven towels to the challenge of a double woven work apron for weavers.



Weaver's work apron and practical apron designed by Elizabeth Kolling-Summers

A WEAVER'S WORK APRON: A PROJECT IN DOUBLE WEAVE

Basically two pockets on a belt, this work apron is especially designed with weavers in mind. Fill the pockets with bobbins, shuttles, a tape measure, and scissors, and one is all set for weaving with everything within handy reach. Think of the searching time that is saved when one does not remember where she/he last laid down the scissors upon stopping to answer the telephone!

WARP: 50/50 cotton and linen blend, size 22/4 (Borgs Salbolin—green (#329), copper orange (#315), yellow (#316)). Note: Salbolin comes in 250 g (9 oz.) tubes, 800 meters (875 yds.) per tube.

SETT: 20 epi (80/10 cm), sleyed double in a 10 dent (40/10 cm) reed. When sleying, remember to spread the two end threads at each edge (i.e. skip a dent). This helps prevent over draw-in.

WEFT: Borgs Salbolin—green, copper orange, yellow

WIDTH IN REED: 9½ (23.7 cm).

WEFT PLAN: see Fig. 1

COLOR ORDER OF THE WARP:

	total										
green	10	8	14		20		14	8	9	83	(2 oz. or 56.7 g)
yellow	10		14	6	20	6	14		10	28	(1 oz. or 28.35 g)
copper orange		8		6		6		8		80	(2 oz. or 56.7 g)
		alternate colors	alternate colors	alternate colors	alternate colors	alternate colors	alternate colors	alternate colors	alternate colors	191	

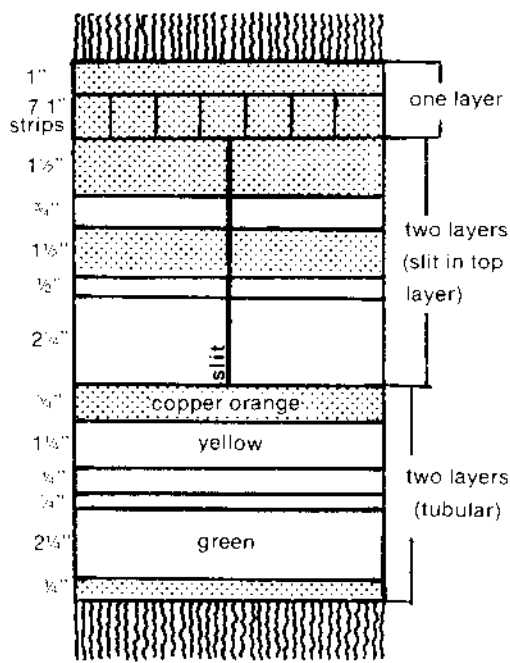


FIGURE 1. Weft plan.

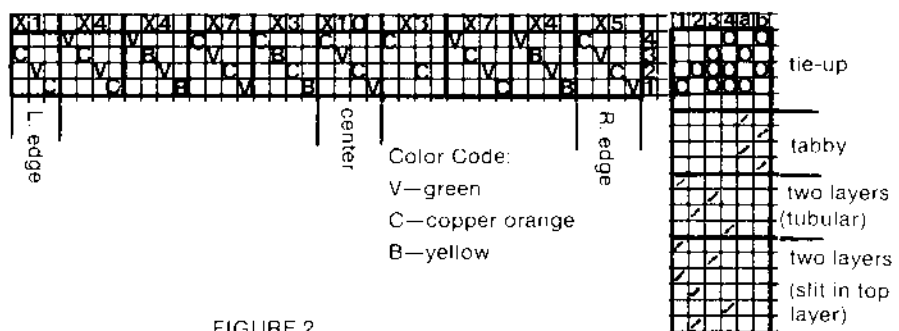


FIGURE 2.

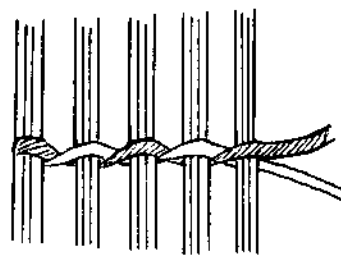


FIGURE 3. Twining

THREADING, TIE-UP AND TREADLING: see Fig. 2

To close the pocket bottom, treadle two picks of tabby. Then, treadle for two layers, weaving a tube, for 6" (15.2 cm). At this point, end off the weft thread at one edge of the warp. Locate the center of the top layer and begin weft there. Treadle for two layers, weaving a slit in the top layer as follows:

- Step 1: Treadle 1 (top layer), throw shuttle from center to left edge.
- Step 2: Treadle 3 (bottom layer), throw shuttle from left edge to right edge.
- Step 3: Treadle 1 (top layer), throw shuttle from right edge to center.
- Step 4: Treadle 2 (top layer), throw shuttle from center to right edge.
- Step 5: Treadle 4 (bottom layer), throw shuttle from right edge to left edge.
- Step 6: Treadle 2 (top layer), throw shuttle from left edge to center.

Repeat the process until the woven slit measures 6 1/2" (16.5 cm). Close the two layers by weaving 2 picks of tabby.

The last 2" (5.1 cm) of weaving is one layer. With tabby treadling, weave seven 1" (2.54 cm) long-strips. This requires seven different weft ends, contained on shuttles or butterflies. Divide the warp in seven sections. Treadle *a* and insert one weft per section all across the warp. Remember to begin each section from the left (or the right, if one prefers). Continue treadling tabby, weaving each of the seven sections in consecutive order. Rejoin the strips (after weaving them in 1" or 2.54 cm lengths) by weaving the entire width of the warp with one shuttle. Weave for 1" (2.54 cm) more.

Leave 6" (15.24 cm) of space in the warp. Repeat the above procedure for the second pocket, varying the weft colors in the same pattern as in the previous pocket.

MEASUREMENTS: When pulled off the loom, each pocket measured 8 1/4 x 14 1/2" (21 cm x 36.8 cm). After handwashing in lukewarm water, each pocket measured 7 1/4" x 13 3/4" (19.7 cm x 34.9 cm).

FINISHING: While weaving, twine each warp edge, in groups of 4 threads. See Fig. 3.

Along the bottom edge of each pocket, overhand knot the fringe in groups of 5 threads. Trim the fringe to 1" (2.54 cm).

Fold under the top edge 1/4" (0.64 cm). With a matching sewing thread, do a running stitch along the twined edge. Trim fringe to 1/2" (1.3 cm).

For the apron belt, cut 51 threads in 56" (142.2 cm) lengths, calculated as follows: 20" (50.8 cm) for ties, 30" (76.2 cm) for waist, and 6" (15.2 cm) for take-up. Use 17 threads as one strand and do a 3-stranded braid. Overhand knot the braid ends. Insert the braid through the slits of each pocket, working it over and under each set of seven strips.

POTHOLDERS: With the remaining warp, one can weave potholders (as shown in the photo). The treadling involves periodically alternating areas of tubular double weave with 2-4 picks of tabby. On the loom, finish each warp edge with twining.

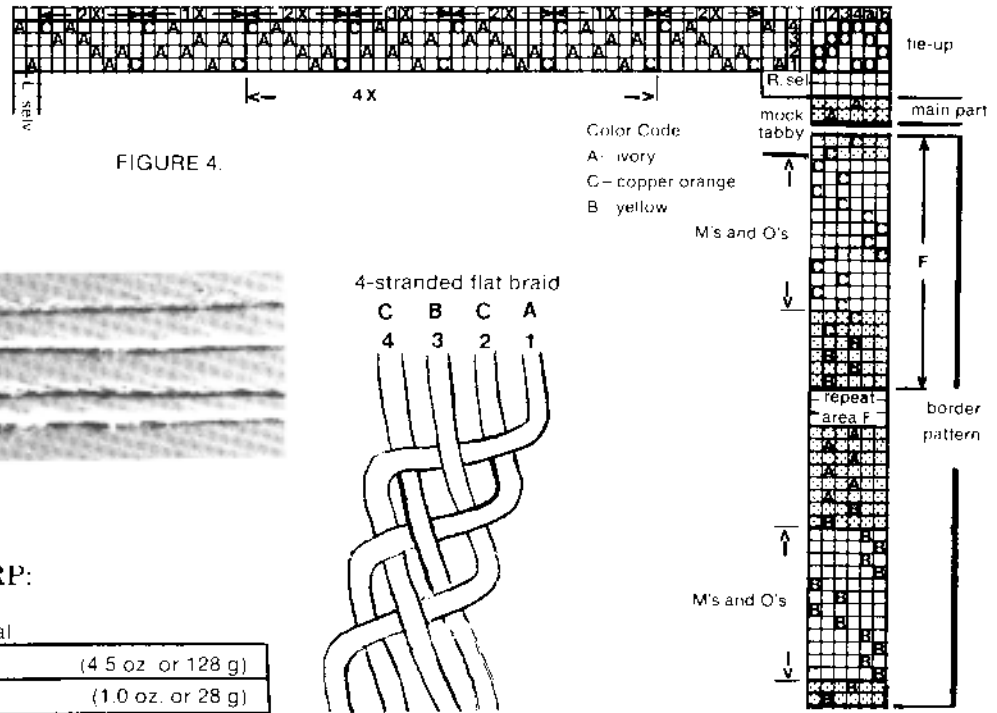


FIGURE 5. 4-stranded flat braid.

PRACTICAL APRON WITH M'S AND O'S BORDER

Although simple in design, this apron can dress up any occasion in the kitchen. Take a woven rectangle, gather it along one edge, add ties, and, *voilà*, an apron.

WARP: 50/50 cotton and linen blend, size 22/4 (Borgs Salbolin—ivory (#300), copper orange (#315)). Note: Salbolin comes in 250 g (9 oz.) tubes, 800 meters (875 yds.) per tube.

WEFT: Borgs Salbolin—ivory, copper orange, yellow (#316)

COLOR ORDER OF THE WEFT: see Fig. 4.

Main part: 19" (48.3 cm) ivory above border, 3" (7.6 cm) ivory below border. **Border** (4" or 10.2 cm): 16 picks copper orange, 4 yellow, 16 copper orange, 4 yellow, 6 ivory, 16 yellow.

WIDTH IN REED: 25" (60 cm)

SETT: 12 epi (50/10 cm)

LENGTH OF WARP: 2 yards (1.83 m)

THREADING, TIE-UP AND TREADLING: see Fig. 4.

For the main part of the apron, treadle the mock tabby, using the ivory. At varying intervals, weave two picks of copper orange or yellow. This gives an interesting plaid.

The border combines M's and O's treadling and mock tabby. In weaving the M's and O's, one needs to be especially careful with the selvages. Drawing in should not exceed 1½" (3.8 cm).

MEASUREMENTS: When taken off the loom, the apron measured 22½" x 25" (57.2 cm x 63.5 cm). After handwashing in lukewarm water, it measured 20¾" x 23¾" (52.7 cm x 59.4 cm).

FINISHING: While on the loom, twine along each warp edge in groups of 3 warp threads (see Fig. 3). This requires extra yarn, a length 2½ times the width in reed measurement.

When the woven piece is off the loom, fold under ½" (1.27 cm) along the top edge. With matching sewing thread, do a running stitch along the twined edge. This forms a narrow casing. Overhand knot the fringe along the top edge, in groups

of 4 threads.

Knot the bottom edge with overhand knots, in groups of 4 threads. Trim the fringe to 1" (2.54 cm), or preferred length.

To gather the top edge, run inside the casing sixteen threads 80" (2 m) long with a tapestry needle. Center the apron edge on these threads, leaving approximately 32" (81.3 cm) lengths for braiding into ties. Overhand knot the threads at one end of the casing. Gather the top edge until it measures 15" (38.1 cm), and overhand knot the threads at the other end of the casing. Tack the overhand knots with sewing thread.

To form the apron ties, do a 4-stranded flat braid (see Fig. 5). Use 4 threads as 1 strand. Bring strand 1 over strand 2, under strand 3, and over strand 4. All strands are now shifted to the left by one. Take strand 2 through the same over-and-under sequence, as previously done with strand 1. Continue braiding the remaining thread lengths. Secure the braid with an overhand knot. Each tie should measure 25" (63.5 cm).

PICK-UP LENO: THE FINE LINENS OF AVA HESSLER

Handwoven linens have always been a big favorite of Boulder weaver Ava Hessler. During the seventies, when most handweavers shunned this beautiful natural fiber because it often required a close sett and because linen is relentlessly mean toward poor craftsmanship, Ava kept producing beautiful heirlooms for her family and friends.

PICK-UP LENO SAMPLER

Fabric that is decorated with leno has many uses: casement cloth, table linens, room dividers, wall coverings, garments and more.

The linen leno pick-up sampler described here shows only a few of the many designs that can be accomplished with very simple leno. The beauty of it will convert any handweaver into a fine linen enthusiast.

This sample uses only two very basic leno twists: 2/2 leno and 4/4 leno. In the text "one row of leno" is equivalent to *two picks*. The first pick is thrown with the shed open for which the first warp thread on the right-hand side is up. The shuttle is thrown from right to left. The second pick is thrown in the opposite shed, from left to right.

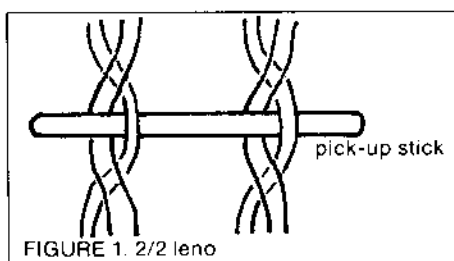
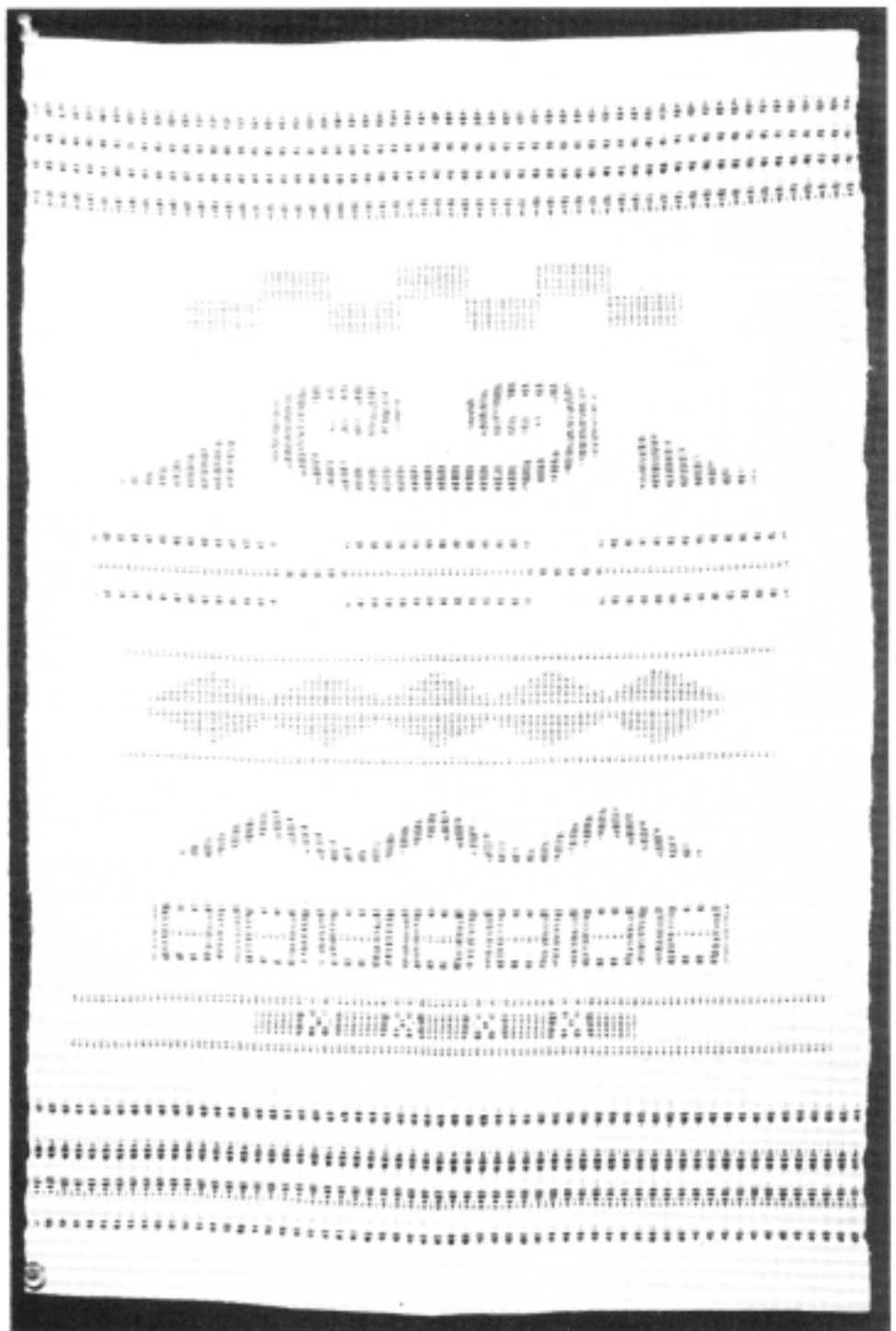


FIGURE 1. 2/2 leno



1. Leno sampler by Ava Hessler

2/2 LENO

First pick: open the shed, pick up the two lower threads and twist them with the upper two; continue the pick-up in the entire lace area. Put the pick-up stick on edge and throw the shuttle from right to left.
Second pick: change the shed and throw the shuttle from left to right.

4/4 LENO

First pick: open the shed, pick up the four lower threads and twist them with the upper four, continue the pick-up in the entire lace area. Put the pick-up stick on edge and throw the shuttle from right to left.
Second pick: change the shed and throw the shuttle from left to right.

WARP: 20/2 linen, natural.

WEFT: same as warp.

SETT: 30 epi. (120/10 cm)

WIDTH IN THE REED: 16" (40 cm).

TOTAL NUMBER OF WARP ENDS: 480. It is important that the number is a multiple of 8.

THREADING, TIE-UP AND TREADLING: as for plain weave.

BORDER PATTERNS:

Plain weave (2"), one row of 4/4 leno, plain weave (10 picks), one row of 2/2 leno, one row of 4/4 leno, plain weave, one row of 4/4 leno, one row of 2/2 leno, plain weave, one row of 4/4 leno.

DESIGNS:

The designs for pick-up leno are drafted on graph paper. One square represents four warp threads and is equivalent to one 2/2 twist. A 4/4 leno twist is two squares wide. See Fig. 2. Note that the weft which holds the leno twist does not beat in as well as the weft which weaves a regular plain weave. If the leno design does not go selvedge to selvedge more picks per inch are required in the plain weave area than in the lace area.

Proceed as follows: Start at right and weave 2 picks of plain weave in the plain weave border area (A-B-A).

Open the pick-up shed and weave plain weave (A-B), leno (B-C), plain weave (C-D).

Change shed and weave plain weave (D-C).

Open the pick-up shed and weave plain weave (C-D), leno (D-E), plain weave (E-F).

Weave plain weave back and forth in left-hand plain weave border.

Weave the return pick as shown in Fig. 3.

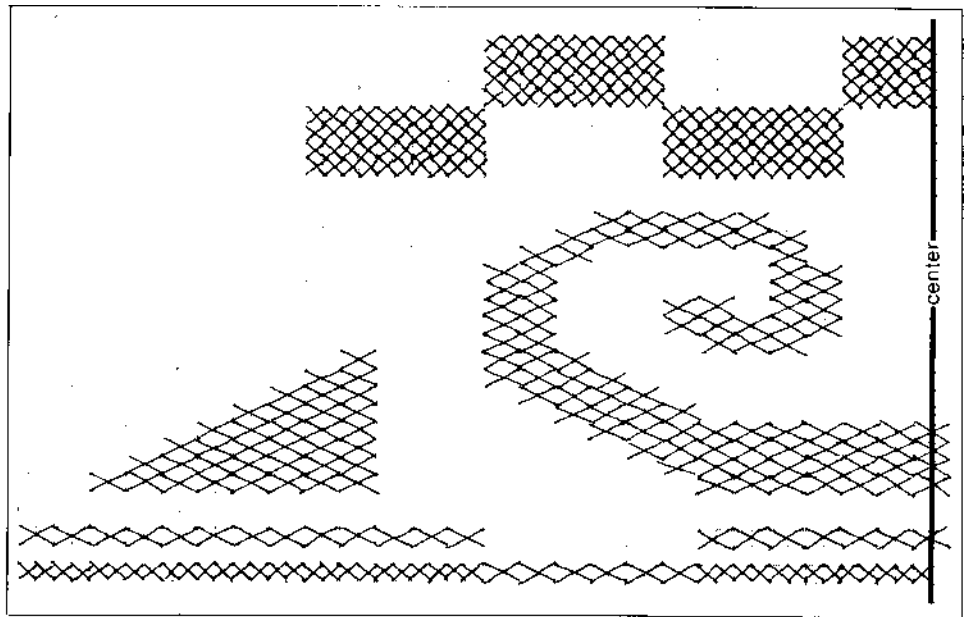
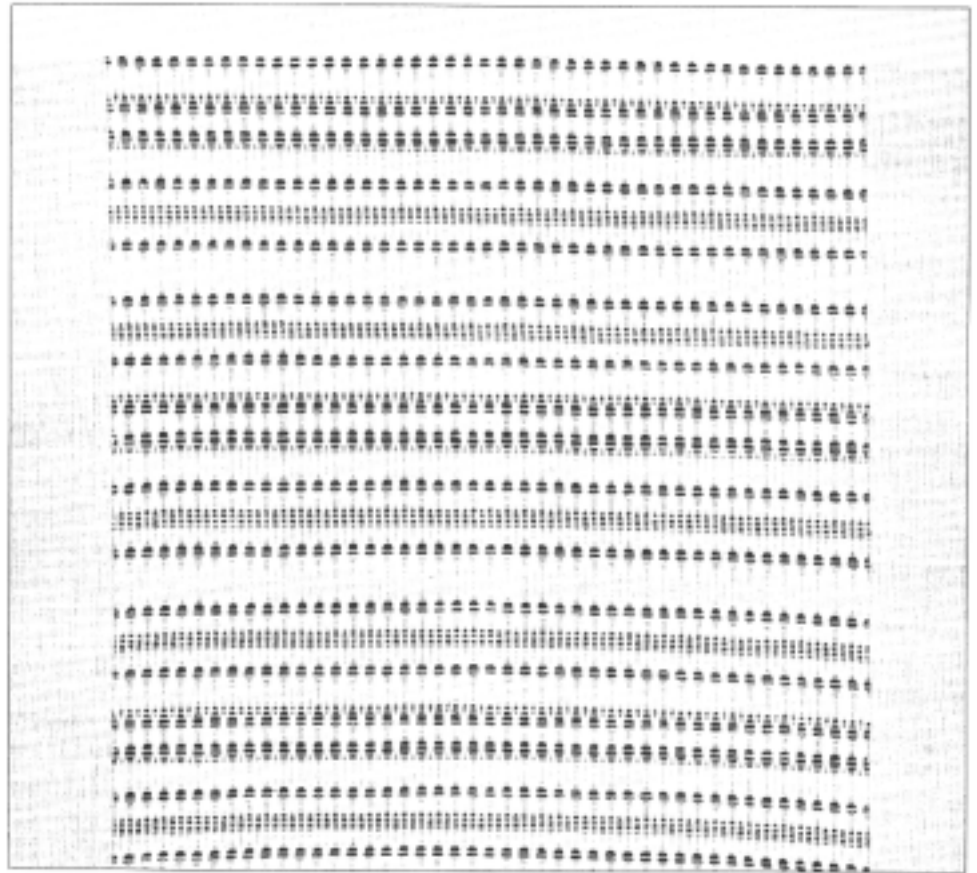


FIGURE 2. Graph for 2/2 leno and 4/4 leno. Each square represents 4 warp threads.



2. 4 and 2 2 leno

Photo 2 shows how simple rows of 4/4 and 2/2 leno are set off against a plain weave border. The border has more picks per inch than the central lace panel.

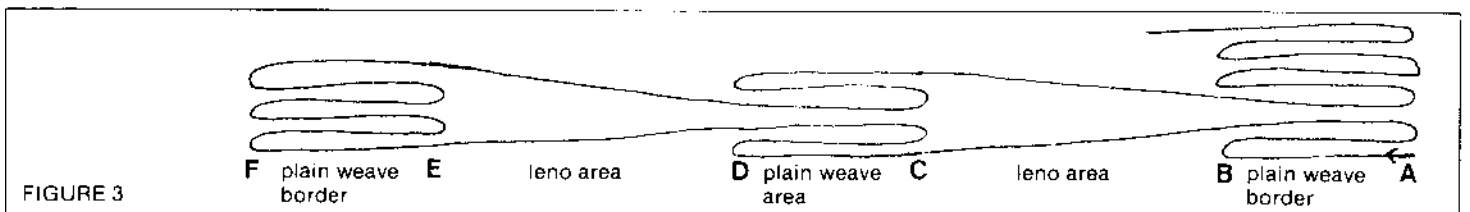


FIGURE 3

BLOCKS AND PROFILES

by Joyce Marquess Carey

Happy in the knowledge of how to read and write threading drafts, the beginning or intermediate weaver is often stymied when first confronted with a profile draft. One may have found a handsome pattern to try out, only to discover that the weaving directions look like this: (Fig. 1).

visual characteristic is *contrast* of adjacent design areas. The most widely used means of developing contrast is to play an area that is predominately weft-faced against an area that is predominately warp-faced. The resulting cloth is intended to have a "right" and a "wrong" side; the "wrong" side is



FIGURE 1. Profile draft

What's this? Even an absolute beginner recognizes that a pattern with a great number of warp ends consecutively on the same shaft will not weave an acceptable piece of cloth. And, just as bad, there is no indication of how the loom is tied up, or how the treading progresses. There may or may not be some further clue as to what type of weave is indicated; for instance, the terms Summer and Winter, or Lace Bronson may be used.

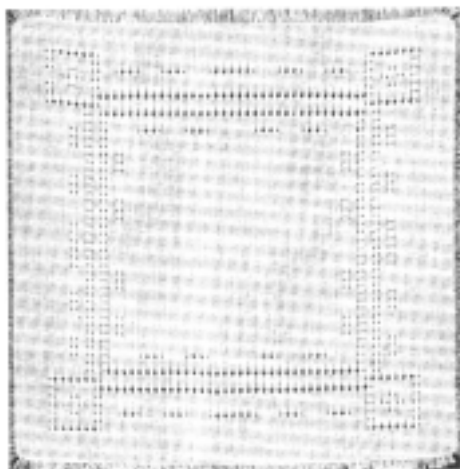
What you have here is weaver's shorthand in the form of a *profile draft*, also known as a *short draft*, and sometimes as a *block draft*. For the initiated, it is a meaningful convenience that saves a lot of pencil, and also offers a variety of options for designing. For the uninitiated, however, it is a frustrating dead end, which leaves one feeling that some mysterious and important bits of information are just out of reach. Many weavers stop right there, and allow weaver's blocks to become as crippling as writer's blocks.

The information is important, but by no means mysterious. The terms *block*, *block weaves*, *unit weaves*, and *profile drafts* all refer to orderly, predictable ways of designing, analyzing, and recording certain types of pattern weaves. What distinguishes block weaves from all-over pattern weaves? The main

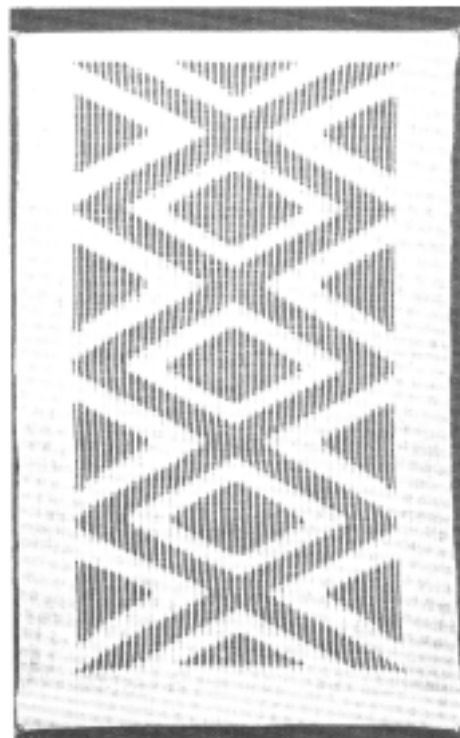
exactly the reverse of the "right" side. That is, where a weft-faced area appears on the front, it is warp-faced on the back, and vice versa. Often, both sides are equally handsome, and which side is "right" becomes a matter of taste. Damask is an example of this type. Another type of contrast is between plain and patterned areas. Examples of such weaves include M's and O's and Bronson weaves. In these weaves, the reverse is virtually identical to the facing side.

In addition to the visual characteristics, all block weaves are made up of repeatable units, which is why they can be reduced to the shorthand of profiles rather than being spelled out thread by thread. A *block* simply refers to a group of threads which behave as a set in a predictable way. Depending on what weave structure is used, the minimum workable group may consist of two, three, four or more threads which form a unit; a block is made up of one or more units.

In an earlier article on drafting (Carey, "The Very Basics of Drafting: Two and Three Shafts", *The Weaver's Journal*, Vol. VI, #2, Fall, 1981), two-block drafts were gently introduced by way of two-shaft drafts. In these drafts, threads on either shaft one or shaft two could be repeated indefinitely, as long as the warp or weft floats were not



3.



4.

Photos 3 and 4 are stunning linens in which the design is created by pick-up 4/4 leno.



5.

Photo 5 is a tablecloth in which the designs of the sampler have been used. ■

made unreasonably long. When designing two-block drafts, either block may be as wide as you please, because within the block, groups of threads form workable interlacings. The varieties of interlacings within weaves, and therefore within blocks, are numerous and ingenious. In order to better understand how repeatable interlacings work as components of block weaves, let's examine the workings of a two-shaft weave.

For example, if you want a design that has wide pattern areas like the one shown in Fig. 2, you could theoretically draft the first, third and all odd columns on shaft one, the second, fourth, and all even columns on shaft two (Fig. 3). (Remember, all identical columns are drafted on the same shaft (Carey, "Weave Analysis", *The Weaver's Journal*, Vol. VII, #1, Summer 82.) But, pragmatically, if any column is wider than three or four threads, the cloth will suffer from lack of interlacings.

To make up a workable weave, call the area consisting of ones "block A". The smallest number of shafts that will form a weave is two, so replace all the former "ones" in the block A section with shafts one and two, alternately. Do the same with the pattern area formerly occupied by a row of twos. Call it "block B", and fill it with alternating threes and fours. (Fig. 4). Formerly, lifting all the ones in a row allowed the weft to float over all the twos. Now, lifting all the ones and twos together for block A allows the weft to float over all the threes and fours. The effect is identical. However, rather than having only the option of long floats, you also have the advantage of being able to weave tabby or plain weave so that there is a solid, workable ground or foundation weave in addition to the pattern floats. Using this plan, you may have as long a float as you like, and in addition you may weave as many identical pattern rows as you please, with a tabby shot after each pattern float for stability.

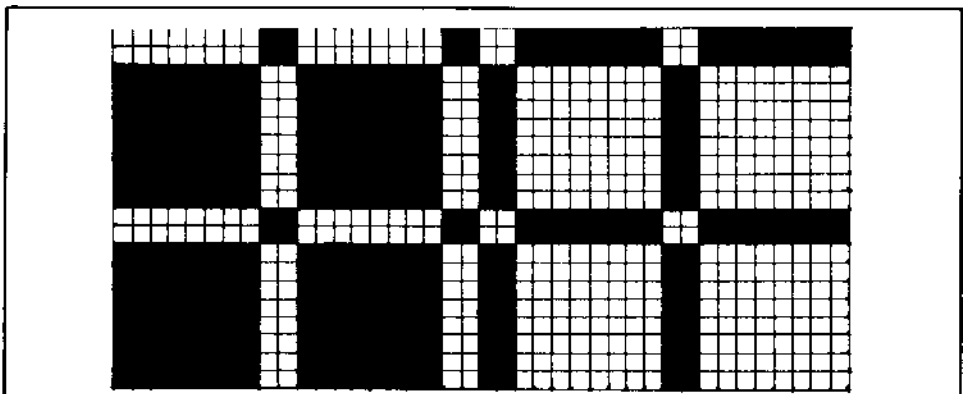


FIGURE 2. Two-block design

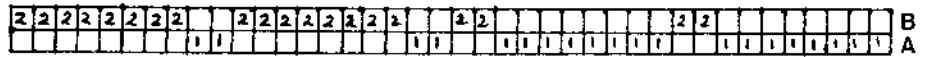


FIGURE 3. Threading draft for FIG. 2



FIGURE 4. Two-shaft draft extended to four



FIGURE 5. Two-block profile for FIG. 4

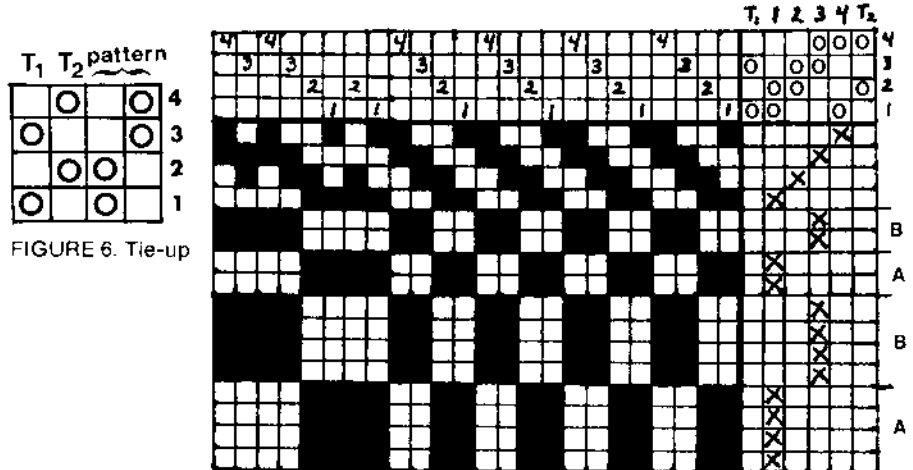


FIGURE 6. Tie-up

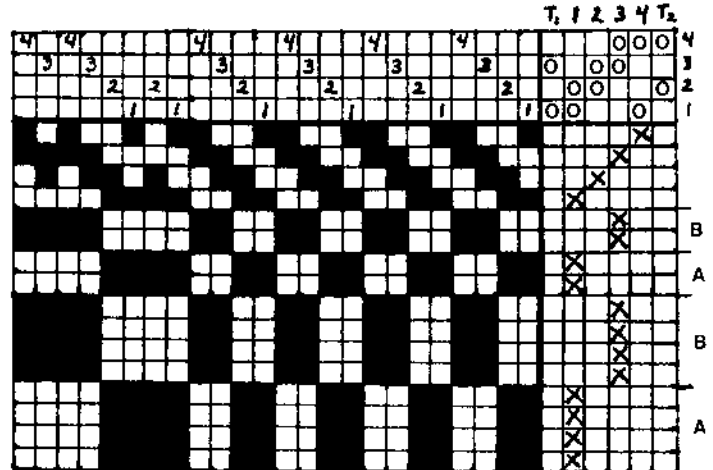


FIGURE 7. Straight-draw twill, extending into blocks

In this simple example, there are little working units each made up of two threads: either 1-2 or 3-4. Every unit in block A is a 1-2 and can be represented by a mark in the "A" row on a profile draft. Similarly, every unit in block B is always a 3-4 and can be shown with a mark in the "B" row. (Fig. 5) Once you know what system you are designing within, or what weave is intended to fit into this profile, there is no longer any need to spell it out thread by thread. You also know that you will need a tabby, so the tie-up must include a treadle fastened to shafts one and three, and a treadle fastened to two and

four. In order to weave the pattern, two treadles, one to shafts one and two, and one to shafts three and four are needed (Fig. 6). As for treadling, the order will be tabby one (t_1), pattern, tabby two (t_2), pattern repeat. Either pattern treadle can be used if you are designing as you go.

Another way of weaving a block pattern is by means of a straight draw, four-shaft twill. You have undoubtedly woven a sample with this common threading, using a $\frac{1}{2}$ treadling, that is, raising two shafts at a time in every row (Fig. 7).

Once again, raising the ones and twos allows the weft to float over the threes and fours; raising the threes and fours causes a weft to float over the ones and twos. By incorporating plain weave (1&3, 2&4), either combination may be treadled repeatedly. The twill threading may be extended, by repeating the 1-2 unit many times, as well as the 3-4 unit. All of which brings us back to two sets of units, or two blocks, as before.

So common is this type of pattern weave, and so clear is its source of derivation, it is known as a form of extended twill. Another name is *Overshot*; in this case, it is a specialized kind of overshot called *Monk's Belt*, or sometimes *On Opposites*. Naming weaves is another form of shorthand, describing the type of interlacement. Names are tricky, however, as they vary regionally, and may mean different things to different people.

Incidentally, on the subject of *Overshot*, it will be clear to you by once again referring to twill with a $\frac{2}{2}$ treadling that there are two more possible pattern combinations: 2-3, and 4-1. These two combinations are also on-opposites, and if used together exclusively are absolutely indistinguishable from 1-2 against 3-4. Many *Overshot* designs use these two on-opposite combinations to form larger pattern areas, known as tables, in the same cloth. More usually, *Overshot* utilizes the four different blocks in sequential order; that is, 1-2, 2-3, 3-4, 4-1. A typical threading draft might look like this: (Fig. 8).

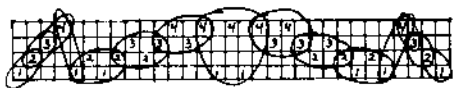


FIGURE 8. Overshot draft

The blocks are circled. You will see that the blocks overlap, each sharing a thread in common.

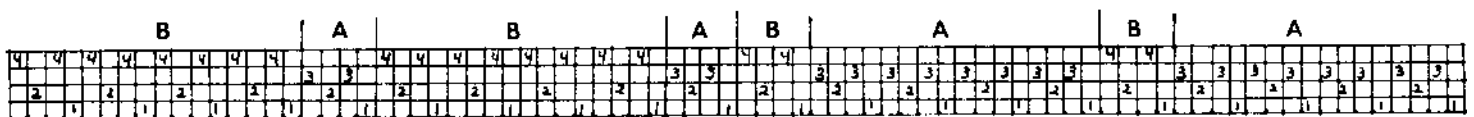


FIGURE 11. Threading draft for Summer and Winter

Tempting as it is to pursue, it is not my intention to do more than touch on *Overshot* as an example of how blocks work. There are many excellent sources on theory and design in this popular weave.

Although one may *theoretically* repeat the two-thread units indefinitely, and although the actual cloth will not fall apart, thanks to the tabby foundation, one must control the length of floats if the cloth is to be used for practical purposes. Another system is called for if the designer wants very wide pattern areas with controlled floats. There are many such systems; one of the more common ones is derived from three-shaft point twill. This basic plan will allow for tabby weave as well as for floats of uniform, three-thread length. (Fig. 9).

FIGURE 9. Three-end floats derived from point twill

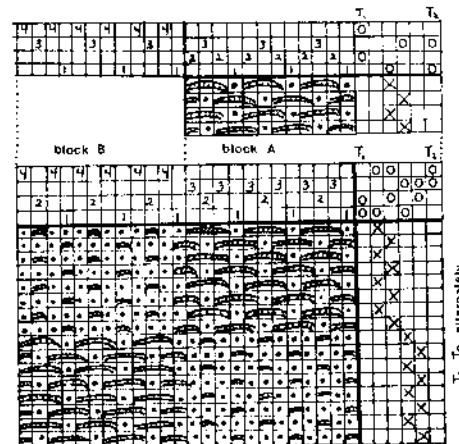


FIGURE 10. Two-tie weave (Summer and Winter)

The tabby combination is shaft two alternately with shafts one and three together. Raising shaft three allows the weft to float over the threads on shaft one and two; raising shaft one allows a weft float over the threads on shafts two and three. One may design a weave using only one of these pattern floats, or by using both of them sequentially, which makes an at-

tractive, overall brick-like surface. In any case, tabby shots are always used alternately between the pattern shots, just as they are with *overshot*. The raised shafts in pattern rows, either one or three, are known as ties or *tie-downs*. And they do, in fact "tie down" the float uniformly, every fourth thread.

This three-shaft twill only accounts for the units in one block. To invent the other one, the fourth shaft must be used. By substituting fours in the same position that the twos occupy in block A, an identical weave can be woven, with floats over the threads on shaft 3 and 4 by raising shaft one, or over the threads on shafts 1 and 2 by raising shaft three. In either block, the minimum unit is four warp ends; either 1-2-3-2 or 1-4-3-4. Combining these two four-thread units allows you to have two short-float blocks of any width that is a multiple of four threads. For an example see Fig. 10: raising the twos along with the one or three tie-down leaves floats in the block B area, and small dots of weft in the A area. Raising the fours with the tie-downs makes floats over the A blocks and dots in the B blocks.

This general system of reserving two shafts for tie-downs and using all the others as pattern shafts (each additional shaft equals one block) is the basis for a multitude of weaves classed as two-tie unit weaves. Normally, shafts one and two are reserved for the tie-downs, rather than one and three, which does not alter the theory of construction. The most common weave of this class is *Summer and Winter*. The block units are conventionally 1-3-2-3 for block A, 1-4-2-4 for block B, 1-5-2-5 for block C and so on for as many shafts as the weaver has access to.

A design, written in long form, might look like this: (Fig. 11).

The smallest unit is four threads, and a four-shaft loom can only produce two blocks. A profile draft for the long draft would look like this: (Fig. 12).



FIGURE 12. Profile draft for FIG. 11

This time, one mark in A or B equals four threads, rather than two, and you can see at a glance that this is exactly the same profile as in Fig. 6. And, indeed, the same profile could serve for *any* two-block weave.

The profile draft can serve as an intermediary between a piece of cloth woven with one kind of weave and the translation of that design into another kind of weave. If, for example, you come across a piece of cloth with a motif you like, but that is woven in a dense, weft-faced weave, you may wish to preserve the essence of the design but to translate it into a light, airy lace weave. The most important thing you need to know for this kind of transition is how to analyze a block weave and render it in terms of a profile draft. After that has been done, research in good weaving source books will allow you to use the profile you have obtained with block units of a weave you want to use.

Analyzing a block design and rendering it in a profile is exactly the same process as analyzing a weave structure and rendering it in a conventional threading draft.

First, draw the design on paper. You may invent your own, work from a piece of woven cloth, or borrow from a wealth of design inspiration such as tile patterns, counted thread designs, or any geometric based on 90° angles.

Draw real or imagined lines along every vertical and horizontal break in the pattern. If you are working with a piece of cloth, you may use basting threads. The columns be-

tween the vertical basted or drawn lines are the threading blocks. Just like a thread-by-thread analysis, all identical columns are the same block; all different columns require a new block letter. It makes absolutely no difference how wide the block is—it may be one unit or dozens of units. The important thing is that the pattern starts and stops in the same place on a horizontal line within identical columns.

The order in which the blocks are treadled can be found between the horizontal lines in the pattern. Look at each row of blocks to see which ones are raised. (Fig. 13).

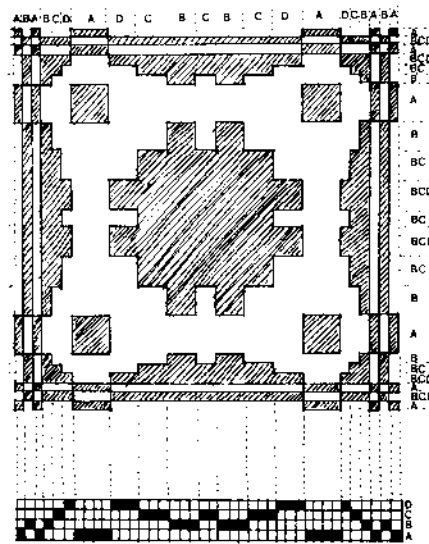


FIGURE 13. Analyzing blocks and developing profile

Determining the weave structure within blocks may take thread-by-thread analysis unless you are already familiar with the weave in question. The same is true for determining the tie-up and treadling order within blocks. The more you weave and study weave structures, the more you can come to rely on recognition, although some weaves are so out of the ordinary, or so nearly identical with familiar ones, that it never hurts to examine a small part of the structure closely to see if your educated guess is correct.

The treadling order for blocks, if not indicated in the profile draft, can safely be assumed to be “as

drawn in”. That is, the order in which they are brought up in the treadling is exactly the same as it is in the profile. If there is a picture of the woven design, you can recognize “as drawn in” designs because they are symmetrical, and if turned 90° look the same as they do right side up.

Once you have reconstructed the profile from an invented or existing design, you are not bound to use it for weaving the same structure as was used originally. Using your knowledge of unit weaves, you may use the profile as a framework and plug in another weave altogether. Your limitations will depend on rules that apply to individual weaves, the number of blocks in the design, the number of shafts required for each block, and the number of shafts you have on your loom. For example, four-block Crackle or Overshot only uses four shafts, but four-block Summer and Winter requires six, while four-block double weave requires sixteen!

Developing a good vocabulary of common weave structures is essential to becoming an accomplished, versatile weave designer. The more you study, and the more you weave, the more the interrelationships between weaves will become obvious and helpful to you. And, weaver's blocks, which are such an important tool for designing will no longer be impediments to understanding, but will become useful building modules.

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LINEN TABLERUNNER WITH ATWATER BRONSON LACE

by Gloria Cyr

Woven laces are among the best weave structures for fine linen. Among them, Atwater Bronson lace offers the most design potentials to the 4-shaft weaver and is the easiest to adapt to multiple-shaft weaving. On 4 shafts the threading offers plain weave (which can be used for the selvedge threading, for vertical stripes or for background) and two blocks, each having as many 6-end units as desired. As in Bronson lace, every other warp end is threaded on the same shaft, usually shaft 1. As in Bronson lace also, shafts 3 and 4 are pattern shafts, but what differentiates Atwater Bronson from Bronson lace is that a thread of each 6-end unit is threaded on shaft 2 and acts as a binder for the weft floats.

Fig. 1 shows the 6-end units, each of which may be repeated to form a block and the threading for plain weave stripes.

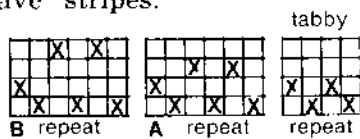


FIGURE 1.

To weave plain weave across the entire fabric, alternate lifting shaft 1 (b tabby) and lifting all other shafts (a tabby).

To weave lace, repeat the following treadling sequence: tabby b, tie-down shaft 2 plus the pattern shafts of all the blocks where the lace is not wanted, tabby b, tie-down shaft 2 plus the pattern shafts of all the blocks where the lace is not wanted, tabby b, tabby a.

Fig. 2 represents the draft for Atwater Bronson extended to 8 shafts.

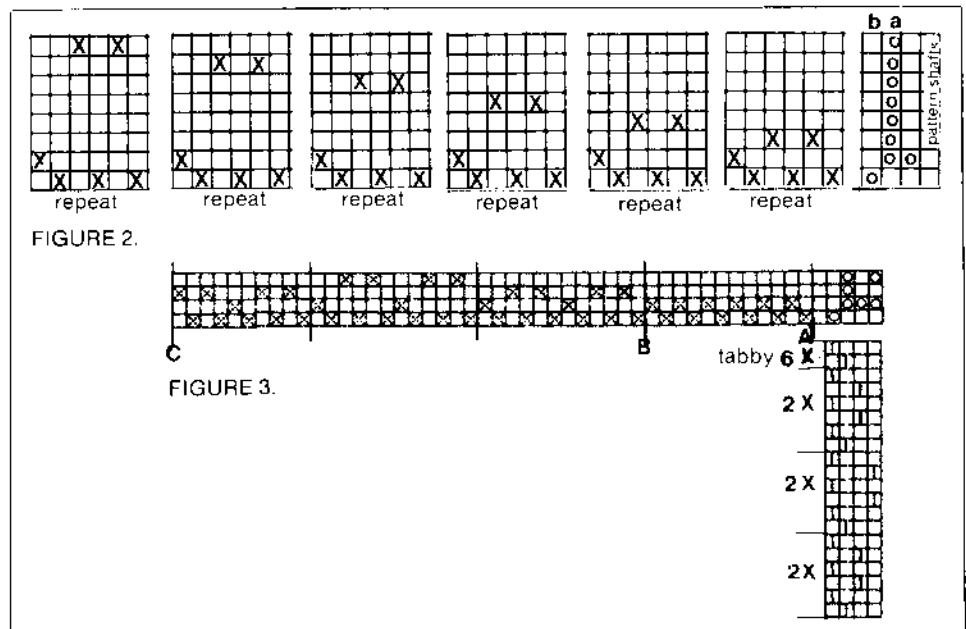
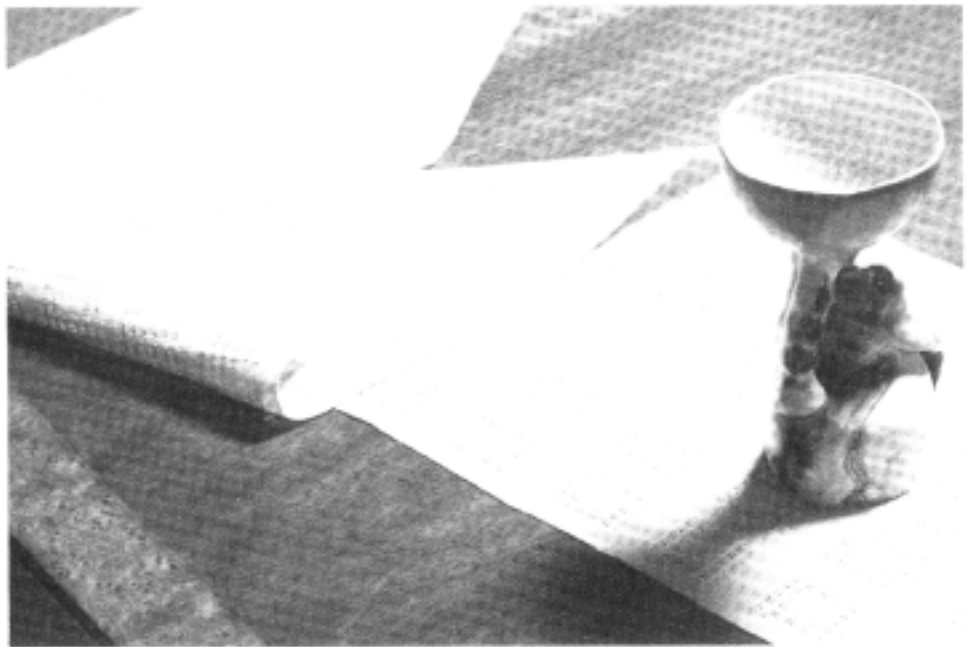


FIGURE 2.

FIGURE 3.

4 SHAFT PROJECT

WARP: 20/2 linen.

WEFT: Same as warp.

SETT: 24 epi (100/10 cm) in a 12 dent (50/10 cm) reed.

WIDTH IN THE REED: 12" (29 cm).

THREADING AND TIE-UP: See Fig. 3. Thread A-C 6 times; thread A-B once.

TOTAL NUMBER OF WARP ENDS: 289.

TOTAL AMOUNT OF YARN USED: One 8 oz. tube or 1500 yards.

LENGTH OF THE WARP: 4 yards (3.66 m).

PROJECTS:

- 111" (282 cm) long table runner (104" or 264 cm after washing).
- 17 1/4" (44 cm) woven napkin for a breadbasket. This piece was used to sample the weave and the design. ▣

BROADCLOTH AND DOESKIN

by K. G. Ponting

One is often asked to define the words broadcloth and doeskin, and the definitions are really quite simple.

To deal first with the broadcloth, the name was originally used to describe cloth that had been woven on the broad as opposed to the narrow loom.

The coming of the broadloom in about the eleventh century was one of the most important developments in the history of weaving. This loom was 100 in. (2.54 m) wide and needed two people to work it instead of one on the narrow, 30 in. (76 cm) wide loom which had been known for some time and had clearly derived from the vertical warp-weighted loom of about the same width which was in general use from about 500 B.C. onwards.

With the broadloom the weaver sat at one side of the loom and threw the shuttle across to his assistant. With the narrow loom he sat in front and needed no assistant.

During the same medieval period fulling was mechanized and heavily felted cloth became popular. It was probably easier to full a wide cloth than a narrow one. In England the great age of the thick broadcloth was the Tudor period when vast quantities of this type of cloth were manufactured in the West of England and exported mainly to Central Europe via the international market at Antwerp. This cloth was spun, woven and fulled in the West of England but was often sent abroad, mainly to the Low Countries and to Italy, to be dyed and finished. It was this dyeing and finishing that gave the cloth its main attraction. Being made in the plain weave there was nothing in its construction to give the type of design with which we are familiar today.

This trade died early in the seventeenth century but was replaced by the colored broadcloth trade. These cloths were lighter in weight than the earlier ones, and were dyed and finished in England, being used at home and abroad. When the American wool textile trade began to expand, their first major successes were in making these broadcloths. Later, in the early nineteenth century, several very important inventions affecting the manufacture of these cloths were made in America, notably in the development of the condenser by Goulding and the invention of the circular cutter by Samuel Dorr.

It was, therefore, in England during the seventeenth and eighteenth centuries that the word broadcloth really developed into what one means by it today. More and more care was given to the finishing; cloths after fulling were raised with tassel gigs and then cut down by shears, this process being repeated several times until the distinctive skin-like finish was obtained. This finish is remarkably permanent; patterns in books today retain the gloss and shine that was then given them.

It is sometimes said that there was a certain monotony about the broadcloth and in a sense this is true, although one could make a

Ken Ponting is well-known as director of The Pasold Foundation Ltd., a small organization in England to further research in the history of textiles. He spent 30 years in the textile business, where his experience included dyeing, designing and serving as managing director of the company. He is joint editor of "Textile History", a publication he founded. He is the author of The West of England Wool Textiles Trade and The Wool Trade, Past and Present. He has also written a number of more popular books on textile subjects and on the history of Wessex, the part of England where he lives. His new book, A History of Textile Design, will be published this year.

defense against it. The present author has gone through numerous pattern books showing broadcloths made by a number of West of England clothiers, mainly in the eighteenth century, and one cannot but be struck by the great variety in weight and texture—obviously many different types of wool were used—and above all, an extremely wide range of colors was obtained.

The great interest in the manufacture of these cloths lay in the finishing. The usual routine was:

1. Scouring the cloth with fullers earth to remove the oil and size.
2. Dyeing.
3. Burling to pick out the irregular threads, hairs or dirt.
4. Milling or fulling with soap and water, either in the fulling stocks or an improved milling machine where it was squeezed between rollers.
5. Scouring to remove the soap.
6. Drying and stretching on tenter.
7. Raising the nap of the cloth by brushing it strongly on the gig with teasels fixed upon cylinders.
8. Cutting or shearing off the nap in two cutting machines; one cutting lengthwise of the piece, the other across. The Lewis Cross Cutter was traditionally used for this process.
9. Boiling the cloth to give it a permanent face.
10. Brushing on a brushing machine.
11. Pressing in hydraulic presses, sometimes with heat.
12. Cutting the nap a second time.
13. Burling and drawing to remove defects and then marking it with the manufacturer's name.
14. Pressing a second time.
15. Steaming to take away the liability to spot.
16. Folding or cutting ready for the warehouse.

When one turns to doeskin this fabric represents the nearest made today to the old broadcloth. It has all the attractiveness of the traditional fabric; the main difference being that whereas the old broadcloths were made in the plain weave, the doeskin is almost always made in the four and one step three twill (5 shaft satin).

Another type of broadcloth made in limited quantities today which much resembles a doeskin is that used for covering billiard tables. Generally, however, this type of fabric, once the basis of the high class woolen trade, is very much a thing of the past. It is unlikely that men will revert to a classical broadcloth coat decorated with embroidery such as their eighteenth century ancestors wore. Nevertheless, and despite this, these fabrics remain of interest, indicating as they do one of the things that can be done with wool and with no other fiber.

The doeskin and broadcloth de-

pend for their attractiveness on the lustre and brilliance obtained in the finishing and, one would add, the beauty of the color. It was and is a cloth that was made in finishing. Perhaps the routine given does not stress sufficiently that first of all one must full the cloth so that it is converted almost into a felt. This was particularly the case when broadcloth was made in the plain weave, and not quite so much when the doeskin weave was used where the interest was and is to show a fine steep twill on the face.

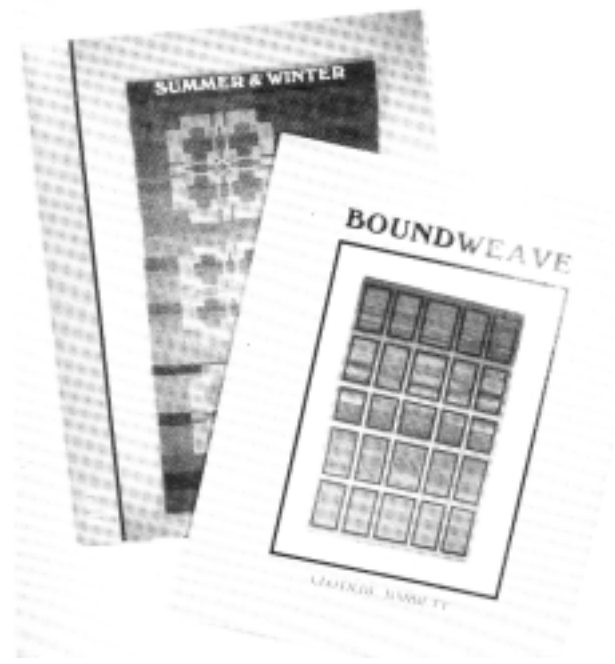
Fulling, however, only provided the foundation for what followed. The great lustre came essentially from the combination of raising and cutting—the combination of these processes was for many centuries known as clothworking—plus the addition of the boiling, usually known in the West of England as the potting and invented by a manufacturer named J.C. Daniels living in that area. The teasel gig was, and still is, used for

the raising and this finish cannot be obtained with the wire gig. The cloth was raised wet on the teasel gig and then cut, preferably wet, so that skinlike pile was obtained. The potting added the lustre and made the finish permanent.

Much of the information which enabled American manufacturers to make good broadcloths came from one of the best books written on textiles in the early part of the nineteenth century. The volume in question was entitled *A Practical Treatise on Dyeing of Wool and Cotton and Skein Silk with the manufacture of broadcloth and cassimere, including the most improved methods in the West of England* by William Partridge.

Partridge had originally come to America from Stroud in Gloucestershire and he published his book in 1823. During recent years it has been reprinted in England and many handloom weavers have found it an excellent guide to making their own broadcloths. ■

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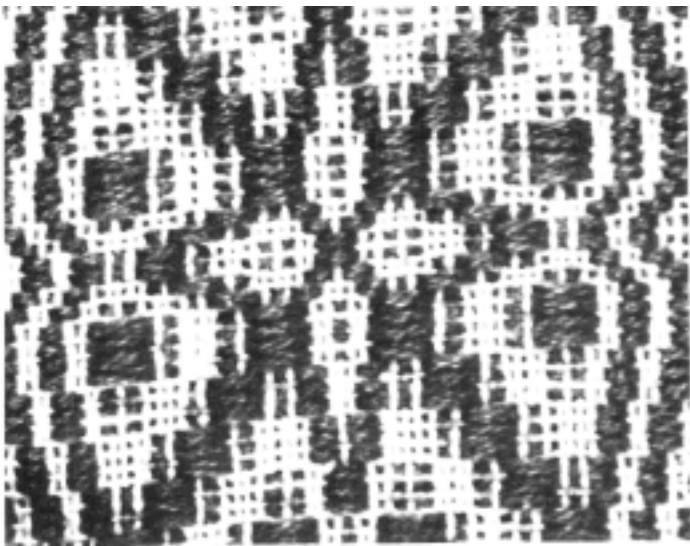
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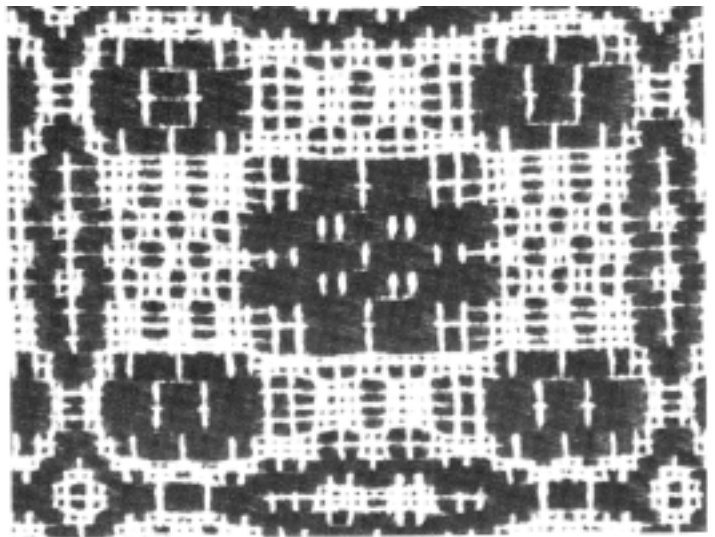
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Some blocks have an odd number of patterns picks.



All blocks have an even number of pattern picks.

WHIG ROSE STUDY by Marvin M. Morgenstern

This is a study of the various ways the overshot pattern "Whig Rose" can be woven and still keep the original pattern plainly recognizable. There are no texture weaves, no straight twill treadlings, and no metallic or nubby yarns included. I also wish to show the look of different warp settings and pattern wefts on the same pattern.

PRELIMINARY REMARKS

There are two points to make with respect to traditional weaving of overshot before I can get into my study proper.

The first point is the use of tabby. We are told to put a tabby pick between each pattern pick. This is fine but it matters greatly *which* tabby pick is thrown before the pattern is started. In order to find out which one results in the most appealing pattern it is best to do the following experiment on the loom. Treadle your overshot pattern in straight twill with your first pattern pick preceded by a tabby on shafts 1 and 3 (subsequently alternating tabby picks as usual). Now weave an inch of plain tabby and then weave briefly in straight twill sequence with your first pattern pick preceded by a tabby on shafts 2 and 4. There will be a difference in appearance and one section of the fabric will have a more cohesive look because the threads seem to "go together" better. This tells you which tabby should precede the first pattern pick in this type of pattern fabric.

A problem that will occur is that you will lose your tabby sequence if you follow standard overshot "as drawn in" treadling. This treadling means: (1) that the pattern picks are woven in sheds which are directly related to the threading blocks; (2) that the order in which the sheds are woven is the same as the order in which the blocks are threaded, and (3) that the same shed is repeated as often as there are warp threads in the block, minus one.

Marvin M. Morgenstern was a lawyer and real estate agent in New York City before moving to Florida in 1965. He became a court reporter and teacher in Florida and continued his interest in hand-weaving. He says that he is more interested in working out new weaving ideas than in cloth production. However, he does make himself finish such projects as 40 feet of fabric for cafe curtains. He also operates a weekend antique shop in a tourist center nearby.

The shed 1 + 2 down corresponds to the block on shafts 1 and 2

The shed 2 + 3 down corresponds to the block on shafts 2 and 3

The shed 3 + 4 down corresponds to the block on shafts 3 and 4

The shed 4 + 1 down corresponds to the block on shafts 4 and 1

To preserve the tabby sequence make sure every pattern block contains an even number of pattern picks. Areas of one-pick-blocks can be woven if such blocks occur in groups of even numbers. You will find it necessary to experiment on the loom in order to discover the treadling sequence which gives the best appearance to the pattern.

What happens if we don't want to go through this procedure? Look at overshots woven otherwise. Some pattern blocks will have pairs of pattern picks, where the picks cling nearly together. Further along in the fabric another block will show the pattern picks with their outer ends flaring apart. And worse, a block with an uneven number of pattern picks will have one edge together and the other edge apart.

My study is of the "Rose" pattern and I have chosen to have my pattern picks cling together in pairs. In the "star" treadling plan I might prefer to have the picks flare apart in order to connect the blocks better. Enough about the tabby, except to credit the foregoing to the late Margaret Newman of Clearwater, Florida.

The second point of traditional overshot weaving is the squaring out of the pattern.

For example we are told to work as follows:

Warp: 20 2 cotton sett at 30 epi (120 10 cm)

Weft: Tabby - same as warp

Pattern: heavier yarn

Weave: Balance the ground, that is, throw 30 tabby plus 30 pattern wefts per square inch (6.5 sq. cm) of weaving, so that if the pattern wefts are cut out, a square of 50 50 tabby fabric remains. I would like to see that cloth! No heavier pattern weft will do it. You can't get that many threads all

in one inch (25.4 mm). The best I could do was a 21 2 warp and tabby weft with a 20 2 pattern weft and then I beat it to death to compress all those threads.

That 20 2 pattern weft looked skimpy. I think of overshot as having plush blocks. Thus, the rule for correct treading is to follow the diagonal as it is woven, not as it is drafted and "square" each block as it comes up along the diagonal.

There are two possible solutions; adjust the size of the wefts or use fewer pattern picks than the "as drawn in" treading calls for.

The Ancient Rose Pattern used throughout this study is from Mrs. Davison's *Handweaver's Pattern Book*, page 140. That photograph and instructions for treading is very illuminating. The pattern repeat contains 50 warp ends. But the treading plan shows 36 pattern picks. This is what Mrs. Davison finds necessary for squaring out the pattern. The treading plan ignores the tabby progression problem but, because of the fluffy wool pattern weft, the tabby streaks and flares are not visible. I cannot follow the same treading because of my concern for the tabby progression.

This pattern, if woven rose-fashion, contains three figures: a large rose, four small roses and a circular frame. The star treading produces a diagonal line as well, but that is not shown in the book's photo.

In Mary Black's *Key to Weaving* (pages 222-224), the same pattern is done with 51 warp ends and 40 pattern picks. Notice the difference: 50 to 36 is very different from 51 to 40.

My preferred weft is 6-strand cotton floss. It spreads well, giving the plush look to the overshot. Those patterns I wove square are generally very firmly beaten.

No adjustment in the treading will make a perfect circular frame and, in the case of star treading, a perfect diagonal line. Consequently, we must approximate.

Ancient Rose was selected as the basic pattern in this study because it has three well-designed figures and is so well known to weavers. Such recognizability is an asset in developing and understanding some of the more subtle variations.

The loom I used is a four shaft jack loom. Overshot patterns are often drafted for a counterbalance loom. But if you will treadle all unmarked shaft (or the blanks in the diagram) you will get the pattern right side up on your jack loom.

A little experimentation on the loom showed that if my hem ended with a tabby having shafts 1 and 3 up, followed

by the first pattern pick, the pattern floats paired up better in the blocks. Two successive pattern picks on the same shaft combination is referred to as a pattern pair. Each pattern pair is preceded by an *a* tabby and each pattern pair has in its *center* a *b* tabby.

ANCIENT ROSE PATTERN WOVEN STAR FASHION (SAMPLE 1)

Let us start with weaving the Star version of the pattern. This is based on the "as drawn in" plan with variations as previously outlined.

This treading "looks" right although the blocks are approximated in size and the number of picks is too low for a 50 50 tabby ground.

Treadle plan:

Border-(2,3,1,1) 2 times
 C-2,3,4,4,3,2
 A-1,1,1,1,1,1,1,1,1,1
 B-2,2,2,2,3,3,2,2,3,3,2,2,2,2
 A-1,1,1,1,1,1,1,1,1,1
 end with C and reverse the border

ANCIENT ROSE PATTERN WOVEN "ROSE" FASHION (SAMPLE 2)

"Rose" treadlings are produced by standard alteration of the "star" treading, which turns stars into roses.

The rose figures are produced by using the same 2 treadles as the star figures but with the treadle numbers exchanged: (star) tr 1 (1X) tr 4 (2X) tr 1 (1X) becomes (rose) tr 4 (1X), tr 1 (2X), tr 4 (1X) for the A pattern.

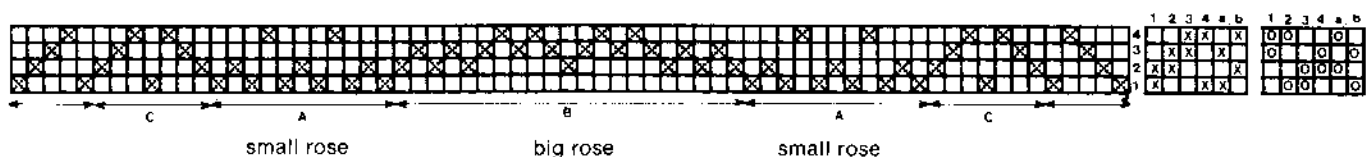
(star) tr 2 (1X), tr 3 (2X), tr 2 (2X), tr 3 (2X), tr 2 (1X) becomes (rose) tr 3 (1X), tr 2 (2X), tr 3 (2X), tr 2 (2X), tr 3 (1X) for the B pattern.

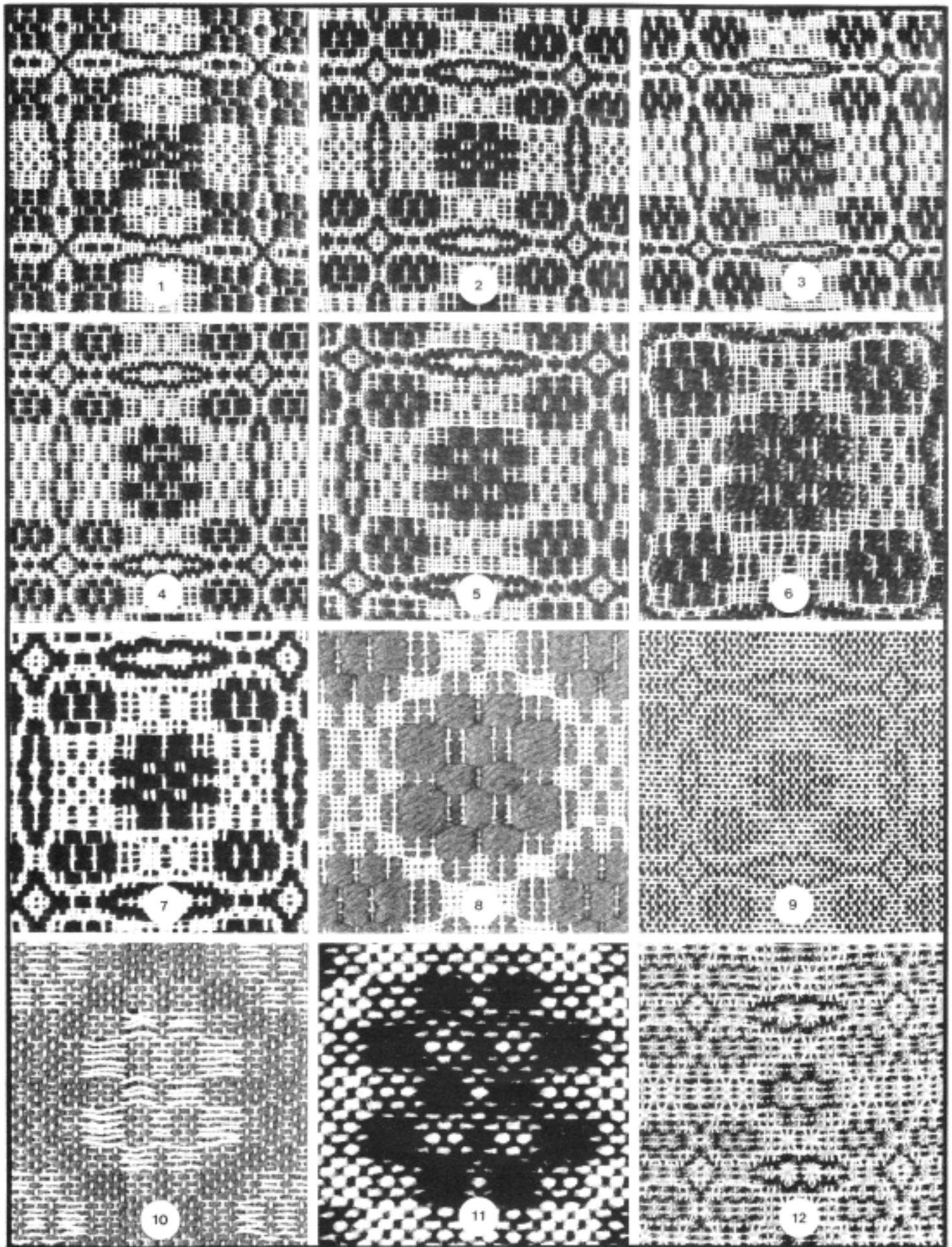
For the sake of the appearance of the fabric, the treading of the small rose (A) has been altered to tr 4 (2X), tr 1 (1X), tr 4 (2X).

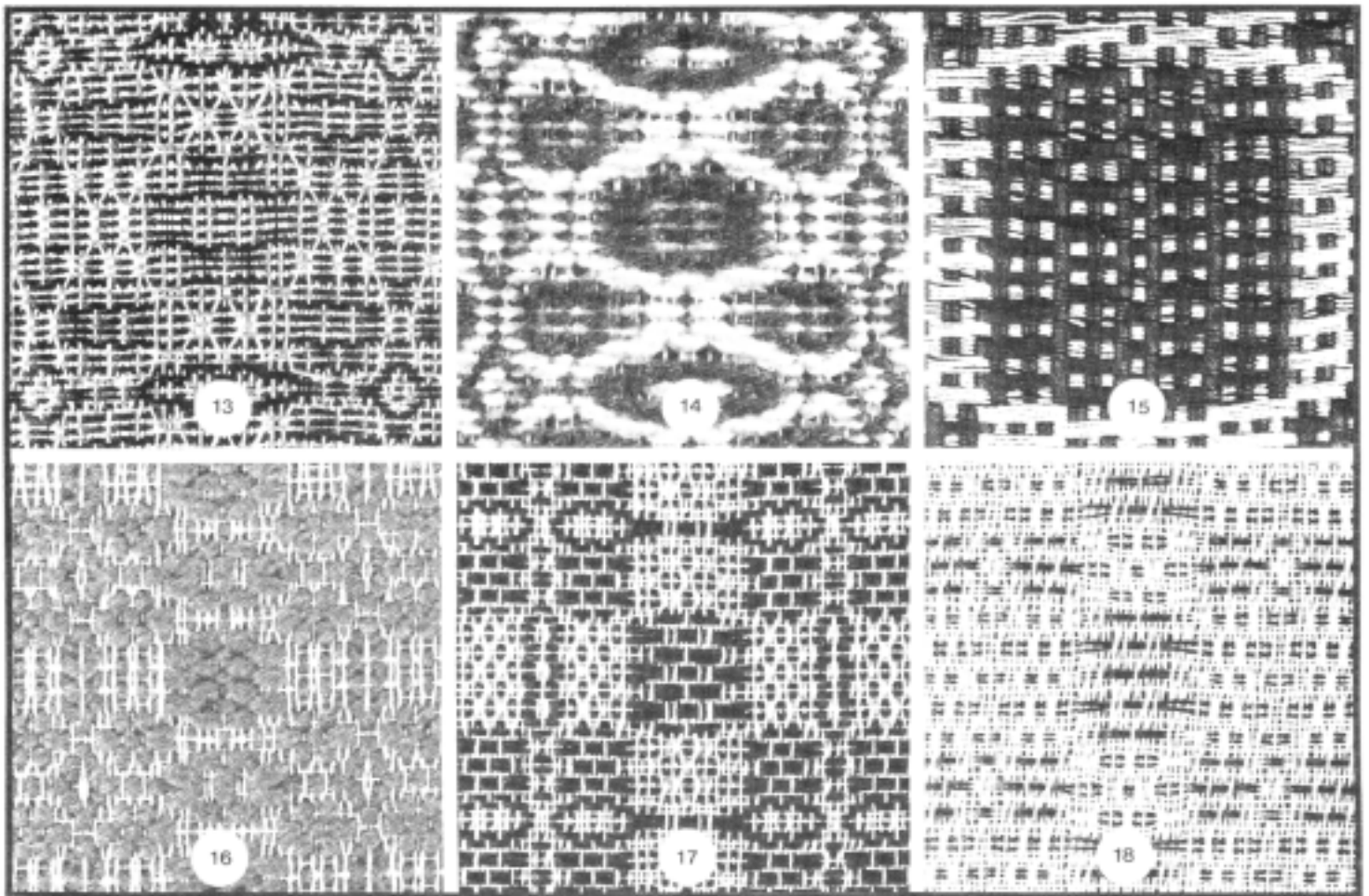
Treadle plan:

Border-(3,2,1,1) 2 times
 C-3,2,1,1,2,3
 A-1,1,1,1,1,1,4,4
 B-3,3,3,3,2,2,3,3,2,2,3,3,3,3
 A-1,1,1,1,1,1,1,4
 end with C and reverse border

Remember you must beat hard to get a good circle here. Without that it just isn't whig rose. If you find your circle flat, add weft picks in pairs; if you find your circle tall, remove weft picks in pairs. Since the warp is stretched tight on the loom, the fabric will shrink warpwise after the fabric is off the loom and your circle will get flatter. My sample is not as perfect as I wished it to be.







EXPERIMENTS WITH WARP SETTS

This is the study of how different warps, different wefts and the warp sett alter the pattern: which ones are attractive and which ones are to be avoided.

SAMPLE 3 has 20/2 cotton warp at 30 epi (120/10 cm), 20/2 cotton tabby weft and 20/2 dark cotton pattern weft. This has a 50/50 tabby ground with 30 tabby picks and 30 pattern picks to the inch (25.4 mm). I don't think it looks good.

Treadle plan:

Border-(3,2,1,1) 2 times
 C-3,2,1,1,2,3
 A-1,1,1,1,1,1,1,1,1,1,1,1
 B-3,2,3,2,3, each of the preceding treadled 4 times
 A-1,1,1,1,1,1,1,1,1,1,1,1
 end with C and reverse border.

SAMPLE 4 keeps the 20/2 cotton warp at 30 epi (120/20 cm) with 20/2 tabby and uses 10/2 pattern weft.

Treadle plan:

Border-(3,2,1,1) 2 times
 C-3,2,1,1,2,3
 A-1,1,1,1,1,1,1,1,1,1,1,1
 B-3,2,3,2,3 each of the preceding treadled 4 times
 A-1,1,1,1,1,1,1,1,1,1,1,1
 end with C and reverse border

There are 8 fewer weft picks in this sample than in Sample 3. But again a very hard beat was required to square this fabric.

SAMPLE 5 has the same warp and tabby weft but sett 21 epi (100/10 cm) to permit larger pattern wefts to pack in.

Treadle plan:

Border-(3,2,1,1) 2 times
 C-3,2,1,1,2,3
 A-1,1,1 each tr 4 times
 B-3,2,3,2,3 each tr 4 times
 A-1,1,1 each tr 4 times
 end with C and reverse border.

This sample is a much softer fabric and more pleasant to handle. I also repeated this sample using 10/3 pattern weft.

SAMPLE 6 uses the same warp and tabby weft. The warp is sett at 20 epi. The pattern weft is heavier (pearl cotton #3).

Treadle plan:

Border-(3,2,1,1) 2 times
 C-3,2,1,1,2,3
 A-1,1,1 each tr 4 times
 B-3,2,3,2,3 each tr 4 times
 A-1,1,1 each tr 4 times
 end with C and reverse border

The 20/2 looks a little thin against the pearl 3.

SAMPLE 7 uses a 10/2 cotton sett 24 epi with a pearl 3 pattern weft. Repeat treading instructions in Sample 2. This is a good fabric although less delicate in appearance.

SAMPLE 8 uses the 10/2 cotton sett at 15 epi and Sayelle sportyarn as pattern weft.

Treadle plan:

Border—omitted

C—3,2,1,1,2,3

A—(1) 4 times, (1) 6 times, (1) 4 times

B—(3) 4 times, (2) 6 times, (3) 4 times, (2) 6 times, (3) 4 times

(3) 4 times

end with C.

} repeat

WHIG ROSE WOVEN IN SHADOW WEAVE

Grace Blum's *Functional Overshot* shows a technique which she calls shadow weave. But, because another weave is also called shadow weave today, I would rather call her technique "overshot in relief". The same treading is used as for traditional overshot but the pattern weft is used for the tabby shots and the tabby weft for the pattern shots.

SAMPLE 9 illustrates this technique. If Sample 2 treading is used it will result in a slightly higher circle. That is because tabby interlaces the warp more than pattern weft does. Therefore, in this sample, 4 weft picks have been eliminated from each repeat by eliminating them from the B unit which is now treadled 3,3,3,3,2,2,3,3,3,3. The 20/2 natural cotton is now the pattern weft and must be laid in very loosely to help it show.

SAMPLE 10 uses 10/2 cotton warp and the same yarn for the pattern weft. Sportyarn is used for tabby weft. The warp sett is 15 epi (60/10 cm). I find this version more attractive. The roses are treadled as usual but the small rose is a block of 4 picks, 6 picks, 4 picks and the large rose is 1,6,1,6,1 picks.

SAMPLE 11 uses sportyarn as warp sett at 10 epi (40/10 cm) and also for pattern weft. For tabby use Sayelle (knitting worsted weight yarn).

WHIG ROSE WOVEN ON OPPOSITES

SAMPLE 12 begins a series of samples woven on opposites. In this type of weave there is no tabby binder. A pattern shot is thrown in one color and is followed by a pattern shot in another color in the shed which lifts the shafts that were left down in the previous pick. This is the opposite pick. It binds the cloth as well as tabby does. It also takes up more space than a tabby would. Therefore, the blocks tend not to have a cohesive look. The appearance of the pattern improves when each is balanced, at the end, by repeating the first pick of the block. Start the succeeding block with that same pattern weft. This adds extra picks of the first pattern color, so you need a little more of that yarn for the project. Since you want the pattern wefts to stand out and the opposite wefts to recede, choose your colors accordingly. In Sample 12 the pattern weft is bright green and the opposite weft is beige which blends with the natural warp (20/2 cotton at 30 epi). Wefts are floss.

Treadle as follows: g for green, b for beige

Border—2g, 1b, 3g, 1b, 1g, 2b, 1g, 3b, 1g, 1b, 3g, 1b, 1g, 1b, 1g, no b

C—3g, 1b, 2g, 1b, (1g, 3b) twice, 2g, 1b, 3g, no b

A—1g, 2b, 1g, no b

1g, 3b, 1g, 3b, 1g, no b

1g, 2b, 1g, no b

B—(3g, 1b) twice, 3g, no b

(2g, 1b) twice, 2g, no b

(3g, 1b) twice, 3g, no b

repeat A

end with C and reverse border

} repeat

The bits of warp that show through add to the attractiveness of these opposites. Much weaving on opposites is done with a wide warp sett to cover all of the warp.

Note - on a 10/2 warp sett at 15 epi with Sayelle as weft, the cloth looks the same only heavier.

SAMPLE 13 is also very handsome. 20/2 warp sett at 24 epi with the dominant pattern thread a dark brown and the opposite thread an aqua. Both wefts are 10/2 cotton.

The brown is woven:

Border—2,3,1,1,2,3,1,1

C—3,2,1,1,2,3

A—1,1,1,1,1,1,1,1,1,1

B—3,3,3,3,2,2,2,2,3,3,3,3

Remember the opposite weft after each pattern weft except for the last pick of each block.

SAMPLE 14 shows our third opposites sample. The 20/2 warp is sett at 24 epi. Weft is Sayelle raspberry for dominant pattern, opposed by vanilla Sayelle. The background (vanilla) forms ridges which set off the raspberry areas but interfere with the whig rose look. The pattern is there but much less obvious.

Treadle dominant:

C—3,2,1,3,3

A—1,1,1,1,1

B—3,2 four times, 3

In this sample I did not balance the blocks. Notice the small roses are closer to the yellow ridge on one side than they are on the other.

SAMPLE 15 is a peculiar version.

Here the warp is sportyarn sett 10 epi. The dominant weft is scarlet 20/2 and opposite weft is natural 20/2. Each shed mentioned below is woven 4 times in red followed each time by its opposite shed in natural. That is 8 picks (alternately in red and natural) for each treadle mentioned below.

Treadle:

C—3,2,1,2,3

A—1,1 three times, 4

B—3,2 nine times, 3

FEATHERSTITCHED WHIG ROSE

SAMPLE 16 is called "featherstitched" by Grace Blum. I prefer to call it twin weft overshot. All the wefts are in pairs with no single shots allowed. In the middle of each pair is a tabby, **but** there is no tabby between a pair and its successive pair.

The warp is 20 2 cotton. The weft red sportyarn.

Treadle plan: (t = tabby)

C-3,t,3;2,t,2;1,t,1;2,t,2;3,t,3

A-1,t,1;1,t,1;1,t,1

B-(3,t,3;3,t,2) repeat three times, 3,t,3

A-1,t,1;1,t,1;1,t,1

WHIG ROSE WOVEN AS SUMMER AND WINTER

Customary Summer & Winter pattern blocks are treadled 12,23,23,12 and 11, 21,21,11 as pattern figures require. But you could also create as Summer & Winter pattern blocks 12,11,11,12 and 23,31,31,23 and others.

Experimenting on the loom shows that our familiar pattern appears when we treadle 12,11,11,12 against 23,31,31,23 for the roses and you happily can put 12, 23,23,12 between the rose groups to close the circle.

After adjusting the treadling for the most attractive corner joints of the figures, SAMPLe 17 was woven with the following **Treadling plan:**

C-1,2,2,1

A-(1,1,1,1) two times

B-(3,2,2,3) three times

A-(1,1,1,1) two times

Since the pattern pairs start on the second shot of each unit instead of the first, weave b tabby before the first pattern shot.

This is again 20 2 cotton and floss pattern weft.

Don't forget that this, as well as most of the others in the study, could be woven on opposites.

WHIG ROSE LACE

SAMPLe 18 is called Simulated Lace because of its open structure. All threads are 20 2 with red for pattern weft.

Treadle as follows: (read across)

C unit-3 red	b nat.	3 red	b nat.	a nat.	b nat.	} repeat
2 red	b nat.	2 red	b nat.	a nat.	b nat.	
3 red	b nat.	3 red	b nat.	a nat.	b nat.	
A unit-4 red	b nat.	4 red	b nat.	a nat.	b nat.	
1 red	b nat.	1 red	b nat.	a nat.	b nat.	
4 red	b nat.	4 red	b nat.	a nat.	b nat.	
B unit-3 red	b nat.	3 red	b nat.	a nat.	b nat.	
2 red	b nat.	2 red	b nat.	a nat.	b nat.	
3 red	b nat.	3 red	b nat.	a nat.	b nat.	
2 red	b nat.	2 red	b nat.	a nat.	b nat.	
3 red	b nat.	3 red	b nat.	a nat.	b nat.	

Repeat A unit.

Editor's Note: This article will be continued in a subsequent issue of *The Weaver's Journal*.

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LINEN: A BRIEF HISTORY*

**A news release published by the International Linen Promotion Commission.*

For thousands of years the briefly flowering flax plant—blue, white or purple—has provided a beautiful, natural yarn and fabric that has served the world well. The oldest surviving cloth in Western Europe, all of linen thread, was woven circa 2,000 B.C. and found at the site of neolithic lake dwellings in Switzerland.

Although carbonization has destroyed the colors, indications are that two or more shades were combined in each piece and that these early weavers had attained a remarkable facility and design sophistication. One piece of cloth is brocaded, with checked and dotted patterns, triangles and stripes. Others use pattern floats, held down at intervals by warp threads. Beginning and ending selvages are richly woven in heavy textured rep patterns or elaborately fringed. It is impossible to reconstruct an entire garment from these linen fabrics, but a long, tufted piece of twined linen may have been part of a cape not unlike the feathered ceremonial cloaks worn by Maori dignitaries. In Europe, linen and other vegetable fibers, laboriously woven with a twined technique adapted from basketry, provided virtually all garments until the Bronze Age.

The Egyptians grew flax and made linen before 3,000 B.C. Indeed, Egyptian wall paintings illustrate the process of preparing linen fiber. Linen has always been associated with comfort and personal pleasure. It was the Egyptians who invented garments of linen so fine it was almost transparent, worn by ladies of the court over elaborately jeweled belts and collars. The Normans introduced the linen "chemise" for men and women in the 11th century. Until 1918, when silks and synthetics began to be used, almost all undergarments were made of linen.

The sybaritic Romans introduced the linen handkerchief and, with the fall of their Empire, this amenity disappeared from the world for almost a thousand years. It was not until the 16th century that the handkerchief reappeared as a requisite accessory for fine ladies and gentlemen. By the 17th century, linen handkerchiefs were so lavishly ornamented with gold, silver, lace and embroidery that they were enormously costly. When such fine handkerchiefs were lost, their owners advertised to offer rewards for their return.

Through the ages, linen appears in great paintings, worn by subjects of religious works, in genre paintings and portraits. The Bible abounds in references to linen and the concordance shows the adjective most often used is "fine" linen.

But it is not only for clothing that the little flax flower served. Linen was known to the Chinese, who supplanted papyrus and parchment with their own invention: paper. Scraps of paper made from rag as early as 105 A.D. have been found in China and the earliest surviving written documents, on excellent quality paper made of Chinese hemp, date from 313 A.D. In 800 and 900 A.D., Baghdad and Damascus became paper-making centers and many ninth century Arab manuscripts exist, all on paper made from linen and flax.

Paper mills were founded in Morocco, then Spain, early in the 12th century and a bit later in Italy. In the 13th century the craft of turning linen into paper reached France, in the 14th century Germany and Switzerland and in the 15th century England and Holland. Almost 1700 years after its invention by Ts'ai Lun, chief eunuch to Chinese Emperor Ho Ti, paper made of the ubiquitous flax flower forever revolutionized communications.

Linen was used too for rope, most spectacularly by Xerxes in 480 A.D. To bridge the Hellespont and bring his huge armies from Asia to Europe Xerxes built two bridges, using more than 600 ships linked by six cables. According to Herodotus, the heavier "two were of white flax, whilst four were of papyrus." The victorious Greeks brought these cables home and dedicated them in their temples. The oldest rope found in Europe near Bad Homburg in Germany, was made of hemp by the Romans in the second and third centuries A.D.

In recent centuries, linen has been an elegant favored fabric for apparel, as outerwear in warm weather and climates. In tropical countries, before the advent of air conditioning, theatre seats were outfitted in summer with linen slipcovers. Early American makers of imposing "touring" automobiles supplied warm weather covers of linen for leather seats. These are niceties that may return as we conserve energy.

In the 80's, great fashion designers have turned to natural fibers for clothing that is elegant, durable and comfortable and linen is an important choice for men's and women's wear. It is a versatile fabric. It may be made into wallcoverings, woven into velvets or jerseys, used as yarn for beautiful knitwear. Linen may be textured, printed, colored truly and brilliantly, woven into textures light enough for handkerchiefs and christening gowns, durable enough for sheets and dish towels and in weights suitable for couture fashions and home furnishings fabrics.

Absorbant, aerated, long-wearing, linen has endured and prevailed since the Egyptians first recognized its beauty and usefulness. In 1981, as we live a bit closer to nature, moderating indoor temperatures, linen is newly important. ■

LINEN FACTS

LINEN BLENDS

Linen blends beautifully with other natural fibers. Babs Hoffman of Boulder, CO, designed the garments shown here, to include linen and yet avoid the possible problems of weaving on a linen warp. The weather in Colorado can be extremely dry!

The garment shown has a cotton warp (10/2) sett at 18 epi, and a linen weft (8/1 wetspun). The threading is overshot, Whig Rose. The pattern weft for the overshot floats is a silk noil yarn which was dyed in the same bath as the commercial yardage silk used for the blouse.

The garment is trimmed with inkle bands using the same three yarns, cotton, linen and silk. ■

The information given here has been gleaned from other publications with credits to Frederick J. Fawcett, Goed Handwerk (Holland), Handweaver and Craftsman and the International Linen Promotion Commission.

FLAX—The term usually refers to the plant or to the fiber which belongs to the bast family. Flax is grown for two purposes: seed and fiber. Flax, in the U.S., is mostly grown for its seeds which are used to make linseed oil. The fiber of these plants is too short to be used for textile. The flax fiber plant "linum usitatissimum" likes a damp warm climate and grows to a height of 36 to 40 inches (91.4 to 101.6 cm).

CYCLE OF FLAX

The processing of flax into linen is a complicated series of steps, basically changed only in degree of



Babs Hoffman

mechanization since the first secrets of the fiber were discovered.

To give the finest fiber, the flax plant must be pulled from the ground (never cut) while the plant is green-gold. Very ripe flax yields a coarser fiber. Once the stalks have been pulled from the ground, they are dried in the fields. *Rippling* or threshing separates the seeds from their pods. The flax-seeds, a highly nutritious food, yield linseed oil, animal feed, and, of course, next year's flax crop.

Retting (rotting) of the flax is the next step. Traditionally, the flax plants are soaked in rivers or

ponds to loosen the fibers from the pectic gum and woody core of the stalk. "Dew retting", or laying the flax in the field to absorb the morning dew, snow retting and retting in bogs are other traditional methods. Dew retting takes 3 to 6 weeks. Water retting in huge tanks with warm water (about 87°F.) gives rapid (3-5 days) consistent results year-round.

Following retting, the flax is dried once again, either in the fields or with currents of artificially warmed air. Once dry, the flax must be *scutched* (ground) to separate the fibers from the woody core of the stalk. Scutching yields



A few of linen's many faces: (from top) lingerie, friction towels, sheets and pillowcases, handkerchiefs and fingertip "huck" towels.

two types of fibers from each stalk: *line* (long) and *tow* (short). Tow fibers are about 4 to 6 inches (10 to 15 cm) in length. The long line fibers

are about 24 to 35 inches (60-90 cm) in length.

Once the linen fibers have been

separated from the flax waste, they must be combed, or *hackled*, into slivers of fiber for spinning into yarns.

LINEN—Yarn or fabric made from flax fiber.

LINE—Yarn spun from the longest flax fibers, giving maximum strength and evenness. Fine line fiber is spun by the *wet* process. Line is also *dry* spun.

TOW—Fiber by-product of flax processing. It is produced at various stages of the processing of flax and varies widely in quality and characteristics. *Tow* yarns are spun *dry*. Tow yarns range from some which nearly approximate *line* yarns to weaker ones containing a great deal of straw and short fibers.

WET SPUN—In the spinning process the fiber passes through a bath of hot water (180° F) which softens the natural gums and waxes and allows a slipping of the component parts of the fiber. This process produces a smoother, more even yarn. Wet spun linen is more suitable for warp. A single wet spun yarn is never heavier than size 8/1. For a heavier wet spun linen the weaver has to use a plied yarn. It is possible to weave with yarn as fine as 25/1 sett at 50 epi (200/10 cm). However, it might be necessary to spray the warp with water or to cover it with a wet cloth.

DRY SPUN—Spun without water. This process produces a duller, softer, hairy and somewhat slubbier yarn. It is more absorbent than wet spun yarn. This linen is most suitable for weft, especially if it is not plied. Sizes of *dry-spun* linen are on the coarse side and rarely finer than 20 lea.

LEA—In linen the term *lea* refers to the count or size. A 1 *lea* linen contains 300 yards/lb (605 m/kg).

To determine the number of yards/lb. of a single linen, multiply the size by 300. An 8 lea single (8/1) has 8 X 300 or 2400 yards per lb. To determine the number of yards/lb. of a plied linen, multiply the size by 300 and divide by the ply. A 2-ply 8-lea linen (8/2) yields $\frac{8 \times 300}{2}$ or 1200 yards per lb.

GREY—As applied to linen, the term means that the yarn or fiber remains in its natural state, unfinished. Linen yarns spun “in the grey” have no other finish than boiling and scouring to remove impurities which would cause rot and mildew.

HYGROSCOPIC—Linen absorbs about 20% of its own weight of moisture without getting wet on the surface. Because of this linen has an excellent anti-static quality. When used as a wallcovering, it does not attract dust, but repels it.

ELASTIC—Linen is the least elastic of all natural fibers.

STRENGTH—Pure linen is one of the strongest of natural materials. It is resistant to tear and shock.

TIPS ON WEAVING WITH LINEN

For warp, use a line wet-spun yarn which has been plied. This insures smoothness, strength and durability. If you prefer singles, use plied yarns for the selvages.

Dry-spun yarn may give trouble. When rubbed by the reed and heddles, dry-spun yarns tend to fray. Do not use dry-spun tow unless you are prepared to face problems.

Protect the linen warp from dry air and sunlight.

Avoid abrasion of the linen by the reed by using a stretcher (tem-plate).

Choose yarns carefully, depending on the characteristics needed for the project.

Wet spun line single or plied.

Dry spun line single or plied.

Dry spun tow single or plied.

Softness—dry-spun is softer than wet-spun singles are softer than plied yarns

Texture—tow is slubbier, line is smoother wet-spun is smoother than dry-spun

Strength—line is stronger than tow; plying adds strength and durability

Linen is completely inextensible. This lack of “give” makes linen somewhat difficult to weave as the warp has to be wound on to the warp beam under absolutely even tension and without any slack threads.

The difficulty of tensioning the warp can be reduced by keeping the warp wet.

CARE OF LINEN

Linen is washable. No special soaps, detergents, water temperatures or bleaches are required. The beauty of linen, its freshness, crispness and sheen are brought out by the process of ironing. The fabric should be damp and ironed with high heat.

Although household linens and most garments are washable, retaining their vitality and becoming more lovely with use, decorative linens (which include draperies, upholstery, wallhangings) may be so constructed and finished as to require dry cleaning. Decorative linens should not be washed unless labeled *washable* and *pre-shrunk*.

LINSEY-WOOLSEY—Fabric named after Linsey, Sussex, England where the fabric was first woven. It has a linen warp and a wool weft. U.S. colonists’ clothing was mainly linsey-woolsey.



This stylized “L”, the international graphic symbol for Western European linen, provides assurance that linen garments and fabrics are made of yarns from the Western European countries—Austria,

the Benelux, France, Germany, Italy, Spain, Switzerland and the United Kingdom—who are members of the Confederation Internationale Du Lin (International Linen Confederation). For more information about linen and linen products, contact the International Linen Promotion Commission, 280 Madison Avenue, Suite 1004, New York, New York 10016. (212) 685-0424. ■



Virginia West

VARIATION OF THE MACEDONIAN SHIRT

by Virginia West

Linen is one of my favorite fibers and one of nature's miracle fibers, the only one I know that improves with use. The more it is laundered and the more it is used, the better it becomes. My draperies, woven of linen twenty years ago, have become softer and glossier with the years. I find linen an easy fiber to

warp because of its dimensional stability and tensile strength—when it is stretched, it stays stretched; it doesn't sag (which makes it a good warp for rugs and tapestries), and as weft it doesn't draw in at the edges. Moreover, there is minimal shrinkage when washed, and who could ever forget

the wonderful flaxey odor that permeates the laundry room when it is freshly washed and ironed.

Linen is a status symbol in the fashion world just now; linen jackets, slacks, and skirts command the highest prices of all wearables. It is usually shown slightly rumpled; maybe that's the status part—to let the world know you're wearing the aristocrat of fibers. I prefer to keep my linens crisp with frequent laundering and pressing. For me the comfort is worth the extra work, and in the humid summer heat of Baltimore, linen's absorptive quality keeps one looking and feeling fresh and cool.

My linen skirt began with an idea from Dorothy Burnham's marvelous, inexpensive book, *Cut My Cote*. As Fig. 1 shows, it was based on the Macedonian shirt (Macedonia is the northern part of Greece, home of Philip of Macedon, father of Alexander the Great): one length of fabric only twelve inches (30 cm) wide, and five pattern parts, obviously woven this narrow because of the width of available looms. Extensions of the idea were used for garments in Palestine, Albania, Hungary and all of Eastern Europe. The sleeves form part of the yoke and are extremely comfortable for an active weaver. On my first shirt, shaping the neck opening on the loom by weaving around a 4" X 6" (10 X 15 cm) negative area of unweaved warp took three hours, then another two hours to darn in all the cut ends of unused warp. There had to be another way, less time-consuming, to accomplish the square neck effect. By playing with shapes on graph paper, then transferring the shapes to full scale on muslin, I was able to work out a simple solution. See Fig. 2.

Virginia West has been exploring the art of fiber for over twenty years, finding the loom a successful tool for functional and artistic pursuits that vary from stylish clothing to liturgical commissions to monumental fiber murals for public places. She is the author of FINISHING TOUCHES FOR THE HAND-WEAVER and WEAVERS WEARABLES and teaches workshops on these and other subjects throughout the United States.

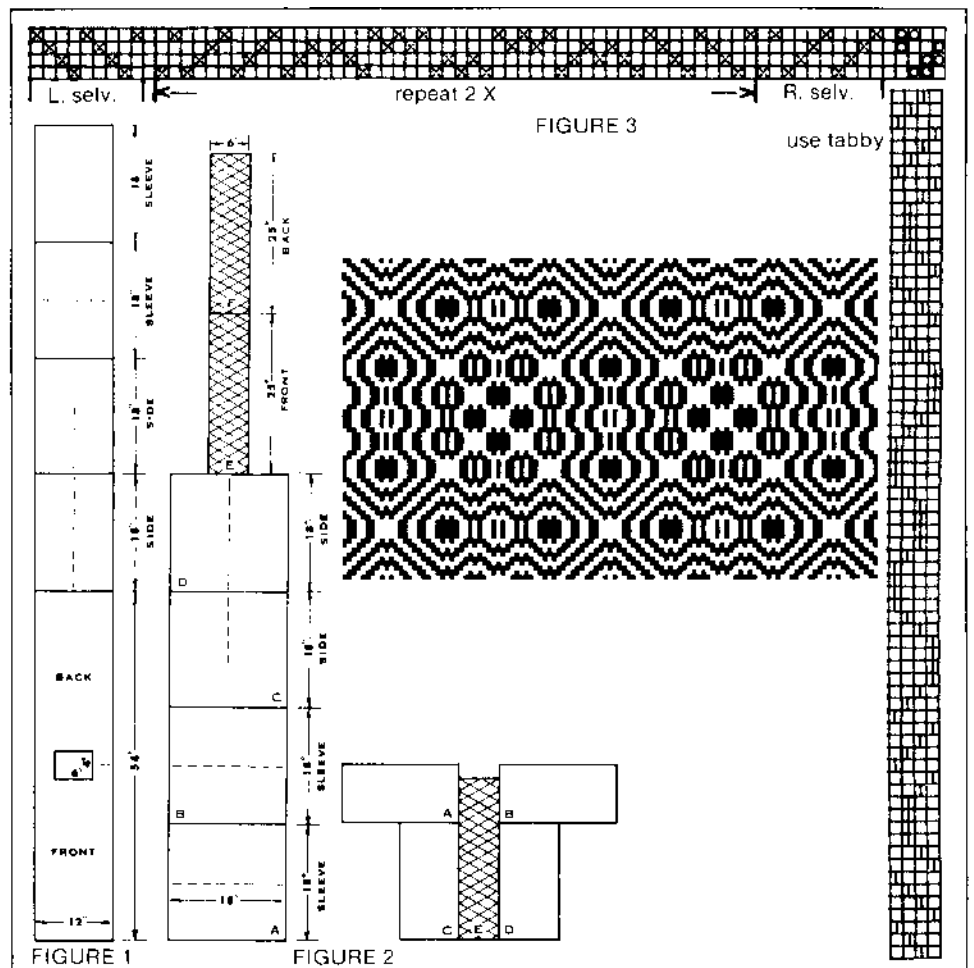
By increasing the loom width for the two sleeves and two side panels to 18" (46 cm), I could reduce the width for the center front and back panels to 6" and use these as set in panels to maintain the square neckline. If patterned, they could offer design contrast to the rest of the fabric. The distance around the lower edge was kept to 48" (122 cm), less shrinkage and seams, sufficient to ease over the hips and even turn up a casing and insert a drawstring for the popular Blouson style.

My warp was Cum 16/2 linen, natural, sett eighteen ends per inch (70/10 cm), eighteen inches wide, 324 ends. I wove the two sleeves and the two side panels all *plain weave*, hemstitching at beginning and end of each piece, leaving a scant 1/4" (6.4 mm) between each piece to cut through later. The hemstitching secures the edge in an attractive picot so that the shirt looks just as neat on the inside.

Now for the center panels. I put on a second warp, 115 ends, of the same linen, and threaded to DIADDEM, a miniature Overshot pattern from the Josephine Estes book, Part II. For the pattern thread I chose a nubby boucle, such as Irish Lace from Henry's Attic; the pattern is very subtle, but my belief is that a little Overshot goes a long way. Please don't weave the entire shirt in Overshot—that would be overdoing a good thing. Overshot is best when contrasted against plain fabric.

You could do the entire project on one warp by dropping six inches of warp each side of center, pulling the warps out of the reed and tying them with a slip knot in back of the reed, between the heddles and the reed. They release with the warp and just hang there, and if you don't want to waste material, when you've finished the narrow panels, you can re-sley, tie on again and weave a couple of place mats.

To assemble, fold on the lines indicated, "right" sides together, seaming A to C first in the front, then the back, then stitch the horizontal



underarm seam. Press seam up toward the yoke (it works better this way), and turn "right" side out. Turn under and narrowly hem the top edge of center back panel then baste over the "right" vertical selvedge edge of A and C. Top stitch by machine. Attach the front panel in the same way. The distance down from shoulder line will be determined by you when you make your muslin pattern—mine is five inches (12.7 cm) down. Now assemble B and D. Baste, then top stitch the remaining edge of center front and back panels to B and D.

The vertical edges of A and B, where they form the neck edge, will be selvedges, and if they are neat can be left, but if uneven, fold under a 1/4" hem. The selvedge sleeve edges may be hemmed too. If blouson style is desired, turn under a casing and insert a drawstring.

Variations: The shirt can be shortened for a brief version. For a dress, C, D, E, and F can be lengthened. The center back panel could

be plain weave. In addition to linen, the fabric could be woven of all wool, or silk and wool, etc.

Side Panels and Sleeves

WARP: 16/2 linen, natural

WEFT: White cotton-linen blend, or 10/1 slubby linen or linen-rayon

SETT: 18 ends per inch (70/10 cm)

WIDTH: 10" (46 cm) Total ends: 324

WARP LENGTH: 3 yards (2.74 m)

WEAVE STRUCTURE: Plain

Center Front and Back Panels

WARP: Same

WEFT: Tabby, Same

Pattern: Boucle, such as Irish Lace, Henry's Attic

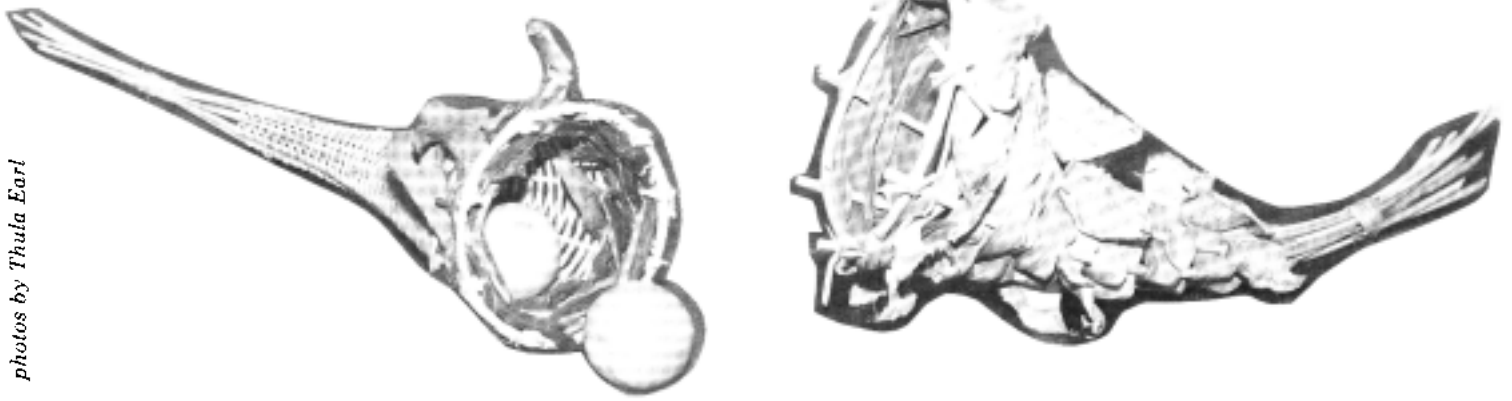
WIDTH: 6" (15 cm) Total ends: 115 (See Fig. 3)

WARP LENGTH: 2 yards (1.83 m)

WEAVE STRUCTURE: Overshot

SETT: 18 ends per inch

photos by Thula Earl



CORNUCOPIA (HORN OF PLENTY)

by Marie E. Graser

The harvest season has ever been a time for the giving of gratitude for the abundance of crops. The Cornucopia or Horn of Plenty has symbolized abundance throughout history in architecture, on furniture, or porcelain, and in silver work. In Greek mythology the cornucopia represented the horn of the nymph Amalthea which was endowed with the virtue of being filled with whatever its possessor wished.

A cornucopia basket can beautifully decorate the holiday table and is easy to make. Natural fibers or commercial reeds and caning materials can be used by weavers. The only tools needed are wire cutters and a **sharp** utility knife.

For the hoop (large open end) you

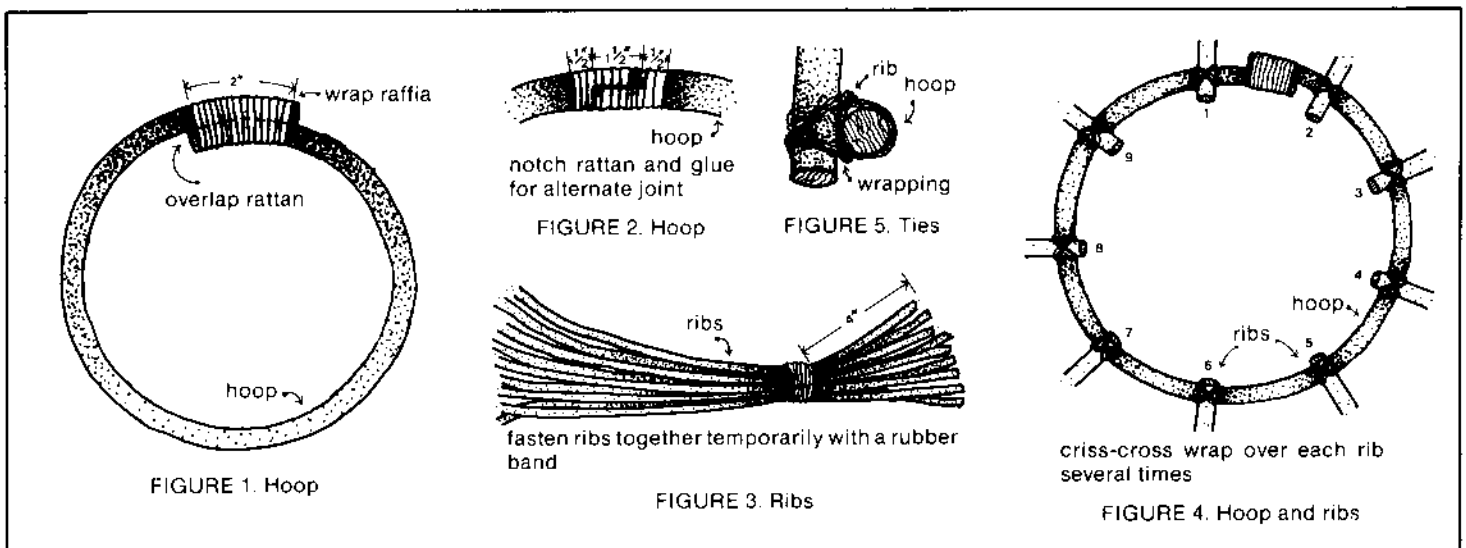
can use a 9" (23 cm) metal hoop that has been covered with masking tape, then wrapped with natural raffia, or you can make a hoop of #7 reed or Kooboo rattan. To make a reed or rattan hoop, cut a piece 30" (76 cm) long and soak in hot water for 30 minutes or until flexible (rattan takes longer). Bend into a 9" hoop with an overlap of approximately 2" (51 cm). Wrap the overlap with natural raffia to secure. (See Fig. 1). If you prefer a smoother hoop, cut a reed 28" (71 cm) long and notch the ends (1½" or 3.8 cm), glue, then wrap with natural raffia, overlapping the notch at least ½" (12.5 mm) each end. (Fig. 2).

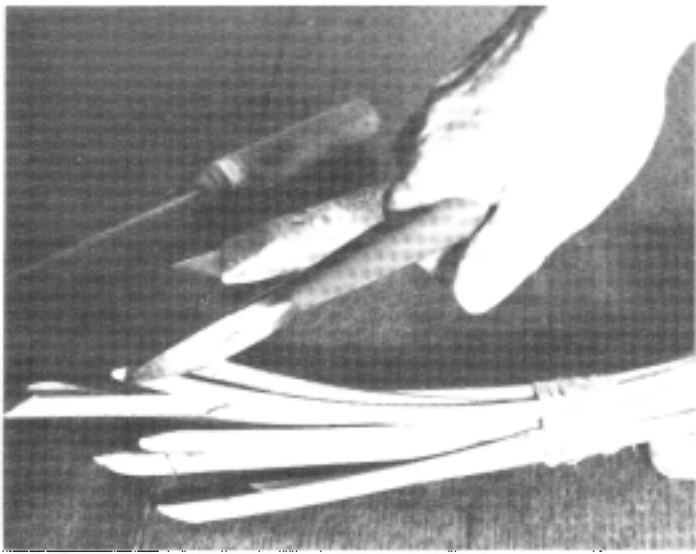
For the ribs, cut nine 18" (46 cm) lengths of #7 reed or Kooboo rat-

tan. (Remember in order to weave in a circle you must have an **un-even** number of ribs). Soak the reed for 30 minutes in a dishpan full of hot water. This will help to shape the ribs into their natural cornucopia shape. Take the ribs from the water and pat with a terry cloth towel to remove any excess water.

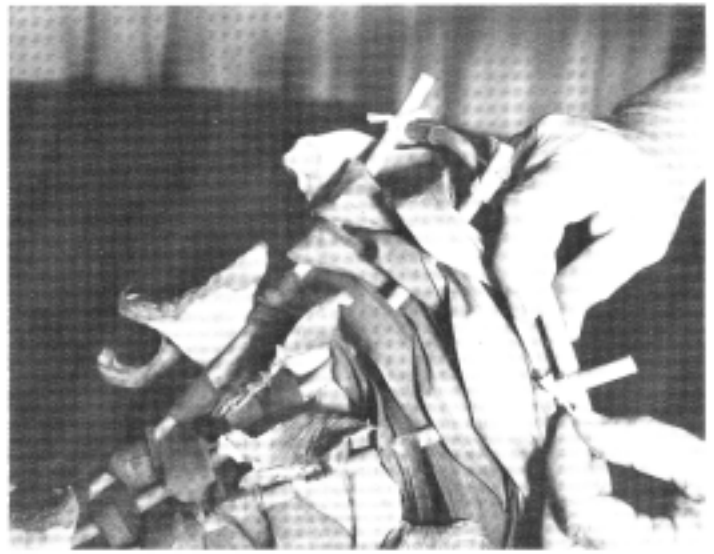
Fasten the 9 ribs temporarily together at about 4" (10 cm) from one end with a heavy rubber band. (Fig. 3). After the Horn of Plenty is woven, the rubber band will be replaced with weaving material—such as raffia. For now the ribs need to be flexible.

Lash the 9 ribs at equal distances around the hoop (about 3" or 76





Trimming the ribs.



Lashing the ribs to the rim.

mm apart). A drop of white glue at the joint helps to secure them. To lash, tie on a piece of natural raffia or waxed linen and crisscross. Wrap over each rib several times where it meets the hoop. (Fig. 4). Tighten the wrap by wrapping over the previous wrappings **between** the hoop and rib, then tie off. (Fig. 5). Progress around the hoop and repeat for each rib.

Starting at the hoop end, weave in a plain weave (over one, under one) with your favorite basketry material or a combination of several as far toward the end of the cornucopia as you possibly can. If necessary adjust the ribs in order as you go. Remove the rubber band and wrap with natural raffia or waxed linen about 4" from the end. Point

the ends at different lengths to finish. (Fig. 6).

Suggestions for weaving materials are: #2 reed, sisal cord, Puloet rattan, chair caning, sea grass, giant philodendron sheaths, date palm stems, or the leaves of dracena palm (especially *Draco dracena*), New Zealand flax, fan palm, gladiolus, iris or cymbidium orchid. Natural fibers need to be dried to shrink them, then soaked in hot water until flexible.

If you wish your cornucopia to sit up rather than to rest on its side, you can add legs to two of the bottom ribs. Cut a short piece of reed and fold over a rib and wrap with raffia. Repeat for a second rib. (Do this step just after attaching ribs.) (Fig. 7).

Now, you are ready to fill your Horn of Plenty with your favorite fruit, vegetables, nuts and Holiday goodies for a happy, abundant Holiday season.

Marie E. Graser is an instructor of basketry and fabric design at Coastline Community College in Huntington Beach, California where she resides. Her special interest in basketry was sparked by active participation in archeological work and early experiences as a Girl Scout. She has been an exhibitor and demonstrator at local craft shows and on a TV program for Rancho Los Alamitos "Creative Rancho" day. Marie has a degree from California State in Long Beach. She is a member of the South Coast Weaving Guild, Handweavers Guild of America, Southern California Handweavers Guild and Wild and Wooly Weavers. ■

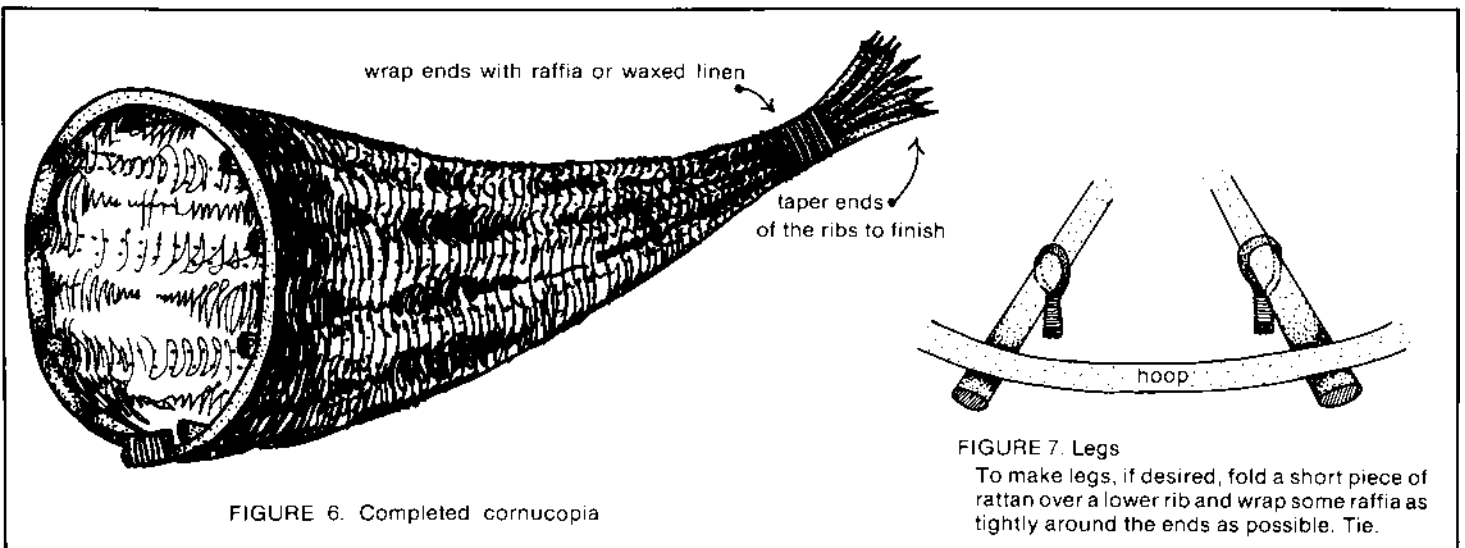
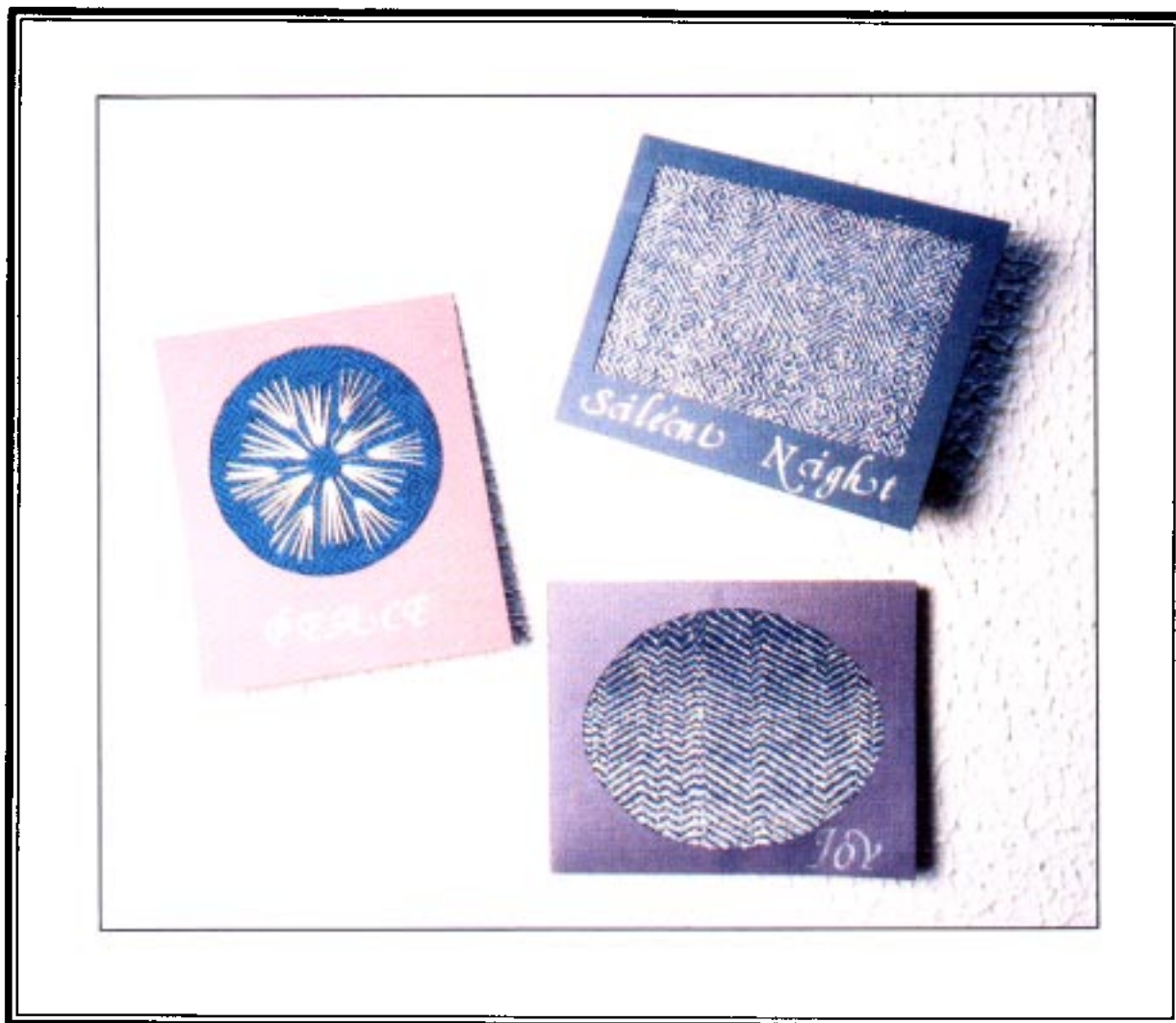


FIGURE 6. Completed cornucopia

FIGURE 7. Legs

To make legs, if desired, fold a short piece of rattan over a lower rib and wrap some raffia as tightly around the ends as possible. Tie.



Clockwise, starting top left; cards 1, 2 and 3.

CHRISTMAS CARDS

Have you noticed that there is a return to fine weaving?

Have you noticed that there is a return to the very basic weave structures such as twill?

Finely woven twills are the theme of this year's Christmas cards. Two cards are woven on the 4-shaft twill of Fig. 1. One card is woven on the 8-shaft twill of Fig. 2.

Note that the 4-shaft cards can also be woven on the threading of Fig. 2 by using a $\frac{1}{2}, \frac{2}{2}$ tie-up.

WARP: 20/2 cotton or equally fine synthetic, wool or linen, color dark blue.

SETT: 30 epi (120/10 cm).

WEFT:

Cards 1,2,3: yarn similar to the warp but a shade lighter.

Cards 2 and 3: very fine metallic used single, two-fold or three-fold so that it packs in to 30 ppi (120/10 cm)

THREADING, TIE-UP AND TREADLING:

Cards 1,2, see Fig. 1, woven as drawn in.

Card 3, see Fig. 2.

Weave five repeats with each of the 7 tie-ups.

FINISHING:

Card 1 is embroidered with metallic thread. Glue the cloth carefully to a piece of cardboard on which the pattern of Fig. 3 has been traced. Use rubber cement but do not saturate the cloth. Use a large-eyed

needle and sew the snowflake by using the following numbers as a guide: 1,2,1,3,1,4,1,5,1,6,8,7,8,9,8,10 etc.

Use construction paper and cut the cards according to the pattern shown in Fig. 4.

Cut windows in panel. See Fig. 5.

Show the woven cloth through the window and fold panels A, then B.

Write your message on panel C.

The folded card will fit in a standard size envelope.

Most photo stores sell Christmas cards with matts precut to accommodate 3½" X 5" photographs. These cards may be used instead of the homemade ones.

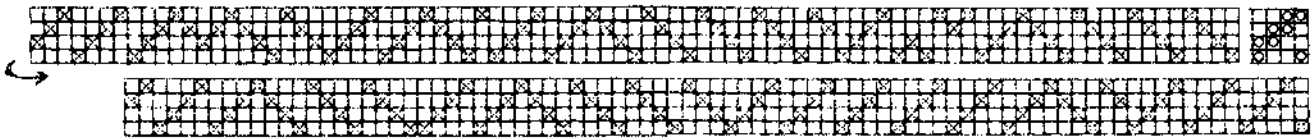


FIGURE 1. Cards 1 and 2.

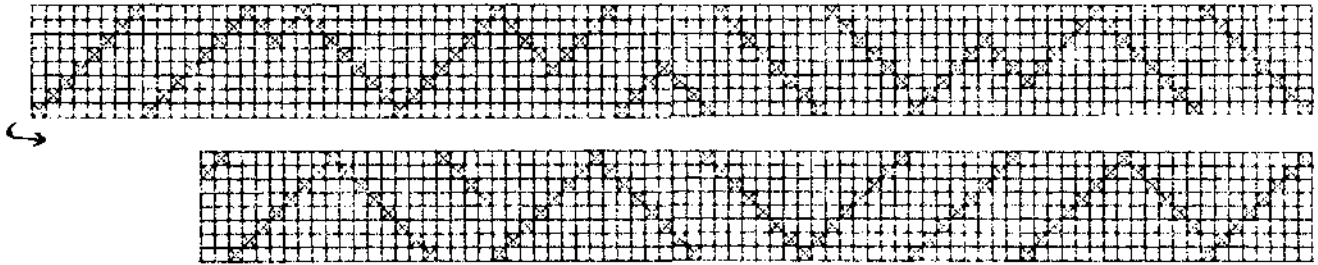
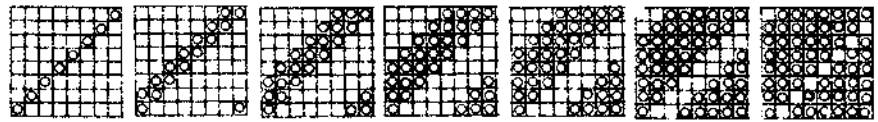


FIGURE 2. Card 3

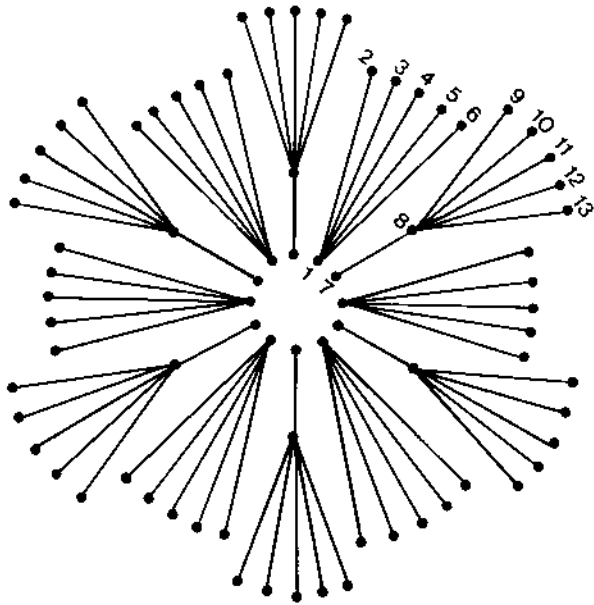


FIGURE 3. Stitching pattern for card 3.

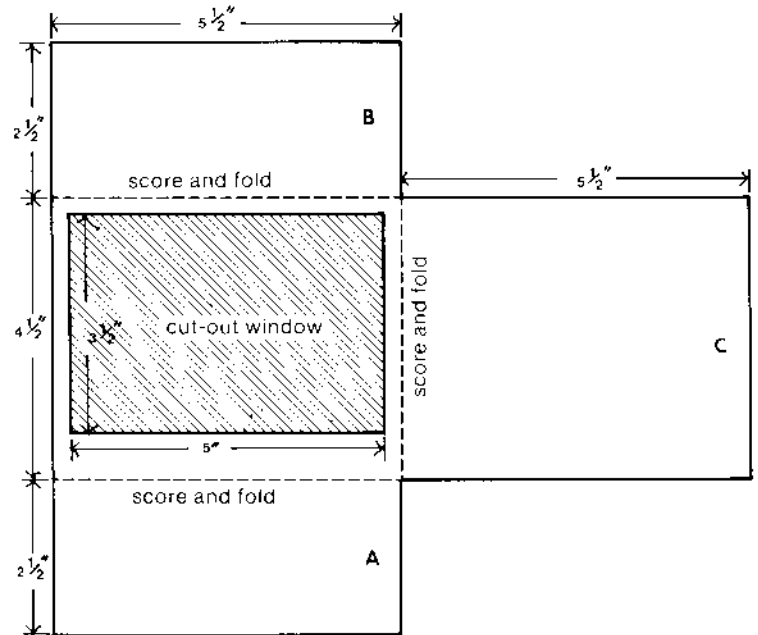


FIGURE 5. Cutting and folding plan.

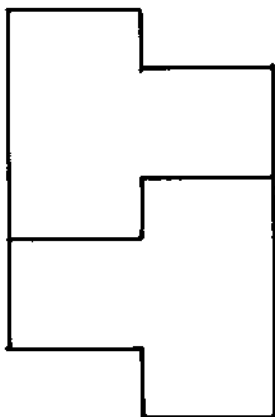


FIGURE 4. Reverse for efficient cutting.

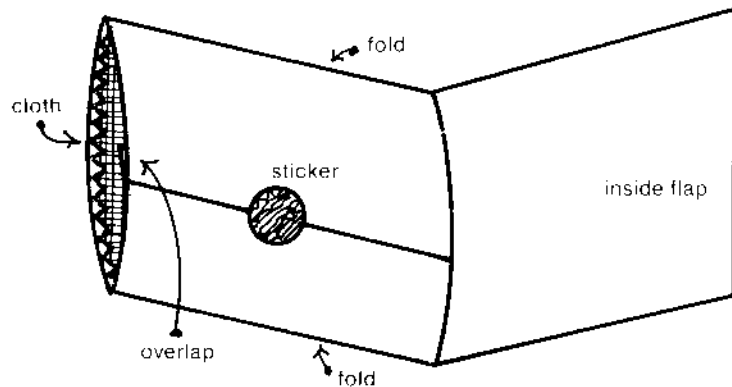
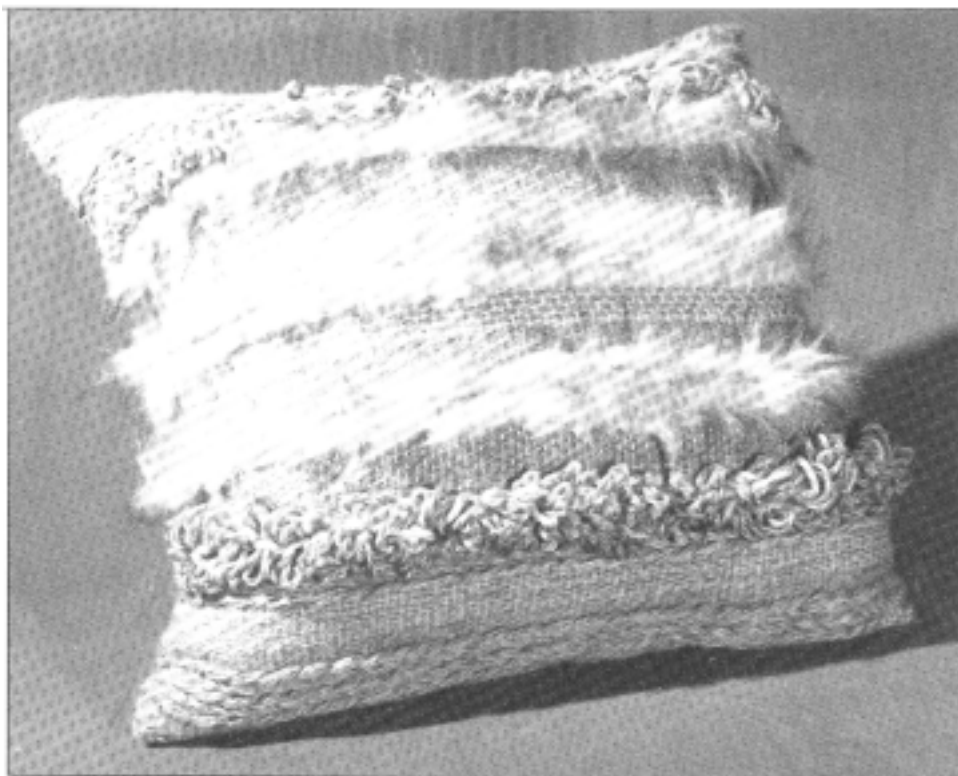


FIGURE 6. Folded card



FURRY PILLOW

by Dorothy Cox

This furry pillow serves as a soft and decorative accent to a living room, either on the floor or couch. The use of fur gives the cushion more textural interest and beauty.

WARP: 8/4 natural carpet warp, 1½ yards (1.37 m) long.

WEFT:

3 ply grey variegated wool or rug wool.

3 ply cream or off-white rug wool.

Fur, cut in strips with a razor or x-acto knife, F" to H (6.4 to 12.8 mm) wide.

The strips must be cut with the skin-side up to avoid damaging the fur. The strips may be tapered at the end and overlapped, or the ends may be sewn with zig-zag on a sewing machine.

SETT: 5 epi (20/10 cm).

WIDTH IN THE REED: 18" (45 cm).

THREADING AND TIE-UP:

The cushion is woven in bands of plain weave, soumak, rya loops and fur strips. The sett allows the plain weave to be weft-faced. The weft must be bubbled because these

arcs of yarn give the material needed for take up.

TO WEAVE:

Weave ½" (12.7 mm) of plain weave (raise shafts 1 + 3, then 2 + 4, beat firmly. Take 2 double strands of grey, soumak stitch over 2 warp threads across the width of cushion, with a pick of plain weave next, return with another row of soumak. Repeat.

Next ¼" (32 mm) of plain weave.

Another double row of soumak.

2 rows of uncut loops made with 2 strands of grey and white, with plain weave in between.

2" (5 mm) of plain weave.

Raise shaft 1, lay in a row of fur, pull the fur up with fingers.

Weave several rows of plain weave, and repeat with another row of fur, this time with shaft 3 up.

1" (25.4 mm) of plain grey weave.

1" of 2 white, 1 grey alternating.

Raise shaft 1, lay in a row of fur the full width, followed by several rows

of plain weave. Repeat with another row of fur, raising shaft 3 instead.

1" of 2 white, 1 grey alternating.

1½" (38 mm) of plain grey weave.

Raise shaft 1, lay in fur the full width, follow by a row of plain weave.

A row of grey and white uncut rya loops, followed by 2 rows of plain weave.

Repeat row of uncut loops.

2 rows of plain weave.

2 double rows of soumak in grey and white.

¾" (19 mm) of plain weave, 2 white, 1 grey alternating.

1½" plain weave.

1 double row of soumak.

This is the front of the pillow.

The back is woven entirely in plain weave the same length as the front.

Remove from the loom and make a casing the size of the pillow, and fill with polyester stuffing.

BOOK REVIEWS

by Clotilde Barrett

THE CHILKAT DANCING BLANKET by Cheryl Samuel - 1982. Published by Pacific Search Press, 222 Dexter Ave. N., Seattle, WA 98109. 8 1/2" X 11" format, hardcover, 234 pp., \$29.95 ISBN# 0-914718-69-X.

This is a book I have been waiting for! So many times have I searched the literature for more information on Northwest Indian weaving but I always uncovered more questions than answers. Cheryl tackled the important and difficult job of researching the Chilkat blankets so thoroughly that she was able to publish this authoritative book on the history, the legends, the designs and the execution of these blankets. A fantastic accomplishment.

This publication is well conceived; the text, the fine pen drawings by Sara Porter, the photographic documentation, all contribute to make this book not only educational but also enjoyable. The section on origin, ceremony and design stresses the cultural importance of these dancing blankets and enables the reader to better understand and enjoy the expressive value of the garments and the patterns.

The remainder of the book is mainly technical and records all the steps so that the blanket can be duplicated with all its intricate details. The text is very clear and well illustrated. The author proves that technical information does not need to be dull. The style of writing is lively throughout and the legends and stories keep the reader aware that this is a book about people and their culture, their art and their beliefs.

The book has a bibliography and index.

A CENTURY OF CHANGE IN GUATEMALAN TEXTILES by Ann Pollard Rowe - 1981. Published by The Center for Inter-American Relations, 680 Park Ave. New York, NY 10021. 8 1/2" X 11" format, paperback, 151 pp. ISBN# 0-295-95908-8.

This publication documents an exhibit of Guatemalan costumes which toured many museums in the U.S. The catalyst on this undertaking was the availability of a rich collection of Guatemalan textiles accumulated over years by Lilly de Jongh Osborne. The earlier costumes date back from the years that traditional dress was still common. Continuing changes in dress have been evident and the author has studied old and new costumes in order to trace the changes in many towns scattered over the entire country of Guatemala.

The author had access to several collections and documentary files in the U.S. Through extensive research she was able to describe the changes in the color, pattern and design aspects of the native Guatemalan traditions.

In this time when social pressures cause the abandonment of native dress, this book will bring needed awareness to the survival of Mayan traditions and the need for more documentation.

UNIVERSAL STITCHES FOR WEAVING, EMBROIDERY AND OTHER FIBER ARTS by Nancy Arthur Hoskins - 1982. Published by Skein Publications, P.O. Box 5326, Eugene, OR 97405. 8 1/2" X 11" format, paperback, 122 pp. \$16.00 plus \$1.50 P/H.

The author has developed a system of teaching needlework by looking at the many stitches as variations of five basic ones: interlacing, wrapping, looping, chaining and knotting.

The text is divided into three main sections. The first section emphasizes the learning process of executing stitches and their variations on fabric or while the fabric is being woven. These first chapters are like a series of "do-it-yourself workshops". The third section of the book contains all the reference material. The stitches are organized in families and the charts show the structure, the foundation and give directions.

In between these two well-related sections one finds a series of short chapters on creative examples of the use of stitches. This part is well illustrated but the historical and technical documentation of these textiles do show that the author is stepping somewhat outside the boundaries of her expertise. Nor is the relationship between the historical textiles and the instruction of the use of stitches always well established.

THE FINAL STEPS. TRADITIONAL METHODS AND CONTEMPORARY APPLICATIONS FOR FINISHING CLOTH BY HAND by Beverly Gordon - 1982. Published by Interweave Press, Inc., 306 N. Washington Ave., Loveland, CO 80537. 8 1/2" X 11" format, saddlestitched, 36 pp. \$5.00 ISBN# 0-934026-07-6.

This is one of those small publications that contain a wealth of information for the handweaver. The subtitle of the book tells us what it is all about. The finishing of cloth includes scouring, fulling, setting, napping, cropping, bleaching, glazing and other processes which turn a woven web into beautiful cloth.

Part I is an account of various finishing processes which have been documented since the start of historical times. It is interesting to note that some of these old processes are still usable today and that our current knowledge of fulling is bleak compared with that of craftspeople of the past.

Rather than giving step by step recipes for various types of woven cloth, the author suggests that the reader familiarize herself with the various processes and their results and work out a system that suits the individual best. The text is full of ideas and suggestions for the various processes involved in finishing cloth.

One thing I had hoped for which is not included in this book is some working drawings of some easy to build equipment which seems essential for finishing cloth properly.

MASTER WEAVERS; TAPESTRY FROM THE DOVECOT STUDIOS 1912-1980. Published by Canongate Publishing Ltd., 17 Jeffrey St., Edinburgh, Scotland. - 1980; 144 pp., paperback and hardcover editions. £ 7.95 (approximately \$14.00) for the hardcover edition ISBN#86241 0010.

The Dovecot studios is a high-warp tapestry workshop located in Edinburgh, whose fame has developed rapidly since Archie Brennan became the director in 1963. This book deals primarily with the history and achievements of the studios and is also a descriptive catalog for a major retrospective exhibition of the Dovecot tapestries held during the Edinburgh Festival in 1980.

Fifty-two tapestries are illustrated through black and white and also exquisite color photography. Each is not only accompanied with statistical information but also with a story about the piece and its makers. This commentary is most interesting as it traces the evolution of design, the interrelationships of the designer and weavers and tells a great deal about the ideologies adopted by the studios.

The introductory chapters of this book were written by several contributors. Madeleine Jarry establishes the place of Dovecot studios within the general scope of European workshops and gives the reader a frame of reference which helps to understand the unique interrelations between designers and weavers.

Harold Cohen writes about his experience of having his designs translated into woven masterpieces. Archie Brennan describes the workings, the attitudes and the philosophies of interpreting paintings through the medium of tapestries. Finally, Maureen Hodge gives a



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NEW BOOK!

UNIVERSAL STITCHES

for weaving, embroidery, and other fiber arts
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200 stitches for warp and fabric
tapestry - textures - openwork - finishes
color and black & white photos



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detailed account of the history of Dovecot Studios.

I found this book most interesting because it gives a look at the inside workings of a tapestry studio and at the interactions between designers and weavers. The photos represent a rich collection of tapestry work done in the twentieth century.

SYNTHETIC DYES FOR NATURAL FIBERS
by Linda Knutson · 1982. Published by Madrona Publishers, 2116 Western Ave., Seattle, WA 98121, 162 pp., hardcover, \$16.95 ISBN# 0-914842-65-X.

With this book in hand, the fiber artist should feel secure about keeping a large stock of undyed wool and/or cotton yarns on hand knowing that these yarns can turn into any color she/he wants.

Although the author uses chemical and technical language, the book is really directed toward the home dyer who has no previous skills but is eager to learn the dye processes and understand them in depth. The text is carefully planned as to convey a lot of practical and scientific information without giving the impression of being a school book. With each new subject the author stimulates curiosity first, then encourages good working habits explaining the "hows" and the "whys", gives enough practical and scientific information on the subject so that the reader has a thorough understanding and control over the processes involved. The subjects include fiber properties, protein fiber dyes, cellulose fiber dyes, color, metric system, the preparation and procedure for dyeing and the various refinements which can be explored as the dyer improves his skills.

The book contains also a glossary, a list of suppliers and has an index for easy reference.

Of all the books on the market today which are geared toward the homedyer with synthetic dyes this one is bound to be a favorite and really will help anyone to become a good dyer while enjoying the experience of learning.

PIECED CLOTHING VARIATIONS by Yvonne Porcella · 1981. Published by Porcella Studios, 3619 Shoemaker Ave., Modesto, CA 95351 8 1/2" X 11" format, saddlestitched, 40 pp. \$9.95.

The garments illustrated in this book are not made with handwoven cloth yet their simple cut and imaginative use of fabric and pattern will be a real inspiration to the handweaver.

The pieced garments described here are all derived from the pattern of a basic vest and are cut from simple rectangles without any waste. The sewing techniques for piecing fabric are well explained. They include strip piecing, patchwork and binding.

The patterns are most suitable for fine, luxuriously woven cloth with brilliant colors and bold patterns. Not a scrap will be wasted!

The cutting diagrams are clear and include dimensions. The construction of the garments is well explained and illustrated.

This book is a good addition to your collection of books on simple patterns for clothing.

INDIGO, FROM SEED TO DYE by Dorothy Miller; published by Indigo Press, 5950 Fern Flat Rd., Aptos, CA 95003, 56 pp, \$5.95. ISBN: 0-960 4060-1-8.

The author relates her seven years of experience with the cultivation and use of the indigo species *Polygonum tinctorium*. Being a textile artist as well as a gardener herself, Ms. Miller has written this book for spinners and weavers who want to grow indigo and dye their own yarns. The author draws from her observations of Japanese dye workshops, from her communications with other experts, and from her readings but above all on her own experience of teaching "success with indigo."

The chemical phraseology is not always accurate and, rather than sounding too scientific, the author encourages the "try-it-and-improve-on-it-approach". It works! The book is quite stimulating and the easy step by step instructions will cause many readers to get hooked on the indigo venture.

A unique and worthwhile publication.

ARCHITECTURAL CRAFTS, A HANDBOOK AND CATALOG by Bridget Beattie McCarthy in conjunction with the Western States Arts Foundation · 1982. Published by Madrona Publishers, Inc. 2116 Western Ave., Seattle, WA 98121, 8 1/2" X 10 1/2" format, paperback, 155 pp. \$11.95 ISBN # 0-914842-803.

There is a renewed interest in collaboration between architects and craftspeople. The Western States Arts Foundation encourages this development and wants it to succeed. These concerns lead to the publication of this book.

The book is divided into two sections: an informative text on how, in practice, to approach the problems of integrating crafts and architecture and a well-illustrated and documented listing of 108 craftspeople from the western states who have proven themselves to produce work that is suitable for architectural spaces.

The text is of great value to architects, craftspeople, art administrators, art consultants, interior decorators and to the private individual who wants to commission a work of art. It starts out by giving a historical background to the collaboration of craftsmen and architects. This dates back to the late 19th century and the philosophy of William Morris.

The chapters "Working With Craftsmen" and "What Craftsmen Need to Know", give practical information for choosing artists, selecting work, submitting designs, and concluding contracts. It deals with many aesthetic and business problems. Ms. McCarthy writes with authority and has produced a very valuable guide. The text is illustrated with black/white photos and enlivened with a series of colored photos of crafts and architecture showing successful examples of the integration of both.

The catalog section of the book devotes one page to each craftsman, his work and some professional and biographical data. The 108 craftsmen were selected through a jury procedure and all reside in the western states. The photos show a great variety of work and emphasize the potentials of integrating craft and architecture

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THE ART FABRIC: MAINSTREAM by Mildred Constantine and Jack Lenor Larsen. Published by Van Nostrand Ltd., 135 West 50th St., New York, NY 10020. Hardcover, 272 pp. \$39.95. ISBN# 0-442-21638-6.

Books like this one, published in large 10 1/2" X 14" format, luxuriously bound and profusely illustrated with excellent color and black/white photography first attract the reader because of their visual appeal. It is a pleasant experience to turn page after page and enjoy the numerous illustrations of varied and imaginative textile forms. Yet, the value of this book lies beyond the sheer pleasure of seeing pictures. The book conveys the vitality of an art form that often is ignored by art historians and museum curators.

The book is about an era (the 1970's), about an art movement in a specific medium (fabric) and about people who "pursue the unknown".

The statements that the authors make about art fabric go far deeper than what one can observe from an occasional encounter. The authors know the field and their statements are based on great knowledge and deep sensitivity toward textiles. They relate the present-day movement to an historical development which starts in the 1870's, the time of William Morris. A previous book, by the same authors entitled *Beyond Crafts, the Art Fabric*, deals with the highlights of textile arts during the 1960's. In the 1970's there was not only a maturing of the artists who worked in the previous decade but also the flowering of a new generation of artists.

The authors have organized this book in such a way that the layman and the craftsman alike can appreciate the accomplishments of the innovators in fabric art. The diversity of the trends is anchored to an overview of the major exhibits of the 70's through which the reader acquires a perspective to which he can relate the mainstream of art fabric. The many aspects of the art movement are discussed in a well organized way, using technical terms and information whenever this leads to a better understanding of the medium in which the artists work.

The complexity of the art movement is elucidated by the meticulous study of its diverse elements.

Through this book, the authors have made important contributions to art history by recording their views of a development that many art historians might otherwise have ignored.

BATEMAN BLEND WEAVES based on Dr. William Bateman's manuscript. Edited by Virginia I. Harvey. Shuttle Craft Guild Monograph #36. 1982. Published by HTH Publishers, Box 468, Freeland, WA 98249. 8" X 10 1/2" paperback, 137 pp., \$16.95 plus postage ISBN# 0-916658-38-4.

The Bateman Blend Weaves are interesting weave structures whose threadings blend some elements of Summer and Winter and some of Atwater-Bronson Lace. These structures belong to the supplementary weft system as, for the most part, they consist of short pattern floats woven on a plain weave ground. An 8-shaft loom is required for most patterns.

The many variations of this system have been thoroughly explored by Dr. W. Bateman and presented in a clear and logical way by Virginia Harvey who intends to publish the entire work of Bateman in a series of monographs.

The woven samples have been clearly photographed and presented with complete descriptions: Warp, weft, threading, profile draft, tie-up and treadling. The book is a fine example of a fabric designer's notebook: a great collection of woven samples and their weaving records.

The book is technical and does not go beyond the description of the swatches. It would have been nice if the text had been supplemented with a few colored photographs of creative projects based on these weave structures.

TEXTILE ART OF THE ANDES—CATALOGUE OF AMANO COLLECTION. Selected by Yoshitaro Amano and edited by Yukihiko Tsunoyama. Published by Heian/Dohoska, P.O. Box 2402, S. San Francisco, CA 94081. 12" X 17" format, hardcover, 247 pp. \$90.00 ISBN # 0-89346-017-6.

Note the format. This book is huge!

The book is a color album of some 250 Andean textiles, all dating back to the pre-Spanish era. The pieces are part of Mr. Yoshitaro Amano's collection which is on exhibit in the Amano Museum, Lima, Peru. In the preface, Mr. Amano explains how he started his collection after World War II in order to research and enjoy ancient work through which the Indians expressed their feelings by means of patterns executed on textiles.

There is a short introduction with some comments on techniques and an historical classification. The plates are documented at the end of the book with such data as place of excavation, estimated period, some information on weave structure and dye methods. There are good descriptions of the patterns but the reader will have to rely on other books such as Harcourt's *Textiles of Ancient Peru and Their Techniques* if he/she is interested in the cloth structure of these textiles.

It is a book for inspiration and for better understanding the expressive power of the woven patterns of ancient textile artists.

A PRACTICAL TREATISE ON DYING (sic) OF WOOLLEN, COTTON, AND SKEIN SILK WITH THE MANUFACTURE OF BROAD-CLOTH AND CASSIMERE by William Partridge. 1973. Published by Pasold Research Fund Ltd., Edington, Wiltshire, U. K. 5 1/2" X 8 1/2" format, hardcover, 264 pp.

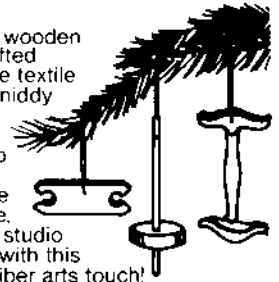
This book is a relatively recent (1973) edition of a text which was first published in 1823. The scarcity of W. Partridge's original publication makes this reprint very important.

W. Partridge was English born but migrated to America in 1808. He came here with a vast knowledge of the textile industry as it was practised in the West of England. He had great concerns about the well-being of his newly-adopted country and was convinced that he could draw upon his experience with the textile industry and make badly needed improvements in the American textile mills.

The first chapters of the book deal with the management of a mill for the production of

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the finest broadcloth. The principles are as important today as they were then, but the mechanics of the production are only of historical value because the equipment used then is today neither practical for the industry nor for the handweaver. However, the contemporary craftsman senses the importance of the quality of raw materials and of the careful finishing of the cloth.

The main part of the book is devoted to dyeing. As chemical dyes were not yet around when this book was written, the information given by the author is a great value to the dyers with natural dyestuffs. Although there are plenty of books on the market today about extracting color from plants, there is very little in the modern literature on the fine craft of non-chemical dyeing. This old text will make dyers aware that there is more to coloring wool yellow than to boil it up with a bunch of marigolds and a mordant.

The complete text is over 150 pages. The editor, K. G. Ponting, has added to this some 30 pages of technical notes which clarify statements which might be obscure to contemporary readers.

Fans of old textile books, scholars of the textile industry and serious dyers will want to add this volume to their library.

SPINNING FOR SOFTNESS AND SPEED by Paula Simmons, 1982. Published by Madrona Publishers, Inc., 2116 Western Ave., Seattle, WA 98121, 8 1/2" X 5 1/2" format, 91 pp., paperback, ISBN # 0-914842-87-0.

The book is about the one-handed method of spinning wool. The method is recommended for spinning soft yarns, for increasing speed, and for spinning a smooth, even yarn effortlessly and without looking. Paula Simmons is a convincing author and excellent teacher. The technique is clearly described and well illustrated with photos. The book contains a lot more than just "how to spin". There are chapters on wool preparation, on wheel requirements and limitations, on the control of the yarn spun and on teaching the one-handed method.

The entire book emphasizes softness and concludes with a woven and a knitted project with soft yarns.

The book is full of good tips for spinning and the last chapter is devoted to just that.

SPIDER'S GAMES, A BOOK FOR BEGINNER WEAVERS by Phylis Morrison • 1979. Published by University of Washington Press, Seattle, WA 98105, 8 1/2" X 11" format, hardcover, 128 pp., \$20.00 ISBN # 0-295-95620-8.

This book is addressed to people who have no previous experience with weaving and who want to become initiated to the challenges of the textile crafts.

In my opinion, the title of the book is an unfortunate choice because it suggests yarn projects rather than weaving. Yet the value of this publication lies in the fact that it initiates the reader into the world of weaving and weaving traditions.

In the first, easy to read, chapters the author conveys an amazing amount of information on yarn: fibers and dyeing.

The third chapter gives the book its name: Spider Games. These are a series of unrelated projects such as "god's eyes", tassels, rope, simple braids and a "cat's cradle" pattern. They must have been included for the purpose of learning to handle yarn but are the weakest part in the book.

The major part of the book is devoted to weaving on simple looms with and without shedding devices, rigid heddle looms and looms with string heddles and heddle bars.

The book contains important lessons on weaving: weft faced, warp faced and balanced plain weave.

In a logical and easy to follow sequence, the author introduces patterning through color effects, some fabric structure (twill) and some special interlacements (brocade).

This book is well recommended for beginners. It is easy to read but slightly romanticized. There are frequent references to important cultural and historical textile traditions.

The attractive projects, the excellent graphics and fine photography will engage the reader from start to finish.

ON-LOOM CARDWEAVING, A MODERN EXTENSION OF AN ANCIENT CRAFT by Herbi Gray • 1982. Published by Herbi Gray, P.O. Box 2343, Olympia, WA 98507, 8 1/2" X 11" format, saddle-stitched, 60 pp., \$8.95 ISBN # 0-9608406-0-5.

Imagine a loom, table or floor model, from which the castle, containing the shafts, has been removed. A set of square cards, with holes in the corners, replaces the shafts. The warp is threaded through the cards and the sheds are changed by rotating them. With this simple piece of equipment Herbi Gray has produced a vast amount of weave structures, many of which are easier to execute than with a regular loom.

This book enables the reader to teach him (her) self the techniques which the author has developed and taught in workshops. The instructions are clear and the illustrations adequate. The variety of fabrics that can be produced on the same warp is amazing. The theory is great and will challenge the weaver who likes to research cloth structures but wants to do it with a minimum investment in equipment. This book opens the door to many new interpretations of cardwoven fabrics. It has many new ideas not found in other books.

SHIRE PUBLICATIONS LTD., Cromwell House, House, Church St. Princes Risborough, Aylesbury, Bucks HP17 9AJ, U.K.

These are a series of little books (6" X 8 1/2" format) called albums, each having about 32 pages and priced at 95 p. (net). Most deal with crafts, tools and topics of old rural life of special interest to the textile craftsman are the following:

Shire Album 81, The Woollen Industry by Chris Aspin • 1982 ISBN# 0-85263-598-2.

The author traces the history of wool in Britain from prehistoric times to today. The photographic illustrations and engravings are valuable records of the past. This booklet would be useful to the weaver who plans to travel to England to visit museums and

woollen mills and to learn more about the economy and function of the early weaving industry. The book includes a guide.

Shire Album 43, Spinning and Spinning Wheels by Eliza Leadbeater · 1979 ISBN# 0-85263-469-2.

This book is well illustrated with wheels and other types of spinning equipment. Each type of wheel is well described and the text is enlivened with interesting historical facts. The author writes about the spinning process and about the different parts of the wheel, their function and their variations. There is so much to read about special features which characterize the types of wheels that this becomes a valuable source of information for spinners and for collectors.

Shire Album 88, Ayrshire and Other Whitework by Margaret Swain · 1982 ISBN# 0-85263-589-3.

White on white embroideries of fine quality are now more often displayed in museums because the beauty of their designs and the fine craftsmanship may never be duplicated again. This booklet gives historical and technical facts about the types that are most likely to be encountered in British museums. The information given is certain to increase the enjoyment and the appreciation of this fine type of handwork.

FOREIGN PERIODICALS

(continued from previous issue of The Weaver's Journal)

TEXTILE HISTORY published by the Pasold Research Fund, Ltd., 23 St. James's Square, Bath, Avon BA1 2TT, England. One issue per year. Each number has the format of a paperback book of about 160 pages. Vol. 12 1981. \$15.00 plus \$3.30 postage.

This publication contains several well researched and scholarly articles on textile history with an emphasis on the development of the textile industry in Europe.

The book reviews are an important part of each issue. Some titles are known to the handweaver but some are excellent resource material whose existence would otherwise remain unknown to most of us.

Starting with the next issue. Spring 1982, the title will change to *Textile History: The Journal of Textile and Costume History and Conservation* with an increased frequency of two issues per year. The aims and scope of the journal will be enlarged. There will be a change from an emphasis mainly on economic history to a journal which will encompass all aspects of the role of textiles and costumes in social history, and the techniques of their conservation.

Clotilde Barrett

ONTARIO CRAFTS and CRAFT NEWS are published by the Ontario Crafts Council, 346 Dundas St. West, Toronto, Ontario, Canada M5T 1G5. Subscriptions include membership in the Council and cost \$15.00 (Canadian). Cost to U.S. subscribers is not given. The magazine is published quarterly, while the news letter appears eight times per year.

Although these publications encompass all the crafts, I cannot remember a single issue of Ontario Crafts that did not contain articles of specific interest to textile artists.

The major purpose of these publications is to be an information source for Ontario artists and to promote the activities of local organizations and craft groups. Ontario Crafts features artists and their work. The articles include technical information that enables the reader to better understand and appreciate the creative process involved in doing crafts.

Also featured are regional art galleries, craft communities, craft schools, and major exhibitions.

Ontario Crafts and Craft News are informative publications that are intended to generate interest in crafts, not only in Ontario, but also far beyond its boundaries

Clotilde Barrett

FIBRE FORUM is published twice a year by the Australian Forum for Textile Arts, Box 77, University of Queensland, Brisbane, Queensland 4067, Australia. For 1982 the subscription price in Australia and New Zealand is \$A 12.00 per; price to overseas subscribers is not given. The subscription includes membership in A.F.T.A., the two magazines, and two news letters.

The primary goal of this publication is to keep alive the communication between Australians who work in the various aspects of art/craft. The Forum also plan to broaden their base to include neighboring countries as well.

The magazine contains a wealth of information on textile activities such as meetings, shows, conferences, and competitions. The entire organization concerns itself with the flourishing of the textile arts and uses this appealing publication to pass information to its members.

The magazine contains interesting feature articles. These include topics such as dyeing and fibers; the range of topics will most likely be expanded in the future. These technical articles may be published later in the form of monographs.

The lively interaction of people that is made possible by this publication will certainly contribute to the flowering of textiles in Australia and to an increased interest in the development of textile art in Australia.

Clotilde Barrett

THE WEB is the quarterly journal of the New Zealand Weaving and Woolcraft Society, Inc., P.O. Box 233, Greymouth, West Coast, New Zealand. Overseas subscriptions are \$NZ 9.00 for one year, \$NZ 25.00 for three years.

The makeup of this journal is standard editorial page, letters to the editor, show reviews and announcements, course announcements, profiles of textile artists, book reviews, advertisements, and articles on a wide range of topics such as tutorials, projects, technical matters, animal husbandry and others. The November (spring) issue contained 48 pages. It is in small format on slick paper with only B&W illustrations and covers.

Recommended for those interested in the New Zealand scene and especially for those who specialize in wool.

Earl Barrett

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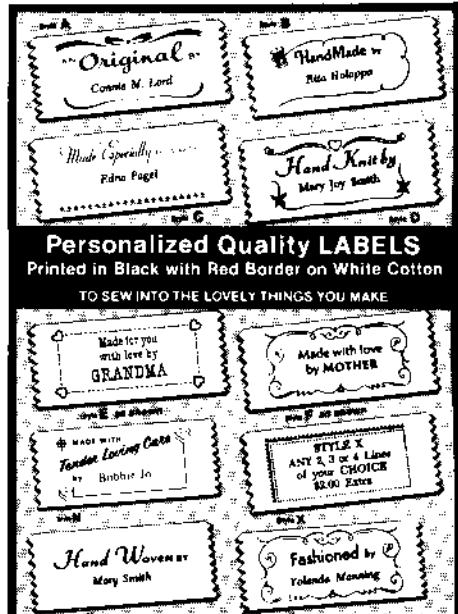
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LA NAVETTE (The Shuttle), published quarterly by the Ghilde des Tisserands under the direction of Gilbert Delahaye, 81170 Cordes, France, 32 pp., + cover. Foreign subscription: FFr 105 (\$23.00 at the current exchange rate).

This periodical, written in French, is subtitled: Tapestry, Weaving, Spinning and Vegetal Dyeing. This gives the scope of the content.

The articles are well-organized into departments but all show a great similarity in style and content. The editor seems always to assume that his readers are beginners in the field and/or have very little background in textiles. The information is for the most part very elementary.

In the department of "technology" the last few issues have dealt with the mechanical aspects of the handloom such as the action of the harness system of a 4 shaft loom. Other types of articles are well-researched studies on textile-related topics such as woolen fibers. The centerfold always deals with a weave structure. This section can be pulled out and collected in a file.

For the Spring '82 issue the editor assembled a nice collection of logos of handweavers, spinners and manufacturers. In the past, there have been good articles on vegetal dyes.

La Navette contains also articles on well known weavers, reviews of shows, comments on handweaving and announcements.

Although basically black and white with one contrasting color, the magazine has great visual appeal and is beautifully illustrated.

La Navette is for the handweaver and spinner who is at the learning stage and who has a good reading knowledge of French.

Clotilde Barrett

L'ATELIER DES METIERS D'ART published by Creative Editions, 18, rue Wurtz, 75013 Paris, France, 10 issues per year. Foreign subscription 140 F Fr per year (\$22.00)

This periodical encompasses all crafts. The editors concern themselves a lot with problems working craftsmen face such as the ability of earning a living, the role of the government, the status of arts versus crafts

The magazine keeps its readers up to date on import craft happenings, workshops, shows. It gives profiles of important craftsmen who practice in France or visit for workshops and exhibits.

As far as textiles is concerned, the articles deal with the people (and the work) who are important to France whether they make avant garde fiber pieces or more conventional woven objects.

This magazine is favored in France by the small collectors as it gives a very good guide to shows and sales galleries.

Pierre Ryall, author of several books on weaving is a regular contributor and often writes about practical and technical weaving problems which will benefit all handweavers.

This is a very useful publication for a crafts-person who plans to visit France.

Clotilde Barrett

TEXTILE/ART, published quarterly by Textile/Art/Language, 62 rue Hoche 92700 Colombes, France. Foreign subscription F Fr. 100.00 (\$16.00). ISSN # 0-294-2178.

This periodical, published in French, deals mainly with art fabrics, both ancient and contemporary. There are no limitations in time nor geographical boundaries to textile arts yet the reader quickly gets the impression that the editor favors the unusual and the avant garde. This periodical has contributed a lot to the acceptance of textiles as a valid medium of the contemporary arts, its recognition by museums and galleries and its appreciation by collectors.

This periodical is very important if one wants to keep up with the mainstream of fabric art, major shows and the philosophy of the greatest contemporary fabric artists. However, the French text is hard to read, somewhat elitist and would require an excellent knowledge of the language to enjoy. It would be most valuable if the editor would include English summaries.

The latest number received (April 1980) is very special as it is devoted to a single subject: archeology and preservation. It includes a supplement, dealing with more practical topics such as the use of the computer. The editorial staff is definitely seeking a way to reach a larger readership without compromising their interest in textiles as part of the contemporary art movement.

Clotilde Barrett

DEUTSCHES TEXTILFORUM is the official quarterly magazine of a guild: Textilforum. Arbeitsgruppe für Textil e.V., Postfach 5944, D3000- Hannover 1, West Germany. Subscriptions are included in the membership dues of DM 30 (U.S. \$14.00) for 1982, but single issues are available to non-members for DM 10 (U.S. \$4.60).

This review is of Issue No. 1 (April 1982) of this brand-new quarterly. The editor's page states, quite frankly, that the magazine is in the manner of some foreign models, especially *Shuttle*, *Spindle* and *Dyepot* (U.S.) and *Goed Handwerk* (Holland). The 54-page issue contains quite a variety of departments: editorial report, short notices, new publications (international), textile tours, events, classified ads, calendar of courses (both German and foreign), textile studio directory (German only), directory of material and equipment suppliers (German only), and guild reports (meeting announcement, guild by-laws, etc.), and, of course, articles. This magazine plans to have a theme for each issue. The April theme was Felt, treated in six short articles.

The magazine is printed on slick paper, contains both color and B & W illustrations, and is indeed an excellent first effort by a guild with only about 500 members. Because of the guild tie-in, the journal is aimed mainly at the German market; no foreign-language summaries are included. A reading knowledge of German is required for full appreciation of the content, but much information about international events, etc., can be understood by all.

Earl Barrett

PRODUCT REVIEWS

Pattern Master I

This computer program is the first in a projected series of programs for textile analysis and design by Janet Hoskins of Winnipeg, Manitoba. Ms. Hoskins is both a weaver and a computer scientist, specializing in the mathematical theory of textiles. The program requires an Apple II plus or an Apple II with Applesoft Basic in ROM or a RAM card, 48K or more RAM, and one disk drive. A joystick or pair of game controllers is useful but not necessary. The program will give graphics hard copy if a Grappler interface is available; we adjusted it to our software printer driver by doing our usual overlay from disk. The program is distributed in the U.S. by: The Looms, Far End, Shake Rag Street, Mineral Point, WI 53565. The final price is not available at time of writing, but will probably be in the \$50-60 range.

This program does just about everything that the other drawdown programs reviewed earlier can do, and some additional things as well. It has an excellent menu-driven structure, and is designed to minimize the need for keyboard facility. Almost everything can be done using the I, J, K, M, left and right arrow, and RETURN keys. Threading, tie-up, and treadling data are done by graphic entry; one selects a graph-paper grid size and enters the data by moving a cursor with either the I, J, K, M, keys or a joystick or "paddles". The program will then produce the design. Color effects can be explored using a separate menu after the design is produced. Errors can be corrected during data entry by striking over on the graph paper, or in a special EDIT mode. Designs may be saved to, and retrieved from, the disk.

The important extra feature of this program is that the whole procedure can be reversed.

One may enter the *design* onto the grid and go to an ANALYZE mode. After several minutes of cogitation, a workable threading, tie-up, and treadling will appear, in the traditional array, alongside the design on the screen. This means that one can take a piece of fabric for which no data are available and after analysis, be able to weave it on one's own loom! This feature puts this program in a class by itself.

Another unique feature of this program is the ability to display "sectional" drawdowns, i.e., cross-sections of the cloth showing where the weft pick is over or under the warp threads. This can be displayed for each weft pick, or two picks at a time.

As always, there are a few shortcomings. The manual is not always explicit enough about just what happens. It says, for example, that part of a design may be entered and can then be automatically repeated to fill the screen. What is *not* said is that any unused "graph paper" is treated as part of the design, and must first be deleted in the EDIT mode before repeating. Another frustrating situation is that when a design is created from user-entered threading, etc., this data vanishes forever when the design is computed. When one goes to ANALYZE to recover them, the draft is often different from the one entered albeit it is accurate and workable. The user must beware of this, and document the original data before going too far.

In spite of these, and a few other shortcomings, we believe that this program is the most useful, scholarly, and versatile of all those we have reviewed to date. Highly recommended.

*An updated version of the manual has corrected some of these shortcomings.

Earl Barrett

PRODUCT NEWS

GLIMÅKRA LOOMS, P.O. Box 16157, Rocky River, OH 44116, who are the U.S. distributors for Glimåkra weaving equipment and Borgs yarns have announced the addition of a distribution center for the western states. The manager of the western division is Stephen Denkin, 16958 Eighth St. E. (P.O. Box 1271), Sonoma, CA 95476 (707)938-8229.

MARY CHASE, Post Office Building, S. Brooksville, ME 04617. Sells flax seeds.

MIDDLETON SPINNING WHEELS, Box 896, Milnor Lake, Troy, MT 59935, offers an electric spinning wheel. The model has been tested since 1967 and is to be praised for its ease of operation.

SCHACHT SPINDLE CO., P.O. Box 2157, Boulder, CO 80306, are now making a small portable folding loom named BABY WOLF. It is a X-frame floor loom with a weaving width of 25" (63.5 cm), comes with 4 or 8 shafts and has two more treadles than the number of shafts. The folded size is 42" high X 34" wide X 17" deep (107 X 86.4 X 43.2 cm).

COTTON CLOUDS offers a "learn to spin cotton" kit at \$7.00 PPD. All you need to spin is included in a 100% cotton muslin carry-pouch. A colorful petite cotton spindle and long-stapled pima cotton. **COTTON CLOUDS** has all that's needed to grow your own cotton: long-staple pima cotton seed, instructions.

DOROTHY MILLER, 5950 Fern Flat Rd., Aptos, CA 95003. Sells indigo seeds.

WOODCHUCK PRODUCTS, 324 N. Bluff, Wichita, KS 67208 offers help to anyone who needs special tools made of wood. They will give you a cost estimate for the design and construction of anything made of wood.

FREDERICK J. FAWCETT, INC., 129 South St., Boston, MA 02111, carry an excellent supply of linen, all the way from retted flax straw through hackled fiber, yarn and fabrics. The yarn sizes range from 140/2 linen for lace at \$21.75/3500m cone, to heavy 3-cord linen rope. Their sample cards and their literature covering the entire line are handy to keep on file to help select the right yarn and color for a project.

BOOKS FOR THE HOME CRAFTSMAN

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RUGWEAVING FOR EVERYONE: Pile, Tapestry, 4 to 8-harness. Tufted and Flat techniques.	Paperback . . .	\$4.50
BOBBIN LACE STEP BY STEP: Directions for making your own pillow, beginners & practical patterns.		\$7.50

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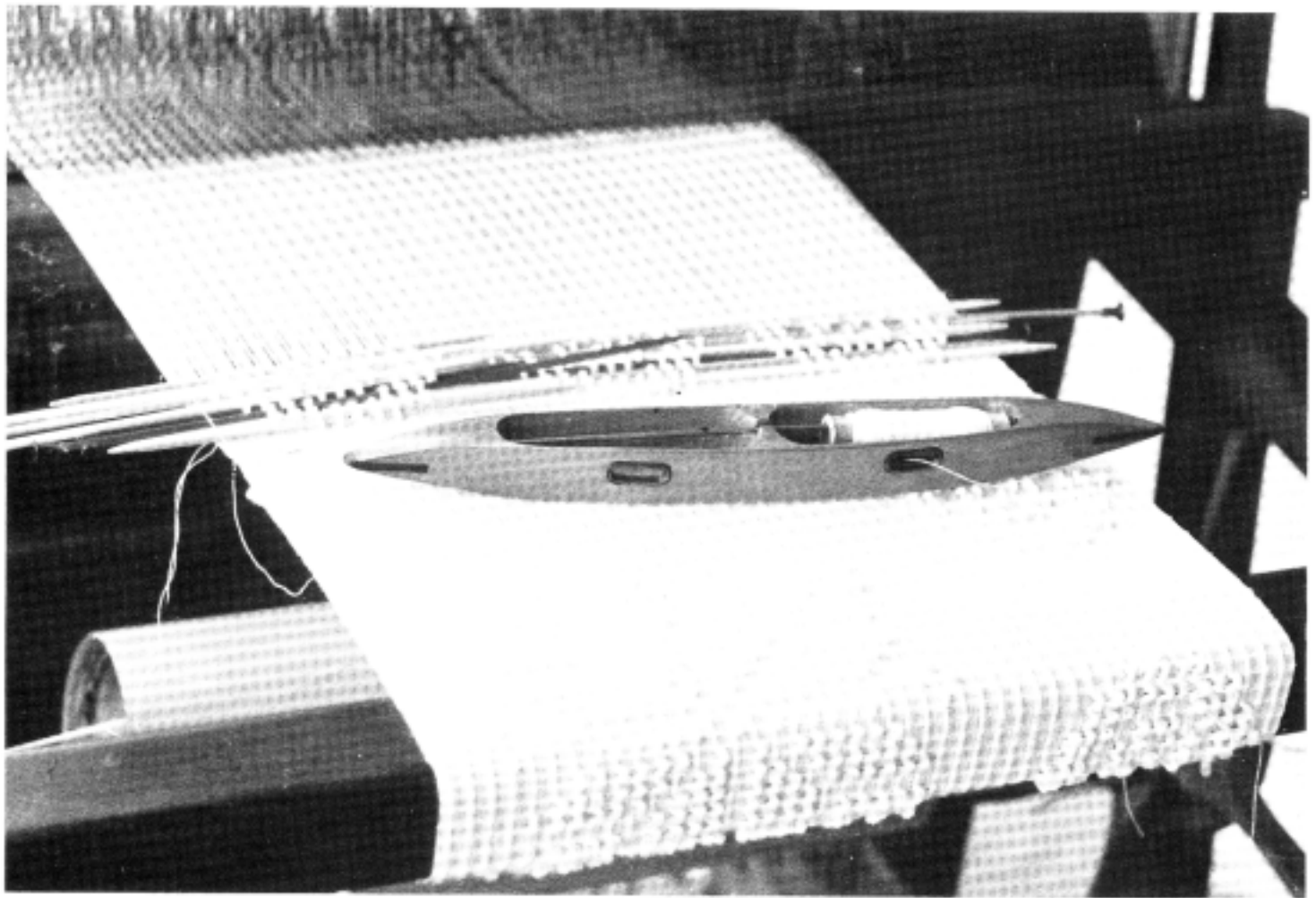
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Knitting needles inserted to hold supplementary warp loops.

WARP BOUTONNE

by Edward G. Lewis

Boutonné of weft loop inlaid pattern as described in *The Weaver's Journal* for Spring, 1982, makes interesting bedspreads, pillows, etc., but the picking up of the weft pattern loops is a slow and arduous procedure.

On comparing a weft-looped fabric sample with a commercial hobnail bedspread, it was found that the bedspread used warp and not weft loops! There is some literature on supplementary warp-looped fabric. Ulla Cyrus, in her *Manual of Handweaving* (1956 ed., p. 209.) includes in her classification of pile fabrics, warp-looped material such as velvet. And Luther Hooper, in his *Hand-Loom Weaving*, describes how to weave velvet, both plain and figured.

Supplementary warp-looped fabric weaves much more quickly than weft looped fabric. It is based either on picking-up of the pattern loops, or on placing the pattern warps on several shafts and lifting the pattern shafts called for by the design. Here the pick-up system is described.

Edward G. Lewis was a profession of political science at the University of Illinois in Urbana when he began to weave. He was intrigued with multiple shaft work and has designed and built many attachments for his looms to help him weave intricate damasks and other textiles.

Now retired and living in California, Mr. Lewis is an active handweaver. He is a member of Complex Weavers, The South Coast Weaver's Guild, and Twenty-Five Weavers. In 1981, with his wife, Margaret, as co-chairman, he headed the Southern Conference of California Handweavers.

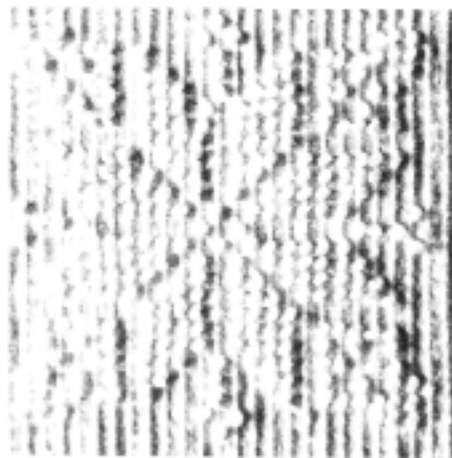
The foundation fabric can be made of close sett warp and weft of the same material, thrown to be 50-50, i.e. a balanced weave. The supplementary warp is of much heavier yarn. For example, the foundation warp can be 20/2 cotton, sett approximately 30 e.p.i. (120/10 cm), and the supplementary warp 4 ply knit and crochet cotton, set 3 to the inch.

The supplementary warp must be considerably longer than the foundation warp because the pattern loops take up much faster than the foundation. Depending on the pattern, the supplementary warp may be one-third, or more, longer.

Using a separate supplementary warp beam soon leads to uneven tension. Where the pattern has few



Supplementary warp threads, each butterflyed on 16 penny nails and held by rubber bands.



Finished pattern sample.

loops, the tension will be slack and where there are many, it will become far too tight. A commercial hob-nail system avoids this unevenness by making the fabric reversible; the non-looped areas on the face are looped on the back, and *vice-versa*. But this procedure would be difficult for the hand-weaver.

The solution, as suggested by Luther Hooper for figured velvet, is to weight each supplementary warp end. Hooper says that a figured velvet warp may require as many as 800 to 1000 individually weighted warp groups! But for warp-looped boutonne, there may be, say, 3 per inch. A sixteen-penny nail (about 3½" or 9 cm long) makes an appropriate weight. The warp can be butterfly wound on the nail, but one must be careful not to be scratched by the sharp, rough nail point. Each warp can be held on the nail with a rubber band, and unwound as needed.

The supplementary warp is threaded through one heddle frame, for pick up warp loops, or through several shafts, for shaft-controlled loop patterns.

In either system, the pattern is formed over a dowel (say ¼") or a knitting needle, and the loop thus formed is secured by tabby shots.

To form the fabric, weave several tabby shots. One tabby shed will include the supplementary warp, and the other not, producing a heavy line lengthwise in the fabric.

The last tabby before the pick up should be thrown in the shed which lifts the supplementary warp. To weave the first line of pattern, raise all of the supplementary warp, and thread the dowel or knitting needle so that the looped parts of the pattern will be raised by the dowel or needle. Drop the shed and push the needle to the reed. Treadle the tabby shot in which the extra warp would normally be down. The tabby thread will pass over the non-pattern parts, and under the looped parts. Then proceed with the normal tabby. On the next shot, all of the pattern warp will be up along with its tabby shed, and the needle will be brought back to the fell by the beat of the reed. The third tabby shot will go over all of the pattern warp, imprisoning the loops of the pattern on their needle. Continue tabby weaving until there are 8 or so shots including the picked-up line, then proceed with the next line of pattern. The needles must be left in for seven or so lines of pattern, otherwise the loops tend to disappear. Thereafter, pull out the needle nearest the cloth beam, and continue the pick-up with it.

The beat will need to be firm, so that there will not be a considerable hole in the fabric under the warp loop. One beat on the open shed, and a second one on the next shed will keep the gap under the loop small.

This system is a faster and easier way to make a boutonne fabric.

For the sample pictured:

FOUNDATION WARP: 20/2 mercerized cotton

REED: 10 dent (40/10 cm)

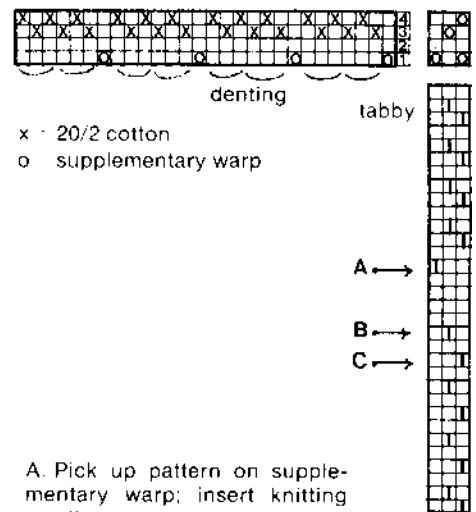
SETT: 3 ends in each of two dents, with the third dent left open for later inclusion of supplementary warp

SUPPLEMENTARY WARP: 4 ply knit and crochet cotton, sleyed every third dent, each end separately butterflyed and weighted with a 16-penny nail.

WEFT: 20/2 mercerized cotton

THREADING: X = 20/2

O = supplementary warp



A. Pick up pattern on supplementary warp; insert knitting needle (#4 or 4.5 mm) or "a" dowel. Push pattern needle to reed, drop supplementary warp shed.

B. This shot leaves loops on top.
C. This shot binds loops and knitting needle.

Leave needles in for seven or so lines of pattern and then take out the one nearest cloth beam for each next line of pattern

TREADLING:

Lift tr. 2; ground weft] 8 X
Lift tr. 1; ground weft]

Lift tr. 3; pick-up pattern on knitting needle or ¼" (3 mm) dowel; push needle to reed; drop tr. 3.

Lift tr. 2; tabby; loops on needle will be on top, rest of supplementary warp down

Lift tr. 1

Leave needles in fabric for seven or eight pattern lines. ■

A PERSPECTIVE ON RUG DESIGN

by Martha Stanley

It is entirely appropriate that each of us design differently—and intuitively. We each have a different sense of what makes a rug beautiful. Our own culture has not evolved a strong tradition of rug weaving to impose refined and narrow guidelines. Consequently our interpretations of rug design are as varied as our backgrounds, interests, and personalities. They also probably reflect our gradual awakening to the nuances of rug weaving through the divergent and circuitous paths our individual weaving experiences have taken us.

In an attempt to encourage both diversity and a thirst for improvement, I'd like to share some of my own feelings about rugs and the visual and emotional potential which they have in our lives. I feel these ideas are by no means complete. They do not represent a packaged, tried-and-true formula for successful rug weaving. They might serve as glimpses of the deep and respectful intimacy with rugs which I like to imagine that generations and communities of rug-weaving families probably have had in some parts of the world. These notions seem to me so basic to good rug design that they are implicit in both weaver and rug in any strong rug tradition.

The first few years I wove rugs, design always presented a large measure of trauma. I struggled over a piece of graph paper until some pleasing lines began to appear. The drawing was always on graph paper, always to scale, precisely delineated and respectful of the $\frac{3}{8}$ " (19 mm) wide blocks recommended in Peter Collingwood's shaft switching technique (my mainstay then). Then, turning to an ample selection of colors, I began to assemble two piles of shades to represent the two block/color areas in the rug. This was fairly simple

when the supply of colors was generous. The results were often more successful when the stock was low and I had to introduce colors whose combined effects presented surprises. Once the choice of colors was resolved and shuttles wound, it was a fairly routine and rhythmic task to weave the design into a rug.

Some of the rugs were quite attractive; none were terrible, none were wonderful. Probably the most significant thing to be said about them was that they were eminently superficial. The design seemed superimposed on the surface of the rug. Its imagery, message, could be fully explored within ten minutes. I don't know that the rugs I weave now are any more popular than they were then. But they are not superficial and design no longer is the terribly self-conscious struggle that it was. I realized that term design had to be broadened to include the whole process of visualizing, planning, and executing the rug.

Design also had to encompass a consideration for every tangible ingredient in the rug.

- **THE YARN:** the appropriateness of its fiber; the direction, amount and regularity of its spin; its capacity for creating the textural effect desired.

- **COLOR:** how much of it; its intensity and variation; its contribution, beyond defining shape, to the emotional richness of the rug.

- **THE WEAVE** structure or technique: how close the relationship between the visual shapes or imagery and the paths the yarns take in the cloth; its textural rendering of the surface of the cloth.

- **THE DESIGN,** pattern or visual imagery: how well proportioned and pleasing within itself, how well scaled to the size of the rug; how sensitively its lines reflect the

actual and natural interlacings of the threads in the weave; how successfully it suggests movement while remaining "on the floor" visually; whether it reads well and richly from different distances.

- **THE IDEAS** one holds about the floor: its relation to our lives; weaving for it.

- **HOW WE VIEW OUR ROLE** as weaver in the process.

A rug of any lasting value results from a merging of all its ingredients, well crafted and proportioned, rich in suggestion and nuance. Skilled use of fiber, spin, color, visual imagery, scale and technical mastery—all are present. When they are sensitively balanced there is such an intimate blending of their effects that the beholder cannot isolate their roles—and in fact has little wish to. The impact of the total effect surpasses the imagined potential of its parts.

The interlacement of threads imprints a sense of texture on the surface of the rug. Texture may be pronounced, reflecting varying illusions back to the viewer according to the quality and direction of lighting. But in even the simplest of weave structures there is a textural consequence which subtly enhances or dilutes the quality of the visual effect. You might compare this effect to that of the tiny dots with which a newspaper renders a photograph. The photographic image is transformed by the introduction of these dots. A similar transformation occurs in the rug. No matter how skilled and experienced the weaver, designing on paper can never capture these subtle textural results which occur in any weaving. Working shapes and weaves out on paper can be a very convenient exercise for anticipating some of the problems we might encounter. However, the more paper becomes a substitute for exper-

rience, intuition and letting go, the less interesting our textiles often become.

Designing needs to begin long before paper appears. Paper serves to clarify the general concept. It is subservient to the mental vision of an idea, and both idea and paper defer to the reality of what appears in the cloth. Designing usually does not end when the rug is completed, but becomes a series of questions about "what if", which eventually evolve into another rug.

An element of surprise takes the rug visually beyond the limited imagination of the weaver, beyond the pre-planned package with its careful arranging, calculated shapes, colors, effects. It reflects something of what actually occurred in the weaving process. It can be charming, refreshing, invigorate one's ideas and provide a sense of vitality in the rug. It connects the various components of the rug, the weaver's sensitivity and the weaving ritual. It is in a sense an interruption in the design which echoes the aliveness and awareness of weaving. The interruption becomes a strength rather than a flaw.

This surprise is not a cute idea of the weaver interjected in the pattern. It arises from the process itself. As an example let us presume that during the weaving of a small pattern motif or design in the middle of the rug, the weft on the shuttle runs out several picks before the motif would naturally end. Instead of automatically reaching for an additional length of the same yarn to finish the motif, the weaver's sensitivities or intuitions are alerted. What is going on in the rug? Would it be better served by continuing as planned? Or might additional impact not be achieved by taking an alternative path? The motif might end here prematurely, strengthening the effect with its abbreviation. Or a perceptively different color might be substituted to complete the pattern. In either case the repetition or motif is altered in

a way which still respects the overall effect. Yet the eye eagerly seeks out and delights over the break in repetition. Design can be given extra life or vitality not merely because of the variation in its predictability but also because it reflects a sense of liveliness and flexibility, a joyous accident infusing the weaving process. More is involved in the variation than just the weaver's imagination.

Notice how responsibility for the success of the rug has shifted from the weaver to the process (of which the weaver is one part). The ultimate result is a directing of the weaver's energies into the role of conductor as the rug is planned (The conductor is the only *silent* member of the orchestra), and into the role of collaborator while at the loom.

In such a relationship of weaver to craft there are not adversarial roles in which one participant threatens to take over. The weaver does not any more control the cloth than the cloth controls the weaver. And the product of such a venture usually contains a hint that something unplanned happened during the rug's gestation on the loom.

As inheritors of industrialism we have been weaned on a diet of regularity or sameness. Any deviation from that uniformity has been deemed a flaw and thought to reflect the incompetence of the maker. Yet there is a distinction between irregularity due to the awkwardness of inexperience and the irregularity due to natural diversity. Think, if you will for a moment, on the beauty of a pebbled walkway where the individual stones reveal an enormity of subtle variation accompanying the general sense of even size and shape. It is the combination of regularity with a hint of diversity which creates a more powerful effect than either alone can offer. There must be the predictable, and yet on closer examination . . . One is drawn to probe the design further.

Although the rug remains station-

ary on the floor it is very involved in the process of movement. For we move in relation to it. We see it from different distances, from different positions with respect to its length and width, from different heights, as in standing, sitting, lying. To continue to draw our interest after the initial introduction it must speak to us at these diverse encounters in a different way.

The rug needs to be beautiful to our eyes, enriching and varied when we stop to appreciate it. But, just as importantly, it must also be subtle or low-key enough so it does not intrude when we are focussed on other things. Its purpose is to enrich, not distract or interrupt. It is this blending of richness, strong visual statement, and subtlety which make rug weaving so provocative and so illusive.

Our feet might appreciate the cushioning quality of wall-to-wall carpeting. Its color may harmonize well with other furnishings. But our eyes and emotions withdraw from its visual monotony in short order. It may be attractive, comfortable, and secure; but it does not reflect anything of ourselves back to us.

It is this presence of the weaver, anonymous presence of human involvement really, which continues to attract the beholder. The really good rug is much more than visually pleasing, well-made. It echoes within itself the essence of striving, the humility of expressiveness, the interworkings of plan and reality. It mirrors life for us. Not nicely hung on the wall. Not preciously hidden away in a special box somewhere. But on the floor, where we can sometimes be very aware of its message. But also where as we hustle through the routines of daily living we are *unconsciously* reminded that life is not just security and prettiness, but also hope, struggle and a delicate blending of ourselves with other people and things to achieve a greater strength.

Such is the potential of rug design.

WEAVCAT I ON THE APPLE

by Sally J. Swantz

The computer can be a great time saver when you're looking for reference material in a growing collection of periodicals. A sequential data file can be tailored to your own special interests with the brief programs which follow. These programs are written for use on an Apple II Plus (48K) or Apple II with Applesoft in ROM or a language card, with monitor, one disk drive and Epson MX-80F/T printer. Modifications for use without the printer are given.

Articles are catalogued in file "WEAVCAT I" by subject matter, using the first three letters of the subject for entry and search. Our list includes BOU (boundweave), COV (coverlets), DOU (doubleweave), GAR (garments), MUL (multiple harness), OVE (overshot), RUG (rugs) and TWI (twill) and can of course be expanded to include any other field of interest.

Run "WRITEFILE" once, to open a new file and make initial entries. Then run "APPENDFILE" whenever you make additions to this existing file. Use "READFILE" to list entire contents catalogued and "READCAT" to list entries for any individual subject.

To modify "READFILE" for use with monitor instead of printer delete lines 167 and 171. Add 135 SPEED = 25 and 255 SPEED = 255.

When running these programs type CTRL-S to stop scrolling of entries on the screen; depress the space bar to resume listing.

```
100 REM : SAVED AT WRITEFILE
110 PRINT "USE THIS PROGRAM ONLY
    WHEN SETTING UP A NEW FILE.
    "
120 PRINT : PRINT "DO NOT WRITE
    TO AN EXISTING FILE WITH THI
    S PROGRAM."
130 PRINT : INPUT "FILE NAME: ";
    F$
140 D$ = CHR$(4)
150 PRINT D$;"OPEN ";F$
160 PRINT : PRINT "ENTER THE TEX
    T TO STORE (3 LETTERS 2 SPA
    CES PUBLICATION ISSUE PAG
    E REMARKS)"
170 PRINT : PRINT "USE NO COMMAS
    . TYPE END TO STOP PROGRAM.
    "
180 INPUT A$
190 IF A$ = "END" THEN 240
200 PRINT D$;"WRITE ";F$
210 PRINT A$
220 PRINT D$; PRINT
230 GOTO 160
240 PRINT D$;"CLOSE"
250 END

100 REM : SAVED AT APPENDFILE
110 PRINT "USE THIS PROGRAM TO W
    RITE TO AN EXISTING FILE."
120 PRINT : INPUT "FILE NAME: ";
    F$
130 D$ = CHR$(4)
140 PRINT D$;"APPEND ";F$
150 PRINT : PRINT "ENTER THE TEX
    T TO STORE (3 LETTERS 2 SPA
    CES PUBLICATION ISSUE PAG
    E REMARKS)"
160 PRINT : PRINT "USE NO COMMAS
    . TYPE END TO STOP PROGRAM.
    "
170 INPUT A$
180 IF A$ = "END" THEN 230
190 PRINT D$;"WRITE ";F$
200 PRINT A$
210 PRINT D$; PRINT
220 GOTO 150
230 PRINT D$;"CLOSE"
240 END
```

```
100 REM : SAVED AT READFILE
110 REM : THIS PROGRAM PRINTS AL
    L ENTRIES IN FILE.
120 D$ = CHR$(4)
130 INPUT "FILE NAME TO READ: ";
    F$
140 PRINT D$;"OPEN ";F$
150 PRINT D$;"READ ";F$
160 INPUT A$
165 ONERR GOTO 200
167 PRINT D$;"PR#1"
170 PRINT A$
171 PRINT D$;"PR#0"
180 GOTO 150
200 PRINT D$;"CLOSE"
210 END
```

```
100 REM : SAVED AT READCAT
110 REM : THIS PROGRAM PRINTS EN
    TRIES BY SUBJECT SELECTED.
120 D$ = CHR$(4)
130 INPUT "FILE NAME TO READ: ";
    F$
140 PRINT : INPUT "ENTER THE FIR
    ST 3 LETTERS OF SUBJECT TO B
    E PRINTED: ";T$
150 PRINT D$;"OPEN ";F$
160 PRINT D$;"READ ";F$
170 INPUT A$
180 ONERR GOTO 250
190 IF LEFT$(A$,3) = T$ THEN 2
    10
200 GOTO 170
210 PRINT D$;"PR#1"
220 PRINT A$
230 PRINT D$;"PR#0"
240 GOTO 160
250 PRINT D$;"CLOSE"
260 END
```

"READCAT" sample listing of articles on coverlets:

```
CDV HANDWOVEN FALL/WINTER 81 P 46
CDV HANDWOVEN NOV 81 P 38 (FRINGES)
CDV WEAVER'S JOURNAL APRIL 79 P 26 (TWO-TIE)
CDV WEAVER'S JOURNAL APRIL 79 P 25 (S&W)
CDV SSD WINTER 74 P 8
CDV SSD SPRING 75 P 7B
CDV SSD SUMMER 75 P 74
CDV SSD FALL 75 P 84
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Woven and Other Miniatures (reprint)
The Weaver's Journal (back issues)

Booklist: free

7



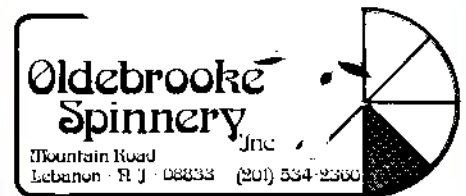
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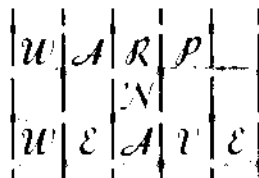
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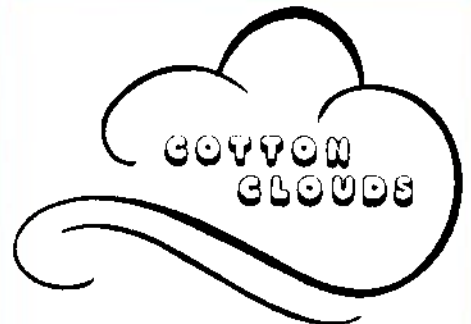
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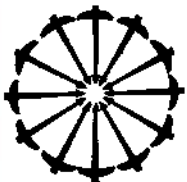


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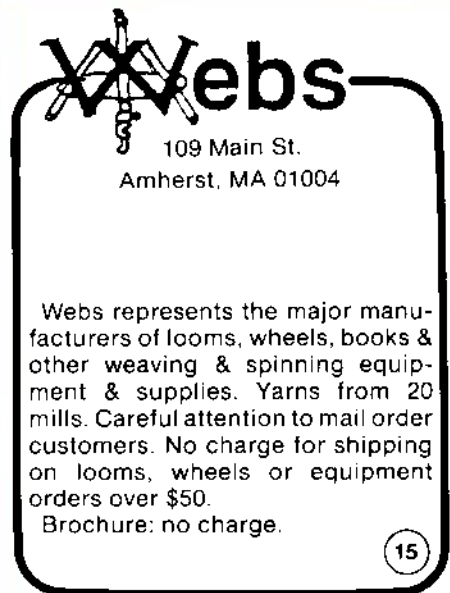
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DELIGHT THE YOUNGSTERS WITH HANDWOVEN PUPPETS

by Iris Richards

It doesn't take much to bring happy smiles to kid's faces: a few easy-to-find tools and supplies, some junk lying around in forgotten corners, some skills at needle weaving (under and over the warp threads with a weft yarn), soumak and looped rya (See p. 56 of this issue).

The project is woven tubular on a fiberboard frame.

MATERIALS:

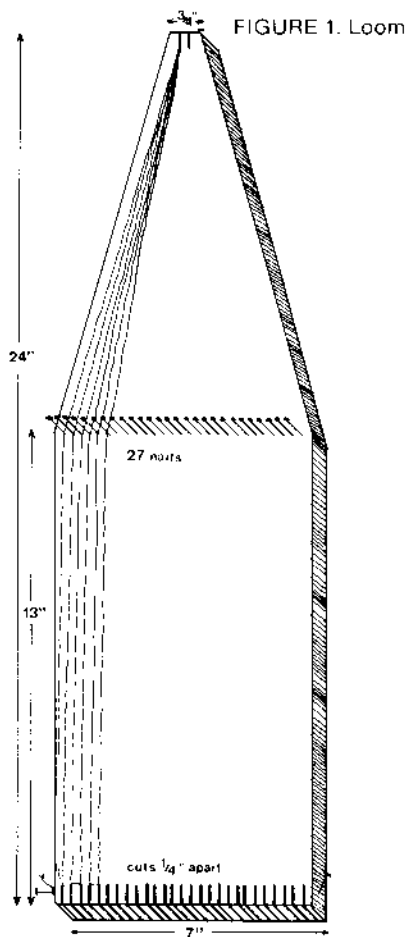
- Piece of fiberboard. The shape and dimensions are given in Fig. 1.
- 29 nails: 27 are driven $\frac{1}{4}$ " (6.4 mm) apart in one row where the fiberboard starts to taper. The nails are driven through and stick out an equal amount on both sides of the board. The points may be filed down to avoid scratches. These nails act as spacers for the warp. One nail on each side at the bottom of the loom helps to space the warp evenly around the loom.
- A small saw to make 27 notches at the bottom of the loom and two on top.
- Cotton string for warp. Attach the string to the left bottom nail. Bring the warp up on the backside of the board and to the left of the first spacer nail; pass it through the first top notch from back to front. Bring the warp down in front of the loom and again to the left of the first spacer and pass it through the first bottom notch from front to back. Then pass it from back to front through the second bottom notch. Bring the warp to the top between the first and second spacer, through the top notch and back down on the back side of the loom. Go around the third bottom tooth



and back up on the backside of the loom. Be aware that, when the tube is woven, there must be an opening at the bottom to slide the hand into it. The total count of warp threads

should be an odd number. Thus if you start at the bottom, you should end on top.

- Various textured yarns for weft and a large-eyed needle.



Start weaving at the bottom of the loom. Bring the weft under and over the warp threads going around and around. Beat each row down with a comb. Use plenty of looped rya and soumak mixed in with picks of plain weave. When the loom tapers to a point, start weaving over two, under two, then over 4, under 4. Use soumak for the very tip because this technique covers the warp well. When the tapered tube is woven, unhook the warp loops from the "teeth" at the bottom of the loom and slide the board out. Crochet the ears, eyes, fins, tusks, horns, tongue and other body ornaments. Attach them all to the body.

Decorate the monster with buttons, bangles, pipe cleaners.

Watch the smile on the kids' faces.



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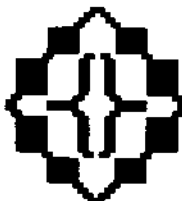
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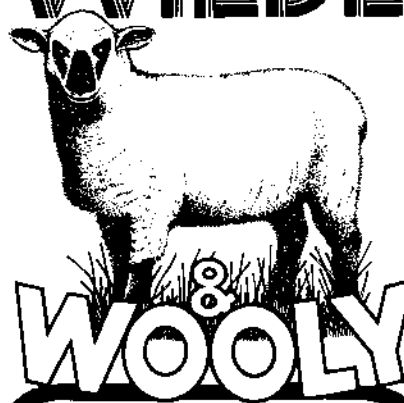
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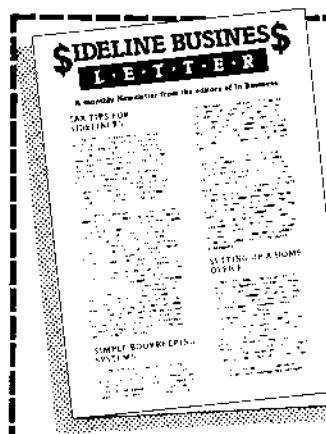
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COMING EVENTS

If your COMING EVENT item did not appear in this issue, we did not receive it in time. Deadline for Winter '82/'83 issue is November 1.

ALABAMA

Huntsville. Oct. 22-24, 1982. Weaving workshop. Sponsored by The Handweavers and Fiber Arts Guild in co-operation with The University of Alabama in Huntsville. Conducted by Nell Znamierowski. Topic: Mixed Warps—A Designer's Approach to Fabric. For information write: Elvira Glover, 1308 Pratt Avenue NE, Huntsville, AL 35801.

ARKANSAS

Heber Springs. Oct. 8-10, 1982. 17th Annual Ozark Frontier Trail Festival and Craft Show sponsored by Ozark Foothills Craft Guild. Juried. Individual crafters.

CALIFORNIA

Culver City. Nov. 7, 1982. Annual Fashion Show and Sale "Weavers-Go-Round" held at Culver City Memorial Auditorium, 4117 Overland Ave., Culver City, CA. Sponsored by Southern California Handweavers' Guild. Commercial displays. Fashion show. Demonstrations. For information write: Alice Deventorf, 7850 McDonnell Ave., Los Angeles, CA 90045 or Sonia Brown, 17707 Avalon #294, Carson, CA 90746.

Riverside. Mar. 18-20, 1983. 14th Southern Conference of California Handweavers held at Raincross Square Convention Ctr., 3443 Orange St., Riverside, CA. Workshops Mar. 15-17. For information SASE to Southern Conference of California Handweavers, Inc., c/o Helen Purpus, P.O. Box 26, Idyllwild, CA 92349.

Ukiah. Apr. 30-May 1, 1983. 30th Annual Conference of the Northern California Handweavers. Theme: "Secrets of the Loom." Held at Redwood Empire Fairgrounds and Mendocino College. Exhibits, Lectures, Demonstrations. Speaker Barbro Bengtsson of Sweden. For more information send SASE to: CNCH 83, 2081 Road E, Redwood Valley, CA 95470.

Ventura. Nov. 12-14, 1982. Ventura County Handweavers Fall Show and Sale. Ventura County Historical Museum, 100 E. Main St., Ventura, CA 93003.

COLORADO

Durango. July 14-19, 1983. Intermountain Weaver's Conference on the campus of Ft. Lewis College. Workshops, Seminars, Demonstrations, Commercial Exhibits. For information send SASE to: Lois Self, 8550 E. Cohn P., Tucson, AZ 85710.

CONNECTICUT

Guilford. Sept. 30-Oct. 3, 1982. Exhibit of Contemporary Black Artists sponsored by Guilford ABC Program. Mill Gallery, Route 77, Guilford, CT.

Guilford. Oct. 10-30, 1982. Connecticut Craftsmen Show. Mill Gallery, Route 77, Guilford, CT.

Guilford. EXPO '83. 26th Annual exhibit. Sponsored by Guilford Handcrafts, Inc. For information write: Ferni Hubbard, Guilford Handcrafts EXPO '83, Box 221, Guilford, CT 06437.

GEORGIA

Atlanta. Oct. 23-24, 1982. Weavers Guild 1982 Sale sponsored by Chattahoochee Handweavers Guild. Held at Unitarian Church, 1911 Cliff Valley Way, Northeast, Atlanta. For information: Jane Stephens, 444 Nelson Ferry Rd., Decatur, GA 30030, or Wendy Pettitt, 2 Hemlock Rd., Roswell, GA 30075.

ILLINOIS

Evanston. Nov. 5-6, 1982. "Limited Editions 1982." Held at Women's Club of Evanston, 1702 Chicago Ave., Evanston, IL. Annual show, sale and fashion show sponsored by North Shore Weavers Guild. For information write: Jennifer Elliott, Publicity, 508 E. Hawthorne St., Arlington Heights, IL 60004.

INDIANA

Indianapolis. Oct. 29-30, 1982. Invitation exhibit sponsored by Indiana Weavers' Guild. Exhibit and sale held at American Legion Building, 6379 N. College Ave., Indianapolis, IN. For information write: Holiday Handweavers, 514 Colburn Ct., Noblesville, IN 46060.

KANSAS

Wichita. Feb. 13-Mar. 13, 1983. Kansas Artist-Craftsmen Association Annual Exhibition PLUS Kansas-Paraguay Cultural Exchange in conjunction with the Kansas-Paraguay Partners, Inc. Competitive exhibition. Juried by Carlyle H. Smith. Entry forms and inquiries to Director, K.A.C.A. 3rd Exhibit, Glenice L. Matthews, Wichita Art Association, Inc., 9112 East Central, Wichita, KS 67206.

MICHIGAN

Midland. June 17-19, 1983. Michigan League of Handweavers "Divergence '83" theme: "Spectrum" held at Northwood Institute, Midland Workshops. Speakers: Diane Iiter, Yoshika Wada, Dini Moes, Ted Hallman. For more information: Patti Aiken, 1165 Crooked Lake Dr., Fenton, MI 48430.

MISSOURI

Springfield. Oct. 3-31, 1982. Springfield Fiber Artist Show. Coverlets, rugs, wearables, hangings. Springfield Art Museum, 1111 E. Brookside Dr., Springfield, MO.

MONTANA

Bozeman. July 4-8, 1983. Eleventh Biennial Conference of the Association of Northwest Weaver's Guilds entitled Fiber Flair sponsored by The Bozeman Weaver's Guild. Held on Montana State University campus. Workshops, Seminars, Commercial Exhibits, Sample Exchange. For information SASE to: Ellen Alvord, 221 Ridge Trail Rd., Bozeman, MT 59715.

NEW JERSEY

Laurenceville. July 29-31, 1983. The Mid Atlantic Fibre Association is soliciting resumes and class outlines from teachers interested in mini-sessions of the 2nd Mid Atlantic Fibre Conference. For information write: Kava Schafer, Weisel Youth Hostel, R.D. 3, Quakertown, PA 16951.

NEW MEXICO

Los Alamos. Dec. 3-Jan. 11, 1983. Holiday Art Exhibit at Fuller Lodge Art Center, Cultural Center, Center Ave., Los Alamos, NM. Juried exhibit open to artists & craftsmen from Northern New Mexico of work with Christmas, Hanukah, or seasonal theme. For information write: Karen Purucker, Director, Cultural Center, P.O. Box 790, Los Alamos, NM 87544.

NEW YORK

North Tonawanda. Oct. 8-30, 1982. Exhibition: "Lath & Loom." Weavings by Ulrike Beck and Joanne Rogers. Held at Carnegie Center, 240 Goundry St., North Tonawanda, NY 14120. For information: Robert Ramer, Executive Director, Tonawanda Council on the Arts, Inc., at the Carnegie Center.

PENNSYLVANIA

Washington Crossing. Nov. 19-21, 1982. "Wild & Whimsical Sixth Annual Show and Sale" sponsored by The Handweavers of Bucks County. Held at Memorial Building at Washington Crossing State Park. Exhibits, Demonstrations. For information write: Roberta F. Machalek, 572A Taylorsville Rd., Washington Crossing, PA 18977.

TENNESSEE

Gatlinburg. Oct. 6-Nov. 20, 1982. "Spotlight '82: Southeast Crafts". Sponsored by Arrowmont School of Arts and Crafts and Southeast Region of the American Craft Council. Juried by Mel Someroski. For information write: Sandra Blain or Clare Versteegen, Arrowmont School, Box 567, Gatlinburg, TN 37738.

Kingsport. Nov. 27, 1982. "Mirigled Yarns" show and sale sponsored by Overmountain Weavers Guild. Held at Kingsport Fine Arts Center. For information: Chris Brown, Rt. 16, Box 400, Gray, TN 37615.

Memphis. Oct. 1-30, 1982. Third Biennial "Path of the Weaver" exhibit. Southwestern University's Clough Hansen Gallery, Memphis, TN. Sponsored by Memphis Guild of Handloom Weavers. Juried by Gary Trentham. For information write: Betty Graves, 120 Grove Park S., Memphis, TN 38117, or Martha Whitaker, 905 Park Valley Rd., Memphis, TN 38117.

Nashville. Oct. 7-Nov. 7, 1982. "Heir-Loomed" Annual Membership Show by Handweavers Guild of Nashville. Tennessee Botanical Gardens and Fine Arts Center (Cheekwood). For information write: Harriet F. Jones, 5036 Marc Dr., Nashville, TN 37211.

TEXAS

Nacogdoches. Mar. 25-26, 1983. Contemporary Handweavers of Texas biennial conference and exhibition. Judge and speaker: Else Regenstein. Contact: Diane Corbin, Rt. 3, Box 310, Nacogdoches, TX 75861.

VIRGINIA

Virginia Beach. Oct. 8-10, 1982. The Fourth Annual 18th Century Fair sponsored by Tidewater Weavers Guild and the Woolgatherers in conjunction with the Princess Anne County Historical Society. Held at Upper Wolfsware Plantation (built in 1759), 2040 Potters Rd., Virginia Beach. Demonstrations, Exhibits. For information: John M. Hodgson, 1526 McCullough Ln., Virginia Beach, VA 23454.

WASHINGTON, D.C.

The Textile Museum. 2320 'S' Street, N.W., Washington, D.C. 20003. Oct. 9, 1982-Jan. 2, 1983. Exhibition—"Master Dyers to the World": 15th to 18th century dyed textiles from India. For further information contact: Mary Burgess or Dr. Mattie Belle Gittinger.

CANADA

London, Ontario. Oct. 15-17, 1982. 1982 Annual Conference of the Ontario Handweavers and Spinners. Hosted by London District Weavers. "My Country is Winter." Speaker: Micheline Beauchemin. Workshops, Room Shows. For information write: Susan Haslett Scholfield, 17 Holland Ave., Chatham, Ontario, Canada N7M 5X8.

Ste-Foy, Quebec. Workshops offered at "La Maison Routhier" in weaving, tapestry, spinning and natural dyeing. Autumn session from August to December. For information write: Louise Landry, 3325 rue Rochambeau, Ste-Foy, Quebec, Canada G1X 1T9.

NEW ZEALAND

Masterlon. Jan. 20-31, 1984. World Congress on Coloured Sheep, Marketing, breeding, speakers, tours. For information write: Robert P. Williams, World Congress on Coloured Sheep and Their Products, R.D. 12, Masterton, New Zealand.

NOTICES

On October 1, 1982, Bette and Bernard Hochberg will be going to Nepal to work as textile specialists with the UN-supported cottage industry development program. Their office will be in Kathmandu and they will also be working in the surrounding countryside.

SCOTLAND

Edinburgh. Effective Aug. 1, 1982, The Edinburgh Tapestry Company (Dovecot Studios) of Edinburgh has announced the appointment of Canadian tapestry weaver, Joanne Soroka, as Artistic Director. Edinburgh Tapestry Company was founded in 1912.

SWITZERLAND

The 11th Lausanne Tapestry Biennial promises a brilliant transformation.

For two decades the International Biennial of Tapestry at Lausanne has been the world's greatest exhibition of art in craft media. On ten occasions the nine enormous galleries of Lausanne's cantonal museum have pinpointed the steady advancement of one of the most procreant art expressions of our time. Now, with Nadine de Montmolin as the new Secretary General of the sponsoring organization, Centre International de la Tapisserie Ancienne et Moderne, and with Enka Billeter, Europe's foremost arbiter of art fabric, as director of the host museum, the Biennial faces up to the new responsibilities of a dynamic, if established, medium.

The revision is revolutionary, instead of showing work of about 65 artists, as few as 20 works will be featured in the 11th. It is planned that the next three Biennials will focus on a specific theme: the 11th is dedicated to environmental works, the 12th to Art Fabric as sculpture, and the 13th to wall hung works. The jury, which up until now, has been primarily made up of the directors of continental Europe's major art museums, has been restructured to five individuals who know and care about Art Fabric. They are:

Jack Lenor Larsen
Erika Billeter
Liesbeth Crommelin
Michel Thomas
Ryszard Stanislawski

Submissions must be made by October 1st. Particulars are available from CITAM, 4 avenue Villamont, 1005 Lausanne, Switzerland. Jurying is in November. The exhibition opens in June, 1983 and runs until September.


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MONOGRAPH: "BEIDERWAND?"; new publication based on extensive research by Clarita Anderson, Judith Gordon, and Naomi Whiting Towner; explores the controversy which has caused considerable confusion and heated discussions among researchers, curators, weavers, and collectors. Attractively designed with 24 photographs and 46 pages, including: an introduction; description of the controversy; description of the two weave structures (which previously had no agreed-upon name) with specific characteristics indicated, draws, tie-ups, treadlings, and photographs; historical information; conclusion. Retail: \$9.50/U.S. plus \$1.50 shipping and handling for each book; Discounts available to qualified dealers. Write: Clarita Anderson, 4301 Mount Olney Lane, Olney, MD 20832 (Payment must accompany orders.)

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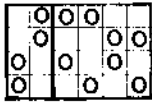
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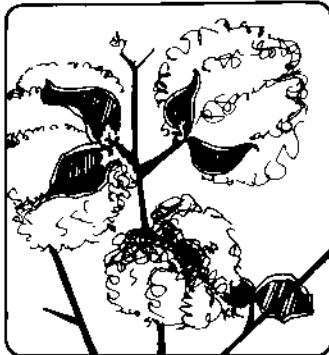
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ERRATUM

The Weaver's Journal, Volume VI, #4, Issue 24, Spring '82, p. 32, Figure 1. The correct tie-up is:



The Weaver's Journal, Volume VII, #1, Issue 25, Summer '82, p. 66: Haandarbejdet's Fremme subscription Dkr 125.00 (approximately \$15.65).



NOTICE

Clotilde Barrett is planning a workshop tour in North Eastern U.S. in Oct. 1983. If any guild or shop wants to join in to share transportation please write to

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1. Text must be typewritten, triple spaced
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3. Photos (B/W and/or slides) must be accompanied by a list of captions
4. The upper left-hand corner of the first page of the manuscript should contain contestant's name, address, and category entered.
5. Include a small sample of yarns used and mention the name of the supplier, if possible

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