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From top left down: Thank you, Ken and Alan New e-Winders come through the factory Spinning through lockdown

Top right: The next generation **Cover:** Muteteri from Handspun Hope, Rwanda. See page 4. (photo Angela Rushing)



Editor's Letter

This year we have faced huge tensions and disruptions to our lives. The pandemic, racial and political disharmony, and climate extremes all have challenged us, and the future remains uncertain.

For me, the enforced lockdown was an opportunity to slow down, to reconnect, to notice the everyday things that brought joy and to appreciate all over again the importance of spinning and weaving in my life.

During our five weeks of lockdown I spun and wove more than ever. How grateful I was to focus on that drafting zone or the next pick and feel the relaxation from mindfulness and the joy that comes from creativity. To know, too, that our crafts can help make a difference to people's lives, can bring peoples together, can encourage sharing, and can even help reduce global warming (see Handspun Hope on page 4 and A Scientist Spins Towards Sustainability on page 8).





I am so glad that so many of our customers have sought and found comfort and pleasure in their crafts as I have. As a result, we have been seen a tremendous increase in demand for our products world-wide. This increase in demand, coupled with our five-week lockdown, has affected our ability to meet all the orders on time. Our apologies. Thank you for your patience. With our wonderful staff working overtime we are making progress filling back orders and introducing the new products.

This year we have also celebrated some special milestones. Recently two of our staff, Ken Meehan, our Production Manager, and Alan Paterson, Team Leader, both commemorated working forty years with us. Thank you, Ken and Alan, for all these years of loyal service. And mid-year our son James and his husband David became the owners of our company, Ashford Handicrafts Ltd. Richard's father Walter who founded the company in 1934, would have been thrilled! Richard and I are still working in the business but are delighted to know the company is in such good hands for the future security of our staff, dealers, and customers.

Take care, keep safe, and craft on. With my very best wishes,

Elizabeth

















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Handspun Hope

BY DIANA WILEY, MUSANZE, RWANDA

Winner of the 2020 Ashford Award is an outstanding humanitarian initiative in Rwanda.

Handspun Hope is an ecumenical ministry working in northern Rwanda. We currently have a full-time staff of three in the United States and employ over 150 people in northern Rwanda. The majority of our Rwandan staff are at-risk women. Many of them lost their husbands, parents and other family members during the Genocide against the Tutsi, which occurred in 1994. Most of our ladies are living with HIV. All of them were living in extreme poverty prior to being hired by Handspun Hope.

The ladies are employed at our facility in the village of Musanze, where they process merino and angora fibre. We have an elevenacre sheep farm nearby where shepherds and farm staff care for our own flock of sheep. We currently care for over 300 sheep, which are shorn every eight months on a rotating basis. Once shorn, the fleeces are brought to our cooperative where the women clean and card the wool, spin it into yarn and dye it organically using local Rwandan plants. Avocado pits, onion skin and eucalyptus bark are a few examples of the organic material used to dye our yarn. Once it is dyed, the ladies then knit beautiful finished goods including hats, gloves, scarves, and sweaters. In 2018, we began hiring graduates from a local school for the deaf in Musanze. These talented young women work with the other ladies on staff to create beautiful felted sculptures.

In addition to raising sheep, we have also introduced German Angora rabbits to Rwanda, providing another source of raw material for making yarn. We currently have 30 Angora rabbits living at the cooperative in Musanze.

In 2018, the ministry began importing Ethiopian cotton from a women's cooperative in Ethiopia. The ladies in Ethiopia spin yarn using drop spindles, creating a single-ply spool measuring approximately 325 yards (300m). The cotton yarn is then shipped to our facility in Rwanda. There, the women of Handspun Hope dye it in the single ply using our organic plant-based dyes. The ladies then ply the yarn into 2 ply skeins.

Handspun Hope provides fair wages, a safe working environment and healthcare for every woman employed. We contribute toward the education fees of every child in the care of our employees, many of whom are caring not only for their own children, but for the children of a deceased family member. One of the women currently cares for nine children. One year of education costs approximately US \$80 in Rwanda. This includes tuition, books and supplies and uniform fees. Eighty dollars is a tremendous amount of money for one family. If you have three or five or nine children in your care, there is simply no way you can afford to educate them all. Handspun Hope eases this burden by contributing toward education-related fees. As of January 2020, we have 181 students enrolled in school. Handspun Hope also provides on-site trauma counselling for the ladies. We employ two full-time, Rwandese-trained counsellors who offer group and individual trauma counselling for the women. Every woman we employ experienced some level of trauma during the 1994 Genocide. Many of the women who are HIV positive contracted the disease during the war as the result of an intentional rape campaign. Groups of men would rape women, infect them, then tell them "We are going to let you live so you may die of sadness". Their goal was to ensure the killing continued long after the war ended.

Our counselling programme has been transformative for our own ladies, so much so that, seven years ago, we decided to expand the reach of our counselling services by creating a lay-counsellor training programme. This course is provided free of charge to anyone who wants to attend. Our counsellors provide trauma counsel training to community leaders – doctors, pastors, teachers – and teach them how to counsel their own community members. To date over two hundred have graduated as lay counsellors from our programme, and now have the tools to help their own communities begin the healing process.

People sometimes ask – why is counselling still so critical when the Genocide occurred more than a quarter century ago? When our ministry began in 2007, every woman we employed had personally experienced some level of trauma. But we are entering our thirteenth year of working on the ground in Rwanda. Many of our new hires were born after the Genocide occurred but they were raised by trauma survivors who were unable to process what they experienced. Many have suffered rejection along with emotional and/or physical abuse because of it.

We also have employees who are still dealing with genocidal fallout, so many years after the atrocities occurred. Just last year, Edith learned the location of her family's murders twenty-five years after their deaths. A prisoner confessed to the murder of Edith's parents and seven of her eight siblings and told authorities where the murders had taken place. Our counsellors were able to help Edith process this information and were able to travel with her to the location of her family's death, to revisit the devastation of their loss and to continue the healing 25 years later. There is no question that counselling is still desperately needed.

Handspun Hope began with the employment of ten women in 2007 and has since grown to become the number one employer of women in the Musanze district of Rwanda. We are proud members of the Fair Trade Federation and are excited to have reintroduced the art of spinning and knitting back into a country that lost so much in the aftermath of the Genocide against the Tutsi.



Editor's note

Richard and I are delighted to present the 2020 Ashford Award to Handspun Hope. We are impressed, inspired, and moved by this outstanding humanitarian initiative. We are humbled and grateful that our equipment can assist the programme. Handspun Hope has used the grant to purchase more Traditional spinning wheels and carders. We wish Diana and her team continued success. To see more go to www.handspunhope.org

The 2020 Finalists

The other finalists were WindReach Farm's "Homespun Wool Therapy Program" Ontario, Canada, and Life and Loom Studio, Yorkshire, UK. Both organisations enriched the lives of those with special needs by integrating handcraft and education, with outdoor experiences or meaningful work. Congratulations to all applicants. It was a very hard decision to pick just one for the award, as all would have been worthy winners. To find out more about the 2021 award please go to www.ashford.co.nz/award





BY DELAND LIAO, TAIPEI, TAIWAN

A beautiful and unique accessory that is stylishly fashionable.

You will need:

Fibre: Ashford silk/Merino blend #Salvia 90gm (3ozs), some Angelina metallic gold and silver, white silk chiffon 20 x 150cm (8 x 60ins)

Other: Bubble wrap 45 x 180cm (18 x 71ins), plastic sheets 45 x 180cm (18 x 71ins) x2, net curtain fabric 45 x 180cm (18 x 71ins) x2, towel, plastic piping, plastic gloves, rubbing pad (optional), liquid soap

Here's how:

- 1. Cover a table with the plastic sheet.
- 2. Lay the silk chiffon on top.
- Divide the fibre in half. Take one half of the fibre (45gm/1½ozs) for the front side. You will use 2.5gm on each end, 17.5gm for each side and 5gm for the centre pattern.
- Starting on one side pull lengths of wool 5-6cm (2-21/2ins) long and place two or three fine layers of the fibre in the same direction covering 2-3cm (1-11/2ins) of the chiffon. Repeat on the other side and both ends.



5. Take the remaining 5gm and make your own pattern in the centre of the silk chiffon.



6. For a little glamour add some Angelina.7. Place the net on top.



8. Sprinkle with soapy water and pat into the fibre, ensuring the fibre is wet through.



 Using the palm of your hand or a rubbing pad, rub the length of the scarf increasing in pressure as you work.



- 10. Gently peel off the net. Turn the scarf over and repeat steps 4-9.
- 11. Remove the net and replace with bubble wrap (bubble facing down). Roll around the pipe and tie firmly.

15. Rub vigorously in the centre.



16. Check to see if ruffles have been created. Accentuate them by hand if needed.



17. Once all felted, wash to remove the soap.

Roll in a towel to remove excess water.
 Lay flat to dry.



20. Steam iron.



- 12. Place on a towel and roll backwards and forwards 100-200 times.
- 13. Open and check the felting process. If when pinched the fibre and chiffon lift together, the scarf is sufficiently felted. If not, repeat step 12.
- 14. Once felted remove the bubble wrap. Folding like a fan bring one end of the scarf to the other.



Editor's note

Deland started her business, Founder Tek, in 1994, and became an Ashford dealer soon after. Over 25 years later the company is now a family business with daughter Genie and son Mulder working alongside. They supply equipment and offer beginner through to advanced felting, spinning and weaving classes with students coming from throughout Taiwan and also Hong Kong, Macao, and China.



Kate helps me assess Arctic grayling

Collecting qiviut



Scientist Spins Toward Sustainability

BY DR HEIDI GOLDEN, SIMSBURY, CT, USA

While studying climate change impacts on fish in tundra streams, an Arctic researcher discovers spinning – can traditional crafts help guide humanity toward a more sustainable future?

While pushing through the tall willows bordering the Sagavanirktok River in northern Alaska, I found myself once again contemplating how humanity arrived at where we are today, in the midst of a selfinvoked climate crisis. I've spent most of my scientific career studying the impacts of climate change on fish populations in the Arctic, the area of the world most noticeably affected by climate change. In fact, the Arctic has been warming about twice as fast as the rest of the Northern Hemisphere, influencing weather patterns worldwide and causing extreme events such as droughts, floods, and heat waves. What would our world look like if humans never discovered fossil fuels or if people didn't rely so heavily on globalisation for resources and goods? It was here in the Arctic that a fish threatened by rapid climate change indirectly led me to spinning and to the notion that perhaps returning to traditional crafts such as spinning, might help guide humanity towards a more sustainable future.

There is a single road on the North Slope of Alaska's Brooks Range extending from

Fairbanks to Prudhoe Bay that I use to access my research locations for studying the Arctic grayling. It was along this road, the Dalton Highway – made famous by the television series "Ice Road Truckers" - that I first encountered fine fibres of giviut strung like tinsel among the willow branches. I might not have noticed this tundra treasure if it hadn't been for Kate Michmerhuizen, my dear friend, colleague, and volunteer research assistant, and her desire to see muskox and collect qiviut during the spring molt. Qiviut is the soft downy undercoat of the muskox, an animal more closely related to sheep than bovine and well adapted to the cold Arctic environment. Like the grayling, muskox face challenges from climate change, such as the year an entire herd of muskox perished by breaking through unusually thin lake ice during a winter crossing. Even though the Arctic winters are unusually warm, the muskox requires protection from the cold.

A muskox coat is comprised of two layers, long coarse guard hairs and shorter, finer undercoat hairs – qiviut.



Muskox along the Dalton Highway (aka The Haul Road)

This undercoat is highly prized because the fibre is stronger, softer, and warmer than sheep's wool. Native Alaskans create lightweight, lacy garments with their finely spun qiviut yarn or combine qiviut with other fibres to improve warmth. As the Arctic spring shifts to summer, muskox shed this warm undercoat in preparation for the summer's heat by rubbing against shrubs, like willows. Kate and I managed to collect a large trash bag full of qiviut, enough to actually consider learning how to spin.

I knew next to nothing about spinning when I collected my first bagful of qiviut

Muskox

Simple mittens knitted with my first homespun qiviut



off the Alaskan willows, so I enlisted the help of my husband's uncle, Bruce Golden. After a weekend's tuition at Uncle Bruce's island home on Martha's Vineyard, Massachusetts, I felt confident enough in my rudimentary spinning ability to create my first skein of, albeit rather bulky, giviut yarn. It looked nothing like the expertly spun giviut yarn of the Alaskan Inuit. Nevertheless, I quickly knitted it into my first pair of homespun fingerless gloves, which are featured in this article. Despite the rough quality of my first varn, I felt incredibly empowered by my self-sufficiency, knowing I had personally acquired the fibre, spun it into yarn, and created a garment - all from materials gathered from the wild and processed by hand.



My latest homespun qiviut yarn

I have since moved on to spinning other fibres, including sheep's wool, angora, and even my son's fluffy cat's fur, and I've gotten better at spinning giviut, as well. While spinning, I like to imagine homestead life and a simpler time, when people didn't rely as much on fossil fuel-driven supply chains. While globalisation has its benefits, there is a sense of empowerment derived through self-reliance and self-sufficiency when you create something wholly from scratch using raw materials gathered from nature. Spinning is a great example, with fibres either grown or collected locally, spun into yarns and threads, and knitted into garments. If people could rely more on their own materials and their own hands to create what they need, perhaps we would not require as much fossil fuels to transport goods across the country or across the sea. Perhaps if more people rediscovered traditional crafts such as spinning, we might gain appreciation for our own roles in ecosystem function, lessen our reliance on fossil fuels, help offset the repercussions of climate change, and bring humanity closer to a more sustainable future.

Editor's note

Dr Heidi Golden is an aquatic ecologist whose research aims to better understand species' roles in ecosystem function. She recently moved to a 200-year-old farmstead with her family, and enjoys nature, hiking, gardening, fermenting and canning food, crafts, and spinning.

My Mittens

Qiviut really should be spun into a fine thread and knitted in a lace pattern because it is so warm. However, I was so excited to make something from the qiviut I had collected in the Arctic that I made these easy mittens.

The mittens are incredibly easy to make – just stockinette stitch with seed stitch at the beginning and end. The gauge is approx. 4 stitches per 2.5cm (1in) and 6 rows per 2.5cm (1in).

Simple Fingerless Mitten Pattern

Work two mittens at a time by casting on two sets of 30 stitches each, knit in seed stitch for 12 rows until the mittens measure 4cm (1½ins), knit in stockinette stitch until the mittens measure 20cm (8ins) total length. Knit in seed stitch for 8 rows (approx. 2.5cm/1in) until the mittens measure approx. 23cm (9ins) total length. Cast off.

Sew the mitten edges together to form a 13cm (5ins) long tube starting at the bottom, where the seed stitch measures approx. 4cm (1½ins) and working toward the top. Tie off. Continue sewing from the top toward the bottom for approx. 5cm (2ins), leaving an opening approx. 5cm (2ins) long for a thumb hole. Repeat for the second mitten. Done!

Into the Jungle of Spinning Colour

BY RACHEL SMITH, LANGLEY, BC, CANADA



Exploring colour management techniques with two hand-painted braids



Spinning after dividing the braid into sections and then strips



Beautiful heathering in the finished skein

Manage colour in your next hand spun project.

There are so many amazing ways to spin colour! During my spinning explorations I have learned so many different techniques to manage colour in hand-painted braids. From fractals to traditional to chain-ply and beyond, our own imagination is the only limit. Often, brainstorming ideas with friends helps me to work out how I might spin particular braids of fibre from my stash and I tend to approach my spinning with more confidence when I do so. Recently, I decided to explore a couple of related colourways from my stash that my friend Katrina of Crafty Jak's Boutique had dyed. I explored two different colour management techniques, each with different results. Taking one of the skeins, I cast on for a sweater immediately so that I could reflect upon how the decisions I had made in the spinning process affected the final fabric. These experiments are always an opportunity to learn and grow!

Prepping and Spinning Colour

The two colourways that I chose were related because each contained the Pacific Blue from Katrina's semi-solid that she offers in her line-up of fibre. I love and wear this colour a lot. After deciding how to spin the singles for these yarns, I decided to pre-draft all the fibre for a smoother spinning experience. The braids were both Targhee, bamboo and silk blends. The silk takes the dye slightly differently than the Targhee wool. However, the bamboo fibre does not take the dye at all, leaving a lovely slightly muted but heathered effect in the finished yarn. When shopping at festivals, looking for a bamboo blend in those brightly coloured braids might offer an option when a pastel or slightly muted yarn is the goal.

The first colourway, Fractured Dawn, is a colourway that features jungle green, camel, purple, and blue. The interesting aspect of this colourway is that the dye is poured on randomly and then much of the white in the underlying fibre is left. The white then barber-poles, or marls, with the colours as the singles are spun, creating pastels and slow colour transitions. I love this effect. I cranked up the e-Spinner 3 to spin high twist singles for a finished 3 ply sport weight knitting yarn. I divided the braid into three equal sections, split each section as many times as I could without the fibre starting to drift apart, and spun. This created a traditional but colour-blended 3 ply yarn. The large size of the e-Spinner 3 bobbins meant I could spin all three singles onto one bobbin. After I split the braid into thirds, I spin one after another but I place a piece of black fibre between the thirds so that I know where to stop when winding each single onto spare bobbins for plying. By winding the singles off the bobbin and onto three spare bobbins to ply, I was able to continuously spin the 4 ounces of fibre and just enjoy the process, rather than switching out bobbins again and again!

The second colourway, Pesuta, was dyed in a different way from the first. In this case, the dye was placed on the fibre in equal-distance repeats down the entire length of the braid. The complementary colourway featured two main colours: blue and brown. No white was left visible in the colourway. Featuring a long repeat of the colour in one of the singles would create a slow transition between the colours, while breaking up the fibre for the remaining two singles would add interest from the constant barberpoling. I decided to spin this fibre as a 3 ply fractal. Because fractals are fractions of colour, to prepare them, strip the fibre down the length of the braid into 2 or 3 piles, depending on how many singles are needed. Spin the first length end-to-end for the first bobbin. The remaining fibre is split lengthwise as many times as wanted. I tend to strip the fibre 2-3 times for the second bobbin and 8-12 times for the third bobbin. Again, I spun all the singles to one bobbin and re-wound them onto spare bobbins. I love plying from the first-spun end when I spin worsted-style singles because the smoothing of the fibres is maintained when the effort is made to re-wind singles.

Both yarns were quite similar structurally because they were both high twist and tightly plied for durability. Due to the bamboo and silk fibres, both have amazing sheen. The heathering of the bamboo was evident in both colourways. Plying both of these yarns was so fast because I set the e-Spinner 3 to about 3 o'clock and enjoyed the movement of the singles through my fingers. I watched my twist angle closely to ensure I wasn't placing too much twist into the yarn.

Knitting with Hand Spun Colour

Because we are able to make so many choices as hand spinners about the yarns we make, the options for knitting seem, on one hand, endless but in other ways limited. Our yarns are often quite vibrant with lots of heathering, barber-poling and/or striping. Some love these features of their yarns while others cringe, stashing their yarns for another time. Long, slow colour transitions are lovely and work in many colourwork patterns. This can be created from minimal striping of our hand-painted braids and spinning end-toend, or from fractal-spun yarns.

The reason I like to create blended 3 ply yarns is because the colour transitions are random and often happen in both short and long increments. When a dyer places white in the braid, this adds to the overall homogeneity of the yarn and tones down the vibrant, bright colours. This is a matter of taste and I appreciate that everyone has their own preferences. To create those self-striping yarns, chain-plying is the most effective method, but the length of those stripes depends on how many times the braid is split. The opportunity for experimentation is vast!

In the end, I decided to knit with the Fractured Dawn and pair it with one of Katrina's colourways, Deep Jungle, because it is present in the braid. It coordinated beautifully with the yarn. Other colours would have worked as well, including the purple and blue. The hand spun paired beautifully with the yarn. I have found that pairing commercial yarns that are similarly spun to my hand spun often yields the best results. This happened to be a high twist, 3 ply Targhee yarn so the pairing worked beautifully. One of the things about lots of colour and striping in hand spun is that it can detract from the knitted pattern, but slow colour transitions can enhance it. Choosing a pattern that would highlight the gentle movement of colour throughout the hand spun sections offers interest, contrast to the main colour and a small amount of texture. I think it works really nicely and I would love to knit another Stonecrop Pullover (designed by Andrea Mowry) in the future!

Conclusions

There is just nothing like knitting with our hand spun yarns. I encourage you to do so if you have not delved into the world of #useyourhandspun yet – it's really wonderful, and the projects you will find if you search that tag on platforms like Instagram are incredibly inspiring. I almost exclusively knit with my hand spun yarns now after years of practising at my wheel, making many different yarns and knitting with them. Spinning on the e-Spinner 3 helps me to be more productive with my spinning because, with the battery pack, I am able to spin outside, around the house and generally just move around more. This helps me literally make more yarn!



Rachel's sweater shows a slow colour transition with blending of the original colours to enhance the knit pattern

Editor's note

Always outdoors with spindles and an e-Spinner 3 (with battery pack!), Rachel and her family love to explore, camp and hike.

Obsessed with wool, spinning and teaching, Rachel blogs and hosts a weekly podcast, Wool n' Spinning, at patreon.com/ welfordpurls. Rachel has also co-authored a book about spinning colour with Katrina Stewart Unbraided: The Art and Science of Spinning Colour available from www. craftyjaks.ca/ourstore/books/unbraidedthe-art-and-science-of-spinning-colour/





Yoga Yarn Double Weave Bag

BY DAWNE WIMBROW, EASLEY, SC, USA

Interchanged two layered weaving creates a stunning design for a bag.

This project uses any three colours of Ashford's Yoga yarn for a fun double weave design on eight shafts. You can also use this design for a colourful table runner!

Use the Ashford Inkle loom to weave a strap in the same yarns. As this is double weave, the back and the front of the cloth will look different, so choose your favourite side for the outside of the bag.

You will need:

Loom: 30cm (12ins) or wider eight shaft Reed: 40/10cm (10dpi) (sleyed 3 ends per dent) Warp and weft yarn: Ashford Yoga yarn (82%

Cotton, 18% Nylon core; 1260m/1386yds; 200gm) #22 Cedar Green 1 cone, #56 Radiant

Orchid 1 cone, #52 Green Glow 1 cone Other: Inkle loom to weave the straps, 2 boat shuttles and 3 bobbins



Weave on the Katie Loom

Here's how:

Total warp ends: 340 Sett: 12 ends/cm (30 epi) (15 epi/layer) Warp width: 28.78cm (11¼ins) Warp length: 2.75m (3yds) (You'll have extra length for sampling)

Warping

Wind a warp chain with the following colour sequence. You will likely want to split this into two chains.

Colour	Wind	Cumulative Ends
Cedar Green	21	21
Green Glow/Radiant Orchid held together	46 (92 ends)	113
Cedar Green / Radiant Orchid held together	56 (112 ends)	225
Green Glow/Radiant Orchid held together	46 (92 ends)	317
Green Glow	1	318
Cedar Green	22	340

Treadling Colour Order

- 28 picks Cedar Green
- Repeat the following sequence 3 times:
 - 120 picks alternating Cedar Green and Green Glow
 - 144 picks alternating Radiant Orchid and Green Glow
- 120 picks alternating Cedar Green and Green Glow
- 28 picks Cedar Green

Total weft picks: 968



Weaving Hints

When weaving with two colours, manage your shuttle placement so that the two colours wrap around each other at the edges, otherwise you will leave an open edge.

Instead of counting picks in the alternating colour sections, you can count the number of colourful squares that peep through in the 2-shuttle sections. Notice that there are seven sections of either alternating Cedar Green and Green Glow or Radiant Orchid and Green Glow. For the sections with the two greens (120 picks), seven small coloured squares will appear on the surface. For the section with the Radiant Orchid and Green Glow (144 picks), nine squares will appear on the surface. So, if you don't have TempoTreadle, our weaving assistance device, and don't want to count picks, just watch the pattern emerge as you treadle and count the squares!



Count the squares as they emerge

Weaving the Strap

Weave a warp-faced strap using the colour sequence on an inkle loom or on your

table or floor loom without the reed. A 1.5m (60ins) strap will be long enough to wear the bag across your shoulder.

		11x			
9				9	Cedar Green
	5		5		Green Glow
		1			
		1			Radiant Orchid

Total 50 Warp Threads

Constructing the Bag

Remove the cloth from the loom and cut away any waste picks of the cloth so that the first and last picks are exposed. The treadling sequence at the start and end produces an opening for easy hemming. Fold and press the raw edges inward and either hand or machine stitch straight across.



Hem the bag

The sides of the bag are sewn to each side of the strap, not to each other, allowing the bag to have more depth.

To attach the strap to the bag, first fold the bag so that a flap of about 12.7cm (5ins) is accommodated. Mark the top of the bag with a straight pin. With right sides together, sew one side of the strap with a very narrow seam, turning about 2cm (3/4in) of the strap inside the bag at the bottom. Next, sew a narrow seam on the other side of the strap, right sides together. Fold and stitch the excess strap at the bottom of the bag.



Attach the inkle woven strap

Repeat attaching the strap to the other side of the bag, being careful not to twist the strap. The finished bag is approximately 28 x 28cm (11 x 11ins) square.

Editor's note

Dawne and her friend Barry founded LoftyFiber and invented TempoTreadle, a device to help achieve error and stress-free weaving on all Ashford table and floor looms, as well as most looms produced today. All you need is your weaving design in the standard WIF format and TempoTreadle monitors your threading and weaving progress, keeping your project error-free. LoftyFiber now has weaving design software, TempoWeave, making it faster and easier to design your weaving projects!



LoftyFiber also distribute long-line, wet-spun linen in 33 lustrous colours for weaving and knitting, and has a full-service weaving store in South Carolina (USA).

For the WIF pattern of Dawn's Double Weave Bag go to www.ashford.co.nz/wheel 32 or visit loftyfiber.com



Inkling Around: Turned Krokbragd

BY JOAN SHERIDAN, LAKE ORION, MI, USA

Try turned krokbragd on your inkle loom and create your own sheepscape.

I enjoy creating landscapes using the krokbragd weave structure. These designs are my interpretation of driving across the South Island of New Zealand. The sheep, distant mountains, and blue, blue sky remind me of the area around Ashburton. The selvedges are the corporate colours of Ashford.

Krokbragd is a traditional Scandinavian weaving technique that produces a twill-based, weft-faced fabric when woven on a multi-shaft loom. Turned krokbragd on the inkle loom produces a warp-faced fabric. To create a krokbragd-style band, the pattern must be "turned" so that the warp does the colour work. A turned krokbragd band has two distinct sides: one that shows the design and appears to be plain weave and the other with long floats over three weft threads. What you cannot see is a third layer that gives the fabric integrity and is hidden by the long floats on the back side. A krokbragd band has a plain weave selvedge to limit curling. Krokbragd on the inkle is entirely loom-controlled. To create the weave structure, three heddle sets are needed: Heddle 1 (H1) is situated closest to the weaver and in front of the traditional heddles, Heddle 2 (H2) is the traditional heddle set that controls the thread that goes over the top peg, and Heddle 3 (H3) is behind



H1. The first shed creates the space between the sheep.

H2. The 2nd and 4th sheds make the feet of the sheep.

H3. The 3rd shed makes the head of the sheep.

H2. Once these are in place, starting with the shuttle on the right, lift H1 and pass the shuttle, down for H2, up for H3, and end the sequence with down on H2. This sequence of four picks produces the pattern. Notice that H2 is woven every other pick. The first step to warping the loom is very similar to warping for plain weave. Both selvedges always begin and end with a heddled thread. The krokbragd portion of the band begins with two unheddled threads followed by one heddled and two unheddled threads repeated across the width of the band to the opposite selvedge.

The most expedient way to dress the loom is to use a discontinuous warp, in other words, you do not break the yarn and tie to the next colour with each colour change. Simply secure the end of the new colour and begin warping, changing colours as dictated by the pattern. End the thread by tying it to itself – beginning to end – either a) when that colour is no longer needed or b) when you have progressed about 10 – 15 warp threads. A helpful tool for holding ends as you warp is painter's tape. Use a square knot to secure threads and keep tension even across the warp.

The next step is to isolate all the threads controlled by H3. Situate the loom in the weaving position perpendicular to your body. Push down H2 threads and wrap a card or piece of paper around them in front of the H2 heddle for visual contrast. Slide the paper up the warp until it meets the H2 heddles. Working from left to right following the chart, select the colours for H3. Make sure that the threads are lifted straight up and don't cross a H2 thread. As you select each thread, hold it above the warp using your left little finger. If there are two threads of the same colour between heddled threads, it doesn't matter which one you select. Once all the threads are collected, carefully fasten a wide clip to the H3 threads about 15cm (6ins) in front of H2. Compare selected threads to the chart for accuracy in colour and order. Raise the H3 threads and reach behind H2 to hold them. Taking care to fasten only H3 threads, add a small clip to these threads behind H2 and leave the original clip in place at the front of the loom.

Almost there! To isolate H1 threads, begin by selecting the unheddled selvedge threads. Note that these threads are heddled in *both* H1 and H3. This is correct and necessary to achieve the plain weave selvedge. Working in the krokbragd area of the warp, pick up the H1 thread so that it is to the left of the thread you picked up for H3. It helps to spread the threads going over the top peg to identify which thread is the correct one of the pair between the heddled threads. When all threads have been selected, remove the H3 clip at the front of the loom and place a wide clip on the selected H1 threads. Make sure the threads are in order coming from between the H2 heddles. One cannot cross another. Confirm that colour order is correct. Remove the paper.

Heddling the H3 threads is simple. Use a sturdy cord about 20cm (8ins) long to encompass the threads in the clip. Fold the cord in half around all of the H3 threads and tie an overhand knot about 2.5cm (1in) from the ends. Using a lark's head knot, attach a hair elastic at the knot to use as a handle. Remove clip.

H1 is a continuous heddle that is made from crochet cotton. Make a loop using an overhand knot near the tail of the crochet cotton that is big enough to put your finger through. Pull the knot under the H1 threads and place the loop on your little finger. Pick up a loop of the crochet cotton between each H1 thread using a pointed tool and place on your little finger. Keep the loops the same length. When all threads have been heddled, cut the crochet cotton leaving a 30cm (12ins) tail. Attach the hair elastic to the loops as for H3 and use half-hitches to secure the tail around all the heddles directly beneath the elastic.

Using spacers, make the first four picks – H1, H2, H3, H2. Fix any mistakes. With the belt shuttle, start at the right and follow this same sequence using the weft yarn.

Hints:

- When weaving wider bands, a finer heddle thread is helpful.
- Advance the warp frequently, every 5-8cm (2-3ins), for better selvedges.
- Remember to adjust the tension knob to almost fully extended before beginning to warp.
- Make a copy of the pattern so that you can mark your progress as you wind the warp.
- If a thread "catches" in a shed, check to see if it is crossing over an adjacent thread.
- Observation: H1 shed creates the dividing space between sheep, H2 shed creates the sheep legs and H3 shed creates the sheep head.

You will need:

Loom: Ashford Inkle

- Warp yarn: Ashford Mercerised Cotton 5/2 (100% cotton, 848m/927yds, 200gm) or 10/2 (100% cotton, 1696m/1854yds, 200gm) #11 Black 38m (41½yds) 50m (54½yds), #01 Bleached White 34m (37yds) 88m (96yds), #44 Scuba Blue 20m (22yds) 40m (44yds), #52 Green Glow 60m (65½yds) 94m (103yds), #22 Cedar Green 6m (6½yds) 36m (39yds)
- Weft yarn: Ashford Mercerised Cotton 5/2 used for both bands 30m (33yds) each
- Other: Card or plain white paper to use as a contrast when selecting threads for heddling, painter's tape, pre-made double heddles (5/2 band = 29 heddles, 10/2 band = 54 heddles), scissors, pencil, thread/yarn, bag clips – 2 or 3 each of small and large (IKEA is a good source), heavy smooth scrap yarn for H3, small ball #20 crochet cotton to make continuous heddle, 2 hair elastics, pointed tool (a small knitting needle, small crochet hook, dental pick, or toothpick), warp separators (small craft sticks)

Here's how:

Total warp ends: 5/2 band 79 ends, 10/2 band 154 ends Warp length: 2m (78ins)

Editor's note

Joan thinks of herself as a fibre explorer. She has been an Ashford dealer for 20 years. In her spare time when she's not teaching, weaving, knitting, spinning or running her shop, she can be found volunteering as a textile conservator at theHenryFord.org. Follow her fibre adventures at joansheridan.com



10/2 Sheepscape Inkle Threading *Turned Krokbraad*



• * • * • * •



Thread order by shed

5/2 Sheepscape Inkle Threading *Turned Krokbragd*

* • * • * •



To see the full-size charts, go to www.ashford.co.nz/wheel32

The Story Cloth grows



Women's Woven Voices

BY BRECIA KRALOVIC-LOGAN, SANTA BARBARA, CA, USA

Promoting women's empowerment and fostering resilience and creativity through tapestry weaving.

I believe in the power of stories and art to touch people's hearts, create connections, and cultivate change. Can you imagine the impact of a tapestry made up of the woven stories from 1,000 women from around the world? You are invited to participate in this unique experience and add your creative energy to nurture positive change.

The Women's Woven Voices project is an international, collaborative art venture that invites women to write, weave, and share their personal stories to promote women's empowerment and foster resilience, creativity, open communication, and compassion for all.

The project invites people to reflect on their life experiences and then do three things: 1) write about their life as a way of supporting insights and personal growth; 2) weave a personal *story cloth* using a simple hand held loom and easy weaving technique; and 3) share their story cloth by adding it to the ongoing tapestry that I am stitching together.

The art of weaving is a fun and satisfying experience that also has a meditative quality that can be soothing and healing. My hope is that the project will foster a culture of self-knowledge and sharing that builds people's courage and sense of power to contribute to their communities in positive ways. I also want to open up discussions about issues that women face globally including domestic violence and sexual abuse in a safe and supportive way and cultivate solutions for mutual respect.

Currently the tapestry includes story cloths from all around the United States, Bulgaria, Canada, Iran, Iraq, Afghanistan, Syria, and Australia. It has been exhibited at museums, conferences, schools, universities, and community events and there are plans for it to travel internationally.

Please visit www.womenswovenvoices.com for instructions on how to make your own loom and tutorial videos for setting up the loom, weaving and finishing your personal story cloth. I am currently looking to connect with women who would like to coordinate the project in their community or region. I currently have community coordinators in the US and Canada and would love to expand the project to include stories from other countries. Please contact me if you are interested in sharing the project in your area. What story would you like to weave and share with the world?

Editor's note

Brecia Kralovic-Logan is a fibre artist and champion of creativity. She is the author of *The Spiral of Creativity - Mastering the Art of a Spirited Life*. She founded the Women's Woven Voices project to support women in claiming their creative courage and to bring awareness to solutions to gender violence.

Crochet Baby Set

BY KERRYN GILLAN, GORE, NEW ZEALAND



This crochet baby set is perfect for your next slow-crafted gift.

I'm always humbled by the reactions I get when I give a handcrafted gift. People are truly mesmerised when they study the item you've created with your bare hands.

It's an uplifting experience for everyone involved and because of this, I truly believe that slow-craft has superpowers. The power to slow us down in a supercharged world. The power to make someone's day when you give them a handcrafted gift. The power to start a conversation between strangers.

This crochet baby set, made in timeless colours, is a perfect slow-crafted gift and will be treasured for years to come.

You will need:

Yarn: Ashford DK 8ply yarn (100% wool, 202m/221yds, 100gm) 2 balls #115 Truffle (Main Colour); 2 balls #105 Natural White (Second Colour) Blanket – 100gm (3½ozs) each colour Boots – 25gm (1oz) each colour Hat – 25gm (1oz) each colour Other: 4mm (US G/6, UK 8) hook, 2 x 20mm (¾in) buttons

For abbreviations go to www.ashford.co.nz/wheel32

Here's how:

Baby Blanket

Size: 60 x 40cm (231/2 x 16ins)

Chain 92

Row 1: Work 1HDC into each chain, starting with the 3rd chain from the end, turn Row 2: Work 1HDC into each stitch, turn

Work the following rows of colour: 7 Rows Main Colour, 1 Row Second Colour, 6 Rows Main Colour, 2 Rows Second Colour, 5 Rows Main Colour, 3 Rows Second Colour, 4 Rows Main Colour, 4 Rows Second Colour, 3 Rows Main Colour, 5 Rows Second Colour, 2 Rows Main Colour, 6 Rows Second Colour, 1 Row Main Colour, 7 Rows Second Colour

Sew in all ends. Fix tassels to each corner.

Baby Boots

Size: 0-3mths

Sole Measurements: 5cm wide x 9cm long (2 x 3¹/₂ins)

THE SOLES: worked in rounds

Round 1: Using Main Colour, Chain 9, Work 1 HDC into 3rd chain from hook, (I count the chain on the hook as #1), 1HDC into the next 5 stitches, 6HDC into next stitch (you should be at the first chain), Work around the other side of the chain, 1 HDC into the next 5 stitches, 5HDC into the same stitch as your 1st HDC, SI St into first

HDC to finish round. *The 1st HDC of this round counts as the 6th stitch for this end.* Round count: 22

Round 2: 1HDC in same stitch as Sl St, 1HDC in next 5 stitches, 2HDC in next 5 stitches, 1HDC in next 6 stitches, 2HDC in next 5 stitches, Sl St into first HDC to finish round.

Round count: 32

Round 3: 1HDC in same stitch as SI St, 1HDC in next 5 stitches, 2HDC in next stitch, 1HDC in next stitch - repeat 4 more times, 1HDC in next 6 stitches, 2HDC in next stitch, 1HDC in next stitch - repeat 4 more times, Finish with an invisible join into 1st HDC. Weave in all ends.

Round count: 42

Repeat Rounds 1-3, 3 more times. *Note that each boot has two soles*.

Stack two soles together, wrong sides facing you and second colour on top, now begin working the top of the boot.

THE BODY: continue working in rounds

Round 4: Insert hook through both soles at centre back. *This is in the centre of the 3rd increase*.

With Main Colour, yarn over and pull through both layers, SI St around the entire sole – work loosely. To join, Slip Stitch into the 1st Slip Stitch. Cut yarn and restart as if starting a new ball. *This will give a clean finish.*

Round count: 42

Round 5: Turn so that you are working from the outside, 1HDC into each Sl St, Sl St into 1st HDC to join, Work first HDC in same stitch as your joining Sl St.

Take care to go under both loops and not snag the yarn. This round is a little fiddly and is nicer if you've worked the previous round quite loose.

Round count: 42 - COUNT THIS ROW – it's easy to add an extra stitch where you joined.

Round 6: *This round starts to shape the toe*. With Second Colour, 1HDC into next 9 stitches, *HDC2tog, 1HDC in next stitch* 8 times.

To double check your toe will be centred, you want 4 *HDC2tog, 1HDC* on either side of the centre front. Feel free to adjust the number of HDC before and after your decreases to get it centred.

1HDC into next 9 stitches, Sl St into 1st HDC.

Round count: 34

Round 7: 1HDC into next 8 stitches, HDC2tog, 8 times - make sure your decreases are above decreases of previous row, 1HDC in next 10 stitches, SI St into 1st HDC.





Round count: 26

Round 8: 1HDC in next 7 stitches or until the stitch just before your first decrease.

Now we'll work a giant cluster to bring the entire toe together.

Work 1DC in the next stitch until 2 loops are left on the hook, repeat 2 more times (4 loops on hook).

Work 1TR in the next stitch but don't finish, leave last loop on hook, repeat 2 more times (7 loops on hook).

Work 1DC in the next stitch until 2 loops are left on the hook, repeat 2 more times (10 loops on hook).

Yarn over and pull through all 10 loops on hook.

Ch1, SC into same stitch as last DC.

1HDC in next 10 stitches, SI St into 1st HDC. Cut yarn. Weave in all ends. Round count: 20

THE ANKLE FLAP: worked in rows

Row 1: Holding boot with toe towards the left (right boot) or right (left boot), count 6 stitches from centre front, attach yarn by pulling a loop through, ch1 to secure, Ch 15, turn, HDC in 3rd chain from hook, 1HDC in each stitch. *Work along your chain, around the back then around the front until you are 2 stitches away from where the tail joins the boot.*

Row 2: Mark the buttonholes for the next row: count from the tail end, mark the 3rd and 7th stitches.

Ch1, turn, 1HDC in each stitch before your first marker, Ch1, skip marked stitch, 1HDC in next 3 stitches, Ch1, skip marked stitch, 1HDC in next 2 stitches. *This creates the buttonholes. There are 2 buttonholes to allow for stretch or chubby ankles.* Turn Row 3: Ch1,1HDC in each stitch, HDC2tog last two stitches (last stitch and turning chain), turn.

Row 4: Ch1, 1HDC into each stitch, until you are 2 stitches before the first buttonhole, turn.

Row 5: Ch1, 1HDC in each stitch, HDC2tog last two stitches (last stitch and turning chain).

Cut yarn and pull through, weave in ends. Repeat for the second boot. Sew on 20mm buttons.

Get to know your e-Spinner 3 by spinning samples of different fibres at different settings

Baby Hat

Size: 0-3 months Hat Circumference: 30-36cm (12-14ins) Hat Height: 11-13cm (4½-5ins)

Starting from the crown and work down.

THE CROWN

Round 1: With Main Colour, create a magic ring or chain 5 and join to form a ring, Ch1, work 12DC into the ring, Sl St into 1st DC to join. **12DC**

Round 2: Ch1, work 2DC into each stitch, Sl St into 1st DC to join. **24DC**

Round 3: Ch1, *work 2DC into 1st stitch, 1DC into next stitch*, repeat from * to *, Sl St into 1st DC to join. **36DC**

Round 4: Ch1, *work 2DC into 1st stitch, 1DC into next 2 stitches*, repeat from * to *, SI St into 1st DC to join. **48DC**

Round 5: Ch1, work 1DC into each stitch, Sl St into 1st DC to join. **48DC**

Repeat round 5, 5 more times, for a total of 10 rounds, including the crown.

THE BAND

Change colour to Second Colour. Ch1, 1HDC into each stitch, Sl St into 1st HDC to join. **48HDC**

Repeat this round 4 more times.

Finish with an invisible join, weave in all ends.

Create a pom pom with Main Colour and fix it securely to the top of the hat.

Editor's note

Kerryn designs crochet and knitting patterns, and sells her bespoke pieces in crochet, under her label, Crochet Birdie. She also loves to inspire people to slowcraft every day in her store, Needle & Hook, in Gore, Southland, New Zealand. Kerryn's practical and sustainable crochet market bag and cloths, featured in Issue 31 of *The Wheel*. www.needleandhook.co.nz

@needleandhookbycrochetbirdie



e-Spin your Perfect Yarns

BY MARY BERRY, FARMERSVILLE, TX, USA

A teacher gives a master class on e-Spinning.

There are not many times in life where you can truly have or do or find exactly what you want. When it comes to hand spun yarn, however, Ashford's e-Spinner 3 and e-Spinner Super Jumbo make it easy to create all possible yarn styles and sizes!

e-Spinner 101: How e-Spinners Work

Ashford e-Spinners operate in much the same way as traditional spinning wheels with one exception: there is no whorl on an e-Spinner. Settings on these e-Spinners control your take-up strength and speed. e-Spinning is a combination of three components:

- Drafting speed (what your hands are doing)
- Rate of twist (as set by the speed dial)
- Strength of the draw-in (controlled by the brake system)

You control your drafting speed. You want to draft at a speed that is comfortable for your hands and arms and that can be maintained over time. Twist and take-up are both set on the e-Spinner.

e-Spinner 201: The Technical Stuff

The Ashford e-Spinners are similar to one another, and yet different.

Twist

On both e-Spinners, the rate of twist is controlled by the speed dial. Imagine the speed dial is in the centre of the face of an analogue clock. When the dial is pointing down on the left side of 6:00, there is no speed; the motor is not working. As the dial is turned clockwise, the motor begins to run. The more you turn the dial, the faster the motor runs which increases the rate of twist.

e-Spinner 3

The *e-Spinner 3* operates in the same manner as a flyer-led treadle wheel. On the e-Spinner the motor turns the flyer the same as the drive band on a treadle wheel. As the flyer turns, twist is created. Your hands guide that twist into your fibre to make a singles yarn. The brake band exerts friction against the bobbin to slow it slightly (otherwise, the flyer and bobbin would be rotating at the same speed) which causes the yarn to wind onto the bobbin.

The rate at which your yarn is pulled onto the bobbin is controlled by the tension knob on the right side of the e-Spinner. When the knob is turned toward you, the brake band is slack and there is no draw-in. As the knob is turned away from you, the brake band increases friction on the bobbin thereby increasing the strength of the take-up.

e-Spinner Super Jumbo

The *e-Spinner Super Jumbo* operates in the same manner as a bobbin-led treadle wheel. The drive band turns the bobbin. A leather band exerts friction on the top of the flyer orifice which slows the flyer slightly thereby causing your yarn to wind onto the bobbin.

The strength at which your yarn travels onto the bobbin is controlled by the knob to the right of the flyer orifice. Turning the knob clockwise puts pressure on the leather band which, in turn, puts friction on the flyer. The more friction exerted on the flyer, the slower the bobbin will turn, and the faster your yarn will pull onto the bobbin.

e-Spinner 301: Spinning Your Perfect Yarn

Create your perfect yarn by adjusting the speed dial and brake tension knobs.

- Set your speed dial to twist your fibre to the degree desired (low twist for a bulky yarn; high twist for a fine yarn).
- Set the brake tension knob to pull your twisted single onto the bobbin at exactly when the desired level of twist is in your fibre.

Mary – living the dream



Finding the "sweet spots" with these adjustments is a matter of experimentation. Start spinning with your speed dial set at 9:00 and your take-up firm but not pulling the yarn out of your hand. Spin about 3m (3yds) at a comfortable pace. Stop, pull about a yard off the bobbin, and make a ply-back sample. Evaluate your sample.

If the resulting yarn does not have enough twist in it, you have three choices that will fix the problem, and they are all correct choices.

- 1. Increase the speed (turn the speed dial to the right) or
- 2. Lighten the draw-in strength (turn the brake band tension knob toward you on the e-Spinner 3; turn the black tension knob anticlockwise on the e-Spinner Super Jumbo) or
- 3. Combine a little of option #1 with a little of option #2.

The choice you make is a matter of personal preference. They will all give you the desired result.

If the resulting yarn is over-spun (too much twist), you can:

- 1. Decrease the speed (turn the speed dial to the left) or
- 2. Strengthen the draw-in so that the yarn spends less time in front of the orifice (turn the brake band knob away from you on the e-Spinner 3; turn the black tension knob clockwise on the e-Spinner Super Jumbo) or
- 3. You guessed it! Combine a little of option #1 with a little of option #2.

Once you are spinning your target single, it's a good idea to make notes of your settings. Attach the ply-back sample to a card and note both your speed setting and your brake band setting. (This is easier to do if you put a paper dot or a piece of clear tape on your tension knob and mark your spot with a Sharpie.) Note the fibre content, the method of preparation (e.g. combed top or carded roving), and anything else that might affect your ability to reproduce the same results in the future. Making good notes now will lead to easy success in the future!

e-Spinner 401: Plying

Fortunately, the same principles and adjustments are used to ply your singles. The goal is to move the correct amount of ply twist into your yarn just before the e-Spinner pulls the yarn onto the bobbins. Turn the speed dial clockwise and set the tension dial for a strong draw in. As with a treadle wheel, you can usually ply at a faster speed than the speed at which you spun your singles. Find the point where your hands are operating at a comfortable pace and you are there!

Enjoy playing with these wonder e-Spinners to spin your perfect yarn!

Editor's note

Mary says she is living her dream teaching spinning, weaving, dyeing, rug hooking classes, and creating textile art that is full of colour and life at the Fancy Fibers Studio in north Texas. You may also find her at fibre festivals around the US coaxing one more student into trying something new, stretching a few boundaries, and doing more than they thought they could.

Eco-printing Immersion Dyeing

BY ROXANNE EKLUND, NAZARETH, PA, USA



Roxanne wearing her eco-printed wool dress, with her favourite eco-dyeing plant the European smoke bush (Cotinus coggygria)

Display nature's beauty in a botanical print.

I have always had a love for gardening and an obsession for working with wool, particularly wet felting techniques. About six years ago I discovered botanical printing from an online class with Nicola Brown from Ireland. From then on, I developed a passion for combining my gardening, felting and printing skills. I enjoy discovering new plants that print and my favourite is the European *Cotinus (coggygria)* or smoke bush. I have planted seven in my Pennsylvania landscape, so I always have a supply. Of course, the eucalyptus varieties, which do not grow in northern USA are the most amazing as the prints are bright oranges on wool. I collect and store the dried, fallen leaves from my trees in Arizona. As a designer, I have printed large yardages for clothing and home goods, and recently I have been wet felting and printing large vessels and sculptures to add to my collections. Botanical printing is so amazing as none of the pieces ever are the same and as one opens the bundles of fabric and fibres wrapped around the pipes, it's always another incredible surprise.

You will need:

Scarf-length wet-felted wool 146cm (57ins). I used Ashford Merino sliver* Table with top at a comfortable height (use risers or PVC tubes on legs) Plastic buckets 3 x 20 litre (5 gallon) Aluminium pots 23cm deep x 38cm in diameter (9 x 15ins). Restaurant supply stores are a good source Heating unit – one per cooking pot. A small propane stove works best as the pot needs to be of aluminium Vinegar - white distilled Water source - not distilled Assortment of pipes in wood, copper, aluminium, iron 1-5 cm ($\frac{1}{2}$ - 2ins) diameter String, cord Plant leaves Iron pieces for rust cooking and rust water Other: stirring tools, tongs, scissors, plastic cover for table, hot pads, towels, clippers for cutting leaves/stems, scissors, plastic gloves, pastry paper for resist Here's how:

A Seasoned Pot

When printing/dyeing a rolled-up and tied piece it needs to be immersed in a full seasoned pot.

- When you first fill your aluminium pot (must be aluminium!) use any kind of water and add about 4 litres (1 gallon) of vinegar. Then choose some leaves, bark, and onion skins. If you want your pieces to be a darker colour add a piece of scrap iron metal. You can leave the material in as long as you like but remove the iron after a month so as not to rust out the bottom of your pot eventually.
- 2. Bring to simmer for the first brewing. Your pieces may seem quite light in results, but as you continue with the process over time, the liquid becomes quite "seasoned and ugly" and results become more interesting and unique. (My pots are over a year old!)
- 3. As I cook the materials, I regularly need to replenish the liquid with water, vinegar and vegetation.





Roll up around a pipe tightly and tie

obovatus, American smoke bush on cellulose)

- Rose bushes
- Sumac (*Rhus aromatica*)
- Walnut especially on cellulose
- Coreopsis
- Blackberry
- Black tea leaves
- Oak on cellulose

Editor's note

As a designer, entrepreneur, and educator, Roxanne has been involved with all aspects of textiles, from felting, weaving, and sewing to dyeing and botanical printing. Passionate about education, she spent nine years as a Professor of Textiles and Fashion Design at Pratt Institute in NYC, and opened a textile centre, locally, to continue teaching and experimenting in new techniques of working with fibres and fabrics.

Roxanne featured in Issue 30 of *The Wheel* with her Easy Woven Bodice. *To see how to wet felt a wool scarf go to www.ashford.co.nz/tutorials/ felting-tutorials



Simmer in the seasoned pot (I added Birch bark to the pot)



Finished eco-print wool scarf

Lay out the leaves on the wool felt. I used Silver Dollar Eucalyptus, Fragrant Sumac, Cotinus coggygria, and Coreopsis leaves

Dyeing

- 1. Wash the felt in neutral soap, squeeze out excess water.
- Soak overnight in a pail of vinegar (spritzing before laying leaves optional).
- 3. Squeeze out excess liquid and lay out on table.
- 4. Place leaves, alternating up/down both sides, and/or use paper for resist.
- 5. Roll piece around pipe tightly.
- 6. Tie this tightly with string or cord.
- 7. Carefully place into the simmering seasoned pot, cover.
- 8. Cook for 3.5 hours, covered. Carefully remove and cool.
- 9. Unwrap and remove the leaves.
- 10. Let dry, neutralise in a vinegar/water solution, wash in neutral soap.

Hint: Timing and temperature are so important! Sometimes I cook 4-4.5 hours for a deeper colour.

Plant Suggestions

- Onion skins yellow or red
- Eucalyptus leaves
- Smoke bush (Cotinus coggygria, European smoke bush is most successful on protein and Cotinus

Fibonacci stripes are always pleasing to the eye



Make plain weave special with a Fibonacci stripe and knitted rib froufrou.

Designing with colour and pattern can make your projects pop. The spacing of the stripes adds another dimension to this plain weave structure. Add a fine knitted ribbed froufrou and this plain weave scarf is anything but plain!

SIMI VALLEY, CA, USA

The *Fibonacci formula* is a sequence of numbers where each subsequent number is the sum of the two previous numbers. The numbers of the Fibonacci sequence are widely found in nature - veins in a leaf, or spirals in a snail's shell etc. - and the relationship between them produces proportions that our human brains find especially attractive. Any time a design is based on Fibonacci numbers, it is naturally pleasing to look at. It is one of my favourite design techniques.

Weave structure: Plain weave

You will need:

Loom: 25cm (10ins) or wider rigid heddle Reed: 40/10cm (10dpi) for 20epi (two ends per dent)

Yarn A: (warp, weft, and knitted edges) Teresa Ruch Designs 5/2 (100% Tencel, 113gm/40zs, 475m/520yds) Turquoise, 274m (300yds) warp + 297m (325yds) weft + 549m (600yds) knitted edges = 1120m (1225yds) total, wpi 26, ppi 13

Yarn B: (warp) Teresa Ruch Designs 5/2 (100% Tencel, 113gm/4ozs, 475m/ 520yds) Dark Blue, 274m (300yds), wpi 26

Knitting needles: 3.5mm (4US) on 61cm (24ins) cable

Other: small crochet hook

Here's how:

Width in reed: 25cm (10ins)

Total warp threads: 102 dark, 102 light = 204 total ends

Warp length: 213cm (84ins) Woven length on loom: 183cm (72ins) Loom waste: 30cm (12ins) Length after wet finishing: 178cm (70ins) Width after wet finishing: 23cm (9ins)

Warping

The stripe sequence in this scarf is Fibonacci-based. The width of the stripes progresses from two warp threads, to four warp threads, to six warp threads, to ten warp threads. (2 + 4 = 6, 4 + 6 = 10). Warp the loom according to the chart and spread the warp threads with waste yarn. Each slot and eye will have two warp threads.

Since you'll have two warp threads in each slot and eye, you can warp by putting a loop in each slot and eye while direct warping. In the chart below, the AA or BB indicates two warp threads, or one loop through each slot and each eye. In following the chart, the eyes should be to the right of the slots. You will have a slot filled on the far left and an eye filled on the far right.

With the reed in the down position, insert a cardboard separator strip behind the reed. This will straighten any crossed warp threads and allow a clean shed. Move the strip back each time you advance the warp. Use your fingers to straighten out any twisted threads.

Weaving

Weave for 183cm (72ins) at 13ppi using a single strand of yarn A as the weft. Take off the loom and zigzag the ends. Wet finish in cool water and hang to dry. Cut the warp threads along the zigzag stitching to trim any uneven threads. Hem the ends by turning up 1cm (1/2in), then 2cm (3/4in), iron and hand stitch in place using very small stitches. If desired, knit a finishing edge on each end.

Knitted Edges

7 stitches, 8 rows per 2.5cm (1in) For the knitted, ribbed trim, pick up 65 stitches evenly spaced across the width of the scarf. Use a small crochet hook to go through the woven cloth and pull a loop of the knitting yarn through. Place that loop on the knitting needle and continue across the cloth picking up one stitch at a time. Knit in this ribbing sequence for 15cm (6ins).

Right side:

K1, P1, K1, P2, K2, P2, K2, P3, K3, P3, K5, P5, K5, P5, K5, P3, K3, P3, K2, P2, K2, P2, K1, P1, K1

Wrong side:

P1, K1, P1, K2, P2, K2, P2, K3, P3, K3, P5, K5, P5, K5, P5, K3, P3, K3, P2, K2, P2, K2, P1, K1, P1

After 15cm (6ins)

Bind off 3 stitches at the beginning of the next 2 rows, then work 4 rows even. Bind off 4 stitches at the beginning of the next 2 rows, then work 4 rows even. Bind off 3 stitches at the beginning of the next 2 rows, then work 4 rows even. Bind off 6 stitches at the beginning of the next 2 rows, then work 4 rows even. Bind off 5 stitches at the beginning of the next 2 rows, then work 4 rows even. Bind off 5 stitches at the beginning of the next 2 rows, then work 4 rows even. Bind off 5 stitches at the beginning of the next 2 rows, then work 4 rows even. Knit 1 row, then bind off 1 stitch each row until only 2 stitches are left and knit those 2 together.

Block the knitted ends, making sure to pin the points of each tapered edge where the stitches were bound off.



An attractive knitted fringe

Threading the slots and eyes

	Х3	X	3		Х3		Х3			Х3			Х3		Х3		
	Х3	X	3		Х3		Х3			Х3			Х	.3	Х3		
eye	BB	AA	BB	AA	BB	BB	AA	AA	BB	BB	BB	AA	BB	BB	AA	BB	BB
slots	AA	AA	BB	AA	AA	BB	AA	AA	AA	BB	BB	AA	AA	BB	AA	BB	AA

Editor's note

This scarf is one of the many stylish and inspirational patterns from *The Ashford Book of Rigid Heddle Weaving, Basics and Beyond,* by Deborah which will be available in 2021.

Two months' of molt fibre from both rabbits



The Angora Rabbit: Warn Personality, BY GINA MARTIN-WOODRUFF, HURLEY, NY, USA Friendly Apparel

A chance encounter in a yarn shop led to a new world of rabbit farming and spinning.

Five years ago, my husband and I relocated to a small family farm. At a local yarn shop, I came upon a woman who was holding an Angora rabbit in her lap and spinning fibre on a wheel directly from its coat. Intrigued, I thought, "I would love to do that. This seems like a natural next phase of my passion for knitting." The following spring, I adopted two Black French Angoras; Clove, a one-year old buck, and Willow, a six-week old doe. Next, I purchased an Ashford Elizabeth spinning wheel and my new adventure began!

Clove and Willow are much loved, with their own temperaturecontrolled barn. Feeding includes a steady supply of feed hay with timothy grass and each rabbit, twice a day, is fed a handful of acceptable greens. To promote fibre production, they are fed wool-formula pellets. A slice of apple is a once-a-week special treat as sugar intake should be limited. French Angora rabbits are very affectionate and will show appreciation by purring when they are patted or groomed, and they produce this amazing fibre! Now an artisan angora producer and spinner I am so grateful I visited that yarn store!

The Angora Rabbit

Angora fibre comes from the Angora rabbit and is not to be confused with mohair which comes from the Angora goat. Angora fibre is very soft, silky, and light. A single angora hair has a hollow core structure and is extremely fine, so knitted angora items give greater insulation and more moisture-wicking than wool. The Angora rabbit's coat is comprised of three types of hair: the outer guide hair is the longest and covers the guard hair, which, in turn, lies over the innermost hair, the down, which is very soft and smooth and when the three are spun together, produces a very strong yarn.

Breeds

There are five distinct breeds of Angora rabbits: English, French, German, Giant, and Silky. The French Angora produces a highquality silky fibre. Each of the Angora breeds has wide variations of colours. Angoras range from 1.8 – 5.5kg (4 -12 pounds) full-grown, depending on the breed.

Clove

Spinning directly from Willow

Angora and Corriedale fingerless mittens



Preparation and Blends

Angoras will molt three or four times per year but need weekly grooming. To harvest the angora fibre, I finger-comb the rabbits to gently remove only the loose hairs. This is an humane, ethical practice, and causes no discomfort to the rabbit. Each Angora will give approximately 284gm (10ozs) of fibre annually.

The most desirable fibre on the rabbit for spinning is collected from its back, shoulders, and hips. It does not need to be carded before it is spun, therefore spinning directly from the rabbit is a delightful option. Most debris is removed during harvesting. Angora fibre is relatively clean and does not contain lanolin (or grease) like some wools, therefore washing takes place after the yarn is created.

Spinning

Angora fibre can be spun using a drop spindle or spinning wheel. Both techniques require the fibre to be spun at a high speed to ensure that the fine, silky hairs are tightly wound and hold together. This worsted spun technique will also prevent the finished item from shedding.

After plying (with another single of angora or wool) soak the skein for approximately 20 minutes in very warm water and liquid wool soap. The yarn is then rinsed with clear water of similar temperature and air-dried, and wound into a skein.

Uses

Angora fibre takes and retains dye colours exceedingly well. The

down, or fibre closest to the body of the rabbit, gives it the high amount of fluff, also known as halo or loft. The fuzziness isn't apparent while spinning, and not until the yarn is handled, after washing and knitting or weaving, does the halo appear.

100% angora works very nicely knitted as small shawls, cowls, or hats. It also gives edges of garments, such as cuffs and collars, a special flair. Pure angora may be too warm and lofty for comfort knitted as a vest or sweater, so blending with wool or other fibres is a good option.

Classified as an exotic fibre, angora items are silky and nonirritating to the skin, and in some applications, therapeutic. Garments made from it can provide warmth and some relief to muscle and joint pain.

Still in the early stage of the adventure, I am trying out various ways to use the fibre. With 100% 2 ply angora yarn, I have knitted a luxurious hat and cowl set and used some for brims on hats and trim on fingerless gloves and socks. Most recently I plied the angora, 50/50, with spun Ashford Corriedale wool and created this pattern to share; a pair of luxurious fingerless gloves to take you from autumn to spring. *For the pattern see next page*.

Editor's note

Gina and her husband, Leslie, are currently converting one of their barns into a textile studio. She hopes to bring together a community of knitters, spinners, and weavers. Follow Gina on Instagram @cloveandwillowtextiles

Hudson Valley Handwarmers

Finished size: Women's average

You will need:

- Yarn: Approximately 200m (220yds) hand spun 2 ply 50% Angora, 50% Corriedale, 17 wpi (or DK weight yarn)
- Needles: One set double-pointed needles in 2.75mm (US2, UK12) or size to obtain gauge

Other: Stitch markers, cable needle, tapestry needle

Gauge: 8 stitches and 12 rows = 2.5cm (1in) in stockinette stitch

For abbreviations go to www.ashford.co.nz/wheel32

STITCH GUIDE

Texture pattern – Worked over 18 stitches FS (front slip) WYIB sl 1 st purlwise to RH NDL, move the next K st to CN and hold to front of work, place P st back onto LH needle, put K st from CN onto LH NDL and KTBL, P1.

BS (back slip). Move the next K st to CN and hold to front of work, P1, move the K st from CN to LH NDL and KTBL.

CUFF

Cast 50 sts onto 1 DPN. Divide sts onto 3 DPNs as follows: Place 18 sts on NDL 1, 16 sts each on NDLs 2 and 3), PM, and join to work in rnd. Work cuff in k1, p1 ribbing 38 RNDs. (approx.10cm/4ins).

TEXTURED PATTERN

Notes: KTBL all K sts within texture pattern section (on odd number RNDs only).

Needle 1 will be worked in texture pattern, NDLS 2 and 3 will be worked in stockinette stitch.

Set-up RND: P1, *(p3, k2, p3); rep from* once, P1.

RND 1: P1, *(p3, k2, p3) rep from * once, P1.

RND 2 and ALL even number rows: P the purl sts and WYIB sl the K sts as if to P.

RND 3: P1, *(p3, k2, p3); rep once from *, P1.

RND 5: P1, *(p2, FS, BS, p2), rep once from *, P1.

RND 6: Begin thumb gusset:

Left hand – Work pattern as established to NDL 3. Eight sts before end of RND, PM, M1R, K3, M1L, PM, K5. (There are now 5 sts between markers).

Right hand – Work texture pattern as established on NDL 1. NDL 2 – K5, PM, M1R, K3, M1L, PM, (5 sts between markers). K to end of RND.

(Right and left hands: Rep gusset increases on even number RNDs (M1 R, K to M, M1L) until there are 17 gusset sts between markers.

Rnd 7: P1, *(p1, FS, p2, BS, p1); rep once from *, P1. Rnd 9: P1, *(FS, p4, BS); rep once from *, P1. Rnd 11: P1, *(k1, p6, k1); rep once from *, P1. Rnd 13: Repeat rnd 11. Rnd 15: P1, *(BS, p4, FS); rep once from *, P1. Rnd 17: P1, *(p1, BS, p2, FS, p1); rep once from *, P1.



Rnd 18: Last gusset increase rnd. 17 sts between markers. Place gusset sts on waste yarn.

Rnd 19: P1, *(p2, BS, FS, p2); rep once from *, P1. At base of thumb above gusset sts, cast on 3 sts to add back sts that were incorporated into thumb. Continue in pattern as established. Rnd 21: P1, *(p3, k2, p3); rep once from *, P1. Rnd 23: P1, *(p3, k2, p3); rep once from *, P1. Rnd 25: P1, *(p2, FS, BS, p2), rep once from *, P1. Rnd 27: P1, *(p1, FS, p2, BS, p1); rep once from *, P1. Rnd 29: P1, *(FS, p4, BS); rep once from *, P1. Rnd 31: P1, *(k1, p6, k1); rep once from *, P1.

Rnd 33: Repeat RND 31.

Rhd 33: Repeat RND 31.

Rnd 35: P1, *(BS, p4, FS); rep once from *, P1.

Rnd 37: P1, *(p1, BS, p2, FS, p1); rep once from *, P1.

Rnd 39: P1, *(p2, BS, FS, p2), rep once from *, P1.

Rnd 40: Purl the P sts and WYIB, sl the K sts as if to P.

Work next 6 RNDs in P1, K1 ribbing. Bind off in pattern.

Thumb finishing: Remove sts from waste yarn and place on 3 dpns. Using another needle, pick up 3 sts at base of thumb to close gap (20 sts total). Redistribute sts on ndls as needed. K 6 rnds, work 3 rnds in k 1, p1 ribbing. Bind off in pattern.

Using tapestry needle, weave in all ends. Block.

A. Miraculous Week

BY CHARLOTTE LINDSAY ALLISON, FREDERICKSBURG, TX, USA

Late last year I was approached by Colonel John Mayer to help returned Veterans through the Semper Fi Fund. Could I teach spinning, weaving, and knitting to a small group of Veterans? I've been a spinner and weaver since 1983 and an Ashford dealer for many years so I jumped at the chance to help.

It was a miraculous week.

My first students Larry and Katie (names changed to protect their identity), had endured terrible suffering from head and back injuries, and now had Post Traumatic Stress Syndrome.

My studio was set up for them to experience drawloom weaving, 4 shaft Rosepath (for towels), a small table mat (for rug weaving on a grander scale), wash cloths (4 shaft waffle weave), band weaving on the Ashford Inklette loom, spinning on the Ashford Joy and the Ashford Country spinning wheels.

Larry chose first the drawloom. He could work away from the others in the back of the studio where it was very quiet. Later, I learned he had been housebound since returning from war.

Katie was working on the Inklette, but suddenly, without warning, her hands began to shake uncontrollably. She made her way to the sofa, to take a rest and be comforted by Millie, my dog.

There was one loom (a table loom) purposefully set up for them to team "dress" – one helping the other. The timing seemed perfect as Larry and Katie began laughing and sharing war stories. What music to my ears! As the days progressed, they became more and more comfortable. They shared their stories with me. They shared how difficult it is to constantly, daily, be thinking of their war experiences. They can't escape them. But what they each shared was that they were able to weave and spin, concentrate and FORGET! Katie said she finally had hope.

Larry, severely injured during an explosion in Iraq, wasn't sure how well he would recover. After learning to weave, he is hoping to not only continue it as a hobby, but perhaps as the basis of a small business.

I was overwhelmed with these revelations.

They each completed five projects, including hemming and each took home a small hank of hand spun yarn.

Colonel John Mayer, who joined the first workshop, said, "The Semper Fi Fund is a non-profit organisation and its programme, America's Fund, was set up to help provide financial assistance and lifetime support to Veterans and the families of the Veterans who are critically ill or injured. All of the members have a disability of some sort from their service. We help them start, either crafting, so they have something to do that is positive in their free time, or we help them start a small business, usually home-based. Or we help them get the skills they need so they can get a job they really want."

It was a privilege to teach these Veterans. It was a miraculous week and I look forward to the next workshop.



Editor's note

Charlotte's plans of hosting several of these workshops for the Semper Fi Fund have been put on hold because of Covid-19. But once it is safe to meet, the doors to her studio will be open to these returning Veterans.

See: semperfifund.org/ semperfifund.org/what-we-do/ transition/apprenticeship/

Alpaca Crop Top

BY FRAN CASELLI, SANTIAGO, CHILE

A simple comfortable top built from woven rectangles.



Create a unique design with a supplementary weft



Hiding the fringes



Joining the pieces

Size: Small

Add 5, 8, 10cm (2, 3 or 4ins) for larger sizes Weave structure: Plain weave with supplementary weft

You will need:

Loom: 40cm (16ins) or wider rigid heddle Reed: 30/10cm (7.5dpi) Warp yarn: Cashmere yarn 2 ply (340m/371yds) 200gm (7ozs) Weft yarn: Lanas Meeeh Peruvian baby alpaca 4 ply (200m/218yds) 200gm (7ozs) Supplementary weft: Any leftover alpaca that you can recycle

Here's how:

Warp length: 280cm (110ins)

Warp width: 40cm (16ins)

Finished length: 220cm (87ins) + 15cm (6ins) of fringes at each end, plus 10cm (4ins) of warp to separate each rectangle. *See sketch*

Warping

Warp the complete width of the reed with the cashmere yarn. Double sley the first and last slot to give more stability to the edges of your fabric.

Weaving

Weave four rectangles in the same warp. First the sleeves: two 40 x 50cm (16 x 20ins) rectangles; then the body, two rectangles, one 58cm (23ins) length and the other 62cm (24ins) in length. Between each rectangle leave 10cm (4ins) unwoven warp. After leaving 15cm (6ins) for the fringe, start to weave with the baby alpaca yarn. Secure with a hemstitch. Weave the first centimetre ($\frac{1}{2}$ in) firmer than normal. This small detail will give stability and definition to the fabric.

Then start weaving your fabric normally. Add a design if you want with a supplementary weft to give it more colour and a unique design to the fabric.*

Once you have woven the four rectangles, hemstitch and leave 15cm (6ins) for the fringes.

Finishing

Remove the fabric from the loom and separate the rectangles by cutting the unwoven warp leaving 5cm (2ins) fringe for each piece. Steam press.

Before joining the pieces we are going to hide the fringes one by one. You should know that you will need time and patience but believe me, the effort will be worth it! In addition to connecting intimately with your woven fabric, you will be able to reinforce its sides right where we are going to sew.

Using a needle, take each warp end and thread 2cm (1in) back up through the weaving, one thread over. Do this procedure with all the warp threads.

Fran and her crop top (photos Kev Tomas)

Now, let's build this crop top!

Let's start with the body, first join the shoulders of your body, (note that the front rectangle is 4cm (2ins) larger than the back, leave this additional cloth in the front of the fabric). Using the same yarn as the warp, join the pieces using the "entrabe union" method. This dates back from the Andean peoples of the pre-Columbian era. The needle passes through the weft edge loops of both fabric pieces to join them together. Put together each shoulder about 12-14cm (5-6ins) long.

Once you have joined the shoulders, sew the sides 20cm (8ins) long, leaving space for the armhole. Then sew the sleeves to the body and if you like, make a small dart in the cuff to give it a personal touch.

Steam the crop top and leave it hanging on a hanger for a few hours. After this it is ready!

Editor's note

Fran is a costume designer by profession but says she is a weaver by nature. For twelve years she has studied traditional textile techniques at home and abroad and now teaches her philosophy of slow, conscious weaving for self-care.

Fran featured in Issue 31 of *The Wheel* with another beautiful woven jacket.

Follow her work on @fran_caselli

*For a tutorial on adding supplementary weft yarns go to www.ashford.co.nz/wheel32

The small habitat through clothing

For a while now I have been reflecting on the relationship between the body and textiles. Have you ever wondered about the power that textiles have to condition the experiences of our bodies? Our clothing creates our own habitats. One side of the textile, against our skin, activates our senses. And the other side establishes a visual and tactile contact with the outside world. For me, this crop top makes me feel at home, in a loving, soft and comfortable space that gives me warmth, containment, and affection, it also makes me feel beautiful and authentic. I hope you are encouraged to weave it and enjoy it as much as I do.





To see the full-size sketch, go to www.ashford.co.nz/wheel32

Sustainable wool



Natural vs Unnatural Fibres – An Ethical Dilemma

BY LINDA CORTRIGHT, ROCKLAND, ME, USA

Lessons learned from the food industry should alert us when choosing "natural" fibre.

For those whose childhood memories range from black and white television, drive-in theatres, and bell-bottom pants, the term "natural food" is likely not part of their lexicon. Concerned voices from both scientific and medical communities were rarely heard above a whisper as the use of pesticides, GMOs, and artificial preservatives quietly began infiltrating the kitchen cupboard. It took years for mainstream consumers to understand the consequences of "unnatural food" before mounting a campaign for more informed choices. Will history repeat itself as the fibre arts community (a passionate subset of the textile industry) struggles through a similar process, questioning the toxicity and sustainability of so-called "natural fibres"?

Looking at natural fibres though a very long lens, the first cotton cloth fragments were found in Mexico in 5000 B.C. By comparison, sheep were domesticated at least 2000 years before then. Alas, they were hairy—not woolly. It was not until 4000 B.C. that the Babylonians first began wearing natural wool garments. However, the award for the oldest natural fibre known to have been used by humans goes to linen (flax)— a plant fibre, which was excavated from a cave in Georgia and estimated to be 36,000 years old.

Fast forward to the mid-19th century when, quite by accident, the first man-made fibre was discovered. During the 1850s,

silkworms were dying by the thousands from diarrhea! It was an epidemic, threatening the French silk industry with collapse. World renowned scientist, Louis Pasteur (noted for numerous discoveries including pasteurised milk) was called upon to solve the problem, and so he did; the silkworms were eating mulberry leaves contaminated by their own faeces. Pasteur's assistant, Count Hilaire de Chardonnet, is the one responsible for discovering artificial silk when he accidentally spilled a bottle of collodion in his darkroom. (Collodion is a transparent, gelatinous substance used in coating photographic plates derived from cellulose treated with nitric and sulfuric acids—the same ingredients in gunpowder.) As the collodion began evaporating, it formed long filaments similar to silk. Six years later, Chardonnet successfully manipulated the cellulose from cotton plants with an enzyme cocktail of caustic acids, pushed the substance through a spinneret device similar to his shower head, and synthetic silk was born. It was christened rayon, owing to its remarkable sheen that reflected the rays of the sun.

In today's fibre handbook, rayon is defined as a yarn or fabric created from any cellulosic fibre, wood pulp being the predominant ingredient. Varying combinations of hazardous chemicals are still required to manipulate plant fibre into a spinnable format. For some, particularly within the fibre arts community, the argument over natural versus man-made ends when the door to the chemistry lab opens, even if the man-made fibre is sourced from a very natural tree or grass (bamboo is a grass.) The notion of "spinning" fibre in a sterile chemistry lab amidst a miasma of acids and solvents seems the antithesis of "natural" when compared to a quiet afternoon by the fire with an old wooden spinning wheel and a handful of Cormo. But this is not an accurate representation of how "natural fibres" are deemed eco-friendly and/or sustainable.

Assessing the environmental impact of any product, process, or service is no longer compromised of measuring a single phase of production or end product. Evaluations are based on a technique known as Life Cycle Assessment (LCA), examining all phases from cradle-to-grave, or cradle-to-cradle.

The "cradle" phase of cellulosic fibres predominantly involves harvesting wood pulp—often through deforestation, leading to displacement of man and animal. Entire rain forests have been decimated in the pursuit of wood pulp with little means of traceability from manufacturer to consumer. Bamboo fibre is often marketed as "natural" and/or "eco-friendly" because bamboo is fast growing and can be repeatedly harvested. It requires neither fertilisation nor pesticides and uses much less water than cotton, which is the most abundantly produced natural fibre in the world with an annual output of 25 million tons. The cotton "cradle," (excluding organic cotton) is notorious for its water consumption and ubiquitous use of GMOs, to say nothing of a history forever tarnished with slavery.

While the wool "cradle" is not entirely benign (sheep are farmed, after all) it is much more so than almost any other fibre. The best fine wool breeds, such as Merino, are able to survive in arid climates, frequently land that is of little use for any other purpose After all, they are descendants of sheep raised by the Berbers in northern Africa. The further down the mountain you come, the higher the chance of chemical fertilisers being used, although in much smaller quantities than for fibres such as cotton. Sheep are drenched to control parasites and keep the animals healthy. The wool is shorn once a year, relieving the sheep of a heavy coat for the summer months.

Processing/manufacturing is the next phase of the LCA, and therein lies the critical difference between wool (including all protein or animal fibres) and cellulosic fibre. Textile manufactures are notorious offenders when it comes to converting fibre to cloth. Massive amounts of water are required in all phases, along with the use of bleach, dyes, and petro-chemical based solvents for finishing. The marketing of bamboo as a "natural fibre" has brought the term under extensive scrutiny. Sodium hydroxide and carbon disulfide are the two toxic chemicals combined with wood pulp to form viscose rayon "bamboo" fibre. The wastewater is so toxic, the US Environmental Protection Agency closed all carbondisulfide-based viscose manufacturing in the US more than a decade ago. There is one marginal exception to the "No cellulosic fibre" mantra and that's Tencel, also called Lyocell. (Lyocell is to Tencel as tissue is to Kleenex.) Tencel is made from eucalyptus trees but uses amine oxide (no known significant health risks) to break down the pulp in a closed loop system, which prevents

the amine oxide from being discharged into the wastewater. Eucalyptus trees are fast growing making for a quick "cradle" phase, but they notoriously adulterate the soil, depleting it of its fertility and nutrients.

Wool processing in its simplest form requires warm water and a dash of soap. Excluding the use of dyes or other chemicals to alter the fibre (e.g. machine washable wool), or large machines to dry and spin, processing wool is gentle on the planet — and the population. Admittedly, most large commercial operations will leave an equally large fossil fuel imprint from an operational standpoint. But within the hand spinning community, the environmental damage of scouring and spinning wool, cotton, or flax is virtually nil.



Cotton production places huge demands on our environment

Lastly—the grave. Clothing made from synthetic and/or manmade fibres typically have a short life span. They are often sold at a lower price point than wool or silk, and cheap clothing can also mean cheaply made. At the end of their life it's off to the clothing recycle bin or even the trash! Certain synthetics take up to forty years before they begin breaking down in a landfill.

By comparison, wool products are destined to be geriatrics. When properly cared for, they maintain their shape and colour for a very long time. Wool garments aren't washed as frequently as synthetics and are three times more likely to "die" in a clothing bin than a landfill. (Wool begins breaking down after twenty-one days in an aquatic environment.)

In a world where consumers increasingly seek to use products that have all the "good stuff" and none of the "bad stuff" it's all but impossible to achieve a perfect score. When it comes to fibre arts, what's "natural" really hasn't changed in the past 10,000 years. Perhaps in the next millennium, archaeologists will discover an old sweater with cables down the front and patches on the elbow. You know the one. It was your first hand spun, hand knit sweater. You chose to be buried in it—you wanted it to last forever.

Editor's note

Linda Cortright is the editor and publisher of *Wild Fibers Magazine*, spending the last seventeen years travelling around the world to better understand the critical role natural fibres play in commerce and culture. She also leads tours to the High Himalayas, South Africa, The Falklands, Antarctica, and the Russian Arctic. Please visit www.wildfibersmagazine.com Inspired by a South Carolina sunset



BY MICKI HAIR, JOHNSTON, SC, USA

Long sleeved crop tops are back in vogue – make a unique one in hand carded and hand spun yarn.

After seeing Andrea Mowry's adorable Nurtured design, I knew I wanted to recreate a cropped sweater from my past. I had stumbled upon it recently, relegated to the bottom of the stack in the cedar chest. I still liked the sweater, but it was terribly outdated with it's bulky turtleneck finish and dreary colour. But the overall design was still fashionable, sporting a cropped length and drop shoulder. It just needed to be freshened up with a more modern look. One thing I knew for sure was that this redo was going to involve adding colour!

I love to make layered batts, mixing colours on the drum carder to spin multi-coloured yarns. This creates a watercolour effect in the finished yarn which is different from hand-dyed top. Often guided by photographs for my colour selection, I decided on one of a South Carolina sunset in all her mango glory. I chose eleven different colours of Ashford Merino sliver to depict the Carolina sunset colours for my Retro Crop Top Remake.

You will need:

- Ashford Wide Drum Carder
- Fibre: 2 x 100gm (7ozs) packs of Ashford Merino sliver #003 Cheesecake, #046 Pansy, #034 Lavender, #013 Blueberry Pie,

#010 Bubblegum, #048 Tangerine, #023 Magenta, #052 Orchid

- Fibre: 100gm (3½ozs) Ashford Merino sliver #035 Honey, #045 Lemon, #041 Indigo
- Knitting needles: sizes 4.5mm (US 7, UK 7) and 5.0mm (US 8, UK 6)

Here's how: Carding

I prepared twenty batts for the sweater, each weighing approximately 57gm (2ozs) on my Ashford Wide Drum Carder, set in the 4:1 ratio. I split each 100gm package of fibre into ten equal pieces, approximately 76cm (30ins) long and weighing 10gm ($\frac{1}{3}$ oz) each. Then, I split these pieces into thirds. For three of the colours, only a fraction of the third was used, for others the colours are used twice in the batt. In half of the batts, I used Lemon, and in the other half of the batts I substituted Indigo. The colours were layered onto the carder in one third pieces unless otherwise specified in the following order: Tangerine, Pansy, Bubblegum, Honey (a third of the third piece), Cheesecake, Magenta, Blueberry Pie, Orchid, Tangerine, Lemon/Indigo (a third of the third piece), Bubblegum, Lavender, Cheesecake, Pansy, Blueberry Pie. Once complete, the batts were torn into eight lengthwise strips and predrafted for spinning.

Spinning

The yarn was spun on my Ashford Anniversary Elizabeth with a 76cm (30ins) wheel. I used the largest whorl in double drive to create a knitting yarn measuring approximately 24 wpi for singles and 14 wpi for the 2 ply yarn. With approximately 840 yards per pound, the sweater took 1,260 yards/1½ pounds (1,147m/681gm) of finished yarn.

My multi-coloured skein



Tear each 100gm pack into 10 equal lengths



Tear each of those lengths into thirds. This is the size piece you will be using to layer



Each layer makes a thin sheet of colour



Building the colours



Knitting

For abbreviations go to www.ashford.co.nz/wheel32

Finished bust size: 109cm (43ins)

4.75 stitches/8 rows = 10cm (4ins) on size US8 (5.0mm) needles in oblique knit rib stitch. <u>K2 P2 Rib</u>

Row 1: *K2, P2*, rep *to* Row 2: Knit the knit stitches and purl the purl stitches as they face you

Oblique Knit Rib

Row 1: *K2, P2*, rep *to* Row 2: *K1, P2, K1*, rep *to* Row 3: *P2, K2*, rep *to* Row 4: *P1, K2, P1*, rep *to*

Increases

(Beginning of row) M1R: with left needle tip, lift the strand between the needles from the back to the front. Knit the strand through the front.

(End of row) M1L: with left needle tip, lift the strand between the needles from the front to the back. Knit the strand through the back.

BACK

With size 7 needles, cast on 94 stitches. Change to size 8 needles, keeping the first and last stitch as selvedge stitches, begin K2, P2 rib. Work rib for 4cm ($1\frac{1}{2}$ ins), ending with a wrong side row. Knit across next (RS) row while increasing 12 stitches evenly across, 106 stitches.

Next row (WS): K1 (SS) - *K2, P2*, rep *to* - K1 (SS)

Next row (RS) — keeping the two end stitches as K1 (SS), work row 2 of oblique knit rib and keep going in the pattern stitch until your piece measures 20cm (8ins) from cast on edge. Place stitch markers at both ends to mark the underarms. Keep working until the piece measures 38cm (15ins) from cast on edge. Begin neck shaping on the next RS row by working across 49 stitches. Bind off the next 12 stitches and work to the end of the row. Keeping in the stitch pattern, work one shoulder at a time, binding off on every other row at the neck edge. Decrease 6, then 4, 3, 2 - 34 shoulder stitches remaining. Work until piece measures 40cm (16ins) from cast on. Work across 23 stitches, wrap the yarn around the next unworked stitch and replace it on the needle. Turn and work back to the neck edge. Work across the next 12 stitches, wrap and turn, working back to neck edge. Bind off all 34 stitches. Work the other shoulder where you left off, beginning with a WS row going from the neck edge to the shoulder edge. Work the decreases in the same manner and bind off



second shoulder. (You may skip the sloped shoulders by knitting in pattern to 42cm (16½ins) and binding off.)

FRONT

Work same as for back until piece measures 33 cm (13ins) from cast on edge and begin the neck shaping by working across 49 stitches. Bind off the next 12 stitches and work to the end of the row. Keeping in the stitch pattern, work one shoulder at a time, binding off on every other row at the neck edge. Decrease 4, then 4, 3, 2, 2 - 34 shoulder stitches remaining. Continue to work as for the back, binding off 34 shoulder stitches when complete.

SLEEVES

With size 7 needles, cast on 38 stitches. Keeping the first and last stitch as selvedge stitches, begin K2, P2 rib changing to size 8 needles. Work rib for 4cm ($1\frac{1}{2}$ ins), ending with a wrong side row. Knit across next row while increasing 36 stitches evenly across for a total of 74 stitches.

Next row (WS): K1 (SS) — *K2, P2*, rep *to* — K1 (SS) Next row (RS) — keeping the two end stitches as K1 (SS), work row 2 of oblique knit rib and keep going in the pattern stitch. While working in the pattern, increase one stitch on each end inside the selvedge stitch every 10th row for a total of 8 times — 90 stitches. Work until piece measures 39cm (15½ins) from cast on edge and bind off.

FINISHING

Block the pieces by pinning them out and steaming with an iron. (*The pieces will have a bit of bias to them, so be sure to square them up when pinning out.*) Stitch the shoulders together. Since this is a support seam, take a piece of worsted weight cotton yarn and run a reinforcement stitch across this seam to keep it from stretching. Fasten the cotton yarn well at both ends. Stitch the sleeves to the front and back while still flat. When complete, stitch together from the bottom up, then down the sleeve to the cuff. Repeat on the other side. With right side facing and using a size 8 circular needle, pick up 50 stitches. Work K2, P2 rib for 4cm (1½ins), then bind off. Sew in the ends.



Micki and her South Carolina sunset jumper

Editor's note

Micki began spinning and knitting in 1985. Over the years she has raised Coopworth sheep, Angora goats, Angora rabbits and a natural dye garden. Her knitting designs have been published by *Interweave Knits and Sixth & Spring*. Today she lives in Johnston, South Carolina with her husband David and pup Skiff.

Weaving with a Twist

BY KATE SHERRATT, ASHBURTON, NEW ZEALAND

Put a little twist in your weaving on a rigid heddle loom.

Inspired by Elsa Krogh's woven twist technique I created this variation using a Vari Dent reed.

Assemble your Vari Dent reed with sections for the background panels and sections for the twisted panels.

Warp the background sections as normal using the direct warping method. Wind on to the back roller, thread the eyes and leash on to the front warp stick. To warp the twisted panels, turn your loom around, clamp it to the table and warp from the front warp stick to the warping peg (image 1). Cut and thread the eyes and tie on to the front warp stick. Wind these warps onto warp thread weights and hang them from the back of the loom (image 2).

Begin weaving as normal with your background weft yarn across the full width. To introduce the twists, weave each background and twist sections individually with their own weft. I find using short shuttles works very well (image 3). Place your reed in the up position, take each shuttle through the shed of its panel, bring the shuttle out and place it on top of the fabric. Beat gently with the reed, place the reed in the down position and repeat taking each of the shuttles through its panel. Continue weaving like this until your panels are long enough to twist. The twist requires additional length, so weave an extra couple of rows in the twist sections only. When the panels are long enough, remove the top rail of the reed and flip the reed sections of the twisted panels over (turn in the same direction) (image 4). Replace the top rail. Now return to weaving across the full width with your background weft.









Hints

To stop the sections separating thread a thin knitting needle through each section to keep in place until you have woven a few rows the full width (image 5).

If planning several twists make the length of your warp for the twisted sections longer than the warp of your background warp to allow for the extra take-up when twisting.



Daylight Stars knitted shawl



Daylight Stars Knitted Shawl

BY LINDY BOSHLER, MARGATE, QLD, AUSTRALIA Aim for the stars in a soft, sparkly, shawl.

You will need:

Fibre: Bobbin One - 100gm (3½ozs) Ashford Merino/Tencel (White Tencel, Natural White, Black and Grey Merino) Bobbin Two - 40gm (1½ozs) Ashford silk/Merino Damson, 10gm (½oz) Ashford silk/Merino Skyscape, 40gm (1½ozs) Ashford alpaca/Merino Seamist, 10gm (⅓oz) Ashford Merino sliver Bubblegum

Small amount Ashford Angelina Silver Blending Board

Needles: 80/120cm (31/47ins) circular 4mm (US6) loose knitters or 5mm (US8) tight knitters

Here's how:

 Bobbin One: Divide Merino/Tencel into 30cm (12ins) lengths and strip each length into about twelve narrow pieces to spin – this will give more distinct colours.



 Bobbin Two: Divide each colour of sliver into three pieces to make three groups of rolags on the Blending Board. Randomly place pieces of each colour onto the Blending Board and brush in, making sure you leave fibre extending over the end of the board. Add a small amount of Angelina and another layer of fibre and brush onto the board. Make approximately four rolags from each board (twelve in all).



Editor's note

Since learning to knit when she was five, Lindy has gone on to extend her knowledge to all wool crafts and teaches and demonstrates throughout Australia. Lindy has been an Ashford dealer since 2009. Contact her at lboshler@gmail.com

- Spin each board preparation separately

 this will ensure an even distribution of colour throughout the project. Spin both bobbins fairly fine to achieve a sport weight yarn (approx. 12 wpi).
- 4. Ply the 2 bobbins together, skein and gently wash in warm water.
- 5. With the 200gm (7ozs) of hand spun knit the pattern. For abbreviations go to www.ashford.co.nz/wheel32

Pattern

Row 1: k3. (3 stitches) Row 2: k1, yo, k1, yo, k1. (5) Row 3: Knit all stitches. (5) Row 4: (k1, yo) 4 times, k1. (9) Row 5: Knit all stitches. (9) Row 6: (k1, yo) twice, k2, yo, pm, k1, pm yo, k2, (yo, k1) twice. (15) Row 7: Knit all stitches. (15) Row 8: (k1, yo) twice, k5, yo, sm, k1, sm, yo, k5, (yo, k1) twice. (21) Row 9: Knit all stitches. (21) Row 10: (k1, yo) twice, k8, yo, sm, k1, sm, yo, k8, (yo, k1) twice. (27) Row 11: Knit all stitches. (27) Row 12: (k1, yo) twice, knit to marker, yo, sm, k1, sm, yo, knit to last 2 stitches, (yo, k1) twice. (33) Row 13: k4, purl to marker, sm, k1, sm, purl to last 4 stitches, k4. (33) Row 14: Repeat Row 12. (39) Row 15: Repeat Row 13. (39) Row 16: Repeat Row 12. (45) Row 17: Repeat Row 13. (45) Row 18: Repeat Row 12. (51) Row 19: Knit all stitches. (51) Row 20: Repeat Row 12. (57) Row 21: Knit all stitches. (57) Row 22: Repeat Row 12. (63) Row 23: Knit all stitches. (63) Row 24: Repeat Row 12. (69) Row 25: Knit all stitches. (69) Row 26: Repeat Row 12. (75) Row 27: Knit all stitches. (75) Row 28: Repeat Row 12. (81) Row 29: Repeat Row 13. (81) Row 30: (k1, yo) twice, k2, (yo, 个, yo, k1) 9 times, yo, sm, k1, sm, yo, (k1, yo, 个, yo) 9 times, k2, (yo, k1) twice. (87) Row 31: Repeat Row 13. (87) Row 32: (k1, yo) twice, k2, (yo, ↑, yo, k1) 9 times, yo, ssk, k1, yo, sm, k1, sm, yo, k1, k2tog, yo, (k1, yo, ↑, yo) 9 times, k2, (yo, k1) twice. (93)

Row 33: Repeat Row 13. (93) Row 34: (k1, yo) twice, k2, (yo, \uparrow , yo, k1) 10 times, yo, k2tog, yo, sm, k1, sm, yo, ssk, yo, (k1, yo, ↑, yo) 10 times, k2, (yo, k1) twice. (99) Row 35: Repeat Row 13. (99) Row 36: (k1, yo) twice, k2, (yo, ↑, yo, k1) 11 times, k1 yo, sm, k1, sm, yo, k1, (k1, yo, ↑, yo) 11 times, k2, (yo, k1) twice. (105) Row 37: Repeat Row 13. (105) Row 38: (k1, yo) twice, k2, (yo, \uparrow , yo, k1) 12 times, yo, sm, k1, sm, yo, (k1, yo, 个, yo) 12 times, k2, (yo, k1) twice. (111) Row 39: Repeat Row 13. (111) Row 40: (k1, yo) twice, k2, (yo, \uparrow , yo, k1) 12 times, yo, ssk, k1, yo, sm, k1, sm, yo, k1, k2tog, yo, (k1, yo, ↑, yo) 12 times, k2, (yo, k1) twice. (117) Row 41: Repeat Row 13. (117) Row 42: (k1, yo) twice, k2, (yo, 个, yo, k1) 13 times, yo, ssk, yo, sm, k1, sm, yo, k2tog, yo, (k1, yo, ↑, yo) 13 times, k2, (yo, k1) twice. (123) Row 43: Repeat Row 13. (123) Row 44: (k1, yo) twice, k2, (yo, \uparrow , yo, k1) 14 times, K1, yo, sm, k1, sm, yo, k1, (k1, yo, 个, yo) 14 times, k2, (yo, k1) twice. (129)Row 45: Repeat Row 13. (129) Row 46: Repeat Row 12. (135) Row 47: Knit all stitches. (135) Row 48: Repeat Row 12. (141) Row 49: Knit all stitches. (141) Row 50: Repeat Row 12. (147) Row 51: Knit all stitches. (147) Row 52: Repeat Row 12. (153) Row 53: Knit all stitches. (153) Row 54: Repeat Row 12. (159) Row 55: Knit all stitches. (159) Row 56: Repeat Row 12. (165) Row 57: Repeat Row 13. (165) Row 58: Repeat Row 12. (171) Row 59: Repeat Row 13. (171) Row 60: Repeat Row 12. (177) Row 61: Repeat Row 13. (177) Row 62: Repeat Row 12. (183) Row 63: Repeat Row 13. (183) Row 64: Repeat Row 12. (189) Row 65: Knit all stitches. (189) Row 66: Repeat Row 12. (195) Row 67: Knit all stitches. (195) Row 68: Repeat Row 12. (201) Row 69: Knit all stitches. (201) Row 70: Repeat Row 12. (207) Row 71: Knit all stitches. (207)

Row 72: Repeat Row 12. (213) Row 73: Knit all stitches. (213) Row 74: Repeat Row 12. (219) Row 75: k4, p2 (dps 5 times, p1) 17 times, p1, sm, k1, sm, p1 (p1, dps 5 times) 17 times, p2, k4. (219) Row 76: (k1, yo) twice, k4 (Cluster, k1) 17 times, k1, yo, sm, k1, sm, yo, k1 (k1, **Cluster**) 17 times, k4, (yo, k1) twice. (225) Row 77: k4, purl to marker dropping extra stitches in Clusters, sm, k1, sm, purl to last 4 stitches dropping extra stitches in Clusters, k4. (225) Row 78: Repeat Row 12. (231) Row 79: k4, p3 (dps 5 times, p1) 18 times, sm, k1, sm, (p1, dps 5 times) 18 times, p3, k4. (231) Row 80: (k1, yo) twice, k5, (Cluster, k1) 18 times, yo, sm, k1, sm, yo, (k1, Cluster) 18 times, k5, (yo, k1) twice. (237) Row 81: Repeat Row 77. (237) Row 82: Repeat Row 12. (243) Row 83: k4, p4 (dps 5 times, p1) 18 times, dps 5 times, sm, k1, sm, dps 5 times, (p1, dps 5 times) 18 times, p4, k4. (243) Row 84: (k1, yo) twice, k6, (Cluster, k1) 18 times Cluster, yo, sm, k1, sm, yo, Cluster, (k1, Cluster) 18 times, k6, (yo, k1) twice. (249)Row 85: Repeat Row 77. (249) Row 86: Repeat Row 12. (255) Row 87: k4, p5 (dps 5 times, p1) 19 times, p4, sm, k1, sm, p4, (p1, dps 5 times) 19 times, p5, k4. (255) Row 88: (k1, yo) twice, k7, (Cluster, k1) 19 times k4, yo, sm, k1, sm, yo, k4, (k1, Cluster) 19 times, k7, (yo, k1) twice. (261) Row 89: Repeat Row 77. (261) Row 90: Repeat Row 12. (267) Row 91: Knit all stitches. (267) Row 92: Repeat Row. 12 (273) Row 93: Knit all stitches. (273) Row 94: Repeat Row 12. (279) Row 95: Knit all stitches. (279) Row 96: Repeat Row 12. (285) Row 97: Knit all stitches. (285) Row 98: Repeat Row 12. (291) Row 99: Knit all stitches. (291) Cast Off: Purl 2, Insert left needle into back of these 2 stitches and purl them together (1 stitch left on right needle.) **P1, insert left needle into back of these 2 stitches and purl them together. Repeat from ** to end.

Understanding the Industrial Hemp Plant

BY JOAN RUANE, TUCSON, AZ, USA

Get a natural high when spinning and weaving with hemp.

The plant called *Cannabis sativa* has been around longer than man. Today there are over 1000 varieties of the Cannabis plant and over 50,000 different uses for the plant. As a fibre artist I have concentrated on the variety of Cannabis that is commonly known as hemp or industrial hemp. With less than 0.3% THC it does not cause any mind-changing effects.

The hemp plant grows like a weed in almost all climates. It needs hardly any pesticides, herbicides, or fungicides and thrives on less water than most crops. It absorbs carbon dioxide four times faster than trees and puts back nutrients into the soil. At least three times more cellulose is produced from a hectare of hemp than a hectare of trees, while hemp plants are cleaning the air and nourishing the soil. Plastic can be made from hemp that is 150% stronger and 250% more rigid than plastic made from petroleum products and it is bio-degradable. Hemp fabrics kill bacteria, making them naturally anti-microbial and odour-resistant while stopping 95% of UV light.

There is still confusion and reluctance to grow hemp – we must keep educating people about this wonderful sustainable plant that can help heal our world!



Spinning Hemp

Hemp is a bast fibre which means it comes from the stem of a plant. It is a cellulose fibre, so it is strong and loves water but does not like any form of acid. When dyeing the fibre, you must not use an acid dye or ever rinse the yarn in an acidic water. Hemp is treated much like linen flax except hemp prefers to be spun clockwise while flax's fibres tend to go anti-clockwise.

You may spin hemp with either a spindle or a spinning wheel. Today the processed hemp fibre is sleek and slippery so when using a drop spindle, you usually have to set it on the floor or in a bowl for support or else the fibre will slip apart on you. Bast fibres want to be spun fine or they turn into cord or rope.

Although the hemp fibre you purchase today is basically tow or the short pieces of hemp left over after the long fibre has been processed, it is still 7-15cm (3-6ins) in length which is long in comparison to most fibres you spin. They are slippery with very little crimp. Bast fibres normally have tendrils that branch out from the main fibre. When spinning a smooth flax fibre, you have to use water to make it smooth, but hemp is normally spun without the water and will be relatively smooth if spun fine. However, in the dry climate of Arizona, I find my fingers drying out while spinning hemp and sometimes find it necessary to dampen my fingers for comfort.

How to Spin Hemp Tow Start with a small handful of fibres.

Side Spinning (off the finger) Take a small handful of hemp sliver 15cm (6ins) long. Place the middle of the hemp fibre over top of your first finger and tuck the ends into your palm and hold it tight with your thumb and three fingers. The tighter

you hold it the thinner the yarn you

can make.



Natural and bleached hemp

With the other hand, draw out a triangle with the thumb and the first finger. Attach the drawn-out fibres and start spinning. Draw back slowly with the hand holding the fibres, watching the point of the triangle (drafting area) to determine how thin or thick you want the yarn. Sometimes you might want to draft (pull) forward as well as drafting back as long as you keep an even pull to keep the same amount of twist in the yarn. If too much twist starts to get up into the drafting area, roll your front hand thumb and first finger anticlockwise on the fibre in front of the drafting area, and pull back with your fibre hand. This will open up the twist and allow you to draft back and thin out the fibres. Spinning off the finger

Spinning from the fold

Spinning off the end



Spinning from the Fold

Fold the hemp fibres in half and holding the ends firmly in the palm of your hand, pull a few fibres out from the fold, attach to the lead. Begin spinning, holding the ends firmly in the palm of your hand, start drafting back the same as over the finger. If the handful of hemp fibres begins to get tangled, STOP, and straighten out the fibres and begin again! The strength and warmth of the hemp yarn make it a perfect choice for a ruana. With my hand spun hemp and some commercial hemp yarns for warp and weft, and a 12epi reed, I wove two lengths of 152×56 cm (60×22 ins) fabric in a 2/2 twill. After washing, I stitched up the back with a figure-eight stitch and added an inkle woven band for the trim.

End Spinning

Take 15-20cm (6-8ins) of the hemp sliver and lay the fibre across the palm of your hand with the beginning between the crook of your bent first finger and your thumb. With hemp fibre you can start from either end. Close your finger up to hold the other end of the fibres in your palm <u>loosely</u>. The fibres should be drawn out from under the thumb to form a triangle. Attach the lead while spinning and draw out only a few fibres at a time to be spun. DO NOT let the twist get too far up into the triangle (drafting area). Keep drawing out the fibres from your hand (hand acting like a distaff). Remember the anti-clockwise twist with your thumb to open up over-twisted fibres.

To see if you are getting the right amount of twist pull about 30cm (12ins) of spun yarn from the bobbin and let it twist over itself. Look at the ply size and see if you need more or less twist on your yarn.

Finishing

Rest the single spun hemp yarn on the bobbin overnight or for a few days to set the twist. It can then be put into a ball and used without washing. There will be very little shrinkage when washed in the finished product.

When plying hemp singles, follow basic plying rules, keeping the ply even and making sure it is balanced. Wind the plied yarn into a skein and simply wash it in moderate warm water and a little soap to get out any dust or dirt that comes with the fibre. Then just hang it up to dry.

Weaving my hemp Ruana

A ruana is a cross between a poncho and a shawl, created from two rectangles of fabric sewn together. Left open it is an elegant accessory or thrown over the shoulder the ruana can be secured with a brooch to keep out the cold.

You can use any combination of yarns and any size reeds. They can be woven on floor looms, table looms, and rigid heddle looms.



Construct your ruana



Joan and her beautiful ruana

Studying for a Handweavers Diploma

BY SARAH AFFLECK, LONDON, UK

A young Australian dives into the world of weaving.

When I began to write this article, I had just set up my Ashford 8-shaft table loom with my first ever double weave warp. It was made of linen - another first, as I had not previously woven with linen. Perhaps it was a bold move to try double weave for the first time with a new fibre, but I've never been deterred by the idea of making bold moves. A fact I confirmed in August 2019, when I made the move from Perth, Western Australia to London, United Kingdom, to take part in The Handweavers Diploma at the London Handweavers Studio and Gallery. It was this bold move across the globe that would see me broadening my weaving experience over a period of two years, introduce me to an inspiring and strong group of fellow weavers and experience life away from family at the time of the global Covid-19 pandemic.

The Handweavers Diploma began with a ten-day summer school and from there we were to meet in person for a contact weekend every three months. The contact weekends involve presentations of our completed projects, feedback via personal tutorials, a one-day workshop on a new weaving technique or theory and the commencement of a new project. At the end of the first year we submitted a portfolio of swatches and will round out the diploma with a completed project presented in an exhibition at The Handweavers Gallery.

The summer school was an intensive ten days. I can't remember a time in recent years where I was given so much information in such a short space of time. This was the first time the eleven new students on the diploma course met and together we were introduced to the shop and upstairs studio at Handweavers by the course tutor Dawn Willey. We took part in a workshop on design for weaving with Wendy Morris, learnt a great deal about drafting and the opportunities of a straight threading from Jette Vandermeiden's workshop "All tied up" and took a day trip to the Barbican Centre in London, which would serve as our design source for our first project. By the end of the ten days it was clear to me just how deep the weaving world is, and I was ready to dive in! The design brief for project one asked us to explore a variety of techniques and present a collection of 8 x 10 inch (20 x 25cm) swatches which fulfilled a range of technical requirements such as exploring scale, hand manipulation techniques, and exploiting the properties of different fibres. I wanted to start simple and decided to focus on twills, honeycomb, and Danish medallions in cotton and lambswool. When it came to the presentation, we were all surprised at the variety of colours, fibres and techniques that each of us had used in response to the same design source.

Our first contact weekend included a workshop delivered by Lesley Willcock titled "Weaving for Purpose" and inspired us to explore the choices we make when designing a cloth with concern for its final purpose, in particular cloth woven for clothing. The design brief for project two asked us to produce a collection of swatches designed for specific garments such as a woman's stole or a gentleman's waistcoat.

We were very lucky with timing for our third contact weekend. The global pandemic sent the UK into lockdown barely a week after we presented our projects. In that weekend's weaving workshop, tutored by Melanie Vines, we were spoilt with the opportunity to weave at twelve table looms each set up with a different double weave technique.

The third project was one of the most trying for a lot of us. Some were separated from their looms by lockdown rules, a few faced months of shielding at home and others even lost some of their yarn stash to moths. The project focused on interior fabrics. My project was heavily influenced by the homesickness lockdown created, and I chose to set my hypothetical sustainable living development in south western Australia. One of the things I miss



Sarah (top row 2nd from left) and her fellow Diploma students study via Zoom



Double width on my Ashford 60cm (24ins) loom



the most from Australia is the vibrant colours and contrasts we see in the native flora and fauna. I took inspiration from aerial photographs of the coast and was very excited when I picked up my order of linens and cottons in bright turquoise, burnt reds and mellow oranges.

Colour planning became particularly important in this project. I was using a broad source of imagery as my inspiration and ended up with many different colours to utilise. I worked with these images to determine colour order and created yarn wraps to help visualise this. Blue ocean faded into cream sand, yellow shrubs, red rocks and back again. Through sampling I played with what colours worked well alongside others. Given that mathematical structures can be seen in nature I decided to use the Fibonacci sequence to blend colours. This meant that after eight picks of yellow I threw one pick of the next colour henna, then five picks of yellow followed by one pick of henna and so on. The result was a collection of bright swatches with colours that fade in and out of one another.

We presented this project via video conference. As I write, our next project is due to be presented in September and none of us knows what our next contact weekend will look like. Will we be able to meet in person? Not everyone on the diploma course is lucky enough to live close to the Handweavers studio as I am. Some even come from overseas for each contact weekend. That is the beauty of the course but also something that makes it more difficult in times like these. Despite the uncertainty we still keep in touch, we still learn from one another and of course we continue to weave.



Coastal Picnic Rug

Choosing colours from Ashford's new DK range that reminded me of my Australian homeland, I created this double width rug.

Weave structure: Plain weave, double width You will need:

Loom: 60cm (24ins) or wider eight shaft Reed: 10dpi (40/10cm) (sleyed 2 ends per dent)

- Warp yarn: Ashford DK 8ply wool (100% wool; 202m/221yds; 100gm net) Chestnut 260m (284yds) 130gm (4½20zs), Spearmint 260m (284yds) 130gm (4½20zs), Sand 200m (220yds) 100gm (3½20zs), Forest 200m (220yds) 100gm (3½20zs), Dijon 200m (220yds) 100gm (3½20zs), Peach 200m (220yds) 100gm (3½20zs), Peppermint 80m (88yds) 40gm (1½20zs), Rouge 40m (44yds) 20gm (¾20z), Shamrock 40m (44yds) 20gm (¾20z)
- Weft yarn: Ashford DK 8 ply wool (100% wool; 202m/221yds; 100gm net) Natural White 160m (175yds) 80gm (3ozs), Sand 205m (225yds) 105gm (3½20zs),

Truffle 160m (175yds) 80gm (3ozs), Forest 25m (28yds) 13gm (½oz), Dijon 40m (44yds) 20gm (¾oz), Chestnut 45m (50yds) 23mg (1oz), Spearmint 45m (50yds) 23gm (1oz), Peppermint 8m (9yds) 8gm (¼oz), Rouge 8m (9yds) 4gm (⅛oz), Peach 15m (16½yds); 8gm (¼oz)

Here's how:

Total warp ends: 240 x 2 = 480 +2 (right hand selvedge has 2 ends per layer in the same dent to give strength to the edge of the blanket) Sett: 8 ends/cm (20epi) (10epi/layer) Warp width: 60cm (24ins) Warp length: 3m (3¼yds) Finished size: 118 x 180cm (46 x 70ins) After washing and fulling: 105 x 170cm (41 x 67ins)

Ready for a picnic

Warping

The warp is made up of two colourways, *Ocean* and *Land*, repeated three times each and alternated in the warp. You may find it easiest to wind the warp in colourway chains and then combine them into the double width layers when putting them onto the loom. A variation of the Fibonacci sequence is used to blend some of the colours while other colours produce lines. Below is the colour order and the number of ends of each:

Colourway 1 Ocea	n - Wind 3	Colourway 2 Land - Wind 3				
chains (2 for the t	op layer, 1	chains (1 for the top layer, 2				
for the bottom lay	er)	for the bottom la	for the bottom layer)			
Forest	16	Peach	16			
Spearmint	1	Chestnut	1			
Forest	3	Peach	3			
Spearmint	2	Chestnut	2			
Forest	2	Peach	2			
Spearmint	3	Chestnut	3			
Forest	1	Peach	1			
Spearmint	16	Chestnut	16			
Dijon	1	Sand	1			
Spearmint	3	Chestnut	3			
Dijon	2	Sand	2			
Spearmint	2	Chestnut	2			
Dijon	3	Sand	3			
Spearmint	1	Chestnut	1			
Dijon	16	Sand	16			
Peppermint	4	Shamrock	4			
Rouge	4	Peppermint	4			

Make sure to wind an extra Forest at the beginning of the first Ocean chain and an extra Peppermint at the end of the last Land chain to strengthen the edges of the rug. When placing the warp onto the back beam distribute the colourways onto one leash stick for each layer. The top layer is made up of two Ocean colourways and one Land while the bottom layer is made up of two Land colourways and one Ocean. This will mean the colourways repeat equally across the width of the rug.



Weaving

Weaving with one shuttle begin at the right selvedge and throw one pick through the first shed of the top layer then lift the top layer and throw a pick through the first shed of the second layer. This will create one pick across the entire width of the rug with a fold on the left-hand side of the warp. To go back across the rug, throw the next pick from the right through the second shed of the bottom layer followed by the second shed of the top layer being sure to allow a little slack at the turn.

Use a similar colourway arrangement in the weft and repeat it three times, finishing the first four colours again so that it begins and ends in the same colours.

Forest	12	Peach	8
Peppermint	4	Rouge	4
Spearmint	24	Chestnut	24
Dijon	8	Dijon	12
Truffle	32	Natural white	32
Sand	2	Sand	2
Truffle	6	Natural white	6
Sand	4	Sand	4
Truffle	4	Natural white	4
Sand	6	Sand	6
Truffle	2	Natural white	2
Sand	32	Sand	32
Natural white	2	Truffle	2
Sand	6	Sand	6
Natural white	4	Truffle	4
Sand	4	Sand	4
Natural white	6	Truffle	6
Sand	2	Sand	2
Natural white	32	Truffle	32

Finishing

Remove the rug from the loom and lay it out flat giving the turn a bit of a stretch to even out the threads. Use a fringe twister to twist and join two groups of four ends to make the fringe at the end of the rug.

Wash on a delicate cycle in the machine 30°C (86°F) low spin before drying flat indoors. This makes quite a fulled rug which is great for sitting on in the park. However, if you want it less fulled I would suggest a hand wash or wool wash in the machine. Once the rug is dry cut off the knots at the ends of the fringe, gently brush and apply some steam to the rug.

Use while munching on homemade muffins in the sunshine!

Editor's note

Sarah brought home a passion for weaving when she moved from Helsinki, Finland to Perth, Australia. In 2019, she began a diploma at the London Handweavers Studio and Gallery. Through her label Loimi and Ko she is working towards a sustainable practice exploring ideas of place, identity, and community.

Controlling your BY NICOLA BOTA, ASHBURTON, NEW ZEALAND Speckles

An easy dyeing technique to create a unique yarn combining speckles and solid colour.

You will need:

- Dyes: Ashford Wool Dyes 10gm (1/30z) each of the Main Colours (Navy Blue and Black) and the Speckle Colours (Hot Pink, Teal, and Emerald)
- Yarn: Ashford Mackenzie (4 ply Superwash treated, 357m/390yds, 100gm net) 100gm #602 Natural White
- Other: White vinegar, dishwashing liquid, 1 x 2 litre (67 fl ozs) microwavable container, rubber gloves, 10ml (1/3 fl oz) syringe, plastic wrap, scissors, plastic spoons for stirring, measuring spoons and cup, scrap yarn for ties, microwave

Here's how:

Make the dye mixtures in accordance with the instructions.

Prepare the hank

Wind the hank and tie pieces of scrap yarn at several places in a figure of eight. This will keep the yarns from tangling during the dyeing process.



Soak hank in water with a drop of dishwash liquid and $\frac{1}{4}$ C white vinegar for one hour. Squeeze out excess water.

Dyeing Preparation

Cover approx. half of the hank in the plastic wrap.

Create the Main Colour by combining 30ml of the Navy Blue dye solution and 10ml of the Black.

Place the Main Colour into a 2L container. Immerse the unwrapped end of the hank into the dye solution.



Microwave on medium heat for 3 x 2 minutes. The dye should be exhausted.

Allow to cool, remove the wrap and rinse.

Arrange the hank on a new length of plastic wrap, ensuring that the undved piece is spread out for easier dye absorption.



Using the syringe take 5ml (1tsp) of one of the Speckle Colours.





Press the syringe plunger gently to create dots randomly over the undyed hank. Repeat with the other two colours.



Cover the complete hank with the wrap.



Microwave on medium heat for 2 minutes. Heat for another 2 minutes if all the dyes haven't exhausted.

Allow to cool, unwrap, and rinse. Dry. Enjoy!



This is a controlled way of achieving a fun speckle yarn that is repeatable. For safe handling procedures when using all dyes and for instructions on how to make dve solutions go to www.ashford.co.nz/products/ dyeing

ashford.co.nz

Hand spun lace shawl



It's So Fine - Spinning Lace BY TAMMY JORDAN, LINCOLN, MT, USA

Spinning super singles for lace work

That thin, fine, single strand - most spinners want to spin it!

From the time I began spinning, spinning lace was all I ever wanted to do. When I discovered how to knit lace and design my own lace patterns, spinning my own yarn for projects became a dream.

Whatever your reason, I'm going to share with you how to spin lace on almost any wheel. I spin lace on both my Ashford Joy and Traditional wheels, my Turkish and other drop spindles, and have done so on an e-Spinner as well.

If you can spin an even single, you can probably spin lace yarn on whatever wheel or spindle you have, including your e-Spinner.

By learning to spin a fine thread, you will be able to spin all sorts of other yarns.

As you learn to control the thin strand, the ability comes to control various other types of spinning.

The first thing to remember when spinning lace is that it's a process, a relatively long, slow-and-steady process. It takes time and some patience and allows you to become more intuitive with your spinning while becoming one with your fibre and wheel. It's about becoming very intentional in your methods, feeling your feet treadle slowly and evenly and seeing the thin, even single wind on to your bobbin.

The ratio to spin lace falls between 12:1 and 18:1 and the wpi for lace yarn ranges from 30-40. For those not familiar with ratios, the simplest explanation is that it is the relation between the number of times



Spinning lace

Drafting

Loose tension

Over-twisted ply



your flyer rotates around your bobbin to one revolution of the drive wheel. So, at a ratio of 12:1, the flyer will rotate 12 times to 1 wheel rotation.

When I spin lace on my Joy, my ratio is at the 8:1 or 11:1 ratio. It's not the smallest whorl setting to spin on, but I get the result I want. Play around with your ratios to see what works best for you.

The fibre you choose is also very important when spinning those very fine singles. When I spin lace, I prefer to use combed top. My favourite fibres to use when spinning lace are Merino, Cormo, or Targhee with a silk or bamboo blend. You can expect 60gm (20zs) of combed top to yield approximately 320-460m (350-500yds) of completed yarn.

For better control you can tear your fibre into thinner strips. I find that I am usually treadling slow enough that it's not generally needed, but for those new to spinning lace, thinner strips might be easier.

Lace yarn needs quite a bit of twist to give it strength. If the yarn is under-spun, it will result in breakage, whereas yarn that has too much twist results in a kinked and coarser-feeling yarn. There is a fine line of balance between the two, but once you find it, you will be able to feel the difference. The way to control the twist is by the amount of tension placed using your wheel's brake band. Use a very light tension; I find using a flax yarn tension band offers more give and less wear on bobbins. On a drop spindle, ensure it has enough weight to keep rotating to really develop the twist.

When spinning on a wheel, after you've

joined the fibre, lightly hold your fibre in one hand while using a "pinch, pull, slide back" drafting method with the other. The amount of fibre you draft out will be dependent on the staple length of your fibre. For shorter fibres, keep your drafting hand within about an inch or two from your holding hand. For longer stapled fibres, about 7.5cm (3ins) or so. The distance between your hands and the fibre going into the orifice and onto the wheel is usually about 25-35cm (10-14ins).

Lace yarn is generally done as a 2 ply which allows finished projects to bloom nicely while showing off a very detailed stitch-definition. Ply slowly to avoid overplying. When I ply, my wheel tension is still very light and I count 1-2-3 as my hand moves back towards my body and on the count of 4, I allow the fibre through the orifice and on to the bobbin. One way to check to make sure you are not over-plying is to hold your ply at your three count. Let it rest there, and if it doesn't twist on itself, it is a nice, even ply. If it twists on itself, you are over-plying.

Once my yarn is plied, I immediately remove it from my bobbin, skein it, and soak it in cool water. Once removed I let it set for at least twenty-four hours or more to dry completely. This allows all of the energy in the yarn to evenly disperse. In the event there was any slight over-plying, this will help balance it out. The yarn should lay evenly without twisting back on itself.

One last thing that has really benefitted me and helped me get better in my lace journey was to keep a spinning journal. In it I recorded my process for each skein I spin. I noted the type of fibre and where I purchased it, the ratio I used and how the fibre felt while spinning it, my draft method, and how the yarn turned out, noting any corrections I might need to make. I recorded what I liked or didn't like so I could re-create the yarn if I desired.

I have created a lacy scarf pattern with my hand spun. If you would like the pattern download a free copy by visiting my website at www.goldieknotsmt.wordpress. com and using code ASHFORD at checkout.



Татту

Editor's note

Tammy is a fourth-generation fibre artist who loves sharing her passion for fibre crafts. In 2016, she began her fibre business, Goldieknots Montana and currently teaches classes throughout the United States. For more information about Tammy, her sheep, her work, and where she's teaching next, please visit www.goldieknotsmt.com

Deciphering Drafting Notation

BY ROBYN SPADY, TOKELAND, WA, USA

Making sense of the weaver's shorthand for floor looms.

From the moment a weaver picks up a shuttle, weaving drafts and drafting notation become a part of their life. Drafts are a weaver's blueprint. A complete draft, shown in **Image 1**, conveys four things:

- 1. Threading The order the warp ends are threaded
- Tie-up Which shafts are tied to which treadles
- Treadling The order the treadles will be stepped on during the weaving process
- 4. Drawdown The interlacement of the warp and weft of the woven cloth

Anatomy of a Draft



Image 1

At first, it would seem drafting should be fairly straight forward. After all, how many ways can the threading, tie-up, and treadling be recorded? As it turns out, lots of ways!

Threading and treadling symbols – The symbols and notation used in weaving drafts can vary dramatically. When confronted with something new, try to remember we need to consider who created the draft and why they may have used different symbols. You can figure this out!

Image 2 is a sample set showing some of the drafting notation and symbols used for threading and treadling sequences. Each draft shows the same sequence. The sequence shown in 2a uses two methods for expressing the shaft the end is threaded on; one is the number of the shaft and the other is the position of the number. If the numbers are consistent with the shaft position, it will mean one end threaded on a shaft. If the number is not consistent with the position of the shaft or treadle, it may mean multiple ends or weft picks.

The symbols shown in **2b**, **2c**, and **2d** are often less ambiguous. One mark is used per warp end or weft pick and the position is consistent with the appropriate shaft or treadle. The one that can make people scratch their heads at first is 2e. This is a style of historical drafting notation. It is quick to write and takes up little space. Remember, paper was expensive and needed to be conserved whenever possible.

It may not look like it at first, but the **2e** draft expresses the same thing as the other sequences in **Image 2**. The number is the order in which the warp ends are threaded or the weft picks are treadled. The position of the number is on the shaft or the treadle. Therefore, the first end in **2e** is on shaft four. It is followed by the second end on shaft three, the third end on shaft two, and so forth.



lmage 2

The drafting notation in the sequences shown in **Image 3** take things to the next level by showing the colour of the ends in **3a** where the ends are different colours or the colour bar in **3b** above the sequence. The ends in **3c** show not only differences in colour, but differences in the size of the yarn. The sequences in **3d**, **3e**, and **3f** also express colour. This was one way of creating sequences using a typewriter. So far that may seem reasonable, but then you may come across a sequence like one



shown in **Image 4**. No, this is not telling a weaver to thread ten ends on shaft three. Even though it looks consistent with the notation in **Image 2** and **Image 3**, this is a *warp colour draft* and represents the order of the colours in a warp. A warp colour order draft is void of the number of shafts for a particular project and convenient when winding a warp.

	2	2	black	
	10	10	blue	
2		2	green	
2	2		yellow	Imaae 4

Tie-up Symbols – Nearly all drafts published today are for *rising* shed looms. The tie-up symbols often appear consistent with the tie-ups shown in Images 5a and 5b. It is important to understand the tie-ups shown in images 5c, 5d, and 5e. The tie-up symbols indicate the kind of shedding mechanism the loom has for which the draft was created.

The tie-up in **5c** is for a *rising* shed loom. This includes jack-style looms. When the treadle is stepped on, the shafts tied to



that treadle rise up. The tie-up shown in **5d** is for a *sinking* shed loom and includes

counterbalance looms. When the treadle is

stepped on, the shafts tied to that treadle are pulled down and the counterbalance mechanism (e.g. pulleys or horses) lift the remaining shafts . . . or in other words, the shafts consistent with the blanks are raised. The tie-up shown in **5e** is not often seen in weaving documentation; however, it is important to include it here. This tie-up is for a countermarche loom. Each treadle is tied to each shaft using a different set of lamms. When a treadle is stepped on, the treadle will both raise and lower shafts.

The five tie-up examples shown here would produce the same sheds if the loom was threaded and treadled with the same sequence. How does one keep the **x** and **o** symbols straight? Just remember the o used for a rising shed loom is like a bubble. And what does a bubble do? It rises.

Blocks and profiles

Blocks and profile drafts may be one of the most important things in weaving to learn for any weaver interested in developing a better understanding of weave structures, developing original designs, scaling drafts to use more or fewer shafts, and much more. A *block* is a shorthand technique for representing a group of threads in either the warp, weft, or both. There is often something common and something distinctive across all of the blocks. A block may be denoted in a variety of ways, but most often is represented by a solid square or a letter. Each letter denotes a single block. When blocks are assembled into a sequence, a profile is created. The sequence shown in Image 6 is a sevenblock profile.



The block represents a group of ends; however, it does not explicitly show the following:

- The number of ends necessary for a pattern (e.g. a block for Summer and Winter may need four ends, while a block for Atwater-Bronson lace may need six ends)
- The number of shafts required to weave the pattern (e.g. 3-block spot

Bronson needs **five** shafts, while 3-block damask needs a minimum of 15 shafts)

The sett for the weave structure

Special notation symbols

Floating Selvedges – Floating selvedges are the unthreaded warp ends at the selvedges of the warp. In drafts, they are represented by a small black circle at the outside of the threading sequence, as shown in Image 7. Floating selvedges remain in a neutral position and the weaver will enter the shed over or under the floating selvedge. This creates a regular interlacement of the warp and weft to avoid long floats at the selvedge of the fabric that may appear in some weave structures (e.g. twills).



Brackets and Repeats – Brackets and repeats are used to reduce the amount of space a draft requires for superfluous information. It also takes up less space. Below in **Image 8** is an example of a threading draft using brackets and repeats (left) next to the complete sequence (right).



Sleying Symbols – A small arc is used in a draft to show a group of warp ends that should be sleyed through a single dent in the reed. A small circle is used to denote an empty dent. This is done to keep the warp ends clustered together or apart while weaving some weave structures (e.g. lace).



Use tabby – This is a shorthand way of telling a weaver to alternate picks of plain weave in-between the pattern picks. Tabby allows pattern picks to be repeated and increases the structural integrity of a cloth.

Because it is identified separately it is not included in the treadling sequence. The examples in **Image 10** show the treadling as it would appear with *use tabby* next to the draft and how to include the tabby picks.





lmage 10

Drawdown versus Draw-up – Many drafts published are drawdowns where the treadling sequence starts at the top and goes downward; however, draw-ups are found in some modern-day publications and historical resources. The advantage of a draw-up is they reflect more accurately the order in which we weave – from the bottom up. Below in Image 11 is an example of the same draft shown as a draw-up (left) and as a drawdown (right).



lmage 11

Editor's note

Robyn Spady was introduced to hand weaving at a young age and has been weaving for over 50 years. She is fascinated by the infinite possibilities of crossing threads and loves coming up with new ideas to create fabric and transform it into something new and exciting. She is committed to sharing with the weaving world through her classes and publications. Robyn is also the founder and editor of *Heddlecraft*® magazine. For an explanation how to convert floor loom drafts to table loom drafts go to www.ashford.co.nz/wheel32. Liz and her no-waste skirt



Zero Waste Spiral Skirt

BY ELIZABETH M HAYWOOD, CLARE VALLEY, SA, AUSTRALIA

A clothing patternmaker gives weavers a project that uses all of the woven fabric, with no scraps or waste!

Zero waste clothes waste ZERO fabric; there are no scraps or waste. All of the garment's pieces are designed to fit within the dimensions of the fabric like a giant jigsaw puzzle. Although the phrase *zero waste* is modern, the concept has been around forever and is inherent in traditional and folk clothes where fabric was hand woven and precious. Zero waste clothes today are one way that the fashion industry can be more environmentally sustainable. As well as the advantage of no waste to dispose of, zero waste clothes actually use less fabric - when we waste nothing, we get the full use of what we have. In addition, there is great creative potential designing clothes with the parameter of zero waste. It forces us to think outside the box and imagine new ways of doing things. The constraints of loom widths and thrift can result in some genuinely innovative cutting. Weavers are in the enviable position of being able to create unique fabric in custom widths. If you've always been afraid to cut your weaving, this skirt requires only one cut and wastes none of your precious cloth.



You will need:

Loom: 120cm (48ins) Rigid Heddle Reed: 60/10cm (15dpi)

Back

- Yarn: Ashford Yoga 2 ply (82% cotton, 18% nylon core, 1260m/1386yds, 200gm) 76cm (30ins) long for 100cm (39ins) hips takes 201gm (7ozs), 1 cone #22 Cedar Green and 1 cone #52 Green Glow
- Sewing notions: Strips of interfacing (2cm/3/4in wide), 25mm (1in) bias binding to make the waist casing, a drawcord for the waist or 6mm (1/4in) elastic, sewing thread.
- Optional (but recommended): lining fabric. A lining will help the skirt slide over your legs and give a smooth foundation to the bias skirt. You'll need a piece as big as your weaving.
- Abbreviations: R/S = right side of fabric and W/S = wrong side.

Here's how:

Size: Medium. Can be made to fit any size. Total warp length: 107cm (42ins) Finished length: 76cm (30ins) plus 10%-

- 15% for shrinkage. Width: To calculate the width take your hip measurement and add 7cm (3ins) for ease and 2cm (1in) for seam allowances. Divide the total by 1.414. Then add 10%-15% for shrinkage.
- **Important:** in the event that the width is wider than the length, increase the length so that the piece is longer than it is wide.

Warp

Use both colours to design an irregular pattern in the reed.

Weave

Use both colours as weft to create irregular checks. Beat gently to give the fabric a drapey hand to get the best effect of the bias-cut skirt. Note that stripes and checks can't be matched. If your loom is narrow, weave two or more strips and sew them together to give the correct width. Multiple seams will enhance the spiral effect. The strips can be seamed or lapped-andstitched together. Zigzag or overlock each short end of the fabric to arrest fraying.



Cut

Fold the top right corner diagonally across so it touches the adjacent side. Press the fold with an iron then open out. Before you cut along the crease, fuse a strip of lightweight interfacing over the wrong side of the crease and sew a row of machine stitches either side of the crease, no further than 6mm (1/4in) away, to stabilise. Cut along the crease. Zigzag or overlock the edges to arrest fraying - these edges will be at the waist and hem of the skirt.



Sew

- Bring the triangle around and sew it to the other end with a 1cm (½in) seam. Press the seam open. You now have a parallelogram.
- 2. Sew the vertical sides together, bringing A-A together and B-B. Pin the seam carefully first, starting at A-A at the bottom.



Note that at B-B there will be a 1cm (1/2in) overhang due to the seam taken in the previous step - that's okay.

 Sew the seam with a 1cm (¹/₂in) seam allowance. It can be sewn right sides together like a regular seam or lappedand-stitched.



- You now have a tube, with a bias edge top and bottom and a spiral seam winding around. The top of the V seam is the centre front waist.
- Turn the tube over and sew two darts in the back, each 3cm (1¼ins) wide and 12cm (5ins) long. Make the points of the darts about 21cm (8ins) apart if your hip measurement is 95cm (37ins), 22cm (8¼/ins) for 100cm (39ins) hips, 23cm (9ins) for 105cm (41ins) hips, and so on. Alternatively, carefully try the tube on and pin the darts in an appropriate place. Ensure you can still get the skirt on and off over your hips.



 Optional lining: cut and sew an identical skirt from the lining fabric. Pin the lining and the skirt together at the top, wrong sides together. You'll sew through both layers in the next step.

Finish

 Bind the top edge of the skirt using the 25mm (1in) bias binding, with the beginning and end at the centre front for the drawcord to tie. Thread the drawcord or elastic through.





 Hem the skirt by hand with a 4cm (1½ins) deep hem or to your desired length. Hem the optional lining shorter.

Editor's note

Liz Haywood, an ex-clothing industry patternmaker, is the author of *Zero Waste Sewing*, featuring sixteen projects to make, wear and enjoy.



Visit her website lizhaywood.com.au and Instagram @lizhaywood3754. Thank you, Tracy Henwood of Knit Spin Weave in South Australia, for weaving the fabric for the skirt.

Managing Colour

BY ELIZABETH ASHFORD, ASHBURTON, NEW ZEALAND

Can plying a multi-coloured single with a neutral take away the guesswork?

At shows I cannot resist the beautiful, dyed fibre braids on sale. These exquisite fibres demand to be taken home, plied and woven or knitted into something special. But often I have been disappointed with the results. Either those beautiful colours appear as distracting bold blocks or disappear into a muddy mess.

How can these beautiful colours be preserved but not overwhelm in the final result?

There are so many types of dyed tops – randomly spotted, semi-solid, repeated, gradients. Is there one technique that would work for all?

After reading Alanna Wilcox's book *A New Spin on Color* I found an easy and successful technique: take a single of the dyed yarn and ply it with one of the neutrals – white, black, grey, or brown.

New Zealand dyer and Ashford dealer Lyn Walsh, Fibre2go, takes our fibre blends and hand dyes them to make delicious colour ways. I chose one of her beautiful warm-toned braids in silk/Merino *Dark Autumn* and experimented with her neutrals in a blend of silk/alpaca/Merino.



Plied with white

Plied with black



Plied with grey

Plied with brown

Here's how:

- Unchain and shake the dyed braid. Open up the fibres by running your finger along the seam and unroll. Be sure to uncurl all the fibre and spread it out. This will make drafting much easier.
- 2. Split the braid into eight.
- 3. Spin each braid from one end to the other.
- 4. Repeat the process with each of the neutral braids.
- 5. Ply a single of the coloured yarn with each of the neutrals.

This is what happened:

When plied with the white, the contrast was dominant, and the barber-pole effect was noticeable in the yarn. The knitted and woven samples had a striking marled effect. The colour was muted and the white dominated.

When plied with grey, the contrast was dominant. The yarn and fabric became cooler and smokey-looking.

When plied with the black, the yarn become darker with pops of colour. The fabric appears darker and deeper with the colour more saturated.

When plied with brown, the yarn had low-contrast variegations and become warmer. The fabric colour looked balanced.

If I had chosen a cooler coloured braid or one with a different depth of shade, the results would have differed.

Woven with colour/white ply, colour/grey ply, colour/black ply, colour/brown ply



Knitted with colour/white ply, colour/grey ply, colour/black ply, colour/brown ply

My Conclusions

Spinning a beautiful, dyed braid with one of the neutrals will give you control of the results! I had more consistency over the whole project. The colours showed in sequence and there was no risk of unsightly colour pooling or contrasting. And it makes the coloured fibre go further!



Successful combination!



Editor's note

Try plying a neutral with your next hand dyed braid – I guarantee success!

My wrap was inspired by the ladies at Woolwerx, BC, Canada, who make these wraps from their hand spun (see *The Wheel* Issue 30, page 13). I spun a 12 wpi 2 ply and wove it on my 60cm (24ins) Rigid Heddle Loom with 30/10cm (7.5dpi reed). The total warp length was 2m (21/4yds). After washing and fulling the fabric was 1.8m (2yds) long and 54cm (211/4ins) wide. To make the shrug I folded the fabric in half and measured 28cm (11ins) from the folded end. I joined the edges leaving the 28cm (11ins) from the fold open. To buy Alanna's book go to AlannaWilcox.com



Pleased with the colour/brown yarn in my wrap

What's new from Kate and Richard

Good news: In spite of our 5-week production lockdown here in New Zealand, and unprecedented demand from craftsfolk worldwide, Covid-19 hasn't completely stopped Kate and Richard from developing some wonderful new products. Designed to make your textile journey even more exciting, relaxing, and enjoyable, see the new products below.

Sadly however, due to production constraints, the introduction of our new 30cm (12ins) e-Carder has had to be delayed until early 2021. Our apologies to all those who have pre-ordered. Thank you for your patience.





BALL WINDER

Features include:

- Wind really large balls up to 500gm (17¹/₂ozs)
- Simple-to-use Ball Winder
- Wind balls both clockwise and anti-clockwise
- 8mm (5/16in) yarn guide
- Wide stable base mounted on rubber feet, one clamp included
- Size 40 x 13 x 25cm (15³/₄ x 5 x 10ins)
- Net weight 1.5kg (3¹/₃lbs)
- Manufactured from beautiful native New Zealand Silver Beech hardwood with a lacquered finish, assembled.



CATERPILLAR COTTON YARN

This very popular weaving, knitting and crochet 100% cotton is now available in white as well as the six beautiful, variegated colourways.

BALL WINDERS

Wind yarn into balls quickly, smoothly and effortlessly. Perfect balls every time. Choose electronic or manual.

e-BALL WINDER

Features include:

- Wind really large balls up to 500gm (17¹/₂ozs)
- Infinitely variable speed
- Wind balls both clockwise and anti-clockwise
- Soft start allows you to control the yarn as it starts to wind onto the cone
- Instant stop when you need it
- Foot switch for better control of your yarn
- 8mm (⁵/16in) yarn guide
- Mounted on rubber feet, one clamp included
- Powerful 12v 2.0-amp DC motor drives balanced cone assembly
- 12v mains power cord included
- Size 30 x 20 x 28cm (12 x 8 x 11ins)
- Net weight 2.5kg (5½lbs)
- Manufactured from beautiful native New Zealand Silver Beech hardwood with a lacquered finish, assembled
- Optional extra: 12-volt car cord enables you to wind balls away from mains power

CORRIEDALE AND MERINO COLOURS

We have added two new colours to our Corriedale and Merino sliver ranges – Classic Blue (the 2020 Pantone Colour of the Year) and Truffle, an elegant and versatile taupe colour.



ASHFORD DK YARN

We are very pleased to have released this year our new yarn range – Ashford DK. Natural, sustainable, 100% pure New Zealand wool. From our back yard to you! It's a soft, traditional Double Knit weight yarn with a three-fold twist to give great stitch definition and durability.

Ashford DK is available in a total of 40 colours, in four exciting collections. Neutrals – 11 timeless shades that work perfectly alone or with colour accents Pastels – 9 delicate, soft and ever-so-pretty shades – not just for babies! Fashion – 11 on-trend, gorgeous inspirational shades Classics – 9 bold classic shades

For full specifications visit our website www.ashford.co.nz/yarn





LOOM STANDS

We now offer one stand to fit all three widths of the *Knitters Loom* 30, 50, 70cm (12, 20, 28ins) and one stand to fit three widths of the *Rigid Heddle Loom* 40, 60, 80cm (16, 24, 32ins) – a real saving and convenience for weavers with several looms.

Features:

- Adjustable loom angle for comfortable weaving
- Side support braces
- Comfortable footrest
- Compact storage when not in use
- Quick and easy bolt and barrel nut assembly, with storage for the Allen key

We also offer one stand to fit both widths of the *Samplelt Loom* 25, 40cm (10, 16ins).





COTTON HANDCARDERS

Designed specifically for cotton and extra fine luxury fibres, our new hand carders are lightweight and easy to use. Features:

- Suitable for cotton, cashmere, angora, and other super fine fibres
- Large carding area batt size 26.5 x 9cm (10¹/₂ x 3¹/₂ins)
- Very fine 190 PPSI wire teeth with flexible rubber back for long life
- Lightweight timber handles and batts only 495gm (17¹/₂ozs)
 Ergonomically designed and turned round handles for
- comfortable grip and use
- Tapered curved batts
- Natural timber finish that can be enhanced with Ashford Finishing Wax Polish

e-CARDER Coming soon...









Ashford