

## THE WOAD CONNECTION TO SCANDINAVIAN TEXTILES

by Gayle Bingham

It is interesting to note that woad is not native to Europe. Woad, a biennial plant, originated in Turkey and the Middle East. This leads one to suspect that woad came to Europe via the Viking traders. These trade routes were quite extensive, many reaching to what is presently Russia.

In the period 867 to 954 A. D. Yorvik (York) in England, was the capital of a Viking state and Coppergate was the industrial center of that city. There is convincing evidence of the use of woad found in the deposits of woad residues left after dyeing in the Coppergate district. Work done by Scandinavian archaeologists establishes the sophistication of Viking weaving and dyeing. The macerated leaf and seed pods of woad have been discovered in the Viking excavations in the Coppergate area of York. Fortunately, soil conditions at the Viking Age dig at York, England, were able to preserve traces of woad. (1)

Margrethe Hald found traces of woad in fabric remains dated to the seventh or eighth century, the first half of the ninth century, and the tenth century. This is from her book *Olddanske Textile* (Old Danish Textiles) Copenhagen: The National Museum of Denmark, 1950. (2)

Penelope Walton in her 1988 paper reported the results of chemical analyses on 220 textile fragments from three Viking Age regions. She found that each area had a clearly predominant color: woad blue was found most often in the miscellaneous graves from Norway and Denmark. It is interesting to note that the most successful dye for linen is woad, a vat dye requiring fermentation. (3)

Very colorful dyes were found at the early Landnama farm at Narsaq, Greenland. An analysis of one of the Narsaq textiles showed that it had been dyed blue with woad. Else Ostergard also identified the blue colorant *indigotin* in a textile fragment from a farm at Sandnes in Greenland. This dye has also been identified in many textiles from Viking Age burials in Norway. The Norse settlers brought with them the same vari-colored sheep as were farmed in Iceland and other Norse colonies. The earliest settlers began over-dyeing these colored wools with woad which was part of their Viking Age inheritance. (4)

Extensive cultivation at a large farm at Borg, in Lofoten, Norway, north of the Arctic Circle revealed the farm must have been the residence of a chieftain from the 8th to 9th century. What is most interesting to the woad dyer is that in addition to farm crops, seeds were collected

from several plants that are considered weeds today. Hemp, an important fiber plant, and other plants like woad which gave a blue color were grown to color textiles. (5)

Katherine Larson, in her book, *Woven Coverlets of Norway*, noted that a source of blue dye found in Norway as early as Viking times was woad (*isatis tinctoria*). To extract the dye from woad involved several exacting steps. Though it was cultivated to some extent in Norway, it was also imported from areas of Europe that specialized in its processing. Soaking a worn-out blue garment in a fermenting agent (usually a pot of urine) to draw out as much blue dye as possible was a housewife's way of preserving the blue dye of woad. (6)

The Medieval woad process was the most complex of the dye processes, involving controlled fermentation. Therefore, it is believed that the Medieval woad dyers were the elite of the profession and normally specialized in this one dyestuff.

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# FROM WOAD BALLS TO BLUE DYE:

## METHODS OF WOAD PIGMENT EXTRACTION FOR OBTAINING BLUE DYE

BY GAYLE BINGHAM PRESENTED AT COLOUR CONGRESS 2002

In the Medieval Era, huge amounts of woad leaves were used: large grinding stones and horse drawn power were employed. (1) My process was on a much smaller scale. And the machinery used was small appliances.



Plants in 10 to 20 gallon containers



Second year blossoms

After harvesting the woad leaves from the container grown plants, the leaves were first ground in a regular size food processor. After the first grinding, the leaves were placed in a plastic tub to await another finer grinding. My work space was my laundry room. The woad leaves were re-ground in a mini food processor—in numerous batches.

The ground leaves were formed into balls by hand and placed on a drying tray for four weeks. The woad balls shrank to about 1/4 of their original size and became as hard as wood. The dried woad balls were ground into powder, using the mini food processor. This produced a coarse powder. This coarse powder was then transferred to a coffee grinder to be ground to a much finer grind than coffee.



Fresh woad balls

The powdered woad was poured into a shallow container and sprinkled with water. The wet powder was stirred each day for two weeks. This should have heated up like compost and turned into a tar-like substance to be dried and stored as woad (*indigotin*) pigment.

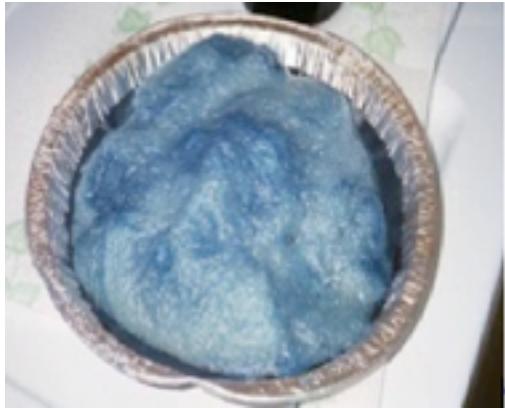
After an initial failure to produce an acceptable dye and in order to complete the fermentation and dye process, it was necessary to find another method to obtain the pigment. The method used was found on Vince Rowan's Internet Woad Page (2). This is an oxidation method. For this method, woad leaves were picked, chopped in medium size pieces and packed in a glass jar. Boiling water was poured over the leaves and the jar was filled to the rim to slightly overflow. The lid was then put on tightly.



In one to one and a half hours, the water in the jar turned a rich, reddish-brown.

At this point, the reddish-brown liquid was poured into a bowl; the leaves were then squeezed out and their liquid added to the bowl. Enough ammonia (10 to 12 drops) was added to the liquid to reach a pH of 9.

A manual eggbeater was used to beat the liquid for 10 to 15 minutes. This added oxygen to the liquid. Foam began forming on the top of the liquid. This foam contained blue flecks and particles. The blue flecked foam was scooped off and placed in a Teflon lined pan to evaporate. After the liquid of the foam evaporated (2 to 3 days), there remained the pigment residue on the Teflon liner.



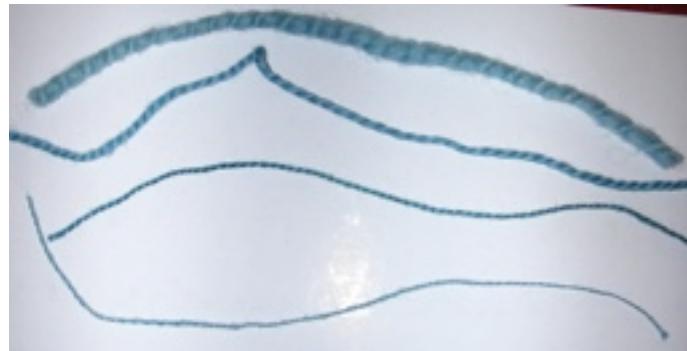
This pigment residue could be peeled away from the liner and stored.

water in the pan evaporates, the dry pigment is peeled off the pan. The dry pigment was now ready to be fermented. The pigment was placed in a non-reactive container and



boiling water was poured over it. After stirring and lowering the temperature to 50 degrees C., enough lye was stirred in to bring the pH to between 8.5 to 9. The vat was then kept to a constant temperature of 50 degrees C., or 120 to

130 degrees F. for 2 to 3 days to complete the fermentation process.



At the end of this fermentation period, yarns of different fibers were repeatedly immersed to obtain various shades of blue.



In about 24 hours, the sediment began to settle to the bottom.



The liquid above the sediment appeared lighter. This lighter top liquid is poured off carefully so that the sediment remains intact. Each time the light liquid is poured off, more water is added to the bottle. These steps were repeated until there was a relatively clear liquid above and the blue sediment was on the bottom. Again the clear liquid was poured off, leaving only a small amount of liquid. This small amount of liquid and blue pigment was poured into a Teflon coated fry pan. This sediment is now fairly pure indigo pigment. When the

#### FROM GAYLE BINGHAM

As a weaver and spinner with an interest in the Medieval Era, I was also interested in Medieval woad dyeing. This led me to read John Edmond's book, *The History of Woad and the Medieval Woad Vat*. I followed Mr. Edmond's Medieval method for the presentation above, but on a much smaller scale. In 1994, we moved to Kerrville, Texas where my woad plants were grown in 20 gallon containers. Since learning about a shop in Toulouse, France that carried woad and woad products produced by Denise and Henri Lambert in Lectoure, France. I now order my woad pigment from them.

# NORWEGIAN WEAVING AT NORDIC FEST 2010

BY LAURANN GILBERTSON

VESTERHEIM NORWEGIAN-AMERICAN MUSEUM'S 29<sup>TH</sup> ANNUAL EXHIBITION OF WEAVING IN THE NORWEGIAN TRADITION WAS HELD IN DECORAH, IOWA, ON JULY 17-24, 2010.

The exhibition is an important and popular part of Vesterheim's offerings for Nordic Fest. This year the exhibit, which also includes woodworking, knifemaking, and rosemaling (decorative painting) attracted more than 1,850 visitors.

Weavers sent traditional and contemporary interpretations of Norwegian weaves. Judges wrote constructive comments and awarded ribbons. The judges were Jan Mostrom, Gold Medal weaver from Chanhassen, MN, Jane Murphy, Gold Medal weaver from Westby, WI, and George Lowe, Assistant Professor of Art at Luther College, Decorah, IA.

In the Traditional Category, the Blue Ribbon went to Jeanine Ehnert (Frazee, MN) for a Nærøy-style wall hanging in skillbraggd technique. Jeanine Ehnert also received a Red Ribbon for a Voss-style rya cradle blanket. Virginia Wekseth (Onalaska, WI) won a White Ribbon for a table runner and candle band in double-point krokbraggd technique. Honorable Mentions went to Barbara Berg (Decorah, IA) for a trunk cover in Finn weave and to Veronna Capone (Brookings, SD) for "Playground Chatter," a table mat in bound rosepath.

In the Contemporary Category, Blue Ribbons went to Joan McColgan (Napa CA) for "Nurturance," an Aubusson/Gobelín tapestry and to Judy A. Ness (Eugene, OR) for "Sunrise, Sunset," a wall hanging in krokbraggd technique. The Red Ribbon went to Veronna Capone for "Two Low Voices" table mat in bound rosepath technique. No White Ribbons or Honorable Mentions were awarded in the Contemporary Category.

The Best of Show Weaving was Joan McColgan's "Nurturance" tapestry. Visitors to the exhibition voted for their favorite weaving to receive a People's Choice award. They chose Joan's tapestry as well.

As weavers win ribbons they accumulate points toward a Gold Medal.

Blue Ribbon 3 points

Red Ribbon 2 points

White Ribbon 1 point

After accumulating 8 points, the weaver is awarded a Gold Medal.

**WITH HER RIBBONS THIS YEAR, JEANINE EHNERT RECEIVED HER GOLD MEDAL IN WEAVING.**



Barbara Berg's Finn Weave trunk cover



Jeanine Ehnert's Voss-style rya cradle blanket



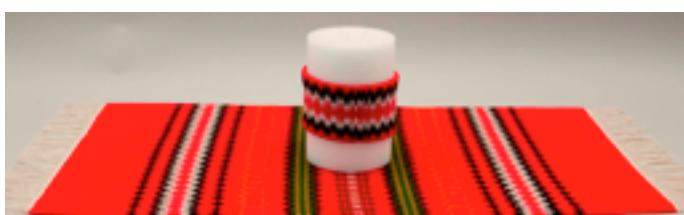
Judy Ness  
"Sunrise, Sunset" wall hanging  
in krokbraggd technique



**Veronna Capone**  
“Two Low Voices” table mat in  
bound rosepath technique



**Joan McColgan**  
**NURTURANCE Tapestry.** 6' x 4'cotton warp, wool and silk weft.  
2010



**Virginia Wekseth**  
Table runner and candle band in double-point krokbragd  
technique

**JOAN MCCOLGAN,**  
**NAPA, CALIFORNIA**

**ARTIST'S STATEMENT:**

Tapestry, historically being narrative, offers me a tactile, meditative and spiritual process to tell stories of human unfoldment. As a universal language I choose ancient and current symbolism: drawn from legends, myths, philosophies, religions and magic beliefs. Through the eternal wisdom inherent in symbolism, my focus is to evoke human awareness, deeper meaning and understanding from life experience.

*Nurturance* is the story about the nurturing of my twin sister and me, in the garden our father created. He nurtured his garden, he nurtured us in his garden, and we were also nurtured by the garden, as was our older sister.

Pelicans symbolize the nurturing of their young. One version of medieval myth tells us that when the father returns to the nest to find a baby dead, he scrapes his breast with his beak, and his blood drops onto the baby and brings it back to life.

The large pelican (representing our dad) passes on the key to life and nature, while his blood nourishes the children (myself and my twin sister) and the garden. The orange and lemon trees growing in the garden represent the sweet and sour of life. The snake reminds us that no matter how safe you might feel, danger can lurk unseen.

Woven in French Aubusson and Gobelin techniques, this tapestry also includes Norwegian tapestry pattern-weave techniques. Inspiration is drawn from Norwegian tapestry designer, Gerhard Munthe, and his folk-tale tapestries.

In Aros Church (Røyken, Buskerud, Norway) there is a stained glass window over the altar of a pelican in its nest with his blood dripping down on the babies. Just days before this tapestry was cut from the loom, I received photographs from Norway of that stained glass window through my Norwegian friend and neighbor Kari Bjoran, whose children were baptized in Aros Church. It was astounding for me to see in the window the same diamond shape in almost the exact colors of the pelican as I had chosen many months before for this tapestry.

A pelican image can also be found in the sacristy of the medieval Skedmo Church in Skedsmo, Akershus, Norway.

In April of 1993 I began studying French Aubusson/Gobelin tapestry weaving with Nancy Jackson in Vallejo, CA. Within the first few moments at the student loom I became a tapestry weaver, and have never looked back. After painting in oil, acrylic and watercolor for most of my life I had found my medium.

After struggling for several years with the idea of this tapestry dancing around in my head and many unsuccessful attempts at a design on paper, I took a class in 2007 with Nancy learning to weave Norwegian tapestry techniques. Only after taking a serious look at Norwegian tapestries was I finally able to get to this image.

Early June is a great time to visit southern Norway. Spring flowers and leaves have fully opened, summer's heat and insects are a few days off. The rivers are full—the best time for running the stampa—sun chased clouds and breezes brought them back—better for shopping sweaters. One morning felt unusually chilly and we could see that overnight the snowline had moved down the mountain across the valley from our mountain.



**View from the classroom at Vesaas**

Location, location, location! The studio classroom on the top level of the barn offers views of distant mountains across the valley and the (obligatory) coffee breaks out doors, weather permitting, allow close-ups of exquisite wildflowers amid the grasses between the granite bedrock bulging out here and there at the farm. The spaelsau sheep are no longer on site but every now and then in the barn studio it's easy to catch a whiff or whisper of the former occupants.

Our group of eight students were one each from Switzerland and Paris, two each from Britain, British Columbia, and U.S.A. Carol had asked us each for a design idea we would like to make and she came prepared with sketches to approve. She and Mae (Carol's daughter, and assistant) began making the muslins to fit. Several of the students had sophisticated constructions.

The warps were all on the looms! Eli had done all the threading work in advance and all we needed to start was wind our weft bobbins and begin weaving. We had all selected a warp color out of five natural shades and white and we could use weft of one of those or some colors that Eli had in stock. The wool yarns were all 2 ply spaelsau wool from Hoefeldt Lund Norsk Kunstvevgarn A/S. The warps were threaded 3/1 twill and to be woven to square, approximately 5 picks per centimeter.

On Saturday the stampa was started up by Olav Vesaas and we gathered with our precious fabrics to watch Olav, Eli and Ingebjorg Vaagen place the lengths in the troughs of the mill and set it to work—wetting the cloth, poking it back in the trough, more water, more poke, stop the pounding to check progress, then back to thump-bump.

## **VADMAL AT VESAAS 2010**

### **THE MAKING OF A FULLED WOOLEN CLOTH AND A SILK LINED GARMENT**

**by Veronna Capone**

What a delightful experience! Much has already been written about prior classes and I re-read those articles to prepare but there's nothing quite like doing it yourself.



**The stampa at Mjonoy Handcraft and Cultural Center**

It took about 1 1/2 hours for the weaving to become fulled. This is a good time to call home to share the sounds of the rushing river, water wheel, chunk-chunk, thump-thump of greased wood-on-wood, wood on wet wool, happy chatter of weavers. My husband enjoyed it. All this while people visiting the camp gathered round to see what was going on and learned that Norway's history is what's still going on.

The stampa is located at Mjonoy (pronounced mew-noy) Handcraft & Cultural Center which is where we were also comfortably housed and fed a prepared dinner each evening.

The class was held in Eli's studio in the barn at Vesaas and every minute held a visual treat to see, read, examine a weave, or draw a pattern. And then, to rest a bit, just look out the window. The Vesaas farm occupies a very special place and is visited by Norwegians interested in their history. Garment construction required both machine and hand sewing. Each piece of the Dupioni silk lining was machine stitched to the wool piece it lined, turned, pressed, and then hand sewn with a spilsaum stitch using couture silk thread. Details and edgings were sewn on by hand as well.

We visited Dalen with its picturesque wooden 'dragon style' hotel, and West Telemark open air museum at Eidsborg. On the weekend the cloth lay drying, we toured the ski museum in Morgedal which is the birthplace of ski jumping off a steep slope (it started with children skiing off the roof), and a spinnery for mohair run by three women. Later in the week, after dinner—it's light forever, remember—we went to a farm stuck to the side of another mountain where a woman raised spaelsau sheep. The adult sheep and most lambs had been moved to summer pasture up the mountain but the "third lambs" are often kept back for a few days to strengthen, so we got an up close look at them.

Our leaders, Ingebjorg Vaagen, Eli & Olav Vesaas, Carol & Mae Colburn, worked tirelessly to provide us a rich experience and education in a cultural, aesthetic, and natural environment. Such great hospitality; their friends

and family supported them, and us, with participating, teaching, and a lot of laughing!

For me it was a great treat to be in a place for two weeks as there was time to look, walk about, stop and look again instead of rushing about to pack in more by the minute. I had chosen to make 6 meters and a simple sleeveless vest because I wasn't sure I could get 8 meters done in time, but I could have. The fabric is very easy to sew, doesn't ravel and is supple, light, and holds a press. After all the shrinking in the stampa I had enough for a vest and enough left for another, and I want more!

Would I do it again? Yes! The next class is scheduled for 2011 and, regrettably, my travel budget for the year is spent or I'd be on Carol's list by now. For details and registration information on the 2011 workshop entitled:

*Refashioning Vadmal: A Weaving and Design Workshop in Telemark, Norway* May 29 to June 11, 2011

Contact: carol.ann.colburn@gmail.com

Web site: <http://web.me.com/carolcolburn/Site>Welcome.html>

#### Previous Articles on Vadmal:

"A Sojourn in Telemark" by Lila Nelson in the *Norwegian Textile Letter* Vol. IX, No. 1, November 2002.

"Vadmal: Fulling Cloth the Traditional Way" by Carol Colburn in *Handwoven Magazine*, Nov/Dec 2006.

"Vadmal Adventure in Norway" by Marion T. Marzolf, with contributions by Georgia Gleason in *VavMagasinet* 1/10, pp 27-28.

VERONNA CAPONE IS A NORWEGIAN TEXTILE GUILD MEMBER AND AVID WEAVER AND TRAVELLER.

## COLLECTION HIGHLIGHT – ESTERHEIM NORWEGIAN-AMERICAN MUSEUM BY LAURANN GILBERTSON, CHIEF CURATOR

In the November 2010 issue of NTL, we met Ben Blessum, a Norwegian-born artist who lived in Chicago. He made several trips to Setesdal, Norway, to paint landscapes, farmyards, and interior scenes. In Part II of this Collections Highlight, we will take a closer look at the textiles in two paintings in Vesterheim's collection.

A favorite of the public and museum staff is "Gunvor on the Hill." According to local historian Leonard Jansen, the woman is Gunvor Johnsdatter Kjelleberg Rike (1847-1930), who lived near Vallarheim, a tourist hotel in Valle, Setesdal, where Blessum may have stayed while painting. She is wearing folk dress, which remained in daily use in Setesdal into the mid-twentieth century. She is knitting, perhaps stockings, in the round on fine needles.



**Ben Blessum, *Gunvor on the Hill*, Setesdal, 1920s.** Oil on canvas.  
Vesterheim 1991.089.001 – Gift of J. Harry and Josefa Andersen  
in memory of Eline and Edward M. Hansen.

On the wall behind her hangs a man's lusekofta (lice-patterned sweater) and embroidered jacket.

We get a better look at the sweater and jacket on the "Peasant of Setesdalen." The sweater is long sleeved and tucked into bibbed trousers. The jacket is sleeveless and very short, showing off the sweater and much of the bib. Blessum seems to be focusing on the vivid colors and graphic patterns in the outfit and ignores the texture of the sweater.



**Ben Blessum,  
Peasant of  
Setesdalen,  
Setesdal, 1920s.  
Oil on canvas.  
Vesterheim  
1994.084.002 –  
Gift of J. Harry  
and Josefa  
Andersen in  
honor of Marion  
and Lila Nelson.**

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Contact Marilyn Rue in Decorah, Iowa, 563-382-2593 or [marilynrule@gmail.com](mailto:marilynrule@gmail.com).

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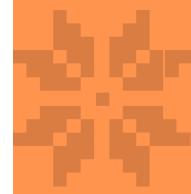
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