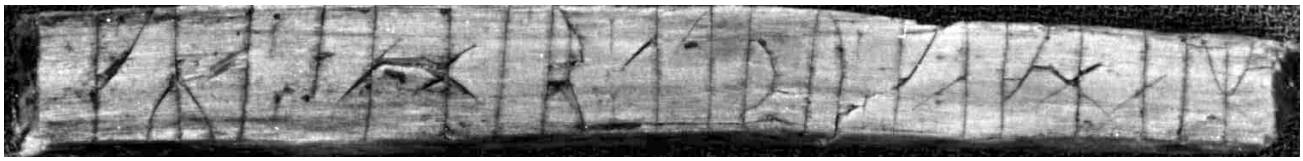
Amor Vincit Omnia: 12th-Century Embroidered Shoes

A study and reproduction of a runic-scripted, Latin-phrased, silk-embroidered, skewed-toe shoe from Bergen, Norway.

Introduction

In 1955 fire destroyed part of Bergen, the most important town in Norway during the Middle Ages. Located on the west coast, from the end of the 13th century Bergen was known as the country's largest trading center and from the end of the 12th century it was the ecclesiastic center of western Norway (Hansen, 2005). In advance of rebuilding the area, with easy access to the material record, archaeological investigations took place over nearly 25 years and uncovered numerous artifacts from many periods of the town's history.

That work resulted in the discovery that people applied runes to more than just stones and churches during the early Middle Ages. They carved runes into wooden sticks to convey personal and business messages; to mark ownership; to effect curses; to invoke protection; to speak of love. Some 500 examples of these *runakefli* have come to light (Liestøl, 1966).



A wooden stick with "Gyða segir at þú gakk heim" (Gyða tells you to go home) from Bergen (one of many listed and displayed on Wikipedia at https://bit.ly/3bfAvcj; accessed 6/21/22).

Further carvings of runes were found on bones, antler, pottery, and soapstone vessels. Most are in Old Norse, but about 50 are in Latin, varying widely in the level of literacy displayed (Seim, 1988).

Additionally, in at least five cases, people inscribed runes into leather shoes and embroidered them with silk (Larsen, 1992). This project aims to replicate the most complete and intact shoe of those found, as well as one for the opposite foot.

In order to complete this project, I had to research and consider three different aspects:

1) Understand the characters and words used in the surviving shoe and then determine what would go on the second one;

2) Make a pattern for the style and then construct two shoes in my size (for I intend to wear them) using appropriate materials;

3) Execute the embroidery with an appropriate material and color choice.

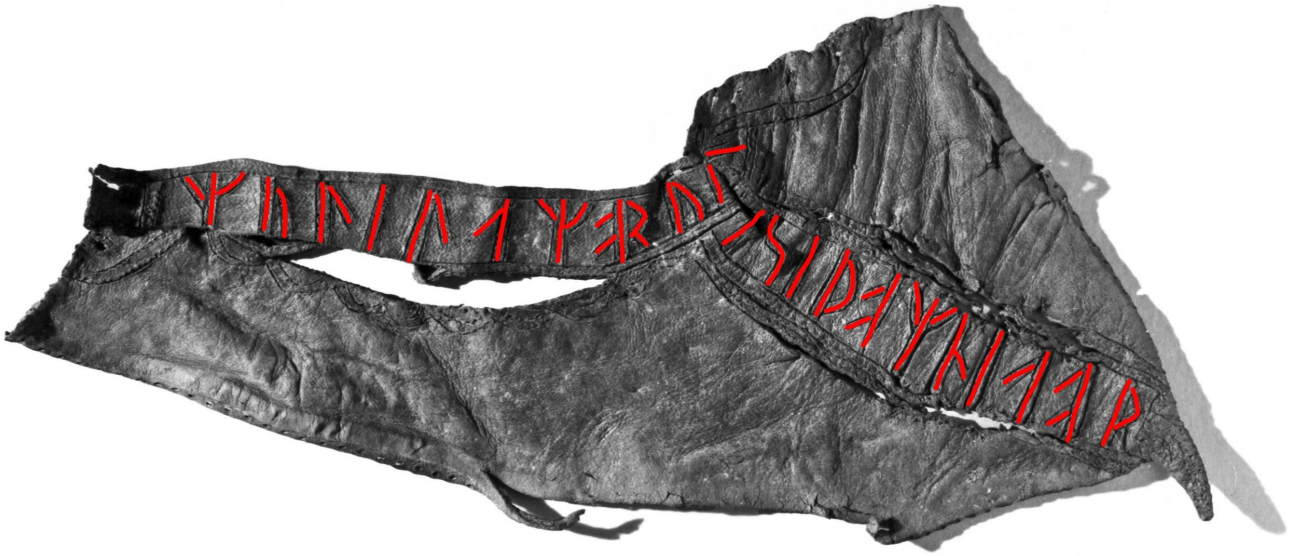
Understanding the Original

As apparent in the illustrations below, we can see that nearly the entire shoe has survived remarkably well after some 800 years in the ground. Its surface sports numerous incisions, which are punctured by small holes through the thickness of the leather.

Pairs of incisions define runic letters running around the ankle and down the vamp (i.e., the top of the foot). Above and below the runes we can see other incisions that define a single strip on the ankle, and double ones on the vamp. Further, below the bottom ankle line on the outside of the foot, we can make out some arcing decorative strips.

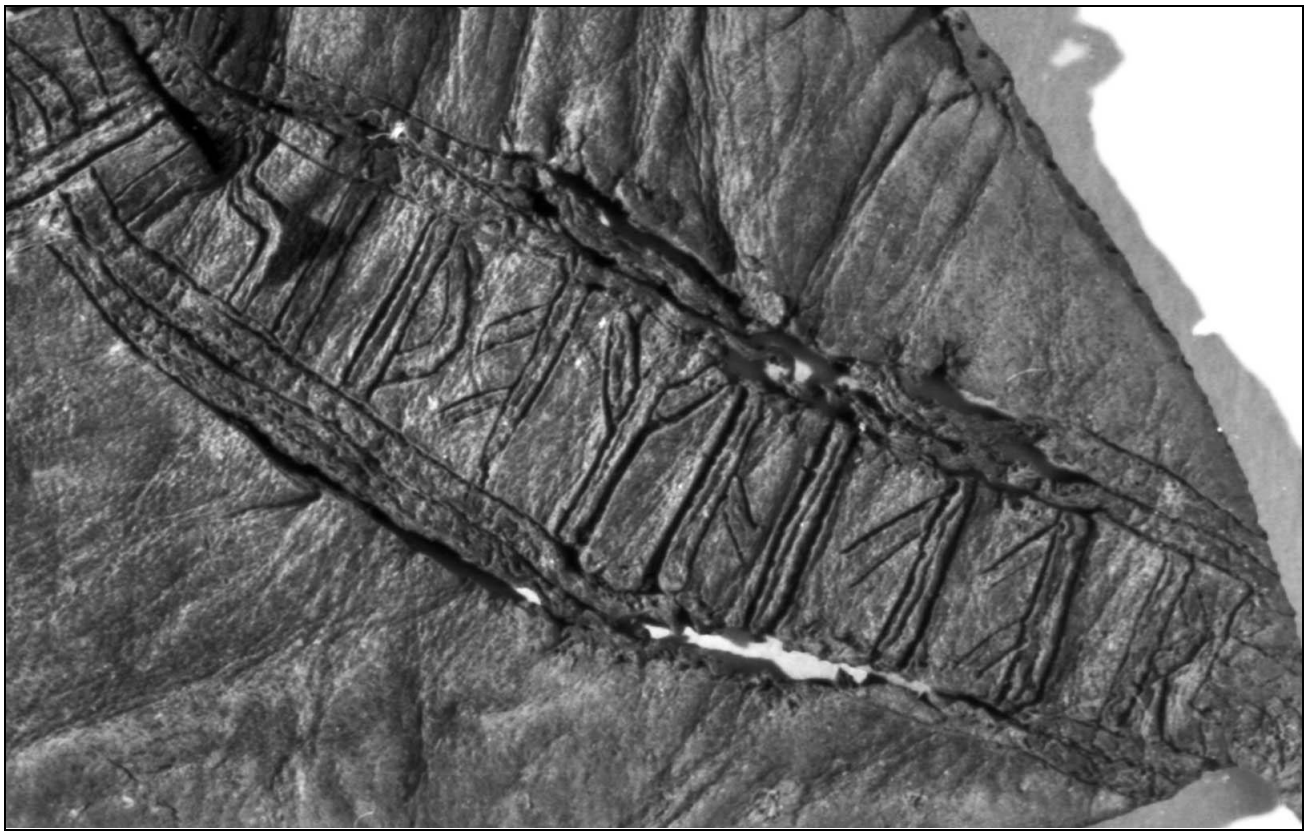
The original shoe as conserved (photo source #1), showing the sole, upper, and heel stiffener.

The upper in black & white makes it easier to see the design (photo source #2).



The same image with its letters traced in Photoshop in order to clarify them. They get a bit muddled at the instep where it seems there may have been an insert (a small piece of extra leather stitched in to help with fitting).

The image above can be cropped to provide close-ups of the ankle band and vamp surface for additional clarity (photo source #3):



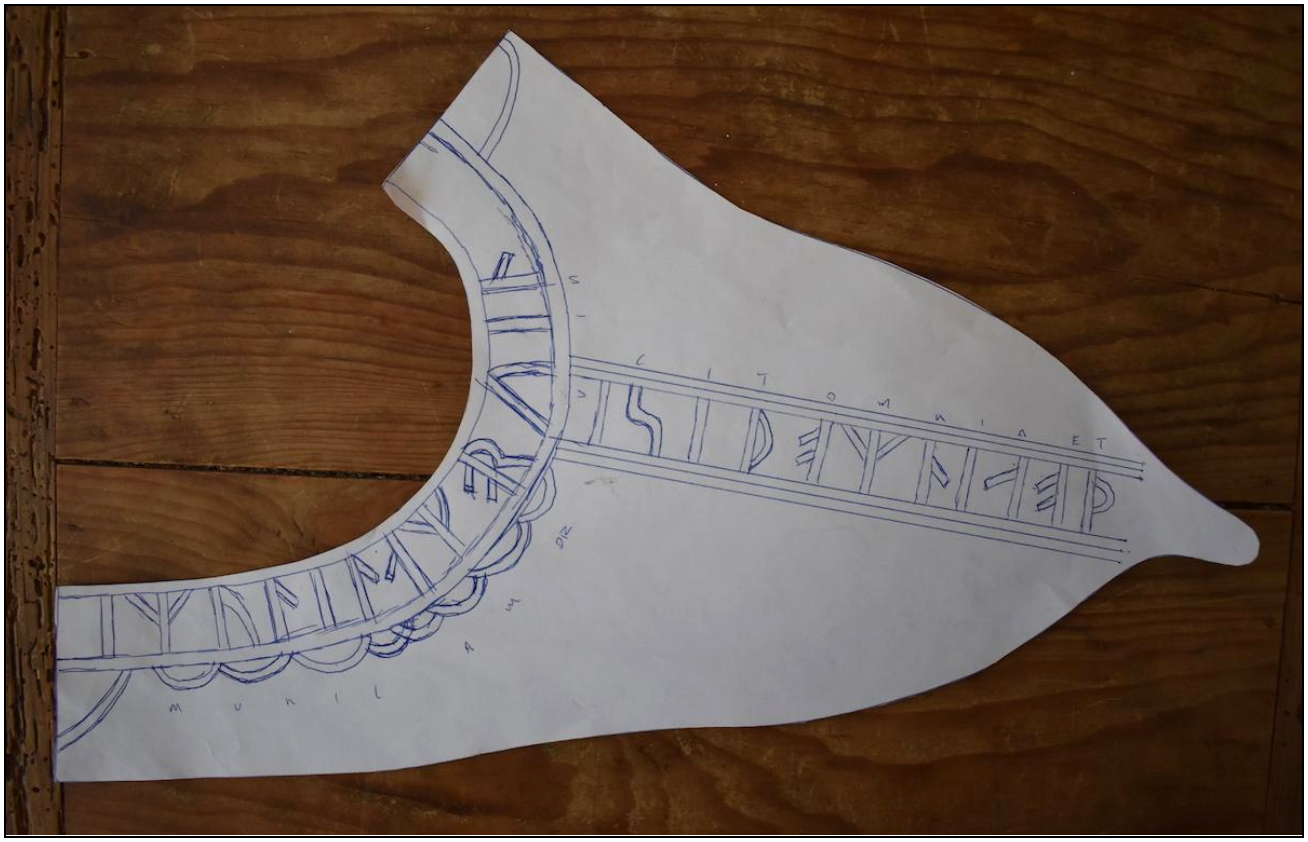
The surviving shoe is held by the University Museum in Bergen, cataloged as Acc. No. BRM 0/52927.

The Words

The runes on this shoe, when transcribed to our Western alphabet, read *mulil amor vincit omnia et*, starting to the right of the ankle seam and running around the ankle, then jumping to the instep and running down to the toe. There are no word separators.

The first word, *mulil*, has proved to be untranslatable. It may be a personal name, some kind of magic charm word, or have some other meaning that may remain forever unknown. It does not appear in any corpus of Latin or Old Norse, either as-is or in any alternative that might have come from a misspelling or other sort of mistake. We can hope that someday it will turn up in a context that sheds light on its use here.

The rest of the phrase, however, comes from the poet Virgil's *Bucolica* Eclogue X, and is Latin for "love conquers all and," with the rest of his phrase presumably continuing on the other shoe as *nos cedamus amori* "so let us surrender to love."



Practice piece laying out all elements of the design, ink on paper. This was used as a guide during production, but it was not traced.

Aside from the shoe, three pieces of wood with the same phrase - in whole or in part, in Latin or in Old Norse - turned up during the excavations. Although some scholars believe

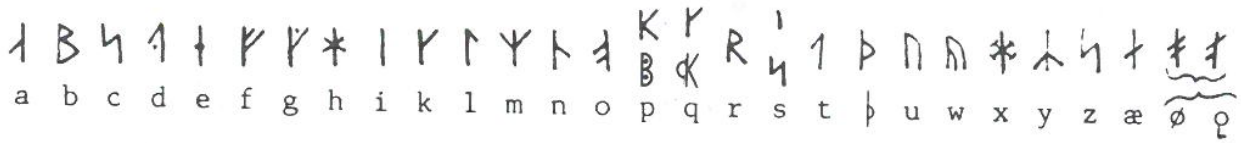
that the phrase was simply an exercise in learning runes, others hold that it was the meaning of the words that mattered. That does seem most likely in the case of the shoes. Virgil wrote his poems in 40 B.C., but at some point Christians determined that part of Eclogue IV prophesied the coming of Christ and so co-opted this phrase and twisted its meaning (Larsen, 1997: 106-107).

The Runes

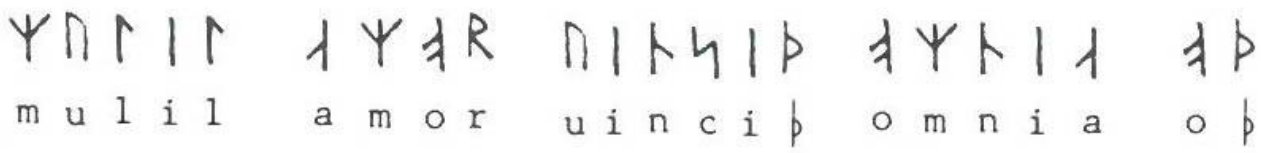
Numerous aspects of runes can make interpreting them difficult. For example, their individual usage and form morphed through time based on changing pronunciation of their letters. Further, they varied from place to place, they were produced by people with different levels of literacy, and they could represent different languages. Additionally, different forms might be used on different media, and sometimes archaic runes were even written on parchment well after more modern forms were carved into other materials (Seim, 1988).

The runes surviving on the original shoe are relatively straightforward to read because the letters are complete and legible and form a well-known phrase (except for the first word). Earlier studies resulted in some confusion between actual runes and elements of the nearby design aspects and/or areas of the shoe that were deformed or possibly missing, such as an insert at the instep.

For a discussion of the various runes more commonly found on items from Bergen, including their orthography and dating, see “A Review of the Runic Material” (Seim, 1988).



The complete runic alphabet for the inscriptions from Bergen (Seim, 1988).



The runes as they appear on the shoe. Notes: the same rune is used for “u” and “v”; the “o” and “r” of *amor* have been joined in a ligature, or bind-rune, a common practice to save effort or space by using one stroke instead of two. The “t” used in this context is the thorn character ᚦ and an “o” is used in ***et***, either by mistake or because of sound changes.

Making the Shoe

This general type of shoe, known as a turnshoe, consists of a sole and an upper. To make such a shoe, cut out a thick piece of leather for the sole, and a thinner, more flexible one for the upper. The upper will have a side seam, almost always found on the inside of the ankle, which is stitched before being attached to the sole. After the side seam is closed, the upper is stitched to the sole inside out. Once stitched all the way around, the shoe is soaked in water until soft enough to be turned right side out.

More information about making turnshoes can be found at my website (https://ShoesByRobert.com/techniques) and in the interest of brevity I will not go into great detail about the process here.

The Leather

Sole: 9-10 oz. (3.6-4.0 mm) Tandy vegetable-tanned cow leather.
Upper: 4 oz. (1.6 mm) Tandy vegetable-tanned cow leather.

With regard to the original material, Larsen (1992, p. 11) says this:

> In all, 9,624 accession numbers have been identified as the remains of footwear, consisting mostly of separate uppers, soles, toecaps, thongs and strips of leather. In only a few cases have the pieces been found so close together that they can be shown to belong to one and the same boot or shoe. ... For practical and economic reasons, it has not been possible to undertake a systematic analysis of the raw material, but randomly selected samples from three different types of upper and one sole have been analysed at the Garveriforsøgsstationen (Tanned Leather Research Centre) at Tåstrup in Denmark. According to the analyst's report the samples were made from calfskin, goatskin, sheepskin and horse hide. To what extent these four samples are representative for the raw materials which were used for the finds from Bryggen can only be confirmed or disproved by analysing a large number of samples.

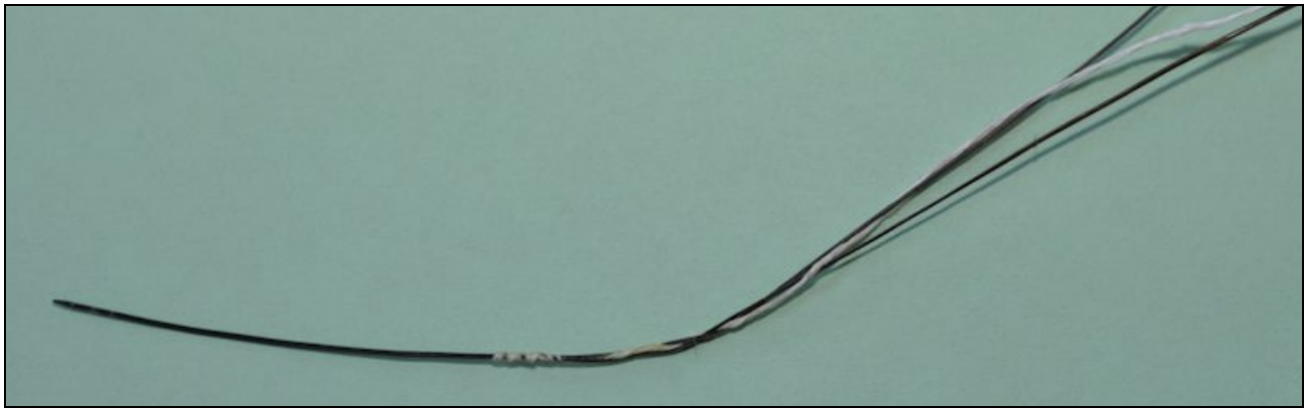
Neither the type nor the thickness of leather of the original shoe is reported anywhere that I have found. Cow leather was common, in general (Swann, 2001: 52), and readily available.

Original thickness is hard to determine after centuries in the ground. Ten oz. is about as thick as can be turned and will last the longest for the sole. The lighter 4 oz. upper is thick enough to embroider but thin enough to be flexible and comfortable.

The Sewing Thread

During our period, cordwainers and cobblers created and used “waxed ends” to stitch one piece of leather to another. They consist of a boar’s nose bristle carefully attached to drawn-out linen thread.

Waxed ends have some advantages over metal needles: they easily follow an awl's path made through the thickness of the leather; and they fit through small holes without catching (as often happens with the eye of a metal needle where the thread goes through it, making it relatively large). I also suspect that historically they cost much less than metal needles. They also do not rust, cause no harm if one sits on them, and don’t prick a careless user’s fingers.



A boar’s bristle with linen string attached. Made by the author. Scale is approx. life-size.

To create a waxed end for this project, I started with vintage single-ply #10 Barbour’s Irish long-fiber linen thread and made a three-ply cord. To that, I applied my own homemade coad. The effort results in an extremely finely drawn, sticky length of fiber.

(Coad mainly consists of two parts beeswax and one part resin or pitch, and sometimes other ingredients: there is no standard recipe. It serves to lock threads in place and protect them from rotting. To make coad, melt together the ingredients at 150°F for about 30 minutes in an oven until liquid. Pour the mixture into a bucket of lukewarm water and knead it thoroughly until no resin crystals remain. Divide it into pieces and form balls about the size of golf balls for ease of use.)

Next, I took a boar’s bristle and split it about half its length; this is not hard because most bristles split naturally and are already starting to come apart. I ran the bristle through a chunk of coad as well to make it stickier. (I did not have time to hunt and slay the boar, so I purchased a packet of bristles on eBay from someone in the southern US.)

Now, the tricky part: one must insert the thread between the split bristle's two parts and snug it against the crotch they form, with about half an inch protruding. Bend that against the lower bristle and then spin it counterclockwise while slowly winding the other thread down over it for its length. Once done, keep the bristle spinning while moving the thread back up over what was already laid down until reaching the split in the bristle.

Finally, twist one side of the split bristle and the main thread overhand for a couple of inches, then clamp the two bristle sides together and counter-twist them backwards. Hold them tightly and apply more coad so that they stick together.

(See https://shoesbyrobert.com/bristles/ for more details and videos on how to make waxed ends. See https://www.youtube.com/watch?v=oH9O2OfQ2lY for a video on how to make coad.)

The Pattern

In order to develop a pattern for this shoe, I took an existing one that I had developed for my own feet some time ago, and then modified it to include the short, hooked toe claw and have a bit more material at the instep. This particular style of shoe sports a side-tie opening near but separate from the upper's closing seam. It does seem like it would save time to use the same seam for both, but I believe it's stronger this way: the side-tie opening does not extend all the way from top to bottom, whereas the seam has to do so by its very nature.

The Color

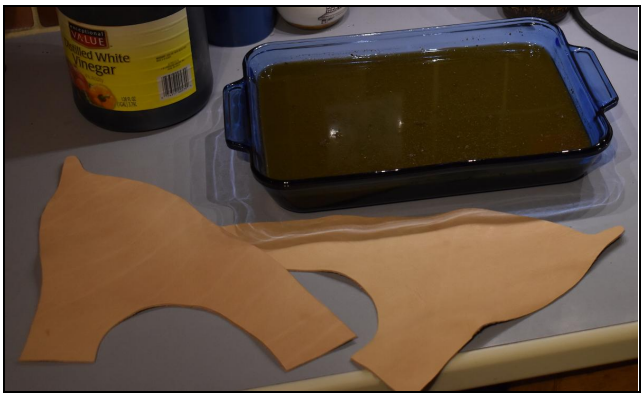
Without chemical analysis of each shoe found, we cannot be sure of its color, or even know whether it had any dye or other medium applied to it. All shoes excavated come out of the ground black.

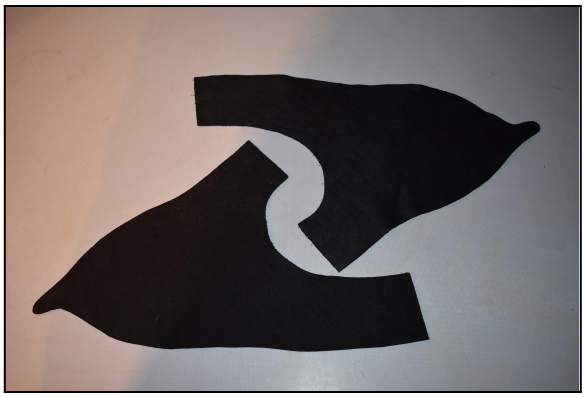
Because medieval manuscripts usually depict decorated shoes as black in color during the early Middle Ages, I decided to apply my own vinegaroon to the uppers. Vinegaroon is made by soaking iron in vinegar for a while, and may be brushed onto leather or used as a bath. It causes a chemical reaction with leather and will turn it black all the way through.

Based on previous experience, I know that even after thorough rinsing, the black can leach out and stain other materials when it is soaked again, as it will be during the turning step. Thus, I decided to embroider the shoe after turning, not wanting to risk the usual step of adding decoration beforehand.


Manuscript illustrations (probably) depicting embroidery on black shoes. Codex Manesse *6r (left) and* Hortus Deliciarum *(right).*


Manuscript illustrations (probably) depicting embroidery on black, claw-toed shoes just like the Bergen one. Ingeborg Psalter*. Danish, late 12th-century. Left: 41v, right: 105v.*

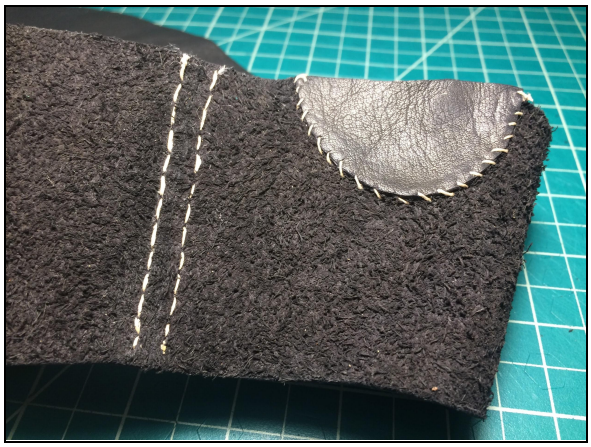




Undyed uppers (left) with vinegaroon and the same leather after dying (right).

After the uppers dried, I laid them flat and used a very sharp knife to incise them with the runes and decorative elements. See “Embroidery on Leather” below.

After that, I added the heel stiffeners and closed the side seams with the two ends butt-stitched together (the needle passes from one side and comes out through the thickness of the leather and then goes into the thickness and up out. Both needles follow the same holes. This is called a shoe- or saddle-maker’s stitch.)




A shoe upper with its side seam stitched closed and the heel stiffener added by whip-stitching the leather through the stiffener but staying within the thickness of the upper’s leather (left). A heel stiffener viewed from the inside and from the outside (right). Not all shoes had heel stiffeners, but this one did so it was added for this project.

Still life of shoe assembly in progress, boar's bristles, waxed ends, ball of coad, and vintage linen thread.

Shoe ready to turn. Note the toe will be left unstitched and closed later because long points such as this one cannot be turned.

Embroidery on Leather

Unlike cloth embroidery, leather-based work does not pass up and down through the material from one side to the other. Rather, it passes through the thickness of the leather, usually from one incision to another, leaving an area to be looped over. This technique means that the leather is not pierced from outside to inside and water will not then soak through holes when the top of the shoes become wet. Further, there is no thread on the inside to abrade or catch on the wearer's feet.

In terms of numbers, 413 shoes with evidence of embroidery have been found in Bergen. Designs range from simple strips running from toe to instep to elaborate geometric figures enclosing the front of the ankle to a combination of both (Hansen, 1992: 30-31).

Embroidering leather (from a previous project with three strips on the vamp from toe to instep):

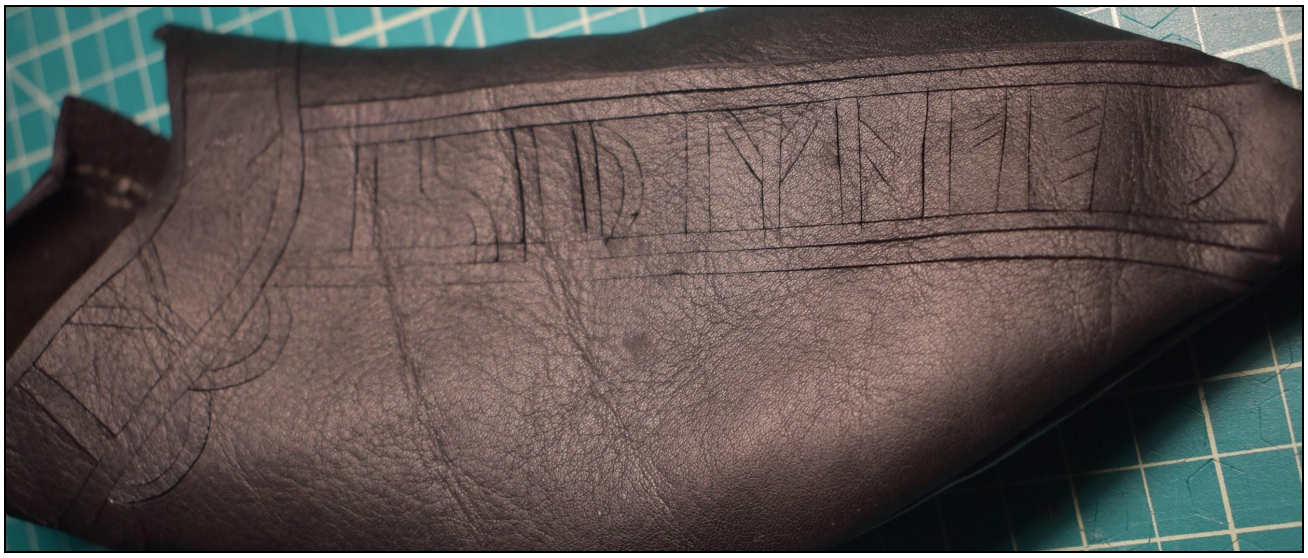
Close-up of the middle strip being added with a satin stitch (left) and close-up of the right strip being added next (right).

Close-up of the left strip being added (left) and the embroidered area seen from the inside of the top of the shoe where no stitches have come through (right).

The Incisions

Although it is quite clear that embroidery was added to shoes before they were turned, at least in some cases, as can be seen where the toe-to-instep lines cross the seam between upper and sole (Pedersen, 1992: 94), it's not necessarily the case that it always was, nor that it had to be. In the past I have embroidered strips and other designs on shoes and then turned them. Doing so previously has not hurt the embroidery, but it has always just been on the vamp, which doesn't receive much stress or abrasion during the turning.

In this project, however, I chose to embroider the shoes after turning them for two reasons: first, in past projects I have had vinegaroon leach out during turning, when the leather is wet and being stretched, pulled, and prodded, and I believe it had the potential to stain the silk; and second, with this amount of embroidery, I was concerned that the work on the ankles, near the toes, and on the sides might be damaged during turning.



A view of the inscribed design before embroidering it.

Regardless of when the embroidery happens, the incisions must be done before turning because cutting them into the leather on a three-dimensional, unsupported object does not appear to be feasible, at least at my skill level. Perhaps, though, a last could be used to support the leather after turning, but it would still be awkward to work in 3D and make even, shallow cuts. Thus, I used a very sharp knife to incise the leather totally free hand, except for the long strips down the vamp where I used a straight edge for a consistent line.

After turning the shoes, I applied the embroidery silk to the design. This meant constantly turning the shoe one way or another and pinching the leather enough to open the incisions. I do believe that embroidering after turning significantly increased the time spent on this

task because of awkward places that did not pinch well on account of the leather not wanting to flex as I wished. Because the upper had been stitched to the sole and could not bend in certain directions, I spent more time manipulating the leather and being careful where to direct the needle. Also, I broke and bent several needles, probably because the leather wouldn't pinch well to open the incisions in some locations.

The Embroidery Thread

At Bergen, 38 uppers have retained traces of embroidery thread (Pedersen, 1992: 95), although this shoe was not one of them. Unspun silk was used in all of those cases, and the thread is colored red or gold and has kept its bright and glossy characteristics during its time in the ground (Pedersen, 1992: 98). Likewise, silk on embroidered shoes from Opole, Poland, dating from the 10th-13th centuries, varies in color from brownish-gold to brownish-red (Norska-Gulkoa, 1964: 17).

My version of the shoes required about 785 ft. / 240m of red 2-ply filament silk applied two strands per pass by looping it through a needle eye. The gold elements took about the same amount, but they were not tracked as closely. Silk was purchased from Miram's Yarns and Fibers (https://www.facebook.com/Miriams-Yarns-and-Fibers-181700691933895/).

The silk's sheen is beautiful against the black leather.

Some may think that silk would be too expensive for use on shoes, but given the sheer number of them that once had embroidery, it may not have been as limited as one might suppose. See "Luxury for Everyone? Embroideries on Leather Shoes and the Consumption of Silk Yarn in 11th-13th Century Northern Europe" (Hansen, 2015) for a discussion on possibilities.

The silk as purchased (right). About 1.20 bundles of each color was used. (Each bundle separates into five smaller ones that are then carefully wound onto a wooden spool for ease of use.)

The Stitches

The vast majority of embroidered shoes found so far use either a satin stitch or a raised fishbone stitch. In the former, the embroidery thread simply loops around and around, with each pass of the needle offset from the previous one just enough to prevent gaps of color on each pass through. For the latter, one pass of the needle goes through the leather at right angles to the incisions; the reverse path moves diagonally along the design and returns to the origin. My shoes use only the satin stitch, about 7,500 of them in total.

As for applying the silk thread, I used a tiny #12 glovers' needle on the right shoe, and for comparison's sake, a mix of #10 and #8 glovers' needles on the left shoe. The latter sizes proved to be easier and more comfortable to work with.

In the past I have embroidered with boar's bristle needles, and that works, but it takes considerably longer because of the need to make a hole with an awl for every pass before pushing the needle through, not to mention attaching the thread to it frequently. A glovers' needle pushes right through the leather so there's no need to switch tools.

Working with silk thread in general takes patience because it can waft around and catch on bits of leather, rough skin on the hand, etc. In my experience, itt works best in lengths about an arm span long and it's best to apply a hand cream designed for working with it before each embroidery session.

Various stages during the embroidery:


The decorative loops incised on the upper before it was attached to the sole (left). Vamp letters complete (right).


Vamp inner strips done (left). Vamp outer strips done (right).


Ankle decorations complete (left). Ankle letters in progress (right).

Conclusions

By no means is it clear who made the original shoe and added the embroidery. The shoemaker may have been itinerant or established; full-time or part-time; native or foreign; working alone or in a shop with others. We do know that “[i]n Bergen German shoemakers controlled the craft and strictly excluded foreigners,” at least by the second half of the 13th century and possibly earlier (Wubs-Mrozewicz, 2005: 9).

Nor do we know who wore it originally, i.e., an extraordinarily rich person, someone moderately wealthy, or a person of more modest means. It could have been worn by a local, or by a visitor. The fact that it was indeed worn is indicated by the apparent wear on the sole, indicating its use for more than a single occasion.

I am not convinced as Swann is (2001: 61) that “we can only guess at the wealth needed to create such sumptuous shoes, and marvel at the skill of the embroiderer. For this was not normal shoemaker work: it would have been done by a different worker and is highly professional.” It took me 60 hours to embroider the shoes. If you assign my time at $x dollars per hour you can easily get a value. If you hold that labor in the 12th century was readily available and wages therefore relatively low, and if you suppose someone could do the work in half the time because they were more practiced, again, you can arrive at a value for the decoration.

In my (rather limited) experience it takes little skill to add embroidery of this sort. Patience, yes, and dexterity and good eyesight and lighting, but there’s no reason at all that a normal shoemaker could not execute the design, nor the needlework. It seems that if one can make a shoe, one can decorate it with additional silk provided the cost of that material and the additional time is covered.

Lessons Learned and Things to Improve and Explore

First, it would be interesting to make another pair, but execute the embroidery while the upper is flat, before turning it and attaching the sole, in order to compare the time it takes to complete. This could be done on undyed leather so as not to risk staining the silk. There would still be the risk of ruining the embroidery, though, during the turning.

Second, don’t mess up the design. That was a result of being too hasty. (The left shoe has a bad execution of the design around the side-tie.) Further, there is an extra “I” character as the first letter at the instep. This resulted from me confusing a bit of decoration with a runic letter on the original deformed shoe.

Third, as mentioned, runes changed through time for various reasons. I may have erred when deciding which ones to use on the left shoe in one or two cases. I was guided primarily by those used on the original shoe, but it did not have all the characters needed for the left. I tried to determine as best I could via my references that discuss runes, but my choices may be technically incorrect for one reason or another.

Acknowledgements

The surviving shoe is held by the University Museum in Bergen, cataloged as Acc. No. BRM 0/52927. Photos illustrating this conserved shoe, and others, are available on the web from the Bergen Universitetsmuseet site at http://www.unimus.no/foto/#/search?q=bryggen%20sko licensed CC BY-NC-ND 3.0 (https://creativecommons.org/licenses/by-nc-nd/3.0/).

In order to be sure of certain details concerning these shoes, I emailed Gitte Hansen and Espen Kutschera, who are with the Dept. of Cultural History at the University Museum in Bergen and the Bergen City Museum. They graciously responded and answered my questions. Further, they shared some publications and unpublished drawings that helped in understanding the shoe's construction and design.

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Ingeborg Psalter:

http://www.getty.edu/art/collection/artists/11379/master-of-the-ingeborg-psalter-french-active-about-1195-about-1210/ (accessed 3/9/20). See https://en.wikipedia.org/wiki/Ingeborg_Psalter for dating and other details.

Photo source #1, the shoe upper, sole, and heel stiffener: Image from the Bergen Universitetsmuseet Fotoportal: http://www.unimus.no/foto/imageviewer.html#/?id=13029639&type=jpeg

Photo source # 2, the black-and-white shoe upper: Image from the Bergen Universitetsmuseet fotoportal: http://www.unimus.no/foto/imageviewer.html#/?id=12751816&type=jpeg

Photo source # 3, cropped zooms from #2 above: Image from the Bergen Universitetsmuseet fotoportal: http://www.unimus.no/foto/imageviewer.html#/?id=12751816&type=jpeg

Beati Sutores in Æternum.

Supplementary Notes

Of the **embroidery threa**d on the shoes recovered from Bergen: “It consists of a number of silk fibre threads which have not apparently been spun, although in some cases they lie with a slight z-spin. The average thickness of the thread has been measured in five cases and the result varies from 0.72mm to 1.37mm, the large variation probably being due to the degree of preservation” (Pedersen, 1992: 99).

Concerning the **stitching density** on the Bergen shoes: “Since the medieval embroideries show variations in stitch width, the number of stiches [sic] per cm as well as in the type of stiches [sic] applied it is not possible to be exact in the estimate of the amount of yarn used for the different patterns” (Hansen, 2015: 89).

On the **ubiquity of embroidered shoes** in Bergen: “The large shares of embroidered shoes in the Norwegian towns and the 11th century distribution of shoes, within the broad variety of patterns witnessed in Bergen, suggest that people with relatively low as well as high economic capacity now were able to acquire embroidered shoes. This must have been made possible by rather low prices on silk yarn. The silk in itself was thus no longer a powerful class signifier. However, shoes in elaborate patterns that demanded much silk yarn, as well as knowledge of how to compose up-to-date designs, would in all likelihood have signalled [sic] that the wearer belonged to a group of people with economic as well as cultural capital, so to speak. The most elaborate and resource demanding shoes were probably a sign of wealth (Hansen, 2015: 98).

Appendix A: The Development of Embroidered Shoes

The shoe reproduced in this study did not arise *ex nihilo*, but rather represents the apex of embroidered shoes in the Middle Ages.

Early shoes were constructed from one piece of leather: they had seams running up the back of the heel and descending from the ankle (instep) to the toe down the center of the shoe (the vamp). Given people's propensity to decorate things, these functional front seams soon became a place to apply elaborate stitching and colorful thread (Goubitz, 2007: 45).

The front seam remained functional until the two-piece turnshoe was developed, at which point no seam was needed on the vamp. However, shoemakers continued to produce shoes with a seam on the front, albeit one that was totally vestigial. This now purely decorative seam continued to be created by pinching the leather together and stitching it so that it resembled a functional stitch.

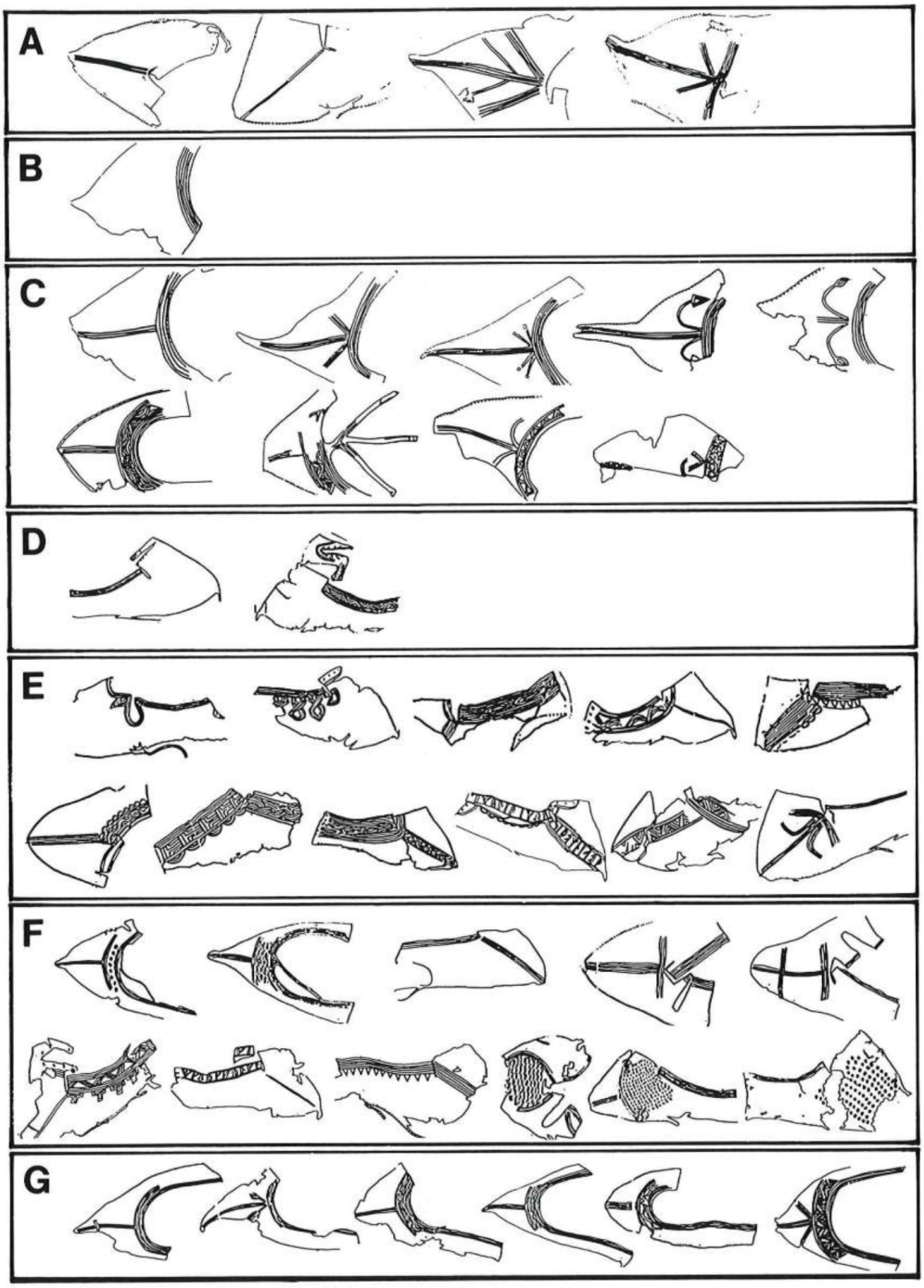
Single-piece shoe with functional seam.

Single-piece shoe with decorated functional seam.

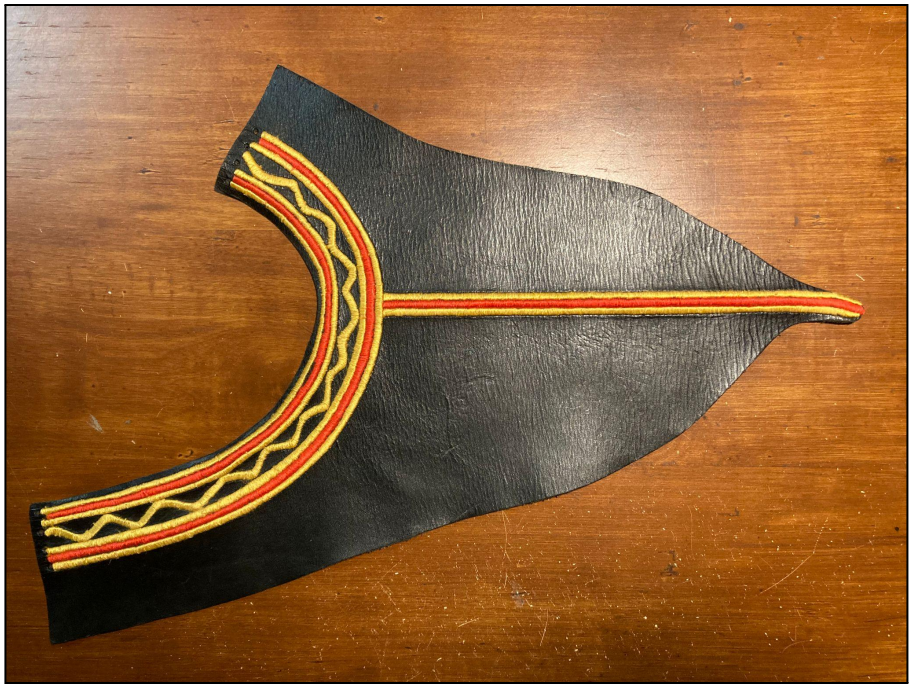
Two-piece turnshoe with purely decorative embroidered stitching in place of a seam.

After some time passed, people realized they could forgo a stitch that looked functional and replace it with a purely decorative stitch. The vast majority of embroidered shoes sport a simple single or triple-row band of colored silk thread running from ankle to toe.

However, there always has to be someone to press style forward and show off their wealth, and there is no exception when it comes to embroidery on shoes. The finds from Bergen alone prove this, as displayed in the following illustrations of some of the designs discovered there during excavations (after Larsen, 1992: 31).



Photos of conserved shoes from Bryggens Museum in Bergen, Norway, by Michael J. Fuller, posted to Facebook July 14, 2019, used with permission. These images depict the embroidery patterns that once adorned the shoes.



The author's current project, using another design from Bergen.