

Thanks, Cranach! A Band Loom from 1510

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I'm always looking for surviving medieval bands and images of band-weaving in art. A painting from around 1510 by Lucas Cranach the Elder, "The Holy Family surrounded by Angels & Education of the Virgin Mary," shows Mary weaving on a band loom with several interesting features (Cranach, 1510). Most obviously, it's an upright



Figure 1. Altar panels painted by Lucas Cranach the Elder around 1510. a. Overview of the panels. b. Mary at the loom.

loom, rather than the more familiar medieval horizontal band loom.

This loom has sometimes been interpreted as a sprang frame, but three attributes point to weaving instead.

- The fabric is produced only at the bottom, with loose warp at the top (Fig. 1b).
- The presence of heddles and heddle bars (Fig. 2a).
- The presence of a bobbin/shuttle (Fig. 2b).

The identification as a sprang frame seems to be based on the upright nature of the loom and on Mary's hand position holding two layers of warp (Fig. 2a). While that

hand position is characteristic of warp manipulation for sprang, it's equally characteristic of warp manipulation for pick-up patterns or brocading. The presence of only one bobbin suggests pickup, but it's impossible to tell from the pattern of heraldic frets (Fig. 2c), which could easily be pickup or brocade. There's much more evidence among medieval European textiles for brocading than there is for bands with pick-up patterning. (I would like it to be the latter, but the best I can say is that it isn't clearly not pickup patterning.) A two-beam vertical loom has been used for larger fabric from at least Roman Europe (Brandenburg, 2016), and particularly for rugs and tapestries

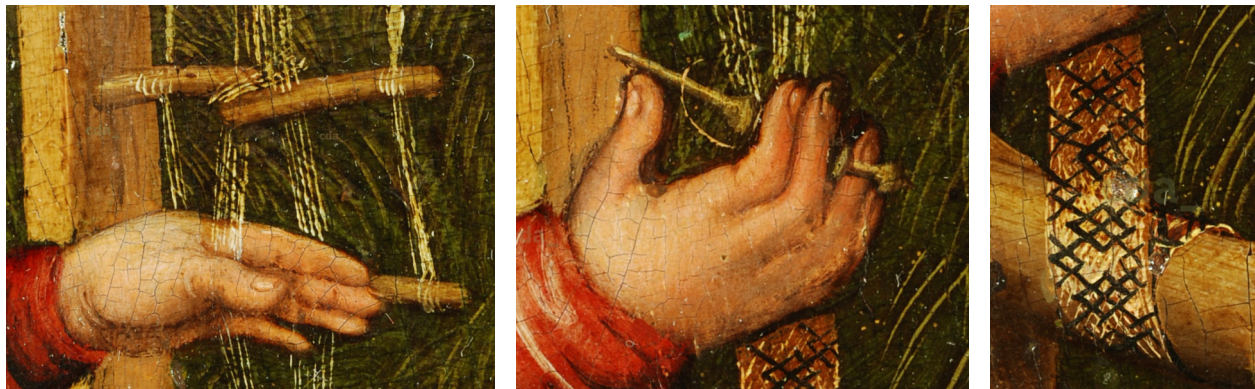


Figure 2. Three details of the weaving. a. Mary's left hand and heddles. b. Mary's right hand and bobbin. c. Band wound on cloth beam.

during the later Middle Ages (Walton Rogers, 2001) and beyond.

The cloth end seems to be the familiar ratchet and pawl mechanism seen on medieval and modern looms, allowing the band to be wound onto the cloth beam and held under tension by only rotating in one direction. No pawl is visible, but something has to keep the cloth beam from turning. There could be a pawl only on the far side, or it



Figure 3. Upper bar of the loom.

could have been omitted by the artist.

The warp end, though, initially perplexed me (Fig. 3). The pegs along the top clearly anchor the ribbons holding the heddles, but it appears that the warp is also looped around one of these pegs. That would be adequate for short warps the length of the frame, but the length of band wrapped around the cloth beam indicates a longer warp, so there must be a way to hold that warp length that simply isn't shown in the painting.

The heddles were another source of confusion (Fig. 2a). If there's no unheddled shed, then two heddle bars are needed for plain weave, as shown in the painting. But I could not figure out any possible reason for the upper bar at least to appear to be split. The fuzzy area in front of the warp could plausibly be string heddles, but why would the heddle bar be in two parts? That would make it impossible to lift the shed easily, and



Figure 4. Two traditional Norwegian band looms recorded by Anna Grostøl.
a. Weighted warp (Grostøl, 1939). b. Warp beam (Grostøl, 1935).

also make it possible for the string heddles to slide off.

I was unable to find any medieval or Renaissance looms as either art or artifact that were related to this vertical band loom, but there's a traditional Norwegian folk loom that looks very similar, and gave me an idea for how to make a vertical loom in this style function effectively: a weight! Where warp-weighted looms for cloth hang down, I've often set up warp weights for tablet weaving such that the warp extends horizontally or slightly upward, and then is pulled down by the weights. I often use the back of a chair for that. Working in that fashion keeps the weaving near the weaver, and readily

accessed for the complex manipulations of band weaving. This vertical loom, with the band rising from the bottom, could serve much the same role. In the Norwegian looms, the weight is a single heavy stone, to which the warp is tied.

Anna Grøstøl traveled around Norway photographing and recording activities of daily life, including weaving. Two band looms are particularly relevant. The first is from 1939 (Grøstøl, 1939a), and shows a woman at a band loom with a lower ratchet and pawl, a patterned band building upward, a heddle bar with string heddles extending the width of the loom and resting in notches (unlike the Cranach loom), and a large donut-shaped stone weight hanging behind.

The second loom, photographed in 1935 (Grøstøl, 1935), has a warp beam with ratchet near the top of the vertical frame, as well as the cloth beam at the bottom. The warp comes together at the top much like the Cranach loom, but the latter clearly does not have a second beam for the warp.

Grøstøl recorded video as well as photographs, and the 1939 band weaving video hosted by the Norsk Folkemuseum is well worth a detailed viewing (Grøstøl, 1939b). The first segment of the video shows a woman warping and weaving on this type of band loom. Although the loom has a warp beam, she runs the warp over the top and ties it to a weight anyway. Detailed video of tying the heddles shows the heddle strings attached to a separate cord tightly fixed to the heddle bar, rather than to the bar itself. The warp is moved away from the heddle bar to create the shed, rather than the bar itself being moved. This way of working would be much easier with a weight, rather than a fixed warp. She is shown weaving a pickup pattern.

With a more delicate warp with much less weight, it might be quicker and easier to suspend them from ribbons, as shown in the Cranach painting. The ribbon in that example is fastened on the warp beam, wraps around the upper heddle bar, and then terminates around the lower heddle bar.

Given the information provided by the painting, and my research and thinking about how the various missing or incomplete components might function, could I build a functional model? I started with a vertical PVC frame, since it's easy to construct and can be adjusted to try different configurations (Fig. 5). I did not create a rolling cloth beam, merely clipped the warp to the bottom crossbar. For the weight, I used a water



Figure 5. Front and side views of my PVC version of the Cranach loom.

bottle, which allowed me to adjust the heaviness to my liking. I set up the warp for double weave for my own amusement, rather than for any particular historical purpose or period.

For the heddle bars (Fig. 6), I used dowels a bit longer than the width of the loom, partly because I had them already, and partly because it seemed easier to work with them if they stayed in place when not handling them. I used ribbon knotted to the top bar to hold them, making sure that the upper and lower heddle bars were well-



Figure 6. Heddle bars on my PVC version of the Cranach loom.

separated. A ribbon less prone to coming untied would be an advantage.

I tied the lower heddles around a separate cord (blue) in the fashion of the Norwegian folk looms, and the upper heddles directly around the heddle bar, which is the way I normally construct string heddles. I found the Norwegian heddles to be fussier to tie and more prone to slipping. This may be because I'm missing aspects of the technique.

I found this loom very pleasant to weave on if placed on a table so that the working area was convenient to my hands and eyes. Weaving bands with a weight on the warp gives great flexibility to adjust the warp or to release tension briefly, somewhat like a backstrap loom, while the loom makes it possible to step away from the weaving. The vertical frame keeps the band at a more ergonomic angle than a horizontal loom might.

I plan to continue using this kind of loom for band-weaving. I don't think it would work well with a rigid heddle since those are easier on a horizontal warp, but any band with string heddles and pickup is well-suited. The ribbons holding the heddle bars in place make working with them quite easy. Gravity would be more of a challenge with a rigid heddle. I find the vertical warp to be comfortable for both hand and eye while weaving pickup patterns. I'm eager to try tablet weaving on this loom type too, with additional weights for the individual tablets. I purchased a wooden ratchet and pawl to facilitate constructing a wooden model with a cloth beam that is more attractive than my PVC experiment, and looks more like the Cranach loom. A slightly wider top bar would hold the warp and weights farther apart. I didn't have any trouble with tangling with my model, but adding more weights for tablet weaving might cause problems.

Medieval and Renaissance art often depicts Biblical figures wearing high-class clothing and engaged in high-class activities from the time of the painting. It seems clear that Cranach had seen someone weaving on a vertical band loom, although perhaps he wasn't familiar with the details. My version of the loom makes some assumptions about the parts not clearly visible in the painting, particularly on how the warp is handled. The Cranach loom is pleasant to weave on, and particularly nice for pickup patterned bands where the warps need to be manipulated. This loom design from about 1510 offers an alternative to the box loom or the backstrap (or the modern inkle loom) for both modern weavers and those concerned with historical authenticity in their equipment.

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