

Cut and Construction of the Pleatwork Embroidered Shirt

Circa early - mid 1500s

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Background and History

The shirts and undershirts prior to the late 1400's are of rectangular construction, generally in the shape of a T (see Figure 1). By the late 15th century the shirts were becoming fuller and as time and fashion progressed until the middle of the 16th century where it once again slimmed down, most likely to fit inside much tighter fitting doublets.

Pleat Work

Arguments are often given that the embroidery on the garments seen in the portraiture cannot be smocking because it is not adding to the structure of the garment itself. Even modernly it is considered a combination of the surface embroidery used in the design and the pleating used as the ground for the embroidery. If we consider the tight pleating seen in the portraitures, such as the Durer Self Portrait of 1498 (Plate1) as a ground for the "pleat work" the definition of smocking or pleatwork broadens. The pleating becomes a ground for the embroidery and

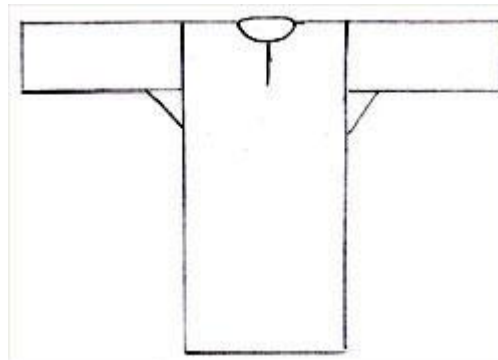


Figure 1: T shaped rectangular shirt construction



Plate 1: Durer Self Portrait 1498

any form of embroidery normally done on a flat ground can be done on the pleated surfaces. Dr. Zander-Seidel, describes a period term for this as 'fitz-arbeit' (pleat work), modernly called 'smok-arbeit' or smock work (Seidel n.p).

Further support!for the usage of pleatwork on garments is verified through sumptuary laws prohibiting certain types of embroidery and embellishment, regionally, depending on the social status. In 1493 and again in 1583, in the sumptuary laws in Nuremberg, shirts embroidered with pearls, having pearls "fastened thereon" and other embroidery "pleated or gathered in gold and silver" were prohibited for all except for the Patrician (Seidel 72-74).

Trim vs. Embroidery

When examining portraiture from the early 16th century an argument can always be made for trim vs. embroidery. It was not mutually exclusive. In studying the Durer self-portraits from the end of the 15th it is clear that trim and embroidery were used in conjunction with each other. Trim would have been very expensive and as such, again used on just the best garments or only those who could afford it. Bands of heavy trim, most likely tablet woven and often heavily embellished., were reserved for those of the highest echelon.

A shirt fragment from the Alpirsbach (Plate 2) monastery has a strip of lace overlaying the pleats. It also verifies the usage of a backing fabric, which would provide a smooth surface against the skin and to help stabilize the pleats.



Plate 2: Shirt fragments from the Alpirsbach



Plate 3: Mass at Bolsena by Raffaello Sanzio

Styles, Shapes and Embroidery

Transitioning from the rectangular construction of the pre 1500s, this shape features a low, scooped neckline. The shirts represented in the fresco of the Mass at Bolsena in the Palazzi Pontifici in the Vactican, painted by Raffaello Sanzio (Plate 3), are typical of the shirts seen throughout the artwork of this period.

The construction of these shirts could be done in a number of different ways, each giving a slightly different silhouette. One version is not necessarily exclusive of the other. It is likely that all were used depending on the fashion of the region.

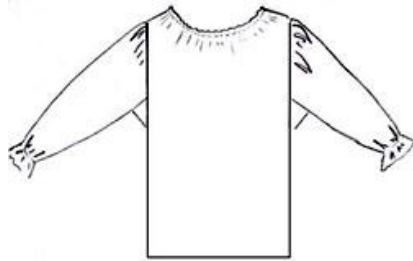


Figure 3

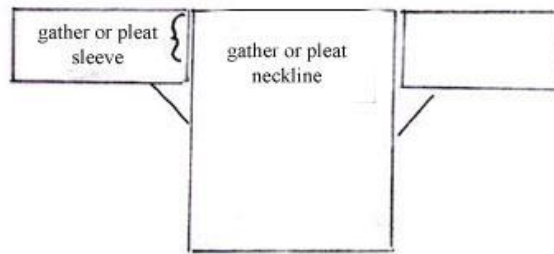


Fig 3a: layout

Figures 3 and 3a show the shape and layout of one construction style. The wide shirt neckline from the earlier styles is simply gathered / pleated up.

The sleeves can be straight or gathered as well. The cuff treatment

would also vary from straight to gathered/pleated. This is likely a transition style from the non-pleated to the pleated shirts.

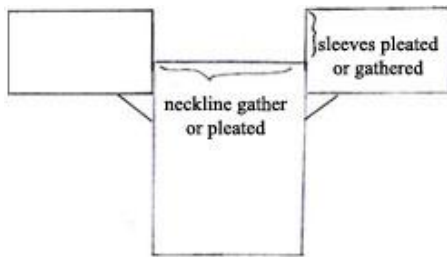


Figure 4

The Durer self-portrait of 1498 (Plate 1) gives some thought to an alternative shirt style based around the widening necklines. The sleeves are raised so that they are no longer even with the shoulder seams. The wide center panels are then pleated up to give the fashionable fullness, the sleeves left straight over the shoulder or gathered / pleated to give the silhouette we see in the fresco image. (see Figure 4).

Figure 5 would appear to be more representative of what is seen in the artwork: the gathers are fuller about the neck and shoulders and there are no obvious shoulder seams. This garment would mark the transitional garment to those of the next 30-40 years.

The pattern layout and construction of this garment is open to debate. As with any other type of clothing construction it is unlikely that there was just one way to achieve the desired look.

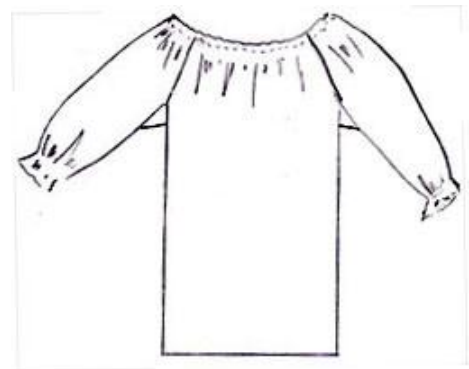


Figure 5

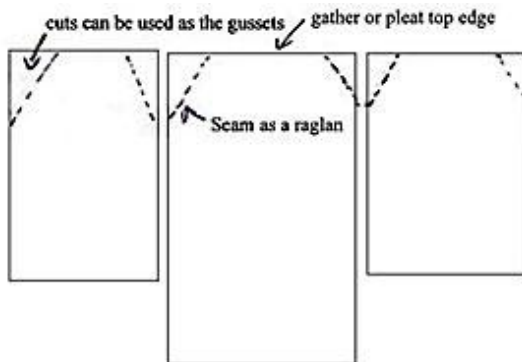


Figure 5a: layout based on modern construction techniques

The layout in Figure 5a is based on modern construction techniques. It is probably the most common way people duplicate the silhouette.

It is very unlikely that this was the layout used for the shirt because it does not follow the typical rectangular format that the majority of the clothing from this time is based around.

A more plausible layout is one that could carry forward into the shirts of the next decades. This layout (Figure 5b) still follows rectangular construction but the sleeves are now parallel to the body when constructing the garment. The entire top edge would then be gathered/pleated up and drawn up into the circle garment portrayed in the artwork. Gussets would be used under the arms to provide ease.

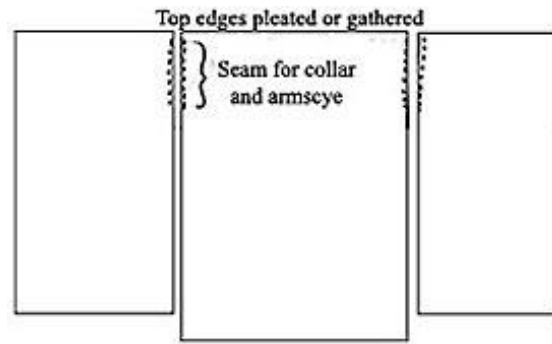


Figure 5b: Layout out based on rectangular construction

Regardless of the number of variations on the layout and construction of this basic shirt style the embroidery treatment was just as varied. It is narrow or wide, combined with trim or utilized on its own. In most of these shirts, the embroidery is simple. It serves as a decorative means of controlling the pleats.



Plate 4: Portrait of a Young Man

In the Portrait of a Young Man by Ambroisius Holbein (Plate 4), painted in 1518, the actual embroidery on the neckline could be done in a number of ways; the most obvious would be a variation of the honeycomb stitch. This would create the pleat shape shown in the portrait while providing structure. The extra pleating behind and underneath the raised diamond shaped design suggest however that a stitch more related to the modern trellis forming a raised effect, but using more pleats to create the pattern.

that would not take into effect the small v patterns inside the chevrons.

If you then consider the possibility of pattern darning being laid through the pleating the design begins to make more sense. The stitch is not elastic and thus adds structure to the neckline. Another possibility is that the embroidery is done in a variation of satin stitch worked over the pleats almost in a fretwork like pattern. This style of stitching is found in post-period folk garments throughout the Spanish and Slavic communities. (Keay 27-28.)

Higher Rounded necklines with embroidery or trim - 1510-1530s

This style likely evolved from the earlier fashion as styles changed. The neckline becomes slightly higher, closer to the collarbone and the shirt becomes more of a fashion item with embroidery or trim that is more visible. The basic shape will continue to stay the same; the pleating/gathering around the neckline from the earlier styles would only have to be drawn tighter to raise the actual neckline.



Plate 6: Georg Gisze by Holbein

This style carried though the early 1530s, the embroidery continuing to be influenced by the fashion trends of the time. A good example of this would be the influence of blackwork and other similar colored embroideries on clothing. The stitch can be done through the pleating following a form of blackwork: back stitch or double running, the pleats replace the threads counted for the patterns.



Plate 5: Jakob Meyer

Higher Rounded Neckline: no discernable front opening - 1520s through 1530s



As the early 1500s progressed the necklines on many of the shirts began to rise up above the collars as the top layers of the clothing become more voluminous and showy. This style of shirt likely evolved from the earlier styles by drawing the neckline up into a collar (Figure 6). A possible layout is shown in Figure 6a. The layout is the same as for the earlier shirts, but the neckline is drawn up tighter.

An article in the Livrustkammaren, a Journal of the Royal Armory of Sweden, discussing the evolution of the shirt adds that:

“the sleeves had been drawn up towards the low neck and the slit had been moved to the side of the neck along the seam between the frontpiece and the sleeve^(Nyeln 275)”

Figure 6

Alternately, a variation on the rectangular construction could be adapted to this shirt style, with the sleeves inset into the sides of the front and back panels, short seams creating the collar and shoulders of the garment (see Figure 6b).

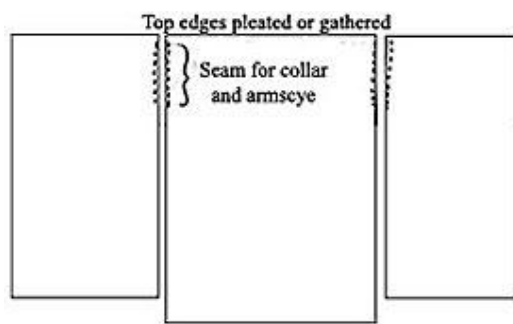


Figure 6a : Layout for shirt

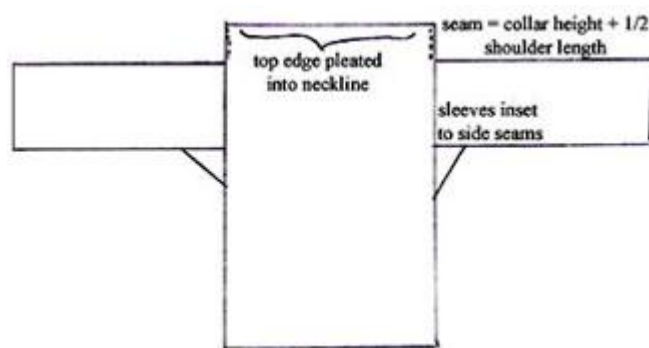


Figure 6b : alternate layout

The construction for both layouts is similar. The front and back panels and/or the sleeves would be pleated into one piece and then the embroidery would be done on the pleats or through the pleats. The edge treatment on the shirts varies from a fine ruffle close to the edge to a rounded top edge made by folding over the fabric and pleating it into the neckline or by adding a small finishing band over the raw edges. The neck closures would follow one of the seam lines at the shoulders, as the shirts would be impossible to pull over the head due to the inelasticity of the embroidery or trim on the pleating.



Plate 7: Phillip von Hessen by Hans Krell

An example of a side-opening is shown in a portrait of Landgraf Phillip von Hessen by Hans Krell done in 1525 (Plate 7).

The embroidery on the shirts of this era tends to be of a similar style: whitework in some form. The actual embroidery is as varied as the regions and social class level of the sitter. Simple honeycomb-shaped embroidery is seen in such portraits as that Nicolaus Kremer's Portrait of a Nobleman c1529 (Plate 8). More elaborate neckline treatments can be seen throughout the portraiture of the time period.



Plate 8: Nobleman/Kremer

Higher Neck - Full Collar –center opening - 1520s to 1540s

Fashion began to move the necklines up higher and instead of hiding the finished neck edge it began to be left as a ruffle above the trim and / or embroidery. If the portraits are explored the transition can be seen from these earlier styles to those of the mid century with the fuller ruffs. Like the shirts of the earlier decades, the styles and embroideries varied greatly. The silhouette of the shirts did not vary much. They all had variations on a high collar,



Plate 9: Henry VIII by Holbein

topped either by a band or a ruff and they were all center-front opening. The same construction techniques from the earlier styles of non-and side-opening shirts will apply.

A shirt shown on a portrait of Henry VIII by Holbein, painted in 1536 (Plate 9), has a seam in the shape of a “V” along the top of the shoulder.

A layout such as is shown in Figures 9 and 9a would produce this type of shoulder treatment. The front and back are sewn together at the top edge the length. The sleeves are then set into the sides of the garment forming a sloped sleeve head as depicted in the Holbein portrait.

This construction style would have been a much more economical use of the fabrics, which were by now strictly controlled by the guilds and heavily taxed.

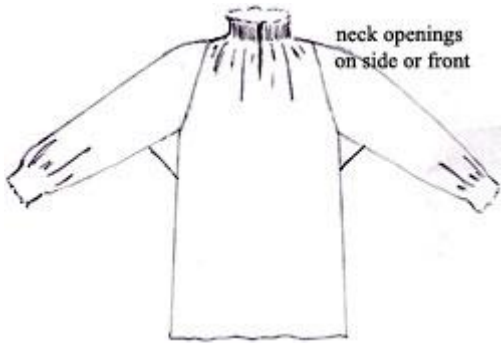


Figure 9

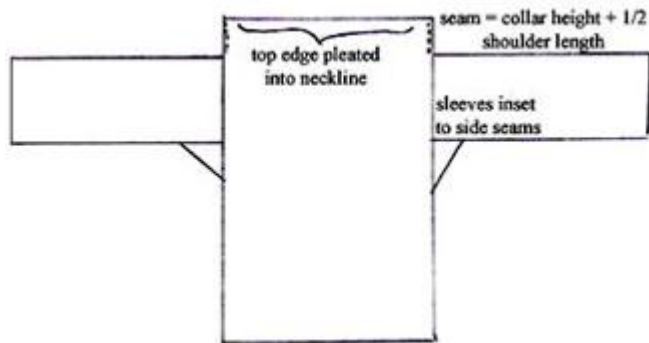


Figure 9a: possible layout

In the Germanic regions the styles were represented mainly by elaborate whitework done on or over the pleating. Holbein, paintings and woodcuts from about 1532 to 1536 in both Germany and England and other regions documented this style extensively. Even though there are no extant garments featuring this work on the shirts in existence, there are numerous extant samples of whitework on other items, such as linens, chalice and altar cloths, a style originating back to the 12th century.



Plate 10: Barthel Beham, Karl V



Plate 11: Derich Born by Holbein

Blackwork continues to be seen in this time period in the embroideries. As it becomes more and more popular for fashion it shows up on the necklines of the shirts as in the shirt on the portrait by Holbein of Deitrich Born (Plate 11).

Considerable argument can be made that these would be bands embroidered in blackwork, but it is also very possible that the patterns were done on the pleating directly, counting pleats for the pattern instead of threads.

Colored embroidery also begins to be seen more in this last time period before disappearing into separate collars and neck ruffs. The most obvious proof for embroidered pleats can be seen the painting Venetian gentleman by Jan van Scorel (Plate 12), painted in 1520. In the close up you can easily see the stitches through pleated fabric. This was most likely done in a form similar to blackwork, either by a double running stitch or a backstitch.



Plate 12: Venetian gentleman by van Scorel

It is to be noted that the fabric was extremely fine. In order to put the number of stitches in the design as it is shown, there would have to be approximately 16 pleats per ¼ inch. Using 1/8 inch stitches for the gathering threads that would equate to 4 inches of fabric / ¼ or 1 inch of pleats to 16 inches of fabric. Considering a typical 16 inch neckline, leaving allowance for ease, it would require a neckline edge, unpleated, of 256 inches or 7 yards. It would require very fine linen in order for this much fabric to be drawn up this tightly without adding substantial bulk.

Shirts post 1540s

As fashion progressed in much of the European area from the full over-garments to the tighter fitting doublets and jackets, the shirts worn under these garments also changed. No longer were the full elaborate shirts in fashion, as they were no longer seen through the outer garments.

Necklines and sleeves or cuffs were now the visible parts of the garment and a shift back to the slimmer lines took place. By the middle of the century the clothing began to have a separate ruff, thus ending the need for an integral ruff in the shirts. In fact, in 1532, Willibald Pirckheimer had in his clothing inventory:

27 linen ruffs (Kragen) "smocked and unsmocked so a person can place and sew it to a shirt" (Seidel 202-206)

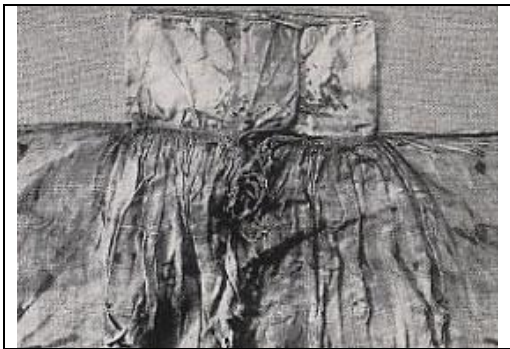


Plate 13: Venetian Shirt c 1583

In 1583 a Venetian merchant ship was wrecked off the coast of the island Gnalic (Plate 13). Three shirts were found from this wreck. Close examination of the shirt as it goes into the collar shows very tiny stitches holding the pleating in place. (Flury-Lemberg 328)

The Sture shirt (Plate 14) is one of 4 shirts, two fancy and two without collars, found in a strongbox and dating from 1567. The neckline and the sleeves of the shirt are tightly pleated as they are attached into the collar and the cuffs. The pleating is estimated at approximately 14 pleats/cm (Nyeln 238). A very simple outline or stem stitch holds the pleating in place.



Plate 14: Sture Shirt

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How –to-Guide
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It would be wonderful to be able to say. So you want to make this style of shirt with this type of embroidery, so you will need this much fabric. This is difficult because how much fabric you require is dependent on the finished dimensions of the piece, the number of pleats you need for the design (esp. if its counted), the amount of fabric you have to pleat into this finished area, the thickness of the fabric and how narrow the resulting pleats need to be.

When reconstructing period garments this becomes even more difficult to replicate. The fabrics that would have been used for pleated embroidered garments varied by availability and by class. A peasant would not have the same fabric available to them, as would a merchant class or a noble class. Such fabrics as fine silk and linen lawns would have most likely been used for the finely pleated garments such as some of the shirts and chemises. Heavier linens and even wools would have possibly been used for some of the coarser garments.

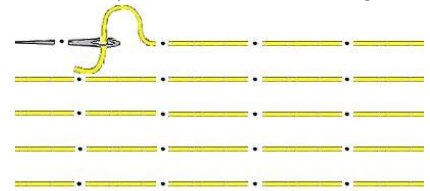
Regardless of fabric type, it is trial and error to figure out how much or how little to pleat up your fabric. To help some of this, put it in perspective of a ratio between fabric width before pleating vs desired width, the number of pleats you need for the design and the desired depth of the pleat.

For example:

45" Wide starting fabric to pleat to 10", this means that you need to have about 4.5" of fabric pleat into 1" when gathered up to the fullness you desire. If in that 1" space you will have a very detailed pattern you will need to place your running stitch to pick up the pleats closer together probably about 1/2" this would give you 9 or 10 pleats/inch with the pleats being about 1/4" deep. If you are doing something with less pleating, along the lines of a deep honeycomb pattern then your running stitches might be an 1" long, giving you 4 pleats or so per inch finished with a 1/2" pleat depth. Again this is all relative to the weight of your fabric and the desired outcome. Experiment !! Make sure your rows are sufficiently close enough together to provide a solid ground for your embroidery. Too far apart and the pleats will move when working on them.

You will see a number of different ways to pleat up the fabric. One way is to do a full running stitch, with the stitches equal distances apart, basically a basting stitch or gathering stitch, very much like you would do cartridge pleating.

The "picking up the dots" method would have you mark out dots or pinpoint equal distance across the fabric. Then the running stitch "picks up the dots". Some people use plastic canvas to mark out the even dots instead of using the conventional dot transfer paper.



Commercial pleaters of course can be used they make very small very fine even pleats. This is good for many of the shirts and chemises. For coarser fabrics or deeper pleats one a pleater will not be usable. The biggest drawback to a pleater is the fixed pleat size.

The horizontal rows are spaced according to the needs of the pattern. They are actually your guide for the embroidery. The bit of material left above the gathering threads are just enough fabric for your stitches to go through in the conventional smocking stitches. NOTE: It is important not to catch your gathering threads in your stitches. This will make it almost impossible to pull the threads out or give the finished work the "float" on the threads for ease.