The background of the entire page is a detailed embroidery. It features several stylized faces with large, wide eyes and various expressions. The faces are rendered in shades of grey and white, with intricate stitching for hair, beards, and clothing. A large, black, decorative flourish resembling a needle and thread is superimposed over the embroidery, framing the title and other text.

Filum Aureum

Spring
A.S. XXXVIII (2003)

Newsletter of the Needleworkers Guild

in the Kingdom of the West (SCA)

Split Stitch
and Silk

Sabrina de la Bere
P.O. Box 1809
El Granada, CA 94018

Guild calendar & projects

JUNE CROWN

(June 20-22)

• DISPLAY – 10:00 am–5:00 pm
Needleworkers will again be **hosting the A&S pavilion**. Display will be “A Year in the Life” — **bring anything** you have been working on this past year!

• MENTORS CORNER

11:00 am–2:30 pm


All are welcome to come stitch, drop off Apprenticeship items for evaluation, and consult with our Mentors in residence about your projects.

• GUILD MEETING – 2:30 pm
Business and show and tell. Bring your **newest work** or recently discovered book.

• CLASS – 3:00 pm

This Saturday class is **All About Silk Thread**, a panel discussion of the history of silk thread and what is currently available. Panelists will be Aldith Angharad St George, Isela di Bari, Sarah Arwen and Sabrina de la Bere.

• SUNDAY CLASS – 10:00 am

Introduction to Canvaswork with Iulitta Rowan. This teaches the basic stitches you will need to take part in our Kneeling Carpets Project, but it's open to all. \$5 for kit. 


ARTS & SCIENCES TOURNAMENT

(July 25-27)

There will be a needlework track! Full class tracks with descriptions will be posted on the A&S website as soon as they are final. See them at:

http://arts_sciences.westkingdom.org 

RESOURCES

Looking for information or guidance on a competition? Both the Mists and Kingdom A&S pages have lists of available resources. 

ARTS & SCIENCES CALENDAR

Competitions in 2003 with possibilities for embroidery:

JUNE CROWN: FINE ART

Embroidery: Beading

(p.s.— don't forget pearlwork!)

MISTS FALL CORONET: ARTS

Viking Decoration: Embroidery,

Laid Work or Couched Leather

MISTS FALL INVESTITURE: ARTS

Favors

CYNAGUA FALL CORONET: ARTS


Fighting Surcotes/Garb

TWELFTH NIGHT 2004: FINE ART

The Decorated Chemise or Undergarment

GUILD KITS

Guild Kits are designed to help you learn & practice new techniques, and the finished products are welcome gifts to the Royal Treasure Chests. Kits are available for a \$5 donation at all Crown events and A&S.

Currently available are the Blackwork Needlecase (filling stitches), Whitework bookmark (counted satin stitch), Zigzag pincushion (long-armed cross stitch), Scholehouse Sweet Bag (outline stitch, buttonhole stitch), Fan Pouch (different counted thread techniques), Strawberry pincushion (tent stitch), and Demi-Sun Pouch (applique). There are also a few discontinued kits available. 

GUILD PROJECTS

• KINGDOM ARMS POUCHES:
for PENNSIC 2003

This project ends with this June Crown! The finished pouches will be on display in the A&S pavilion and will be presented to Their Majesties at evening Court. **Thanks** to coordinator **Isela di Bari** and to all who have participated!


• TRAVELING BAGS

This project will end in June 2004. Your 6x6 inch embroidered panel of a Kingdom's arms is applied onto a canvas tote bag (which travels better than a basket!) to contain gifts to other monarchs. Your choice of technique and materials. A few are still available — see Isela di Bari.

• ROYAL ROSE POUCHES


for each Queen of the West, presented as she steps down. A six-inch-square rose panel in your choice of techniques. Ongoing project — you can still sign up with Sabrina for a spot in 2005!

• KNEELING CARPETS


We are now taking signups for the West Kingdom Kneeling Carpets! See Sabrina if you are interested. 

THE GIFT CHESTS

The Queen's and Princesses' Gift Chests are desperate for your handiwork! Please be generous and donate your completed kits and other small needleworked items to your Kingdom or Principality chests. It greatly pleases the Royals to be able to show largess to special people by giving a hand made item. Good examples include: napkins, pincushions, sachets, book covers, bookmarks, kitchen-size towels or napkins.


- West Kingdom Gift Chest
(*Mistress Jania of Call Duck Manor*)
- Mists Royal Gift Chest
(*Sabrina de la Bere*)
- Cynagua Royal Gift Chest
(*Judith of Stormholde*) 

GUILD WEBSITE

The Needleworkers Guild Website at <http://www.bayrose.org/wkneedle/> is being updated. Keep checking back - so far we have PDFs of all old Filums, some articles from past Filums with color photos, and more coming. Don't forget the Booklist: over 200 books with information on each! 

The Needleworkers Guild of the Kingdom of the West

All are welcome to join us in making and enjoying historical needlework, furthering our knowledge, and developing our skills. We meet at 2:30 Saturday afternoon at every Crown Tourney, and we look forward to seeing you and your needlework!

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Smooth as silk: Split stitch embroidery

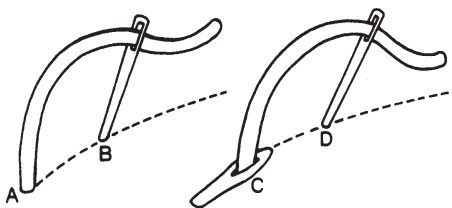


— Mistress Isela di Bari, Guild Patron

It is a simple stitch, yet has enriched the noblest of medieval embroideries. It is an easy stitch to learn, yet difficult to master. It is one stitch of many used by modern embroiderers, yet enjoys a long history spanning centuries, countries, and cultures. The versatile *split stitch* is an excellent choice for outlining, completely filling, shading, or delineating detail within a period design.

Split stitch technique

To execute this stitch, bring the needle up through the fabric (A) and then back down through the fabric (B) no more than 1/8 in. away. Then bring the needle up (C) and actually split the thread halfway or 1/3 of the way between points (A) and (B).



Using tinier stitches creates a smoother appearance, especially when you get into shading and contouring. Larger stitches or looser tension offer an effect more similar to chain stitch. When skillfully executed with a single strand of thread in a very compact manner to fill a motif, it is quite common to be confused about whether you are looking at split, chain, or stem stitch. These stitches were easily interchanged when

doing faces, hands and hair in embroideries such as the French *aumoniers* (alms pouches) of the mid-1300's.

Although easy to learn, really mastering split stitch takes practice. It is time consuming and requires total concentration and patience. Here are some of the fine points to making a beautiful split stitch.

- Make all the stitches of uniform length except around curves, where shorter stitches are recommended.
- Use equal tension to prevent puckering and enhance smoothness.
- Work adjacent rows close enough that they almost overlap and the ground fabric does not show.
- Split the thread at equal lengths.
- Work towards producing a smooth, uniform appearance.
- Establish direction to how stitches are placed so they properly flow.

When filling a design with parallel rows of stitching, I tend to stitch back and forth to save time. However, author and embroiderer Jane Zimmerman advises that working the split stitch always in one direction produces a more smooth and uniform appearance.

MATERIALS

Contemporary embroiderers will tell you that you can use two strands of thread and then just split between them. However, for us “period” needleworkers, a single strand of thread is preferred.

Historically, such stitches would have been most likely executed in fine, untwisted silk thread. Modern threads that can be used include the higher-sheen threads of Kreinik's *Ping Ling* (now difficult to find in the U.S.), Eterna silk floss, Japanese flat silk, and Madeira's silk floss, or the lesser-sheen threads such as Kreinik's *Silk Mori*, Kreinik's *Soie d'Alger*, and *Silk Splendor*.

I find that these less shiny types of threads do not produce the fineness, sheen, nor smoothness of the higher-sheen types. The single strands of Splendor are also thicker than the others; they produce a heavier effect in overall appearance. The most difficult of these threads to use is the Japanese flat silk, which easily snags and is best worked with a “laying tool”. Other threads you may wish to experiment with, which I have not tried, include Zwicky floss and Pearsall's *filoselle* floss.

Suggested fabrics for executing split stitch include a densely woven linen, silk satin and twilled silk. I also tend to use a lightweight, densely woven piece of linen as a second layer under the ground fabric,

which seems to produce a smoother, uniform effect for the silk threads as they are laid. If you're using a second layer, baste the top fabric to it. Keeping uniform tension and not pulling the stitches too tightly is very important. For velvet or any fabric with a thicker nap, it is best to do the split stitch embroidery first on another fabric such as linen or silk, and then appliqué the finished piece onto the velvet.

TOOLS

Using an embroidery frame is a key factor in the execution of split stitch. When the fabric is pulled taut and tension of the stitches is even but not stressed, there is less chance of the dreaded “puckering” of your ground fabric. I find that I can get better tension when using a frame rather than a hoop. My fabric seems to remain in a more taut position. But this is debatable among embroiderers.

Also debatable is the use of a “laying tool” when doing split stitch. I would definitely recommend it if you were using the Japanese flat silk or doing satin stitches with Kreinik's *Soie Platte* thread, but I have not tried it with other silk threads when doing split stitch. Using a “laying tool” (on the Japanese Embroidery Center website) helps lay the thread smoothly and enhances the sheen of the thread.

Due to the fineness of the silk threads and the tininess of the split stitches taken, I prefer using quilting needles (sizes 8 or 10) because the eye is smaller and holds some of the slicker silk threads better. Zimmerman suggests a “round eye” embroidery needle (sizes 7-10) and argues that this type of needle makes a large enough hole in the example, see the “astonished apostles” detail from an altar front from the Passion of Christ series (on this issue's cover, in *Medieval Craftsmen: Embroiderers*), or see the St. Florian's website, www.sca.org.au/St_florians/embroidery/opus.htm.

Uses of split stitch

CONTRAST

Use split stitch to indicate bold contrasts, as in the striped hair of *Opus Anglicanum* and Byzantine embroideries. For example, see the “astonished apostles” detail or the St. Florian's websiteme.

CONTOUR

Split stitch can effectively indicate the contours of facial features by using directional stitches and slight shading. Zimmerman says she can't emphasize enough the im-

(continued next page —>)

portance of establishing the direction of how the stitches are placed in a motif when using silk embroidery. I find this to especially be true about split stitch. There's an example of directional flow on the face and throat of the Archangel Gabriel from the cope of Pius II at Pienza (on the St. Florian's website). Note that the split stitch was done so tightly and finely in creating the spiraled cheeks and chin dimple that it caused an indentation in the fabric. This indentation remains in the fabric even after the silk threads have disintegrated.

SHADING

Use split stitch to indicate the direction and folds of drapery by using a directional flow of stitches and gradation of colors or shading as indicated in my first *Opus Anglicanum* piece (p.2), inspired by the John of Thanet panel. You can see an excellent photo of this shading technique on the St. Florian's website, specifically in the article written by Lady Acacia d'Navarre on *Opus Anglicanum*.

Usually split stitch shading employs 3 to 5 shades of the same color, moving from darker shades on the inner folds to lighter shades on the outer folds. When worked as a solid shaded filling, split stitch looks almost "painted" and adds a three-dimensional effect (see my recently stitched boar on this page).

Split stitch enjoyed the limelight as the "preferred" stitch for garb, face, hands, feet and hair in *Opus Anglicanum* pieces. In the French *aumonieres*, split stitch shared the limelight with stem, chain, and knot stitches when worked on body features (hair, hands, etc.). There's a wonderful example of an alms pouch featuring two lovers on the website: www.doctorbeer.com/joyce/emb/alm pouch/alm pouch.htm and in *Medieval Craftsmen: Embroiderers*. Alms pouches were completely embroidered on both sides, and the garb draping the figures was usually worked in shaded split stitch to give perspective or depth to the human body. Again, the background was worked in laid and couched metal thread enhancing this play of light and color. Note that although these Pre-Renaissance embroiderers of the 13th-14th centuries are trying to achieve a three-dimensional effect and more humanistic appearance, I find that they are still held captive and their figures remain two-dimensional.

DETAIL AND OUTLINE

Split stitch is used to indicate detail or outline such as in the Byzantine "Medallion of Christ" (c. 1200), where the split stitch is used to draw the inner lines of the garment worn by the figure. In the Bayeux Tapestry, split stitch and chain stitch may have been used as outline stitches (but see note p.7). And in many of the *opus* pieces, em-

broiderers used the split stitch to outline fingers, nails, toes, facial features, etc.



Split stitch history

The earliest use of split stitch can be traced to a Coptic embroidery (7th-8th c.) of a circular panel depicting a scene from the Annunciation and Visitation. (There's a good color photo of this panel in Syngé's *Art of Embroidery*.) Although the split stitch is done in silk thread on linen fabric in combination with satin, straight and couching, the execution of the split stitch here lacks the refinement it ultimately achieves later with *opus anglicanum* and *or nué*. The use of split stitch before the 13th century was not as prevalent as chain stitch or laid work, and generally it did not stand alone on its own merit. However, it was one of several stitches used in such embroideries as (these are all in Schuette & Christensen) the late 12th c. Italian chasuble of Boniface VIII, the Byzantine "Medallion of Christ" (ca. 1200), and the stole and maniple of St. Cuthbert (c. 909-916).

The ultimate goal of using silk threads with split stitch is to produce a smooth, brilliant effect enhancing the play of light and dark (*chiaro-scuro* effect). Aware of how pre-Renaissance and Renaissance painters were employing light and dark effects to enhance the realism of their figures, period designers and embroiderers of the 13th, 14th, and 15th centuries discovered that contrasting silk threads vs. metal threads within the same embroidery produced a similar effect. This can be seen in the split stitch figures with underside-couched gold backgrounds in *Opus Anglicanum* pieces (1250-1350), in the French *aumonieres* (mid 1300s), Byzantine embroideries (1350-1450), and ultimately and most exquisitely in the style of *Or Núe* (1425-1440).

Although underside couching was almost a "lost stitch" by 1400, split stitch continued to be used most skillfully. One of the finest examples of an "after *opus*" piece is the early 15th c. St. John the Evan-

gelist embroidery, featuring garb worked in silk split stitch in shades moving from dark blue to green-blue to yellow on the inner tunic, and the outer cloak is worked in silk threads shaded from umber to ivory. The sheen of the colored silk threads playing off the metal thread truly enriches the embroidery.

And, of course, ultimately we see the split stitch reappear in the Burgundian Vestments of the Order of the Golden Fleece (1425-40). Here the stitch plays second fiddle to the technique of *or nué* (couching silk thread over metal thread to create shading according to spacing of silk stitches). Although the technique of *needle painting* using densely embroidered silk threads had been developed a century earlier (see the Eagle Dalmatic, p.6), in the Burgundian Vestments you see such needle painting occurring in the flesh tones of the skin; in faces and hands, in hair and in the fur trimmings of the clothes. Most of these areas were executed in split stitch and the technique of *or nué* was reserved for the garb. Once again, the shimmering silk thread and the gleaming metal threads confirm the play of light and color. It has been suggested that these vestments represent, finally, the achievement of "realistic human representation" not seen before but characteristic of the "new" Netherlandish painting.

Not confined solely to the religious world, the split stitch also decorated such secular pieces as the pouch (11-12th c.) from Sens, France featuring a mounted knight on one side and an eagle with a hare on the back, in silk thread on linen (below).



Nor was split stitch confined to only the human figure. It also decorated foliage, arches, lettering, heraldic designs such as eagles, sphinxes and griffins, etc.

Hopefully, this overview will leave you with a better understanding of the split stitch and how important a role this versatile stitch played in medieval embroidery history. —✂️

(continued p.7)

Silk: an endless thread (Part 1 of 2)



— by Sabrina de la Bere,
Guild Minister

The more I play with silk thread for historical embroidery, the more I get curious about the history of silk, what was used for the historic embroideries, and the modern equivalents. And of course, part of playing with different silk threads is only an excuse to add to my “stash”.

Silk Basics

While there are a number of different types of silk moths, two are primarily used for the production of quality silk thread – the *Bombyx Mori* and the *Tussah* moth. The *Bombyx* has been successfully domesticated for about 5000 years in China and has lost its ability to fly. The caterpillars’ natural diet is mulberry leaves. The silk they produce is the finest white silk. A number of other types of moths have also been adapted to domestication and are now farmed (“sericulture”).

The Tussah moth comes from India and has not been domesticated. Its cocoons are collected from its natural environs of oaks, where its primary diet is oak leaves. The tannin from its diet causes the silk to have a natural color cast that ranges from light gold to dark brown; it is also slightly less flexible than cultivated silk. Silk produced from the Tussah and other wild species is called “raw silk”.

The silk moth spins a cocoon in its caterpillar state. It is the fiber that the caterpillar creates and forms into its cocoon that is the basis for the silk thread. The threads it exudes are bound together with a glue called sericin. Each cocoon contains between 2000 and 3000 feet of silk thread. If allowed to mature, a caterpillar remains in the cocoon for 22-32 days and then emerges as a moth.

If the cocoon is allowed to mature and the moth emerges, it “chews” through the cocoon and leaves behind the broken fibers. These are then placed in warm water to re-

lease the sericin. The broken fibers are then spun into thread.

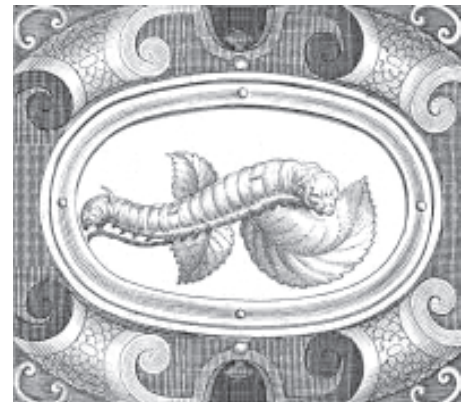
When farmed, the caterpillar is not allowed to mature and is killed inside the cocoon. The cocoons are placed in warm water to release the sericin from the fibers. The fiber is then reeled off in a single filament. The *sugas* or filaments are then combined and resulting fiber may be twisted or folded to form thread. Fine untwisted silk thread is made from 4-6 *sugas*.

With early silk, the skeins were dyed. This process included the boiling off of the gum, the weighting of silk and the coloring. The weighting of the silk to add bulk to the thread was done with mineral salts. Raw cocoons were also packed with salt for transport from China. There are warnings to western merchants about checking the salt content of early trade goods.

Silk Terminology

- **Boiling** – degumming silk threads or goods by boiling in soap and water.
- **Bourette** – a yarn; usually heavier weight with bits of extraneous materials occurring in it.
- **Cordonnet** – a “cord” made by taking several raw silk threads, doubling and loosely twisting them in one direction. Then 3 of these are joined and tightly twisted in the reverse direction.
- **Denier** – a French coin of about 1/2 gram weight, used for determining the size of raw silk. The number of coins used to balance 450 meters is the “denierage” or size of the silk.
- **Filament Silk** – silk that unwinds from the cocoon in an unbroken thread.
- **Floss** – a soft silk thread that is practically without twist. Also refers to the loose waste silk emitted by the worm when it first begins to spin its cocoon.
- **Noil** – short, lumpy fibers that are left after the combing process in making spun silk.
- **Ply** – individual threads combined to form a thicker thread.
- **Raw silk** – the silk produced from wild cocoons that are gathered versus cultivated. Silk that is unprocessed is (confusingly) also called raw.
- **Reeling** – the process of unwinding the silk from the cocoon, using a frame or reel. Reeled silk is in skeins.
- **Sericulture** – the farming of silk caterpillars to produce silk thread.
- **Staple** – broken fibers, waste fibers, and the silk thread spun from them.

- **Spun Silk** – the lesser quality silk spun from staple. May contain broken filaments from cocoons where the moth has emerged, remainders of the outside layers of reeled cocoons, or leavings from the floor of the silk workshops.
- **Throwing** – the process of taking silk fiber and processing it into usable thread. Includes twisting and doubling until the desired thickness is reached.
- **Tinsel** – thread made by flattening wire which is then twisted around a core, frequently silk. Modernly we refer to this as “Jap” or “Japan” gold.
- **Twist** – a heavier thread made by taking multiple thread plies and twisting them, usually under tension.
- **Winding** – transferring the silk from reeled skeins to bobbins.



Why Silk?

When you look at a piece of embroidery with silk you see a wonderful luster and sheen. The colors appear to be deeper and more vital when compared to other fibers including “synthetic silk”. This is what drew me to using silk — and then I fell in love with the feel.

How the luster and sheen happens has to do with the natural properties of silk. When it is high-quality reeled silk it reflects light so well that it almost looks like it is the source of the light. This is due to the almost translucent outer cellular layer. It also has a special cellular construction that allows it to receive and hold dyes well. This gives it the deeper saturated color with the strong reflective quality.

Silk also has very high tensile strength. It is said that a single silk filament is stronger than an equivalent steel filament. This strength along with its imperviousness to mildew and bugs has resulted in some wonderfully preserved pieces of fabric and embroidery.

(continued p.7)

An Imperial eagle



Left, dalmatic from the regalia of the Holy Roman Emperor. Above, an enlarged embroidered roundel from the dalmatic. At right, an enlargement of some of the superbly shaded foliage and saints' portraits from the neck and sleeve bands.

The eagle, a well known heraldic symbol of the Holy Roman Empire, is shown here as roundels appliquéd onto the background silk of the well known Eagle Dalmatic (c. 1330-40). These eagles are single-headed and are executed in black silk split stitch on a gold ground, all worked on linen before being appliquéd. The trims around the neck, hem, shoulders, and cuffs are also a great example of “needlepainting” with chiefly split stitch. More photos, assembled by Cynthia du Pré Argent, can be seen at www.virtue.to/articles/extant.html.

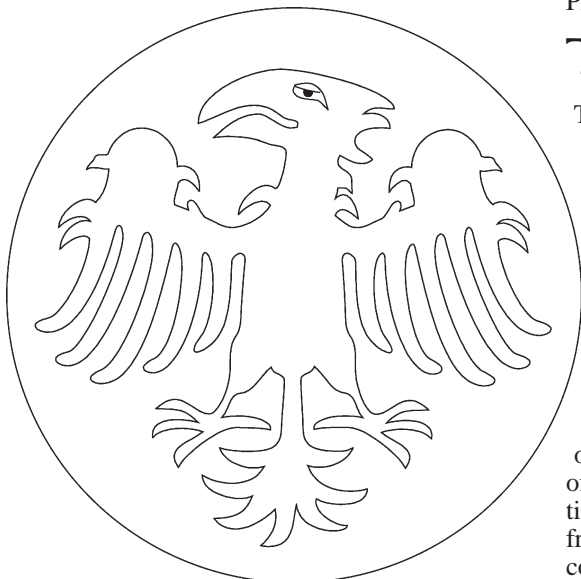
To stitch an eagle medallion

This is best worked on a fairly fine but sturdy linen, stretched very tightly in a frame. Trace the design diagram below onto the fabric *after* stretching, and ensure that the fabric is smooth and at an even tension. This design is given very close to the size on the original, but can of course be enlarged if you like. The finished embroidery and others like it can be applied to a pouch, to clothes, etc.

First work the outline of the eagle in black split stitch (or the color of your choice), including the outline of the eye. The original is black, but some other color might be preferable if you are new to split stitch, since it's hard to do fine details in solid black unless you have very good eyes.

From here on, work additional lines of stitching inside the eagle, one inside the other, following the contour of the outline, or the direction that feathers would fall on a real bird. The wing feathers, for instance, can be worked with U-shaped lines of stitching, nested one inside the other on each feather until it is full. For a decorative effect you could also take the “knob” on top of the wing and work it in a spiral, from the outside in. The small feathers (they look like hooks) can be worked as you come to them.

When the bird has been solidly worked, including the contrasting eye, you can give it a round or square background, depending on what you plan to use it for. The background can be worked in couching or in split stitch in a contrasting color. Cut out the finished patch and apply to your project. —



(For thread and fabric recommendations, see p. 3.)

Awesome work: Words from Sabrina

I have one word for the tremendous talents of the members of this Guild - AWESOME. We are beginning to reach the conclusion of the Kingdom Pouch Project and are well into the Western Rose Pouch Project. The resulting pieces are just incredible! All these pieces will be on display at June Crown and we will be making our presentation of the Kingdom Pouches at evening

court. All who participated in this project are welcome to participate in the presentation. I am honored and proud to be your Guild Minister.

All of you should be proud of your needlework efforts, whether beginner or laurel, whether small works or major works, whether in the far reaches of Oertha or in central Kingdom -- all bring art-

istry and color to this our current middle ages. We are on a voyage of discovery of needlework together.

In Service,

Sabrina de la BERE

(Split stitch, *cont. from p.3*)

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
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NOTE: Was split stitch ever worked in other materials besides silk — for instance, with woolen thread? Perhaps, but minimally. One reference repeated in several books claims that split stitch was used for some outlining in the Bayeux Tapestry. After reading Jan Messent's latest research and inspecting photographs with a magnifying glass, I agree with Jan that people may be mistaking the so-called split stitch for what she calls "outline stitch" — similar to the stem stitch, but lying a bit smoother. There's a bit of chain stitch used for outlining in the "tapestry," but only on two panels. In any case, the predominant outline stitch in the Bayeux Tapestry is the stem stitch or variations thereof. 

(Endless thread, *cont. from p.5*)

Depending on how the silk is processed, it can have a very smooth surface and is extremely flexible. When processed to maintain the native luster, it maintains a smooth and reflective surface. Hence the wonderful feel of silk threads. Even when the lowest quality of silk is spun and worked, it still has the suppleness and "silky" touch we associate only with silk.

Quick History of Silk

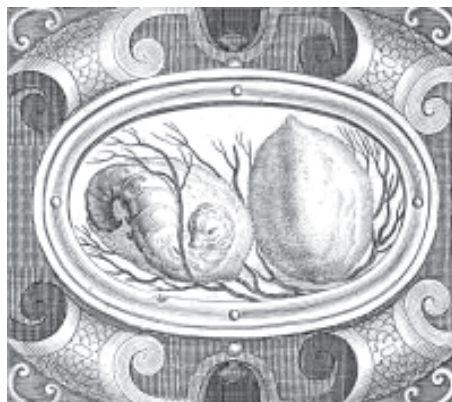
3000 BC – Chinese discover silk thread.

2200 BC – Chinese trade silk with India.

400 BC – China trades silk with India who in turn trade with the Persians who in turn trade with Rome and Greece - in Greece imported goods are unraveled and the silk threads rewoven.

140 BC –silk worms smuggled to Khotan

27 BC –silk becomes common place in Rome for the elite and is used in trim bands on garments



1st C. – China develops silk velvet

200 – sericulture in Japan and Korea and shortly there after India

3rd C – limits on silk wear and purchase in the Roman Empire as the cost was prohibitive being more than gold, pound for pound

300-700 – Persia (Sassinid) and Byzantium dominate the silk trade and silk weaving

400-600 – silk reeling, Chinese silk techniques and the Bombyx Mori brought to India

5th C – Sassinads develop compound weft twill silks

550 AD – sericulture in Byzantium spreads to N. Africa and Spain, and from Greece to Sicily and Italy. The spread and development continues with the Crusades and unsettled times on the Italian peninsula and Sicily

8th C – Chinese develop silk satin, but it does not come into heavy use in Europe until the 13th C.

800 – Central Asian silks (Byzantine) used as dalmatic fragments in England

8-9th C – silk woven in England, on drawlooms, with a weft faced compound twill known as "samite" that shows off long weft floats of the silk. There are also weft faced patterned tabby weave silks with geometric patterns. The drawloom may have been brought back by the Crusaders from Damascas.

12th & 13th C. – increased usage of metal thread in woven silk cloths.

1251 - silk manufactured (from imported cocoons) in England - noted in accounts of the wedding of Henry III's daughter where a thousand knights wear silk garments

13th C. – Lucca becomes the major silk weaving export center in Europe for luxury cloth. 1349 silk weavers form their own Guild in Lucca. Silk production centers in Genoa, Venice, Bologna, and Lucca.

1400's – silk velvet woven in Venice; including the development of the gold pique velvet — cross influences between painters, embroiderers and weavers in designs

15th C – shot taffeta and sarsinet developed using reeled silk with little or no twist

15th C – cotton velvets of Bursa (Ottoman) - usually cotton foundation with silk pile

1500's – sea routes between Italy and In-

dia & China open - "silk road" begins its decline

1546 – House of Tussah (weavers versus traders) opens in Lyon France

1562 – Guild of silk throwers formed in Spitalfield, England

1598 – Elizabeth I presented with machine knitted silk stockings

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— PART 2 IN THE NEXT ISSUE —
(Featuring a timeline of silk embroidery and reviews of modern threads.)—



Engravings illustrating this article are from "Strandanous Vermis Sericus" — engravings depicting the stages in the manufacture of silk. in 16th c. Italy, found at: <http://inky.library.yale.edu/medwomen/silk.html>

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ON THIS ISSUE'S COVER and on p. 5 is a detail from an altar frontal of the Passion of Christ series, in *Medieval Craftsmen: Embroiderers*. The haloed man (p.3) and boar (p.4) are items worked by Isela di Bari. Also on p.4 is the "knight" alms pouch from Sens, illustrated in Schuette & Christensen. On p.6 the photos are from Schuette & Christensen and the diagram of the eagle was drawn by the Chronicler.