Satin Damasks of Renaissance Europe
by Krystal Morgan

Introduction

Madelyn van der Hoogt defines satin as “a weave with warp floats on one surface of the cloth, and weft floats on the other…. in satin each succeeding weft thread interlaces with a non-adjacent warp thread. In each pick, the interlacing warp end in the same number of ends away from the end that interlaced in the preceding pick.” This method of interlacement results in a fabric with a smooth, uniform surface, particularly suitable for showing off shimmering silk or glossy linen threads.

Damask is a fabric structure in which blocks of warp-dominant satin are placed next to blocks of weft-dominant satin to create patterns. A block that is warp-dominant on the front of the fabric will be weft-dominant on the back, so damask textiles are reversible. In popular mythology, textiles of this kind originated in Damascus. In actuality, the earliest 3/1 block twill “damasks” were woven in the Roman Empire, in simple checkerboard patterns, on a horizontal loom that had no treadles and no shafts. A weaver would sit at the front of the loom to throw the shuttle, while an assistant raised groups of heddle rods and inserted a weaving sword. This type of weaving seems to have ceased in the early Middle Ages, possibly associated with advances in loom technology and the development of weave structures such as samitum and lampas.

An Irregular Fustian Weave
© Carolyn Priest-Dorman, 2003

Sometimes interesting information comes along when you’re researching something entirely different. Take this unusual four-shaft weave, for example; I found it in an article on printed fustians. Even though the weave in and of itself isn’t “complex,” it formed the ground for two surprisingly elaborate late medieval printed textiles dated about 40 years apart. Further, it represents the industrial use of a weave structure that I thought should be added to the knowledge pool of medieval four-shaft weaves.

Fustian is the English equivalent of “fustagnano,” a medieval Italian term for a class of mixed-fiber products. They were most typically woven on a linen warp with a cotton weft. By the 12th century, the Italian cotton industry was cranking out a wide variety of these mixed-fiber textiles for the domestic market; for example, Perugian wares were commonly fustians. Some types of fustians were brushed and napped, giving a texture like that of “brushed denim.” In the 15th and 16th centuries, fustians became popular all over Europe as linings for elaborate garments; many examples survive from the Elizabethan period as various types of domestic textile, e.g., hangings, bed linens, and the like. They were also used by the middle classes as outerwear.

The two textiles printed over this unusual weave are pieces from the Victoria and Albert Museum: V&A 1478-1899, a chasuble dating to around 1490, and V&A T280-1916, a fragment dating to around 1530. Milton Sonday made the technical assessment and analyzed the weave structure of these two textiles. The warp is Z-spun linen, the weft S-spun cotton, and the thread count is 24x24 threads/cm. The structure is an irregular weft-faced twill with floats spanning two, three, and four warps. No wales are evident. Sonday likens the structure to that of satinette (Mitchell and Sonday, 109).
The technique of weaving damask on a drawloom originated in Eastern Asia, and was introduced to Egypt, Spain and the Italian city states by the fourteenth century. On a standard treadle loom, each warp thread passes through one heddle on one shaft, which is raised or lowered by pressing a treadle. A drawloom has two sets of shafts. Each set of shafts is properly called a harness, so the words ‘shaft’ and ‘harness’ cannot be used interchangeably when discussing drawlooms.

Krystal Morgan’s drawloom is a Glimakra countermarche/counterbalance loom with a Myrehed shaft draw attachment. It is shown here with a counterbalance beam and drall pulleys for the ground shafts.

The ground shafts, placed in front, are equipped with long-eyed heddles, and they are raised and lowered by the treadles, as for a standard treadle loom. The pattern shafts hang behind the ground shafts. They have long heddles, with weights, called lingoes, suspended from them. The pattern shafts are suspended from cords which pass through a comb board at the top of the loom. The ends of these cords are attached to handles at the front of the loom. By pulling or ‘drawing’ a handle, one raises the pattern shaft attached to it.

When weaving damask on a drawloom, each warp thread passes through two heddles, a long-eyed heddle on a ground shaft and a weighted heddle on a pattern shaft. The ground shafts control the ground weave structure of weft-faced satin. Raise a pattern shaft by drawing its handle, and the raised threads will weave blocks of warp-faced satin. By raising and lowering different combinations of pattern shafts, one creates the intricate patterns characteristic of damask.

Drawloom:

To date, no archaeological remains of a medieval drawloom have been found. However, a wealth of intricately patterned textile artifacts indicate their existence. John Becker theorizes that intricate patterning was originally done on a treadle loom with shafts to control the ground weave structure, and pattern heddle rods to control the pattern motifs, and drawlooms were later developed for greater efficiency. Eric Broudy theorizes that the early drawlooms lacked comb boards, as there are archaeological textiles that have both repeating and non-repeating patterns within a single piece of fabric. It is known from written records, and the design of later drawlooms, that early drawlooms required 2 persons to operate: the weaver, who sat at the front of the loom to press the treadles and throw the shuttle, and the drawboy, who sat on top of the loom, or stood at the side, and operated the pattern shaft with a draw fork.

Around 1435-1445, A Florentine painter named Appolonio di Giovanni painted a series of panels on a marriage chest showing scenes from Homer’s “Odyssey.” In two panels (Art Institute of Chicago, 1933.1005, Frick Art Museum, Pittsburgh PA, No. 1973.31), Queen Penelope, is dressed a houpelande and a heart-shaped headdress, and is shown weaving
on a drawloom. The two paintings differ in the number of ground shafts and treadles. The pattern harness, as shown in both paintings, is incomplete. There is a piece of lattice that appears to serve the purpose of a comber board, cords (for the shafts?) and counterweights, but no pattern shafts! Both paintings show a rack of bobbins at the rear of the loom, which holds the pile warps for weaving figured velvet. In her article about the painting, Sophie Desrosiers speculates that the artist may have seen a drawloom while it was being dressed, before all of the parts were in place. She also offers a draft showing how velvet might be woven on the loom, as depicted in the Chicago painting.

If Penelope was not an ancient Greek queen, but the wife or daughter of a 15th C. Venetian silk weaver, she could accept private commissions from Venetian citizens, but her work could not be sold on the open market, or exported. I have found no other evidence that women actually wove on drawlooms during the Renaissance.

For those Italian city-states engaged in the silk industry, the techniques and equipment required for making silk damasks and velvets were “trade secrets.” Most of these city-states had laws that prohibited the immigration of skilled silk workers, and the transport of their equipment, was likewise illegal. At the time that Giovanni painted this drawloom, a Florentine silk worker, if caught immigrating, could be beheaded, and anyone assisting him could be fined 1,000 florins. It appears that these laws were rarely enforced. Economic opportunities elsewhere encouraged silkworkers to flout the laws. Warfare, plague and business declines in a particular area sometimes required it, and the art of weaving damask and velvet gradually spread across Italy to France, the Low Countries and Scandinavia.

In 1470, the King of France began the establishment of a state-subsidized silk textile industry. An Italian, known as Jean le Calabrai, set up a “button drawloom,” in Tours. A model is shown at http://www.cvmt.com/metiers.htm. Claude Dagon, a weaver from Milan, later replaced the button system with a figure harness, with “simple cords,” which made it possible to weave even more intricate designs. While French tradition has it that these innovations were made in France, Agnes Geijer suggests that the two Italian weavers actually introduced looms that were already known in Italy.

The life of the linen damask weaver Passchier Lammertin (1563-1621) is particularly well documented. He moved from his birthplace of Courtrai to Haarlem in 1586. In 1593, he sold 2 napkins (with a woven pattern of Daniel and the Dragon) to the Magistrates of Haarlem. One was intended for Louise de Coligny, Princess of Orange. After selling 2 damask napkins to Prince Maurice, Count of Nassau, he obtained a 12-year patent for the napkin design, which featured the prince’s arms, elaborate floral borders, and some text. He later sued one of his former employees, claiming that he had illegally copied the patented design. In 1619, Lammertin sold his designs and tools, and moved to Copenhagen, where he worked for King Charles IV of Denmark, in the newly established Royal Danish Silk Factory, until his death.

Binding System:

During the Renaissance damask was most frequently woven with 5 end satin in both the pattern and the ground. Fanelli’s work shows a damask fabric with an 8 end satin ground and a 4 end twill pattern.

Fibers and Colors:

Silk accepts dyes readily, and silk damask was woven in many colors for use in clothing and home furnishings. In 1393, Richard II appeared in court wearing a black damask doublet and a green damask robe. In 1397, the Duke of Gloucester owned a black damask gown and coat. During the 1460s, Edward IV passed a sumptuary law which permitted only those who were knights or of higher rank to wear damask. Those of lesser rank ignored it. In Valladolid, Spain, the birth of Prince Felipe on May 21, 1527 was celebrated with a reed-spear tournament. Participants dressed in the Moorish fashion – an orange damask burnoose over a green velvet marlata, a yellow damask burnoose over a brown velvet marlata, or a tawny damask burnoose over a matching marlata. A loose gown of purple silk damask, which may have been worn by Sir Richard Verney during the first few years of the seventeenth century, is shown in Janet Arnold’s Patterns of Fashion.

Crimson was an especially popular color. In 1560, 1,298 bolts of crimson satins and damasks were produced in Venice, while 1,161 bolts were of other colors. In 1554, as a means of quality control, the silk
 guild of Venice specified that if kermes was used to dye a damask fabric, no other dye, such as brazilwood or orchil, could be used with it.

In 1493, an inventory of Bianca Maria Sforza’s possessions included a camp-bed with silk damask hangings. A fresco painted at Malpaga Castle, near Bergamo, Italy, around 1520 depicts a banquet given by King Christian of Denmark. The wall hangings in the fresco appear to be lengths of green silk damask, hung alternately with lengths of gold silk damask, for a very bold striped effect. In 1540, the bedchamber of La Salterella, a Roman courtesan, had wall hangings of blue silk damask. Silk damask appears in the sixteenth century. inventories of England’s Hardwick Hall in yellow and blue wall hangings, on the backs of cushions, and lining bed curtains. Fanelli’s work, *Five Centuries of Italian Textiles: 1300-1800*, also shows 2 damask fabrics in lighter shades of blue. An inventory of the Villa Medici in Rome, dated 1598, lists a set of silk damask wall hangings and a matching portiere (door covering) with fringe and trimmings of gold and silk. This inventory also lists a 13-piece set of green damask bed hangings, also trimmed with fringe, as well as gold and silk lace.

In 1572, a sumptuary law was passed in Lucca which forbade young, unmarried maidens to wear the most expensive velvets, satins and damasks. Damask weavers began providing the young ladies with fabric woven with a weft of second-choice or waste silk and a warp of fine linen or wool.

Linen damasks were woven with natural or bleached fibers, and were used for tablecloths, towels and napkins. These were status symbols for the very wealthy, and they were often much larger than modern table linens. In 1430, an inventory was made of the possession of Paolo Guinigi, lord of Lucca. He owned fourteen damask “napkins,” each four brachia (roughly 3 yards) in length, as well as a roll of linen damask that had not yet been cut to made additional napkins. A century later, in England, Cardinal Wolsey owned 24 damask tablecloths, 7 damask towels, and 132 napkins. Some of his tablecloths were 4 ells wide. In the article, “By Your Leave my Masters,” D.M. Mitchell states that 4 ells equals 3-3/16 yards, although other sources state that an English ell equals 45 inches, or 1-1/4 yards. In 1583, the Earl of Leicester owned 38 damask tablecloths, 30 damask towels, 13 cupboard cloths and 201 damask napkins. Most of his tablecloths were 3 ells wide. In the second half of the sixteenth century, wealthy English nobles might purchase damask table linens in matching sets – a long tablecloth, a long towel, a cupboard cloth and a dozen napkins. The long towel would be the length of the table, or twice as long. It would be laid on top of the tablecloth, and basins for hand-washing would be placed on the long towel. After the dinner guests had washed their hands, they would dry them on short towels provided by the host’s servants. Long towels and napkins was typically 1 ell in width. Cupboard cloths varied in length, from 1-1/2 to 2-1/2 yards. Very few of the long towels and cupboard cloths have survived. Their fate might well be indicated by the Pembroke inventory, in which “one thynne cupborde clothe” has been crossed out and “olde napkins” is written in the margin.

Fabric Widths and Selvedges:

There are several pieces of damask that have survived with both selvedges intact. The silk damasks tend to be much narrower than the linen damasks, and have extremely high thread counts. In The Silk Industry of Renaissance Venice, Luca Mola writes that in 1457, the Senate of Venice decreed that silk damasks should be one braccio (68 cm. or 26.75 inches) in width, with a minimum of 358 warp threads per inch. In 1460, the Senators of Venice reduced the requirement to 328 warp threads per inch. In 1489, the Florentines reduced the statutory width of their damasks from 30 inches to 26.75 inches, the same width as Venetian damasks, in response to market demand. In 1545, Venetian statute required that damasks have 269 warp threads per inch. Florence, Sienna, Perugia and Naples had similar statutes during this period. Due to market pressures for lighter, less expensive fabrics, the statutes were often ignored, due to market demand for lighter, less expensive fabrics. I have not yet found an extant silk damask that is in compliance with these kinds of laws.

Venetian statute also required that selvedges be color-coded according to the quality of the fabric. Silks of the highest quality were to have gold threads in the selvedges, and silks of the second-highest quality were to have black and white threads in the selvedges. Such was the prestige of Venetian silks, that competitors in other city-states defrauded customers by placing colored selvedge threads in their own fabrics, which were sometimes of lesser quality.
Designs:

For both silk and linen damasks, it was common for a single repeat of a large scale pattern to occupy the full width of the fabric.

The “pomegranate” pattern is particularly associated with fifteenth century Italian silk damasks. Acanthus leaves and scrollwork were also popular motifs.

Damask table linens were “status symbols” in sixteenth century England, and Flemish weavers often wove linen damasks patterned with coats of arms for the English nobility. Other popular motifs included flowers, eagles, scallop shells and pinecones. Some of the most elaborate pieces feature mythological and biblical themes.

Finishing:

Italian silk damasks were commonly finished with “paste” or sized. This was initially a consumer fraud, to give weight and luster to a fabric of lesser quality, but became standard practice by the middle of the fifteenth century. A Venetian recipe of the late fifteenth century called for diluted gum Arabic to be mixed with sifted flour.

Bibliography:

**Damask History**


Complex Weavers’ Medieval Textile Study Group

Bibliography: Damask Technique

Hindson, Alice. Designer’s Drawloom. London: Faber and Faber, 1958


Van der Hoogt, Madelyn. “What is Damask?” Weaver’s #3, Fall, 1988. p. 20-22


Bibliography: Drawlooms


Dunbarton Oaks announces 2004-2005 project grants. Dunbarton Oaks makes a limited number of grants to assist scholarly projects in Byzantine Studies, Pre-Columbian Studies, and Studies in Landscape Architecture. The normal range of awards is $3,000-$10,000. Support is generally for archeological research, as well as for the recovery, recording, and analysis of materials that would otherwise be lost. Funding is typically awarded for transportation, meals, housing, vehicle rental, workmen’s wages, cost of technical analysis, etc.; grants are not normally made for the purchase of computers nor the salary of the principal investigator. Applications are due by November 1. For qualifications and conditions, application procedure and other information, please contact Office of the Director, Dunbarton Oaks, 1703 32nd Street, NW, Washington, DC 20007
# Renaissance Damask
compiled by Crystal Ruth Morgan

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### Renaissance Damask
compiled by Crystal Ruth Morgan

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| Design | pomegranate and stylized foliage | tables of "Samson & the lion" and "Abraham & Isaac" |
Fustians, cont’d from page 1:

I have re-drafted Sunday’s analysis into something a little more familiar to handweavers while preserving the same interlacement. See the draft for V&A 1478-1899 below.

Sources:


Dressing Archbishop Stigant

You may remember Archbishop Stigant - he is the Archbishop on Harold’s side in the Bayeux Tapestry. Over the cossock is the amice. The amice is a square piece of cloth with ties on two corners. The ties are brought around the neck, crossed across the chest and tied in the back. Today, the amice is left under the rest of the vestments, however in the past, it was brought over the celebrant’s head while vesting, and then brought down outside the vestments. It served to protect the vestments from sweat and oils of the skin.

Over this goes the alb, a long white robe like vestment worn by all clerics. Alb, comes from “alba” meaning ‘white’. It is cinched around the waist with the cincture.

Over this goes the stole. Its color matches the liturgical color. It is a long scarf-like vestment worn over the alb and under the chasuble. The priest wears it around his neck so that it hangs equally down his chest in front. It can be held down with the cincture so that it stays in front as he walks. The deacon wears his stole over his left shoulder, tied at the right side.

The Chasuble, also matching the liturgical color goes on next. Over this is worn the pallium. Usually, the pallium is worn by an archbishop within his own diocese. The pallium is pinned in place around the neck and is made of wool. The maniple is a narrow strip of linen the same color as the chasuble and is usually suspened from the left forearm so it falls equally on both sides of the arm.

What cannot be seen on the good bishop is a dalmatic which could be linen or silk, but after the 12th C is usually silk. It would be worn under the chasuble. With slits up the sides for ease of movement and embroidery, the Ravinna mosaics show this vestment clearly.
The Italian Cotton Industry in the Later Middle Ages 1100-1600
by Maureen Fennell Mazzaoui,
Cambridge University Press, 1981
Reviewed by Jan Ward

I had sort of absorbed the notion that yes, cotton was used sometimes in the middle ages, but not much in Europe.

According to Mazzaoui, cotton manufacture was a major industry, with guilds, etc., through much of our period. It was produced in large quantities, in many qualities (the best from cotton grown in the Levant) for domestic use and international trade. She details how the industry suffered in the later centuries from competition from German cotton manufacturers. The cotton was imported in bulk, spun locally in the rural areas, and woven in workshops in the cities. It was combined with linen, hemp, silk, and wool. It was also woven as all-cotton material, for clothing for the middle and lower classes, though the upper classes also used the nicer grades.

Being a weaver, I wish she’d provided me with nice things like pattern drafts, but you can’t have everything. She does describe the various fabrics, the fiber content, and the uses for which they were woven. She gives the guild standardization for some of the fabrics, i.e., how many threads per unit of measure, and how much the warp and weft should weigh. With a little time, one can calculate the size thread needed and the other mundane calculations necessary to reproducing the cloth.

She has a bibliography that covers both manuscript and published sources. I never knew before that people in later period would have been able to buy ready-to-wear garments, including underwear! She also talks about the guilds and their organization and administration.

While the book is about the cotton industry, she does talk about the other textile industries to some extent.

The last 90 pages are Appendices, Notes, and Bibliography. This isn’t exactly light reading, but those interested in things like guild organizations and trade and the development of industries, etc., might find some useful information.