



RECREATING 14TH CENTURY SILKS

by Julie Holyoke

Reconstruction of historical artifacts is undertaken for a number of objectives. The most common is to recreate the original appearance of a lost or deteriorated artifact for exhibition use. Another is the re-enactment or “living history” display of processes and tools used in the past to produce a given artifact. For scholars, the recreation of an object can support research by providing insight, generating data, or verifying hypotheses on how-when-where an artifact was made.

As a woven arts specialist working in an area where historical artifacts abound, I have collaborated on a number of textile reconstructions, each with its own set of objectives, challenges, and solutions. This is the story of a particularly ambitious project.

In June of 2014, a request arrived from the **European Hansemuseum** in Lübeck, Germany, for the reconstruction of eight silk and gold figured textiles to be delivered in time for the museum’s 2015 inauguration. The brief defined the

goals of the project and included the structural analysis and quantities to be woven for each silk.

- One of the scenes shows the market in Bruges in the middle of the 14th century, where very costly fabrics of patterned silk from Italy were sold. We would like to reconstruct eight patterned silk fabrics from this period.
- As these were handwoven fabrics, the reproductions should also be woven by hand.
- It is vital that the details are accurate and that the craftsmanship is of the highest quality.
- The fabrics are to be produced as new in accordance with historic details and patterns.
- Precise appearance of the defined colors must correspond to historical fabrics from the 14th century.



Left page: The silks restoration team: (right to left) silk worker **Clarisse Rakotoarimanana**, **Julie Holyoke**, **Dario Bartolini**, master weaver **Antoine Rakotoarinala**, master weaver **Martin Rokotoarimanana**, and silk workers. Photograph courtesy of Simon Peers.

Top: Sample images of five original 14th century silks, selected by the museum for reconstruction. Photographs courtesy of the European Hansemuseum, Lübeck, Germany. Photo: J Holyoke.

Bottom: The Peers & Company atelier in Antananarivo, Madagascar. Photograph courtesy of Simon Peers.



As the exchange with the museum moved forward, the number of reconstructions was reduced from eight to five, for a total of **20 meters** of silk textiles to be delivered by the end of May 2015.

Cast of Reconstruction Characters:

The handful of mills still capable of weaving such silks was approached and (miraculously!) a willing mill was found. In early October 2014, work began at **Peers & Company** atelier in Antananarivo, Madagascar, best known for the production of several spider silk textiles (the first was woven with over a million baves of golden silk).¹ **Simon Peers** is owner of the mill, which is equipped with basic and Jacquard handlooms and a flourishing embroidery production.

The Peers Weavery is staffed by an extended family of Malagasy silk workers. Their jealously guarded traditions date back to the early 19th century when *sericulture* (silk production and the raising of silkworms) was introduced by the British to supply their domestic silk industry.² Today's weavers of cultivated silk are from the highlands of Madagascar, mostly from the Merina and Betsileo ethnic groups. They are expert at creating silk yarn from local cocoons with rudimentary, hand-driven tools, and are particularly skilled at weft brocading. The weavers, however, are unfamiliar with *lampas* and *samitum*—complex techniques that require two warp systems and at times, face-down weaving with two or more



Donated Italian-made 104 hook ‘Giacomino’ Jacquard loom installed at the Peers atelier. © J Holyoke 2015.



Peers & Company embroidery staff lacing Jacquard cards. © J Holyoke 2015.



Silk worker **Clarisse Rakotoarimanana** selecting reeled silk in the gum. © J Holyoke 2015.

wefts. Typical of workers in mills around the world, only the two master weavers were marginally “weave” literate (i.e. able to draw and read simple weave drafts).

The **Peers embroidery group** provided the many hands needed to complete the silks on time. The embroiderers are a separate work force composed of young women who do not come from a textile background, but in a country where everything is made by hand, deft fingers learn quickly.

Dario Bartolini (illustrator, designer, architect, and artist) was the ingenious Renaissance Man of the work group. **I** was responsible for all of the structural and aesthetic decisions of design reconstruction, in addition to redesigning and setting up two new Jacquard looms. Raised in an era that excluded girls from “shop”, the project offered me an opportunity to tinker and solve dirty mechanical problems.

The heart of this quixotic endeavor was a donated Italian-made **104 hook Jacquard** machine. After years of collecting dust and rust in the basement of a technical school, it was dismantled, packed, and lugged from Italy and through Malagasy customs. Nicknamed **Giacomino** (Small Jack), the well-greased and registered machine was installed in Antananarivo atop a Jacquard loom in addition to a previously installed 412 hook machine. The smaller Jacquard device controlled the many movements of a split harness we set up to weave the reconstructions.

From Cocoon to Completed Reconstructions:

Using simple tools similar to those employed in 14th century Italy, the Malagasy artisans reeled, selected, threw, and doubled **186,000 meters of filament silk** to produce silk thread that closely replicated the original silk yarns. Over 20 distinct colors were hand-dyed for sampling and then weaving the final silk textiles. Skeins were “time-dipped” to produce the variegation present in the original silks.

Initially, Peers planned for the embroidery staff to prepare the required **14,600 meters of gold-wrapped thread**. Production in the absence of suitable equipment, however, proved too slow and we were obliged to purchase gold weft from a specialist supplier in Europe.³

The original patterns were painstakingly reconstructed from low-resolution photographs of badly worn and fragmented silks. The *montures* (all parts dedicated to selecting and lifting the warp ends) of two Jacquard looms were modified to accommodate the demands of the project with the aid the silk workers and embroidery staff.

The museum’s brief stipulated that the colors of the silks appear as new, based on sources of the period. But the photographs and



artifact analyses provided were of marginal use. Colors dyed centuries ago fade rapidly, unlike pigments used in paintings. Instead, we used dye names and descriptions found in the publications of textile historian and specialist **Lisa Monnas**.⁴ We then scoured the Internet for paintings and illuminated parchments showing patterned fabrics similar to the originals. Decisions were further conditioned by exhibition context and dyestuffs available in the Peers workshop. At best, color choice for reconstructions of historic artifacts remains “intuitive” and, in the end, controversial.

After structural and color samples were woven for the five commissioned silks (reduced from the original eight), the looms were warped up. The princely silk and gold cloth to be woven included:

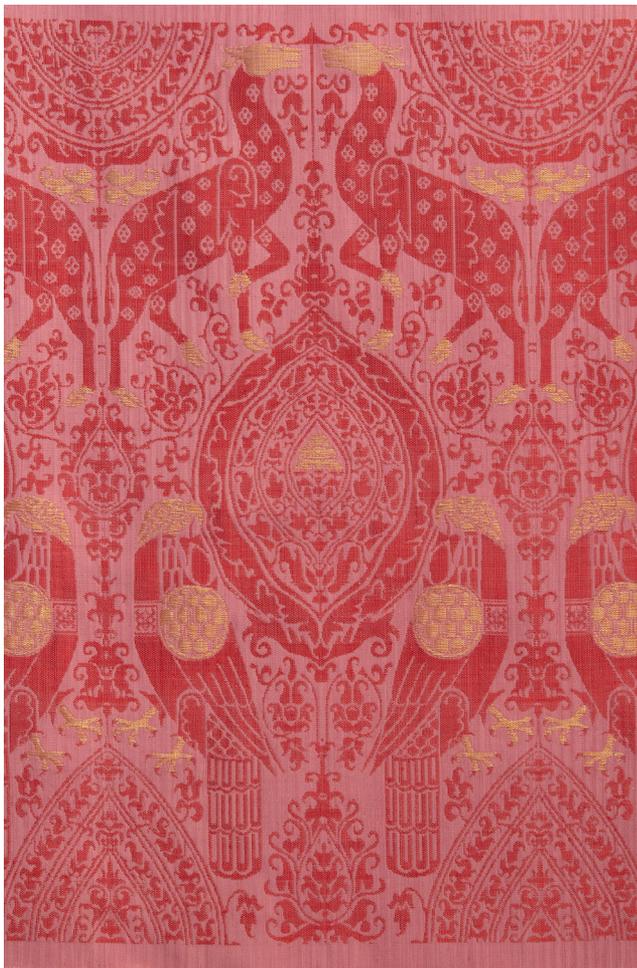
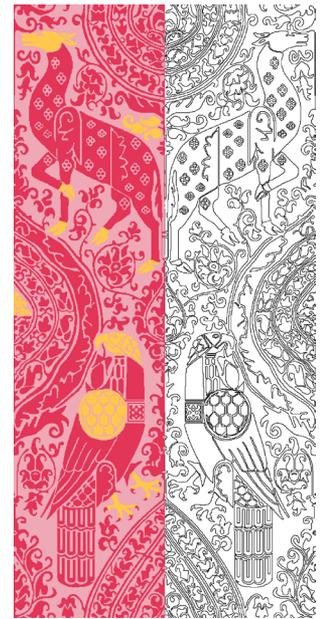
- 1 Red/Rose silk Tabby-tabby Lampas with gold brocading of eagles and deer.
- 2 Two Weft Samite with royal blue silk ground and fleurs de lys motifs in gold.
- 5 Blue Lampas with flower and leaf-patterned palmettes in red/rose silk and gold.
- 6 Lucchese Lampas with white and green silk wefts and gold brocading.
- 7 Green silk Lampas with silk patten wefts and gold brocading.



The original patterns were painstakingly reconstructed from low-resolution photographs of badly worn and fragmented silks.

Left: **6 Lucchese Lampas** (completed detail), white and green silk wefts, gold brocading. © Dario Bartolini 2015. Detail bottom.

Right: Colors of hand-dyed silk thread used to weave **6 Lucchese Lampas**. © Dario Bartolini 2015.



The reweaving of the silks was undertaken to create faithful replicas of the original textiles, which afforded us a unique and unforeseen opportunity to generate data on the time required to produce luxury textiles in Medieval times. Before the advent of water-powered reeling and throwing mills of the Italian Renaissance (the first industrial revolution of modern times), the production of silk filament yarn was a largely manual operation, using simple hand-operated devices—not unlike those at the Peers atelier.

In the 14th century, operating a drawloom required both a weaver and a drawboy; the Peers workshop card-driven jacquard looms also required both a weaver and treadle boy working in tandem. Creating the lashes and simple used in drawloom technology for pattern transmission requires the same amount of time as punching and lacing cards for the Jacquard loom. Thus, data collected in the Peers atelier work logs revealed that equivalent amounts of time were required to weave the original silks and reconstructions.

For several months, Peers, the two groups of Malagasy artisans, Bartolini, and I worked long hours side-by-side towards what

Left: **1 Red/Rose silk Tabby-tabby Lampas**, still life of source imagery, material studies, weave structure notes, color samples for silk. © Dario Bartolini 2015.

Right: **1 Red/Rose silk Tabby-tabby Lampas**, design in repeat for silk. © Dario Bartolini 2015.

Bottom: **1 Red/Rose silk Tabby-tabby Lampas** (completed detail), silk, gold brocading of eagles and deer. © Dario Bartolini 2015.

was, initially, an incomprehensible goal for most. As mutual respect and trust grew between us, a common intent was forged and the obstacles posed by differences of language, caste, traditions, and modes of communication were overcome. Finally, the silks were completed!

Epilogue:

After the commissioned silk reconstructions were safely delivered to the **European Hansemuseum** in Lübeck, Germany, Simon Peers loaned me the only archival samples of the project for a number of presentations. On November 17, 2015, we carefully packed the silks and sent them to the Peers London address from a central London post office via Royal Mail signed-for first class delivery. The package failed to arrive and a long exchange with Royal Mail ensued. On May 9, 2016, an envelope finally reached us from Royal Mail. It contained a check for 50 pounds sterling as reimbursement for the lost silks.

¹ Leggett, Hadley. "1 Million Spiders Make Golden Silk for Rare Cloth." *Wired*: 09.23.09. wired.com/2009/09/spider-silk/

² Peers, Simon. "History and Change in the Weaving of the Highland Madagascar." In *Unwrapping the textile traditions of Madagascar*. Chaprukha Kusimba, J. Claire Odland, and Bennet Bronson, eds. p. 144–154. Los Angeles: UCLA, Fowler Museum of Cultural History, 2004.

³ The only non-local materials used in the reconstructed silk project were N.B. Dyes and the gold weft.

⁴ Moonas, Lisa. "Some Medieval Colour Terms for Textiles." *Medieval Clothing and Textiles*, Vol. 10. Boydell Press, Woodbridge, 2014. Moonas, Lisa. *Merchants, Princes and Painters: Silk Fabrics in Italian and Northern Paintings, 1300–1550*. Yale University Press, 2009.

European Hansemuseum, Lübeck, Germany: hansemuseum.eu
Peers & Company, Atananarivo, Madagascar: peersandcompany.com

—Julie Holyoke is a Jacquard expert and woven textile specialist based in Florence, Italy. She is the author of *Digital Jacquard Design* (Bloomsbury Academic: 2013).

Top: **5 Blue Lampas** (completed detail), silk, flower and leaf-patterned palmettes in red/rose silk and gold. © Dario Bartolini 2015. Detail middle, reverse side detail bottom.

