

## The St. Denis Cap, and experiments in silk spinning and knitting

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The cap of St-Denis. Its technique is stocking stitch, but the gauge seems to be unknown. In fact, I have not found one textile paper that discusses it in any detail.

The St. Denis cap is something of a mystery. Found in a rubbish pit excavated at the cathedral of St. Denis in France, the cap is remarkable for two things. First, it is the oldest European knitted object found (older examples of knitting originate from the Middle East, particularly the Coptic socks of Egypt). Second, it is made of a material few people today have ever seen: byssus.

There is a brand of yarn today called “byssus,” a variation of seacell, which is made from seaweed. But the St. Denis cap is not made of this. True byssus comes from the fibers secreted by the foot of the giant Mediterranean mollusc, *Pinna nobilis*. There are many mentions of byssus in the Bible and in Roman times, and the word has also been used to describe fabrics of linen. But the St. Denis cap is made from the true byssus fiber. Byssus is also called “sea silk” and “sea wool.”

In ancient times right up through the 20th century, byssus was harvested by dredging the giant molluscs up from the bottom of the Mediterranean. The fibers of the foot were removed, soaked in fresh water, dried, and treated with lemon juice to bring out the golden-brown sheen of the material. In the 19th and early 20th centuries, byssus production was done in Southern Italy and Sardinia. Byssus production as a craft industry ended as overfishing and pollution in the Mediterranean nearly killed off *Pinna nobilis*.

A description of byssus can be found in “*A handbook for travellers in Southern Italy and Sicily, comprising the description of Naples and its environs, Pompeii, Herculaneum, Vesuvius, Sorrento, Capri, and Ischia; Amalfi, Paestum, and Capua, the Abruzzi, and Calabria; Palermo, Girgenti, the Greek temples, and Messina,*” by John Murray, George T. Dennis, and Octavian Blewitt, published in 1892.

The *Pinna nobilis*, these authors write, which is found off the waters of Taranto, is “well known for its silky tuft, or byssus, called the land pesce, which is manufactured into gloves and stockings, and of which the ancients are supposed to have made the light gauze dresses worn by the dancing girls, as represented in paintings at Pompeii.”



*Pinna nobilis* on the ocean floor. The mollusc is endemic to the Mediterranean, can grow up to 3 feet long, and can be found 20 meters down from the surface. It is endangered today.

There is only one artisan in the world still working in byssus today: Chiara Vigo in Sant’Antioco, Sardinia. At her blog, she tells how she was initiated into the craft of working with byssus by her grandmother and talks about how byssus is harvested and made. She demonstrates the art of byssus production, spinning, weaving, and embroidering at her workshop/studio/museum in Sant’Antioco. Ms. Vigo says before her grandmother would actually teach

her about byssus production, she had to swear a mystical oath, and she refuses to produce byssus for profit.

Byssus fiber is a dark amber color that when in sunlight, shines like gold. In her grandmother’s time, Ms. Vigo says byssus production was on a more industrial scale: the mussels were harvested by fishermen, the foot fibers torn out, dried, combed out with iron combs, desalinated, and then spun into fibers “that could stretch out to 17 meter lengths” which would then form the warp of weavings of byssus. Today, Ms. Vigo harvests byssus at certain times of year, cutting a small amount from each creature and allowing it to re-root into the ocean bed. She produces about 600 grams of byssus fiber a year, from a reef of *Pinna nobilis* that are about 7 years old.

In her own words: *“The silk is desalinated for 25 days, great care being taken to change the fresh water repeatedly until it is completely desalinated. Then the fiber is laid out in the shade until it is completely dry. It is immersed in a solution of various natural elements which give it an elasticity and prepare it to be worked. The treatment gives it a sheen and a beautiful amber colour. The fibre is dried in a shaded, well-ventilated place, so that it does not dehydrate too much. Carding is done with a very fine-toothed comb, to separate the fibre from any tiny algae which may still be present. For the spinning, a spindle must be used whose head has a diameter of no more than 3.5 cm. and whose length is no more than 20 cm.*



Uncombed byssus fibers before spinning.

*“The spinning is very complex, since it must intertwine fibres whose length is no more than 2 cm., or at most, 3 cm. It has to be twisted at great speed, using only the bare hand, with no other aid to hold the fibre. This produces an excellent result, in terms both of strength and softness.”*

Her weavings are byssus woof on a linen warp, and her embroideries in byssus are done on linen as well.

### **“Recreating” the St. Denis cap**

The difficulty of recreating the St. Denis cap lies in two things: one, there is no commercial byssus available today; and two, I have found no articles describing the cap’s construction: stitches per inch, how many stitches around, etc. In the 14th century, as it was since the Byzantines started silk production, silk was the luxury fiber of choice, and thus I decided to recreate the cap from that material. For weaving, I understand that silk is reeled from the cocoon, not spun; but I still cannot determine how silk fibers in period were prepared for knitting. My guess is that the fibers were also reeled from the cocoon and loosely twisted for strength. However, for reasons of convenience, I use commercially available silk roving (ordered from Halcyon Yarn; a pound, though expensive, lasts me for years). My spindle is a lightweight top-whorl spindle I obtained from the Spanish Peacock. With it, I produce a laceweight silk yarn using a modern ply-on-the-fly method. I have found that single-plies of the silk are too fine and too fragile to support the stress of knitting, and trying to ply single strands by hand wound up disastrously after my cats, in chasing each other, ran directly through the strands I was plying at the time, destroying literally weeks of work.

I use four double-pointed 00 needles and cast on about 288 stitches or so onto the four needles, about 72 stitches per needle. My first cap attempt, I was actually trying to make a pair of late-period stockings! When I realized that the edge was too big, rather than unraveling it and starting over, I kept on going. I was also unaware at the time that the rib stitch was only a late period invention. The cap took about six months to knit, a few hours in the evenings and on the weekends.

I hope to continue exploring the production and knitting of silk in period.

### **Bibliography**

#### **Articles**

“Medieval Knitting,” by Chris Laning. *Tournaments Illuminated*, issue 165, 7/8/2008

“Silk Stockings,” unknown author, submitted as part of an *Atenveldt A&S* challenge, A.S. XXXVI

#### **Web resources:**

Chiara Vigo’s blog:

<http://www.chiaravigo.com/wordpress/en/chiara>

The blog of the artisan/researcher still working in byssus today, and where I obtained some photos of byssus

production

Medieval Knitting Blog

<http://www.strangelove.net/~kieser/Medieval/Knitting/knittingnotes.html>

Where I obtained the image of the St. Denis cap.

Medieval & Renaissance Material Culture:

<http://larsdatter.com/knit.htm>

Packed full of articles and images of medieval knitting

St. Denis, a town in the Middle Ages: histoire d'objets

[http://www.saint-denis.culture.fr/en/vignet\\_fich1.htm](http://www.saint-denis.culture.fr/en/vignet_fich1.htm)

The Website of the museum, town, and abbey of St. Denis.