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Finding Poor Man's Purple; adventures in creating local sourced purple fiber dyes to replicate the desirable dyes of Ancient Rome

By Philippi

Cociliare, 'to dye purple' from the verb *cocare* is one of the more commonly written phrases found on ancient lead tablets or *tesserae* dating back to before the end of the 3rd century. The tablets hold the secrets of dating and describing the global trade scale of dyed textiles through these remnants of ancient order placements, labels, and receipts. (*Gleba*, 76)

The easiest way to achieve the historically classified Roman Poor Man's Purple fiber and textile pigment, not associated with the rare coastal snails, is to dip an iron mordanted wool into a madder dye bath, then take it through the heating process from a dull deep gray to a dull deep purple. (*Dean*,119) The documentation of this letter is based on a short note from Pliny the Elder, in his 16th book on Natural Histories, as per the translator - a less sun resistant purple dye extraction source comes from the common Blackberry of Northern Italy, which leaves a violet shade in the fiber. (*Plin. NH 16*),(*Gleba*, 180) As I came to discover in my experimenting, neither of these methods stand up to the intense color of Tyrian purple worn by the Ancient Roman political elites.

Perhaps the phrase "Poor Man's Purple"¹ is a modern creation of terminology to describe all the types of purple dye that were not the infamous Tyrian purple. [The average Citizen would have still enjoyed the pleasure of colors in their lives without the price tag; citizen law enacted of course for there seemed to always be some law or another on the books restraining the sale of colors of fabric or types of fabric. We would consider these enacted short term laws as the modern equivalent as trade restrictions subject to fines, the penalties for breaking textile laws in Ancient Rome were far worse.] (*Gleba*, #!) That is a digression from the point, a multitude of sources point to villages of purple dyers, famous commercial dyer factory locations, and mineral deposits depicted by the Ancient Romans themselves as being secondary in stature types of textile dye sources in comparison to the purple pigment expunging family of *Muricidea* Sea Snails that were the treasured sources for purple.

1 Hearing the phrase Poor Man's Purple used by members of the SCA has proved challenging to source to acknowledge the phrase in historical context. A source is much needed to give foundation to my letter.

Homegrown Purple

Blackberry Pigment Extraction -*Modern pots, ancient methods.* 1 cup blackberries of overly ripe bush localized to Ohio in a glass jar with 3 cups of water. Use a double broiler method to heat the mixture for several hours (1 hour minimum). Stir, smush, work up the berry mixture while heating. Strain mixture into a dye pot, a linen towel worked great to strain the solution. Immediately showed pink setting pigment into the linen*¹

*¹ In future usage, I would triple the solution of 1:1 blackberry to water

Acorn Tea, from Green Acorns harvested from a Black Oak Tree - 1 gallon of green acorns covered in water and brought to a rolling boil for 20 minutes. Full pot left to cool overnight, causing acorns to soften and break open. Once the acorns soak up the water, refill halfway and bring back to a boil. Minimum boil of 30 minutes, I boiled for two hours till the water was syrupy. The solution strained well with a linen cloth into murky yellow pigment extraction.

Why green acorns? My end goal with the color study was to create a mordant solution similar to modern iron powder additives, another equivalent is oak galls and rhubarb leaves. It was my theory that the acorn natural iron solution would deepen the hue of red based pigments. I tested this theory with acorn simmered yarn that was then simmered in mordent, the color reminds me of indigo and madder dipped fabrics. Green acorns have stronger tannins versus later stage aged acorns that produce stronger pigments, but less mordenting ability.

**I do not have a single proof of period use of acorns as a mordent or dye.*

But, acorns would have been an easy mass collectable source with pureed parts of the nut removed in the grinding process. Madder plants are also coming into season of harvest at a similar time of the acorn drops, the timing would have suited.

Excerpts from Book 16 of Natural History by Pliny the Elder **CHAP. 6. (5.)—THIRTEEN VARIETIES OF THE ACORN.**

It is a well-known fact that acorns³⁸ at this very day constitute the wealth of many nations, and that, too, even amid these times of peace. Sometimes, also, when there is a scarcity of corn they are dried and ground, the meal being employed for making a kind of bread.

CHAP. 71.—THE ELDER: THE BRAMBLE.

Of a peculiar nature, too, though to be reckoned among the water⁴⁶²-plants, is the bramble, a shrub-like plant, and the elder, which is of a spongy nature, though not resembling giant fennel, from having upon it a greater quantity of wood. It is a belief among the shepherds that if they cut a horn or trumpet from the wood of this tree, it will give all the louder sound if cut in a spot where the shrub has been out of hearing of the crowing of the cock. The bramble bears mulberries,⁴⁶³ and one variety of it, known as the cynosbatos,⁴⁶⁴ bears a flower similar to the rose. There is a third variety, known to the Greeks as the Idæan⁴⁶⁵ bramble, from the place where it grows: it is slighter than the others, with smaller thorns, and not so hooked. Its flower, mixed with honey, is employed as an ointment for sore eyes and erysipelas: and an infusion of it in water is used for diseases of the stomach.⁴⁶⁶ The elder⁴⁶⁷ bears a small black berry, which contains a viscous juice, employed more particularly for staining⁴⁶⁸ the hair. The berries, too, are boiled in water and eaten.⁴⁶⁹

The Important Task of Fiber Preparations

Satin Angora Rabbit Fiber Prep - White Satin Angora fiber from senior ruby eyed white show quality rabbits with minimum 4 inch staple length fiber. The Bonnie Lassies Burrow of Cottontail Hill, my farm, consists of my 50 holed rabbitry Angora breeding program specializing in Satin and Giant Angoras. As President of the United Angora Rabbit Club and one of the top sellers of Angora yarns and fibers in the United States, I pride myself on the quality of fiber presented in this study. The yarns are all mill spun blends from my Angora farm blended with my friends' locally grown fleeces. The yarns in my experiments are 25% Giant Angora, 50% White Alpaca 25 % Cashmere. The Alpaca fleece is from Ashton Homestead. Currently, I send my fiber to be spun into mill spun yarn at America's Natural Fiberworks in Salina Ohio. The yarns for this round of dyeing are a 3ply DK warped in 225 yard skeins, I used 8 skeins for dye day.

Buckets and Buckets of Fiber - The kitchen is always a maze of buckets and pots full of soapy smelly floating fibrous goop in the early days of dye batch preparations. Angora rabbit fiber is inherently a clean fiber, it does not need to be processed prior to being spun into yarn. Because the fiber does not need washed to be spun into yarn, it does still need washed to be dyed. The cleaner the fiber, the better the bath results! Angora fiber does not need stripping in strong soapy water. Before shearing, a good bunny farmer will blow the rabbits coat to remove settled dust. Rabbits lick themselves clean like cats but when a fiber coat gets past 3 inches, the rabbits ability to maintain coat cleanliness is patchy at best. Expect some sticky dust to stay attached to the fiber strand, that's what needs washed prior to a dye dip. I recommend Unicorn Conditioner Rinse, a very gentle approach to releasing the sticky dust from the molecule sized Angora fiber scales. I will soak the soapy fiber overnight, then another 24 hours sitting in a bucket of vinegar rinse and soak. Per 6 oz of Angora fiber, 4 gallons of water, 1 tsp of Unicorn Rinse, 1/2 cup of vinegar for the second overnight soak. Day 3 is mordenting. Mordent bath and soak the Angora fiber for a minimum of 24 hours. I have some batches of fiber soaking for 2 to 3 weeks in large glass pickle jars with iron, alum, vinegar, tarters, rhubarb leaves, acorns, and rusty nails. I am always looking for new ways to improve my mordanting process, it's an artform in itself!

Modern Evidence of the Angora Rabbit - Science is creeping very close to having breed origin dates correctly established through the Oxford Rabbit Genome program created by Dr.Greger Larson. He has disproved the origins of numerous breeds and has been able to carbon date the origins of colony style rabbit breeding back nearly 17,000 years. I look forward to having an accurate start date for the original angora rabbit fiber animals within the next 5 to 10 years.

It's my theory and several other experts agree that the Angora Rabbits did not originate in the 6th century with French Monks of the mysterious Trelician people

geographically connected with the Carpathian Mountains (Whitman, 48). That is a made up statement by Dr. Bob Whitman. His 'story' has been told for nearly 40 years with hard to establish proof to back up his claims so claim those who complain about the validity of his work. I believe we will someday discover the origins of the fiber growing rabbits closer to the trade centers of history. (Irving, Rabbits and the Specious Origins of Domestication)

Modern Prep for the Modern Fiber - I would like to have a contest, to open a challenge to anyone that says that they can make a softer yarn than what I produce on my farm! A scientifically backed challenge, because it is my belief that in our wonderful modern culture, we are making the softest fibers ever in human history. Softness isn't just an English term, it has scientific backing in the fiber community that can be lab ranked. Softness ratings are even broken down into classifications of softness such as next to skin soft, fiber shaft micron softness, fiber scale softness and the list goes on. The modern fiber animal undergoes these tests prior to breeding, that testing is often publicly available to breeders world wide. The modern fiber farmer is also a geneticist, an expert in animal husbandry, and an aspiring artist! The Satin Angora rabbits at my farm, the CTH Seger pedigreed lineage, have been quoted as having a 12 micron count fiber test result on my main herd buck for the past three years. Meaning his and his offspring fiber is the purest softest micron count on a protein fiber in Texas A&M Fiber Lab history. I should frame that email.

The fiber of today's world is non comparable to ancient fiber, thousands of years of selective breeding has created breeds of super fiber animals. These modern animals are denser, finer, and expertly dehaired through the cultivation of strong fiber shafts. Our problems with fiber are not the same as past generations. But one problem has remained the same throughout time, a familiar problem to dyers throughout time. How to encourage the fibers ability to intake pigment that stains the scales of the fiber to create brilliant color.

Angora fiber differs in one primary way from wool fiber. A wool fiber shaft is a solid state, the Satin Angora fibers from my farm are hollow shafted. Meaning that a dye needs to soak the shaft of wool, but for my hollow shafts, the pigment needs to absorb to coat the inside and out of the fiber shaft. This is a modern problem for a modern paper, but it does affect my historical studies because my Angora fiber will lack the brilliant colors compared to my wool dye projects. I will reference mostly my mill spun yarns because they will display color from natural pigment with less scavenging of the countryside for dye pigment product.

Was the Bramble Blackberry a Roman Poor Man's Purple?

In the book *Making Textiles in Pre-Roman and Roman Times; People, Places, and Identities* edited by Margarita Gleba and Judit Pasztokai-Szeoke I read the statement "...Pliny NH 16,31 mentions blackberry (*vaccinium myrtillus*) as a cheap purple dye substitute, used even for slaves' clothing, for example in Gallia." (*Gleba, 180*)

The problem with blackberry as a fiber dye - my day of failures.

In the gloom of winter reading, I had come across a reference to Pliny referencing Blackberry berries as a potential dye used by a commercial Roman dyer reference to the dye source. (*Gleba, 180*) If that's not a complicated way to document information. I've yet to find the original source in Pliny's writings, how interesting for it to be referenced by not sourced - I suspect variations in translations as the source combined with my lack of knowledge in the subject. At the time I was hunting for purple color sources in history, none of my dye color listing books had blackberries listed as a viable fiber dye option, I was at a loss of how to produce colors other than washed out grays from the plant. Out of the blue, figuratively, a week before Pennsic 50th, a beautifully illustrated book of dyeable plants with their mordent color scales was gifted to me - to my luck, blackberry berries were listed!

Dye Plants and Dyeing by John & Margaret Cannon, Illustrated by Gretel Dalby-Quenet published in 1994 out of Oregon, 34. Listed as Brambles, in the Rose family, *Rubus Fruticosus*, the berries are listed as having multiple options for color production. The easiest color to produce according to the text is a light violet with no mordenting needed. A dark purple, the sample similar to the colors similar to my madder and iron dye solutions, was created with bramble berries in a mordant of Alum solution. Regrettably, the text does not list specific heat or durations of heat application specific to the berry. At one point in the simmering process, I believed I had acquired the rich purple of a Alum mordant berry solution, but the yarn has since turned a light gray with faint hits of purple if the light hits the fiber at the perfect angle. I doubt the coloring lasts with any exposure to the sun. If my blackberry plant fruits more than another handful, I will be tempted to repeat the experiment with a stronger solution of berry pigment and I will be using the solar glass jar method to set the dye.

In internet research done regarding berry pigments, sketchy information discovered at best, it was suggested to add sugar to the dye bath. In the short blurb in the Cannon and Dalby-Quenet book, it also references sugar in the solution but suggests its only an old wives tale about a pie stain always lasting. After my failures in my sugar free batch of pigment, I might just try sugar next time.

CHAP. 31.—TREES WHICH GROW ON A DRY SOIL: THOSE WHICH ARE FOUND IN WET LOCALITIES: THOSE WHICH ARE FOUND IN BOTH INDIFFERENTLY.

The cypress, the walnut, the chesnut, and the laburnum,²²¹ are averse to water. This last tree is also a native of the Alps, and far from generally known: the wood is hard and white,²²² and the flowers, which are a cubit²²³ in length, no bee will ever touch. The shrub, too, known as Jupiter's beard,²²⁴ manifests an equal dislike to water: it is often clipped, and is employed in ornamental gardening, being of a round, bushy form, with a silvery leaf. The willow, the alder, the poplar,²²⁵ the siler,²²⁶ and the privet,²²⁷ so extensively employed for making tallies,²²⁸ will only grow in damp, watery places; which is the case also with the vaccinium,²²⁹ grown in Italy for drugging our slaves,²³⁰ and in Gaul for the purpose of dyeing the garments of slaves a purple colour. All those trees²³¹ which are common to the mountains and the plains, grow to a larger size, and are of more comely appearance when grown on the plains, while those found on the mountains have a better wood and more finely veined, with the exception of the apple and the pear.

Madder Powder Power Purple!

Modern madder powder is a dependable source of an easily measurable richly colored pigment grown and sold world wide. Historically, Madder root was sourced throughout most of Europe, Middle East, Asian, and North Africa. A drought resistant plant that easily propagates and maintains in a minimal space that produces a fade resistant primary color, red. From this primary color, using many options of native elements and plants, the colors of oranges, yellows, browns, and even purples can be produced. (*Dean, 120*)

My theory was that the tannins and minerals found in acorns would aid in the creation of a purple dye bath when madder was then added to the solution - creating purple fiber. Both Madder and Oak being popular in Roman culture, Pliny spent much of his book on Natural History expressing Roman fondness for the Oak, from first crowns for royalty to the modern uses for the trees at the time of Pliny. (Pliny NH 16, 6) But he does not list acorns for the properties in dyes to my knowledge.

The acorn bath solution recipe of 1 gallon was used first to dye 2oz of yarn and 2 oz of fiber a lovely mustard yellow. That same bath was kept and used over two more 2 oz skeins and 4 ounces of fiber. On a second bath of 2oz of yarn and 2 oz of fiber, I blended the acorn solution with madder that created a gorgeous Roman Red, true to the idealistic colors of Roman military standards. On the third bath of 2 oz of yarn and 2 oz of fiber, the same solution as the second bath was applied, then I added 1/4tsp of iron powder solution and simmered, and simmered. Finally, the coloring of the iron mordenting set into the yarn brings out both hues of red and purple. The yarn reminds me of weaving indigo on weft over madder on warp.

Perhaps a piece of rusting battle steel scraped then simmered would be a closer natural fiber mordent. I have also considered using the well water of sulfur rich soil, like that near Delaware Co Ohio, perhaps similar to the dyers villages located in the Lykos Valley, where the waters held the secret to their purple textiles. (*Gleba, 180*)

Where to look next?

Long term goal: The creation of herringbone purple trims, known also as *Clavi* using a replica warp-weighted loom using oak from my farm and tools gifted and traded from other artisans, my homespun rabbit yarns, my homegrown dyes to display at Pennsic 51. Short term goal: Enhancing my persona by working in the story of Lydia from Philippi, a purple dyer that befriended Saint Paul. (*Gleba, 184 -185*)

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