

Trade in Pigments and Artist Materials in Medieval Europe

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Disclaimers!

- I am focusing on pigments coming into Europe because I am most familiar with European scribal manuals and the art that the pigments were used on.
- I cannot address all pigments or artist materials during a class due to the time I have as well as my current level of knowledge.
- This is an ongoing area of study for me.

How do we know about trade in pigments and artist materials?

- -Pigment names such as Venice ceruse or Bagdad indigo. Sometimes these names have to do with where the pigment was manufactured or mined and other times the name has to do with a city that the pigment was purchased in but not necessarily made/grown/mined.
- -Trade documents like ship manifests, price lists from fairs, toll books, account books.
 - An example of an account book record: Payment to (name), for pigments for (project), followed by a list of the pigments used
- -Correspondence
- -Wills and inventories
- -Archeological evidence
 - Gnalic shipwreck: the Gagliana Grossa sank on its way to Constantinople from Venice in late October/early November 1583 off of the island of Gnalic in what is now Croatia. The ship had a cargo capacity of 1200 barrels. The ship was hauling mostly glass and pigments. The pigments aboard are still mostly distinguishable. Unfortunately, the ship's inventory has not been found for its last voyage.

Pigment trade was wide ranging

- Although some pigments used in Europe were made locally, many were imported, even those that were made locally
- Pigments came from around the world, from the Far East, Africa, and the New World
- Pigments were part of a coloring trade, not just for painting
 - Dying
 - Ceramics
 - Glass
 - Leather
 - Medicine
 - Cooking spices

Who sold pigments?

- Varied according to time and place
- Often pigments were sold by apothecaries
- Some travelling merchants, nobles, and even clergy sold pigments occasionally
- Guilds: color sellers were often part of a merchant guild or an artist/art dealer guild
 - o Antwerp merchants were part of the Guild of Saint Luke (artists and art deals)
- In later period Italy, merchants who specialized in pigments and artist materials were called *venticolari*
- Antwerp had specialized dealers
 - o *Verfvercopere* (seller of paint)
 - o *Marchand de couleurs* (merchant of colors)
 - o *Cunstovercopere* (art dealer) sold paintings but also pigments
- Major cities:
 - o Antwerp
 - Traded with France, Spain, Germany, and England
 - Market areas for artists called a "*pand*" or "*penden*"
 - 1st market in 1460: Our Lady's *pand*
 - 1540 *schilderspand* or painter's gallery (100 stalls)
 - o Florence
 - Big fabric town
 - o Venice
 - much trade from eastern countries such as Byzantine Empire
 - Sent commodities on as raw materials or refined them before selling
- Fairs in towns
 - o Antwerp had a bi-annual fair
 - o We have price lists from fairs in Germany

In what form were pigments sold?

- Raw mineral or plant material
- More refined mineral or metal salt
- By weight
- By sackload, barrel, or box
- In shaped lumps or balls
 - o Truncated cone shape made with ceramic moulds
 - Inventory of a lead white maker included moulds
 - Found in Gnalic shipwreck
 - o Balls of lake pigment were individually packed into linen before shipping
 - Listed in inventory of a *venticolari* and on the Gnalic shipwreck (madder, cochineal, brazilwood)
- Different grades

What were some of the pigments used?

- Lead pigments (white, yellow, red)
- Lead-tin yellow

- Orpiment
- Earth pigments and ochres
- Cinnabar/vermillion
- Smalt
- Ultramarine/Lapiz lazuli
- Azurite
- Malachite and chrysocolla
- Verdigris
- Kermes/cochineal
- Madder root
- Brazilwood
- Lac
- Indigo/woad
- Carbon black
- Many others!

Other artist materials

- Alum
- Gum Arabic
- Gum Mastic
- Oak galls
- Chalk/calcium carbonate
- Gold and other metals such as silver and tin
- Parchment
- Quills

Lead White

- Alternative names: albayalde, ceruse, flake white
 - o Flake white: flakes of lead white scraped of the lead sheet after suspending the lead over vinegar
 - o Ceruse: ground with water and washed before forming into small lumps.
 - Left to stand in water for three to four days before grinding.
 - Described by Mattioli as “the colour of fresh milk in spring that still has the foam on its surface.
 - o Factors on quality of pigment: heat in the stack of forming pigments, strength of vinegar, shape of pots, degree of ventilation
- Used not only as a pigment for oil and tempera paints, but also for making lake pigments and gesso
- Some local production
- Main production centers in Italy (Pisa, Tuscany, Venice) and Flanders
- Venice lead white what prized
 - o Exported starting in the 14th Century
- Ceruse could be twice the price of flake white

Other lead pigments

- White lead can change color when heated
- Yellow lead to orange to red
- Red lead = minimum
- Same trade routes as lead white
- Liegnitz Taxa of 1614 lists lead yellow from England and Lubeck in northern Germany

Lead-tin yellow

- Alternative names: massicot, genuli, hornaza, groc
- First known mention of the pigment was in the 14th Century
- Also a glass coloring agent
- Manufactured in Flanders, Bohemia, and Venice
- May be named for where the merchant was from for example "from Murano" "Venice" or "Flanders"

Orpiment

- Alternative names: oropimente, jalde, arsenic, sandaraca orpiment groc
- More popular as a pigment in the earlier part of medieval history
- Some originating in Austria or Saxony
- Large amounts imported from Kurdistan, Syria, and China

Earth Pigments

- Ochres of all colors: yellow, red, sienna, umber, green
- Found all over, but some areas produced specific colors
- Could be roasted to change the color (burnt)
- Bole was used in gilding to provide a red color
 - o Especially prized was Armenian bole often used in coloring gesso
- Often named for color of origin: pavonazo de Flanders, Verona green earth, sienna
- Green earth mainly from Tuscany and the Veneto

Cinnabar/vermillion

- Cinnabar is the naturally occurring mineral while vermillion is the same chemical that is manufactured
- Cinnabar
 - o Mined in Almaden, Spain beginning in Roman Times
 - o Later imported in small quantities from Mexico and Peru
 - o Traded by Crown of Aragon and Italy, later Castille
- Vermillion
 - o More commonly used
 - o Could be made anywhere using Sulphur and mercury from Germany
 - o Spain was an important producer
 - o Antwerp vermillion prized

- Theodore Turquet de Maerne: “A man in Antwerp makes vermillion three times more red than the ordinary.”
- 400 lbs of vermillion were shipped from Antwerp to Cologne in one shipment

Smalt

- Alternative names: esmalte, zafre, zaffre, azur
- Ground glass or cobalt ore (skutterudite)
 - Process of making smalt: Cobalt ore is roasted to remove arsenic. Mixed with pulverized stones and packed into barrels. Then added to sand and potash and heated until melted and fused. Plunge into water and sieved, ground, washed, and graded.
- Cheaper than ultramarine but turns transparent in oil so not used in oil painting
- More popular in later period (not oil paint!)
- Refined smalt (acul esmalte labado or washed blue smalt) worth much more than normal (4x)
- Began in Saxony around 1470
- Mostly produced in Italy, especially Murano and Venice
- Some from Rhineland and Saxony and distributed by Flanders merchants
- One producer, Master Bernard, especially acclaimed by the Spanish

Ultramarine/Lapiz lazuli

- Alternative names: atzur de Acre, azure ultramarine
- Ultramarine is the refined pigment made from the crushed stone, lapiz lazuli (mineral lazurite)
 - Cennini says that young girls would make ultramarine pigment because of their “delicate hands”
- Became very popular in later period
- Mostly from the Badakhshan mine in Afghanistan and then shipped through Venice
- Basilio Latnini: monk who singlehandedly gained a monopoly on the Florentine production of ultramarine blue in the 16th Century
 - Started working for the Medici and then for the full Italian market
 - Seems to have made much of the pigment from scraps from the stone workers

Azurite & Malachite

- Alternative names for azurite: azzuro della magna azul, azul fino, azul de Santo
- Alternative names for malachite: verde montana, verde acul
- Both minerals are forms of copper carbonate hydroxide and often found together
- Much confusion over azurite and ultramarine in medieval documents, both referred to as azure
- Much imported from Germany and often referred to as from Aleman
- Some from local sources: Castile, Hungary, Armenia
- Later found in the Dominican Republic

Verdigris

- Alternative names: cadenillo, verdete, verdet, verd' d'aram
- Color varies from green to blue
- Small amounts of local production
 - Lots of recipes in medieval treatises

- Sometimes named from location of recipe: Spanish green, vert de Grece
- Montpellier, France was a major production center
- Hungary and Germany also producers
- Traded by Italy and later Flanders

Kermes and Cochineal

- Both often called grana
- Kermes (*Coccus ilicis*)
 - o Alternative name: grana cochinilla
 - o Mediterranean, mainly south of Valencia, Spain
 - o Also Poland and later Italy
- Cochineal (*Coccus cacti*)
 - o Alternative names: grana de Indias (referring to the location grown) or cochinilla del nopal (referring to the cactus the insect is grown on)
 - o Generally New World insect
 - o Produced mostly in Oaxaca, Mexico
 - Average between 200-900 tons per 10-year period from the New World
 - Shipped to Seville, Spain and then to Antwerp, Rouen, Livorno
 - Imported as insects by Spain, shipped to Venice who made the insects into lake pigment, and then sent back to Spain
 - o Much greater pigment production than kermes
 - o 16th Century: pigment contained mostly in clippings of dyed fabric rather than lake balls

Madder Root

- *Rubia tinctorum*
- Dye substance for cloth and leather
- Native to Mediterranean to Asia
- Pliny the Elder spoke of cultivation in Rome
- Included in the *Capitulare de Villis* written by Charlemagne instructing landowners which crops to grow
- Throughout Europe but especially in Flanders and Romania

Brazilwood

- Alternative names: verzino
- Several species: *Paubrasilia echinate*, *Haematoxylum brasiletto*, *Caesalpinia sappan*(New World)
- Red dye chemical brazilin obtained from heartwood, oxidizes into brazilein
- First from Asia, later from the New World
 - o The Portuguese imported brazilwood from Brazil “terra do brasil”
 - o The Spanish imported brazilwood from Honduras, Cuba, and Caribbean

Lac

- Alternative names: Laca or lacca
- Insect resin (*Kerria lacca*) from India and other parts of Asia
- Main producer: India

- Main traders: Italy and later Portugal and Flanders
- Evidence that lac was moving through Florence Italy
 - o Included among a list of spices compiled by Francesco di Balducci Pegolotti in the Practice of Commerce From the Italian Florence 1310-1340.
 - o Same list includes many other pigments such as ultramarine, German blue, cinnabar, madder, verdigris, brazilwood, burnt ivory, and mummy

Indigo and Woad

- Both referred to as indigo
- Produce the same colorant
- Indigo (*Indigofera tinctoria*)
 - o Often distinguished as Bagdad indigo
 - o Primarily grown in the Middle East
 - o In New World: Guatemala and El Salvador
 - o Exported by Italy, Spain, and later Portugal
 - o Indigo in Central America in the 16th Century was imported first by Spain and then by the French, British, and the Dutch
 - o Spain in 1576 imported 11,000 lbs of indigo, by 1595 it rose to 116,000 lbs
- Woad (*Isatis tinctoria*)
 - o Produced all over Europe
 - o Protected later in period from trade pressures from indigo imports

Carbon Black

- Made everywhere
- Made from different materials
 - o Wood
 - o Ivory
 - o Almond shells
 - o Peach pits
- Do have some mentions of trade
 - o One record of 102 sackloads of carbon for use in Burgundian art
 - o Record of burnt ivory coming into Italy through trade

Artist Materials

Alum

- Used in making lake pigments and inks
- Made from mineral alunite
- 1275-1455: most alum came from Byzantium and was distributed by Genovese traders
- 1453: Fall of Constantinople: rise in prices from lack of supply and then lesser quality alum from Agano, Volterra (Spain), Ischia (Naples)
- 1462: Tolfa, Italy major producer of high quality alum
 - o Controlled by the Pope
 - o Medici pay to control alum trade

- 1467: Prices so high England and Flanders import from Turkey under the threat of excommunication
 - o Flanders reaches a treaty with Rome
 - o England refuses to bow to Rome
- Late 15th Century: countries sneak in Turkish alum because of cheaper prices
- Few other groups get rights to alum from Tolfa mine opposite the Medicis
- Early 16th Century: England reaches a trade agreement with Rome
- Major markets for alum: Flanders, England, France, and Venice

Gum Arabic

- Several species of acacia tree produce gum Arabic especially *Acacia senegal* (now *Senegalia senegal*)
- Found in semi-arid regions of Africa, Middle East, and Asia
- Shipped to Europe through Egypt and the Middle East
- Late 15th Century trade was mainly controlled by the Portuguese and later the Spanish through western Africa

Gum Mastic

- Resin from *Pistacia lentiscus* var. *chia*
- Mastic derives from Greek/Phonician word *mastichan* "to chew"
- Used in chewing gum, aromatics, medicines, cosmetic productions, and candle making.
- Used in making ultramarine pigment in combination with beeswax and pine resin
- Sold in wooden boxes called *cuffini*
- Primarily from Chios, Greece
 - o Only the south half of the island produces mastic known as the Mastichohora (mastic land) or Catomorea (lower region)
 - o Trade began in great quantities during Roman empire. Chios was along the route of the *annona civica* and *annona militaris* routes which coincided with the mastic harvest.
 - o Under Byzantine rule until Fourth Crusade with short occupation by Venetians
 - o 1304-1566: Genoese controlled the island, organized the mastic trade, and fortified villages
 - 1304-1329: Zaccaria family
 - 1345: short Byzantine rule followed by Genoese led by Simone Vignoso
 - 1346-1566: company of the Mahona.
 - Lots of regulation such as number of trees and expected yield
 - o 1566: Ottoman rule
- Process
 - o May: clear the 'table' (*trapezi*) around the tree and spread calcium carbonate powder beneath the tree
 - o July-early September: cuts (*kendima* or *kendos*) on trunk and branches 2-3 times a week with *kenditiri* (tool) made to allow sap to flow. At night solidified sap collected.
 - o Fall and winter: resin drops cleaned and dried
- Average production of about 30 tons a year

- Most seems to have been sent East to Alexandria, Damascus, Aleppo, Tripoli, and Rama, most likely for culinary or medicinal use
- Black mastic from Egypt less prized

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