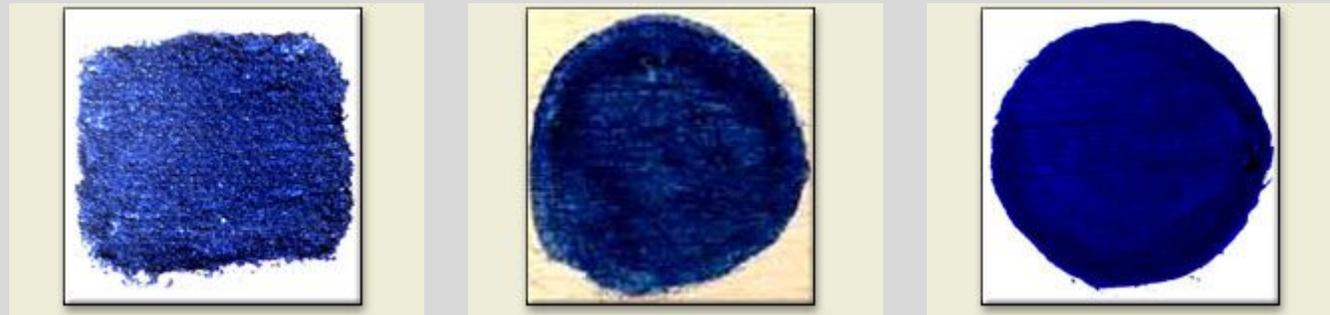


# Preparing and Painting Blue Pigment in the Renaissance



# The Making and Knowing Project

Intersections of Craft Making and Scientific Knowing



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[PEOPLE](#)

[BNF MS. FR. 640](#)

[PROJECT COMPONENTS](#) ▾

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[COLLABORATIONS](#)

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[SUPPORT](#)



## Laboratory Seminars

Reconstruction of the materials and techniques described in the manuscript is being carried out in a laboratory at Columbia University, led by Prof. Pamela Smith.





# Secrets of Craft and Nature in Renaissance France: A Digital Critical Edition and English Translation of BnF Ms. Fr. 640

<https://edition640.makingandknowing.org>

The screenshot displays the website interface for the digital edition of BnF Ms. Fr. 640. The top navigation bar includes links for 'Read Fr. 640', 'Research Essays', 'Resources', 'About', and 'How to Use'. The main content area is divided into three columns. The left column features the project logo, which includes a lizard illustration, and the title 'Secrets of Craft and Nature in Renaissance France'. Below the title, it states 'A Digital Critical Edition of BnF Ms. Fr. 640'. At the bottom of this column are two buttons: 'Watch Video ▶' and 'Learn More >'. The middle column shows a facsimile of a manuscript page with handwritten text in French. The right column provides an English translation of the text, with two sections: 'Coral contrefaict' and 'Vernis pour tableaux'. The 'Coral contrefaict' section describes a recipe for a resin-based material, and the 'Vernis pour tableaux' section describes a recipe for a varnish. The website also includes a 'Facsimile' tab and a 'Folios' navigation bar.

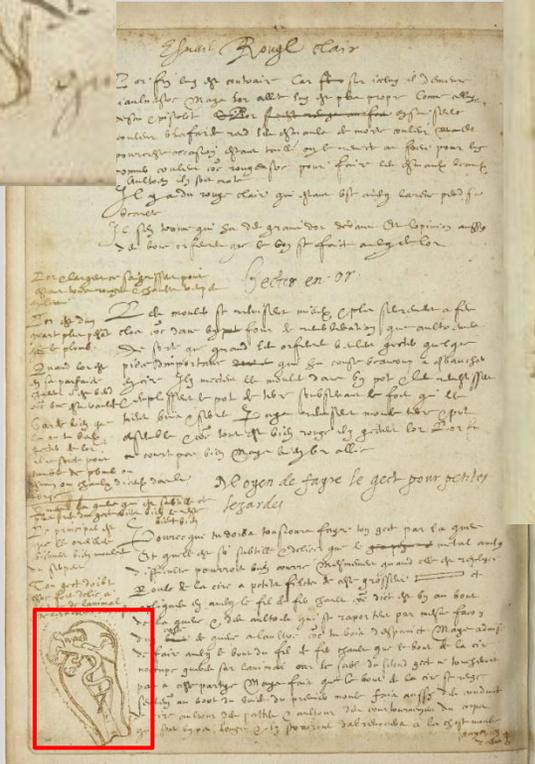
Ms. Fr. 640 is a unique manuscript composed in 1580s Toulouse. It offers firsthand insight into making and materials from a time when artists were scientists.

[Watch Video ▶](#)

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Wenzel Jamnitzer and Jost Amman, ca. 1578, "Ein gar kunstlicher und wolgezierter Schreibtisch," Fold-out leaf, showing the surveying of a mine. vol. 2, fol. 54. National Art Library Special Collections, MSL/1893/1600–1601. Victoria and Albert Museum, London.



BNF, Ms. Fr. 640, fol. 124v

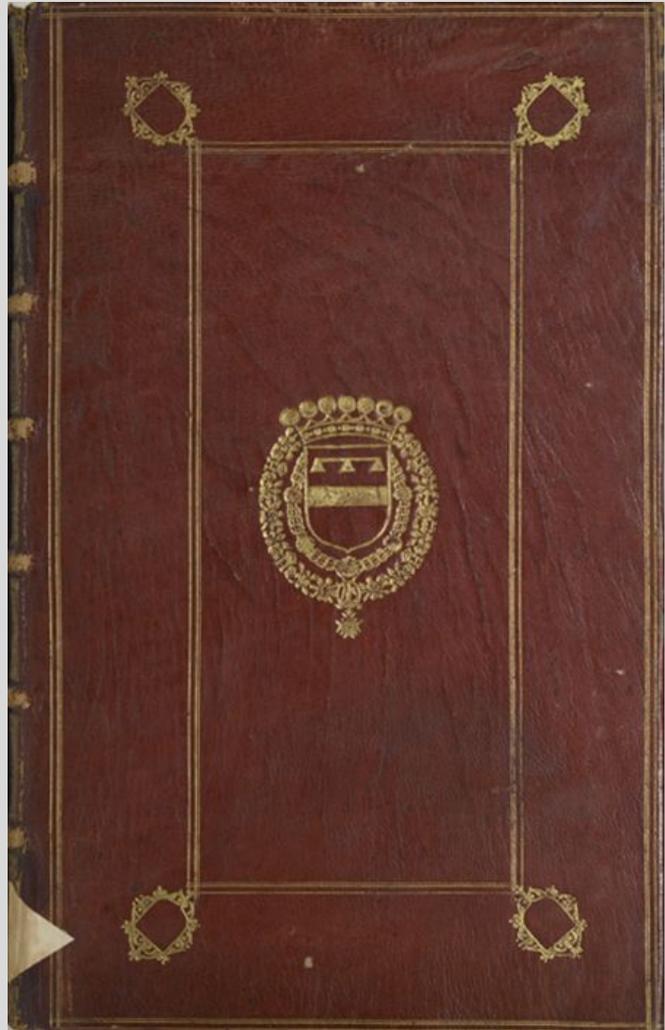
16<sup>th</sup>-century, life cast, Kunstgewerbe Museum, Berlin

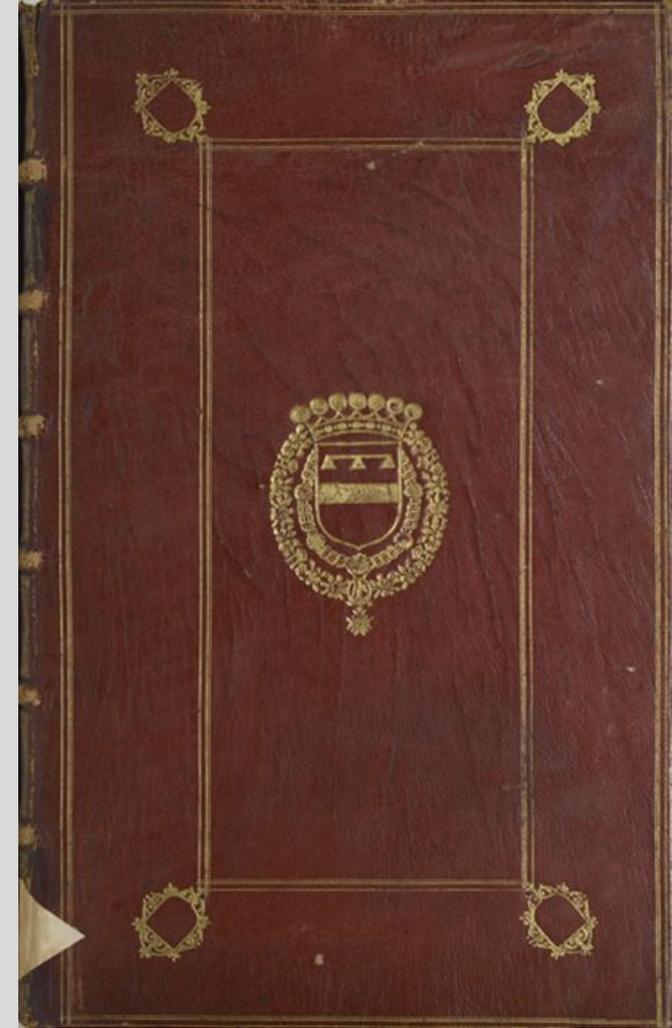
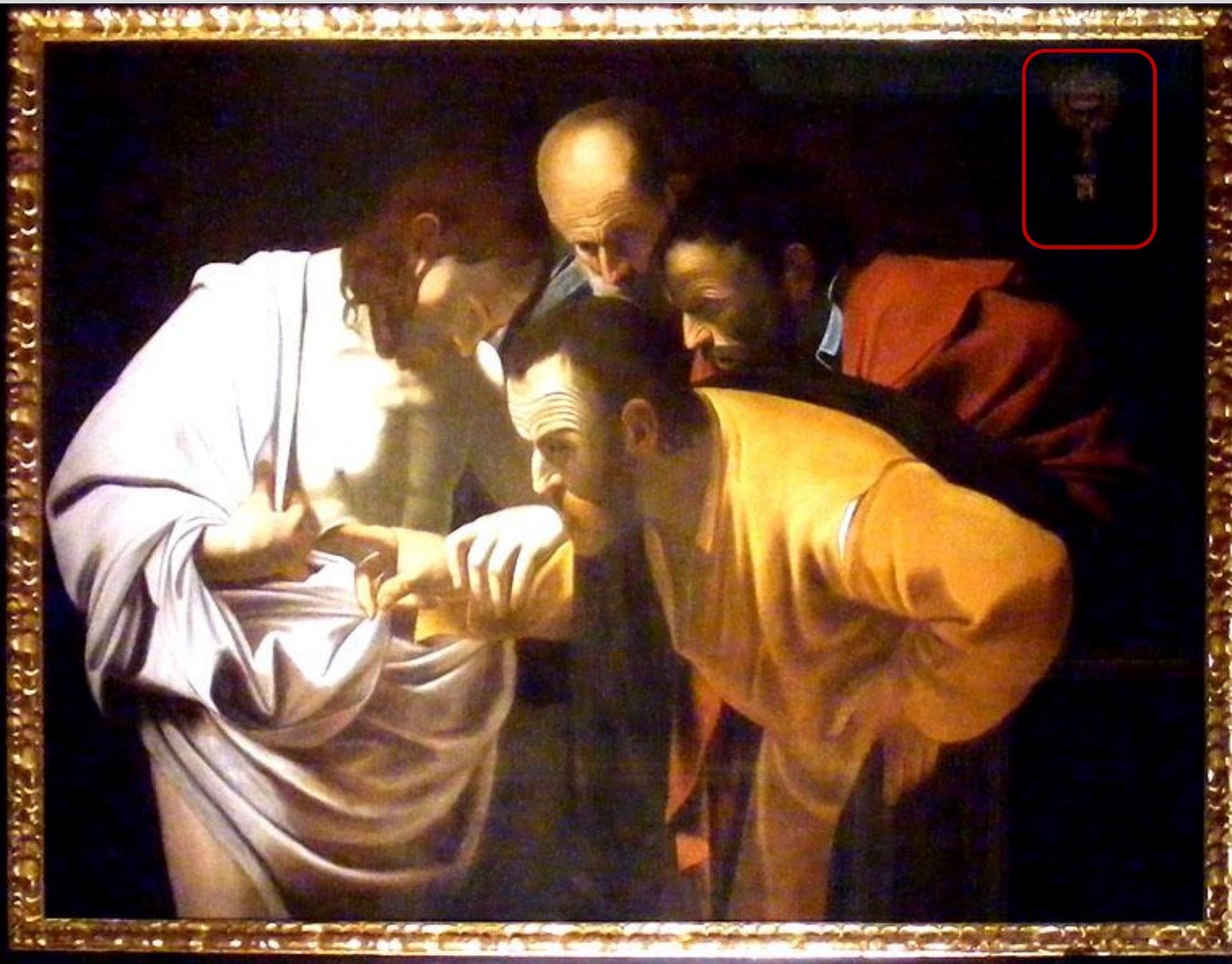
Philippe de Béthune

1565-1649

Served under Henry IV as envoy to the Papal Court (1601-5)

His mss. and books donated to the Library of the King in 1662, including Fr. 640.





# Philippe de Béthune, *Conseiller d'Etat*, 1633

La prudence, pour estre telle qu'il la faut à un Prince, doit estre accompagnée d'une cognoissance universelle de toutes sortes de science, non pas par le menu, comme pour en faire mestier & profession ; mais il en doit sçavoir autant qu'il luy est nécessaire, pour discerner le vray & le faux, & entendre ceux qui en discourent selon les occurrences. Son mestier n'est pas d'estre Ingenieur, de bastir des maisons, dresser un pont, d'estre bon canonnier : mais de cognoistre ceux qui sont les plus propres, & de se servir judicieusement de gens de toutes sortes de profession.

Prudence, as befits a Prince, must be accompanied by a universal knowledge of all sorts of sciences, not in detail, as if to make them his trade and profession; but he must know as much as is necessary to discern truth from falsehood and understand those who converse upon it as it may happen. His trade is not to be an Engineer, to build houses, to erect a bridge, to be a good cannon founder, but to recognize those who are best suited, and to make sensible use of people from all sorts of professions.

# LIST OF ENTRIES - PROFESSIONS



## Filter by Category

## Filter by Tag

- animal
- arms and armor
- bodypart
- currency
- definition
- environment
- german
- greek
- italian
- latin
- material
- measurement
- medical
- music
- occitan
- personal name
- place
- plant
- poitevin
- profession**
- sensory
- temporal
- tool

## Entries (207)

Ms. Fr. 640 consists almost entirely of distinct “entries,” i.e., units of text with titles. They have been grouped into **categories** to help browse the manuscript. Within entries, meaningful terms have been **tagged**.

Filter the List of Entries by selecting one or more "category" and/or "tag" buttons.

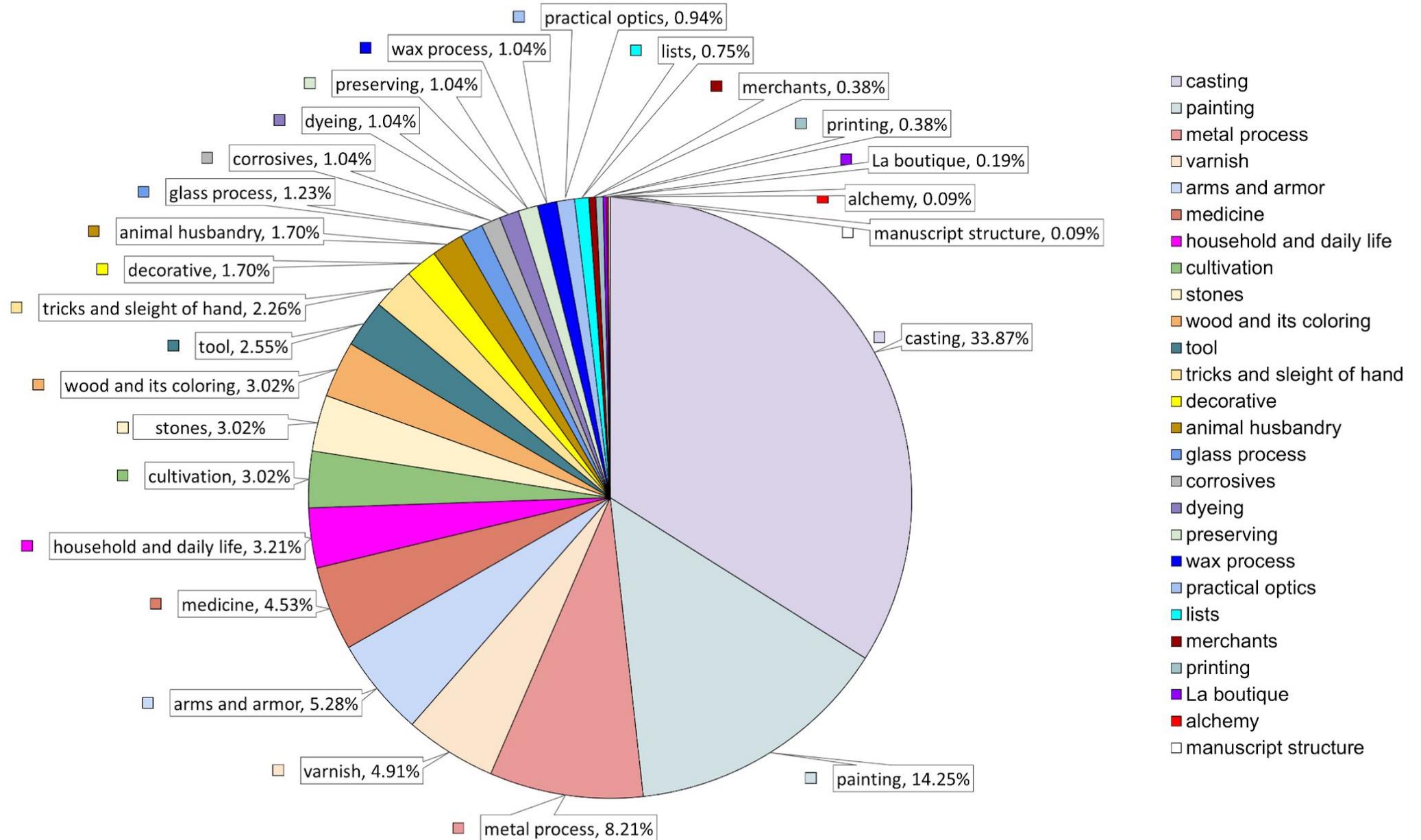
Sort:  By Folio Number  Alphabetically

[List of names] / [Liste de noms] - 1r

Categories: **lists**

Essays: [Introduction to Ms. Fr. 640](#), [Le contexte toulousain](#)

- 1 material
- 3 personal name
- 4 place
- 1 plant
- 2 profession**



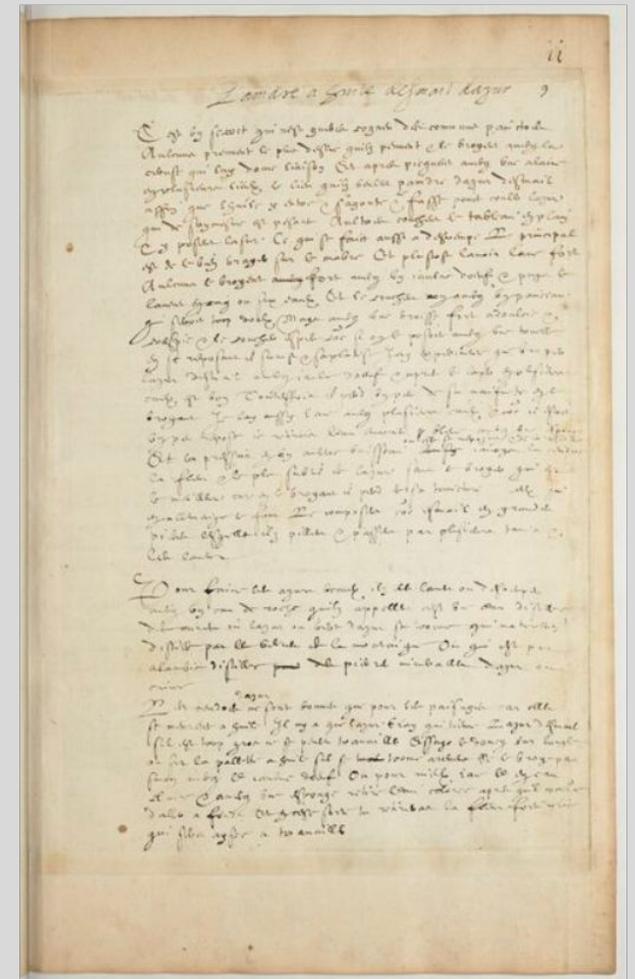
# Blues in BnF Ms. Fr. 640

## Painting esmail d'azur in oil (fol. 11r)

This is a secret that is hardly known to common painters. Some take the most delicate they can & grind it with ceruse, which binds it, and next prick with an awl in several places the area they want to paint with *azur d'esmail*, in order that the oil enters & leaks in, & does <sup>not</sup> cause the azure, which in itself is heavy, to run. Others lay the panel flat & put down the azure on it, which is also done in distemper. The main thing is to grind it well on marble, and before that, to have washed it thoroughly. Some grind it **with** thoroughly with an egg yolk & then wash it in five or six waters and lay it on not with a paintbrush, which would be too soft, but with a brush thoroughly softened & crimped, & layering it thickly as if one were putting it down with a trowel; settling down it evens out and flattens. I have experienced that grinding *azur d'esmail* with egg yolk & next washing it in several waters is good. However, it loses a little of its vividness in the grinding of it. I have also washed it in several waters &, when it had settled a little, I removed the water, still **et** blue, with a sponge and squeezed it into another vessel **thus** <sup>where it settled, & from the residue</sup> I had the ash, flower, and subtlest part of the azure without grinding it, which is the best, for in the grinding of it, it loses some of its tint. Those who make it in Germany compound it like enamel, in large pieces which they pestle, & pass through several sieves & wash.

To make azures beautiful, they wash or soak them in a rock water, as they call it; it is a water distilled from mines where azure or *vert d'azur* is found, which distills naturally through the veins of the mountain or is distilled through an alembic **par** from mineral stones of azure or copper.

**Azure** ashes are only good for landscapes because they die in oil. Only true azure holds on. *Azur d'esmail* cannot be worked if it is too coarse. Try it, therefore, on the fingernail or the oil palette. If it **[illegible]** happens to be sandy, do not grind it except with the egg yolk or, better yet, wash it in clear water & with a sponge remove the colored water after it starts to go to the bottom, and in this manner you will extract the very delicate flower, which will be easy to work with.

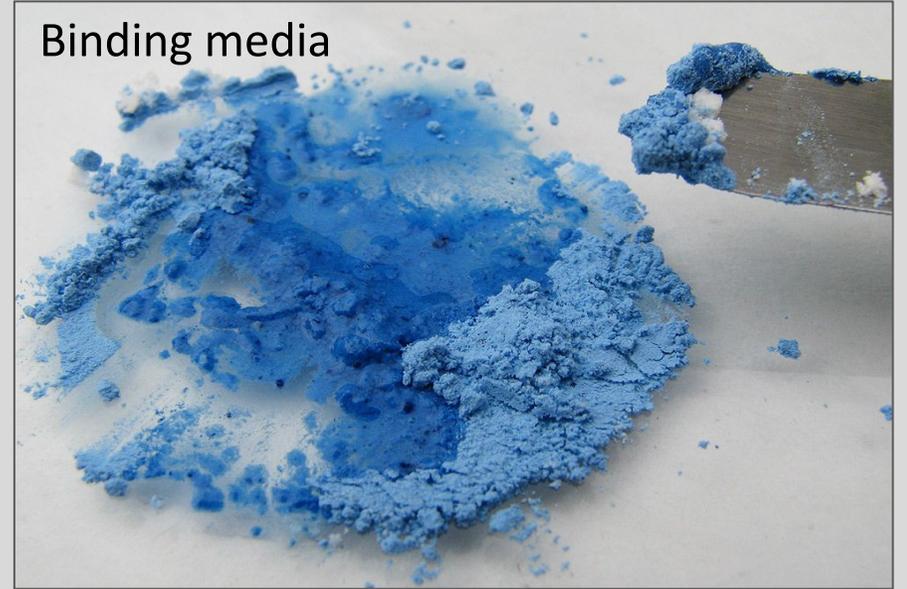


# Paint = pigment + binding media

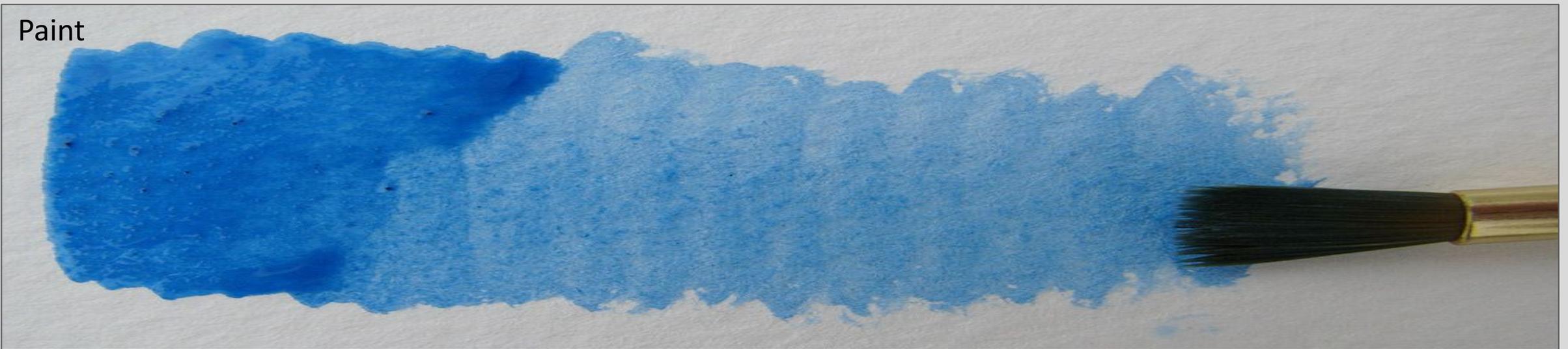
Pigment



Binding media

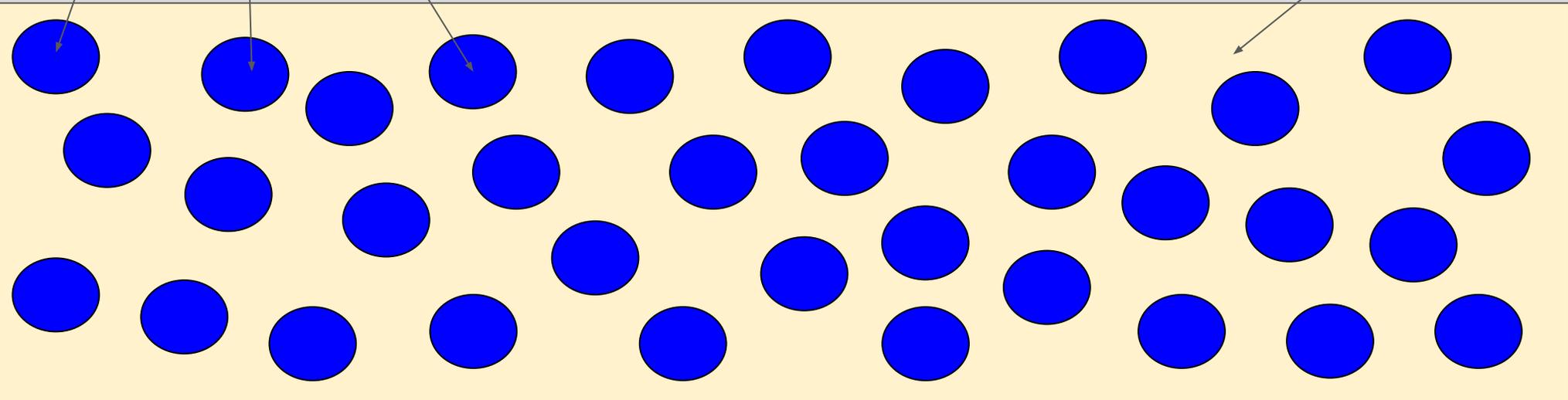


Paint



Pigment particles

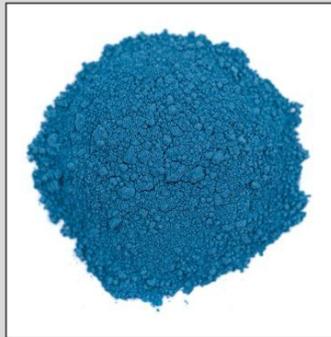
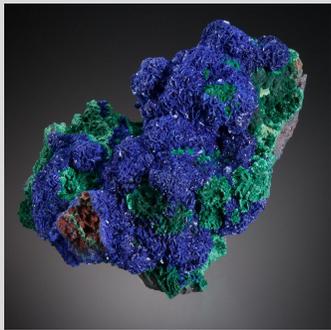
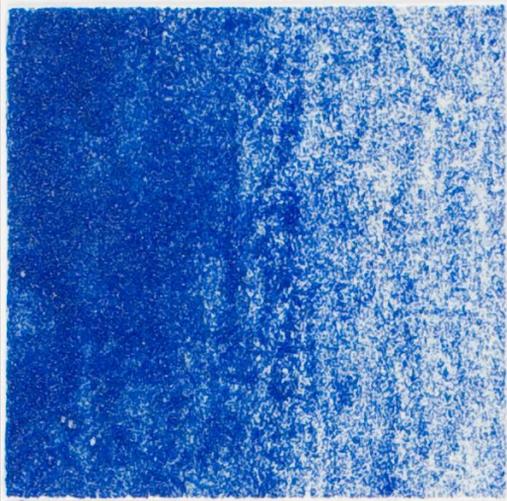
Binding medium



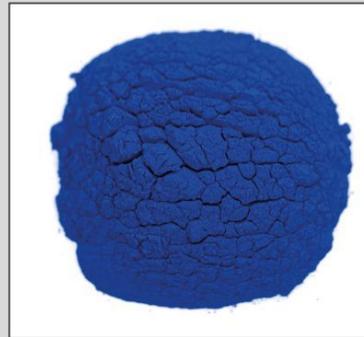
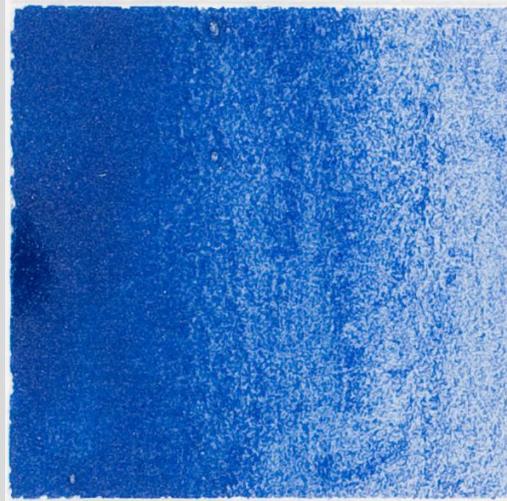
Substrate (paper, canvas, wood)

# Blue Pigments

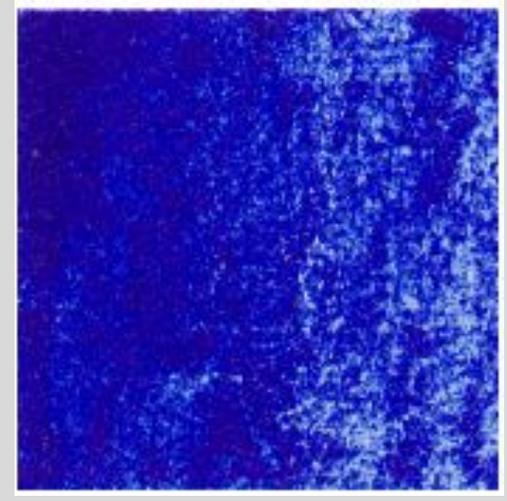
Azurite



Lapis Lazuli

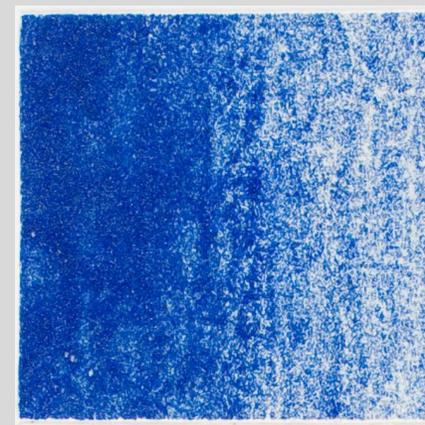


Smalt



# Azurite

- Natural basic copper carbonate,  $2\text{CuCO}_3\text{-Cu(OH)}_2$
- Coarsely ground azurite gives a deep blue color while finely ground particles give a lighter more transparent tone.
- Naturally found adjacent to the green copper carbonate mineral called **malachite**.
  - (<http://cameo.mfa.org/wiki/Azurite>)
- *The Virgin and Child with Saint John* (~1480), Filippino Lippi
  - The National Gallery
  - Dunkerton, *The Materials of a Group of Late Fifteenth-century Florentine Panel Paintings*





**E**us in ad  
uictorum  
meum inter

**D**omine ad adui  
uandum me festina  
**G**loria patri et filio  
et spiritui sancto

Très Riches Heures du duc de Berry Folio 44 verso: The Nativity



Très Riches Heures du duc de Berry Folio 2, verso: February



Très Riches Heures du duc de Berry Folio 6, verso: June

## Blue in Books of Hours: Très Riches Heures du duc de Berry (1412–1416)

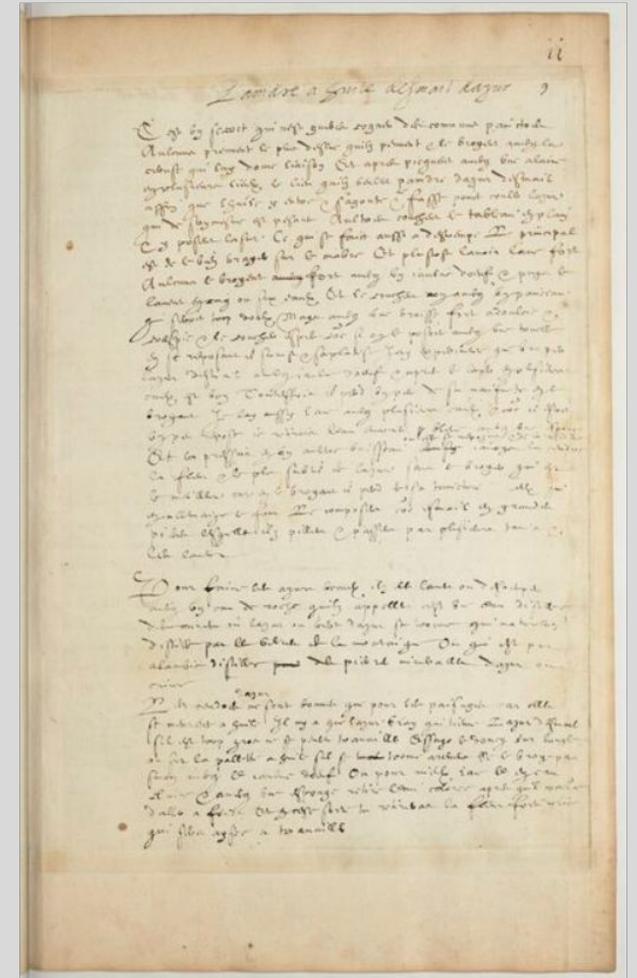
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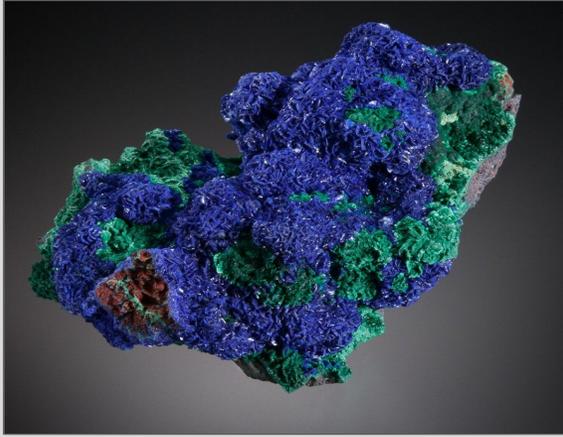
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**Read out loud together**

# Preparing and Using Azurite



## *Painting esmail d'azur in oil (fol. 11r)*

*The main thing is to **grind it well on marble**, and before that, to **have washed it thoroughly**.*

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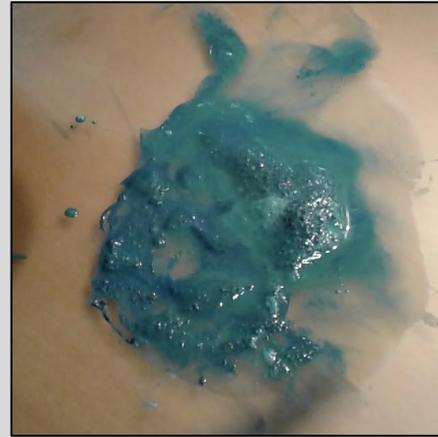
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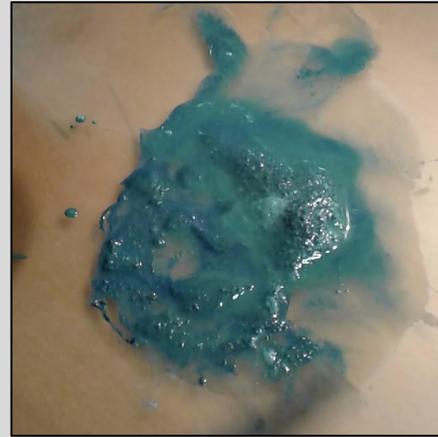
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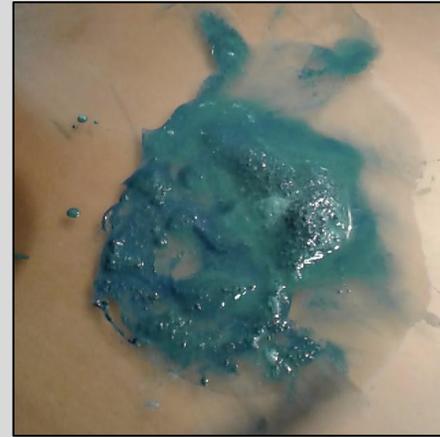
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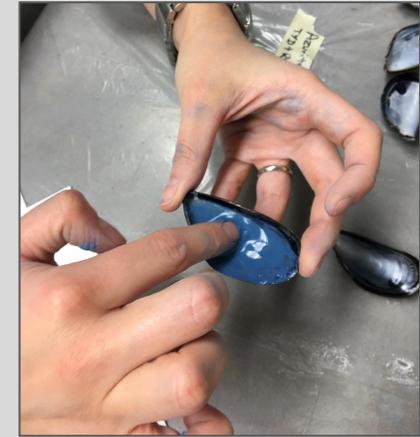
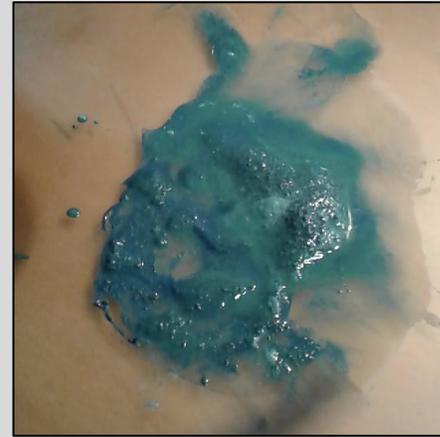
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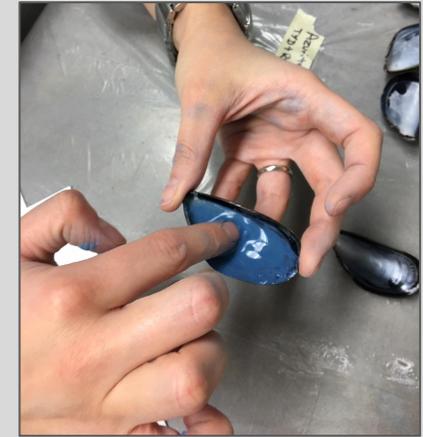
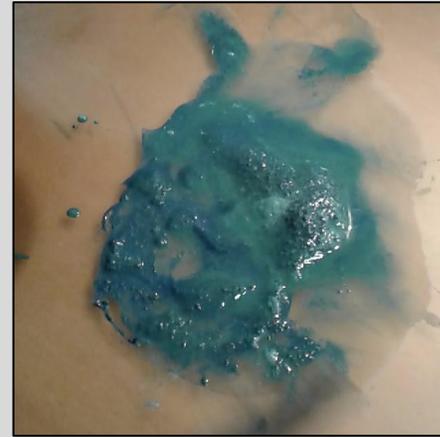
**Painting esmail d'azur in oil (fol. 11r)**  
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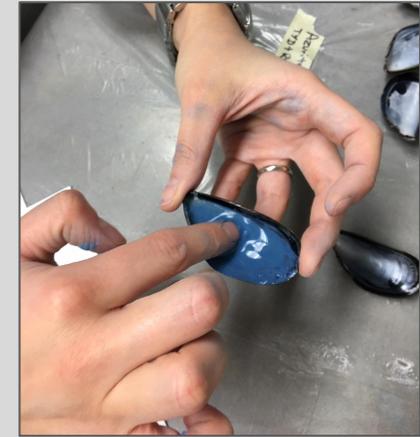
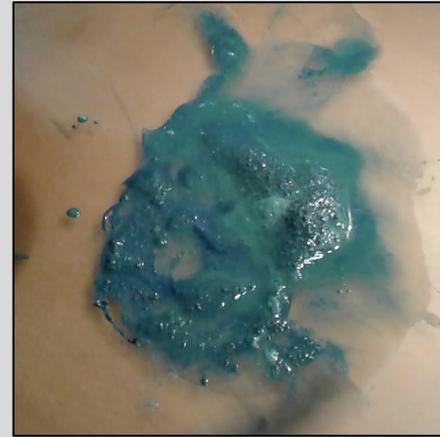
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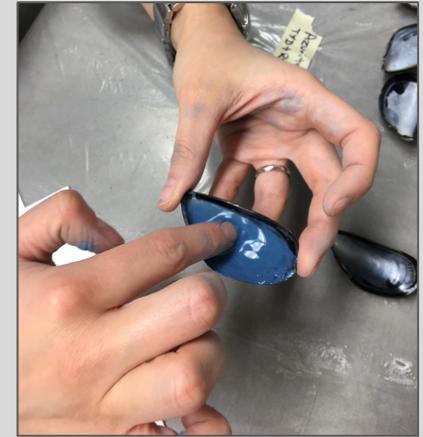
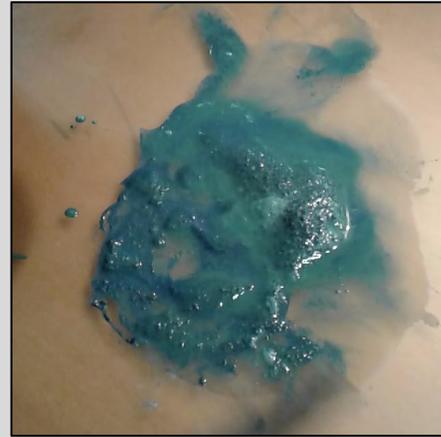
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# Preparing and Using Azurite



# Questions for consideration

- **Observation:**
  - What does the stone look and feel like?
  - Other than the blue parts of the stone, what other inclusions (different types of stone) can you see?
  - When the stone is ground, what does the powder look like?
  - How does it behave in water?
  - What do the particles look like?
- **Embodied experience:**
  - What kind of movements do you use in each step of the process (grinding, adding water, pouring, painting out)?
  - How does it feel to grind the azurite stone?
  - How does it change when you add water?
  - Can you manipulate the separation of the particles? How? (time, amount, ratio of water, speed of pouring)
  - How many different “grades” can you get?
  - When painting the different grades out, is there a difference between the paler and darker colors?
  - Is there a difference in the way each paint wants to be handled or flows off the brush?
- **Artisanal knowledge:**
  - What kind of knowledge would you need in order to prepare, apply, handle, appreciate these materials?
  - How might you acquire that knowledge today and historically?
- **Asking new questions:**
  - What new questions does this experience cause you to ask about paintings or other works of art in general?