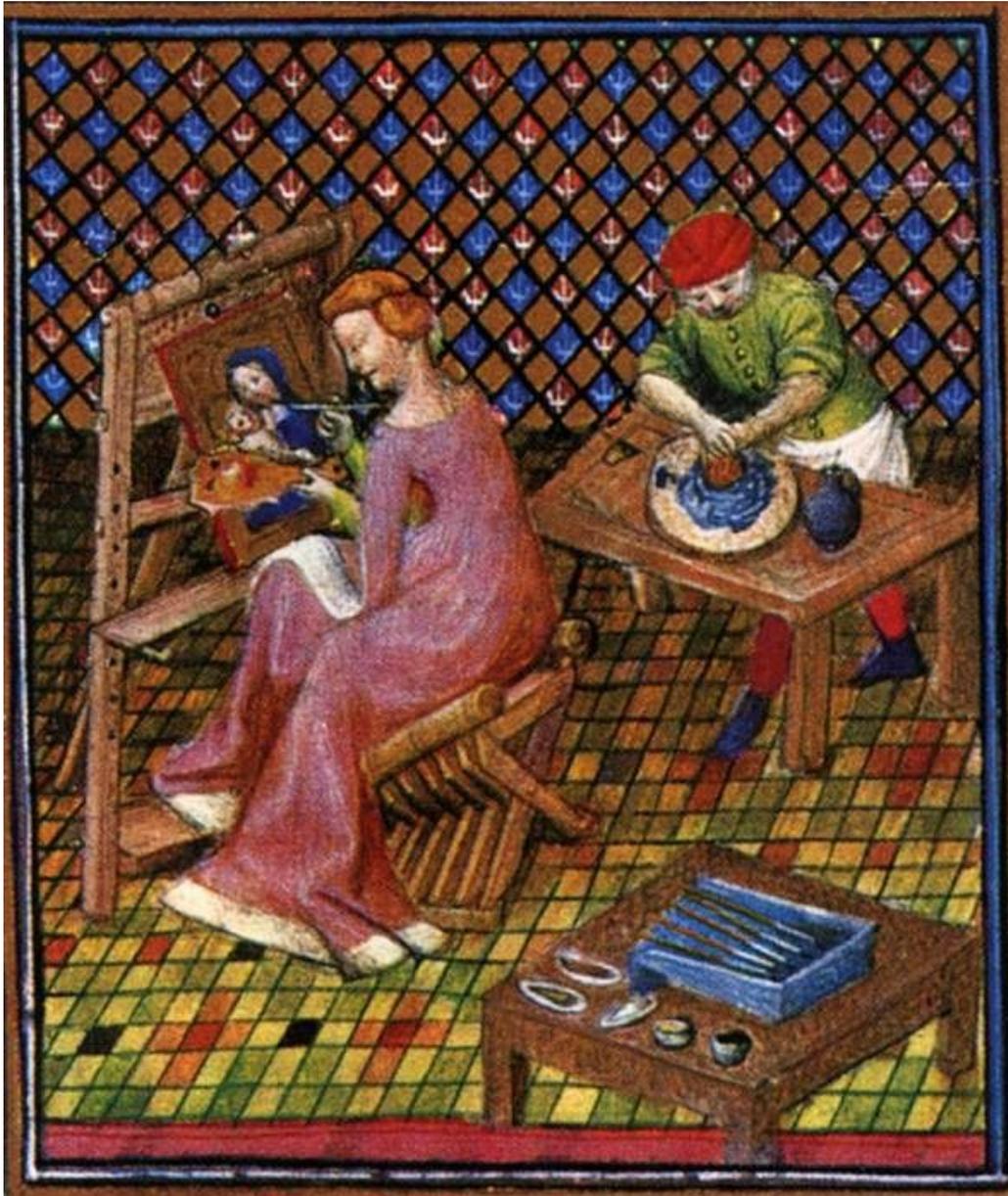


The Make and use of Period Pigments



Neville 1158 "book of hours"

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Royal Scribe to King Christian I and Queen Helene I AS52
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Letter of Introduction

Many artists in the SCA find the making and use of “Period Pigments,” that is paints that would have likely been found between 600-1600ce to be a daunting task, and one that is likely reserved for Peerage Scrolls, and Scribal Laurels.

However, I'd like to let you know that doesn't have to be the case! In this modern day and age, the creation and use of these paints is not only easy, but often after the initial investment of a few supplies, no more expensive than a good tube of gouache!

The use of these paints is not only easy, but appropriate for everything from Peerage Scrolls, to thank you cards and Charters! There is no reason that anything an artist can paint could have period paints used for it!

This handout, Originally Created for Kingdom Heraldic and Scribal Symposium in An Tir 2017 will guide you on your journey to more authentic use of paints. In it, I'll cover the making and use of various paints in period, how they can be made modernly, as well as some fact sheets showing you a handful of potential palettes by time and place, at the end of this document I have a resources page, showing you exactly where to get the supplies you will need, as well as a Documentation page so you can geek out over the same sources that I have found so useful here!

Thank you for joining me on this journey, and it is my sincere hope that by its end you too will have a collection of period pigments that you have made, and are being used on all sorts of things.

Yours in Service,
Pani Jadwiga Radomyskowa of Thornwold



Why Use Period Pigments?

With the wide availability of gouache why should a scribe consider using period pigments? For me at least it is a way to bring a little authenticity to our Kingdoms unique charter system. Its a way to get in touch with the scribes of the past, and understand the techniques that go in to the creation and use of these paints, beyond squeezing them out of a tube.

An Tir is unique in many ways, and our charters are one of them. In many Kingdoms, all awards are original scrolls and are awarded less frequently. However in An Tir, a great number of our awards are given out, many of them as charters. So what is the difference?

Charters:

Line art and words that are printed on heavy-weight paper

- Blanks left to fill in the name and date
- Individual to each reign – Kings and Queens will not reuse art nor is art created to be used for multiple reigns
- Hand-painted, but rarely for a specific person
- Royal Scribe or Court Coordinator will choose a fitting charter for the recipient
- Technically a promissory: recipients can commission originals for any charter they want (at their own expense)

Scrolls:

- Fully original art
- Does not have to be on paper/vellum, can be any matter of item
- Personalized for the recipient

But using period pigments a scribe is able to bridge that gap between the original scroll and our charter system, it is a unique thing that can add a touch of surprise to an award, and prepare you for working with more period materials in the future.

Pigment Myths Debunked:

It's Expensive!

Not really. Once the initial tools are bought the ground pigment is often the same price or cheaper than the store-bought paint. Moreover most of the tools you will need you have in your house right now!

Its difficult to make!

Again, not really. Most pigments are already created, so all you have to do is mix them with a binder and water to create your medium! Other processes can be a little more involved, but most are done within minuets.

It's toxic!

Only if you choose it to be! While lead and other toxic substances were often used in period there are non-toxic options available for all colors, as well as modern substitutes that allow you to create the correct color without worrying about toxicity.

The History of Medieval Painting and Techniques

When looking to gather information on medieval painting it is worth looking both backwards and forwards, both to documents written during the middle ages, as well as modern papers on various manuscripts and the composition of materials found within.

Most of what we know about pigments from this time period come from manuals that cover the making of manuscripts the the creation of tools for filling it. Early treatises include Vutruvuis “De Architectura” and “Naturalis Hustoria” by Pliny the elder, as well as “the Mappae Clavicula.” Each of these three are very broad in that which they cover, but do include section on the creation and use of various pigments. For the most part however, this document will cover information found in Theophilus' “On Divers Arts,” a 12c book covering many of the artistic crafts of the 12th century, and the 15thc treatise on painting by Cenino Cennini “Il Libro dell'Arte.”

As to looking at modern information I have found a great resource in the documents published by the Journal of Raman Spectroscopy, a monthly peer-reviewed journal covering all aspects of Raman spectroscopy. Whats that? Glad you asked, named after Sir C.V. Raman it is a technique wherein light is bounced off a material creating a specific pattern, this pattern correlates to a specific material. How that applies to period painting is that by using this techniques historians can verify what material was used not only to create a certain pigment, but also what binder was mixed in! These journals are a fantastic resource for creating historically accurate pallets for your image. The reason I am particularity fond of this method for deducing the composition of pigments is that it is non-destructive and does not harm the manuscript.

Pigments in the Modern Style

Where to get them, how to turn them in to paint, and how to use them

Now that we've just dipped our toe into the wide world of medieval pigments, it's time to bring this information home and start using these paints in your projects. The best thing about period pigments is once you get over the initial hurdle of gathering supplies and a little trial and error they are very easy to use, and often no more expensive than a tube of good gouache! These paints are perfect for most projects from scrolls, to thank you cards, to charters, and everywhere in between.

Supplies Needed

This list will cover the basics that you need to start using period pigments.

- ◆ **Commercially Available Period Pigments (see end of this handout for suppliers)**
These will usually be pre-ground in small containers. Take care if you are using toxic pigments! As a rule I only use these pigments on certain scrolls and for people who will really appreciate the extra step of using the “scary” stuff. For most projects the non-toxic options are perfectly acceptable!
- ◆ **Mortar and Pestle**
This will be used for grinding larger pigments, and for when you are ready to go from a whole rock to powder.
- ◆ **Muller**
For mixing and grinding pigments
- ◆ **Glass or Tile mixing Surface**
A Piece of thick glass, or non-porous tile works well. This is your surface upon which you will actually make your paints.
- ◆ **Artist Spatulas**
For mixing your pigment with binder, as well as scraping it off your mixing surface.
- ◆ **Distilled Water**
For mixing. Its important that this is distilled water so that there are no trace minerals to interact with your pigments.
- ◆ **Binder**
This can be gum Arabic, egg yolk tempera or glair. See below for the creation of each.
- ◆ **Clam or Oyster Shells or a palette**
To hold your paint once its mixed up (*Note do not use air-tight containers as your pigment may mold!*)
- ◆ **Pipettes**
For better control of the addition of water or liquid gum Arabic
- ◆ **Small spoon**
Such as you find in a salt cellar, I find these are perfect for measuring out pigment and binder
- ◆ **Safety Gear**
Its good to have gloves, glasses and a mask when dealing with toxic pigments.

The Binders

There are four main binders used in medieval painting: Oil, Egg Tempera, Glair and Gum Arabic, this handout will be covering the last three. Oil painting was popular in the middle ages, and due to the depth and breath of that subject has been omitted at this time. Each binder has different uses and properties. The general technique among all three remains the same: create binder, add pigment, water if needed then paint. (Thompson 42)

Egg Tempera

Egg tempera is one of the earliest used binders, it is a strong and long lasting binder, in fact paintings from the first century which use this method still exist. The advantages of this binder are that it is long lasting, and gives the pigments added to it a deep rich color. Egg yolks would be separated from egg whites and then removed from their sac, and mixed with pigment, other additives may be used as well, including distilled water, white wine or vinegar

The disadvantages is that it is very stiff, and brittle, and in large quantities can have a bit of an odor. For that reason myrrh was sometimes added to the paint to give it a better smell. Tempera paintings are almost exclusively on board or walls. (Cennini 118-119,121) (Theophilus 23)

Glair

After egg tempera the most common binder used in the middle ages was Glair. Until the 14c it was the most popular binder. This is created from egg whites that have been beaten until foamy, strained and sometimes left overnight. This sticky liquid can be added with pigment and a little water to make a good paint. The advantages of this paint is that it takes a bit longer to dry so it is good for blending. It also creates a rich hue with the colors. It has a similar disadvantage as egg tempera in that it is a bit stiff and can crack if it is laid down too thickly. While it is decent for use on parchment which lays flat there is still a risk for cracking if placed in a book where the pages will be turned often. (Cennini 79,100,102) (Theophilus 31-32, 36-38) (Thompson 50, 55)

Gum Arabic

This binder is made from the sap of the acacia tree. The sap is collected and dried, usually in small round pellets, discs or rods. From there it can be ground up into a fine white powder, or it can be dissolved into water with a bit of honey (as a preservative) to create liquid gum. This is mixed with pigments to create paint. As with the other two binders, the ratio of binder to pigment depends on the individual item.

It has the advantage of being very workable, drying slowly, and easy to reconstitute with water. Paintings done with this binder are rich and flexible, making it a perfect medium for painting in books. (Cennini 18,102) (Theophilus 28-29, 38, 105) (Thompson 55-58)

Creating the Binders

Gum Arabic

You will Need

- Mortar and Pestle

If your gum Arabic is in powdered form you are ready to go.

If you buy it in a liquid form, you are ready to go.

If you get it in its raw state take the gum Arabic and grind it in your mortar and pestle until it is a fine white powder.

Egg Tempera

You will need:

- Eggs
- Paper Towels
- Small Knife
- A container to hold your Tempera

Step One

Crack the egg and carefully separate the yolk from the white. If you are going to make multiple binders, save the whites.

Step Two

Carefully lay the egg on a paper towel and roll it around by lifting edges of the towel until the yolk is dry

Step Three

Holding the egg gently in one hand, use the knife to prick the egg and let the yolk run out of the sac and in to your container.

Step Four

The egg yolks wont keep for more than a day or two, so use them immediately, and store in the fridge in a tightly capped container.

Glair

You will need:

- Eggs
- A couple of bowls
- A whisk
- Cheese cloth, or other fine cloth

Step One

Separate the egg yolks and whites. If using the yolks for *Tempera* see above.

Step Two

Place the egg whites into a bowl (traditionally wooden), and beat until they become foamy, keep beating until you have good stiff peaks. (This can be done with a hand blender too)

Step Three

Take your second bowl, or a cup, and place the cloth over it, securing it so that it will not move, but has a small depression in the middle.

Step Four

Carefully scoop out your egg white foam and place it on the cloth so that it can separate, strained through your cloth.

Step Five

Leave this for at least two hours, up to over night. Do not put in the fridge.
Optional Step: Repeat steps 3-5 once more.

Step Six

Once you have the liquid that has strained through it is ready to be used, it can be stored in the fridge in an airtight container. Make sure it warms up to room temp before using it again.

Making Paints

It is best when learning to use period pigments to work in small batches at a time. While paint made with gum Arabic will reconstitute well, and can be used pretty much like modern gouache tempera and glair paints will not always reconstitute correctly.

Step One

Place a small spoonful of your pigment on the glass tile. Using your glass muller grind it a little to get a feel for it. If it is smooth it is ready to go, if it feels very gritty, grind it a bit to make it finer. You can choose to add a few drops of distilled water to help keep it together.

Step Two

Take the binder of your choice, and mix it 50/50 with your pigment. Use your spatula to get it full mixed in and your muller until it is fully incorporated. You may need to add water, one drop at a time until you get a consistency you like.

Step Three

Using your paint brush and a small scrap of paper, paint a few strokes of your paint to check for thickness, coverage and general feel. From here it all goes to personal preference. If the paint is thin and not very opaque add more pigment, if it pools add a bit more binder. Overall you are looking for it to handle much like gouache or watercolor.

Step Four

If you like the way the paint looks use your spatula to scrape it off of the tile and into a shell or other small container.

Step Five

Pat yourself on the back, you've made period paints!



Set up for Period Painting, notice the shells on the left along with the muller and glass tile. Photo by Author.

Your Pigments

The Kit you have received today contains 6 pigments, below is a bit of information about them:

Cadmium Red

Toxicity: Non

Pigment Type: Man-Made

History and Creation: The mineral cadmium sulfide is heated and mixed with selenium to create this pigment

Notes: This is a good non-toxic pigment to use in place of red lead (Douma, Cadmium Yellow/Red)

Raw Sienna

Toxicity: No

Pigment Type: Earth

History and Creation: Sienna refers to pigment worthy stones of a darker yellow to red color. Raw Sienna is these stones in their natural form, while burnt refers to heating the stones until they darken in color. (Thompson 89)

Blues

(Latin: Stone-Sky/Heaven)

Toxicity: No

Pigment Type: Earth

History and Creation: Coming from the blue lapis lazuli stone which was originally mined in north-eastern Afghanistan. Cennini says of this stone, that it is "...illustrious, beautiful, and most perfect beyond all colors."

Notes: This color was used often, and in many (if not most) manuscripts. (Cennini 36)(Thompson 145-150)(Bucklow 44-46,57-62)

Terra Vert

Toxicity: No

Pigment Type: Earth

History and Creation: Can be applied to any number of green earth minerals, usually refers to light cool greens. The minerals that were used in the middle ages are scarce and it's more likely to find and use a synthetic version.

Notes: Of interest this cool dull color was often used to under paint warm flesh tones (Cennini 30) (Thompson 162-163)

Carbon Black

Toxicity: No

Pigment Type: Natural

History and Creation: The organic plant-matter version of Bone Black. Usually charcoal made from grape vines. To prevent the sticks from turning to ash they must be heated and burnt without contact to air.

Notes: Makes a lovely cool blueish black. (Cennini 22) (Thompson 85)

Titanium White

Toxicity: No

Pigment Type: Man-Made

History and Creation: The ore Rulite is oxidized and the resulting film is scraped off and ground into pigment. (Douma, Titanium White)

Period Pigment Pallets

The following is a collection of pallets base on time periods, and places throughout the SCA. Information gathered about the use of these pigments has come from various articles from the Journal of Raman Spectroscopy, The Pigments through the Ages Web Exhibit as well as historical sources.

While this is not exhaustive, and there are always exceptions each of these sets will give you an idea of the colors being used throughout the middle ages.

9c Carolingian

Carbon Black, Indigo, Lead White, Red Lead, Orpiment, Vermilion

9c Irish & Anglo Saxon

Carbon Black, Lazurite, Lead White, Red Lead, Orpiment, Vermilion, Verdigris

12-13c French

Red Lead, Cinnabar, white lead, Lazurite

13c England

Carbon Black, Indigo, Lasurite, Orpiment, Red Lead, Verdigris, Vermilion, white lead, indigo

14c Russian

Carbon Black, Lead White, Lead Red, Lazurite, Orpiment, Verdigris, Malachite, Lac

15c England

Carbon, Vermilion, White Lead, Lazurite, Ocher, Orpiment, Yellow Lead

15 c French

Lazurite, White Lead, Yellow Lead, Red Lead, Cinnabar

16 C Turkish

Lazurite, Malachite, Azurite, Lead White, Carbon Black, Indigo, Orpiment, Vermilion, Red Lead, Indigo

Pigments Throughout The Ages

This chart is a generalized reference for the most common used pigments in the western world from the 9th century to the 16th century. Obviously regional variations and availability apply, but this is a great start for narrowing a pallet down to likely colors that would have been used.

	9c And Earlier	10c	11c	12c	13c	14c	15c	16c
Alizarin Crimson					X	X	X	X
Brazilwood						X	X	X
Conchineal							X	X
Lac/Lake	X	X	X	X	X	X	X	X
Minium/Red Lead	X	X	X	X	X	X	X	X
Vermillion	X	X	X	X	X	X	X	X
Gamboge								X
Orpiment	X	X	X	X	X	X	X	X
Yellow Lead					X	X	X	X
Yellow Ochre	X	X	X	X	X	X	X	X
Chrysocolla	X	X						
Malachite	X	X	X	X	X	X	X	X
Sap Green				X	X	X	X	X
Terre Verte	X	X	X	X	X	X	X	X
Verdigris	X				X	X	X	X
Azurite	X	X	X	X	X	X	X	X
Indigo/Woad	X	X	X	X	X	X	X	X
Ultramarine/Lazurite	X	X	X	X	X	X	X	X
Tyrian Purple								
Sienna	X	X	X	X	X	X	X	X
Umber	X	X	X	X	X	X	X	X
Bone Black	X						X	X
Vine Black	X	X	X	X	X	X	X	X
Lead White	X	X	X	X	X	X	X	X

Resources

Or, Where do I buy all of this stuff?

Pigments

Guild of Limners - <http://limnersguild.com/>

This is my go to for all things pigments! Great prices and ran by SCA folk, what more can you ask for?

Natural Pigments - <https://www.naturalpigments.com/>

These guys have a great range of supplies, including some make your own paint kits that are a great resource for gathering all your supplies!

Gum Arabic

Amazon – Amazon.com

That's right. By searching for “Frontier Bulk Gum, Arabic Powder” I found a great price on bulk food-grade gum Arabic This is powdered, and a fantastic deal.

Contact:

Should you ever wish to talk to me I can be contacted at:
jadwiga.sca@gmail.com or on FB: Jadwiga Radomyskowa

Sources

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