

# Gilding 101



Medieval Painting of The Pentecost France c. 1470

by Jadwiga Radomyskowa – Thornwold Scriptorium, An Tir  
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# What is Gilding?

Simply put, gilding is the application of gold to a surface. When we think of it in terms of a medieval scribe, this is the application of metal to a manuscript page. While we usually think of gold, during the middle ages silver, as well as tin, and alloys of various metals were used! In fact the term illumination comes from the latin word 'lumen' which means bright, glimmer or shine, and refers to a manuscript w/gold on it. However it is interesting to note even in period illuminator became to mean anyone who decorates a page with decoration, whether or not there is gold present. For this handout we will be only covering gilding with gold.

Originally gold was applied as a paint, this is what is known as shell gold. This is gold that is ground up with salt and honey, then mixed with gum Arabic to create a paint, much like our modern gouache, or the period pigments of the time. Then came flat gilding, which is to say gold applied with a size (glue) on to the page. Finally the advent of raised gilding, which is gold that is attached to gesso. This is beautiful at all angles, and can be embossed.

This handout will cover flat and raised gilding, how to do it in a couple different ways, as well as how to make the various materials you need. It will also cover where to get them.

## ***Best practices:***

Wash your hands: Oil from your hands can mess up gilding. Its best to have them clean at all times.

Work in a well lit, humid area. Gold works best when there is a little moisture in the air.

Be aware of drafts: Gold is so light that an errant sneeze or even quick breath can send your precious metal floating off into the distance. Make sure your work area has no breezes or fans on.

Warm drink: It's important to have a warm drink with you, this helps get good humid breaths when you are working with gesso.

Gilding is finicky: Gilding can be difficult. It's not an easy process, mistakes are gonna happen. It's part of the learning curve.

## **The Nature of Gold: Real vs/ Imitation**

When gilding you have two options for your gold, imitation or real. Both have their advantages and disadvantages.

*Imitation:* The obvious advantage to imitation gold is that it is significantly less expensive than real gold. It is fine for most applications, especially charters, thank you cards and the like. The biggest draw back is that it does not meld the way real gold will, so there will often be small seams in your gold.

This is usually not something someone will see unless they know what they are looking for. There is nothing wrong with using imitation gold on originals!

*Real Gold:* Real gold is amazing, and has a few properties that make it unique. The main two being that it can be thinned pretty much down to the atom, and two that it melds with itself with the barest of heat and pressure when it is this thin. This is how gilded manuscripts get that seamless mirror-like surface. I like to use 23k gold when I am using real gold. It seems to be the best midway point between the traits of true gold and affordability.

## Preparing the surface to be Gilded

The first step to any gilded piece is to have your image ready. While your various applications may change, this is a good general outline to get you started.

### *Choose your surface you will Gild:*

You can gild on paper, or parchment, both are fine. If you are choosing paper, I recommend a heavier weight bristol, or cold pressed watercolor. Look for paper that is smooth, because gold will pick up any texture (especially flat gilding!)

### *Choose your design:*

Look at manuscripts to get an idea of what is gilded, and plan accordingly. Transfer your image onto your chosen surface, I like using a sepia micron pen as it is an easy way to replicate the oak-gall ink that was used in period.

### *Burnish your design:*

Using a burnisher, or a small bit of smooth agate, apply firm pressure to the design and buff the entire area. You do not want to press down so hard that you leave divots in the surface, just enough that the fibers are compressed a bit. If your rock or burnisher has a tip, use that to outline your design with a little more pressure.

## Preparing the Gold:

### **Patent:**

This is gold that is adhered to a piece of tissue paper. It is good for newer gilders as it is less likely to float away if you breath harder. You want to ideally work with pieces that are about 1-2” square. Use sharp scissors to cut your gold to size.

### **Loose leaf:**

This is as the name implies loose sheets of gold, more proper for period gilding, but tricky as they will float away if you breath too hard (or in my experience if you even think of breathing!). Using a gilding cushion, which is a bit of suede attached to a board, and a very sharp knife cut your gold to 1-2” squares. Only cut what you will need, and you can always cut more, because it is easier to store in the larger sheets. If you don't have a gilders cushion, I have found a good cotton hoodie wrapped around a hardbound book works well.



Illuminated Initial N, Spanish, 1290-1310

## **Making the Supplies:**

### **Glair**

Glair is simply put the liquid that separates from egg-whites that have been beaten to stiff peaks.

To make glair take egg whites and beat them until stiff peaks form. You can do this by hand (good to have an apprentice for this, as they did in the old days!) or use a whisk attachment on your hand-mixer. Once you have stiff peaks, transfer your eggwhites to a container, I like to use an old plastic yogurt or sto-go soup container, and let them sit over night-covered.

The next day pour off the liquid, and store in an air-tight container. Ta-Da! You have glair!

Glair can be stored in the fridge, and will last a while.

As it ages it will become more yellow, and yes, stinkier. This “aged” glair is amazing for painting and gilding.

### **Gesso Sottile / Slaked Plaster**

Gesso Sottile, also known as slaked plaster is plaster that has been treated with water until the structures of the plaster change from blob-like grouping to long intertwined shapes. (I know, very scientific)

To make this take one part plaster, and many parts distilled water. This ratio can vary. I was originally taught one cup to a few gallons, but I did an experiment with 2/3 cup to 4 cups of water and got good results. The important part is that you have much more water to plaster.

Mix the water and the plaster. If your container has a lid, put it on and shake the heck out of it for about 5 minutes. If it is an open container, stir, stir, stir. You want to vigorously stir, the idea here is to break up the plaster into really small bit and suspend it into the water.

After you are done, let it sit, uncovered until the next day.

The next day carefully pour off the water, and add more. Repeat with the shaking and stirring. Make sure that all the bits and pieces are getting mixed up, there should not be any clumps or solid bit.

If there are pull them out, let them dry, crush them to a fine powder and put back into the mix.

Repeat this for 1-2 weeks.

Then every 3 days do this for 1-2 more weeks.

You know your plaster is slaked when you dry out a little bit, and it is soft, and silky to the touch.

When the plaster is ready, pour it out on a bit of tin foil that has the edges turned up, and let it fully dry.

Store it in an air-tight container.

### **Gesso**

Ceninni gives us two recipes for Gesso.

#### **Gesso the First:**

3 parts Gesso Sottile

1 Part White Lead

2/3 part Sugar (less than the lead)

Mix the three dry ingredients with a wooden spoon, or plastic spatula, grind in a mortar and pestle, or with a muller if they are not smooth.

Add enough distilled water until it becomes a smooth paste

Leave it in small quarter size dollops, and let it dry away from the sun

When you are ready to gold, take only as much as you need and reconstitute it with glair until it is smooth and the consistency of heavy cream for images, or thinner (with distilled water) if you would like to write with it.

## **Gesso the Second**

2 Parts Gesso Sottile  
1 part white lead  
1 part Bole  
a small amount of sugar

This is a gesso that can be mixed and used right away. To prepare, grind or mull the dry ingredients until they are very fine.

Mix with glair until you have the consistency of heavy cream.

## **Modern Gesso Recipe**

This recipe comes from Claire Travers, one of the leading American illuminators.

She uses a spoon that holds .5ml (about .01 oz)

16 measures of Gesso Sottile or precipitated chalk

2 measures of white lead

4 measures of Armenian bole (I prefer to use 2)

6 measures of honey water (honey that has been thinned down a little with distilled water)

4 measures of fish glue

Distilled water to desired consistency

Mix the dry ingredients together until they are fully incorporated. This can be done with a small lidded jar that can be shaken.

Put the mix on a glass slab and add a little bit of water until you get a homogenous paste. It will be fairly dry at this point.

Begin to add the wet ingredients, one at a time first the honey, then the fish glue, mixing them well.

You will need to add a little water every now and then to keep the consistency right.

You will want to mix this for at least a half an hour, maybe more, do this until you no longer see any white threads in the mixture, which means the lead has fully incorporated.

Take your mixture and transfer it to a lidded jar, and let it settle over night.

The next day look for bubbles, if there are any, take a paint brush handle that has ear wax on it (yeah, I know) and touch it to the bubbles to get rid of them.

From here you can dole out small dollops of gesso onto glassine paper to dry for later use, or keep your gesso in the container.



Reproduction of folio 179 v des Heures de Nuremberg by Claire Travers

# Gilding your Manuscript

## Flat Gilding:

From “On Divers Arts” by Theophilus

*“In laying on the gold, take glair, which is beaten out of the white of an egg without water, and with it lightly cover with a brush the place where the gold is to be laid. Wet the point of the handle of the brush in your moth, touch a corner of the leaf you have cut, and so lift it up and apply it with the greatest of speed. Then smooth it with the brush...When this piece has been laid on and has dried, lay another piece over it in the same way, if you wish and also a third, if necessary, so that you can polish it all the more brightly with a tooth or a stone.”*

## Supplies needed

Glair

Prepared Gold Leaf

Paint Brush

Glassine paper

Burnisher or agate rock

Exacto knife, or pen knife

## The process:

1. Prepare your design as outlined above.
2. Go wash your hands.
3. Carefully paint the area to be gilded with the glair. I like to do at least three applications. The first layer is to seal your surface. The second layer is to focus on the edges and corners, and the third is to smooth everything out. Let the glair dry until it is tacky. It should be glossy looking but not wet. I like to take a scrap of my surface and paint a little extra glair on it, because I can touch it with my finger and test the tackiness, without worrying about ruining the design.
- 4a. If you are using patent gold, place the square down, rub gently with your finger, and pull up, repeat until all the glair is covered.
- 4b. If you are using loose leaf, take the back of your paint brush and either touch it to your tongue, the inside of your ear, or run it against your scalp to pick up oils. Touch it to the gold, and gently place it over the glair areas, repeat until all is covered.
5. Take a sheet of glassine paper and place it over the entire area, and with gentle but firm paper rub the design.
6. Remove the glassine paper, and with a soft brush clean up the edges of your design.
7. Reapply gold as needed.
8. Once you are happy with the gold coverage, take your burnisher or agate and gently rub over the entire area until it is smooth and shiny.
9. You can take a sharp blade and clean up any edges that have gotten messy
10. You can now outline your design with black or brown ink if you would like.

## Flat Gilding Style – other options

There are three other types of size you may consider for gilding: gum ammoniac, aquasize and Jerry Tresser “Pink Stuff.” All three of these can be applied using the same steps as above. Gum ammoniac is mentioned in “De Arte Illuminandi.” You can buy the ammoniac ready to be gilded with (see below), or make it using gum crystals. Aquasize and “Pink Stuff” are both modern flat-gilding sizes and are perfectly fine to use if you are not worried about authenticity.

## Raised Gilding

From “ Il Libro dell'Arte” by Cennino d'Andrea Cennini

*“...a gesso, which is called size, and is made as follows: take a little gesso sottile and a small amount of white lead, less than a third as much as of the gesso; then take a little sugar candy, less than the white lead. Grind these things very fine with clear water then scrape it up and let it dry without sun. When you want to use some for gilding, take a little of it, as much as you need, and temper it with the white of egg, well beaten...”*

### Supplies

Gesso

Glair

toothpick or skewer

Burnisher

A note card rolled up into a tube and taped

A pen or exacto knife

Prepared Gold

Paint Brush

Glassine paper

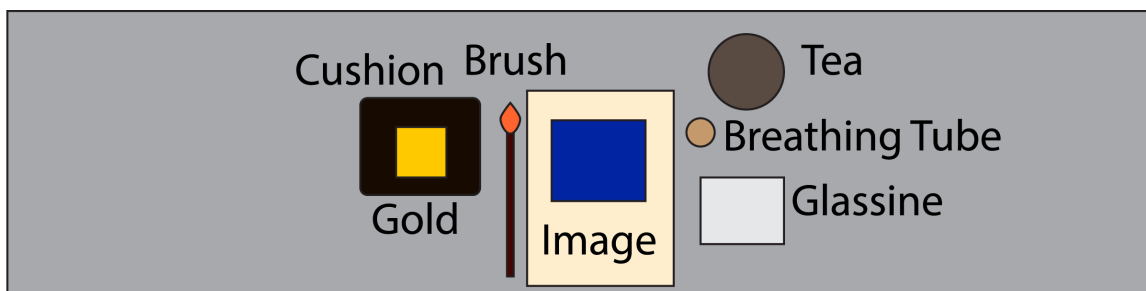
Tea

### Steps

1. Take your dried gesso that you have made, and put it into a small glass container.
2. Add a little bit of glair and moisten the gesso. With a toothpick, skewer, or the end of your brush gently begin to stir the gesso (you want to be careful, as you must avoid bubbles)  
Add enough glair that the gesso move freely, but is not so wet that it begins to buckle your paper
3. Using a paintbrush or a quill, fill in your design. You are looking for something with a little height, but not a huge pillow.
4. Wait for it to dry, as it does so, go back and touch up any corners, or missed areas.
5. Now really wait for it to dry. This can take 30 min to a day depending on humidity and temperature. Once the gesso is dry, it is time to burnish.
6. To burnish take your burnisher or a piece of agate and with firm (but not too hard) pressure rub the gesso. What you are looking for is to smooth the gesso, and it will become shiny as it is burnished. Pay special attention to corners, nooks and crannies. If you have any lumps, a sharp knife can be used to gently scrape them down. Keep burnishing. You cannot over burnish.
7. Once your gesso is shiny and smooth it is time to apply the gold.

*It is best if you can manifest two additional arms for this part, but if you cant, your base two will suffice, it's just harder.*

You will need your hot beverage near by, your image in front of you, glassine paper, your breathing tube, and the gold to one side. (See diagram for how I set up)



8. Take a drink of your warm beverage.
9. Using your paint brush, touch it to your tongue (make sure this is not the same one you stirred your gesso with!), your inner ear or through your hair. Use it to pick up the gold.
10. Using your breathing tube, breath three long, deep warm breaths on the gesso.
11. Immediately cover the area with gold.
12. Place the glassine paper over the gold, and using your finger gently rub the gold into the gesso.
13. Remove the glassine paper, and if there are extra bits of gold still attached but not on the gesso, breath deeply on the gesso and gold again, and fold the gold over onto the gesso.
14. Repeat until the area is covered in gold.
15. Now take your burnisher and with gentle pressure begin to buff the gold until you get a mirror like shine.

*Note: If you are using the modern gesso recipe, start on step 3, unless you have dried it.*

### **A Note on burnishing**

Its worth having a good “dog-tooth” burnisher if you are looking to do a lot of gilding. The various curves and shapes will help you make the best out of your raised gilding. The rounded curve of the “tooth” is good for larger areas, and the point on the end will really help with smaller areas, points and crevices. It is important to always look at your tool and make sure the surface is smooth. Gesso is very unforgiving and will pick up and scratches or divots. If you touch your tool, make sure you wipe it off, oil from your hands can effect gilding a lot.

If you do not have a burnisher on a handle a piece of agate, or hematite will work as well. The same rules for these stones apply as with a burnisher. Make sure they are smooth. Wipe off oils.

On to burnishing. As I said before, you cannot burnish too much. The more time you take buffing the gesso the better the end result will be. It was suggested to by Dame Tamlyn of Wyntersea that its worth putting on a movie you know by heart and taking those couple hours to just burnish your gesso. This extra effort will help you create a piece that has a mirror-like surface that you can literally see your reflection in!



An Equestrian Duel Between a Creditor and a Debtor 1290–1310. Ms. Ludwig XIV 6, fol. 169v



## Supplies

### Or, where the heck do I get this stuff?

*Note: There are many places you can get your supplies, but this is where I get them, so I am familiar with the cost, and quality.*

## Gold

I get all of my gold from LA Gold. I feel the prices are fair and I have never had an issue with the quality.

**Real Gold:** I like to use 23k Gold. It is the best value for your money, and is pure enough to have the properties that we are looking for in gold leaf.

<https://www.lagoldleafus.com/product/23k-genuine-gold-leaf/>

### Imitation gold:

I use this on charters, and when I practice or teach. It is nice, but it will not merge together in the same way that real gold will. Totally worth using though if you cannot afford the 23k gold. I have done many originals with this gold in the past, and the recipients have not complained. Do not fret if this is what you can afford!

<https://www.lagoldleafus.com/product/imitation-gold-leaf-booklet/>

## Gesso and Size

**Plaster of Paris for making Gesso Sottile:** I just used craft plaster from my local craft store.

**Italian Gesso:** If you do not want to go through the process of making your own gesso you can buy a bag of premade gesso from Natural Pigments. I found this to be very good, and work well. You will want to split this bag with some people because one bag will last you a lifetime!

<https://www.naturalpigments.com/italian-gesso.html>

**White lead:** There are two sources I like to buy from. Natural Pigments or Limners Guild. Both are good, and have high-quality pigments.

<http://limnersguild.com/pigment/white-lead-pigment-66.html>

<https://www.naturalpigments.com/lead-white-pigment.html>

**Fish Glue:** If you begin to explore more into gilding you will find other recipes call for fish glue. This can alw be laid down as a first layer to seal in your paper. I buy mine from John Neal Bookseller.

[http://www.johnnealbooks.com/prod\\_detail\\_list/s?keyword=fish+glue](http://www.johnnealbooks.com/prod_detail_list/s?keyword=fish+glue)

**Gum Ammoniac:** Again with John Neal. You have two options here, the crystals to make your own, or gum that has been prepared.

[http://www.johnnealbooks.com/prod\\_detail\\_list/s?keyword=gum+ammoniac](http://www.johnnealbooks.com/prod_detail_list/s?keyword=gum+ammoniac)

**Bole:** This can be used to color your gesso, it can also be gently rubbed on the back of a piece of paper to make a “carbon copy” type paper. This was how tracings and transfers were done in period! Again, found at John Neal.

[http://www.johnnealbooks.com/prod\\_detail\\_list/s?keyword=Gilders+Bole+Powder](http://www.johnnealbooks.com/prod_detail_list/s?keyword=Gilders+Bole+Powder)

**Pink Stuff** : Jerry Treser is a modern illuminator and well versed in this subject. This “Pink Stuff” is his modern size. It works very well, and is very forgiving. Just paint it on in a couple of layers, and use it as you would for flat gilding.

[http://www.johnnealbooks.com/prod\\_detail\\_list/s?keyword=Pink+Stuff](http://www.johnnealbooks.com/prod_detail_list/s?keyword=Pink+Stuff)

**Aquasize**: This is what modern gilders are using for flat gilding. It can also be used for gilding on three-dimensional objects.

<https://www.lagoldleafus.com/product/l-a-gold-leaf-aqua-size-adhesive/>

**Burnishers**: There is no way around the expense of a good burnisher unless you are using loose agate and hematite. These are polished and set, and good ones will have no blemishes.

Expect to pay around \$30 for one. If you can only get one, I highly recommend a dog tooth style.

<https://www.lagoldleafus.com/product-category/gilding-tools/agate-burnishers/>

<http://www.talasonline.com/Agate-Burnishers>

## **Other Supplies**

**Gilders Cushion**: While this is fairly simple to make you can also purchase this at any place that supplies gilding supplies. I found this thread on making one:

<https://www.handletteringforum.com/forum/viewtopic.php?t=3465>

**Glassine Paper**: The cheapest place to get this is your post office. This is the envelopes that stamps come in. However you can purchase it in individual sheets and packages from the following places:

<https://www.naturalpigments.com/glassine-paper-9-x-12-in-sheets.html> glassine

<http://limnersguild.com/pigment/glassine-paper.html>

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