

# GILDING TECHNIQUES

A description of various techniques

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## THE SYMBOLISM OF GOLD

In Orthodox icons, as in sacred arts of many other religions, gold symbolizes divine presence, glory, spiritual light. Gold is not a colour as such, as are the other elements of the icon; it is of a different order of existence. That is, it represents the divine order, which creates and sustains the created order.

This being the case the role of gold is not mere decoration. One sign of decadence in the majority of eighteenth and nineteenth century Russian icons is that gold's symbolic role was compromised; overly fine gold lines are used as mere ornament, especially on garments.

The main places gold is used on traditional icons is the "background", for haloes, and as gold lines (called *assist*) on garments, trees and more rarely, on architectural details. As background the gold shows that it is in God that we "live and move and have our being", as Saint Paul said. God is like the water within which all creation swims like fish in the ocean. The gold halo represents the Holy Spirit's indwelling of the saint, the shekena glory of God shining from within. When used as assist the gold represents the material world being transfigured by God. The lines thus do not denote superficial decoration, but rather an inner, transforming presence of the Divine within the intimate world. These lines follow the basic form of the object on which they are drawn - the drapery, tree trunk or whatever - but are abstracted enough to show that they represent a spiritual reality and do not just suggest form.

These symbolic considerations need to be kept in mind when deciding where and how to apply the gold. For example, I personally feel that stamped designs on gold haloes contradict the symbolism of gold as radiant spiritual light. Such embellishments tend to make the viewer register the gold as pattern rather than light.

## THE DIFFERENT TECHNIQUES

Putting aside assist for the moment, there are two chief ways of laying gold onto a surface: water gilding and oil gilding. Water gilding is a more complex process, whose main feature is that the gold can be burnished to give high reflectivity. Oil gilding cannot be burnished, although when suitably executed it can produce a semi-gloss result. Only oil gilding is water resistant and so can be used outside.

A variety of methods and materials may be used to create assist gold lines. These are described in detail below after the sections on water and oil gilding.

## WATER GILDING

### *Equipment and materials*

- A scriber. This is to enscribe the outline of the image. An engineer's scribe can be bought from good hardware merchants. You want a pencil sized implement with a metal point (not as pointed as a sewing needle) slightly rounded off at the tip with 1200 wet and dry paper, so that it scribes the gesso smoothly. If it is too sharp it will gauge into the gesso and be difficult to control.
- Three small screw top glass jars: Those about 2 cm. high found in teashops containing jams and honey are excellent.
- A small saucepan that can fit inside a larger saucepan, for preparing the size
- A heat source. Ideally a portable one, like a electric single element with variable heat.
- Wet and dry abrasive paper of grades 600, 800, 1000,1200
- Finest oil free steel wool, grade 0000.
- A cotton handkerchief for polishing the bole
- Red bole (or grey if you are gilding with silver). I have found best is the extra-fine paste (bole mixed with water) produced by Lefranc and Bourgeois. If you are gilding a complex shape with deep crevices, then also procure yellow bole.
- Rabbitskin glue
- If you can afford it, a set of electronic letter scales up to 2 kg. These are very useful for accurately measuring relative amounts of water and rabbitskin glue, water and size, and other things.
- A flat soft brush about 2 cm wide, for applying the bole and weak gold size
- Gilder's cushion,
- gilder's tips, small, medium and large.
- gilder's knife,
- two gilder's mops,
- alcohol (gin, vodka, or whisky),
- a clean glass,
- a straw or hollow feather,
- cotton wool,
- loose gold leaf, extra thick (a good source is C.S. Stonehouse in Cheshire: phone 01925 754368). If you cannot source this, then double thickness.
- an agate burnisher, dog tooth shaped number 26, and if you can afford it, number

### ***Preparation of the gesso panel***

Water gilding must be done before painting, as the gold leaf will stick to the paint if done after.

Gilding will only be as good as the gesso surface, therefore ensure that your gesso has no imperfections in it, especially pinprick holes. These are caused by air trapped in the gesso when warm. The technique of gessoing has been detailed in the previous chapter, but we reiterate here two of the methods used to avoid these pinprick holes:

- a. When the gesso has begun to go jelly-like rub each layer with your fingers. This is especially important with the first few layers on top of the linen, in order to press the gesso into weave of the cloth.

- b. If you need to re-heat the gesso due to it having cooled and become unspreadable, only heat it (on a double boiler as usual) to the point of the gesso liquefying around the edges of the pan. Then immediately remove the gesso pan from the water pan. A gentle stir will soon make the whole mixture of an even liquidity.

When the gesso panel has fully dried (after twenty-four hours in a warm room), sand it smooth as described in the previous chapter. For water gilding it is necessary to go through all the grades of sandpaper listed there, from 120 up to 1200. Every imperfection in the gesso will be evident in the burnished gold, so care at this stage of preparation is essential for good results. Finish by polishing with the cotton handkerchief.

Trace the outline of your image onto the board as described in chapter four. At this stage you need only trace the lines where the gold will begin and the painted areas stop. (To transfer any other lines at this stage would be a waste of your time, as these would be erased during the process of the water gilding.) Remove the drawing and tracing paper and then with your scribing tool accurately incise into the gesso the lines that you have just traced. This inscribing procedure is necessary to make the outline visible through the burnished gold, which would otherwise have obliterated the outline. After the gilding is completed we scrape away the gold up to this line

(NOTE: Although I haven't used the technique, I am told that one can apply masking film or fluid to the areas not to be gilded. When all the gilding is completed one then simply removes the mask along with the unwanted gold and bole.)

### ***Mixing and applying bole***

#### ***Recipes:***

*Size:* 15 water:1 rabbitskiin glue

*Bole for first layer:* 9 parts size: 1 water: red (or yellow) bole to make milk consistency. Apply one layer hot.

*Bole for subsequent layers:* 4 parts size: 1 part water: red bole to make consistency of single cream. Apply warm, as many layers as to make it opaque, then two more layers.

*Weak gold size:* 6 parts water: 1 part size. Applied warm.

*Gilding water:* 2 parts distilled water: 1 part gin or other clear alcohol

#### ***Procedure:***

- Prepare your size in a double boiler as described in chapter 4, mixing 15 parts of water with 1 part of rabbitskin glue.
- *First or "priming" layer.* Place two of the glass jars in the small pan of simmering water. Add size to one of the jars of more than sufficient amount to cover the area to be gilded, add one part of water to nine parts of the size, and when hot, mix in a little bole to make a milky consistency (about one of bole to six of the dilute size). If you are gilding a shape with crevices, then use yellow bole for this first layer. Mix well with a brush. Invariably some unmixed bole is left at the bottom of your size/bole mixture, so having mixed it as well as you can, decanter it into the other glass jar. When this bole is hot, with the 2 cm flat brush, and with the smaller one too if required, apply this priming

bole to the areas to be gilded, going over the inscribed line a few millimetres. Try not to over-brush any more than is necessary those areas that you have just painted, as this tends to produce a bumpy surface.

- (NOTE: if you are gilding a deeply carved piece, with crevices you will not be able to get the gold into, then this first layer is usually done with yellow bole. Subsequent red layers are not put onto these deep areas, so that the absence of gold there will be less noticeable.)
- *Subsequent bole coats:* Discard the primer bole (unless you are going to gild more within the next week, in which case screw the top on and store it in the fridge), and prepare the bole as follows. Make some more dilute size as above, but this time in a proportion of four parts size to one of water. Add the red bole paste to make a creamy consistency (approximately 3 parts of dilute size to one of bole). As described above, decant this to the warmed and clean jar, remove from the water, then apply the bole. After each layer has lost its glossy surface, apply another. Continue until the bole is opaque, and then add two more layers. Depending on the thickness of the bole, this usually requires about five or six layers.
- *Sanding:* When completely dry – usually about four hours - sand the bole, beginning with 600 grade, then passing through 800, 1,000, 1,200, finishing with the fine steel wool. Polish with the cloth.
- *Weak gold size:* Prepare the weak size (1 part size: 6 parts water), When warm (but not hot), apply one layer with the flat brush. This is absorbed quickly, which makes it difficult to see where you have covered and where you haven't, so apply this methodically. It also helps if the angle is such that you can see the light reflecting off the size.

## ***Applying the gold***

### ***Setting up***

- It is best to gild standing up, since you have more control. Clear your desk of everything except the tools you need, clean the surface, and even place a large clean piece of paper down. Bits of dust and dirt can ruin gilding. Place your tools and gilding water to the right of the image (or left if left handed).
- Put a thin book under the icon so that the gilding water will flow away from the gold you have just laid. If you are right handed you will lay the gold from right to left. The angle of the panel's incline should only be about 5 degrees. Too steep an angle will cause the gilding water to run away.
- Prepare the gilding water by adding 2 parts of water to one part of clear alcohol (e.g. gin) in a glass. If the panel is large enough, place this glass on some folded paper in the centre of the icon. This position ensures that as you lay down the gilding water you will not drip it on already laid gold.
- Put the gilder's cushion to the right of the icon (or left, if you are left handed). Lay out next to it the gilder's knife and one of the gilder's mops, and place the other mop in the gilding water. It is a good idea first to wipe the knife once or twice with some clean tissue in case there is moisture on it. Any dampness or

oil will cause the gold to stick to it. Stroke the tips against your forehead or some other part of your skin in order to lay a thin layer of oil on the hairs. This oil is necessary for the tips to pick up the gold. (It is not to create an electromagnetic attraction as some books have suggested!) . If you have dry skin, rub a little vaseline into the back of your hand or elsewhere and wipe the tips on that. Place the prepared tips beside the cushion, but not touching the knife.

- Beginning from the spine end, carefully roll up the book of gold leaf one way and then the other; this frees up the leaves so that they come out easily. Lay a piece of gold on the cushion towards the front. This is best done the following way. Holding the book sloping down a bit, open the bottom most page containing a leaf. Hold that page so it is concave, and gently let the leaf slide off it until its front edge is onto the cushion. Then gently pull back the book leaving the leaf flat on the cushion. If it is in an awkward angle, or crumpled you can pick it up and reposition it as follows. Slide the knife under its centre, gently pressing the knife down so its tip doesn't jag the gold. Turn the knife and lift, so the leaf is evenly draped over its blunt top edge. With a forward and rolling motion lay the gold back down on the cushion where you want it. (This takes practice, so be patient with yourself while you learn the knack!) Then, standing directly above the leaf, gently blow down vertically onto its centre so that it is flattened.

### ***Cutting the gold***

- With the gilder's knife cut the leaf to the size necessary (with experience you learn how much). If your knife is new you may have to sharpen it. It should cut the gold cleanly, but not be so sharp as to cut the swede. Sharpening can be done on wet and dry paper as follows. L
- Apply some oil to the gilder's brush by rubbing it on your hair or skin, and pick up the gold so that about 5 mm of the leaf is showing to the left (or right if you are left handed) and to the front of the tip. This allows you to know exactly where to lay the gold, and keeps any water from getting onto the brush. Water on the brush causes the gold to stick to it more than you want. Hold this gilder's tip in your right hand.
- Using one of the gilder's mops held in your left hand, generously apply the gilding water to the area that you are going to lay - plus about a centimetre more. This must be a puddle, with no dry areas. Begin in the high areas (e.g. the raised boarder if an icon), as the gilding water would flow onto and stain gold below if you began in the lower regions.
- Immediately apply the gold leaf. This is a skill you can learn only with practice. The water will tend to grab the gold off the brush before it touches, so be careful. It helps to pause a second before lowering the gold that last inch when it grabs.
- If perchance the gold rips, you can quickly cut and lay a piece over the tear, but this must be done before the gilding water is absorbed (which is about ten seconds). Otherwise, leave it until you do the patching at the end.
- Continue in this way, overlapping the previous leaf about two millimetres. Make sure that the water is applied right up to the previous leaf, but without going on top of it.
- After about five minutes the water will have been absorbed under the earlier leaves that you have laid. Experience will tell you when, but basically, you tell

by there being no big wrinkles. When this point has been reached, gently brush the gold in these areas with the other, dry, gilder's mop. This serves to ensure that the gold is in good contact with the bole. When brushing over joins, brush in the opposite direction that you have lain the gold, so that you don't lift up the bits of overlaid gold.

- When you have finished laying everything, and all is brushed down as described above, you may have areas to patch. This is done as follows:
  - Apply the liquid dilute size (6 water, 1 of size) to the patches and leave a few minutes to dry.
  - Cut a piece of gold a bit bigger than the area to be patched and pick it up with your gilder's tip and hold this in your right hand.
  - With the straw in your mouth and cotton wool in your left hand, blow on the patch for about four seconds, immediately apply the gold and immediately press it down quite hard with the cotton wool.

### ***Burnishing***

I have found that gilding is best done in a warm room. If this is the case, then normally the gold is ready for burnishing after approximately two or three hours of laying the gold. But this is not a hard and fast rule. Only with experience will you know when the gold is right. Even within a given image, there will be unexpected soft patches that you will have to leave and return to later. You will feel the burnisher dragging if it is too early. On the other hand, if you leave it too late, the water will have evaporated and been absorbed leaving the bole hardened, and so you won't be able to burnish at all. Begin testing with the burnisher where you began laying. At first lay the burnisher on the gold without any pressure at all, apart from the weight of the tool, and gently move it. If it moves smoothly, without dragging, then gently increase the pressure. It is best to hold the tool low, so that the flatter side of the dog-tooth shape is in contact, rather than the sharper end of it. Gradually increase pressure as you feel the gold is polishing nicely. Avoid changing direction in the same place or in the same line, as this will show up as dents in the final work.

Continue patiently all around, being watchful because one can suddenly come across damp areas.

You will notice that at certain angles you see the gold changing to a deeper hue where you have burnished it. It is best if you burnish always at this angle, so that you can tell where you are going.

If on completion you think that it is all too patchy, you can put a layer of the weak jelly size down and repeat the process as before, that is, with gilding water, gold, tamping and burnishing.

### **Oil Gilding**

This can be done before or after painting the image. It cannot be burnished, and so offers a more matt surface. It is more robust

than water gilding, and is the only method that can be used for outside use, as water gilding is not water proof.

- Sand the gesso perfectly smooth, as described above, finishing with 1200 grade paper.
- Seal the area to be gilded with shellac (French polish), diluted with 10% methylated spirits and tinted with a fine orange pigment, such as a cadmium. Leave to dry for an hour, and apply a second coat.
- Apply a very thin layer of oil gold size, brushing it well out. Sizes come in different setting times, starting at one hour, going to six and twelve. The longer the setting time of the size, the better the result it seems. Perhaps the best compromise is a three or a six hour size. Don't use acrylic gold size; it is useless for large areas, though very good for making fine lines.
- Wait until the size is no longer tacky, but not completely dry. In the meantime, ensure no dust falls on the surface.
- Apply the gold leaf. Transfer leaf is easiest to use, although it tends not to produce the same gloss as loose leaf. This is because the tissue can leave its own imprint on the gold.
- Afterwards, the gold can sometimes be "burnished" slightly, by brushing with a broad, soft brush (e.g. a sable).

## Gold lines on paint

It is possible to have gold ornamentation on top of your painting, a technique called assist.. This can be done either with the use of shell gold (which is essentially a watercolour made of real gold powder and gum arabic), or by applying a size, laying on the gold, and brushing off the excess..

- I have found the easiest size to use for this latter method is acrylic gold size. It is water based, and so runs off the brush nicely, allowing very sharp points. Also, it remains sticky for a long time.
- To get the best results, you need to use loose leaf and not transfer. A tip to keep your brush in good condition is to rub washing up liquid into it before using; this seems to allow it to be cleaned perfectly after use.
- After laying the gold (with acrylic gold size this can be done any time after about 15 minutes), use a firm, but not hard, brush to brush away the unwanted and loose gold. Brush in all directions so that any tiny bits are removed, and so leaving you with good crisp edges to your lines.