

IRON GALL INK

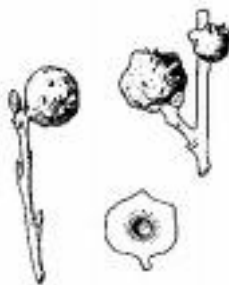


Figure 1
Oak galls

Writing Ink is based on the action of atmospheric oxygen and an acid mixture of iron salts and tannin, which is made from an infusion of oak galls. The earliest record of the material we know as writing ink, made from medieval time to the present, is in the writing of Theophilus, Byzantine emperor 813-842 AD, although Pliny the Elder 23-79 AD mentions in his Natural History that paper treated with copperas could be blackened with an infusion of nutgall. It is also mentioned in The Booke of Secrets 1596.

Iron gall ink is essentially created by the chemical reaction between tannic acid and iron sulphate in an aqueous solution. The primary active components in tannin are gallotannic and gallic acid. Combined with iron sulphate they produce a black pigment called ferric tannate upon exposure to oxygen. A small amount of pigment forms by reacting with oxygen in the water but much more is produced after the ink has been applied to paper and exposed to air for several days. When kept from sun it will last and last however, on exposure to light it will fade and because of this was not regarded suitable for drawing. Its corrosive nature makes its use unsuitable for expensive pens.

Ingredients:

Diseased oak gall nuts (oak apples) are collected from oak, oak apple and pistachio trees and depending on the source vary in shape.

Iron Sulphate has been called by many different names, including ferrous sulfate, vitriol, and copperas. In early recipes, iron sulfate and copper sulfate were used interchangeably, in part because natural sources of the minerals were usually mined together.

Gum Arabic is water soluble sap collected from acacia trees and in ink functions as a suspension agent for the insoluble pigment particles. It also thickens the ink allowing it to flow more easily and hold the ink to the surface of the paper.

Method:

Crush the galls and soak in rain water/distilled water or wine for a length of time. The longer the time produces a richer, purer black ink. Tap water contains chlorine or other metals calcium so fresh rain or distilled water is best. Wine, beer or vinegar was sometimes used as thought to be purer and I use any dregs from bottles to make my ink and not waste any wine Julian hasn't managed to drink.

Boil the ingredients up for a couple of hours or until you can stand the smell no longer. Pour the evil looking brown liquid through a sieve into a clean bowl and add the iron sulphate. The brown mixture will turn instantly blue black. Add the gum arabic.

If I don't have any Iron sulphate I sometimes boil up the mixture in an old iron casserole pot I bought in the 80's. Due to its previous existence the mixture smells more like boeuf bourguignon. Draw and marvel, as the invisible becomes the visible.