

USING GLAIR TO RECONSTITUTE GESSO THE REAL REASON

Cennini provides us with very clear instructions for the application of glair in gessos. *“When you wish to use some to put on Gold, cut off a piece as large as you have need of and temper it with the white of an egg, well beaten, as I have taught you. Temper this mixture with it.”* Chapter 157, page 136, The Book of the Art of Cennini, Herringham translation 1899.

Glair is the liquid obtained after the white of an egg has been beaten to stiff peaks and allowed to settle. The liquid that weeps out is known as glair. Many uses of glair include:

- as a gloss varnish applied to paints
- as a water proofing agent on paper
- as a binding agent
- and most importantly as an adhesive



Photos courtesy by Mary Lawson

In the original formula Cennini mentions reconstituting the gesso with glair as an alternative to water. Tempering the gesso using glair with or without water was actually providing a guaranteed adhesion of the gold to the gesso. As glair ages, it becomes more potent not only in odor, but in strength as an adhesive. When I speak of aging, I mean at least 6 months to a year.

Why two adhesives, and what are they?

- The internal adhesive was the hide glue which was one of the ingredients used in the preparation of gesso.
- The secondary adhesive was glare used in the application process.
- Each adhesive had specific functions, neither of which complimented each other.

Cennini needed glair as a secondary adhesive, to insure that the gold when applied to the gesso would stick.

The gold which Cennini recommended during the 14th century for manuscript gilding was three times heavier in weight than the standard sheets of 23k pure gold that was also being processed during the same time period.

The gold that Cennini used was based on 100 sheets produced from one gold Ducat. At the time, goldbeaters were producing 145 sheets per one Gold Ducat.



14th century Ducat used through out Italy
Source: Living With Gilt by M. Swift & Sons, circa 1956

In chapter 139, page 115 of the Book of the Art by Herringham, Cennini warns the reader that, *"You should know that the gold proper to be laid in flat surfaces is that where 100 leaves only are made from the Ducat, and not 145 pieces"*. Cennini goes on to say, *"And, if you would know good gold when you buy it, get it from a person who is a good goldbeater."*

Cennini realized that the internal sizing (hide glue) was not sufficient to provide the necessary adhesion of the heavier weight gold once the gesso was reconstituted. Therefore, the real reason glair was used was insurance to guarantee that once an additional adhesive was imported into the mix, the heavier weight gold would adhere during the application process.

Contrary to the gilding articles written in Calligrapher's Handbook 1, the information Irene Base provides as an explanation for the use of glair was given to her by an unknown source that had no explanation other than the fact it was used.

Donald Jackson, in the Calligrapher's Handbook 2, page 186 writes about the fluidity and density of glair. Jackson's explanation is so confusing and had no relevance at all to Cennini's use of glair in the application of gesso.

Graily Hewitt in his book Lettering, page 282 leads us to believe that hens may have gone through some evolutionary altering that explains why glair may be suspicious in its current use.

By the mid 1400's, gold was being beaten from 900 sheets of $\frac{3}{4}$ oz of gold to 2700 sheets of $\frac{3}{4}$ oz. of gold. The size of the sheet remained somewhat constant at 3x3 square, but the amount of gold sheets being produced was 3 times greater. This meant more profit for the goldbeaters. By the 15th century, the days of heavier weight gold were gone.

Glair was the obvious choice as an alternative to reconstitute the gesso with or without water. In discovered manuscripts by an anonymous scribe and illuminator, from the book titled De Arte Illuminandi, 1933, by Daniel V. Thompson, points out that in one of the formulas for reconstituting gesso, Gum ammoniac was used in lieu of glair. No specific amounts were mentioned to add to the mix, but the intended use was also to accommodate the heavier weight gold being applied to gesso's.

Regardless of which size was accommodating the gesso, it was to insure that the gold once laid on the gesso would adhere. The burnishing process must have been extraordinary due to the weight of the gold. Something that modern day manuscript gilders will never be able to experience.

One can only wonder how the goldbeaters were able to achieve what they did with 80,000 beats of a gilders hammer to produce sheets of gold that look as beautiful today on these manuscript treasures, as the day they were applied.

My opinion

The information in the use of glair by the 20th century authors mentioned in this article reveal that they failed to do their homework. This is not an isolated occurrence when it comes to gilding in general. The methods and the use of glair discussed in the Calligraphers Handbooks one and two, Lettering, as well as other copycat type books providing raised gilding information are based more on personal philosophies, inaccurate information, and in many cases chemically unsound formulas.

These explanations are what I call "faith based formulas" generally accepted as the truth because of the authors' reputation rather than its accuracy. This is not an isolated situation. It's pervasive throughout most calligraphy books that seem to offer a section devoted to gilding with particular emphasis on raised manuscript gilding.

Unsubstantiated, misleading and in many cases fabricated information often referred to as "wives tales" such as; it's too hot or it's too cold, add more sugar, add more glue, add more of both, build a sauna , wait until we get the humidifier, the mix was not prepared properly, the eggs were infertile, the weather conditions are unfavorable. Excuses used to justify failures. More information provided when things go wrong than when things go right... The latter being infrequent! Always the users fault. Never the author of the article.

My intention is to always provide accurate methods that will work consistently and provide the user with an approach that makes sense and encompasses the historical and chemical properties it deserves when dealing with this wonderful art. That certainly is not asking alot as opposed to waiting for rain in order to get the gold to adhere to an adhesive! Or to gild underground as some books seem to suggest!

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