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EGG TEMPERA MISCONCEPTIONS

There are many misconceptions regarding egg tempera, and reasons for their existence and persistence. A superficial understanding of tempera limits its potential. The hope of this article is to dispel some of the myths.

THE REASONS FOR MISCONCEPTIONS

Reason #1: The Influence of the Renaissance

Egg tempera reached its peak of popularity and achievement in the early Renaissance (approximately 1400-1450) in Italy, and is notably associated with that time and place. Most Italian, early Renaissance paintings present a less naturalistic, more idealized rendering of the world: minimal light and shadow effects; more high-key (light) values; purer, less dirtied color; cooler color temperatures; less fully three-dimensional forms. These visual choices, for the most part, are *not* inevitable to egg tempera. Instead they reflect the less materially, more spiritually oriented medieval perspective still present in early 1400s Italy (consequently changed by the Renaissance). Because most of these paintings were done in egg tempera, people presume the medium (rather than the culture) accounts for this aesthetic.

Misconceptions also arise from egg tempera's association with Italian Renaissance working methods. Masters and guilds taught a successful but prescribed way of developing a painting. Its not the only way to work in tempera, but often is presented as such.

Reason #2: Egg Tempera's Disappearance

Renaissance artists aspired to greater realism in images. Oil painting has advantages (described on p. 3) over tempera in depicting the material world and by the late 1400s oil became the predominate medium of the Renaissance. Egg tempera slipped into obscurity, and from this vacuum misconceptions emerged.

Reason #3: The Icon Painting Tradition

Following the rise of oils, the only painters who continued to work in tempera were iconographers. They developed a successful but restricted working method in which individual creativity and an understanding of the medium's possibilities were (and still are) generally not encouraged. Icon paintings are beautiful but represent a narrow slice of egg tempera's capabilities – yet often they are seen as the full extent of tempera's range.

Reason #4: Egg Tempera's Current Lack of Usage

Very few contemporary painters work full time in egg tempera, so there are not many experienced voices to counter popular misconceptions repeated by aspiring or inexperienced tempera painters.

Reason #5: Commercially Produced Paints

For centuries artists made their materials from scratch, which gave them an intimate understanding of the properties of pigments and paint. With the rise of mass produced art supplies, most contemporary artists are materially uninformed, and misinformation arises from this lack of knowledge.

Reason # 6: Lack of Study and Research

Pure egg tempera paint cannot be commercially produced - it would putrefy if put a tube. With no market for the medium, the paint industry has no incentive to do research on egg tempera. A few museums have studied tempera to some degree - but, compared to oil, it is still poorly understood. Even from leading conservators I have heard what I describe as egg tempera misconceptions.

EGG TEMPERA MISCONCEPTIONS

Beginning on the next page, misconceptions are printed in **bold,** followed by what I believe is a more accurate understanding of the medium. *I've simplified responses in an attempt at brevity*. For more information, refer to my book "Egg Tempera Painting" - or take one of my workshops. ☺

HISTORY

1. Egg tempera was used by the early Egyptians.

The earliest, reliable identification of an egg yolk binder in Egyptian art is a mummy portrait, likely painted by a Greco-Roman artist living in Egypt, dating from the 4th c AD - technically classical antiquity, not ancient Egypt. Egyptian artists "tempered" pigments with various water-based binders: gum Arabic, animal glue, casein. Museums refer to these paints generically as "temperas", which makes it difficult to know what binder was used. Although it is tempting to presume that early Egyptians worked in egg tempera, there is not yet definitive proof.

2. Egg tempera was the primary medium of the Renaissance.

Along with fresco, egg tempera was a leading painting medium of the Renaissance, but for only a short time. Tempera predominated in the medieval era as well as the first few decades of the 1400s in Italy. In northern Europe, however, oil painting, which was used sporadically throughout the middle ages, was a thoroughly mastered medium by the 1420s (as exemplified by Campin, Van der Weyden and Van Eyck). The northern oil technique and aesthetics soon traveled south, and by the1440s many Renaissance painters were transitioning to oil. By 1500 and the high Renaissance (Michelangelo, da Vinci, Raphael) egg tempera was nearly obsolete.

AESTHETICS

3. Egg tempera paintings are high-key.

A high-key painting is one in which middle to light values predominate. Many early Renaissance paintings are high-key, but this has more to do with medieval aesthetics than egg tempera. If one uses a predominance of middle to dark value pigments the resulting painting (regardless of medium) will be low-key, not high.

Three other factors contribute to the notion that temperas are inevitably high-key. 1. Unvarnished tempera paintings do not darken with age, as do oils and their varnishes – so the light values in a tempera painting stay lighter than their equivalents in oil. 2. The darks in an unvarnished tempera, while qualifying as low-key, are not as deep in value as the same darks in oil (see #3, below). 3. Because tempera is applied in very thin layers, it has less covering power and opacity than oil, and to address this some tempera painters add white to every color, which results in a high-key. Despite these factors it is possible to paint in tempera with primarily mid to dark values and thus create a low-key tempera painting.

4. It is not possible to get deep blacks in egg tempera.

Given the thinness of the medium and the reflective, white gesso ground on which it sits, it takes several layers of paint to build up a rich dark in tempera – but it can be done, and without much difficulty. Dark values in tempera appear less saturated than in oil due to the "refractive index value" (RIV) and "pigment volume concentrate" (PVC) of each medium. However if you varnish an egg tempera painting the darks become as deep and saturated as in oil.

5. The color in tempera paintings is purer, more "jewel-like" than in other mediums.

There is more pigment in tempera paint because of its high PVC - but this doesn't necessarily translate into brighter or purer color (as Andrew Wyeth's tempera paintings demonstrate; he used mostly earth pigments). The pigments in tempera are the same as in all other paints and can be as bright or dull as you choose. The notion that a tempera palette is inherently brighter primarily comes from its association with early Renaissance painting, in which color is less naturalistic, less affected by light and shadow, and thus higher in chroma. "Jewel-like" color is an aesthetic choice rather than inherent to the medium.

6. Egg tempera has a cooler color temperature than oil.

This is another example of an aesthetic left over from early Renaissance art, which favored a cooler, more ethereal, less earthy overall color temperature. It is true that an *un*varnished tempera painting does not yellow with age, and thus better maintains a cool color temp over time. Equally true, oil paint and varnishes yellow to some degree and hence their color temperature may warm with age. Still, it is possible to paint predominately "warm" paintings in tempera, as well as "cool" paintings in oil.

7. You can't convincingly model three-dimensional form in egg tempera.

Three-dimensional form is conveyed through light and shadow effects. The more extreme the light to shadow transition (the brighter the lights, the deeper the darks) the more volumetric forms appear. These effects are possible in egg tempera.

However, they are probably easier to do in oil. Deep shadows appear darker in oil than tempera (see #3). Oil paints can be applied impasto, which creates intense highlights (versus tempera, which must be applied thinly). It's easier to transition from one value to another in oil because paint can be physically blended (whereas tempera brushstrokes can't be reworked, and optical blending occurs through the accumulation of layers). All of this does *not* mean tempera is incapable of three-dimensional form; only that form can be rendered more readily, and a bit more dramatically, in oil.

8. You can't paint chiaroscuro in egg tempera.
It's probably easier to paint chiaroscuro (dramatic light and shadow) effects in oil - but, as explained in #6, it is possible to do in egg tempera too.

9. Egg tempera is a luminous medium (the *most* luminous medium).
Egg tempera can be a luminous medium *if* the means by which luminosity is achieved are addressed: create light to shadow transitions; contrast values; glaze; work with luminous colors. By using these same means other mediums also appear luminous. Neglect these considerations - in egg tempera or any other medium – and a painting won't appear luminous.

In other words, luminosity is a result more of visual considerations and working methods rather than the exclusive property of one medium. Due to common working methods in egg tempera, the medium often appears luminous – but it is not a given. (Refer to my "Luminosity" handout for more information.)

10. Oil paints are better, more versatile than egg tempera.
Oil paints do some things more easily and/or better than egg tempera (see #3, 6 & 7 above). There are other things that egg tempera does especially well: fine, precise lines; multiple, quick drying paint layers (such as glazes and scumbles, which contribute to luminosity); beautiful faux and textural effects (wood, stone); linear patterns.

Many things explain the contemporary preference for oil: a modern interest in greater realism and three-dimensional form (both of which egg tempera can achieve, but oil does a bit more readily); the materiality of oil (versus tempera's thin, ethereal quality); more access to oil painting supplies, teaching and information; the immediacy of working in oils (comes out of a tube versus must be made from scratch). Oil is a wonderful medium, but not inherently better than egg tempera.

MATERIALS & WORKING METHODS
11. Egg Tempera is a more toxic medium
In fact the binder in egg tempera is yolk – a non-toxic, food grade substance. Tempera's solvent is water, also completely innocuous (unlike oil solvents, which all contain volatile organic compounds [VOCs] and are toxic to varying degrees).

The pigments used in egg tempera are identical to those in other paints – i.e. cadmium orange is the same whether in oil, acrylic, watercolor, or tempera. Pigments range from non-toxic to poisonous and are taken into the body in three ways: absorption through the skin, ingestion via the mouth, or inhalation. The latter is applicable only to powdered pigments – so the idea that egg tempera is more toxic likely comes from the fact that tempera artists work with powdered pigments.

Too much dust of any sort is a lung irritant, and inhalation creates an avenue for taking in toxicity – so tempera artists should work carefully with pigments in powder form. I convert powdered pigments to pastes (wearing a respirator). Once in paste form, they are no more or less harmful than other paint.

12. Egg tempera is a less toxic or non-toxic medium
I've had several students turn to tempera because they've developed a reaction to oil paint. The various drying oils (linseed, walnut, poppy, safflower) in oil paint are *not* toxic; what people react to in oil paints are various oil modifiers (cobalt, lead, resins dissolved in solvent, etc.) and oil solvents. Tempera is less toxic in these respects, as there are no additives and its solvent is water. However, as mentioned in #10, pigments can be harmful depending on choice of colors and how they're handled in powdered form.

13. Expensive, kolinsky sable watercolor brushes are requisite for tempera painting
Because tempera is a water-based paint that dries to the touch within seconds it is good at making fine lines. Early Renaissance painters were less interested in natural, atmospheric effects; they made the most of tempera's linear quality and modeled form with crosshatched lines. Kolinsky (a type of weasel) sable, round brushes come to an especially precise point and are very good at making fine lines, so they are most often recommended for tempera artists.

I prefer synthetics brushes, especially Taklons, which come to a point but also can be shaped between fingers into a broader stroke. I apply tempera with large, flat watercolor brushes; inexpensive, hardware store "chip" brushes; kitchen sponges; cosmetic sponges; rubber stamps; fingertips; and anything else that suits the task at hand. An expensive, genuine sable brush works well with egg tempera but is *not* requisite.

14. Tempera must be painted on wood panels and traditional, true gesso sanded to an ivory-smooth finish.
Egg tempera paint becomes brittle with age, so working on an inflexible support is important for durability. However it doesn't have to be a wood panel. Wood, the best option in the Renaissance, has drawbacks: a grain pattern that can telegraph up to the paint layers, and a tendency to absorb and release water (causing movement and cracks). Aluminum or plastic panels may prove a better support for tempera; experiments are underway. It is also possible to paint tempera on paper or parchment - as long as, due to tempera's brittleness, these surfaces are relatively inflexible (mounted on a solid support or bound in a book) and the paint is applied thinly.

Whether tempera must be painted on a traditional chalk or gypsum and glue, "true" gesso ground remains uncertain. Materials expert George O'Hanlon makes a case that tempera can be made to behave and adhere to a variety of surfaces, including acrylic polymer grounds. In my experience, true gesso's absorbency creates the best working properties for tempera, and I'm not yet convinced tempera behaves as well or adheres as securely to other substances. Experiments are planned to test the viability of non-traditional grounds for tempera.

Sanding gesso to ivory-like perfection was requisite for Renaissance artists who wanted their gold-leafed surfaces to emulate real metal. A flawlessly smooth gesso surface is lovely to paint upon, but technically not a necessity (unless you are trying to mimic the look of gold).

15. You can combine any colored powder with egg yolk to make tempera paint.
Physically, you can. But if you want a painting to last, you need pigments that are chemically stable and lightfast. (For example, many pretty, organic, plant-derived colors fade, sometimes quickly. Beets may exude a gorgeous red, but if you turned them into pigment the color wouldn't last.). You also should know the toxicity of a color. I recommend buying artist grade pigments from a respected supplier; you can look their properties and understand them better. If you want to make your own pigments a good place to start is native earths, which are inorganic and tend to be durable (but need to be rinsed of organic matter before use).

16. You must grind your pigments before working with them.
There is a distinction between grinding and dispersing. A clump of earth or lapis lazuli stone is ground into powder with a mortar and pestle. A powdered pigment at the art store has been ground *already* to the correct size. (Most pigments have an optimal particle size – if ground too fine, some lose color). So you do not need to *grind* powdered pigments; you need to *disperse* (or mill) them, either within water (to make a pigment paste) and/or within egg yolk (to make tempera paint). A muller and glass slab (or mechanical mill) are best for dispersing, but a palette knife works well too. The larger the particle size (as in earth colors), the "grittier" a pigment feels during dispersion; smaller particle sizes require more effort to properly disperse.

17. To make pigment paste, add powdered pigment and water in a jar and shake vigorously.
For shaking to succeed, you'd have to use *a lot* of water, enough that you'd make a messy, pigment liquid instead of paste. Add just enough water to make a paste, and stir rather than shake.

18. The fresher the egg, the stronger the yolk sac.
It does seem that the yolk sacs of old eggs are prone to breaking. However I work with fresh laid eggs from a neighbor's free-range hens, and sometimes they too have thin, easily torn sacs. A yolk sac is not a certain determinant of an egg's freshness.

19. Brown eggs are better than white eggs.
I can neither prove nor disprove this notion – I can say only that, having worked with hundreds of eggs of both colors, I haven't noticed a difference.

20. There is a single, correct ratio of egg yolk to water to make egg yolk medium.
Tempera texts often state a specific ratio of yolk to water to make egg yolk medium; they may state 1 part egg to anywhere from 2 to 9 parts water. In fact, the ratio is not fixed but variable, and depends on the artist (what sort of medium is preferred) and the nature of the specific yolk (how rich it is).

The water in egg yolk medium ultimately evaporates. Water is not the binder; it is merely the vehicle (solvent) that thins and helps you manipulate the paint. So *you can add whatever percentage of water you like* to create whatever working properties you desire in your medium and paint (thin, thick, or in between). Additionally, not all yolks are the same - some require less water, others more, to achieve the consistency of medium you prefer. Rather than measure, its better to mix a medium that feels correct, relative to your needs. (In egg tempera, the critical ratio is the amount of *egg yolk to pigment.* That ratio is, more or less, one part yolk to one part pigment, regardless of how much water has been added to either your medium or pigment paste.)

21. Add vinegar to your egg yolk medium.
Vinegar can preserve egg yolk and help difficult to disperse pigments (such as alizarin) combine with water. However its acidity can be detrimental to some colors (such as ultramarine). I don't use a preservative in my medium. Under average studio temperatures egg yolk lasts perfectly well for 1-2 days (although on especially hot days I put my medium in a dish of ice while painting). I keep medium refrigerated between painting sessions, and crack a fresh egg as needed. Only a few colors need help dispersing; to those pigments pastes I add a few drops of oxgall or another dispersion agent.

22. The more egg yolk medium used in a glaze, the more brilliant and glowing the glaze appears.
The primary function of yolk is to bind pigments to each other and the painting surface. Using increasing amounts of egg won't increase the "glow"; it merely creates a gummy surface more likely to crack. Egg yolk doesn't create beautiful color – pigments do. Whatever the medium, a good glaze is one in which a thin, transparent layer of color is evenly dispersed. A medium (which, in tempera, is egg yolk and water), thinned to the proper consistency, is merely the means to achieve this.

If a painting is under-tempered (not enough egg), applying an *occasional* watered-down layer of egg yolk medium (called a "nourishing layer") can improve tempering, increase saturation and change the transparency of some pigments. But too many nourishing layers cause problems - don't overdo them.

23. Egg tempera paint stinks.
Only if you work with a putrefied egg. Keep your medium cool; refrigerate it when not in use; start with a fresh egg as needed; and make sure that brushes, sponges, and eyedroppers (particularly the eyedropper head) are cleaned after each use. And don't put egg tempera paint in a tube – that *will* soon stink.

24. Commercially produced egg tempera paints in tubes are the same as homemade tempera paint.
Tubed "egg tempera" paints are actually "tempera grassa", an emulsion of egg yolk and a drying oil (generally with other additives, such as preservatives and stabilizers). Tempera grassa has some of the working properties of both egg tempera and oil painting and is a perfectly viable medium – however it is *not* the same as pure, homemade egg tempera and behaves differently.

25. You begin a tempera painting with an ink underdrawing and/or green earth underpainting.
The systematic working methods of traditional painters weren't arbitrary or merely for the sake of difficulty - they helped painters make good visual decisions. For example, a strong arrangement of values is fundamental to a good design. This is why most traditional methods incorporate a monochromatic stage, such as the ink underdrawing and green earth underpainting used by Renaissance artists. Ink also was a good way to establish and enhance the darks in a composition (which are a bit harder to develop in tempera). A green earth underpainting contributes to cool halftones in flesh, another old master aesthetic. In short, the traditional egg tempera working method is a good one *if* you aspire to traditional aesthetics. But if you don't aspire to those visuals, than neither an ink nor green earth layer are necessary.

It is also possible to achieve traditional aesthetics using modern working methods. One example: I don't do an ink underpainting to see values; instead I scan my full color, initial drawing on the computer and convert it to black and white. I don't use ink to develop darks because I can quickly build up layers of dark paint using sponges, another unconventional but effective approach. Successful as they are, the Italian Renaissance and icon working methods for tempera are not the only ways to develop tempera paintings.

26. Colors should not be intermixed on the palette.
Thanks to modern chemistry, contemporary painters can choose from a huge selection of intense, high chroma pigments. Pure hues were much harder to come by in the 1400s; consequently Renaissance painters were reluctant to intermingle a costly, colorful lapis blue with an inexpensive, common earth color. Additionally, ancient thinking reflected belief in a universe organized through divinely ordained hierarchies: sexes were kept separate, races shouldn't intermingle, king and peasant were forever distinct, and, according to some Egyptian and medieval texts, colors should not be intermixed. For both practical and philosophical reasons, early tempera painters kept pigments in individual palette wells and only mixed "optically" by applying successive layers of unadulterated hues. Glazing with pure color is still a useful option for modern tempera painters – but it's also perfectly fine, when desired or necessary, to intermix colors directly on the palette before applying to a painting.

27. Egg tempera is applied in crosshatch strokes. Form in tempera is modeled via crosshatching.
Tempera's ability to render fine lines makes it is well suited to crosshatching, and three-dimensional form is often modeled in that way. But there are other ways to apply tempera: broad strokes made with a flat brush; puddles of color laid down in a wash; atmospheric daubs left by a sponge. I model form with a combination of sponged on layers and broad brushstrokes, applied so thinly that they leave virtually no mark behind.

28. Egg tempera paintings should not be varnished.
A cured egg tempera painting can be polished with a rag to bring out a soft, "egg-shell" shine that is unlike any other medium, and many tempera painters promote (sometimes zealously) this unique finish. A varnish alters the appearance of tempera; colors and values appear more saturated, and there is either a matte, semi-gloss, or gloss finish. A varnish offers protection but can crosslink with the underlying paint if applied too soon, and may yellow (more or less, depending on the varnish) with age. In other words, there are pros and cons to varnishing, just as there are to not varnishing.

29. Egg tempera paintings should be framed under glass.
Egg tempera paint takes about 3 to 6 months to polymerize or cure (depending on paint layers, drying conditions, etc.). Until then, the surface is vulnerable to scratches. Once cured the paint is more durable. Glass provides protection - but, on the downside, traps moisture and can encourage mold. Of all the physical challenges to a painting, water is probably the worst. It adversely affects every element (support, ground, paint, varnish) of a tempera painting and compromises its overall, long-term durability. All artwork is vulnerable to damage if poorly treated and must be handled with care, and egg temperas are no exception. I recommend careful handling and no glass versus the moisture risks posed by glass.

30. Egg tempera is labor intensive. It is a very difficult medium.
There is truth to this, but it tends to be overstated. It takes time to make paint from scratch, daily - especially if you are a beginner. It takes time to furnish a studio with unfamiliar supplies and become familiar with them. The requisite craftsmanship in tempera makes the initial learning curve steeper than other mediums that can be store bought. In the seeming tidal wave of new information, beginners tend to forget that regular study and practice bring knowledge, skill and efficiency. After years of working in tempera my studio is well equipped, I understand the medium, and it takes a fraction of the time it once did to prepare my palette for a day of painting. On the other end, clean up is fast, easy, and non-toxic.

All mediums have inherent frustrations, and tempera is no exception. But if you find a medium that suits your nature and goals, it most likely feels sensible and well behaved. Tempera, for the most part, is a deliberate, slow, layered, meditative way to work. It's not for everyone, but for those to whom it is suited, egg tempera makes all the sense in the world – especially if you overcome the misconceptions that unnecessarily limit its potential.