

# Preservation Practices



by Hugh Phibbs

## *To Glaze or Not To Glaze an Oil Painting?*

**F**raming paintings on stretched canvas is in many ways quite simple. Usually, it does not entail hinging, matting, or fitting. Creation of a frame that has a deep enough rabbet to enclose the thickness of the stretcher, lining of the rabbet lip with a soft, forgiving isolation material, and installation of a puncture-resistant backing board on the back of the stretcher bars, are often all that is required before the canvas can be installed in the frame. Although it is not done too frequently, today, the addition of glazing to the frame can be quite useful in many cases. Indeed, the protection that glazing can afford such paintings may not be as widely appreciated today as it is likely to be in the future. The notion that enclosure of an oil painting behind glass will be somehow deleterious to the painting, does not stand up to critical examination.

Since we are used to seeing oil paintings displayed without any glazing, we must ask whether that is safe and what reasons might there be for putting glazing in front of an oil painting. The answers to these questions go back hundreds of years, to the genesis of the use of drying oil as a medium for making paint. The use of oil as a medium for painting goes back into antiquity, when oils were recommended for use in making paint as early as the Fifth century in Europe and the Eighth Century in Japan. Although Jan van Eyck<sup>1</sup> did not invent oil as a medium, he did advance the practice of using linseed oil with stabilizing additives. The important point

that must be observed, is the use of drying oils in these paints. As early as the Twelfth Century, it was understood that non-drying oils made poor paint media. The term “drying,” however, may be slightly metaphoric. Linseed oil has no significant water to give up to evaporation. Rather, when exposed to light and air, it goes through a slow process of oxidation of unsaturated fatty acids in the oil. As part of the process, oxygen is taken up by the oil and it degrades the acids into aldehyde groups and then carboxylic groups, which form the polymers that give the paint its remarkable strength.

Other oils such as poppy seed and walnut are also used to impart different working properties or degrees of luminosity to the paint. All such oils dry in the same manner and form tough surface films. Indeed, oil paint is one medium that can be displayed with no glazing, with little fear of degradation from pollution. The oil medium seems to form a protective matrix that shields colorants, to a significant degree, from harm. A pigment that might fade in short order if it were applied as a pastel, can be more light stable if it is ground into oil and applied as a paint. Varnishes applied to the surfaces of paintings may be less useful as protection from chemical protection, as it is for homogenizing the appearance of the various pigments that comprise the image that the artist created. Colors like black

tend to be so absorbent that they may look matte in an unvarnished painting and may not harmonize with the other colors. A well-applied varnish can bring the entire image into better view. Application of varnish is not without problems, however.

Time-tested varnishes, such as damar, are excellent for increasing the visual legibility of the painted image, but they yellow badly and must be removed, eventually, if we want to be able to enjoy the painting. Since traditional varnishes cross-link as they age, they become increasingly insoluble and more difficult to remove. (In cross-linking, molecular bridges between the polymer chains are formed, which make them more durable and less soluble.) The solvents that may be required for their removal may affect the fatty acids in the paint and change its aging potential. Modern varnishes show greater stability and enhanced long-term solubility, but they are more difficult to apply. The greater availability of anti-reflective glazing materials (which cancel the reflection of incoming light) offers an alternative to varnishing in some situations and it also affords the painting greater protection from accidental injury, but it must be asked, when can glazing be placed in front of a painting and what can be expected to happen?

The use of glazing in front of paintings done with acrylic paint is very useful, since the surface of such paintings is full of holes, left by the water that evaporated out of the paint. These holes will fill with grime and cleaning them out is all but impossible. The important thing to remember is the fact that the paint must not touch the glazing, especially if it is sheet acrylic, since the paint may stick to the glazing material and its removal will be very problematic, especially if both paint and glazing are forms of polymethyl methacrylate (the technical name for acrylic in either the paint or sheet form). Since the acrylic paint dries so quickly, there is no problem with framing it behind well-spaced glazing material, shortly after the painting is completed.

An oil painting should be given six months to a year for the paint to dry, depending on the thickness of the paint layer, and it should be kept in a situation that allows oxygen to enter the oil and contribute to the formation of the polymers that strengthen the paint. Light also plays a role, so drying in the light and air is helpful. If the painting is glazed after this period, what can we expect to happen? There would be less oxygen available to the paint to continue its oxidation and some of the volatile portions of the paint may have less potential for

drifting off into the surrounding air. Roughly speaking, the drying of the paint may be slowed. Since it is widely understood that rapid drying is one of the major problems with oil paint films, this slow drying should not represent a problem. Painting students are properly taught to paint “fat over lean,” since thick (fat) layers dry more slowly than thin (lean) ones. This technique ensures that the under layers will be more dry and contracted than the upper layers and the paint film will be less likely to crack. Ignoring this dictum can lead to thin layers over thick ones and the cracking of the rapidly drying thin (upper) layers as the thick layers beneath continue to dry and contract. The other consequence of glazing would be retention of oil volatiles near the painting.

The presence of the gases, coming out of the paint, is likely to be highest at the front of the painting, where they should not affect the paint, since their concentration within the paint is higher, still. If the painting has been properly prepared, with a puncture-resistant backing board screwed to the back of its stretcher bars, there will be little chance that the gaseous emissions from the paint will be able to reach the back side of the canvas. Rather, they are more likely to exit the frame through any gaps between the edge of the canvas and the rabbet wall of the frame. Such emissions may accumulate on the inside of the glazing, over time, and that may require eventual unframing, so that the glazing can be cleaned. Such cleaning of the glass will not entail added handling traffic for the painting and can be regarded as a part of the periodic unframing that should be part of the maintenance of valuable items.

Some may resist the use of glazing materials, with oil and acrylic paintings on aesthetic grounds. We are used to seeing such paintings without glazing and if they are well varnished, we can continue to enjoy that view. As we gain a greater understanding of the potential that varnish removal has for affecting the chemistry of the paint, protecting paintings with glazing in their frames is likely to become more widely practiced. Anti-reflective glazing material justifies its higher cost in two ways. It has minimal reflectivity, itself, and it can reduce the reflectivity of certain parts of the painting surface, making them easier to read in conjunction with the more matte passages of the work. The glazing material also protects the paint from impact and it is particularly useful when a painting is hung in a public space. Even in a home, dust, cooking or heating oils, pollen, and other airborne materials can collect on the surface of the painting and their removal must be undertaken with great care, even if the painting is varnished.

Paintings that have never been varnished, those with very vulnerable surfaces, such as matte areas and acrylic paintings, are all good candidates for protection from glazing materials incorporated in their framing. We are fortunate to be working in a time in which anti-reflective coatings are becoming available on glass, laminated glass, and acrylic sheet. These glazing options empower us to frame paintings with the benefit of glazing in

front and puncture-resistant backing boards behind, or with the even higher level of protection that sealed packaging affords. When self-destructive items are being enclosed, partially or wholly in frames, sorbent materials such as activated charcoal, organophilic zeolites, or sacrificial metals, enclosed in cloth or plastic, should be added to take up emissions that come from the art. This is less necessary with oil or acrylic paintings.

Since their paint films are not very harmful to the other parts of the painting, and the mitered corners of the stretcher bar members closes off the end grain of the wood, the painting offers little harm to itself. Giving the stretcher a coat of sealant, such as waterborne polyurethane, is always a good idea, if the painting is being restretched, but if the stretcher is functioning well, it is better left alone.

Preservation requires us to look critically at all of our strategies and designs. We have enjoyed paintings without using glazing in front of them, for centuries, and are likely to continue to do so. Today, the protection and visual advantages that glazing with anti-reflective materials have provided for works on paper and board can be extended to paintings on canvas, eliminating the need for varnishing some and protecting all. ■

*1. Jan van Eyck (ca. 1380/90 – 1441 A.D.)  
The work of van Eyck, epitomized in the “Ghent Altarpiece”, brought an unprecedented realism to the themes and figures of late medieval art ... His artistic prestige rests partly on his unrivaled skill in pictorial illusionism. The landscape of his Crucifixion, with its rocky, cracked earth, fleeting cloud formations, and endless diminution of detail toward the blue horizon, reveals his systematic and discriminating study of the natural world. Van Eyck’s ability to manipulate the properties of the oil medium played a crucial role in the realization of such effects. Metropolitan Museum of Art website.*

---

**Hugh Phibbs**, Preservation Editor, is the coordinator of graphics conservation services in the Department of Exhibitions and Loans, Conservation Division, National Gallery of Art, Washington, D.C. He has taught workshops for the National Conference, the AIC, PPFA, the conservation programs at Winterthur/University of Delaware, and the Smithsonian Resident Associates Program. He also compiled the matting and framing section of “The Book and Paper Group Outline.”