How to Examine an Antique Painting

by Peter Kostoulakos

Before we can talk about the examination process, an overview of how to handle an oil painting is necessary to prevent damage to the work and liability for the appraiser. The checklist below is essential for beginning appraisers to form a methodical approach to examining art in the field without heavy, expensive equipment. Although the information may seem elementary for seasoned appraisers, it can be considered a review with a few tips to organize your observational skills. When inspecting an antique painting, as with any antique, a detailed on the spot, examination should take place. A small checklist covering composition, support, paint layers, varnish, and frame is necessary. Also, a few tools such as a UV lamp, magnifiers, camera, soft brush, cotton swabs, and tape measure are needed.

A "behind the scenes" investigation can tell you a great deal about the painting. The name of the artist, title of the painting, canvas maker, date of canvas and stretcher, exhibitions and former owners are some of the things that may be revealed upon close examination. Document your examination with notes and plenty of photographs.

Handling Art

Older paintings should be thought of as delicate babies. We need to think about the consequences before we pick one up. To prevent acidic oil from our skin to be transferred to paintings and frames, we must cover our hands with gloves. Museum workers have told me that they feel insecure using white, cotton gloves because their grip becomes slippery. I tried the ceremonial gloves used in the military to grip rifles while performing. They have small rubber dots on the grip side of their gloves to help hold on to their rifles. But those rubber dots smudge gold leaf and other metals. The heavier gloves that provide a good grip are much too bulky for handling art so I use the same nitrile gloves I use for cleaning paintings when mild solvents are being used. They are light and fit close to your hands while providing a good grip. The one draw back is, they don't last as long as the cotton gloves. Gloves are very important to safeguarding art, so experiment to find what suits you best. Be careful not to press into the paint surface at the edges. This can leave cracks that are too small to be seen by the naked eye.

When art must be removed from a wall, be sure the area is uncluttered and you have a stable, padded surface upon which to place the painting. One hand should be firmly placed at the bottom of the frame and the other on one of the sides. Lift the painting slowly and be sure the wire is not caught on anything before you pull away from the wall. Check the wire and other

hardware to be sure nothing can poke through the canvas or scratch a panel. If the painting is too large for one person, be sure there is someone there to give you a hand. Carefully place the work on the padded surface. Many owners don't want dust covers removed from the back of the work for appraisal purposes. Unfortunately, this covers and prevents a great deal of information from being recorded.

Aesthetics

The first part of our checklist examination deals with composition: this is both objective and subjective. Some compositions are in more demand than others. What we like and enjoy are not always the best sellers, thus they do not always have the highest values. Keep in mind that paintings, especially landscapes possessing bright, cheerful colors will usually command the highest prices because of popularity; a portrait or figure painting of a woman will usually sell faster than a portrait of a man unless he is famous, elegantly detailed, surrounded by character revealing objects or important documents, or painted by a famous artist; and portraits of children, alone or grouped, seem to be enjoyed by many.

Size

Size must also be considered at this time. The small and medium sized easel paintings are more practical in today's home, thus more marketable than the larger full-length portraits and landscapes usually seen only in museums and public buildings. Bigger does not always mean larger prices. Usually, there is less demand and desire for very large paintings.

Support

Next, turn the painting over and examine the *support*. This is the material on which the picture was painted. The most commonly used supports were, and still are, fabric (linen), wood, and a combination of the two. Other types have been used but can present deterioration problems. Problematic supports include academy board, acidic paperboards, and crate wood.

Examine wood panels for wormholes, cracks, sealing material, hardware, and, of course, any markings or labels that aid in revealing provenance. If the back of the panel is not properly sealed, moisture will be absorbed from humid atmospheres causing swelling and, in arid conditions, drying and shrinking will occur. Moisture absorption is detrimental to wood. It causes a *concave* warping that, in time, forces the paint layers to lift and push together in a "tenting" formation. Drying out causes a *convex* warping movement that pulls at the paint layers, causing them to crack and separate thus producing lacunae (gaps) in the original composition. Both conditions can be treated but the process requires a great deal of time and expense.

Changes in environmental conditions create a back-and-forth movement most inflexible, antique paint films cannot endure for too long a time. The atmospheric changes discussed here are not necessarily geographic. Paintings from a hot, dry attic to a humid basement, or those hanging near a door or over a fireplace, undergo severe atmospheric changes. These changes will move the support and paint, which will eventually damage the structure and distort the image.

Panels that are held fast to the frame by nails, screws and mending plates are in danger of cracking, or *checking*, because wood panels, especially thin ones, have a tendency to move. Securing the panel tightly to the frame to discourage movement will do more harm than good. Remember, it is the lack of sealing material on the back of the panel plus the changing atmospheric conditions that cause the panel to *warp*. Placing extra strain on the panel with the wrong hardware will cause it to check or split completely along the grain. If tension is obvious, conservation work will be required and must be a consideration when determining the value of the painting. Panels should be fastened with two *spring clips* (thin flexible metal strips available from frame hardware suppliers) running parallel with the wood grain.

Pictures painted on fabric will require a secondary, or *auxiliary support*. This is the wooden frame the canvas is stretched over and tacked to. Basically there are two types of secondary supports —*strainer* and *stretcher*. The *strainer* is the older of the two and, for its purpose, is very poorly designed with fixed joints held fast by nails and/or *dowels*. The *half lap*, or *shiplap*, was the simplest and most common strainer during the 18th century. Variations of the *mortise* and *tenon* were also used at that time but were not common until after 1800.

The *stretcher* appears in America in the late 18th century. This is a much better design because the joints are expandable, which helps keep the canvas taut. This usually reduces the amount of conservation work because a taut canvas doesn't wrinkle and distort the paint layers.

Stretchers have two triangular wedges, or *keys*, placed in the angle of each corner. As the keys are tapped in, the corners separate slightly and the canvas support becomes taut. When the humidity and temperature change, the whole painting moves. A rise in humidity causes the support to swell and become slack while a lowering humidity causes it to contract. This constant expanding and contracting of the canvas may eventually lead to a warped stretcher, torn canvas, cracked paint and paint losses. This action may also loosen the keys and cause some of them to fall out. When keys are missing, check the bottom of the painting between the canvas and the auxiliary support (stretcher or strainer). This area seems to be a catchall for other debris and, if objects are allowed to remain, they may damage the painting. I have found pine needles, berries, chicken manure, dirt, stones, paper and even a large diamond ring in this space. The diamond ring was placed there by the original owner. When she passed away, one of her daughters inherited the painting. For many years the daughters thought their mother's diamond was lost forever. The daughter that hired me to clean and restore the painting said her mother started hiding things around the house as she aged. I think she placed the ring between the stretcher and canvas with the top of the diamond resting on top of the stretcher. Because of the slight

vibrations every house has, it fell below and out of sight. So, for a dozen years they had no idea their mother's diamond was hanging on the wall. They were pleasantly surprised!

Missing keys should be replaced as soon as possible to keep the canvas taut and wrinkle free. The keys should be lightly tapped into place taking care not to touch the canvas or cause a sudden shock to either the canvas or the paint layers. If an aged canvas is stretched too quickly it will tear. This seemingly simple procedure must be done with the utmost care so it should be left to a conservator. If you decide to tap them in, be sure to slide card stock between the canvas and stretcher bar to prevent the hammer from coming into contact with the canvas.

The most commonly used corners for stretchers are miter, half-miter, and butt-end. The miter corner is made by placing two 45-degree, slotted angles together creating a perfect 90degree corner. The butt-end corner is comprised of two 90-degree, slotted angles butting together to make a 90-degree corner. The *half-miter* is a combination of the miter and butt-end. It appears to be a butt-end from the side facing the viewer, but the side hidden by the canvas is mitered. With the miter corner the expansion and contraction movement is even, therefore superior to the uneven, side movement of the butt-end corner. Because the butt-end has an uneven movement, it can cause wrinkles or draws in each corner of the canvas. If the draws are allowed to remain for a period of time the paint layers will harden to their form, become difficult to remove, and may disfigure the painting. The auxiliary support should be beveled on the side that faces the canvas so the innermost part of this wood frame does not crease the canvas. I have seen relatively new paintings with stretcher creases because the stretcher was not beveled enough. If a painting is stored, leaning against a wall with the painted surface facing out toward the viewer and the back against the wall for any length of time, the painting may slacken and touch the stretcher bars. In a short amount of time a crease will start to form. I always recommend that the painted surface face the wall if it can be done without placing undue pressure on a fragile frame. If the paint surface is fragile, it must be stored face up on a flat surface to prevent losses.

The most common support is linen. After it is stretched, sized with animal glue, and primed, it is usually referred to as *canvas*. When the artist prepares a canvas as mentioned, it is referred to as *artist primed* or *artist ground*. When the canvas is prepared commercially it is referred to as *preground* or *preprimed*. Commercially prepared canvas was often stenciled or stamped by the manufacturer and/or seller. *Stencils* are helpful in authenticating date and place of creation. As canvas makers and sellers changed locations they changed their stencils. Therefore, if the selling date of the canvas can be established by tracing the stencil to a specific location, a starting date for the paintings creation is also established. In other words, if an unrestored painting is signed and dated by an artist who died in the year 1850 but has a stencil on the back used by the manufacturer and/or seller from 1875–80, 25–30 years after the artist's death, the painting is an obvious fraud.

The physical structure of the canvas should also be examined. The inside edge, partially hidden by the frame, is called *tacking edge* because it is the edge used to secure the canvas to the

auxiliary support. Wooden tacks will usually be found on works completed during colonial times. Before the 18th century wrought tacks were a luxury few artists could afford.

The tacking edge reveals quite a bit about care in preparation. If it was left raw, or unprimed, most likely it was prepared by the artist. Also, if *primer* is on top of the tacks, it is most likely artist primed. If the canvas has been primed and the tacks are not covered with primer, it was most likely prepared commercially. When tacks fall out or placed too far apart the canvas support can develop something called *scalloping*. This is a result of fabric shrinkage between tacks. This places a great deal of tension at the tacking point. Permanent damage and disfigurement may result if the condition is left untreated. The older the painting the more dried out and vulnerable the canvas will be. Trying to stretch out the scalloping will tear the canvas at the crease on the tacking edge; therefore its treatment is for experienced hands.

When the original tacking edge is missing, the back of the canvas appears to have a brownish coloring, and the edge is covered with tape—the painting has been *lined*. Lining is the process of attaching a new piece of raw linen to the back of the original canvas. This process is used to strengthen a weak support, repair tears, and bind loose pigment. Canvas and oil paint are organic materials that break down with age and, to secure longevity, must undergo the lining process at some point in time.

Paint Layers

The *paint layer* really consists of several layers of paint: strong layers, weak layers, flexible layers, brittle layers, etc. Its condition depends on two major things: how the artist constructed the total painting; and how the painting has been cared for since its completion.

Cracking and paint losses are often very apparent but sometimes an *ambient light* exam isn't enough and a careful examination is necessary. When possible, hold the painting up to a light source such as a lamp, window, or direct sunlight. The painting should be far enough away from lamps or windows to avoid contact but close enough to allow *transmitted light* to show through the cracks. Handle the painting carefully! Sometimes sections of paint are extremely loose—held only by a thread—and improper handling will result in paint loss. Oil paint moves during the drying process, shrinks, and becomes brittle with age—thus *age cracking* is unavoidable and a display of antiquity that should be secured but not disguised.

The type of cracking you should be concerned with is cupping, curling, lifting and separating from the support and/or ground. A light source placed at an angle to the painting will create a highlight and shadow pattern wherever these irregularities exist. This is known as *raking light* illumination and, in addition to being a quick and easy examination, it is very informative. If the raking light reveals this type of cracking and separating, the best remedy is to line the painting with an adhesive that will consolidate the defective areas.

Protective Layer

Oil paintings are usually protected from dust, grime, soot and other environmental conditions with varnish. When varnish ages it becomes brittle, it cracks and it turns from a transparent coating to an obscuring yellow-brown coating: it dulls the paintings color, reduces visual depth, and loses its ability to protect the painting. A bluish white cloudiness, called *bloom*, is another common varnish ailment. It is caused by minute fractures and further deteriorated by moisture. When varnish discolors and cracks it destroys the appearance of a painting and it loses its effectiveness as a protective coating. This discouraging condition is as temporary as the varnish coating itself. Picture varnish can usually be removed without too much difficulty by a paintings conservator. A day or two after varnish removal, a fresh coat of varnish should be applied to ensure future protection as well as restoring the natural coloring and visual depth to the painting. Newer mineral spirit acrylic varnishes (MSA) do not darken like the natural resin varnishes like damar and mastic. Some unscrupulous people use UV masking varnishes to hide restorations. Some will, after applying the masking varnish, add some minor retouches to less important areas of the painting as a way to make the examiner feel more comfortable than looking at a very old painting showing no signs of restoration. UV masking varnish has a heavy greenish, greasy, milky color that is sometime difficult to detect.

Framing

The last part of our checklist examination will deal with the frame for it is the last, and most neglected, step in the preservation of a painting. Framing is usually thought of as a decoration only but its primary function is to *house* the painting. Some of the newer frames are not strong enough to support the painting and, unfortunately, the reverse effect is true—the painting supports the frame. Antique frames are usually built heavy enough to discourage warping of the auxiliary support thus eliminating tears and cracks produced by such movement.

Check the *screw-eyes*. They should never be attached to the support. Some artists do this for exhibition purposes and somehow they remain to do a great deal of damage to the picture. Imagine the effect of a light, fragile stretcher supporting the weight of a heavy frame! The proper size screw-eyes should be firmly attached to the *frame only*! The total weight of the framework will determine a suitable gauge picture wire. If the wire appears to be old and weak, have it replaced. I have seen too many paintings very badly damaged because of an attempt to retain original screw-eyes and wire. What a shame! The placement of the screw-eyes or *D-rings* and the length of the wire should allow the painting to hang slightly forward. This softens glare, keeps some of the dust from accumulating on the surface, and lessens stretcher creases when the canvas becomes slack due to rising humidity levels.

And finally, before placing the painting back on the wall, check the picture hanger to see if it is firmly planted.

Examination Aids

A UV (Black Light) lamp, magnifying glass, and small portable microscope aid the appraiser and conservator during the examination process. The UV lamp is a great aid but it is not fool proof. Appraisers and conservators need to understand how artists apply paint layers before they can properly use a UV lamp. Not everything that fluoresces blue-black is indicative of overpaint, retouches, or a bogus signature. Many times signatures are added at a later date, over a varnish layer, when the painting is ready to leave the studio. A signature like this may fluoresce and be mistaken as fraudulent, when in fact, it was added by the original artist long after the painting was completed. The first paintings I purchased by a very talented Massachusetts artist had multiple areas in the sky and trees that, when placed under UV, fluoresced very dark. He painted out the tops of trees and painted in more clouds after the painting had dried. Understanding how artists create art helps to interpret UV findings. As retouches and overpaint age, they become more faint and harder to discern. I use UV light as a guide, not as an absolute.

At one time a 10-power loupe was enough to see the dots of commercial, halftone prints but today's commercial prints have a very fine dot pattern and a small, portable microscope of 50x to 100x is necessary. Several years ago, an appraiser friend, Judy Vance, told me about a microscope available at Radio Shack. At that time they were around \$12 to \$15. This was helpful to me when I was asked to give an estimate to clean a painting that was just purchased at an antique shop. It was listed as an oil painting and it looked and felt very much like an oil painting, but it didn't look quite right. It was extremely dirty and had a slightly raised texture following the brush marks. When I turned the painting over, I told the owners that it was either lined on cotton canvas or it was a very well doctored print glued to the canvas. I took out a 10x loupe to examine it for halftone dots – a sure sign of a commercial reproduction. Not one dot was visible. Then I looked through the small 50x to 100x microscope and it revealed small yellow, magenta, and cyan dots all of the same size. Because the frame had a hole on the right and left molding, I told the owners that it was probably produced in a decorator's shop for use in a hotel that needed to bolt the frame to a wall. They were unhappy to hear that it was not an original oil painting but, because they liked the image, decided to keep it anyway. The owners were able to look through the microscope and see the dots for themselves so they knew for sure it was a print.

A small soft bristle or sable brush can be used to carefully remove dust in order to see a passage more clearly, and a cotton swab with a little spittle can help remove grime from the paint surface. Most appraisers already realize the importance of a camera but, in addition to high quality images of the subject matter, high-resolution images of labels, stencils, stamps, writing and signatures can be easier to distinguish when view on a computer display. Save and file for

future use. For a future assignment, a painting may not be dated but it might have the same manufacturers stencil as one that is dated and in your files. Hard to read, or partial signatures may come to light when compared to more discernable signatures by the same artists in your files.

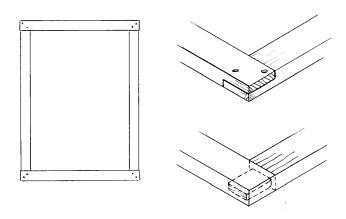
In Summary

Examining paintings is a life-long learning experience. Look, be curious, and ask lots of questions. I have been doing this for thirty-five years and I am still asking questions. Never feel so confident that you stop inquiring. Talk to artists, dealers, conservators, curators, students, and anyone else working in the art business. Examine each piece as a beginner would – unsure and feeling as though you are missing something. Have a checklist and follow it. Many times I would have forgotten something if I didn't have a list to jog my memory.

Even if you're not an artist, read books and magazines about how artists use their materials. Take notes on artists and the materials they used at specific times in their careers. This might help you date a painting or know whether or not it can be safely cleaned.

Finally, build a network of people in specialty areas that don't mind a few questions every now and then. No one person can know everything and everyone is a teacher and a student.

ILLUSTRATIONS

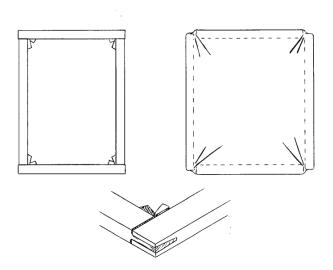


A.

LEFT - Strainer auxiliary support. Joints held fast.

TOP RIGHT - Half-lap joint used for strainers.

BOTTOM RIGHT - Mortise and tenon joint used for strainers.

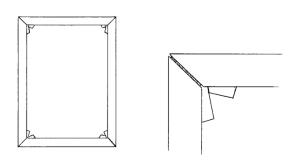


В.

LEFT - Butt-end stretcher.

RIGHT - Draws created from uneven expansion of butt-end stretcher.

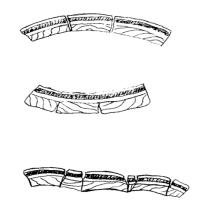
BOTTOM - Open mortise and tenon joint with keys.



C.

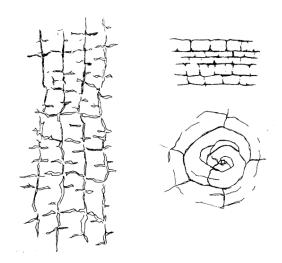
LEFT - Miter stretcher with keys in all four corners.

RIGHT - Even expansion of miter corner. Keeps canvas taut and free from draws.



D.

TOP - Loss of moisture (dryness) causes panel to warp backwards—away from painting. MIDDLE - Moisture present. Dampness causes panel to warp towards the paint layer. BOTTOM - Pressure on panel causes checks and splits. Results from attempts to straighten warped panel or from panel being firmly attached to frame.



E.

LEFT - Traction cracking caused by artist's technique and materials. Usually when a lean paint layer is applied over a fat (oily) paint layer. The thin layer dries faster and cracks with the drying movement of the fat layer.

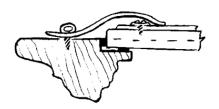
TOP RIGHT - Mud cracks appear when paint is applied too thickly.

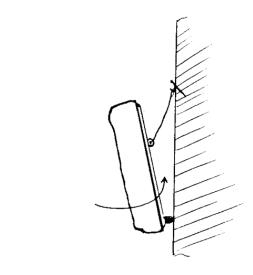
BOTTOM RIGHT - Spiral cracking caused by a knot in the canvas or by bumping or touching the painting.



F.

Raking light illumination: A light source parallel or at an angle to the painting's surface creates a shadow and highlight pattern from any irregularities present.





G.

TOP - Painting should be attached to the frame without nails. Spring clips attached to the frame apply light pressure to back of canvas.

BOTTOM - Painting should hang slightly forward with picture hangers firmly planted in wall. Bumpers are placed on bottom of frame to act as a protective cushion for both wall and painting.

Black Light Chart

Longwave (UV-A) Blacklight Blue (BLB) Examination * to be used as a guide only, not an absolute

Traquelure Dark, but even in appearance - consistent or paint layers Dust, Grime, Fly Specks Dark blotches, streaks Erased Signatures Very faint writing Signatures, dates, copyrights Erasures Smudged area / dark Signatures, dates, copyrights Erasures Smudged area / dark Signatures, dates, copyrights Erasures Smudged area / dark Signatures, dates, copyrights Lining Compound (wax-resin) Bluish-white Usually unvarnished madder (purpurin reddish color) Madder (purpurin reddish color) Salmon color fluoresces fainity Masking Varnish Heavy greenish, greasy, milky color paint layer; deceptive Moisture Stains Dark lines Darks lines around edges of stain Mold Bright yellow to orange Paint, new Dark blotches / black or plum New signatures, retouches, overpainting louds Paper, new Bright bluish-white Paper, old Faint whitish, yellowish, or grayish Picture Putty Dark bluish-violet Signatures, recently painted over orgayish Picture Putty Dark bluish-violet Stans and Cracks in wood panels Dark lines Study under white light magnification Pams and Cracks in wood panels Dark lines Study under white light magnification Varnish Yellow-green (overall) Modern and old varnish before 1900; thinner coatings fluoresce more Varnish, older with linseed oil Bluish haze over surface Varnish, new synthetic Hazy or milky gray Synthetic varnish may appear similar to masking varnish Verdigris Yellow or orange Naturally occurring corrosion found on copper panels White Lead or Naples Yellow Bright white Usually unvarnished zinc white	Material / Pigment / Process	Appearance /	Comments	
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White Lead or Naples Yellow Bright yellow Recent retouches	Verdigris	Yellow or orange	Naturally occurring corrosion found on	
			copper panels	
Zinc White Bright white Usually unvarnished zinc white	White Lead or Naples Yellow	Bright yellow	Recent retouches	
	Zinc White	Bright white	Usually unvarnished zinc white	

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