**SCIENTIFIC ANALYSIS OF PAINTINGS**

Scientific testing nearly always revolves around questions of identification or authenticity. While it is still important to visually examine and identify a picture; with the skill of fakes today, it is vitally important to have it scientifically tested to establish that it is not a clever fake, and often to establish its age. The authenticity process is binary – visual and scientific testing– they cannot be separated.

This omission was responsible for the demise of M. Knoedler Gallery, arguably one of the most respected and important galleries in the world, since its founding in 1846. Their fatal mistake was not performing scientific testing to truly establish that the paintings were indeed Rothko’s; they thought their connoisseurship was adequate, and it was not.

In fact, the scientific analysis which unmasked the fakes and paintings with very serious condition issues is a useful guide for the most important elements of the field.

The easiest (and some of the most important) techniques are the use of infrared light, and ultraviolet for a preliminary examination. Often, they will disclose previous restorations and incipient damage. Both are instruments so easily obtained, that they are often stock with art dealers. BUT BEWARE. They are so simple to use that most users fire them up without having been trained in their use before analyzing their results, and think they know what they are seeing when they are not. Remember, the road to hell is paved with good intentions.

After a preliminary UV/IR exam, the painting’s components need to be tested; meaning the canvas, gesso (ground), and paint. Varnishes are so often replaced that, in my experience, they are often unreliable indicators; even old ones.

Small canvas samples can usually be taken from the edges to test with thermoluminescence. AGAIN BEWARE: there are many thermoluminescence labs which, while they can get accurate readings, but do not know how to interpret them.

Next, microscopic samples are taken of the actual paints which, with testing, reveal if the paints were in use at the time of the painting’s execution: IT IS EXTREMELY IMPORTANT THAT THE PAINT SAMPLES ARE TAKEN FROM ORIGINAL PAINT AND NOT LATER RESTORATIONS – which will badly skew results. Testing the medium will also confirm exactly what it is; a print, acrylic on paper, etcetera. This speaks to value as, with few exceptions, a print is generally not as valuable as a painting.

But at the core of this, is retaining a scientist skilled and experienced in fine art analysis. It is often useful for the scientist to be assisted by a conservator.