

Revealing Retouching - Ultra Violet Florescence

How It Works

Ultra violet radiation is just like visible light, except that its wave-length is too short to be within the range detectable by the human eye. When it hits an object, UV energy will be absorbed or reflected to different degrees. In the case of some substances, it will 'excite' the electrons orbiting the atoms, which will use the energy to shoot away from the nucleus. As they drop back into their usual position, they release energy; this will be less than the energy in the original beam of UV because some has been used up, and often it will fall within the range visible to the human eye. This means that a colour is seen emanating from the object, which is what we know as fluorescence.

What It's For

Identifying Old Restorations



Different paint media responds differently to UV radiation. Overpaint and retouchings, if carried out in a medium different to that of the original painting, may be invisible to the naked eye, but will be seen clearly under UV radiation. This is useful for conservators, who wish to identify old restorations on a painting prior to treatment. Conservators purposely choose retouching media that is different to that of the original paint to ensure that the condition of a restored painting cannot be concealed from



potential buyers (left hand picture of a Turner in UV; right hand picture: in normal light).

Examining Old Varnishes

Different varnishes react differently under UV radiation. Aged resin varnishes often fluoresce with a yellow colour, allowing a conservator to see, for example, whether any areas have been missed during the treatment to remove a varnish.

Identifying Pigments

UV radiation can be shone onto cross sections under a microscope. Some pigments, such as greens based on copper oxide, quench UV radiation completely, so that they appear black. As pigments can be specific to certain times or places, this may help with attribution or dating.