

THE IMPRESSION OF COLOR

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Impressionism was named for capturing the impression of a subject (Denvir 1). In an age when a camera could accurately capture an environment, impressionists attempted to capture the feeling of a scene - to provide more detail than could be captured by the camera (Denvir 15). Lighting and color figured prominently. The technique was invented by Claude Monet with his painting *Impression*. Claude Monet went on to make other paintings in the same style, including thirty of the Rouen Cathedral (Chen [The Tech](#)). Each version differed in color and was created to represent a different time of day. The entire series helps us understand how color can be used as a medium to change the impression of a scene. This emphasis on color means that it is important to recreate color exactly when reproducing a painting. Ideally, we would want to recreate the conditions in

which the artists painted the painting. The closer those conditions are recreated, the more the artist's vision will shine through.

The Museum of Fine Arts in Boston has the direct sunlight edition. It is the most colorful of the series, as the morning sun is shining on the cathedral. The light makes parts of the cathedral glisten in warm orange light, while other parts are still a cool blue, reflecting the morning sun. Monet worked with the effects of the atmosphere on paintings, such as fog and snow (Denvir 23). In addition, Impressionists were the first to paint their shadows in a color complementary to the object (Denvir 1). Monet was also the first to create a series of paintings all on the same subject which were considered to be all equally valid (Denvir 26). Expression and emotions guided his hand, and his use of color was descriptive and analytical (Denvir 57). In doing so, Monet broke the old emphasis on the arbitrary and old concepts of immutable form (Denvir 27).

FEELINGS OF COLOR

People's reaction to color is based on the interactions between colors. The relative change between the colors is what is appealing to our eye. When there is too much color, it is distracting and unpleasing; we cannot get a sense of the picture. Monet knew this and limited his color pallet (Jacobson and Bender).

It is the visual context in which colors are placed that guides our interpretation of color. Rembrandt did not use gold paint to create a gold helmet. Instead he achieved a gold effect from controlling the nearby colors. If you were to measure scientifically the amount of light that a black piece of paper was reflecting outdoors it would be more than a white piece of paper indoors. How are we able to identify that one paper is black and the other is white? Wandell, in his book *Foundations of Vision*, believes that we see by collecting and compositing different visual inferences about the world. It is the context of the color, not the absolute scientific representation of the color. This effect is relatively uniform from person to person (Jacobson and Bender).



THE VISIT EXPERIENCE

The most famous paintings are owned by the largest and most prestigious art museums. Large art museums are interesting places. The ticket clerks look like young artists who are excited for the chance to work in an art museum, even though all they do is sell tickets. The minimum-wage guards with their sloppy uniforms huddle in packs talking to each other or in the corner using their cell phone. On some evenings the museum opens for special benefactors who drink and socialize with others who are in the same tax bracket. The curators in sharp suits are the cultured individuals who spend their life looking after the works of art and chasing after money to pay their salaries. During the day, the museum is open to a stream of tourists who try to absorb some of the

experience on their way to the next guide book stop. School groups travel in packs, checking out the Middle East armor and Egyptian masks.

Your experience of the artwork will also be affected by the constant sales pitch from the museum. In my count, the museum had two cafés, with a third slated to open, and a restaurant with \$30 entrées. There are two stores within visual distance of each other, including one next to the gallery in which the painting is displayed. The stores sell books, coffee mugs, and postcards with your favorite artwork. You can even buy print-on-demand reproductions of the art work, including framing, delivered right to your door.



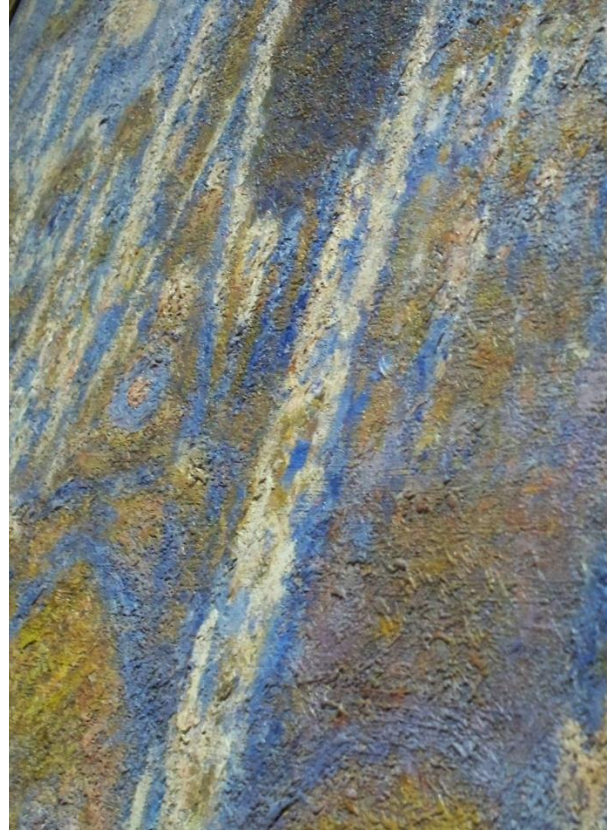
The museums' facilities were over a period of time, and interact differently with the art. The old, original section is a work of art itself with a grand staircase and bright murals. The section from the 1970s is broader and has a curved glass skylight and an escalator which feels out of place. The galleries are flexible and easily reconfigurable. A brand new section is almost open and was designed to be minimalist in order to highlight the art work, as well as to include a large courtyard for more parties.

LIGHTING

Lighting plays a large role in how you experience the painting. The look of the painting can be significantly altered by the lighting. Ideally, the curator should strive to light the painting to match the conditions in which the painting was made. This is not possible, however, for this particular painting because it was painted outside (Denver 1). Painting outside was a trademark of the impressionist style. Displaying the painting indoors makes the colors look dull and the effect of the sunlight hitting the cathedral is diminished. However, bright lights hitting at just the right angle can help to improve the look.

BRUSH STOKES

If one were to look closely at the painting, one would notice that the paint is splashed on. When one looks at a close-up of the painting, it is hard to see the details of the image; the paint just seems to melt together in an incoherent mess. This style is a trademark of impressionism. The paint, in thick strokes, was applied when wet, similar to the fresco techniques of the early Italians (Denvir 20). The brush style of impressionism is in contrast to earlier styles, which sought to seek to minimize brush visibility. The strokes are combined and reconstructed in the reader's mind (Denvir 26). This notion that viewers had to participate in interpreting art was completely new and ground-breaking (Denvir 26). Contemporary art aims to include the viewer in interpreting it. It is not an exact recreation of a scene.



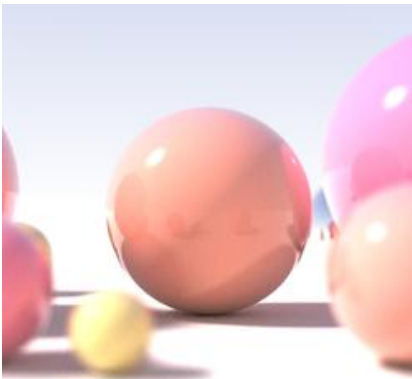
When you look at a recreation of a picture, you cannot stand on the side to see the 3D nature of the brush strokes. The reflection of light will not change as you move relative to the painting. You cannot lean in closely to study the painter's strokes.

DIGITAL PROCESSING

Today, we have several processes we can do on a computer to produce a similar effect. I can easily change the hue of a photo in Photoshop or similar programs. I tried it out on one of Monet's cathedrals. Some modifications, such as making the cathedral more yellow would be hard to detect. However, these tools can be quite crass if they are not used carefully; I was able to create a purple cathedral underneath a green sky. Increasing the saturation makes the painting more pleasing to the eye.



A related technique is called High Dynamic Range imaging. HDR takes several photographs at various exposure lengths and digitally composites them. This technique can produce a very vivid, if somewhat hyper-realistic looking image. In some way, HDR is just a modern version of expressionism. The photos do more than realistically portray the scene; they give a feeling to the scene through the use of color.



Ray tracing is a process similar to what Monet produced. It is a computationally intensive process which traces a line from each light source to each point in the picture. It produces photos which look photo-realistic since shadows and reflections are produced perfectly. Ray tracing represents the opposite of impressionism since it seeks to recreate reality exactly. However, both work through the processing of light and color.

DIGITIZING

In order for a copy of the painting to be made for the internet or merchandise, the picture must be converted to a digital file. This process is critical to provide the best experience. A camera is set up to take a picture of the painting. As described above, lighting is very important. Cameras usually

need more light than people do. In addition, barrel distortion from the lenses is an issue. Barrel distortion will make straight lines on the picture look curved. This can be minimized by selecting the proper lenses. If that is not possible, some processing can be done on a computer, although this processing can result in a loss of quality. Digital camera can only recognize a certain amount of points or pixels in an image. Some detail will always be lost, although cameras are getting better. The museum should plan on reshooting works every 5 years. The photo should be taken in a RAW format so that the camera does not process the image. Instead, a technician should process the image on a computer. Here the technician can adjust the color settings to match what he sees.

CALIBRATION

Once an object has been properly digitized, the image must still be displayed correctly on screen. In a television store, you will notice that the colors look differently on each television, even though the screens are showing the same signal. For impressionists, especially Monet, color is the focus of the work, and thus must be recreated correctly. In addition, the screen must be calibrated to the room it is in. In dimly lit rooms, the backlight can be turned down, whereas in bright rooms, more backlight is needed to offset the brighter room (Duran [LCD Buying Guide](#)). In a bright television showroom, the brightness of some televisions might be turned all of the way up (How To). This level of brightness makes the television stand out in the showroom, but does not look right in a living room. Some displays have special modes which increase the saturation of a picture. For example, "sports" mode will make the grass look greener than it does in real life (Duran [LCD Buying Guide](#)). This mode might be fine for a sporting event, but in other cases you will want a reproduction of color similar to what the director chose. The color temperature needs to be set, because the sun's light is different in bright daylight from the light out at sunrise or sunset. Humans do not notice the effect much; however digital recordings will reproduce the differences. In addition, the color value should be set by having the screen display color blocks while you tune the settings to match a color sample. If your color settings are extremely wrong, you will get the series of images included above where the cathedral looks completely different from intended.

If the picture is ever printed, such as by the MFA's Print on Demand service, or for this paper, then the printer must also be color-calibrated for best results.

CONCLUSION

Achieving color consistency is not trivial. Although it is impossible to exactly recreate the conditions in which the artist created a painting, lighting conditions should approximate what the artist saw. Viewing a digital version is even less exact, because variations in how the image is digitized, stored, and displayed all play a role. It is even more critical to get the color right with expressionist paintings, where color and light are featured. Monet made thirty almost identical paintings made at different times of day and under different lighting conditions. We should not display them so that they all look the same.

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PICTURE CREDITS

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